



September 4, 2019
16405

Ms. Jenn Curtis, Planner
Town of Windham Planning Board
8 School Road
Windham ME, 04062

Major Site Plan Submittal – Comment Response
Maine Department of Corrections – Windham Facility, Phase II Renovations

Dear Ms. Curtis:

Thank you for your recent review comments via e-mail. We offer the following responses for consideration and attached supporting plans and documentation. For ease of review, we have restated the review comment followed by our response in bold.

Response to Review Comments:

- A photometric plan that includes property boundary lines.

Enclosed are the lighting cut sheets and photometric plans. Due to the size of the property, the photometric analysis did not extend out to the property lines since the foot-candles dropped off to zero well before the property lines.

- All non-residential uses in the I zoning district must provide two (2) square feet of open space for everyone one (1) square foot of floor area. The applicant should quantify the floor area and open space on the property.

Summary of the building floor area to open space.

- Wrap up response to comments. See comments from Mark Arienti, attached. After Mark sent his comments, I brought his attention to the DEP and Army Corps permits. He may have additional comments.

Attached is a separate response letter and supporting documentation addressing Mark's review letter.

- Put the approval and signature block on the front of the full set, so that all of the sheets can be referenced in the approval. We would normally have the Planning Board just sign the Site Plan, but as there are multiple site plans and separate note sheets, we think this makes more sense. Alternatively, find some other way to associate or reference all of the plan sheets and notes on the signature sheet.

Agreed. We have added the approval block to the cover sheet.

- Reference the current DEP permits in the notes

We have added all known MDEP permits (including the recent permits) to plan sheet (CE004).

- Location, front view, materials, and dimensions of proposed signs together with method for securing sign

The MDOC has not decided on any particular signage at this time. Presently, there is a white and blue sign at the entrance of the facility that will remain for the short term. If permissible, we would ask that the Planning Board include a condition of approval that the MDOC provide details/drawings of any new site identification signage to the Planning Department for review and approval in conformance with the Town Signage Ordinance. This would allow the MDOC to decide on the type and location of a new site sign and provide the Town with a plan for review, input and approval.

- Boundaries of all contiguous property under the total or partial control of the owner or applicant

We have previously completed a boundary survey of the property which I will get copies to you by Wednesday. Attached is a PDF copy.

- Tax map and lot number of the parcel or parcels on which the project is located

The Tax Map and Lot number is provided on Plan Sheet 00CE004 (4th sheet of the set) in note number 2. We have also added the Tax Map and Lot number to the site plan.

- Vicinity Plan, drawn to scale of not over 400 feet to the inch, and showing area within 250 feet of the property line, showing approximate location of all property lines and acreage of parcels, and locations, widths, and names of existing or proposed building footprints

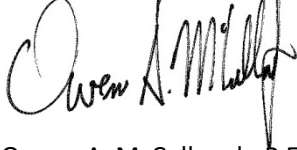
The attached cover sheet includes a vicinity plan drawn at a scale of 1" =200' together with an aerial overlay.

As always, please feel free to contract me with any questions or if you need additional information.

SEBAGO TECHNICS, INC.

Sincerely,

SEBAGO TECHNICS, INC.



Owens A. McCullough, P.E., LEED-AP
Sr. Vice President, Strategy and Client Development

OAM/Ilg
Enc.

cc: Dennis Morin, AIA – SMRT
Gary LaPlante, Director of Operations – Maine DOC



September 04, 2019
16405

Mark Arienti, P.E., Town Engineer
Town of Windham
8 School Road
Windham, ME 04062

Maine Correctional Center – Windham, Maine
Response to Town Engineering Review Comments

Dear Mr. Arienti:

Thank you for the review comments dated August 29, 2019 regarding the Site Plan Application for the Maine Correctional Center in Windham. We have prepared the following responses to the comments below for your consideration.

Review Comments

1. An erosion and sediment control plan has been provided that generally meets Chapter 500, but it should be augmented by including a construction sequence outline that indicates when stormwater infrastructure, such as detention basin and ponds, will be constructed, relative to the overall construction activities to ensure that sediment-laden drainage is not released to surrounding resources.

Response: The project is unique in that it is an operating prison that will remain operational during construction requiring that the work be completed in discrete phases to maintain security. The MDOC has retained the Cianbro Corporation to serve as the construction manager for the project who is currently in the process of obtaining pricing from subcontractors. Once those bids are obtained and evaluated, Cianbro will work with the project team to establish a detailed schedule for the project. When this schedule becomes available, we can share it with the Town for comment and general coordination. The plans and bidding documents require the contractor to address E&S throughout construction including dewatering and control of sedimentation discharge.

2. The project is located within the Town's MS4 urbanized area and will be subject to post construction annual stormwater inspections. A note needs to be added to the approved plan indicating the postconstruction inspection requirements.

Response: The Inspection, Maintenance and Housekeeping Plan has been revised to reflect and reference the MEPDES MS4 general permit requirements. Notation has been added to the plans.

3. The Stormwater Management Report does not include a spillway analysis for wet ponds #1 and #2 and detention basin in which the primary outlet is plugged that demonstrates that the pond berms and spillway are at sufficient elevation to withstand this condition. Please add to plan.

Response: The spillway analysis has been included in the comment response material.

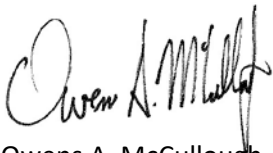
4. The details for wet pond #2 on sheets 413 and 414 show the bottom and side slopes below the permanent pool to be 18" of 8" riprap. The Maine DEP Stormwater BMP Manual indicates the floor and interior side slopes would be vegetated.

Response: Wet Pond #2 will require the reconstruction of an existing wet pond. The 18" of 8" riprap in lieu of loam and seed was added to the detail to prevent erosion of the side slopes and bottom of the wet pond due to the presence of groundwater seeping out of the side slopes. MDEP has reviewed and approved the details.

Please feel free to contact me if you have any questions or need additional information.

Sincerely,

SEBAGO TECHNICS, INC.



Owens A. McCullough, P.E., LEED-AP
Sr. Vice President of Strategy and Client Development

OAM/llg
Att.

cc: Dennis Morin, SMRT
Gary LaPlante, MDOC

INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN
Maine Correctional Center
Windham, Maine

Introduction

The following plan outlines the anticipated inspection and maintenance procedures for the erosion and sedimentation control measures as well as stormwater management facilities for the project. This plan also outlines several housekeeping requirements that shall be followed during and after construction. **The proposed redevelopment is within an MS4 urbanized area.** These procedures shall be followed in order to **meet MEPDES MS4 general permit requirements and** to ensure the intended function of the designed measures and to prevent unreasonably adverse impacts to the surrounding environment.

The procedures outlined in this Inspection, Maintenance, and Housekeeping Plan are provided as an overview of the anticipated practices to be used on this site by the Inspector during construction and by Maine Correctional Center after construction. In some instances, additional measures may be required due to unexpected conditions. For additional detail on any of the erosion and sedimentation control measures or stormwater management devices to be utilized on this project, refer to the most recently revised edition of the "Maine Erosion and Sedimentation Control BMP" manual and/or the "Stormwater Management for Maine: Best Management Practices" manual as published by the Maine Department of Environmental Protection (MDEP).

During Construction

1. **Inspection:** During the construction process, it is the Inspector's responsibility to comply with the inspection and maintenance procedures outlined in this section and the erosion and sedimentation control plan for the project. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once per week as well as before and after a storm event, and prior to completing permanent stabilization measures. Needed repairs (as identified during an inspection) will be started no later than the end of the next workday and be completed within seven (7) calendar days. A person with knowledge of erosion and stormwater control, including the standards and conditions in any applicable permits, shall conduct the inspections.
2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within 7 calendar days and prior to any storm event (rainfall).
3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained on-site. Correction action shall be performed in general conformance with the Maine Construction General Permit and Maine DEP Chapter 500 Stormwater standards. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, material storage areas, and vehicle access points to the site. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed

or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

4. **Specific Inspection and Maintenance Tasks:** The following is a list of erosion control and stormwater management measures and the specific inspection and maintenance tasks to be performed during construction.

A. Filter Berms:

- Hay bale barriers, silt fences, and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.
- If the fabric on a silt fence or filter barrier should decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, it shall be replaced.
- Sediment deposits should be removed after each storm event. They must be removed before deposits reach approximately one-half the height of the barrier.
- Filter berms shall be reshaped as needed.
- Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared, and seeded.

B. Stone Check Dams:

- Inspect the center of the dam to make sure it is lower than the edges. Erosion caused by high flows around the edges of the dam must be corrected.
- Sediment accumulation shall be removed prior to reaching half of the original design height.
- Areas beneath stone check dams must be seeded and mulched upon removal.

C. Riprap Materials:

- Once a riprap installation has been completed, it should require very little maintenance. It shall, however, be inspected periodically to determine if high flows have caused scour beneath the riprap or dislodged any of the stone.

D. Erosion Control Blankets:

- Inspect these reinforced areas semi-annually and after significant rainfall events for slumping, sliding, seepage, and scour. Pay close attention to unreinforced areas adjacent to the erosion control blankets, which may experience accelerated erosion.
- Review all applicable inspection and maintenance procedures recommended by the specific blanket manufacturer. These tasks shall be included in addition to the requirements of this plan.

E. Stabilized Construction Entrances/Exits:

- The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way.
- When the control pad becomes ineffective, the stone shall be removed along with the collected soil material. The entrance should then be reconstructed.
- Areas that have received mud-tracking or sediment deposits shall be swept or washed. Washing shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device (not into storm drains, ditches, or waterways).

F. Temporary Seed and Mulch:

- Mulched areas should be inspected after rain events to check for rill erosion.
- If less than 90% of the soil surface is covered by mulch, additional mulch shall be applied in bare areas.
- In applications where seeding and mulch have been applied in conjunction with erosion control blankets, the blankets must be inspected after rain events for dislocation or undercutting.
- Mulch shall continue to be reapplied until 95% of the soil surface has established temporary vegetative cover.

G. Stabilized Temporary Drainage Swales:

- Sediment accumulation in the swale shall be removed once the cross section of the swale is reduced by 25%.
- The swales shall be inspected after rainfall events. Any evidence of sloughing of the side slopes or channel erosion shall be repaired and corrective action should be taken to prevent reoccurrence of the problem.
- In addition to the stabilized lining of the channel (i.e. erosion control blankets), stone check dams may be needed to further reduce channel velocity.

5. **Housekeeping:** The following general performance standards apply to the proposed project.

A. Spill prevention: Controls must be used to prevent pollutants from being discharged from materials on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation. A Spill, Prevention, Control and Countermeasures Plan is created for the project and is to be kept onsite at all times.

B. Groundwater protection: During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors, accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

C. Fugitive sediment and dust: Actions must be taken to ensure that activities do not result

in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control. If off-site tracking occurs, public roads should be swept immediately and not less than once a week and prior to significant storm events.

- D. Debris and other materials: Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.
- E. Trench or foundation dewatering: Trench dewatering is the removal of water from trenches, foundations, cofferdams, ponds, and other areas within the construction area that retain water after excavation. In most cases, the collected water is heavily silted and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved.

Post-Construction

1. **Inspection:** After construction, it is the responsibility of Maine Correctional Center or assigned heirs to comply with the inspection and maintenance procedures outlined in this section and the post construction section of the Maine Pollution Discharge Elimination System Permit (MEPDES). All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in all applicable permits, shall conduct the inspections.
2. **Specific Inspection and Maintenance Tasks:** The following is a list of permanent erosion control and stormwater management measures and the inspection and maintenance tasks to be performed after construction.
 - A. Vegetated Areas:
 - Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems.
 - Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.
 - B. Ditches, Swales and Other Open Channels:
 - Inspect ditches, swales, level spreaders and other open stormwater channels in the spring, in the late fall, and after heavy rains to remove any obstructions to flow. Remove accumulated sediments and debris, remove woody vegetative growth that could obstruct flow, and repair any erosion of the ditch lining.
 - Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity.
 - Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable.
 - If the ditch has a riprap lining, replace riprap in areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have

dislodged.

C. Winter Sanding:

- Clear accumulations of winter sand along access road at least once a year, preferably in the spring.
- Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader or other acceptable method.

D. Culverts:

- Inspect culverts in the spring, in the late fall, and after heavy rains to remove any obstructions to flow.
- Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit.
- Inspect and repair any erosion damage at the culvert's inlet and outlet.

E. Underdrained Soil Filter:

- During the first year, the basins shall be inspected semi-annually and following major storm events.
- Debris and sediment buildup shall be removed from the forebays and basins as needed. Mowing of a grassed basin can occur semiannually to a height no less than 6 inches. Any bare area or erosion rills shall be repaired with new filter media or sandy loam then seeded and mulched. Maintaining good grass cover will minimize clogging with fine sediments and if ponding exceeds 48 hours, the top of the filter beds must be rototilled to reestablish the soil's filtration capacity.
- The soil filters should be inspected after every major storm in the first year to be sure it is functioning properly. Thereafter, the filters should be inspected at least once every six months to ensure that it is draining within 48 hours following a one-inch storm or greater. Following storms that fill the system and overflow is observed, the soil filters should drain in no less than 36 to 60 hours. If the system drains too fast, an orifice may need to be added on the underdrain outlet or, if already present, may need to be modified.
- Soil Filter Replacement: The top several inches of the filters shall be replaced with fresh material when water ponds on the surface of the bed for more than 72 hours. Removed sediments should be disposed of in an acceptable manner.
- Sediment Removal: Sediment and plant debris should be removed from the pretreatment structures at least annually.
- Mowing: If mowing is desired, only handheld string trimmers or push-mowers are allowed on the filters (no tractor) and the grass beds should be mowed no more than 2 times per growing season to maintain grass heights of no less than 6 inches.
- Fertilization: Fertilization of the underdrained filter areas should be avoided unless absolutely necessary to establish vegetation.
- Harvesting and Weeding: Harvesting and pruning of excessive growth will need

to be done occasionally. Weeding to control unwanted or invasive plants may also be necessary.

- Snow storage is prohibited on infiltration treatment structures. This shall be noted where appropriate.

F. Meadow/Wooded Buffer Areas:

- Remove dead wood and debris with minimal disturbance. Monitor for bypass and channelization; repair as it is occurring and remove sediment build-up to assure sheet flow conditions. Replant trees and bushes if needed. Perform monitoring on a semi-annual basis.

G. Wet Pond:

- The pond outlet structure and outlet of the pond should be checked periodically to ensure that flow structures are not blocked by debris. All ditches or pipes connecting ponds in series should be checked for debris that may obstruct flow. Inspections should be conducted monthly during wet weather conditions from March to November.
- The wet pond and outlet should be inspected annually for erosion, destabilization of side slopes, embankment settling and other signs of structural failure. Any signs of erosion shall be immediately repaired to assure stability and proper function.
- The wet pond will be inspected on an annual basis to assure that significant sediment accumulation has not occurred in the pond outlet structure. Whenever the sump is 25% inundated with sediment, the accumulated sediment shall be removed and properly disposed of.
- The underdrained gravel trench shall be inspected after every major storm in the first few months to ensure proper function. Thereafter, the gravel trench should be inspected at least once every six months. Inspection consists of verifying that the pond is slowly emptying thorough the gravel filter for short time (12-24 hours) after a storm and that potential clogging material such as accumulations of decaying leaves are removed.
- The top several inches of the gravel in the underdrained trench must be replaced with fresh material when water ponds above the permanent pool for more than 72 hours. The removed sediments shall be disposed of in an acceptable manner.
- Wet ponds lose 0.5-1.0% of their volume annually due to sediment accumulation. Dredging is required when accumulated volume loss reaches 15%, or approximately every 15-20 years.

H. Roof Drip Edge:

- During the first year, the drip edge shall be inspected semi-annually and following major storm events.
- Debris, sand and sediment buildup shall be removed as needed. Use vacuum truck as required to remove sand within rock. The drip edge should be inspected after every major storm in the first year to be sure it is functioning properly. Thereafter, the filter should be inspected at least once every six

months to ensure that it is draining within 48 hours following a one-inch storm or greater. Following storms that fill the system and overflow is observed, the soil filter should drain in no less than 36 to 60 hours.

- The rock layer shall be replaced with new rock free of sediment/ sand when water ponds on the surface of the bed for more than 72 hours. If water continues to pond, the top several inches of the filter shall be replaced with fresh material. Removed sediments should be disposed of in an acceptable manner.

3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of controls. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request. A sample "Stormwater Inspection and Maintenance Form" has been included as Attachment 2 of this Inspection, Maintenance, and Housekeeping Plan.
4. **Maine DEP Recertification:** A certification of the following shall be submitted to the MDEP within three months of the expiration of each five-year interval from the date of issuance of MDEP permits.
 - A. Identification and repair of erosion problems. All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
 - B. Inspection and repair of stormwater control system. All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system.
 - C. The Inspection, Maintenance, and Housekeeping Plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the MDEP, and the maintenance log is being maintained.
5. **Duration of Maintenance:** Perform maintenance as described and required for any associated permits unless and until the system is formally accepted by a municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system. If a municipality or quasi-municipal district chooses to accept a stormwater management system, or a component of a stormwater system, it must provide a letter to the MDEP stating that it assumes responsibility for the system. The letter must specify the components of the system for which the municipality or district will assume responsibility, and that the municipality or district agrees to maintain those components of the system in compliance with MDEP standards. Upon such assumption of responsibility, and approval by the MDEP, the municipality, quasi-municipal district, or association becomes a co-permittee for this purpose only and must comply with all terms and conditions of the permit.

Authorized Non-stormwater discharges

1. Identify and prevent contamination by non-stormwater discharges. Where allowed non-

stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:

- A. Discharges from firefighting activity;
- B. Fire hydrant flushings;
- C. Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
- D. Dust control runoff in accordance with permit conditions and Appendix (C)(3);
- E. Routine external building washdown, not including surface paint removal, that does not involve detergents;
- F. Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
- G. Uncontaminated air conditioning or compressor condensate;
- H. Uncontaminated groundwater or spring water;
- I. Foundation or footer drain-water where flows are not contaminated;
- J. Uncontaminated excavation dewatering (see requirements in Appendix C(5));
- K. Potable water sources including waterline flushings; and
- L. Landscape irrigation.

Unauthorized non-stormwater discharges:

1. The Department's approval does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with Appendix C (6) of Chapter 500. Specifically, the Department's approval does not authorize discharges of the following:
 - A. Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
 - B. Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
 - C. Soaps, solvents, or detergents used in vehicle and equipment washing; and
 - D. Toxic or hazardous substances from a spill or other release.

Attachments

Attachment 1 – Stormwater Inspection and Maintenance Log Form
16405

ATTACHMENT 1 – STORMWATER INSPECTION AND MAINTENANCE LOG

Maintenance and Central Plant Building Maine Correctional Center Windham, Maine

This log is intended to accompany the Inspection, Maintenance, and Housekeeping Plan for the Maintenance and Central Plant Building in Windham, Maine. The following items shall be checked, cleaned and maintained on a regular basis as specified in the Maintenance Plan and as described in the table below. This log shall be kept on file for a minimum of five (5) years and shall be available for review by the municipality. Qualified personnel familiar with drainage systems and soils shall perform all inspections. Attached is a copy of the construction and post-construction maintenance logs.

	INSPECTOR NAME	DATE PERFORMED	SUGGESTED INTERVAL
Vegetated Areas			
Inspect all slopes and embankments			Annually
Replant bare areas or areas with sparse growth			Annually
Paved Surfaces			
Clear accumulated winter sand			Annually
Remove sediment along edges and in pockets			Annually
Ditches & Swales			
Remove any obstructions and accumulated sediments and debris			Monthly
Repair any erosion of ditch lining			Annually
Mow vegetated ditches			Annually
Remove woody vegetation growing through riprap			Annually
Repair any slumping side slopes			Annually
Replace riprap where stones have dislodged			Annually
Catch Basins			
Remove accumulated sediments and debris in the sump and at grate			Annually
Culverts			
Remove accumulated sediments and debris at the inlet, outlet and within conduit			Annually
Repair any erosion at inlet and outlet			Annually

Underdrained Soil Filter				
	Remove sediment & debris			Monthly
				Monthly (during growing season)
	Remove weeds			
	Erosion (side slopes, embankment)			Monthly
	Inspection after major storm to verify proper function			Bi-Annually
Roof Drip Edge Filter				
	Remove sediment & debris			Monthly
				Monthly (during growing season)
	Remove weeds			
	Erosion (side slopes, embankment)			Monthly
	Inspection after major storm to verify proper function			Bi-Annually
Meadow/ Wooded Buffer				
	Remove dead tree limbs and plants, and other accumulated debris in buffer area			Annually
	Check for evidence of channelized flow through buffer area			Annually
	Reestablish vegetation disturbed by construction and other site activities			

Wet Pond				
	Remove accumulated sediments and debris at the pond outlet structure and outlet			Annually
	Remove accumulated sediments and debris along underdrained gravel trench			Semi-Annually
	Checked for erosion & destabilization (side slopes, embankment)			Monthly
	Mowed as required			Semi-Annually

16405 POST-DEV PHASE2

Prepared by Sebago Technics

HydroCAD® 10.00-24 s/n 01856 © 2018 HydroCAD Software Solutions LLC

25-year Detention Basin Plugged Flow
Type III 24-hr 25 year Rainfall=5.80"

Printed 9/4/2019

Page 1

Summary for Pond 60P: Detention Basin

Inflow Area = 86,062 sf, 64.22% Impervious, Inflow Depth = 4.14" for 25 year event
 Inflow = 7.18 cfs @ 12.09 hrs, Volume= 29,667 cf
 Outflow = 0.94 cfs @ 12.99 hrs, Volume= 11,522 cf, Atten= 87%, Lag= 53.7 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Secondary = 0.94 cfs @ 12.99 hrs, Volume= 11,522 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 145.12' @ 12.99 hrs Surf.Area= 7,720 sf Storage= 19,034 cf
 Flood Elev= 146.00' Surf.Area= 8,677 sf Storage= 26,281 cf

Plug-Flow detention time= 342.5 min calculated for 11,520 cf (39% of inflow)
 Center-of-Mass det. time= 196.5 min (982.2 - 785.7)

Volume	Invert	Avail.Storage	Storage Description
#1	142.00'	26,281 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
142.00	4,582	0	0
144.00	6,511	11,093	11,093
146.00	8,677	15,188	26,281

Device	Routing	Invert	Outlet Devices
#1	Primary	140.00'	6.0" Round Culvert X 0.00 L= 49.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 140.00' / 139.75' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	140.00'	1.6" Vert. Orifice C= 0.600
#3	Device 2	142.00'	2.400 in/hr Exfiltration over Surface area
#4	Secondary	145.00'	10.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=142.00' TW=115.00' (Dynamic Tailwater)

↑ **1=Culvert** (Controls 0.00 cfs)

↑ **2=Orifice** (Passes 0.00 cfs of 0.09 cfs potential flow)

↑ **3=Exfiltration** (Passes 0.00 cfs of 0.25 cfs potential flow)

Secondary OutFlow Max=0.94 cfs @ 12.99 hrs HW=145.12' TW=116.72' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Weir Controls 0.94 cfs @ 0.81 fps)

16405 POST-DEV PHASE2

Prepared by Sebago Technics

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25-year Detention Basin Plugged Flow
Type III 24-hr 25 year Rainfall=5.80"

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Summary for Pond 60P: Detention Basin

Inflow Area = 86,062 sf, 64.22% Impervious, Inflow Depth = 4.14" for 25 year event
 Inflow = 7.18 cfs @ 12.09 hrs, Volume= 29,667 cf
 Outflow = 0.94 cfs @ 12.99 hrs, Volume= 11,522 cf, Atten= 87%, Lag= 53.7 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Secondary = 0.94 cfs @ 12.99 hrs, Volume= 11,522 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 145.12' @ 12.99 hrs Surf.Area= 7,720 sf Storage= 19,034 cf
 Flood Elev= 146.00' Surf.Area= 8,677 sf Storage= 26,281 cf

Plug-Flow detention time= 342.5 min calculated for 11,520 cf (39% of inflow)
 Center-of-Mass det. time= 196.5 min (982.2 - 785.7)

Volume	Invert	Avail.Storage	Storage Description
#1	142.00'	26,281 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
142.00	4,582	0	0
144.00	6,511	11,093	11,093
146.00	8,677	15,188	26,281

Device	Routing	Invert	Outlet Devices
#1	Primary	140.00'	6.0" Round Culvert X 0.00 L= 49.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 140.00' / 139.75' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	140.00'	1.6" Vert. Orifice C= 0.600
#3	Device 2	142.00'	2.400 in/hr Exfiltration over Surface area
#4	Secondary	145.00'	10.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=142.00' TW=115.00' (Dynamic Tailwater)

↑ **1=Culvert** (Controls 0.00 cfs)

↑ **2=Orifice** (Passes 0.00 cfs of 0.09 cfs potential flow)

↑ **3=Exfiltration** (Passes 0.00 cfs of 0.25 cfs potential flow)

Secondary OutFlow Max=0.94 cfs @ 12.99 hrs HW=145.12' TW=116.72' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Weir Controls 0.94 cfs @ 0.81 fps)

16405 POST-DEV PHASE2

Prepared by Sebago Technics

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25-year Detention Basin Plugged Flow
Type III 24-hr 25 year Rainfall=5.80"

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Summary for Pond 60P: Detention Basin

Inflow Area = 86,062 sf, 64.22% Impervious, Inflow Depth = 4.14" for 25 year event
 Inflow = 7.18 cfs @ 12.09 hrs, Volume= 29,667 cf
 Outflow = 0.94 cfs @ 12.99 hrs, Volume= 11,522 cf, Atten= 87%, Lag= 53.7 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Secondary = 0.94 cfs @ 12.99 hrs, Volume= 11,522 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 145.12' @ 12.99 hrs Surf.Area= 7,720 sf Storage= 19,034 cf
 Flood Elev= 146.00' Surf.Area= 8,677 sf Storage= 26,281 cf

Plug-Flow detention time= 342.5 min calculated for 11,520 cf (39% of inflow)
 Center-of-Mass det. time= 196.5 min (982.2 - 785.7)

Volume	Invert	Avail.Storage	Storage Description
#1	142.00'	26,281 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
142.00	4,582	0	0
144.00	6,511	11,093	11,093
146.00	8,677	15,188	26,281

Device	Routing	Invert	Outlet Devices
#1	Primary	140.00'	6.0" Round Culvert X 0.00 L= 49.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 140.00' / 139.75' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	140.00'	1.6" Vert. Orifice C= 0.600
#3	Device 2	142.00'	2.400 in/hr Exfiltration over Surface area
#4	Secondary	145.00'	10.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=142.00' TW=115.00' (Dynamic Tailwater)

↑ **1=Culvert** (Controls 0.00 cfs)

↑ **2=Orifice** (Passes 0.00 cfs of 0.09 cfs potential flow)

↑ **3=Exfiltration** (Passes 0.00 cfs of 0.25 cfs potential flow)

Secondary OutFlow Max=0.94 cfs @ 12.99 hrs HW=145.12' TW=116.72' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Weir Controls 0.94 cfs @ 0.81 fps)

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25-year Plugged Flow
Type III 24-hr 25 year Rainfall=5.80"

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Summary for Pond 80P: Wet Pond 1

Inflow Area = 341,876 sf, 39.01% Impervious, Inflow Depth = 3.46" for 25 year event
 Inflow = 25.52 cfs @ 12.11 hrs, Volume= 98,632 cf
 Outflow = 5.72 cfs @ 12.78 hrs, Volume= 39,907 cf, Atten= 78%, Lag= 40.1 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Secondary = 5.72 cfs @ 12.78 hrs, Volume= 39,907 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Starting Elev= 127.00' Surf.Area= 28,720 sf Storage= 65,583 cf

Peak Elev= 130.21' @ 12.78 hrs Surf.Area= 36,996 sf Storage= 124,308 cf (58,725 cf above start)

Flood Elev= 132.00' Surf.Area= 36,996 sf Storage= 124,308 cf (58,725 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= 158.6 min (977.1 - 818.5)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	65,583 cf	PPV (Prismatic) Listed below (Recalc)
#2	127.00'	58,725 cf	CPV (Prismatic) Listed below (Recalc)
		124,308 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	4,806	0	0
122.00	7,253	12,059	12,059
124.00	9,926	17,179	29,238
126.00	12,826	22,752	51,990
127.00	14,360	13,593	65,583

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
127.00	14,360	0	0
127.80	18,729	13,236	13,236
128.00	19,073	3,780	17,016
130.00	22,636	41,709	58,725

Device	Routing	Invert	Outlet Devices
#1	Primary	124.20'	36.0" Round Outlet X 0.00 L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 124.20' / 123.00' S= 0.0120' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Device 1	124.50'	3.0" Vert. Orifice C= 0.600
#3	Device 2	124.50'	6.0" Round 6" UD Trench L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 124.50' / 124.50' S= 0.0000' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#4	Device 1	128.50'	1.0" x 9.0" Horiz. Grate at OCS-1 X 28.00 C= 0.600 Limited to weir flow at low heads
#5	Secondary	130.00'	25.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

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25-year Plugged Flow
Type III 24-hr 25 year Rainfall=5.80"

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2.50	3.00	3.50	4.00	4.50	5.00	5.50				
Coef. (English)	2.43	2.54	2.70	2.69	2.68	2.68	2.66	2.64	2.64	
	2.64	2.65	2.65	2.66	2.66	2.68	2.70	2.74		

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=127.00' TW=102.00' (Dynamic Tailwater)

↑ **1=Outlet** (Controls 0.00 cfs)

↑ **2=Orifice** (Passes 0.00 cfs of 0.36 cfs potential flow)

↑ **3=6" UD Trench** (Passes 0.00 cfs of 0.84 cfs potential flow)

↑ **4=Grate at OCS-1** (Controls 0.00 cfs)

Secondary OutFlow Max=5.72 cfs @ 12.78 hrs HW=130.21' TW=102.43' (Dynamic Tailwater)

↑ **5=Broad-Crested Rectangular Weir**(Weir Controls 5.72 cfs @ 1.11 fps)

16405 POST-DEV PHASE2

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25-year Wet Pond 2 Plugged Flow
Type III 24-hr 25 year Rainfall=5.80"

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Summary for Pond 19P: Wet Pond 2

Inflow Area = 586,327 sf, 36.31% Impervious, Inflow Depth = 3.46" for 25 year event
 Inflow = 38.63 cfs @ 12.12 hrs, Volume= 168,823 cf
 Outflow = 6.94 cfs @ 12.85 hrs, Volume= 79,158 cf, Atten= 82%, Lag= 44.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Secondary = 6.94 cfs @ 12.85 hrs, Volume= 79,158 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Starting Elev= 113.00' Surf.Area= 40,126 sf Storage= 76,867 cf

Peak Elev= 116.53' @ 12.85 hrs Surf.Area= 52,023 sf Storage= 173,950 cf (97,083 cf above start)

Flood Elev= 118.00' Surf.Area= 55,508 sf Storage= 223,353 cf (146,486 cf above start)

Plug-Flow detention time= 1,142.1 min calculated for 2,291 cf (1% of inflow)

Center-of-Mass det. time= 160.4 min (973.7 - 813.3)

Volume	Invert	Avail.Storage	Storage Description
#1	104.00'	76,867 cf	PPV (Prismatic) Listed below (Recalc)
#2	113.00'	146,486 cf	CPV (Prismatic) Listed below (Recalc)
		223,353 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
104.00	1,582	0	0
106.00	7,359	8,941	8,941
108.00	10,554	17,913	26,854
110.00	1,180	11,734	38,588
112.00	18,045	19,225	57,813
113.00	20,063	19,054	76,867

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
113.00	20,063	0	0
113.80	25,720	18,313	18,313
114.00	26,160	5,188	23,501
116.00	30,690	56,850	80,351
118.00	35,445	66,135	146,486

Device	Routing	Invert	Outlet Devices
#1	Primary	110.40'	36.0" Round Outlet X 0.00 L= 53.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 110.40' / 106.00' S= 0.0830 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Device 1	110.50'	4.0" Vert. Orifice C= 0.600
#3	Device 2	110.50'	6.0" Round 6" UD Trench L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 110.50' / 110.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#4	Device 1	115.50'	1.0" x 9.0" Horiz. Grate at OCS-2 X 28.00 C= 0.600 Limited to weir flow at low heads

16405 POST-DEV PHASE2

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25-year Wet Pond 2 Plugged Flow
Type III 24-hr 25 year Rainfall=5.80"

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#5 Secondary 116.30' **25.0' long x 8.0' breadth Broad-Crested Rectangular Weir**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
2.50 3.00 3.50 4.00 4.50 5.00 5.50
Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64
2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=113.00' TW=94.00' (Dynamic Tailwater)

↑ **1=Outlet** (Controls 0.00 cfs)

↑ **2=Orifice** (Passes 0.00 cfs of 0.64 cfs potential flow)

↑ **3=6" UD Trench** (Passes 0.00 cfs of 0.84 cfs potential flow)

↑ **4=Grate at OCS-2** (Controls 0.00 cfs)

Secondary OutFlow Max=6.93 cfs @ 12.85 hrs HW=116.53' TW=95.27' (Dynamic Tailwater)

↑ **5=Broad-Crested Rectangular Weir**(Weir Controls 6.93 cfs @ 1.18 fps)

16405 POST-DEV PHASE2

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25-year Plugged Flow
Type III 24-hr 25 year Rainfall=5.80"

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Summary for Pond 80P: Wet Pond 1

Inflow Area = 341,876 sf, 39.01% Impervious, Inflow Depth = 3.46" for 25 year event
 Inflow = 25.52 cfs @ 12.11 hrs, Volume= 98,632 cf
 Outflow = 5.72 cfs @ 12.78 hrs, Volume= 39,907 cf, Atten= 78%, Lag= 40.1 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Secondary = 5.72 cfs @ 12.78 hrs, Volume= 39,907 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Starting Elev= 127.00' Surf.Area= 28,720 sf Storage= 65,583 cf

Peak Elev= 130.21' @ 12.78 hrs Surf.Area= 36,996 sf Storage= 124,308 cf (58,725 cf above start)

Flood Elev= 132.00' Surf.Area= 36,996 sf Storage= 124,308 cf (58,725 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= 158.6 min (977.1 - 818.5)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	65,583 cf	PPV (Prismatic) Listed below (Recalc)
#2	127.00'	58,725 cf	CPV (Prismatic) Listed below (Recalc)
		124,308 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	4,806	0	0
122.00	7,253	12,059	12,059
124.00	9,926	17,179	29,238
126.00	12,826	22,752	51,990
127.00	14,360	13,593	65,583

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
127.00	14,360	0	0
127.80	18,729	13,236	13,236
128.00	19,073	3,780	17,016
130.00	22,636	41,709	58,725

Device	Routing	Invert	Outlet Devices
#1	Primary	124.20'	36.0" Round Outlet X 0.00 L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 124.20' / 123.00' S= 0.0120' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Device 1	124.50'	3.0" Vert. Orifice C= 0.600
#3	Device 2	124.50'	6.0" Round 6" UD Trench L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 124.50' / 124.50' S= 0.0000' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#4	Device 1	128.50'	1.0" x 9.0" Horiz. Grate at OCS-1 X 28.00 C= 0.600 Limited to weir flow at low heads
#5	Secondary	130.00'	25.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

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25-year Plugged Flow
Type III 24-hr 25 year Rainfall=5.80"

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2.50	3.00	3.50	4.00	4.50	5.00	5.50				
Coef. (English)	2.43	2.54	2.70	2.69	2.68	2.68	2.66	2.64	2.64	
	2.64	2.65	2.65	2.66	2.66	2.68	2.70	2.74		

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=127.00' TW=102.00' (Dynamic Tailwater)

↑ **1=Outlet** (Controls 0.00 cfs)

↑ **2=Orifice** (Passes 0.00 cfs of 0.36 cfs potential flow)

↑ **3=6" UD Trench** (Passes 0.00 cfs of 0.84 cfs potential flow)

↑ **4=Grate at OCS-1** (Controls 0.00 cfs)

Secondary OutFlow Max=5.72 cfs @ 12.78 hrs HW=130.21' TW=102.43' (Dynamic Tailwater)

↑ **5=Broad-Crested Rectangular Weir**(Weir Controls 5.72 cfs @ 1.11 fps)

16405 POST-DEV PHASE2

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25-year Wet Pond 2 Plugged Flow
Type III 24-hr 25 year Rainfall=5.80"

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Summary for Pond 19P: Wet Pond 2

Inflow Area = 586,327 sf, 36.31% Impervious, Inflow Depth = 3.46" for 25 year event
 Inflow = 38.63 cfs @ 12.12 hrs, Volume= 168,823 cf
 Outflow = 6.94 cfs @ 12.85 hrs, Volume= 79,158 cf, Atten= 82%, Lag= 44.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Secondary = 6.94 cfs @ 12.85 hrs, Volume= 79,158 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Starting Elev= 113.00' Surf.Area= 40,126 sf Storage= 76,867 cf

Peak Elev= 116.53' @ 12.85 hrs Surf.Area= 52,023 sf Storage= 173,950 cf (97,083 cf above start)

Flood Elev= 118.00' Surf.Area= 55,508 sf Storage= 223,353 cf (146,486 cf above start)

Plug-Flow detention time= 1,142.1 min calculated for 2,291 cf (1% of inflow)

Center-of-Mass det. time= 160.4 min (973.7 - 813.3)

Volume	Invert	Avail.Storage	Storage Description
#1	104.00'	76,867 cf	PPV (Prismatic) Listed below (Recalc)
#2	113.00'	146,486 cf	CPV (Prismatic) Listed below (Recalc)
		223,353 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
104.00	1,582	0	0
106.00	7,359	8,941	8,941
108.00	10,554	17,913	26,854
110.00	1,180	11,734	38,588
112.00	18,045	19,225	57,813
113.00	20,063	19,054	76,867

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
113.00	20,063	0	0
113.80	25,720	18,313	18,313
114.00	26,160	5,188	23,501
116.00	30,690	56,850	80,351
118.00	35,445	66,135	146,486

Device	Routing	Invert	Outlet Devices
#1	Primary	110.40'	36.0" Round Outlet X 0.00 L= 53.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 110.40' / 106.00' S= 0.0830 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Device 1	110.50'	4.0" Vert. Orifice C= 0.600
#3	Device 2	110.50'	6.0" Round 6" UD Trench L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 110.50' / 110.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#4	Device 1	115.50'	1.0" x 9.0" Horiz. Grate at OCS-2 X 28.00 C= 0.600 Limited to weir flow at low heads

16405 POST-DEV PHASE2

Prepared by Sebago Technics

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25-year Wet Pond 2 Plugged Flow
Type III 24-hr 25 year Rainfall=5.80"

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#5 Secondary 116.30' **25.0' long x 8.0' breadth Broad-Crested Rectangular Weir**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
2.50 3.00 3.50 4.00 4.50 5.00 5.50
Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64
2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=113.00' TW=94.00' (Dynamic Tailwater)

↑ **1=Outlet** (Controls 0.00 cfs)

↑ **2=Orifice** (Passes 0.00 cfs of 0.64 cfs potential flow)

↑ **3=6" UD Trench** (Passes 0.00 cfs of 0.84 cfs potential flow)

↑ **4=Grate at OCS-2** (Controls 0.00 cfs)

Secondary OutFlow Max=6.93 cfs @ 12.85 hrs HW=116.53' TW=95.27' (Dynamic Tailwater)

↑ **5=Broad-Crested Rectangular Weir**(Weir Controls 6.93 cfs @ 1.18 fps)

DESCRIPTION

The Celesteon™ LED high mast luminaire combines high output and efficiency with easy install and affordability. Designed for new and retrofit high-lumen applications, the Celesteon LED high mast is ideal for highways, interchanges, ports, rail yards, container yards, parking lots, correctional facilities, security lighting, treatment plants and other facilities in need of high lumen packages with accurate optical control.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction

Heavy-duty, die-cast aluminum housing and door. Optional tool-less entry, hinged removable door for additional easy maintenance. 3G vibration rated.

Optics

Customers can choose from six high efficiency optics available in Type I, II, III, IV, V and Type V narrow. Each distribution is designed to maximize efficiency and application spacing. Offered standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 3000K, 5000K CCT. For the ultimate level of spill light control, an optional factory installed house side shield accessory is available.

Electrical

120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. Standard 0-10V dimming with 10kV or 20kV surge protection available. Thermal management transfers heat away from the LED source for optimal efficiency, light output and lumen maintenance. Ambient operating temperature from -40°C to 40°C; 50°C HA, high ambient, capability available. Greater than 90% lumen maintenance expected at 60,000 hours.

Mounting

Four-bolt/two bracket slipfitter with cast-in pipe stop and 2.5° leveling steps. Fixed-in-place bird guard seals around 2" (2-3/8" O.D.) mounting arms.

Finish

Housing and cast parts finished in five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Consult your lighting representative at Eaton for a complete selection of standard colors.

Warranty

Five-year warranty. Optional ten-year warranty available.



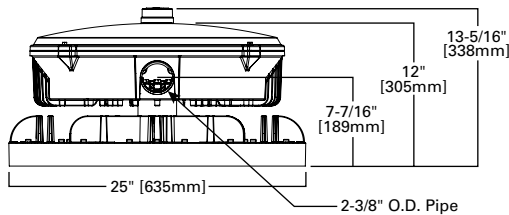
CTN CELESTEON

Solid State LED

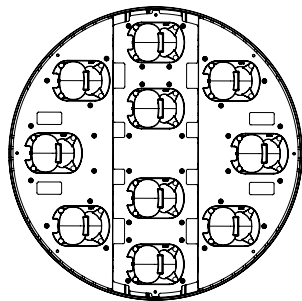
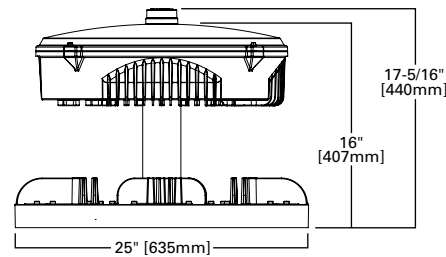
AREA/SITE LUMINAIRE

DIMENSIONS

Short Extrusion: All lumen packages except 10-9



Long Extrusion: 10-9 lumen packages only



EPA DATA

Configuration	Accessory	EPA
Short Extrusion	None	1.13
Short Extrusion	Nature Guard	1.20
Short Extrusion	HSS-HM-EX90	2.82
Short Extrusion	HSS-HM-EX120	3.21
Short Extrusion	HSS-HM-EX180	3.57
Long Extrusion	None	1.25
Long Extrusion	Nature Guard	1.44
Long Extrusion	HSS-HM-EX90	2.87
Long Extrusion	HSS-HM-EX120	3.26
Long Extrusion	HSS-HM-EX180	3.62



CERTIFICATION DATA

UL/cUL Wet Location Listed
IP66 Rated Optics (standard)
IP66 Rated Housing (optional)
3G Vibration Rated
ISO 9001
DesignLights Consortium® Qualified*

ENERGY DATA

Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120-277V/50 & 60Hz, 347V/60Hz,
480V/60Hz
-40°C Minimum Temperature
+40°C Ambient Temperature Rating

SHIPPING DATA

Approximate Net Weight:
70 lbs. (31.8kgs.)

POWER AND LUMENS

Light Engine		6-3	8-3	10-3	8-4	10-4	8-6	10-8	10-9
Nominal Power (Watts)		234	226	212	325	308	477	631	760
Current @ 120V (A)		1.95	1.89	1.77	2.73	2.59	3.98	5.28	6.36
Current @ 277V (A)		0.87	0.84	0.79	1.24	1.20	1.75	2.35	2.77
Current @ 347V (A)		0.70	0.69	0.62	0.94	0.90	1.36	1.82	2.18
Current @ 480V (A)		0.54	0.53	0.44	0.68	0.65	0.98	1.32	1.57
Optics									
T1	5000K	33,715	33,824	34,201	46,690	46,505	67,753	87,171	100,093
	BUG Rating	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5
	4000K	33,376	33,483	33,856	46,220	46,037	67,077	86,301	99,094
	BUG Rating	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5
	3000K	32,479	32,583	32,946	44,977	44,799	65,274	83,981	96,430
	BUG Rating	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
T2	5000K	31,436	31,537	31,889	43,534	43,361	63,174	81,279	93,328
	BUG Rating	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G5	B5-U0-G5	B5-U0-G5
	4000K	31,120	31,220	31,568	43,096	42,925	62,543	80,468	92,396
	BUG Rating	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G5	B5-U0-G5	B5-U0-G5
	3000K	30,283	30,381	30,719	41,937	41,771	60,862	78,305	89,912
	BUG Rating	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G5	B5-U0-G5	B5-U0-G5
T3	5000K	31,559	31,660	32,013	43,703	43,530	63,419	81,595	93,690
	BUG Rating	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5
	4000K	31,241	31,341	31,691	43,264	43,092	62,786	80,781	92,755
	BUG Rating	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5
	3000K	30,401	30,499	30,839	42,100	41,933	61,098	78,609	90,262
	BUG Rating	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5
T4	5000K	31,094	31,194	31,542	43,060	42,889	62,485	80,394	92,311
	BUG Rating	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5
	4000K	30,781	30,880	31,224	42,627	42,457	61,862	79,591	91,390
	BUG Rating	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5
	3000K	29,953	30,050	30,385	41,480	41,316	60,199	77,452	88,933
	BUG Rating	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5
T5	5000K	32,110	32,213	32,572	44,467	44,291	64,528	83,021	95,328
	BUG Rating	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	4000K	31,787	31,889	32,245	44,020	43,845	63,883	82,193	94,376
	BUG Rating	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	3000K	30,932	31,032	31,378	42,836	42,666	62,166	79,983	91,839
	BUG Rating	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
T5N	5000K	34,875	34,987	35,377	48,296	48,104	70,084	90,170	103,536
	BUG Rating	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	4000K	34,524	34,635	35,021	47,810	47,620	69,384	89,270	102,503
	BUG Rating	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
	3000K	33,596	33,704	34,079	46,524	46,340	67,519	86,870	99,747
	BUG Rating	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (100,000 Hours)	Projected L70 (Hours)
Up to 40°C	> 86%	242,000

LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
10°C	1.02
15°C	1.01
25°C	1.00
40°C	0.99

ORDERING INFORMATION

Sample Number: CTN-8-6-D-E1-T4-AP

Product Family	Light Engine	Driver	Voltage	Distribution	Color
CTN=Celesteon High Mast	6-3 8-3 8-4 8-6 10-3 10-4 10-8 10-9	D=Dimming 5LTD=DALI ¹	E1=120-277V 347=347V 480=480V	T1=Type I T2=Type II T3=Type III T4=Type IV T5=Type V T5N=Type V Narrow	AP=Grey (Standard) BZ=Bronze BK=Black DP=Dark Platinum GM=Graphite Metallic WH=White
Options (Add as Suffix)			Accessories (Order Separately)		
7030 =70 CRI / 3000K 7050 =70 CRI / 5000K R =NEMA Twistlock Photocontrol Receptacle PER7 =NEMA 7-PIN Twistlock Photocontrol Receptacle 10K =10kV UL 1449 Surge Protection Device 10MSP =10kV MOV Surge Protection Device 20K =20kV UL 1449 Surge Protection Device ² HA =50°C High Ambient ^{3,4} K =Level Indicator HSS =Factory Installed House Side Shield (One per LED) ⁵ NG =Factory Installed Nature Guard TH =Tool-less Door Hardware (Wingnut) ^{6,7} F =Single Fused (120, 277 or 347V. Must Specify Voltage) FF =Double Fused (208, 240 or 480V. Must Specify Voltage) SS =Stainless Steel External Hardware DH =Door Hinge IP66 =IP66 Rated Housing CC =Coastal Construction ⁸ TS =Tool-less Surge Protector Mounting Bracket (10K Only) ^{9,10} CE =CE Marking ¹¹			OA/RA1013 =Photocontrol Shorting Cap OA/RA1016 =NEMA Photocontrol - Multi-Tap 105-285V OA/RA1201 =NEMA Photocontrol - 347V OA/RA1027 =NEMA Photocontrol - 480V OA1223 =10kV Surge Module Replacement FSP3-277-20kA =20kA Surge Module Replacement (120-277V Input Voltage) FSP3-480-20kA =20kA Surge Module Replacement (480V Input Voltage) HSS-HM =Field Installed House Side Shield - Black (One per LED) ⁵ HSS-HM-EX90 =External Field Installed 90° Shield - Black HSS-HM-EX120 =External Field Installed 120° Shield - Black HSS-HM-EX180 =External Field Installed 180° Shield - Black NG-HM-FLD-SHORT =Field Installed Nature Guard ¹² NG-HM-FLD-LONG =Field Installed Nature Guard ¹³ F =Single Fused (120, 277 or 347V. Must Specify Voltage) FF =Double Fused (208, 240 or 480V. Must Specify Voltage)		

NOTES:

1. 5LTD not available with 347V or 480V.
2. 20kV surge protection not available with 347V
3. HA not available with 10-8 lumen packages that has HSS or NG.
4. HA not available with 10-9 lumen package.
5. HSS not compatible with T1, T5 or T5N distributions.
6. TH and SS are mutually exclusive options. Only one can be selected.
7. TH wingnuts and CC are mutually exclusive options. Only one can be selected.
8. CC includes casting pretreatment and stainless steel external hardware.
9. TS is a bracket only and surge module should be ordered if needed.
10. TS not available with 20kV or 10MSP surge protection device.
11. CE only available with 5LTD.
12. Compatible with all but 10-9 lumen packages.
13. Only compatible with 10-9 lumen packages.

DESCRIPTION

The Galleon™ LED luminaire delivers exceptional performance in a highly scalable, low-profile design. Patented, high-efficiency AccuLED Optics™ system provides uniform and energy conscious illumination to walkways, parking lots, roadways, building areas and security lighting applications. IP66 rated and UL/cUL Listed for wet locations.

SPECIFICATION FEATURES

Construction

Extruded aluminum driver enclosure thermally isolated from Light Squares for optimal thermal performance. Heavy-wall, die-cast aluminum end caps enclose housing and die-cast aluminum heat sinks. A unique, patent pending interlocking housing and heat sink provides scalability with superior structural rigidity. 3G vibration tested and rated. Optional tool-less hardware available for ease of entry into electrical chamber. Housing is IP66 rated.

Optics

Patented, high-efficiency injection-molded AccuLED Optics technology. Optics are precisely designed to shape the distribution maximizing efficiency and application spacing. AccuLED Optics create consistent distributions with the scalability to meet customized application requirements. Offered standard in 4000K (+/- 275K) CCT 70 CRI. Optional 3000K, 5000K and 6000K CCT.

Electrical

LED drivers are mounted to removable tray assembly for ease of maintenance. 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. 480V is compatible for use with 480V Wye systems only. Standard with 0-10V dimming. Shipped standard with Eaton proprietary circuit module designed to withstand 10kV of transient line surge. The Galleon LED luminaire is suitable for operation in -40°C to 40°C ambient environments. For applications with ambient temperatures exceeding 40°C, specify the HA (High Ambient) option. Light Squares are IP66 rated. Greater than 90% lumen maintenance expected at 60,000 hours. Available in standard 1A drive current and optional 600mA, 800mA and 1200mA drive currents (nominal).

Mounting

STANDARD ARM MOUNT: Extruded aluminum arm includes internal bolt guides allowing for easy positioning of fixture during mounting. When mounting two or more luminaires at 90° and 120° apart, the EA extended arm may be required. Refer to the

Catalog #		Type
Project		
Comments		Date
Prepared by		

arm mounting requirement table. Round pole adapter included. For wall mounting, specify wall mount bracket option. **QUICK MOUNT ARM:** Adapter is bolted directly to the pole. Quick mount arm slide into place on the adapter and is secured via two screws, facilitating quick and easy installation. The versatile, patent pending, quick mount arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8". Removal of the door on the quick mount arm enables wiring of the fixture without having to access the driver compartment. A knock-out enables round pole mounting.

Finish

Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Heat sink is powder coated black. Standard housing colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available.

Warranty

Five-year warranty.

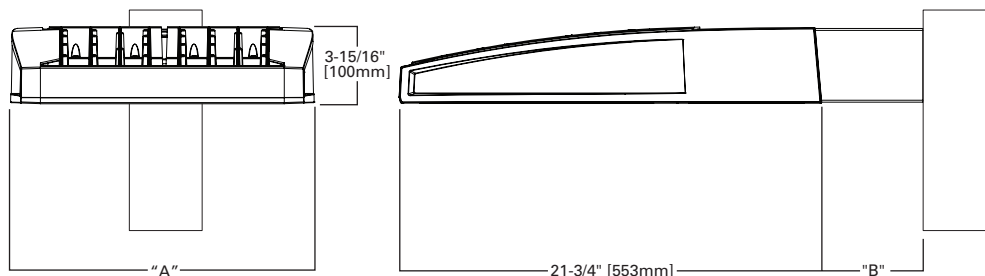


GLEON GALLEON LED

1-10 Light Squares
Solid State LED

AREA/SITE LUMINAIRE

DIMENSIONS

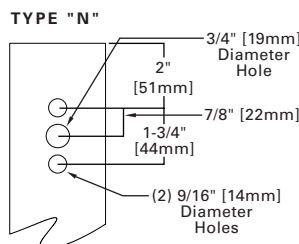


DIMENSION DATA

Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Optional Arm Length ¹	Weight with Arm (lbs.)	EPA with Arm ² (Sq. Ft.)
1-4	15-1/2" (394mm)	7" (178mm)	10" (254mm)	33 (15.0 kgs.)	0.96
5-6	21-5/8" (549mm)	7" (178mm)	10" (254mm)	44 (20.0 kgs.)	1.00
7-8	27-5/8" (702mm)	7" (178mm)	13" (330mm)	54 (24.5 kgs.)	1.07
9-10	33-3/4" (857mm)	7" (178mm)	16" (406mm)	63 (28.6 kgs.)	1.12

NOTES: 1. Optional arm length to be used when mounting two fixtures at 90° on a single pole. 2. EPA calculated with optional arm length.

DRILLING PATTERN



CERTIFICATION DATA

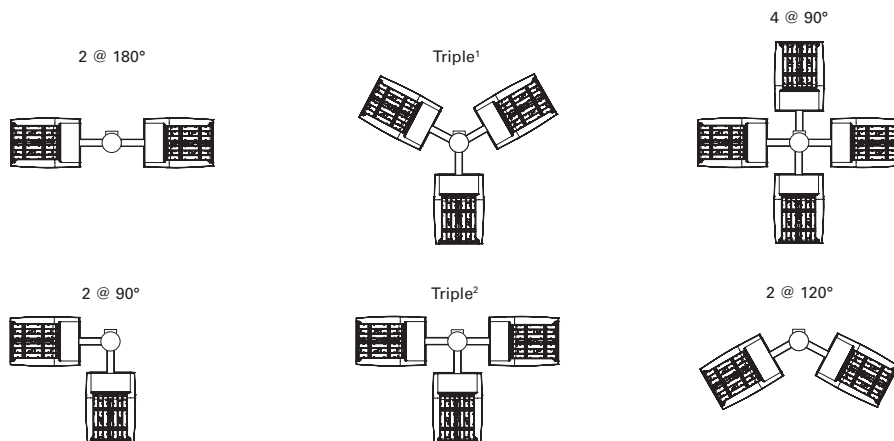
UL/cUL Wet Location Listed
ISO 9001
LM79 / LM80 Compliant
3G Vibration Rated
IP66 Rated
DesignLights Consortium™ Qualified*

ENERGY DATA

Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120V-277V 50/60Hz
347V & 480V 60Hz
-40°C Min. Temperature
40°C Max. Temperature
50°C Max. Temperature (HA Option)

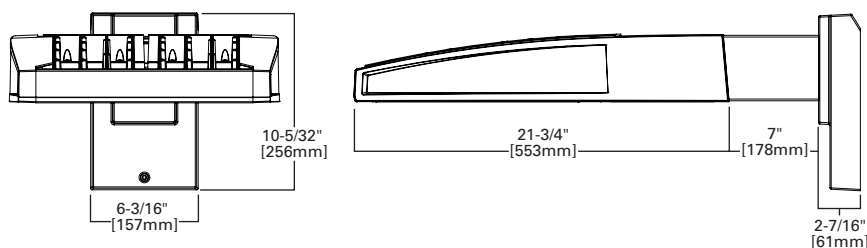
ARM MOUNTING REQUIREMENTS

Configuration	90° Apart	120° Apart
GLEON-AF-01	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-02	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-03	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-04	7" Arm (Standard)	7" Arm (Standard)
GLEON-AF-05	10" Extended Arm (Required)	7" Arm (Standard)
GLEON-AF-06	10" Extended Arm (Required)	7" Arm (Standard)
GLEON-AF-07	13" Extended Arm (Required)	13" Extended Arm (Required)
GLEON-AF-08	13" Extended Arm (Required)	13" Extended Arm (Required)
GLEON-AF-09	16" Extended Arm (Required)	16" Extended Arm (Required)
GLEON-AF-10	16" Extended Arm (Required)	16" Extended Arm (Required)

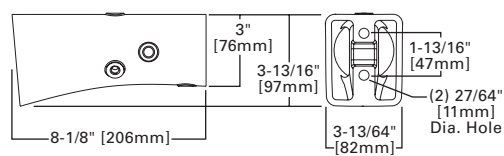


NOTES: 1 Round poles are 3 @ 120°. Square poles are 3 @ 90°. 2 Round poles are 3 @ 90°.

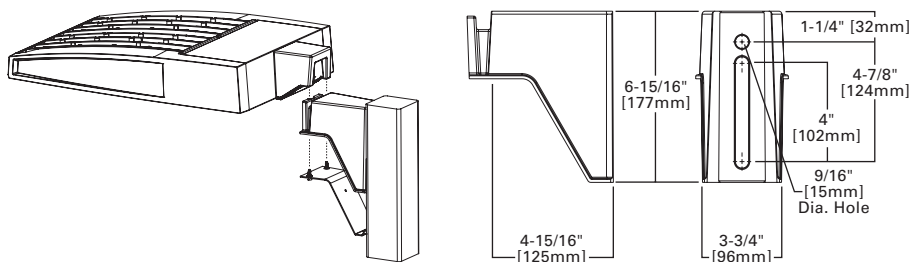
STANDARD WALL MOUNT



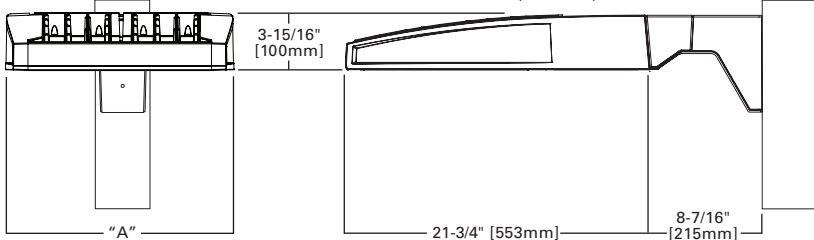
MAST ARM MOUNT



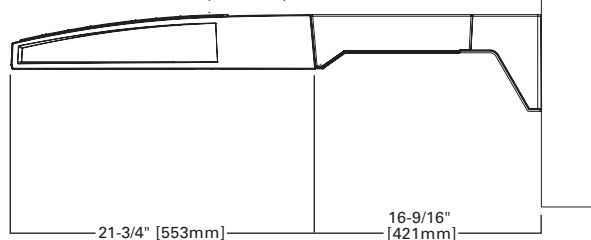
QUICK MOUNT ARM (INCLUDES FIXTURE ADAPTER)



QM Quick Mount Arm (Standard)



QMEA Quick Mount Arm (Extended)

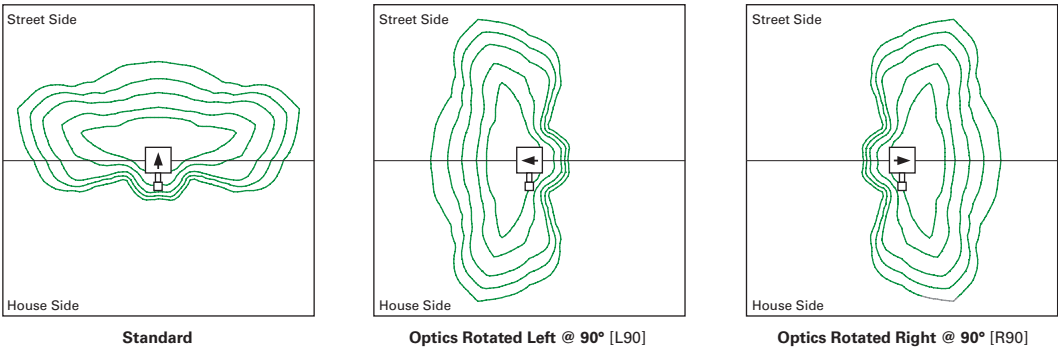


QUICK MOUNT ARM DATA

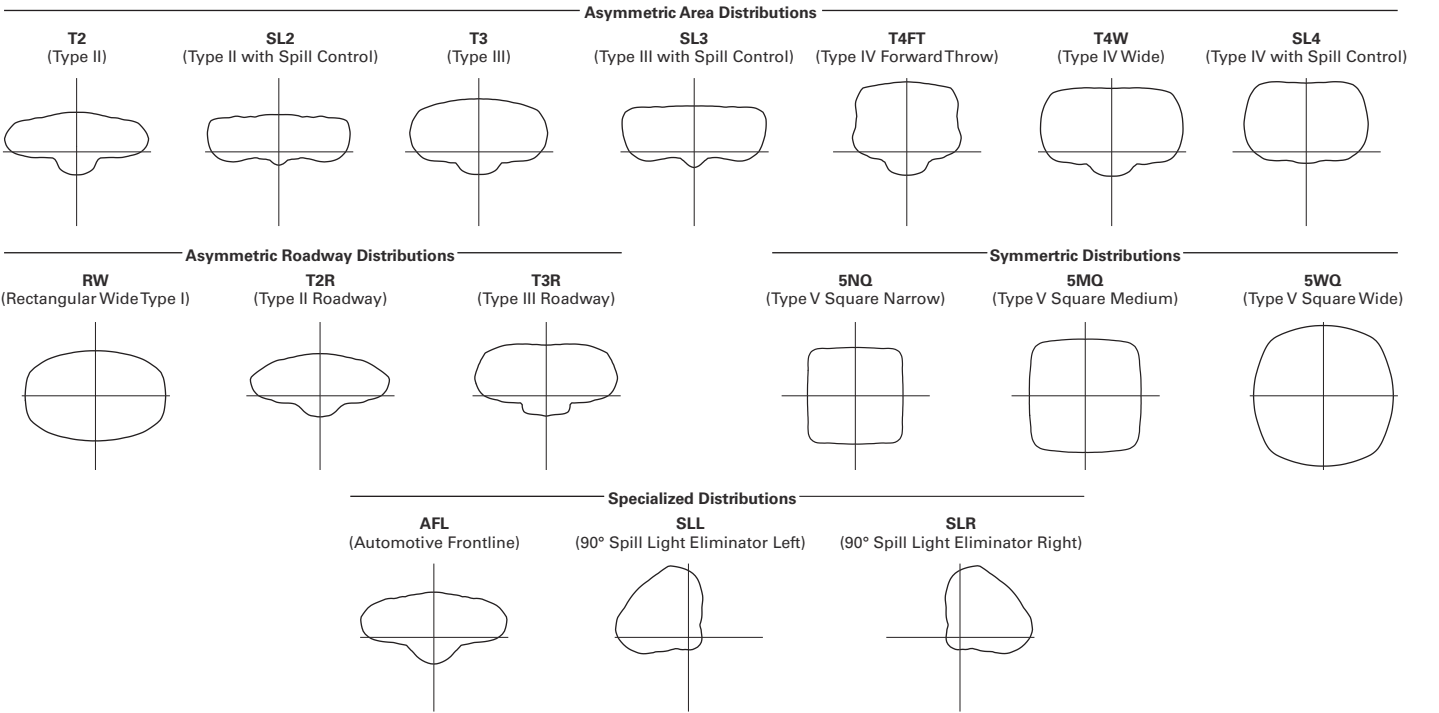
Number of Light Squares ^{1,2}	"A" Width	Weight with QM Arm (lbs.)	Weight with QMEA Arm (lbs.)	EPA (Sq. Ft.)
1-4	15-1/2" (394mm)	35 (15.91 kgs.)	38 (17.27 kgs.)	1.11
5-6 ³	21-5/8" (549mm)	46 (20.91 kgs.)	49 (22.27 kgs.)	
7-8	27-5/8" (702mm)	56 (25.45 kgs.)	59 (26.82 kgs.)	

NOTES: 1 QM option available with 1-8 light square configurations. 2 QMEA option available with 1-6 light square configurations. 3 QMEA arm to be used when mounting two fixtures at 90° on a single pole.

OPTIC ORIENTATION



OPTICAL DISTRIBUTIONS

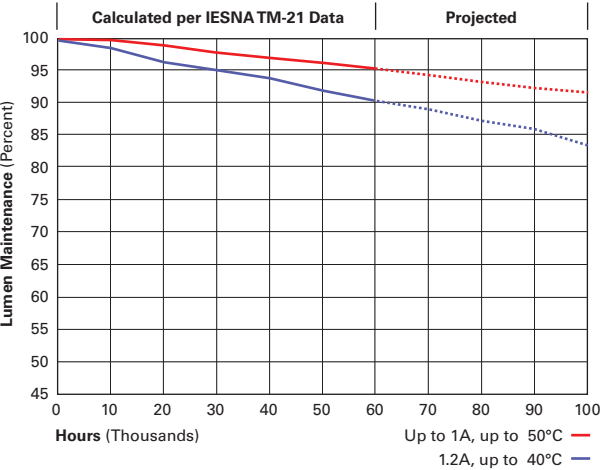


LUMEN MAINTENANCE

Drive Current	Ambient Temperature	TM-21 Lumen Maintenance (60,000 Hours)	Projected L70 (Hours)
Up to 1A	Up to 50°C	> 95%	416,000
1.2A	Up to 40°C	> 90%	205,000

LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97



NOMINAL POWER LUMENS (1.2A)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		67	129	191	258	320	382	448	511	575	640
Input Current @ 120V (A)		0.58	1.16	1.78	2.31	2.94	3.56	4.09	4.71	5.34	5.87
Input Current @ 208V (A)		0.33	0.63	0.93	1.27	1.57	1.87	2.22	2.52	2.8	3.14
Input Current @ 240V (A)		0.29	0.55	0.80	1.10	1.35	1.61	1.93	2.18	2.41	2.71
Input Current @ 277V (A)		0.25	0.48	0.70	0.96	1.18	1.39	1.69	1.90	2.09	2.36
Input Current @ 347V (A)		0.20	0.39	0.57	0.78	0.96	1.15	1.36	1.54	1.72	1.92
Input Current @ 480V (A)		0.15	0.30	0.43	0.60	0.73	0.85	1.03	1.16	1.28	1.45
Optics											
T2	4000K/5000K Lumens	6,709	13,111	19,562	25,848	32,026	38,325	45,324	51,355	57,286	63,424
	3000K Lumens	5,939	11,606	17,316	22,881	28,349	33,925	40,121	45,459	50,710	56,143
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
T2R	4000K/5000K Lumens	7,122	13,919	20,769	27,442	34,000	40,687	48,117	54,519	60,816	67,333
	3000K Lumens	5,939	11,606	17,316	22,881	28,349	33,925	40,121	45,459	50,710	56,143
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
T3	4000K/5000K Lumens	6,838	13,363	19,939	26,346	32,642	39,062	46,196	52,343	58,388	64,646
	3000K Lumens	6,053	11,829	17,650	23,321	28,895	34,578	40,893	46,334	51,685	57,225
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
T3R	4000K/5000K Lumens	6,990	13,660	20,382	26,931	33,368	39,930	47,223	53,506	59,686	66,081
	3000K Lumens	6,188	12,092	18,042	23,839	29,537	35,346	41,802	47,364	52,834	58,495
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
T4FT	4000K/5000K Lumens	6,878	13,440	20,055	26,499	32,832	39,289	46,464	52,646	58,726	65,020
	3000K Lumens	6,088	11,897	17,753	23,457	29,063	34,779	41,130	46,602	51,984	57,556
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
T4W	4000K/5000K Lumens	6,789	13,267	19,795	26,156	32,408	38,781	45,864	51,967	57,968	64,180
	3000K Lumens	6,010	11,744	17,523	23,153	28,688	34,329	40,599	46,001	51,313	56,812
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
SL2	4000K/5000K Lumens	6,697	13,088	19,529	25,804	31,970	38,259	45,245	51,267	57,186	63,315
	3000K Lumens	5,928	11,585	17,287	22,842	28,300	33,867	40,051	45,382	50,621	56,046
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
SL3	4000K/5000K Lumens	6,837	13,361	19,936	26,342	32,639	39,057	46,189	52,336	58,380	64,636
	3000K Lumens	6,052	11,827	17,647	23,318	28,892	34,573	40,887	46,328	51,678	57,216
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
SL4	4000K/5000K Lumens	6,496	12,695	18,943	25,029	31,011	37,110	43,886	49,727	55,470	61,414
	3000K Lumens	5,750	11,238	16,768	22,156	27,451	32,850	38,848	44,018	49,102	54,364
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G4	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
5NQ	4000K/5000K Lumens	7,052	13,781	20,564	27,171	33,664	40,285	47,641	53,981	60,215	66,669
	3000K Lumens	6,242	12,199	18,203	24,052	29,799	35,660	42,172	47,784	53,302	59,015
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
5MQ	4000K/5000K Lumens	7,182	14,034	20,942	27,671	34,284	41,027	48,518	54,975	61,323	67,896
	3000K Lumens	6,358	12,423	18,538	24,494	30,348	36,317	42,948	48,664	54,283	60,102
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5
5WQ	4000K/5000K Lumens	7,201	14,073	20,998	27,744	34,375	41,136	48,648	55,121	61,487	68,077
	3000K Lumens	6,374	12,457	18,587	24,559	30,429	36,414	43,063	48,793	54,428	60,262
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
SLL/SLR	4000K/5000K Lumens	6,009	11,741	17,519	23,148	28,681	34,321	40,589	45,990	51,301	56,798
	3000K Lumens	5,319	10,393	15,508	20,491	25,388	30,381	35,929	40,710	45,412	50,278
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
RW	4000K/5000K Lumens	6,989	13,657	20,378	26,925	33,360	39,921	47,211	53,494	59,672	66,066
	3000K Lumens	6,187	12,089	18,039	23,834	29,530	35,338	41,791	47,353	52,822	58,482
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
AFL	4000K/5000K Lumens	7,014	13,706	20,452	27,023	33,481	40,066	47,383	53,688	59,888	66,306
	3000K Lumens	6,209	12,133	18,104	23,921	29,637	35,466	41,943	47,525	53,013	58,694
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B4-U0-G4	B4-U0-G4

* Nominal data for 70 CRI.

NOMINAL POWER LUMENS (1A)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		59	113	166	225	279	333	391	445	501	558
Input Current @ 120V (A)		0.51	1.02	1.53	2.03	2.55	3.06	3.56	4.08	4.6	5.07
Input Current @ 208V (A)		0.29	0.56	0.82	1.11	1.37	1.64	1.93	2.19	2.46	2.75
Input Current @ 240V (A)		0.26	0.48	0.71	0.96	1.19	1.41	1.67	1.89	2.12	2.39
Input Current @ 277V (A)		0.23	0.42	0.61	0.83	1.03	1.23	1.45	1.65	1.84	2.09
Input Current @ 347V (A)		0.17	0.32	0.50	0.64	0.82	1.00	1.14	1.32	1.50	1.68
Input Current @ 480V (A)		0.14	0.24	0.37	0.48	0.61	0.75	0.91	0.99	1.12	1.28
Optics											
T2	4000K/5000K Lumens	6,116	11,951	17,833	23,563	29,195	34,937	41,317	46,814	52,221	57,817
	3000K Lumens	5,414	10,579	15,786	20,858	25,843	30,926	36,574	41,440	46,226	51,180
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
T2R	4000K/5000K Lumens	6,493	12,688	18,932	25,015	30,994	37,090	43,863	49,699	55,439	61,380
	3000K Lumens	5,748	11,231	16,759	22,143	27,436	32,832	38,828	43,994	49,075	54,334
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5
T3	4000K/5000K Lumens	6,234	12,181	18,176	24,017	29,756	35,609	42,111	47,715	53,225	58,930
	3000K Lumens	5,518	10,783	16,089	21,260	26,340	31,521	37,277	42,237	47,115	52,165
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
T3R	4000K/5000K Lumens	6,372	12,453	18,580	24,550	30,418	36,400	43,048	48,776	54,409	60,239
	3000K Lumens	5,640	11,023	16,447	21,732	26,926	32,221	38,106	43,177	48,163	53,324
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
T4FT	4000K/5000K Lumens	6,270	12,252	18,282	24,156	29,929	35,815	42,356	47,992	53,534	59,271
	3000K Lumens	5,550	10,845	16,183	21,383	26,493	31,703	37,494	42,483	47,388	52,467
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
T4W	4000K/5000K Lumens	6,189	12,094	18,045	23,844	29,543	35,352	41,809	47,372	52,843	58,506
	3000K Lumens	5,479	10,706	15,973	21,107	26,151	31,294	37,009	41,934	46,777	51,790
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
SL2	4000K/5000K Lumens	6,105	11,931	17,803	23,522	29,144	34,877	41,245	46,734	52,130	57,717
	3000K Lumens	5,404	10,561	15,759	20,822	25,798	30,873	36,510	41,369	46,145	51,091
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
SL3	4000K/5000K Lumens	6,233	12,180	18,174	24,013	29,753	35,604	42,106	47,708	53,218	58,921
	3000K Lumens	5,517	10,782	16,088	21,256	26,337	31,517	37,272	42,231	47,109	52,157
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
SL4	4000K/5000K Lumens	5,922	11,572	17,268	22,816	28,269	33,829	40,006	45,330	50,566	55,984
	3000K Lumens	5,242	10,244	15,286	20,197	25,024	29,945	35,413	40,126	44,761	49,557
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
5NQ	4000K/5000K Lumens	6,429	12,563	18,746	24,768	30,688	36,723	43,429	49,208	54,891	60,775
	3000K Lumens	5,691	11,121	16,594	21,925	27,165	32,507	38,443	43,559	48,590	53,798
	BUG Rating	B2-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4
5MQ	4000K/5000K Lumens	6,547	12,794	19,090	25,224	31,253	37,400	44,228	50,114	55,902	61,893
	3000K Lumens	5,795	11,325	16,898	22,328	27,665	33,106	39,151	44,361	49,484	54,788
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
5WQ	4000K/5000K Lumens	6,564	12,828	19,141	25,291	31,336	37,499	44,347	50,248	56,051	62,058
	3000K Lumens	5,810	11,355	16,944	22,388	27,739	33,194	39,256	44,480	49,616	54,934
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
SLL/SLR	4000K/5000K Lumens	5,478	10,703	15,970	21,102	26,145	31,286	37,001	41,924	46,765	51,777
	3000K Lumens	4,849	9,474	14,137	18,679	23,144	27,694	32,753	37,111	41,396	45,833
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
RW	4000K/5000K Lumens	6,371	12,449	18,576	24,544	30,411	36,392	43,037	48,764	54,396	60,225
	3000K Lumens	5,640	11,020	16,443	21,726	26,920	32,214	38,096	43,166	48,151	53,311
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
AFL	4000K/5000K Lumens	6,394	12,494	18,644	24,634	30,521	36,524	43,194	48,942	54,593	60,444
	3000K Lumens	5,660	11,060	16,504	21,806	27,017	32,331	38,235	43,323	48,326	53,505
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4

* Nominal data for 70 CRI.

NOMINAL POWER LUMENS (800MA)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		44	85	124	171	210	249	295	334	374	419
Input Current @ 120V (A)		0.39	0.77	1.13	1.54	1.90	2.26	2.67	3.03	3.39	3.80
Input Current @ 208V (A)		0.22	0.44	0.62	0.88	1.06	1.24	1.50	1.68	1.87	2.12
Input Current @ 240V (A)		0.19	0.38	0.54	0.76	0.92	1.08	1.30	1.46	1.62	1.84
Input Current @ 277V (A)		0.17	0.36	0.47	0.72	0.83	0.95	1.19	1.31	1.42	1.67
Input Current @ 347V (A)		0.15	0.24	0.38	0.49	0.63	0.77	0.87	1.01	1.15	1.52
Input Current @ 480V (A)		0.11	0.18	0.29	0.37	0.48	0.59	0.66	0.77	0.88	0.96
Optics											
T2	4000K/5000K Lumens	4,941	9,656	14,408	19,038	23,588	28,227	33,382	37,823	42,191	46,713
	3000K Lumens	4,374	8,547	12,754	16,852	20,880	24,987	29,550	33,481	37,347	41,350
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5
T2R	4000K/5000K Lumens	5,246	10,251	15,296	20,211	25,041	29,966	35,439	40,154	44,791	49,592
	3000K Lumens	4,644	9,074	13,540	17,891	22,166	26,526	31,371	35,544	39,649	43,899
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5
T3	4000K/5000K Lumens	5,037	9,842	14,685	19,404	24,041	28,770	34,024	38,551	43,003	47,612
	3000K Lumens	4,459	8,712	12,999	17,176	21,281	25,467	30,118	34,125	38,066	42,146
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5
T3R	4000K/5000K Lumens	5,148	10,061	15,011	19,835	24,576	29,409	34,780	39,408	43,959	48,669
	3000K Lumens	4,557	8,906	13,288	17,558	21,755	26,033	30,787	34,884	38,913	43,082
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
T4FT	4000K/5000K Lumens	5,066	9,899	14,770	19,516	24,181	28,936	34,221	38,774	43,252	47,888
	3000K Lumens	4,484	8,763	13,074	17,276	21,405	25,614	30,292	34,323	38,287	42,390
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
T4W	4000K/5000K Lumens	5,000	9,771	14,579	19,264	23,869	28,562	33,779	38,274	42,694	47,269
	3000K Lumens	4,426	8,649	12,905	17,052	21,129	25,283	29,901	33,880	37,793	41,843
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
SL2	4000K/5000K Lumens	4,933	9,639	14,383	19,005	23,547	28,178	33,324	37,758	42,118	46,632
	3000K Lumens	4,367	8,532	12,732	16,823	20,844	24,943	29,498	33,423	37,283	41,279
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5
SL3	4000K/5000K Lumens	5,036	9,841	14,683	19,401	24,039	28,766	34,019	38,546	42,997	47,605
	3000K Lumens	4,458	8,711	12,997	17,174	21,279	25,464	30,114	34,121	38,061	42,140
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
SL4	4000K/5000K Lumens	4,784	9,350	13,951	18,434	22,840	27,332	32,323	36,624	40,854	45,232
	3000K Lumens	4,235	8,277	12,349	16,318	20,218	24,194	28,612	32,420	36,164	40,039
	BUG Rating	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G4	B2-U0-G4	B2-U0-G5	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
5NQ	4000K/5000K Lumens	5,194	10,150	15,145	20,011	24,794	29,670	35,088	39,757	44,349	49,102
	3000K Lumens	4,598	8,985	13,406	17,714	21,948	26,264	31,060	35,193	39,258	43,465
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G3
5MQ	4000K/5000K Lumens	5,290	10,337	15,424	20,380	25,250	30,217	35,734	40,489	45,165	50,006
	3000K Lumens	4,683	9,150	13,653	18,040	22,351	26,748	31,632	35,841	39,980	44,265
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
5WQ	4000K/5000K Lumens	5,304	10,365	15,465	20,434	25,318	30,297	35,830	40,597	45,286	50,139
	3000K Lumens	4,695	9,175	13,690	18,088	22,411	26,819	31,717	35,936	40,087	44,383
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
SLL/SLR	4000K/5000K Lumens	4,426	8,648	12,903	17,049	21,124	25,278	29,894	33,872	37,784	41,832
	3000K Lumens	3,918	7,655	11,422	15,092	18,699	22,376	26,462	29,983	33,446	37,030
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
RW	4000K/5000K Lumens	5,147	10,058	15,009	19,830	24,570	29,402	34,771	39,399	43,949	48,658
	3000K Lumens	4,556	8,903	13,286	17,554	21,749	26,027	30,779	34,876	38,904	43,072
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4
AFL	4000K/5000K Lumens	5,166	10,095	15,063	19,903	24,659	29,509	34,898	39,542	44,108	48,835
	3000K Lumens	4,573	8,936	13,334	17,618	21,828	26,121	30,892	35,003	39,044	43,229
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3

* Nominal data for 70 CRI.

NOMINAL POWER LUMENS (600MA)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		34	66	96	129	162	193	226	257	290	323
Input Current @ 120V (A)		0.30	0.58	0.86	1.16	1.44	1.73	2.03	2.33	2.59	2.89
Input Current @ 208V (A)		0.17	0.34	0.49	0.65	0.84	0.99	1.14	1.30	1.48	1.63
Input Current @ 240V (A)		0.15	0.30	0.43	0.56	0.74	0.87	1.00	1.13	1.30	1.43
Input Current @ 277V (A)		0.14	0.28	0.41	0.52	0.69	0.81	0.93	1.04	1.22	1.33
Input Current @ 347V (A)		0.11	0.19	0.30	0.39	0.49	0.60	0.69	0.77	0.90	0.99
Input Current @ 480V (A)		0.08	0.15	0.24	0.30	0.38	0.48	0.53	0.59	0.71	0.77
Optics											
T2	4000K/5000K Lumens	4,029	7,874	11,749	15,525	19,235	23,019	27,222	30,844	34,406	38,093
	3000K Lumens	3,566	6,970	10,400	13,743	17,027	20,376	24,097	27,303	30,456	33,720
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G4
T2R	4000K/5000K Lumens	4,278	8,360	12,474	16,482	20,421	24,437	28,900	32,745	36,527	40,441
	3000K Lumens	3,787	7,400	11,042	14,590	18,077	21,632	25,582	28,986	32,334	35,798
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4
T3	4000K/5000K Lumens	4,107	8,026	11,976	15,824	19,605	23,461	27,746	31,438	35,068	38,827
	3000K Lumens	3,636	7,105	10,601	14,007	17,354	20,768	24,561	27,829	31,042	34,370
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
T3R	4000K/5000K Lumens	4,198	8,205	12,242	16,175	20,041	23,982	28,363	32,137	35,848	39,689
	3000K Lumens	3,716	7,263	10,837	14,318	17,740	21,229	25,107	28,448	31,733	35,133
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
T4FT	4000K/5000K Lumens	4,131	8,072	12,045	15,915	19,719	23,597	27,907	31,620	35,272	39,052
	3000K Lumens	3,657	7,145	10,662	14,088	17,455	20,888	24,703	27,990	31,223	34,569
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5
T4W	4000K/5000K Lumens	4,077	7,968	11,889	15,710	19,465	23,292	27,546	31,212	34,816	38,547
	3000K Lumens	3,609	7,053	10,524	13,906	17,230	20,618	24,384	27,629	30,819	34,122
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5
SL2	4000K/5000K Lumens	4,022	7,861	11,729	15,498	19,202	22,979	27,175	30,791	34,347	38,028
	3000K Lumens	3,560	6,959	10,383	13,719	16,998	20,341	24,055	27,256	30,404	33,662
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
SL3	4000K/5000K Lumens	4,106	8,025	11,974	15,821	19,603	23,458	27,742	31,433	35,064	38,821
	3000K Lumens	3,635	7,104	10,599	14,005	17,353	20,765	24,557	27,824	31,039	34,364
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
SL4	4000K/5000K Lumens	3,902	7,624	11,377	15,033	18,626	22,289	26,359	29,867	33,316	36,886
	3000K Lumens	3,454	6,749	10,071	13,307	16,488	19,730	23,333	26,438	29,491	32,651
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G4	B2-U0-G4	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5
5NQ	4000K/5000K Lumens	4,236	8,277	12,351	16,319	20,219	24,196	28,614	32,422	36,166	40,042
	3000K Lumens	3,750	7,327	10,933	14,446	17,898	21,418	25,329	28,700	32,014	35,445
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3
5MQ	4000K/5000K Lumens	4,314	8,429	12,578	16,619	20,591	24,641	29,141	33,019	36,832	40,779
	3000K Lumens	3,819	7,461	11,134	14,711	18,227	21,812	25,796	29,228	32,604	36,098
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
5WQ	4000K/5000K Lumens	4,325	8,452	12,611	16,664	20,646	24,707	29,219	33,106	36,930	40,888
	3000K Lumens	3,828	7,482	11,163	14,751	18,276	21,871	25,865	29,305	32,690	36,194
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
SLL/SLR	4000K/5000K Lumens	3,609	7,052	10,522	13,903	17,226	20,613	24,378	27,622	30,812	34,114
	3000K Lumens	3,195	6,242	9,314	12,307	15,248	18,247	21,579	24,451	27,275	30,198
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
RW	4000K/5000K Lumens	4,197	8,202	12,239	16,171	20,036	23,977	28,356	32,129	35,839	39,680
	3000K Lumens	3,715	7,260	10,834	14,315	17,736	21,224	25,101	28,441	31,725	35,125
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
AFL	4000K/5000K Lumens	4,213	8,232	12,284	16,230	20,109	24,064	28,459	32,246	35,969	39,824
	3000K Lumens	3,729	7,287	10,874	14,367	17,800	21,301	25,192	28,544	31,840	35,252
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3

* Nominal data for 70 CRI.

CONTROL OPTIONS

0-10V (DIM)

This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (P, R and PER7)

Optional button-type photocontrol (P) and photocontrol receptacles (R and PER7) provide a flexible solution to enable “dusk-to-dawn” lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PER7 receptacle.

After Hours Dim (AHD)

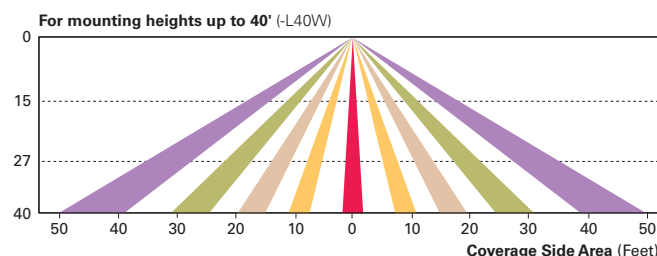
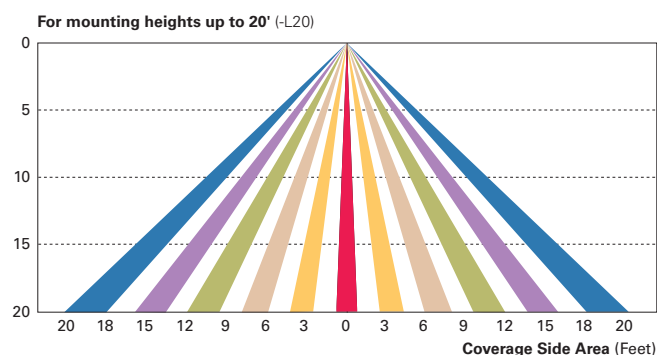
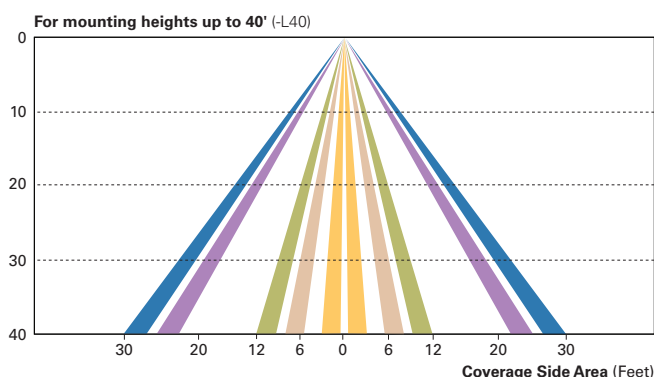
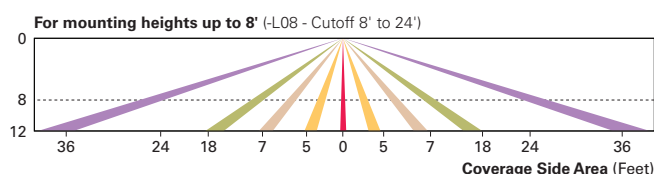
This feature allows photocontrol-enabled luminaires to achieve additional energy savings by dimming during scheduled portions of the night. The dimming profile will automatically take effect after a “dusk-to-dawn” period has been calculated from the photocontrol input. Specify the desired dimming profile for a simple, factory-shipped dimming solution requiring no external control wiring. Reference the After Hours Dim supplemental guide for additional information.

Dimming Occupancy Sensor (MS/DIM-LXX, MS/X-LXX and MS-LXX)

These sensors are factory installed in the luminaire housing. When the MS/DIM-LXX sensor option is selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The MS/DIM sensor is factory preset to dim down to approximately 50 percent power with a time delay of five minutes. The MS-LXX sensor is factory preset to turn the luminaire off after five minutes of no activity. The MS/X-LXX is also preset for five minutes and only controls the specified number of light engines to maintain steady output from the remaining light engines.

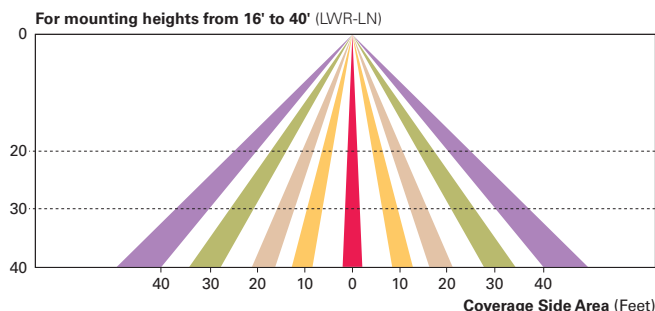
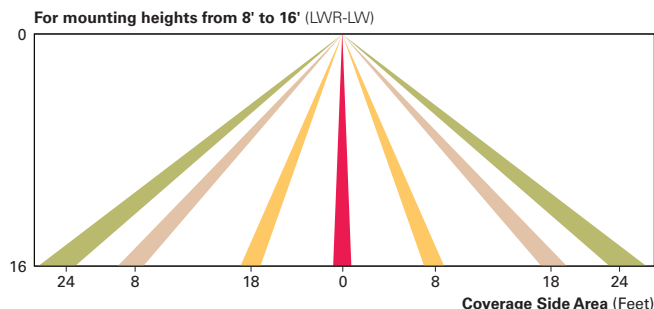
These occupancy sensors includes an integral photocell that can be activated with the FSIR-100 accessory for “dusk-to-dawn” control or daylight harvesting - the factory preset is OFF. The FSIR-100 is a wireless tool utilized for changing the dimming level, time delay, sensitivity and other parameters.

A variety of sensor lens are available to optimize the coverage pattern for mounting heights from 8'-40'.

**LumaWatt Wireless Control and Monitoring System (LWR-LW and LWR-LN)**

The LumaWatt system is a peer-to-peer wireless network of luminaire-integral sensors for any sized project. Each sensor is capable of motion and photo sensing, metering power consumption and wireless communication. The end-user can securely create and manage sensor profiles with browser-based management software. The software will automatically broadcast to the sensors via wireless gateways for zone-based and individual luminaire control. The LumaWatt software provides smart building solutions by utilizing the sensor to provide easy-to-use dashboard and analytic capabilities such as improved energy savings, traffic flow analysis, building management software integration and more.

For additional details, refer to the LumaWatt product guides.



ORDERING INFORMATION

Sample Number: GLEON-AF-04-LED-E1-T3-GM-QM

Product Family ^{1,2}	Light Engine	Number of Light Squares ³	Lamp Type	Voltage	Distribution	Color	Mounting
GLEON=Galleon	AF=1A Drive Current	01=1 02=2 03=3 04=4 05=5 06=6 07=7 ⁴ 08=8 ⁴ 09=9 ⁵ 10=10 ⁵	LED=Solid State Light Emitting Diodes	E1=120-277V 347=347V ⁶ 480=480V ^{6,7}	T2=Type II T2R=Type II Roadway T3=Type III T3R=Type III Roadway T4FT=Type IV Forward Throw T4W=Type IV Wide 5NQ=Type V Narrow 5MQ=Type V Square Medium 5WQ=Type V Square Wide SL2=Type II w/Spill Control SL3=Type III w/Spill Control SL4=Type IV w/Spill Control SLL=90° Spill Light Eliminator Left SLR=90° Spill Light Eliminator Right RW=Rectangular Wide Type I AFL=Automotive Frontline	AP=Grey BZ=Bronze BK=Black DP=Dark Platinum GM=Graphite Metallic WH=White	[Blank]=Arm for Round or Square Pole EA=Extended Arm ⁸ MA=Mast Arm Adapter ⁹ WM=Wall Mount QM=Quick Mount Arm (Standard Length) ¹⁰ QMEA=Quick Mount Arm (Extended Length) ¹¹
Options (Add as Suffix)					Accessories (Order Separately)		
7030=70 CRI 3000K ¹² 8030=80 CRI 3000K ¹³ 7050=70 CRI 5000K ¹² 7060=70 CRI 6000K ¹² 600=Drive Current Factory Set to Nominal 600mA ¹⁴ 800=Drive Current Factory Set to Nominal 800mA ¹⁴ 1200=Drive Current Factory Set to Nominal 1200mA ^{14,15} F=Single Fuse (120, 277 or 347V. Must Specify Voltage) FF=Double Fuse (208, 240 or 480V. Must Specify Voltage) 2L=Two Circuits ^{16,17} DIM=External 0-10V Dimming Leads P=Button Type Photocontrol (120, 208, 240 or 277V. Must Specify Voltage) PER7=NEMA 7-PIN Twistlock Photocontrol Receptacle R=NEMA Twistlock Photocontrol Receptacle AHD145=After Hours Dim, 5 Hours ¹⁸ AHD245=After Hours Dim, 6 Hours ¹⁸ AHD255=After Hours Dim, 7 Hours ¹⁸ AHD355=After Hours Dim, 8 Hours ¹⁸ HA=50°C High Ambient ¹⁹ MS/DIM-L08=Motion Sensor for Dimming Operation, Maximum 8' Mounting Height ^{20,21} MS/DIM-L20=Motion Sensor for Dimming Operation, 9' - 20' Mounting Height ^{20,22} MS/DIM-L40=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height ^{20,23} MS/DIM-L40W=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height (Wide Range) ^{20,24} MS/X-L08=Bi-Level Motion Sensor, Maximum 8' Mounting Height ^{20,21,25} MS/X-L20=Bi-Level Motion Sensor, 9' - 20' Mounting Height ^{20,22,25} MS/X-L40=Bi-Level Motion Sensor, 21' - 40' Mounting Height ^{20,23,25} MS/X-L40W=Bi-Level Motion Sensor, 21' - 40' Mounting Height (Wide Range) ^{20,24,25} MS-L08=Motion Sensor for ON/OFF Operation, Maximum 8' Mounting Height ^{20,21} MS-L20=Motion Sensor for ON/OFF Operation, 9' - 20' Mounting Height ^{20,22} MS-L40=Motion Sensor for ON/OFF Operation, 21' - 40' Mounting Height ^{20,23} MS-L40W=Motion Sensor for ON/OFF Operation, 21' - 40' Mounting Height (Wide Range) ^{20,24} LWR-LW=LumaWatt Wireless Sensor, Wide Lens for 8' - 16' Mounting Height ²⁶ LWR-LN=LumaWatt Wireless Sensor, Narrow Lens for 16' - 40' Mounting Height ²⁶ L90=Optics Rotated 90° Left R90=Optics Rotated 90° Right MT=Factory Installed Mesh Top TH=Tool-less Door Hardware LCF=Light Square Trim Plate Painted to Match Housing ²⁷ HSS=Factory Installed House Side Shield ²⁸ CE=CE Marking ²⁹					OA/RA1016=NEMA Photocontrol Multi-Tap - 105-285V OA/RA1027=NEMA Photocontrol - 480V OA/RA1201=NEMA Photocontrol - 347V OA/RA1013=Photocontrol Shorting Cap OA/RA1014=120V Photocontrol MA1252=10kV Surge Module Replacement MA1036-XX=Single Tenon Adapter for 2-3/8" O.D. Tenon MA1037-XX=2 @ 180° Tenon Adapter for 2-3/8" O.D. Tenon MA1197-XX=3 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon MA1188-XX=4 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon MA1189-XX=2 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon MA1190-XX=3 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon MA1191-XX=2 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon MA1038-XX=Single Tenon Adapter for 3-1/2" O.D. Tenon MA1039-XX=2 @ 180° Tenon Adapter for 3-1/2" O.D. Tenon MA1192-XX=3 @ 120° Tenon Adapter for 3-1/2" O.D. Tenon MA1193-XX=4 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon MA1194-XX=2 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon MA1195-XX=3 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon FSIR-100=Wireless Configuration Tool for Occupancy Sensor ²⁰ GLEON-MT1=Field Installed Mesh Top for 1-4 Light Squares GLEON-MT2=Field Installed Mesh Top for 5-6 Light Squares GLEON-MT3=Field Installed Mesh Top for 7-8 Light Squares GLEON-MT4=Field Installed Mesh Top for 9-10 Light Squares GLEON-QM=Quick Mount Arm Kit GLEON-QMEA=Quick Mount Extended Arm Kit LS/HSS=Field Installed House Side Shield ^{28,30}		

NOTES:

- Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information.
- DesignLights Consortium™ Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.
- Standard 4000K CCT and minimum 70 CRI.
- Not compatible with extended quick mount arm (QMEA).
- Not compatible with standard quick mount arm (QM) or extended quick mount arm (QMEA).
- Requires the use of an internal step down transformer when combined with sensor options. Not available with sensor at 1200mA. Not available in combination with the HA high ambient and sensor options at 1A.
- Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems).
- May be required when two or more luminaires are oriented on a 90° or 120° drilling pattern. Refer to arm mounting requirement table.
- Factory installed.
- Maximum 8 light squares.
- Maximum 6 light squares.
- Extended lead times apply. Use dedicated IES files for 3000K, 5000K and 6000K when performing layouts. These files are published on the Galleon luminaire product page on the website.
- Extended lead times apply. Use dedicated IES files for 3000K, 5000K and 6000K when performing layouts. These files are published on the Galleon luminaire product page on the website.
- 1 Amp standard. Use dedicated IES files for 600mA, 800mA and 1200mA when performing layouts. These files are published on the Galleon luminaire product page on the website.
- Not available with HA option.
- 2L is not available with MS, MS/X or MS/DIM at 347V or 480V. 2L in AF-02 through AF-04 requires a larger housing, normally used for AF-05 or AF-06. Extended arm option may be required when mounting two or more fixtures per pole at 90° or 120°. Refer to arm mounting requirement table.
- Not available with LumaWatt wireless sensors.
- Requires the use of P photocontrol or the PER7 or R photocontrol receptacle with photocontrol accessory. See After Hours Dim supplemental guide for additional information.
- 50°C lumen maintenance data applies to 600mA, 800mA and 1A drive currents.
- The FSIR-100 configuration tool is required to adjust parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Eaton for more information.
- Approximately 22' detection diameter at 8' mounting height.
- Approximately 40' detection diameter at 20' mounting height.
- Approximately 60' detection diameter at 40' mounting height.
- Approximately 100' detection diameter at 40' mounting height.
- Replace X with number of Light Squares operating in low output mode.
- LumaWatt wireless sensors are factory installed only requiring network components RF-EM-1, RF-GW-1 and RF-ROUT-1 in appropriate quantities. See www.eaton.com/lighting for LumaWatt application information.
- Not available with house side shield (HSS).
- Only for use with SL2, SL3, SL4 and AFL distributions. The Light Square trim plate is painted black when the HSS option is selected.
- CE is not available with the LWR, MS, MS/X, MS/DIM, P, R or PER7 options. Available in 120-277V only.
- One required for each Light Square.