



2017

Construction Standards  
and  
Guidelines



# 2017 Construction Standards and Guidelines

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## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 0/1

Specification Section:

Description of Material or System:

Sustainability Design Guidelines

Last Updated:

4/7/2016

Updated by:

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

Overview of system/product/guideline:

Following is the PEA Guiding Principles for Sustainable Construction.

Links to additional product information:

Additional information can be obtained by contacting Jill Robinson @ PEA.

Jill Robinson  
Environmental Stewardship Manager  
jrrobinson@exeter.edu  
(603) 777-4437

# **GUIDING PRINCIPLES FOR SUSTAINABLE CONSTRUCTION**

**Phillips Exeter Academy**

**October 28, 2011**

## **Introduction**

**A sustainable building is one that uses energy, water and other natural resources efficiently and provides a safe and productive indoor environment.** By designing and constructing buildings that incorporate principles for sustainable construction, the Academy can reduce energy use and costs, improve occupant satisfaction, productivity, comfort, safety and health; reduce operating and maintenance costs, reduce emissions of carbon dioxide, and provide a sustainable environment for learning, living, and working.

**This document is not a checklist of specifications. The purpose of the document is to identify goals and offer strategies to achieve those goals.** Each building project is unique. The design process may bring about new strategies to meet these goals or require alternative approaches to construction. Although some building projects may be appropriate for LEED, Energy Star, or other third-party certification, this document is not a certification template.

This document is intended to be revised and updated over time to ensure it is consistent with current best practices. As Federal, State, and local governments adopt sustainable practices, policies, and regulations, this document will be revised to reflect the evolving regulatory environment, new technology, and industry best practices. When planning for capital projects, periodic building commissioning should be incorporated into project budgets to ensure that new and renovated buildings continue to meet environmental performance goals.

### **This document is organized in six sections:**

- 1) Site Design and Planning;**
- 2) Energy Use;**
- 3) Materials, Resources and Waste;**
- 4) Water Management;**
- 5) Indoor Environmental Quality; and**
- 6) Life cycle analysis in the selection of site, materials and equipment**

**Building project consultants and the design review team should review this document during the design phase and the design team should respond to each section by indicating which strategies will be utilized to meet selected goals in each section, or propose alternative strategies.**

## **SECTION 1: SITE DESIGN AND PLANNING**

Sustainable site planning identifies the environmental characteristics of the site to ensure that designers situate the building to maximize site characteristics for energy efficiency such as sunlight, topography, tree cover, and soils, and to minimize negative impacts on natural resources during and after construction. Sustainable site planning also considers the project's proximity to the supporting infrastructure of adjacent buildings and systems, transportation, and other services and amenities. An integrated design process involving collaborative planning between project team members helps to ensure sustainability is incorporated into the project.

**OBJECTIVE: Consider re-use of existing facilities and minimize impact to the natural environment**

### **GOALS:**

- **Promote infill development that considers natural systems and existing buildings**
- **Maintain and enhance natural systems and/or the existing character of the site**
- **Reduce building energy use by careful siting and orientation of the building**
- **Reduce energy use for transportation and site or department-related activities**
- **Protect trees, soil, water bodies and other resources during construction**
- **Use Integrated Design to ensure continuity in planning from the design phase and throughout project construction, operations and maintenance**

**Goal 1: Promote infill development that considers existing natural systems and existing buildings, infrastructure and systems.**

### **STRATEGIES:**

- 1) Select a site in proximity to existing infill development and energy systems.
- 2) Select a site in proximity to existing transportation systems that allows building occupants to utilize alternative methods of transportation such as pedestrian access, bicycle use, and mass transit. Provide building amenities such as shower facilities, bike racks, and drop-off access to encourage alternative commuting and carpooling.
- 3) Select a site that allows for renovation or reuse of an existing structure. In the case of new construction, consider how systems for the new building could be utilized by adjacent buildings.

**Goal 2: Maintain and enhance the existing natural systems and/or the existing character of the site.**

### **STRATEGIES:**

- 1) Maintain setbacks and buffers to protect water quality and satisfy regulatory requirements.
- 2) Minimize the area of the site dedicated to the building, parking, and access roads.
- 3) Design the site to reconnect fragmented landscapes and/or establish contiguous networks with other natural systems, and protect existing wildlife habitat where possible.
- 4) Utilize culverts and crossings that meet local requirements and also permit wildlife passage.
- 5) Design windows to minimize issues from bird death. Consider animal nuisance issues in designing ponds or other water features in site design.

- 6) Use vegetation on the site that is suited for the prevailing temperature/seasonal and soil conditions to minimize maintenance costs. Protect slopes from erosion during and after construction.

**Goal 3: Reduce building energy use by careful siting and orientation of the building.**

**STRATEGIES:**

- 1) Locate site and orient buildings to take advantage of seasonal sun angles, and solar access.
- 2) Locate trees and shrubs to support passive heating and to complement cooling in outdoor spaces and buildings.
- 3) Design the site to reduce heat island effects by using shading, white or high albedo (reflective) materials on roofs and other surfaces. Consider the use of pervious surfaces for parking, walkways, patios, driveways, and roads with infrequent use.
- 4) Design site lighting to eliminate light trespass and minimize night sky light pollution by using recommended practices from the International Dark Sky Association.

**Goal 4: Reduce energy use for transportation and site or department related activities.**

**STRATEGIES:**

- 1) Locate buildings near existing parking areas and other public areas.
- 2) Provide commuter amenities such as shower facilities, bike racks, and pedestrian access.
- 3) Locate similar-function buildings together.
- 4) Where feasible, share building systems and amenities and coordinate facility use.

**Goal 5: Protect trees, soil, water bodies and other resources during construction**

**STRATEGIES:**

- 1) Use best practices for erosion and sediment control during construction, fencing and other best practices for tree protection during construction, and comply with local regulations for buffers and setbacks for water resources.
- 2) Consult with the Grounds Manager during the design phase and construction phase to ensure continuity between existing and future landscaping plans and grounds maintenance.

**Goal 6: Use Integrated Design to ensure continuity from initial phases of design through later phases of construction, operations and maintenance.**

**STRATEGIES**

- 1) Use a collaborative, integrated planning and design process that maintains an integrated project team in all stages of a project's planning and delivery.
- 2) Establish performance goals for siting, energy, water, materials, and indoor quality to ensure incorporation of these goals through the design and lifecycle of a building.
- 3) Consider all stages of the building's lifecycle, including deconstruction.
- 4) Use life cycle cost analysis to weigh design options and choose high performance system components when justified.

- 5) Consult with stakeholders including building occupants, project managers, and maintenance and operations staff to ensure the building is designed to meet occupant needs and can be maintained efficiently over time to continue to meet building performance goals.
- 6) Require periodic building commissioning and include commissioning in project funding to ensure the building meets performance goals after construction and beyond.

## **SECTION 2: ENERGY USE**

**OBJECTIVE: Optimize energy performance and pollution prevention**

### **GOALS:**

- **When feasible, reduce total building energy consumption and peak electrical demand**
- **Reduce air pollution and ozone depletion caused by energy production**
- **Achieve energy savings due to upgrades and high-performance system components**
- **Pursue all opportunities for funding, rebates, and other means of financing energy-efficient building components and measurement tools and demonstrate return on investment over the life-cycle of the building component or system through savings due to increased efficiency**

**Goals 1 and 2: When possible, reduce total building energy consumption and peak electrical demand and reduce air pollution and ozone depletion caused by energy production**

### **STRATEGIES:**

- 1) Establish a whole building performance target that takes into account the intended use, occupancy, operations, plug loads and other energy demands and design based on the ENERGY STAR Target finder for new construction and major renovation where applicable, even if ENERGY STAR or other certification is not sought on the project.
- 2) Utilize technologies such as heat recovery systems, fan coil units, long-life high-efficiency mechanical equipment for HVAC systems, and high performance components.
- 3) Sub-meter buildings to measure kWh and peak demand and incorporate metering into software monitoring that can generate data reports broken down by time of day, peak use, day of the week, month, and year.
- 4) Optimize insulation to reduce heating and cooling energy consumption by heat losses and gains through the building envelope.
- 5) Provide daylighting integrated with electric lighting controls, and ensure that glare and excessive contrast is controlled for through shading, window glazing, and architectural design.

**Goal 3: Achieve energy savings due to upgrades and high-performance system components**

### **STRATEGIES:**

- 1) Use equipment with premium efficiency motors and variable speed drives.
- 2) Select new equipment and appliances that meet EPA Energy STAR criteria.
- 3) Use heat recovery systems.

**Goal 4: Pursue all opportunities for funding, rebates and other means of financing energy-efficient building components and energy measurement tools and demonstrate return on investment over the life-cycle of the building component or system through savings due to increased efficiency.**

**STRATEGIES:**

- 1) Consult with local utility companies to participate in energy efficiency rebate programs.
- 2) Utilize state and federal programs for investments in energy efficient technologies.

**SECTION 3: MATERIALS, RESOURCES, AND WASTE**

**OBJECTIVE: Select products and materials that contribute to environmental stewardship**

**GOALS:**

- Reduce consumption and depletion of material resources, especially non-renewable resources
- Minimize the life-cycle impact of materials on the environment
- Minimize waste generated from construction, renovation, and demolition of buildings
- Minimize waste generated during building occupancy

**Goal 1: Reduce consumption and depletion of material resources, especially non-renewable resources**

**STRATEGIES:**

- 1) Use life-cycle methodology to evaluate materials, focusing on those used in large quantities or with significant environmental impact. Choose materials with the lowest environmental impact when feasible. New furniture should meet the criteria of GREENGUARD Children & Schools certification.

**Goal 2: Minimize the life-cycle impact of materials on the environment**

**STRATEGIES:**

- 1) To reduce the consumption of natural resources, consider and use the following:
  - Salvaged materials
  - Remanufactured materials
  - Materials with post-consumer recycled content
  - Reusable, recyclable and biodegradable materials
  - Durable materials which are easier to maintain on surfaces such as flooring, countertops, walls, trim, doors, and in considering furniture, fixtures, and textiles
  - Wood certified by the Forest Stewardship Council or from a Certified NH Tree Farm
  - Timber that is harvested within 500 miles of Phillips Exeter Academy
  - Low or zero VOC materials

- 2) Use materials systems, and components that can be recycled or reused, and avoid composite materials when possible.

**Goal 3: Minimize waste generated from construction, renovation, and demolition of buildings**

**STRATEGIES:**

- 1) Divert construction waste and demolition debris waste from area landfills by preparing a Construction Waste Management plan with a goal of achieving a 75% diversion rate.
- 2) Use salvaged and re-used materials where applicable and feasible.

**Goal 4: Minimize waste generated during building occupancy**

**STRATEGIES:**

- 1) Provide designated areas for recycling.
- 2) Provide signage for recycling areas and lists of materials that can be recycled.
- 3) Provide signage for appropriate disposal of other items including light bulbs, batteries, hazardous materials, computers, cell phones, and other electronics.

**SECTION 4: WATER MANAGEMENT**

**OBJECTIVE: Conserve and protect water resources**

**GOALS:**

- Reduce stormwater runoff impacts on the area's water resources
- Reduce potable water consumption associated with landscape irrigation
- Reduce overall water consumption inside buildings

**Goal 1: Reduce stormwater runoff impacts on the area's water resources**

**STRATEGIES:**

- 1) Retain and/or maximize pervious and vegetated areas of the site.
- 2) Utilize best practices for stormwater management and erosion and sediment control
- 3) Where possible, use biologically based stormwater management techniques such as swales, rain gardens and infiltration basins.

**Goal 2: Reduce potable water consumption associated with landscape irrigation**

**STRATEGIES:**

- 1) Select drought-tolerant species and species native to the region.
- 2) Utilize efficient irrigation systems that utilize moisture sensors, drip irrigation, and other technologies to reduce irrigation.

### **Goal 3: Where possible, reduce overall water consumption inside buildings**

#### **STRATEGIES:**

- 1) Use technologies such as infrared faucet sensors, low-flow toilets, dual-flush toilets, low-flow faucets and showerheads, and clothes washers and other appliances that meet EPA ENERGY STAR requirements.
- 2) Use domestic dishwashers that use 10 gallons per cycle or less. Use commercial dishwashers that use 120 gallons per hour (conveyor) or one gallon or less per rack.

## **SECTION 5: INDOOR ENVIRONMENTAL QUALITY**

### **OBJECTIVE: Ensure optimal indoor environmental quality**

#### **GOALS:**

- **Monitor indoor air quality during renovation, demolition, and construction activities.**
- **Provide and maintain acceptable indoor air quality, defined as: “Air in which there are no known contaminants at harmful concentrations as determined by state and federal authorities and with which a substantial majority (80%) of the people do not express dissatisfaction**
- **Produce environments that enhance comfort, well-being, performance, and productivity**

### **Goal 1: Monitor indoor air quality during renovation, demolition, and construction activities**

#### **STRATEGIES:**

- 1) Develop an Indoor Air Quality Management Plan meeting or exceeding recommended Control Measures of the SMACNA IAQ Guidelines for Occupied Buildings Under Construction 2007, ANSI (/SMCNA 008-2008 or most recent version or amendment.
- 2) Conduct baseline air quality testing prior to occupancy consistent with US EPA Compendium of Methods for the Determination of Air Pollutants in Indoor Air.
- 3) Address Environmental Tobacco Smoke Control during construction and post occupancy. Maintain a smoke free work site and post construction smoke free building environment.

### **Goal 2: Provide and maintain acceptable indoor air quality, defined as: “Air in which there are no known contaminants at harmful concentrations as determined by state and federal authorities and with which a substantial majority (80%) of the people do not express dissatisfaction**

#### **STRATEGIES:**

- 1) Adhere to ASHRAE standards for ventilation and thermal comfort including standards for Ventilation for Acceptable Indoor Air Quality, and Thermal Environmental Conditions for Human Occupancy.
- 2) Ensure laboratories are properly ventilated and meet current national standards. Consider technologies for laboratories such as variable air volume hood controls and fume hood sash restrictors.

- 3) Where moisture precautions are needed, specify materials to discourage microbial growth and address moisture control in design specifications and building maintenance.
- 4) Utilize GreenSeal or EcoLogo certified cleaning products within an established cleaning protocol to clean interiors of buildings.

**Goal 3: Produce environments that enhance comfort, well-being, performance, and productivity**

**STRATEGIES:**

- 1) Use low or no VOC-emitting materials (including paints, coatings, adhesives, carpet, ceiling tiles, and furniture systems) to help ensure good indoor air quality. Choose GREENGUARD certified surfaces such as flooring and GREENGUARD certified furniture.
- 2) Follow material conditioning procedures and project sequencing procedures.
- 3) Reduce dust emissions in occupied buildings during and after construction.
- 4) Specify design features to control sources of noise from mechanical and electrical equipment and from exterior sources.
- 5) Specify design strategies and features to create appropriate sound reverberation levels, background sound levels, sound rendition, and speech interference levels.
- 6) Where feasible, provide building occupants with control of thermal and lighting conditions within a specified range for optimal energy performance.

**SECTION 6: LIFE CYCLE COST ANALYSIS**

**OBJECTIVE: Demonstrate improved efficiency and cost savings within a reasonable time period by providing life cycle cost analysis and return on investment calculations for proposed materials and system components when considering multiple choices of materials or system components**

When choosing materials, components and systems, provide calculations for life cycle cost analysis and when warranted return on investment for system upgrades or components. The design team and Phillips Exeter Academy should weigh investments in increased efficiency versus the achievement of a reasonable return on investment by utilizing life cycle cost analysis and other tools to determine that such systems and components are justified.

**REFERENCES**

1. Basis of Design, Phillips Exeter Academy Phillips Hall Renovation, The Green Engineer LLP, April 14, 2011.
2. Guiding Principles for Sustainable New Construction and Major Renovations (National Institute of Building Sciences' Whole Building Design Guide WBDG, [http://www.wbdg.org/references/fhpsb\\_new.php](http://www.wbdg.org/references/fhpsb_new.php))
3. LEED for Schools (United States Green Building Council).
4. Building Standards, Stanford University, March 2002.
5. U.S. Department of Energy. Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings. [http://www1.eere.energy.gov/femp/program/sustainable\\_buildings.html](http://www1.eere.energy.gov/femp/program/sustainable_buildings.html)
6. Minnesota Sustainable Design Guide, 1999-2001.

7. Campus Sustainable Design Guidelines, University of Connecticut, November 2004.
8. The Collaboration for High Performance Schools, Best Practices Manual, Volume II, Design, 2006.



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 0/1

Specification Section:

01 50 00 - TEMPORARY FACILITIES AND CONTROLS

Description of Material or System:

Waste Management

Last Updated:

4/4/2016

Updated by:

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

Overview of system/product/guideline:

Documents outline recycling goals, waste management plan requirements and submittals for waste handling.

Links to additional product information:

Vendor:

Northside Carting, Inc.  
210 Holt Road  
North Andover, MA 01845

978-686-8604 (phone)  
978-686-3086 (fax)

SECTION 01524

CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
  - 1. Salvaging nonhazardous construction waste.
  - 2. Recycling nonhazardous construction waste.
  - 3. Disposing of nonhazardous construction waste.
- B. Related Sections include the following:
  - 1. Section 01500, TEMPORARY FACILITIES AND CONTROLS for environmental-protection measures during construction.

1.2 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Disposal: Removal off-site of construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- C. Recycle: Recovery of construction waste for subsequent processing in preparation for reuse.
- D. Salvage: Recovery of construction waste and subsequent sale or reuse in another facility.
- E. Salvage and Reuse: Recovery of construction waste and subsequent incorporation into the Work.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of 75 percent by weight of total waste generated by the Work.
- B. Salvage/Recycle Requirements: Owner's goal is to salvage and recycle as much nonhazardous construction waste as possible including the following materials:
  - 1. Construction Waste:
    - a. Site-clearing waste.

- b. Lumber.
- c. Wood sheet materials.
- d. Wood trim.
- e. Metals.
- f. Roofing.
- g. Insulation.
- h. Gypsum board.
- i. Piping.
- j. Electrical conduit.
- k. Packaging: Regardless of salvage/recycle goal indicated above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
  - 1) Paper.
  - 2) Cardboard.
  - 3) Boxes.
  - 4) Plastic sheet and film.
  - 5) Polystyrene packaging.
  - 6) Wood crates.
  - 7) Plastic pails.

#### 1.4 SUBMITTALS

- A. Waste Management Plan: Submit 3 copies of plan within 30 days of date established for the Notice to Proceed.
- B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit three copies of report. Application for Payment will not be approved if Report is not submitted. Include separate reports for construction waste. Include the following information:
  - 1. Material category.
  - 2. Generation point of waste.
  - 3. Total quantity of waste in tons (tonnes).
  - 4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
  - 5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
  - 6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
  - 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- C. Waste Reduction Calculations: Before request for Substantial Completion, submit three copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

- F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- H. Qualification Data: For Waste Management Coordinator and refrigerant recovery technician.
- I. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.
- J. Qualifications: Submit qualifications of Waste Management Contractor, Waste Management Coordinator, and Refrigerant Recovery Technician as specified in Article 1.5, QUALITY ASSURANCE herein.

#### 1.5 QUALITY ASSURANCE

- A. Waste Management Contractor Qualifications: Waste Management Contractor shall have a minimum of 3 years documented experience in construction waste management of projects of this size or larger..
- B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Waste Management Conference: Conduct conference at Project site to comply with requirements in Section 01310, PROJECT MANAGEMENT AND COORDINATION. Review methods and procedures related to waste management including, but not limited to, the following:
  - 1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
  - 2. Review requirements for documenting quantities of each type of waste and its disposition.
  - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
  - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
  - 5. Review waste management requirements for each trade.

#### 1.6 WASTE MANAGEMENT PLAN

- A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Include separate sections in plan for construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

- B. Waste Identification: Indicate anticipated types and quantities of, site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
  - 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
  - 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
  - 5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
  - 6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 PLAN IMPLEMENTATION

- A. General: Implement waste management plan as approved by Architect. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
  - 1. Comply with Section 01500, TEMPORARY FACILITIES AND CONTROLS for operation, termination, and removal requirements.
- B. Waste Management Coordinator: On-Site Superintendent shall be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
  - 1. Distribute waste management plan to everyone concerned within three days of submittal return.
  - 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
  - 2. Comply with Section 01500, TEMPORARY FACILITIES AND CONTROLS for controlling dust and dirt, environmental protection, and noise control.

### 3.2 RECYCLING CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.
- D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
  - 1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
    - a. Inspect containers and bins for contamination and remove contaminated materials if found.
  - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
  - 4. Store components off the ground and protect from the weather.
  - 5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

### 3.3 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
  - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
  - 2. Polystyrene Packaging: Separate and bag materials.
  - 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
  - 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Site-Clearing Wastes: Chip brush, branches, and trees at landfill facility.

- C. Wood Materials:
  - 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
  - 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
- D. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.

#### 3.4 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
  - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION



# PHILLIPS EXETER ACADEMY

## Construction Standards and Guidelines

Division of Work:

Division 0/1

Specification Section:

01770/01 77 00 - Closeout Procedures

Description of Material or System:

O&M Manuals

Last Updated:

6/17/2013

Updated by:

Mark Leighton

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- Academic Buildings
- Administrative
- Athletic Facilities
- Campus Wide
- Other \_\_\_\_\_
- Other \_\_\_\_\_
- Dormitories
- Faculty Residences
- Support
- Utility

Overview of system/product/guideline:

Attached is the specification and logs/ information on how O&M Manuals shall be created and turned over to Owner.

Links to additional product information:

**PART 1 – GENERAL**

## 1.01 SECTION INCLUDES

- A. Format and content of manuals.
- B. Instruction of Owner's personnel.
- C. Schedule of required submittals.

## 1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this Section.
- B. All related Specification Sections shall be used in conjunction with this Section.

## 1.03 QUALITY ASSURANCE

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

## 1.04 FORMAT

- A. Prepare data in the form of an instructional manual.
- B. Binders: Commercial quality, 8 1/2" x 11" binders with hardback, cleanable, plastic covers; one-inch minimum to three inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- C. Cover: Identify each binder with typed or printed title "OPERATION AND MAINTENANCE INSTRUCTIONS," list title of Project; identify subject matter of contents.
- D. Arrange contents by systems under Section numbers and sequence according to Table of Contents in this Specification.
- E. Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- F. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.
- G. Drawings: Provide with reinforced punched binder tab or pocket to hold drawing. Bind in with text; fold larger drawings to size of text pages or pocket.

#### 1.05 CONTENTS, EACH VOLUME

- A. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Engineer, subconsultants, and Contractor, with name of responsible parties; schedule of products and systems, indexed to content of the volume.
- B. For Each Product or System: List names, addresses and telephone numbers of subcontractors, manufacturers and suppliers, including local source of supplies and replacement parts.
- C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- D. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Neat modifications of Engineer's Drawings may be used for this purpose. Do not use Project Record Documents as maintenance drawings.
- E. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure. Incorporate manufacturer's printed instructions for delivery, storage, assembly, installation, start up, adjusting, finishing, operation and maintenance.
- F. Warranties and Bonds: Provide list of products with warranties greater than one year. List product data, warranty information, and warranty contact information.

#### 1.06 MANUAL FOR MATERIALS AND FINISHES

- A. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Additional Requirements: As specified in individual Specification Sections.

#### 1.07 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves with engineering data, tests, and certifications where appropriate, and complete nomenclature and commercial number of replaceable parts, where applicable.

- B. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications.
- C. Include color-coded wiring diagrams as installed.
- D. Operating Procedures: Include start up, break in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and any special operating instructions.
- E. Maintenance Requirements: Include routine procedures and guide for troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- F. Provide servicing and lubrication schedule, and list of lubricants required.
- G. Include manufacturer's printed operation and maintenance instructions.
- H. Include sequence of operation by controls manufacturer.
- I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- J. Provide controls diagrams by controls manufacturer as installed.
- K. Provide Contractor's coordination drawings, with color-coded piping diagrams as installed.
- L. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- M. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- N. Include test and balancing reports as specified in Section 01400.
- O. Installation Instructions: Provide assembly procedures and alignment and adjustment procedures.
- P. Additional Requirements: As specified in individual Specification Sections.

1.08 PREVENTATIVE MAINTENANCE PROGRAM INFORMATION

- A. Phillips Exeter Academy (PEA) shall utilize a Computerized Maintenance Management System (CMMS) to schedule, execute and track Preventive Maintenance (PM) for the new facility assets. Both asset technical information (manufacturer, model, and serial numbers) and maintenance information (procedures, intervals, lubricants and parts) are stored in the CMMS. Once the CMMS database is loaded with this information, maintenance work order documents can be automatically generated to notify PEA when PM work needs to be performed.

Technical and maintenance information sources include shop drawings and manufacturer O&M manuals. The goal is to have the CMMS program developed prior to project substantial completion.

B. Equipment Maintenance Information

1. Equipment Data and PM information is required to support the Owner's maintenance program as noted above. Sub-contractors providing equipment (i.e. HVAC/mechanical, electrical, plumbing, elevator) shall provide manufacturer's recommended maintenance requirements and other pertinent information to Owners representative **within 90 days of shop drawing approval** by the A/E.
2. Provide a comprehensive list of equipment for the project including, but not limited to mechanical, electrical and plumbing assets in an **electronic format** acceptable to PEA. A sample is provided at the end of this section. Note that the final submittal is required in electronic format (a Microsoft Excel template will be provided by PEA).
  - a. Location: Use building number provided by P.E.A.
  - b. Item Number: Use P.E.A. equipment naming convention provided at the end of this section.
  - c. Equipment Description: (ex., exhaust fan, chilled water pump, generator, water heater, switchboard)
  - d. Equipment Serial Numbers
  - e. Equipment Model Number
  - f. Notes: Provide any general notes.
  - g. Area Number: Use room number.
  - h. Area Description: Describe location in Room.
  - i. Date Placed in Service: Date accepted by owner.
  - j. Warranty Expiration Date: Expiration date of manufacturer's warranty.
  - k. Supplier Name: Local supplier.
  - l. Manufacturer Name
  - m. Life Expectancy of Unit: Units of life expectancy (i.e. years, months)
  - n. Life Expectancy: Standard life expectancy of unit based on industry standards.

C. Submittals

1. Preventive Maintenance Information Submittal
  - a. Submit manufacturers recommended and other required maintenance information listed above to PEA's representative within 90 days of shop drawing approval. The final submittal shall be in an electronic format acceptable to PEA (e.g. Microsoft Excel). A standard Microsoft Excel template(s) will be provided by PEA.
2. Standard Paper O&M Manual Submittals
  - a. Comply with O&M Manual requirements in accordance with Contract Specifications.
3. Electronic O&M Submittals
  - a. In addition to the standard paper O&M Manual, provide an electronic version of individual manufacturer maintenance manuals for each equipment type provided. Provide these in a format acceptable to PEA for use in the CMMS system.

1.09 INSTRUCTION OF OWNER'S PERSONNEL

- A. Before final inspection, instruct Owner's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times.
- B. For equipment requiring seasonal operation, perform instructions for other seasons within six months.
- C. Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- D. Prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

1.10 SUBMITTALS

- A. Submit two (2) copies of manufacturer's Operation and Maintenance Manuals for equipment and component parts within 30 days after shop drawing approval. One (1) copy will be returned which will have Engineer's comments.
- B. Submit two (2) copies of revised manual no later than thirty days before anticipated start-up. One (1) copy will be returned, after start-up with Engineer's comments. Revise content of documents as required prior to final submittal.
- C. Submit three (3) copies of revised manual in final form within 15 days from the return of manuals under Paragraph 1.09 B.

1.11 SCHEDULE OF SUBMITTALS

- A. Operation and Maintenance Manuals, conforming to this Specification and individual Specifications, shall be submitted for the following equipment as a minimum:

<u>Section Number</u>	<u>Equipment Description</u>
11241	Chemical Feed Systems
13310	Instrumentation and Controls

For Division 15, include shop drawings, product submittals and as-built drawings in operation and maintenance manuals.

- B. The above schedule is not all inclusive of individual sections requiring operation and maintenance data. The Contractor remains responsible for operation and maintenance data for equipment both on the schedule and not on the schedule but called for in the individual Specification Sections.

**PART 2 – PRODUCTS**

Not Used.

**PART 3 – EXECUTION**

Not Used.

End of Section

## Reference B – Equipment Naming Guidelines

Revised November 11, 2013

### FLOOR/LEVEL CODES:

1 – 3 characters

<u>Floor Code</u>	<u>Description</u>
All	All Floors
01	Level 1
02	Level 2
03	Level 3
04	Level 4
05	Level 5
06	Level 6
07	Level 7
08	Level 8
B	Basement
G	Ground
PH	Penthouse
R	Roof

<u>Code</u>	<u>Description</u>
T	Underground Tunnel
V	Underground Vault

### EQUIPMENT TYPE CODING:

#### \*Notes

Note 1: Code limited to 2 – 4 characters

Note 2: **NO Buildings** in the equipment descriptions

Note 3: **NO Floors** in the equipment descriptions

Note 4: **NO Trades** in the equipment descriptions (except for PM Codes not associated to Equipment)

Note 5: **NO specifying a room / area / department** in the description

Note 6: When typing Equipment Descriptions the first letter of each work should be capitalized

## Reference B – Equipment Naming Guidelines

Revised November 11, 2013

### EQ CODE TYPE LIST

THE FOLLOWING LIST IS NOT MEANT TO BE ALL INCLUSIVE BUT TO BE USED AS AN EXAMPLE. SUBMIT TO OWNER A LIST OF PROPOSED EQUIPMENT CODES FOR PROJECT.

<u>EQ Code</u>	<u>Description</u>
AC	Air Compressor
AC	Air Compressor, Med Gas
ACCU	Air Cooled Condensing Unit
AD	Air Dryer
AHU	Air Handler Unit
AM	Ammonia System
AS	Air Separator
ATS	Automatic Transfer Switch
BAS	Building Automation System
BAT	Battery
BBT	Boiler Buffer Tank
BCU	Blower Coil Unit
BDS	Blow Down Separator
BFP	Backflow Preventer
BHRS	Blow Down Heat Recovery System
BOIL	Boiler
BPR	Fuel Oil Back Pressure Regulator
BR	Brine Cooling System
CFH	Chemical Fume Hood
CFP	Chemical Feed Pump
CGP	Chilled Glycol Pump
CH	Water Chiller
CHP	Chilled Water Pump
CM	Condensate Flow Meter
CP	Condensate Pump
CRS	Condensate Return System
CRT	Condensate Return Tank
CT	Cooling Tower
CUH	Cabinet Unit Heater
CV	Control Valve
CU	Condensing Unit
CWP	Condenser Water Pump
DA	Deaerator
DE	Ductless Evaporator
DHU	De-Humidifier Unit
DHWP	Domestic Hot Water Pump

## Reference B – Equipment Naming Guidelines

Revised November 11, 2013

DRN	Drain
DSP	Dry Sprinkler System
DTWP	Dual Temperature Water Pumps
DWB	Domestic Water Booster Pump
DWH	Domestic Water Heater
DWS	Distilled Water System
DX	Air Conditioning Unit
EJP	Ejector Pump
ELB	Electric Bed
ELEV	Elevator
ELP	Emergency Lighting Panel
ELS	Emergency Life Safety
ELSA	Emergency Life Safety Subpanel
EWS	Eye Wash Station
EXF	Exhaust Fan
EXJ	Pipe Expansion Joint
FACP	Fire Alarm Control Panel
FCU	Fan Coil Unit
FE	Flow Element
FH	Fume Hood
FM	Steam Flow Meter
FOP	Fuel Oil Pump
FP	Fire Pump
FT	Flash Tank
FXT	Fire Extinguisher System
GEN	Emergency Generator
GF	Gas Fired Furnace
GFP	Glycol Feed Pump
GP	Geothermal Pump
GPRV	Natural Gas Pressure Regulator
GV	Gravity Ventilator
HEPA	HEPA Portable Unit
HP	Heat Pump
HRP	Heat Recovery Pump
HUM	Humidifier
HV	Heating and Ventilating Unit
HWP	Hot Water Pump
HX	Heat Exchanger
ICD	Ice Dispenser
ICM	Ice Maker
JP	Jockey Pump

## Reference B – Equipment Naming Guidelines

Revised November 11, 2013

KXF	Exhaust Fan, Kitchen
MCC	Motor Control Center
MDP	Main Distribution Panel
MP	Mechanical Panel
MSB	Main Switchboard
MXF	Mixer Fan
NPWH	Non-Portable Water Heater
OX	Oxygen System
PB	Panel Board
PHN	pH Neutralization System
PP	Electrical Panel
PPD	Power Panel Distribution (Main 208V Panel)
PRV	Pressure Reducing Valve
PSB	Paint Spray Booth
PSV	Pressure Safety Valve
PUH	Propeller Unit Heater
RAF	Return Air Fan
RC	Remote Water Cooler
RH	Radiant Heater
RO	Reverse Osmosis System
RORP	Reverse Osmosis System
RWP	River Water Pump
SC	Sample Cooler
SEN	Sensor
SEP	Oil/Water Separator
SF	Supply Fan
SHP	Standby High Voltage Panel (480V)
SHW	Safety Shower
SLP	Standby Lighting Panel (480V)
SMP	Sump Pump
SP	Sprinkler System
SPF	Stair Pressurization Fan
SPP	Standby Low Voltage Panel (208V)
ST	Surge Tank
STR	Sterilizer
STT	Steam Trap
SUB	Substation
SWG	Switchgear
SXF	Exhaust Fan, Smoke
TG	Transfer Grill
TI	Temperature Indicator

## Reference B – Equipment Naming Guidelines

Revised November 11, 2013

TRAN	Transformer
TXF	Exhaust Fan, Toilet
UH	Unit Heater
UST	Underground Storage Tank
VFD	Variable Frequency Drive
VP	Vacuum Pump
VP	Vacuum Pump, Med Gas
WD	Water Dispenser
WF	Water Filter
WIF	Walk in Freezer
WIH	Walk in Heating Unit
WIR	Walk in Refrigerator
WM	Water Meter
WS	Water Softener

## Reference B – Equipment Naming Guidelines

Revised November 11, 2013

### ELECTRICAL PANEL ADDITIONS:

<u>EQ Code</u>	<u>Description</u>
ELP	Emergency Lighting Panel
ELS	Emergency Life Safety
ELSA	Emergency Life Safety Subpanel
MCC	Motor Control Center
MDP	Main Distribution Panel
MP	Mechanical Panel
MSB	Main Switchboard
PP	Electrical Panel
PPD	Power Panel Distribution (Main 208V Panel)
SHP	Standby High Voltage Panel (480V)
SLP	Standby Lighting Panel (480V)
SPP	Standby Low Voltage Panel (208V)
SWG	Switchgear

- 1 - Building Number
- 2 - Floor location (based on floor level/codes above)
- 3 - Panel prefix as shown above (DP, PP, LP, etc)
- 4 - Panel sequence (number of panels in sequence; 1,2,3 etc)
- 2 – Voltage designation (4=480/277v and 2=208/120v)

Examples:

<u>Facility</u>	<u>Floor</u>	<u>Pnl Prefix</u>	<u>Pnl Seq</u>	<u>Voltage</u>
702	01	PP	1	2

Dwg/Field Tag:

**702-01-PP-1-2**

## Reference A – Equipment Naming Convention

Revised January 14, 2011

The PEA Facilities department has created a custom equipment naming convention to be used on all new (small and large) construction projects. This naming convention shall be utilized on various MEP, FP, and associated equipment documents, tags and systems including:

- Design drawings
- Design specifications
- Equipment submittals
- Field labels/tagging
- Coordination drawings
- As-built and record drawings (i.e., plans, elevations, sections, risers and schedules)
- Building Management Software system
- Fire Protection Software systems
- Other software and systems

Note: Non-Equipment assets (i.e., tamper switches, duct smoke detectors, exit signs) are not covered by these requirements.

A sample naming convention is provided below for the Heating Station.

XXX - AAA - BBBB – 000\*

Facility Code	Floor/Level Code	Equipment Code	Component Number
---------------	------------------	----------------	------------------

116 - 01 - EXF - 003

Heating Plant	First Floor	Exhaust Fan	Number 3
---------------	-------------	-------------	----------

116 - R - CT - 001

Heating Plant	Roof	Cooling Tower	Number 1
---------------	------	---------------	----------

116 - 03 - FCU - 039

Heating Plant	Level 3	Fan Coil Unit	Number 39
---------------	---------	---------------	-----------

\*Note:

XXX and AAA – limited to between 2 and 3 characters

BBB – limited to between 2 and 4 characters



# Phillips Exeter Academy Construction Standards and Guidelines

**Division of Work:**

**Specification Section:**

**Description of Material or System:**

**Last Updated:** 1/20/2017

**Updated by:**

<p><b>Included in this section:</b></p> <p><input checked="" type="checkbox"/> Product Specifications</p> <p><input checked="" type="checkbox"/> Design Guidelines</p> <p><input type="checkbox"/> Design Details/Drawings</p> <p><input type="checkbox"/> Supplemental Information</p> <p><input type="checkbox"/> Other _____</p> <p><input type="checkbox"/> Other _____</p>	<p><b>Guideline applies:</b></p> <table border="0"> <tr> <td><input type="checkbox"/> Academic Buildings</td> <td><input checked="" type="checkbox"/> Dormitories</td> </tr> <tr> <td><input type="checkbox"/> Administrative</td> <td><input checked="" type="checkbox"/> Faculty Residences</td> </tr> <tr> <td><input type="checkbox"/> Athletic Facilities</td> <td><input type="checkbox"/> Support</td> </tr> <tr> <td><input type="checkbox"/> Campus Wide</td> <td><input type="checkbox"/> Utility</td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> </table>	<input type="checkbox"/> Academic Buildings	<input checked="" type="checkbox"/> Dormitories	<input type="checkbox"/> Administrative	<input checked="" type="checkbox"/> Faculty Residences	<input type="checkbox"/> Athletic Facilities	<input type="checkbox"/> Support	<input type="checkbox"/> Campus Wide	<input type="checkbox"/> Utility	<input type="checkbox"/> Other _____		<input type="checkbox"/> Other _____	
<input type="checkbox"/> Academic Buildings	<input checked="" type="checkbox"/> Dormitories												
<input type="checkbox"/> Administrative	<input checked="" type="checkbox"/> Faculty Residences												
<input type="checkbox"/> Athletic Facilities	<input type="checkbox"/> Support												
<input type="checkbox"/> Campus Wide	<input type="checkbox"/> Utility												
<input type="checkbox"/> Other _____													
<input type="checkbox"/> Other _____													

**Overview of system/product/guideline:**

The following is the PEA Design Guideline for faculty homes for cabinet hardware

**Links to additional product information:**

[www.amerock.com](http://www.amerock.com)




WHAT'S NEW PRODUCTS SUPPORT ABOUT US WHERE TO BUY



## ALLISON™ VALUE 1-1/4in(32mm) DIA Knob

Part No. BP1950G10

From rustic to modern-day casual to sophisticated beauty, The Allison™ Value Collection offers a variety of designs, making on-trend, quality hardware affordable.

The Amerock BP1950G10 Allison™ Value Knob is Finished in Satin Nickel.

### FINISH OPTIONS



Antique English



Black Nickel



Brushed Chrome



Natural Bronze



Oil-Rubbed Bronze



Polished Brass



Polished Chrome



Satin Nickel

### SPECIFICATIONS

Finish

Satin Nickel

**Product Type**

Knob

**Product Detail**

1-1/4in(32mm) DIA

**Length/Diameter**

1 1/4 in(32mm)

**Width**

N/A

**Projection**

1 1/8 in(29mm)

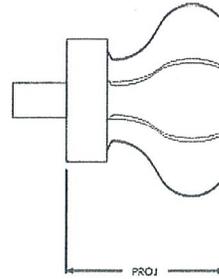
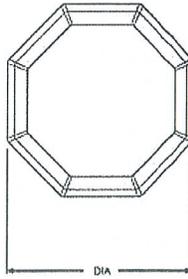
**Material**

Solid Brass

**Hardware Included**

Screw Size(s): #8-32 x 1in LGTH T.H. Machine Screw

**Technical Drawings**



KEY:  
DIA = Diameter  
PROJ = Projection




WHAT'S NEW PRODUCTS SUPPORT ABOUT US WHERE TO BUY

## ALLISON™ VALUE 3-3/4in(96mm) CTC Pull

Part No. BP52991G10



From rustic to modern-day casual to sophisticated beauty, The Allison™ Value Collection offers a variety of designs, making on-trend, quality hardware affordable.

The Amerock BP52991G10 Allison™ Value Pull is Finished in Satin Nickel.

### SPECIFICATIONS

<b>Finish</b>	Satin Nickel
<b>Product Type</b>	Pull
<b>Product Detail</b>	3-3/4in(96mm) CTC
<b>Length</b>	4 3/4 in(121mm)
<b>Width</b>	7/16in(11mm)
<b>Projection</b>	13/16in(21mm)
<b>Material</b>	Zinc
<b>Hardware Included</b>	Screw Size(s): #8-32 x 1in LGTH T.H. Machine Screw
<b>Technical Drawings</b>	



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/2/2017

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

**Overview of system/product/guideline:**

FAS grade is the PEA Design Guideline for hardwood trim campus wide

**Links to additional product information:**

[www.americanhardwood.org](http://www.americanhardwood.org)

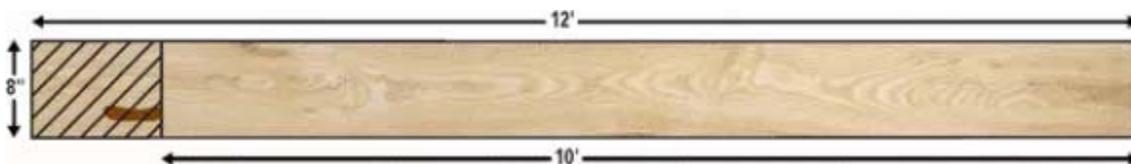


## Standard Grades

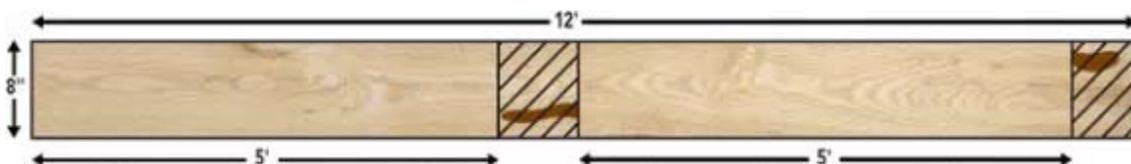
These Standard Grades form the framework by which all American hardwoods are traded. It is important to note that between buyer and seller any exception to these rules is permissible and even encouraged. For a complete description of the NHLA grades, consult the NHLA's "Rules for the Measurement and Inspection of Hardwoods and Cypress".

### FAS

The FAS grade, which derives from an original grade "First And Seconds", will provide the user with long, clear cuttings - best suited for high quality furniture, interior joinery and solid wood mouldings. Minimum board size is 6" and wider and 8' and longer. The FAS grade includes a range of boards that yield from 83 1/3 % (10/12 ths) to 100% clear-wood cuttings over the entire surface of the board. The clear cuttings must be a minimum size of 3" wide by 7' long or 4" wide by 5' long. The number of these cuttings permitted depends on the size of the board with most boards permitting one to two. The minimum width and length will vary, depending on species and whether the board is green or kiln dried. **Both faces of the board must meet the minimum requirement for FAS.**



Note: Minimum yield 83 1/3 % clear wood cuttings on the poor face of the board.



### FAS One Face (F1F)

This grade is nearly always shipped with FAS. The better face must meet all FAS requirements while the poor face must meet all the requirements of the Number 1 Common grade, thus ensuring the



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 7

Specification Section:

07 00 00-THERMAL AND MOISTURE PROTECTION

Description of Material or System:

Shingle and flat roof systems

Last Updated:

4/7/2016

Updated by:

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- Academic Buildings
- Administrative
- Athletic Facilities
- Campus Wide
- Other \_\_\_\_\_
- Other \_\_\_\_\_
- Dormitories
- Faculty Residences
- Support
- Utility

Overview of system/product/guideline:

The attached outlines campus standards for products associated with the installation of shingle and flat roof systems.

Links to additional product information:

<http://www.certainteed.com/products/roofing#>

<http://roofing.owenscorning.com/>

<http://www.na.graceconstruction.com/prodline.cfm?did=8>

<http://usa.sarnafil.sika.com/>

## **DIVISION 7 – THERMAL AND MOISTURE PROTECTION**

ALL WORK SHALL BE IN ACCORDANCE WITH 2009 INTERNATIONAL BUILDING CODE AND 2009 INTERNATIONAL RESIDENTIAL CODE (WHEN APPLICABLE).

### **SLOPED ROOF APPLICATIONS (PITCH OF 2/12 OR GREATER)**

#### **Asphalt Fiberglass Roof Shingles**

Provide laminated shingles with a minimum of 50 year manufacturer's shingle warranty. Provide written warranty agreeing to repair or replace any shingles which exhibits defects during the warranty period. Manufacturer shall warrant its shingles will resist blow-off damage due to wind velocities, including gusts and hurricane winds up to the maximum wind velocity of 90 mph.

Installation shall be in accordance with manufacturer's installation instructions with the following exception. Provide a starter course parallel with the rake installed over the metal drip edge.

Provide starter course manufactured by roofing manufacturer.

#### Acceptable Manufacturers

- Certainteed Corporation
- Owens Corning

Nails: Standard round wire type roofing nails, corrosion resistant; hot dipped zinc coated steel, aluminum, or chromated steel; minimum 3/8 inch (9.5 mm) head diameter; minimum 11 or 12 gage (2.5 mm) shank diameter; shank to be of sufficient length to penetrate through roof sheathing or 3/4 inch (19 mm) into solid wood, plywood, or non-veneer wood decking.

Asphalt Roofing Cement: ASTM D 4586, Type I or II.

#### **Roofing Underlayment**

Provide **Grace** Ice and Water Shield and install in accordance with manufacturer's installation instructions and the following detail:

INSERT DETAIL

## Roofing Underlayment (Continued)

Eaves: Provide minimum of three courses of Ice and Water Shield along eaves with an overlap of four inches. Install Ice and Water Shield over drip edge eaves flashing and install under drip edge flashing at rake.

Valley: Provide a minimum of two layers feet of Grace Ice and Water Shield along valleys. Each layer shall overlap the adjacent roof by 12 inches. Install in accordance with manufacturer's installation instructions.

Sloped Roof meets Vertical Surface: Install Grace Ice and Water Shield a minimum of 12 inches up the vertical surface.

### All other Areas:

For roofs with a pitch of 4 inches per foot or less (4/12), use Grace Ice and Water Shield over the entire roof.

For Roofs with a pitch greater than 4 inches per foot use asphalt saturated roofing felt consisting of #30 nonperforated organic felt, complying with ASTM D 226, Type II, 36 in wide. Install in accordance with manufacturer's installation instructions with the following exceptions.

- Felt shall be installed with nails instead of staples.

## Metal Flashings & Drip Edge

Sheet flashing for Step flashing and Valley flashing: Sheet aluminum flashing and counter flashing shall conform to ASTM B 209, Alloy 3003, Temper H14, painted Kynar finish; minimum 0.050 inches thick (20 gage). The color shall be selected by Facilities Management.

Step Flashing: Fabricate step flashing to comply with SMACNA Manual, Plate 59, Figure B.

Drip Edge: Preformed aluminum drip edge, 26 gage minimum, for edge protection at all rakes and eaves. Drip edge shall extend a minimum of **6** inches back from roof edge with front of edge factory bent to create a drip and to project over roof edge.

Drip Edge with Venting (When Required): Provide aluminum drip edge meeting requirements above for standard drip edge with a minimum net free area of 9 square inches per linear foot.

## Ridge Ventilation

Provide ridge vent with a minimum warranty of 50 years and a minimum net free area of 12.5 square inches per linear foot.

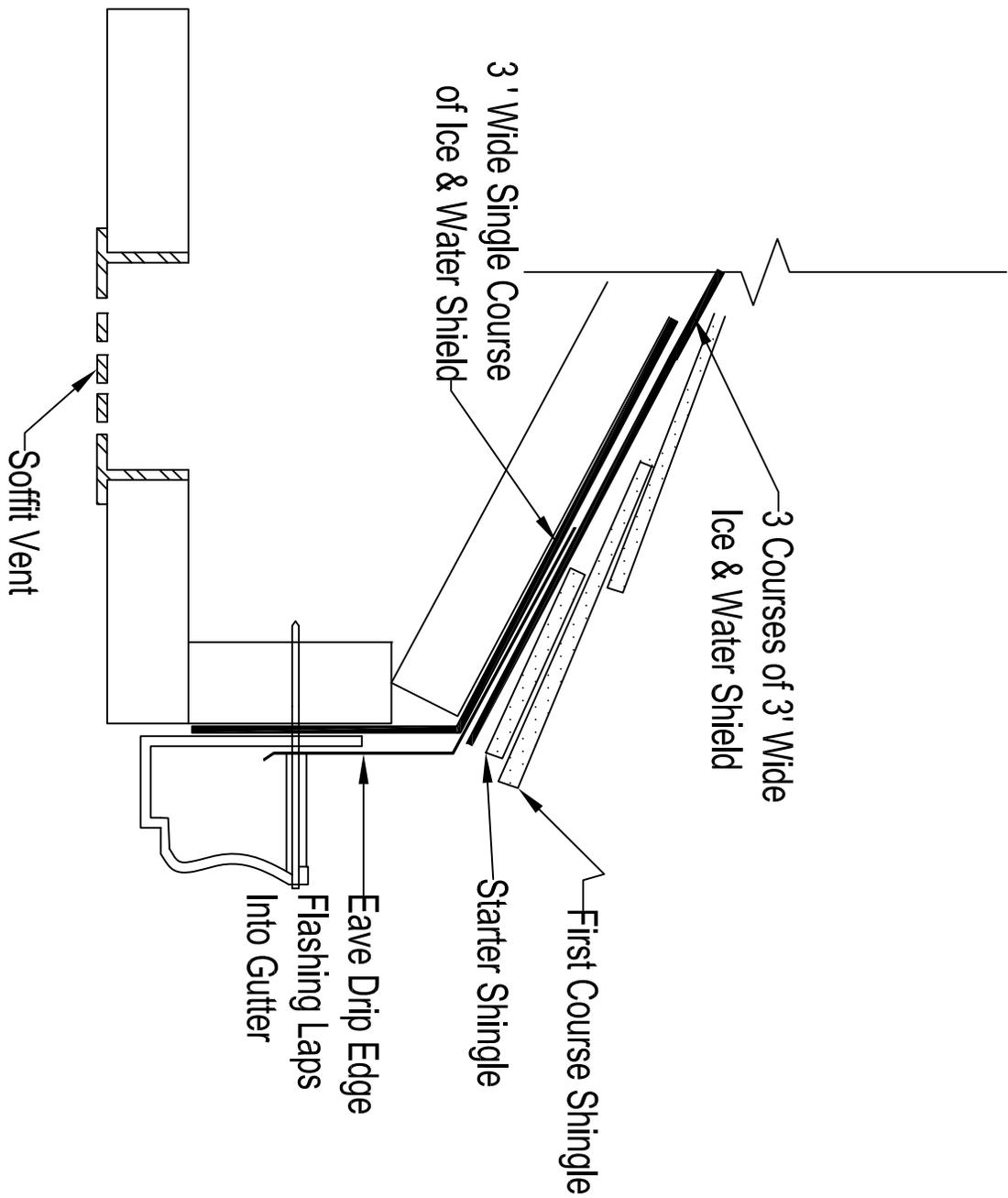
**FLAT ROOF**

Flat roof system shall be designed to provide a minimum 20 year warranty.

Acceptable Manufacturer:

- Carlisle

END OF SECTION



Drip Edge Specification



# Phillips Exeter Academy Construction Standards and Guidelines

**Division of Work:**

**Specification Section:**

**Description of Material or System:**

**Last Updated:** 3/6/2017

**Updated by:**

<p><b>Included in this section:</b></p> <p><input checked="" type="checkbox"/> Product Specifications</p> <p><input checked="" type="checkbox"/> Design Guidelines</p> <p><input type="checkbox"/> Design Details/Drawings</p> <p><input type="checkbox"/> Supplemental Information</p> <p><input type="checkbox"/> Other _____</p> <p><input type="checkbox"/> Other _____</p>	<p><b>Guideline applies:</b></p> <table border="0"> <tr> <td><input type="checkbox"/> Academic Buildings</td> <td><input type="checkbox"/> Dormitories</td> </tr> <tr> <td><input type="checkbox"/> Administrative</td> <td><input type="checkbox"/> Faculty Residences</td> </tr> <tr> <td><input type="checkbox"/> Athletic Facilities</td> <td><input type="checkbox"/> Support</td> </tr> <tr> <td><input checked="" type="checkbox"/> Campus Wide</td> <td><input type="checkbox"/> Utility</td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> </table>	<input type="checkbox"/> Academic Buildings	<input type="checkbox"/> Dormitories	<input type="checkbox"/> Administrative	<input type="checkbox"/> Faculty Residences	<input type="checkbox"/> Athletic Facilities	<input type="checkbox"/> Support	<input checked="" type="checkbox"/> Campus Wide	<input type="checkbox"/> Utility	<input type="checkbox"/> Other _____		<input type="checkbox"/> Other _____	
<input type="checkbox"/> Academic Buildings	<input type="checkbox"/> Dormitories												
<input type="checkbox"/> Administrative	<input type="checkbox"/> Faculty Residences												
<input type="checkbox"/> Athletic Facilities	<input type="checkbox"/> Support												
<input checked="" type="checkbox"/> Campus Wide	<input type="checkbox"/> Utility												
<input type="checkbox"/> Other _____													
<input type="checkbox"/> Other _____													

**Overview of system/product/guideline:**

The following is the PEA Design Guideline for downspouts to be used only for secondary (emergency) roof drainage systems where applicable

**Links to additional product information:**

[www.zurn.com](http://www.zurn.com)



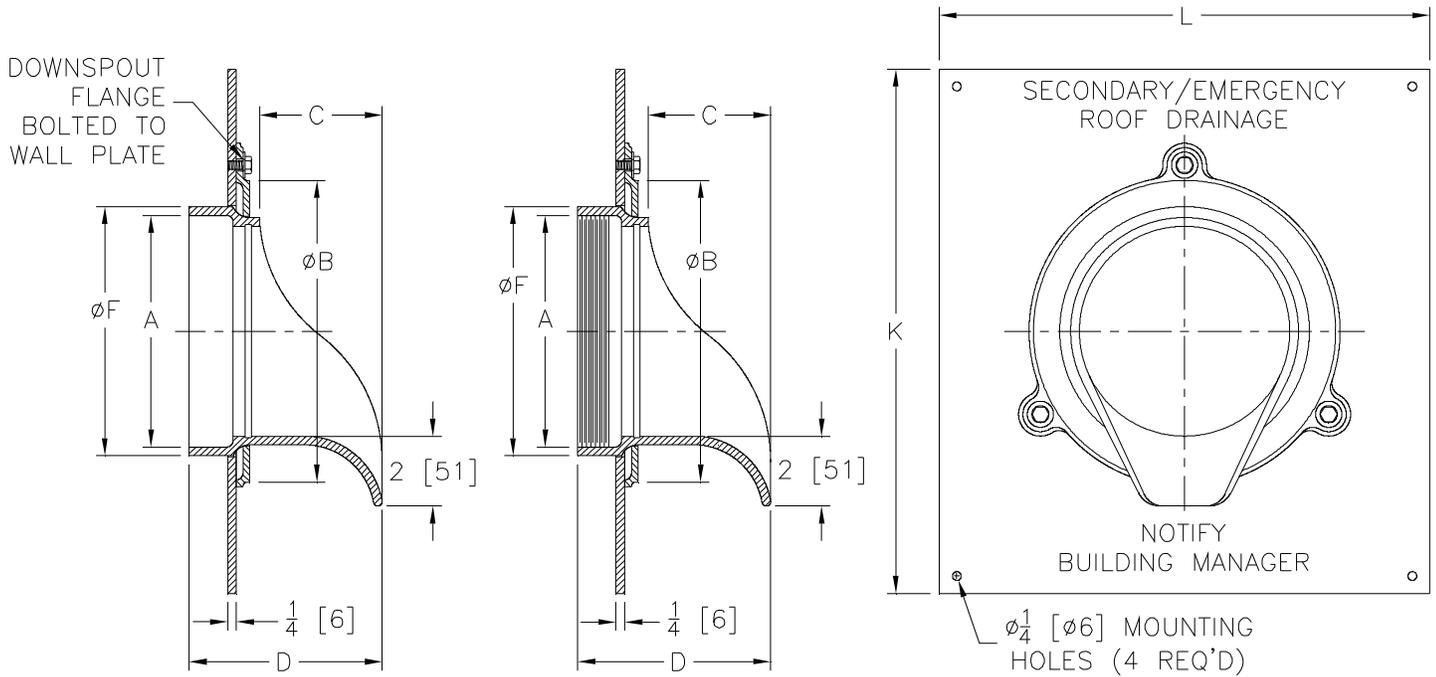
# Z199-86

## DOWNSPOUT NOZZLE W/ CUSTOM WALL PLATE

SPECIFICATION SHEET

TAG \_\_\_\_\_

Dimensional Data (inches and [ mm ]) are Subject to Manufacturing Tolerances and Change Without Notice



A Pipe Size	Dimensions in inches								Approx. Wt. Lbs. [kg]
	B	C	D		F		K	L	
			IP	NH	IP	NH			
3 [76]	5 1/2 [140]	2 5/8 [67]	4 1/2 [114]	4 1/2 [114]	4 [102]	3 3/8 [86]	12 [305]	11 [280]	9 [4]
4 [102]	6 5/8 [168]	2 43/64 [69]	4 1/2 [114]	4 1/2 [114]	5 [127]	4 3/8 [111]	12 [305]	12 [305]	10 [5]
6 [152]	8 5/8 [219]	3 3/32 [79]	4 59/64 [125]	5 15/32 [139]	7 1/8 [151]	6 5/16 [160]	15 [381]	14 [355]	16 [7]
8 [203]	10 5/8 [270]	2 31/32 [75]	4 59/64 [122]	5 25/32 [147]	9 1/8 [232]	8 3/8 [213]	16 [406]	16 [406]	19 [483]
10 [254]	12 5/8 [321]	3 1/2 [89]	5 53/64 [148]	6 5/16 [160]	11 5/32 [283]	10 9/16 [268]	18 [457]	18 [457]	24 [610]

**ENGINEERING SPECIFICATION: ZURNZANB199-86**

Downspout Nozzle, All nickel bronze body, optional threaded or no-hub inlet, decorative face of wall flange and outlet nozzle with 1/4 [6] thick stainless steel type 304 custom wall flange.

**OPTIONS** (Check/specify appropriate options)

**PIPE SIZE**

3, 4, 6, 8, 10 [76, 102, 152, 203, 254]  
 3, 4, 6, 8, 10 [76, 102, 152, 203, 254]

(Specify size/type) **OUTLET**

\_\_\_\_ IP Threaded  
 \_\_\_\_ NH No-Hub

**PREFIXES**

\_\_\_\_ ZANB All Nickel Bronze Body\*  
 \_\_\_\_ ZAB All Polished Bronze Body  
 \_\_\_\_ ZARB All Plain Bronze Body

**SUFFIXES**

\_\_\_\_ -PVC PVC Connection  
 \_\_\_\_ -SS Removable Stainless Screen

<b>REV. B</b>	<b>DATE: 8/31/11</b>	<b>C.N. NO. 122028</b>
<b>DWG. NO. P-15569</b>	<b>PRODUCT NO. Z199-86</b>	

\*REGULARLY FURNISHED UNLESS OTHERWISE SPECIFIED



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 7

Specification Section:

07 70 00-ROOF SPECIALTIES AND ACCESSORIES

Description of Material or System:

Stainless Steel Chimney Caps

Last Updated:

4/7/2016

Updated by:

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

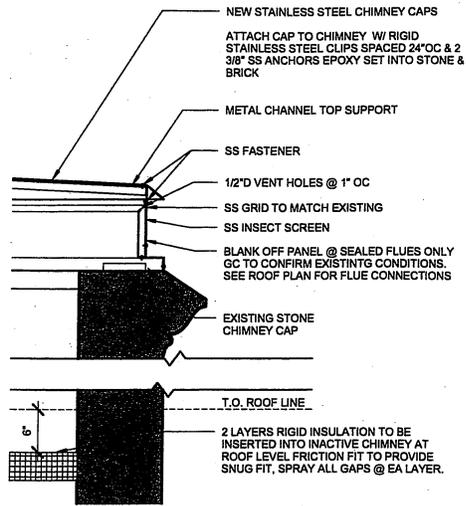
Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

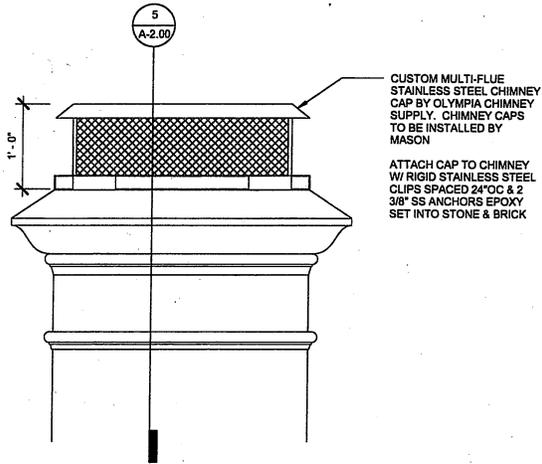
Overview of system/product/guideline:

Attached is the desired detail for stainless steel chimney caps.

Links to additional product information:



⑤ CHIMNEY CAP SECTION  
 1" = 1'-0"



④ CHIMNEY CAP ELEVATION  
 1" = 1'-0"



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

Roof slate shall be North Country Black from Glendyne Quarry in Quebec.

### Links to additional product information:

<http://www.glendyne.com/en/toiture.php>

#### Vendor:

NORTH COUNTRY SLATE  
8800 Sheppard Avenue East  
Scarborough, Ontario (Canada) M1B 5R4

800-975-2835 (phone)

416-281-8842 (fax)

[info@ncslate.com](mailto:info@ncslate.com)

[www.ncslate.com](http://www.ncslate.com)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 8

Specification Section:

08 11 69-Metal Storm Doors

Description of Material or System:

Metal Storm Doors

Last Updated:

4/18/2016

Updated by:

Annie Pleatsikas

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |  |  |
|--|--|
| <input type="checkbox"/> Academic Buildings  | <input type="checkbox"/> Dormitories                   |
| <input type="checkbox"/> Administrative      | <input checked="" type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                       |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                       |
| <input type="checkbox"/> Other _____         |  |
| <input type="checkbox"/> Other _____         |  |

Overview of system/product/guideline:

Preferred vendor is Larson-full view storm door with matching screen.

Links to additional product information:

[www.larson.com](http://www.larson.com)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 8

Specification Section:

08 15 13-Laminated Plastic Doors

Description of Material or System:

Dormitory and Faculty Apt. Interior Doors

Last Updated:

4/18/2016

Updated by:

Annie Pleatsikas

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |  |  |
|--|--|
| <input type="checkbox"/> Academic Buildings  | <input checked="" type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative      | <input checked="" type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                       |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                       |
| <input type="checkbox"/> Other _____         |  |
| <input type="checkbox"/> Other _____         |  |

Overview of system/product/guideline:

Faculty apartment and dormitory interior doors shall be MDF raised panel; TS4000 series; 1-3/4" thk. Closers must be thru bolted, not screwed. Trustile is the preferred vendor.

Links to additional product information:

[www.trustile.com](http://www.trustile.com)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 1/15/2015

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |  |   |
|--|---|
| <input type="checkbox"/> Academic Buildings  | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative      | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support            |
| <input type="checkbox"/> Campus Wide         | <input checked="" type="checkbox"/> Utility |
| <input type="checkbox"/> Other _____         |   |
| <input type="checkbox"/> Other _____         |   |

### Overview of system/product/guideline:

Preferred vendor for steel fire extinguisher cabinets is Samson

### Links to additional product information:

<http://www.activarcpg.com>



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 1/18/2017

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |  |  |
|--|--|
| <input type="checkbox"/> Academic Buildings  | <input type="checkbox"/> Dormitories                   |
| <input type="checkbox"/> Administrative      | <input checked="" type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                       |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                       |
| <input type="checkbox"/> Other _____         |  |
| <input type="checkbox"/> Other _____         |  |

**Overview of system/product/guideline:**

The following is the PEA Design Guideline and preferred vendor for automatic garage doors. Color- White; size TBD per project

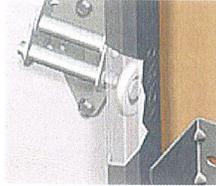
**Links to additional product information:**

[www.garaga.com](http://www.garaga.com)

**OPTIONS**



**ThermaBlok™ Frame Weatherstripping:**  
Double-lip PVC Frame ThermaBlok™ weatherstripping with exterior screw cover.



**Dura+™ Hardware:**  
14-gauge welded tracks and jamb brackets, white nylon rollers with 11-ball bearings.

**SIZES**

Widths*:	8' to 18' (in 1" increments)
Heights*:	6'6" to 8' (in 3" increments)

\*See your garage door dealer for more details on oversized doors available.

**WARRANTY**

Door sections:	Limited lifetime
Windows:	10 years
Dura+ hardware:	2 years
Value kit hardware:	1 year
Weatherstripping:	1 year

[Download the Installation Guide](#) 

[Download the Maintenance and Warranty Guide](#) 

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**Acadia 138**

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- [Standard\\*](#)
- [Acadia 138](#)**
- [Triforce](#)
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- [Uniforce](#)

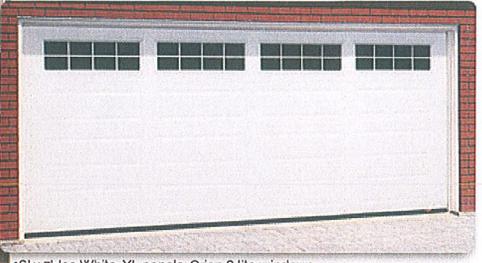
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- [Residential Line Overview](#)
- [Windows for residential garage doors](#)
- [Commercial, Industrial and Agricultural](#)

**Garage Door Openers**

- [Residential](#)
- [Commercial & Industrial](#)



**Acadia 138**



16' x 7', Ice White, XL panels. Orion 8 lite windows

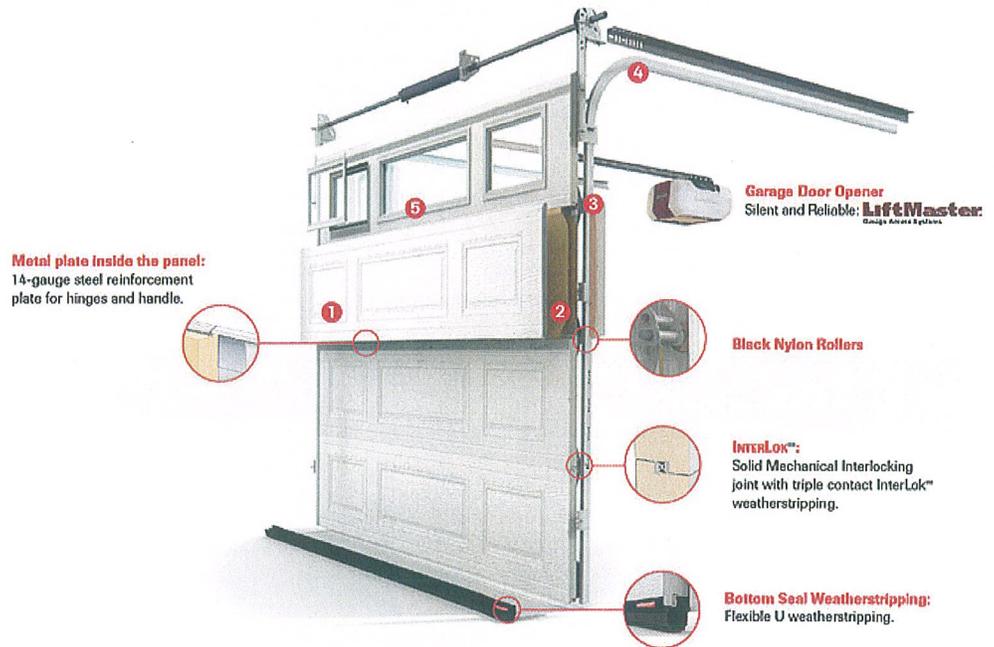


Get a quote for a Acadia 138

View all of Acadia 138 door images

FEATURES	COLORS AND MODELS	WINDOWS	TECHNICAL SPECIFICATIONS	THE GARAGA DIFFERENCE
----------	-------------------	---------	--------------------------	-----------------------

**COMPONENTS**



Components of a system that is 100% Garaga

**PANELS**

- 1** 26-gauge commercial grade galvanized steel
- 2** Pressure-Injected polyurethane foam (R-12; thickness 1 3/8")
- 3** Wood End block (Kiln-dried pine)
- 4** Value Kit™: 16-gauge bolted tracks and jamb brackets, black nylon rollers
- 5** One piece injected window frame made of polypropylene; windows are single pane or thermopane



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

Standards for door hardware.

### Links to additional product information:

SECTION 08710  
FINISH HARDWARE

**PART 1 - GENERAL**

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes

- 1. Furnish and deliver all mechanical and electrical finish hardware necessary for all doors, also hardware as specified herein and as enumerated in hardware sets and as indicated and required by actual conditions at the building. The hardware shall include the furnishing of all necessary screws, bolts, expansion shields, drop plates, and all other devices necessary for the proper application of the hardware.

B. Related Sections

- 1. Section 08 HOLLOW METAL WORK
- 2. Section 08 WOOD DOORS
- 3. Section 08 ALUMINUM ENTRANCES
- 4. Section 16 ELECTRICAL

C. Specific Omissions: Hardware for the following is specified or indicated elsewhere, unless specifically listed in the hardware sets:

- 1. Windows
- 2. Cabinets of all kinds, including open wall shelving and locks.
- 3. Signage, except as noted.
- 4. Complete toilet accessories including coat hooks, unless note otherwise.
- 5. Overhead doors, unless noted otherwise.
- 6. Wire partition hardware (except padlocks)
- 7. Handrail Brackets
- 8. Lockers
- 9. All rough hardware

10. Transformers, junction boxes, wire and hook-up of electrical detectors and closers
11. Astragals and metal edges as required for 45/60/90 minute rated wood doors and all hollow metal doors.

### 1.3 REFERENCES

- A. Applicable state and local building codes and standards.
- B. FIRE/LIFE SAFETY
  1. NFPA - National Fire Protection Association
    - a. NFPA 70 – National Electric Code
    - b. NFPA 80 - Standard for Fire Doors and Fire Windows
    - c. NFPA 101 - Life Safety Code
    - d. NFPA 105 - Smoke and Draft Control Door Assemblies
  2. NH State Fire Code SAF-C 6000
- C. UL - Underwriters Laboratories
  1. UL 10B - Fire Tests of Door Assemblies
  2. UL 10C - Positive Pressure Test of Fire Door Assemblies
  3. UL 1784 - Air Leakage Tests of Door Assemblies
  4. UL 305 - Panic Hardware
- D. Accessibility
  1. ADA - Americans with Disabilities Act
  2. ICC (CABO) / ANSI A117.1 - Accessible and Usable Buildings and Facilities
  3. Architectural Barrier-Free Design Code (ABFDC-NH)
- E. DHI - Door and Hardware Institute
  1. Sequence and Format for the Hardware Schedule
  2. Recommended Locations for Builders Hardware
- F. ANSI - American National Standards Institute
  1. ANSI/BHMA A156.1 - A156.24 - Standards for Hardware and Specialties

### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 requirements. Prior to submittal field verify existing doors and/or frames

receiving new hardware and/or existing conditions receiving new openings. Verify new hardware is compatible with the existing door/frame preparation and/or existing conditions. Advise architect within the submittal package of incompatibility or issues.

- B. Catalog Cuts: Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
- C. Submittals to be supplied on standard 8-1/2" x 11" paper.
- D. Final Hardware Schedule Content: Submit schedule with hardware sets in vertical format as illustrated by the Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening. Include the following information:
  - 1. Door Index; include door number, heading number, and Architects hardware set number.
  - 2. Opening Lock Function Spreadsheet; list locking device and function for each opening.
  - 3. Type, style, function, size, and finish of each hardware item.
  - 4. Name and manufacturer of each item.
  - 5. Fastenings and other pertinent information.
  - 6. Location of each hardware set cross-referenced to indications on Drawings.
  - 7. Explanation of all abbreviations, symbols, and codes contained in schedule.
  - 8. Mounting locations for hardware.
  - 9. Door and frame sizes and materials.
  - 10. Name and phone number for the local manufacturer's representative for each product.
  - 11. Operational Description of openings with any electrified hardware (locks, exits, electromagnetic locks, electric strikes, automatic operators, door position switches, magnetic holders or closer/holder units, and/or access control components). Operational description should include how the door will operate on egress, ingress, and/or fire/smoke alarm connection.
- E. Samples: If requested by the Architect, submit production sample or sample installations as requested of each type of exposed hardware unit in the finish indicated, and tagged with a full description for coordination with the schedule.
  - 1. Samples will be returned to the supplier in like-new condition. Units that are acceptable to the Architect may, after final check of operations, be incorporated into the Work, within limitations of key coordination requirements.

- F. Templates: After final approval of the hardware schedule, provide templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware.
- G. Riser and Wiring Diagrams: After final approval of the hardware schedule, submit riser and wiring diagrams as required for the proper installation of complete electrical, electromechanical, and electromagnetic products.
- H. Operations and Maintenance Data: Provide in accordance with Division 1 and include the following:
  - 1. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
  - 2. Catalog pages for each product.
  - 3. Name, address, and phone number of local representative for each manufacturer.
  - 4. Parts list for each product.
  - 5. Copy of final approved hardware schedule, edited to reflect, "As installed."
  - 6. As installed "Wiring Diagrams" for each opening connected to power, both low voltage and 110 volts.
  - 7. One (1) complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
  - 8. Copy of warranties including appropriate reference numbers for manufacturers to identify the project.
- I. Certificates of Compliance: Upon request of Architect or Authority Having Jurisdiction certificates of compliance for fire-rated hardware and installation instructions shall be made available.

#### 1.5 QUALITY ASSURANCE

- A. Substitutions: Products are to be those specified to ensure a uniform basis of acceptable materials. Requests for substitutions must be made in accordance with Division 1 requirements. If proposing a substitute product, submit product data for the proposed item with product data for the specified item and indicate basis for substitution and savings to be made. Provide sample if requested. Certain products have been selected for their unique characteristics and particular project suitability.
  - 1. Items specified as "no substitution" shall be provided exactly as listed.
  - 2. Items listed with no substitute manufacturers listed have been requested by the Owner or Architect to match existing for continuity and/or future performance and maintenance standards or because there is no known equal product.

3. If no other products are listed in a category, then "no substitution" is implied.
- B. **Supplier Qualifications:** A recognized architectural hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an accredited Architectural Hardware Consultant (AHC), who is available to the Owner, Architect, and Contractor, at reasonable times during the course of the Work for consultation.
- C. **Single Source Responsibility:** Obtain each type of hardware (latch and locksets, hinges, exit devices, closers, etc.) from a single manufacturer.
- D. **Fire-Rated Openings:** Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by Underwrites Laboratories, Intertek Testing Services, Factory Mutual, or other testing and inspecting organizations acceptable to the authorities having jurisdiction for use on types and sizes of doors indicated in compliance with requirements of fire-rated door and door frame labels.
- E. **Electronic Security Hardware:** When electrified hardware is included in the hardware specification, the hardware supplier must employ an individual knowledgeable in electrified components and systems, who is capable of producing wiring diagrams and consulting as needed. Coordinate installation of the electronic security hardware with the Architect and electrical engineers and provide installation and technical data to the Architect and other related subcontractors. Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Tag each item or package separately with identification related to the final hardware schedule, and include installation instructions with each item or package.
- B. Each article of hardware shall be individually packaged in manufacturer's original packaging.
- C. Contractor will provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- D. Items damaged in shipment shall be replaced promptly and with proper material and paid for by whomever did the damage or caused the damage to occur.
- E. Hardware shall be handled in a manner to avoid damage, marring, or scratching. Irregularities that occur to the hardware after it has been delivered to the Project shall be corrected, replaced, or repaired by the Contractor. Hardware shall be protected against malfunction due to paint, solvent, cleanser, or any chemical agent.
- F. Prior to submittal, carefully inspect existing conditions to verify finish hardware required to complete Work, including size, strike plate size, quantities, and sill

conditions material. **This means a job site visit!** If conflict between the scheduled material and existing conditions, submit request for directions from Architect.

- G. No direct shipments will be allowed unless approved by the Contractor.

1.7 WARRANTY

- A. Provide manufacturer's warranties as specified in Division 1 and as follows:
  - 1. Closers: 10 years, except electronic closers, 2 years.
  - 2. Exit Devices: 3 years, except electrified devices, 1 year.
  - 3. Mortise Locksets: 3 years, except electrified locksets, 1 year.
  - 4. Cylindrical Locksets: 7 years, except electrified locksets, 1 year.
  - 5. Continuous Hinges: 10 years.
  - 6. Other hardware: 1 year.
- B. No liability is to be assumed where damage or faulty operation is due to improper installation, improper use, or abuse.
- C. Products judged to be defective during the warranty period shall be replaced or repaired in accordance with the manufacturer's warranty, at no additional cost to the Owner.

1.8 MAINTENANCE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

**PART 2 - PRODUCTS**

2.1 MANUFACTURERS

- A. Approval of manufacturers other than those listed shall be in accordance with paragraph 1.05.A.
- B. Note that even though an acceptable substitute manufacturer may be listed, the product must provide all the functions and features of the specified product or it will not be approved.

Item	Scheduled Manufacturer	Acceptable Substitute
Hinges	Ives (IVE)	Hager, McKinney
Flush Bolts & Coordinators	Ives (IVE)	Burns, Rockwood
Locksets & Deadlocks	Schlage (SCH)	
Exit Devices & Mullions	Von Duprin (VON)	
Computer Managed Locks	Schlage (SCH)	
Computer Managed Residence Hall Locks	Schlage (SCH)	

Electric Strikes	Von Duprin (VON)	
Door Closers	LCN (LCN)	
Electro-Hydraulic Automatic Operators	LCN (LCN)	
Door Trim	Ives (IVE)	Burns, Rockwood
Protection Plates	Ives (IVE)	Burns, Rockwood
Overhead Stops	Glynn-Johnson (GLY)	Rixson, Sargent
Stops & Holders	Ives (IVE)	Burns, Rockwood
Thresholds & Weatherstrip	National Guard (NGP)	Reese, Pemko, Zero
Silencers	Ives (IVE)	Burns, Rockwood
Magnetic Holders	LCN (LCN)	
Cylinders & Keying	Schlage (SCH)	

- C. Hand of Door: Drawings show direction of slide, swing, or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.
- D. Where the hardware specified is not adaptable to the finished shape or size of the members requiring hardware, furnish suitable types having the same operation and quality as the type specified, subject to the Architect's approval.

## 2.2 MATERIALS

### A. Fasteners

1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
3. Thru-bolted hardware (Panic Devices, Fire Exit Devices, Closers, Overhead Holders and Stop) at all high use doors.
4. Hardware shall be installed with the fasteners provided by the hardware manufacturer.
5. All Thresholds installed at exterior openings to be supplied with Stainless Steel fasteners.

### B. Hinges

1. Provide hinges of type, material, and height as outlined in the following guide for this specification:
  - a. 1 3/4" thick doors up to and including 3'-0" wide:  
Exterior: standard weight, ball bearing, bronze/stainless steel, 4 1/2" high  
Interior: standard weight, ball bearing, steel, 4 1/2" high
  - b. 1 3/4" thick doors over 3'-0" wide:  
Exterior: heavy weight, ball bearing, bronze/stainless steel, 5" high  
Interior: heavy weight, ball bearing, steel, 5" high

- c. 2 1/4" thick doors:  
Exterior: heavy weight, ball bearing, bronze/stainless steel, 5" high  
Interior: heavy weight, ball bearing, steel, 5" high
2. Provide 3 hinges per door leaf for doors 90 inches or less in height, and one additional hinge for each 30 inches of additional door height.
3. Template Hinges: Provide only template hinges which conform to ANSI whenever applicable, for all interior applications.
4. Hinges to be used on exterior doors or doors which are subject to special atmospheric conditions, (pool area, chemical laboratories, food service areas etc.) shall be non-ferrous material, brass, bronze or stainless steel.
5. Mineral core wood labeled doors, without special hinge reinforcement, shall be hung on half-surface ball bearing hinges using thru bolts and grommet nuts.
6. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
  - a. Steel Hinges: Steel pins
  - b. Non-Ferrous Hinges: Stainless steel pins
  - c. Out-Swinging Exterior Doors: Non-removable pins
  - d. Out-Swinging Interior Lockable Doors: Non-removable pins
  - e. Interior Non-lockable Doors: Non-rising pins
7. The width of hinges shall be 4 1/2" at 1 3/4" thick doors, and 5" at 2 1/4" thick doors. Adjust hinge width as required for door, frame, and/or wall conditions to allow proper degree of opening.
8. Provide hinges with electrified option only where specified. Provide with sufficient number and gage of concealed wires to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to the electrified locking component.
9. Acceptable manufacturers and/or products: Ives BB series, Hager BB series, McKinney TA/T4A series.

C. Continuous Hinges

1. Provide continuous hinges where specified in the hardware sets fabricated from tempered aluminum, 6063-T6 alloy.
2. Provide with three interlocking extrusions in a pinless assembly, installed to full height of door frame.
3. Hinges shall be capable of supporting door weights up to 540 pounds (83" height), 620 pounds (95" height), and shall be successfully tested for 1,250,000 cycles.
4. On fire-rated doors, provide continuous hinges that are classified for use on rated doors by a testing agency acceptable to the authority having jurisdiction.

5. Install hinges with fasteners supplied by manufacturer. Hole pattern shall be symmetrically patterned.
  6. Acceptable manufacturers and/or products: Pemko CFM83HD/CFM95HD, Roton, Ives, McKinney, Stanley
- D. Flush Bolts (Surface Bolts will not be accepted)
1. Manual flushbolts shall have a spring loaded snap action lever, which will retract the bolt when moved to the "up" position and project the bolt into the head when moved to the "down" position. Flushbolts shall have a 5/8" throw with a vertical adjustment. Flushbolts shall be made from forged brass.
  2. Automatic flushbolts shall retract without any manual actuation. Bolts shall have a minimum throw of 3/4" and shall have an override feature to prevent damage to the door or bolts should some obstruction partially or totally prevent bolt head penetrating strike. Bolts shall have a minimum vertical adjustment of 1/2" . When used on label fire doors, automatic flush bolts shall bear U.L. listing. Provide dust proof strikes for bottom bolts.
  3. All flush bolts will have appropriate extensions that provide operation at no higher than 6'6" from the finished floor.
  4. Acceptable manufacturers and/or products: Ives, Burns, Rockwood
- E. Coordinators
1. Provide a bar-type coordinating device, surface applied to the underside of the stop at the frame head where pairs of doors are equipped with automatic flush bolts, an astragal, or other hardware that requires synchronized closing of the doors.
  2. Provide a filler bar of the correct length for the unit to span the entire width of the opening, and appropriate brackets for parallel arm door closers and surface vertical rod exit device strikes. Factory-prep coordinators for vertical rod devices if required.
  3. Acceptable manufacturers and/or products: Ives, Burns, Rockwood
- F. Mortise Locks
1. Provide mortise locks certified as ANSI A156.13, Grade 1 Operational, Grade 1 Security, and manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance. Lock case shall be multi-function and field reversible for handing without opening the case. Cylinders: Refer to 2.4 KEYING.
  2. Provide locks with a standard 2 3/4" backset with a full 3/4" throw stainless steel mechanical anti-friction latchbolt. Deadbolt shall be a full 1" throw, constructed of stainless steel.
  3. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.

4. Lever trim shall be solid brass, bronze, or stainless steel, cast or forged in the design specified, with wrought roses and external lever spring cages. Levers shall be thru-bolted to assure proper alignment, and shall have a 2-piece spindle.  

Lever design shall be: Schlage **17** with “A”, or “Merano” Rose. Have also used “N” escutcheon at retro fit openings in the past. **LEVER DESIGN OF 17 OR 07 (LEVER DESIGN TO MATCH EXISTING AT SPECIFIC BUILDING, BOTH 17 AND 07 USED IN THE PAST).**

    - a. Lever trim on the secure side of doors serving rooms considered by the authority having jurisdiction to be hazardous shall have a tactile warning.
  5. Acceptable manufacturers and/or products: Schlage L9000 series.
- G. Extra Heavy Cylindrical Locks – Grade 1 (retrofit only not accepted on new construction)
1. Provide cylindrical locks conforming to ANSI A156.2 Series 4000, Grade 1. Cylinders: Refer to 2.4 KEYING.
  2. Provide locksets able to withstand 1500 inch pounds of torque applied to the locked outside lever without gaining access per ANSI A156.2 Abusive Locked Lever Torque Test and cycle tested to 3 million cycles per ANSI A156.2 Cycle Test.
  3. Provide locks with a standard 2-3/4” backset, unless noted otherwise, with a 1/2” latch throw. Provide proper latch throw for UL listing at pairs.
  4. Provide locksets with a separate anti-rotation throughbolts, and shall have no exposed screws. Levers shall operate independently, and shall have 2 external return spring cassettes mounted under roses to prevent lever sag.
  5. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
  6. Disassembly of lockset for cylinder removal shall not be required. Cylinder shall be changed by removing the lever.
  7. Lever trim shall be solid cast levers without plastic inserts, and wrought roses on both sides. Locksets shall be through-bolted to assure proper alignment.
    - a. Lever design shall be Schlage **Athens.**  
**(LEVER DESIGN TO MATCH EXISTING AT SPECIFIC BUILDING, BOTH ATHENS AND SPARTA USED IN THE PAST).**
    - b. Lever trim on the secure side of doors serving rooms considered by the authority having jurisdiction to be hazardous shall have a tactile warning.
  8. Acceptable manufacturers and/or products: Schlage ND series.
- H. Deadbolts
1. Provide mortise deadlock series and function as specified. Cylinders: Refer to 2.4 KEYING.

2. Provide deadlocks with a standard 2 3/4" backset. Deadbolt shall be a full 1" throw, constructed of stainless steel.
  3. Provide manufacturers standard strike.
  4. Disassembly of deadbolt for cylinder removal shall not be required
  5. Acceptable manufacturers and/or products: Schlage L400 series
- I. Exit Devices
1. Provide touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to the standard architectural finishes to match the balance of the door hardware. Cylinders: Refer to 2.4 KEYING.
  2. All exit devices shall have Cylinder dogging unless otherwise specified.
  3. Exit devices shall incorporate a fluid damper or other device that eliminates noise associated with exit device operation. Touchpad shall extend a minimum of one half of the door width, but not the full length of the exit device rail. End-cap will have two-point attachment to door. Only compression springs will be used in devices, latches, and outside trims or controls.
  4. Devices to incorporate a deadlatching feature for security and/or for future addition of alarm kits and/or other electrical requirements.
  5. Vertical rod devices shall be capable of being field modified to less bottom rod devices by removal of bottom rod and adding firing pin(s), if required at fire rated openings.
  6. Provide manufacturer's standard strikes.
  7. Provide exit devices factory cut to door width and height. Locate exit devices at a height recommended by the exit device manufacturer, allowable by governing building codes, and approved by the Architect.
  8. Mechanism case shall sit flush on the face of all flush doors, or spacers shall be furnished to fill gaps behind devices. Where glass trim or molding projects off the face of the door, provide glass bead kits.
  9. Removable mullions shall be a 2" x 3" steel tube. Where scheduled, mullion shall be of a type that can be removed by use of a keyed cylinder, which is self-locking when re-installed. Fixed mullions shall be Von Duprin Steel Mullions #4954, SP28 Finish. Key Removable Mullions shall be Von Duprin Steel Mullion #KR4954, SP28.
  10. Where lever handles are specified as outside trim for exit devices, provide heavy duty lever trims with forged or cast escutcheon plates. Provide vandal-resistant levers that will travel to a 90-degree down position when more than 35 pounds of torque are applied, and which can easily be re-set.
    - a. Lever style will match the lever style of the locksets.

- b. Lever trim on doors serving rooms considered by the authority having jurisdiction to be hazardous shall have a tactile warning.
  11. Exit devices shall be UL listed panic exit hardware. Exit devices for fire rated openings shall be UL labeled fire exit hardware.
  12. Provide clear powder coating on plated finishes or field drill weep holes per manufacturer's recommendation for exit devices used in full exterior application, highly corrosive areas, and where noted in the hardware sets.
  13. Provide electrical options as scheduled.
  14. Acceptable manufacturers and/or products: Von Duprin 99 series with 996L Control.
- J. Hardwired Exterior Door Electronic Access Control System
  1. All Card Readers, Controls, Interface Panels, Local Alarms, Door Contacts, Motion Detectors and Software shall be compatible with existing Campus wide system.
  2. Thin Line II, HID Readers mullion or recessed electrical box mounted.
- K. Electric Strikes
  1. Provide electric strikes designed for use with the type locks shown at each opening.
  2. Provide electric strikes UL Listed as burglary-resistant electric door strikes and where required shall be UL Listed as electric strikes for fire doors and frames. Provide fail-secure type electric strikes, unless specified otherwise.
  3. Provide transformers and rectifiers for each strike as required. Verify voltage with electrical contractor.
  4. Acceptable manufacturers and/or products: Von Duprin 6211 series.
  5. All Electric Strikes used with Rim Exit Devices shall be 6111 Series as manufactured by Von Duprin, Indianapolis, Indiana.
- L. Door Closers
  1. Provide door closers that are fully hydraulic, full rack and pinion action with a high strength cast iron cylinder. Cylinder body shall be 1-1/2" in diameter, and double heat-treated pinion shall be 11/16" in diameter.
  2. Provide hydraulic fluid of a type requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F. Fluid shall be fireproof and shall pass the requirements of the UL10C "positive pressure" fire test.
  3. Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped.

Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed, and backcheck.

4. Provide closers with a solid forged steel main arms and factory assembled heavy-duty forged forearms.
5. Provide special template, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other finish hardware items interfering with closer mounting.
6. Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors.
7. Closers shall not incorporate a pressure relief valve.
8. Closer cylinders, and arms shall have a powder coating finish that has been certified to exceed 100 hours salt spray testing by an independent testing laboratory used by BHMA for ANSI certification. For metal components that can't be powder coated, a special rust inhibiting finish (SRI) must be used.
9. Acceptable manufacturers and/or products: LCN 4040XP series

M. Door Closers (Light Duty Interior)

1. Provide door closers at interior doors certified to ANSI/BHMA A156.4 Grade 1 requirements by a BHMA certified independent testing laboratory.
2. Door closers shall have fully hydraulic, full rack and pinion action with a high strength cast iron cylinder, and shall utilize full complement bearings at shaft. Cylinder body shall be 1-1/8 inch diameter, and heat-treated pinion journal shall be 5/8 inch diameter.
3. Provide all-weather hydraulic fluid. Fluid shall be fireproof and shall pass the requirements of the UL10C "positive pressure" fire test.
4. Closers shall not incorporate Pressure Relief Valve (PRV) technology.
5. Provide special template, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other finish hardware items interfering with closer mounting.
6. Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Closers shall not be visible in corridors, lobbies and other public spaces unless necessary.
7. Acceptable manufacturers and/or products: LCN 4030 series, No Substitute.

N. Electro-Hydraulic Automatic Operators

1. Provide low energy automatic operator units with hydraulic closer complying with ANSI A156.19 where automatic operators are specified.

2. Provide hydraulic fluid of a type requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F. Fluid shall be fireproof and shall pass the requirements of the UL10C "positive pressure" fire test.
3. Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed, and backcheck.
4. Provide units with on/off switch for manual operation, push and go function to activate power operator or power assist functions, motor assist adjustable from 0 to 30 seconds in 5 second increments, motor start up delay, vestibule interface delay, electric lock delay, and door hold open delay up to 30 seconds.
5. Provide units with conventional door closer opening and closing forces unless the power operator motor is activated. Provide door closer assembly with adjustable spring size, back-check valve, sweep valve, latch valve, speed control valve, and pressure adjustment valve to control door closing.
6. Provide drop plates, brackets, or adapters for arms as required for details.
7. Provide hard-wired wall-mounted actuator switches when specified in the Hardware Sets for operation. Actuators shall be weather-resistant type at exterior applications.
8. Provide key switches, with LED's, recommended and approved by the manufacturer of the automatic operator as required for the function as described in the operation description of the hardware group with the provisions below. Cylinders: Refer to 2.4 KEYING.
9. Where automatic operators are scheduled, provide complete assemblies of controls, switches, power supplies, relays, and parts/material recommended and approved by the manufacturer of the automatic operator for each individual leaf. Exterior and vestibule doors with automatic operators shall be sequenced to allow ingress or egress through both openings as directed by the Architect. Locate the actuators, key switches, and other controls as directed by the Architect.
10. All Operators to be provided with Concealed Switch and Torx Screws. No switches (On/Off or Holdopen) to be mounted on the exterior. This option hides the switches within the header of the unit, on the inside wall of the end cap. Options require "-CS -TORX" to be added to the model number when ordering.
11. Provide units with vestibule inputs, which allow sequencing operation of two units, and a SPDT relay for interfacing with latching or locking devices.
12. Release buttons and control as specified in hardware sets, if any questions contact lock shop supervisor for clarifications.
13. Acceptable manufacturers and/or products: LCN 4640 Series

O. Door Trim

1. Provide push plates 4" wide x 16" high x 0.050" thick and beveled 4 edges. Where width of door stile prevents use of 4 inches wide plate, adjust width to fit.
2. Provide push bars of solid bar stock, diameter and length as scheduled. Push bars shall be of sufficient length to span from center to center of each stile. Where required, mount back to back with pull.
3. Provide offset pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
4. Provide flush pulls as specified. Where required, provide back-to-back mounted model.
5. Provide pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
6. Provide pull plates 4" wide x 16" high x 0.050" thick, beveled 4 edges, and prepped for pull. Where width of door stile prevents use of 4 inches wide plate, adjust width to fit.
7. Provide wire pulls of solid bar stock, diameter and length as scheduled.
8. Acceptable manufacturers and/or products: Ives, Burns, Rockwood

P. Protection Plates

1. Provide kick plates, mop plates, and armor plates minimum of 0.050" thick and beveled 4 edges as scheduled. Furnish with machine or wood screws, finished to match plates. Sizes of plates shall be as follows:
  - a. Kick Plates - 8" high x 2" LWOD on single doors, 1" LWOD on pairs
  - b. Mop Plates - 4" high x 2" LWOD on single doors, 1" LWOD on pairs
  - c. Armor Plates - 36" high x 2" LWOD on single doors, 1" LWOD on pairs
2. Acceptable manufacturers and/or products: Ives, Burns, Rockwood

Q. Overhead Stops and Overhead Stop/holders

1. Provide heavy duty overhead stops or overhead stop/holders as specified for exterior and interior vestibule single acting doors.
2. Provide overhead stops or overhead stop/holders at interior doors as specified. Provide surface mounted overhead stops at any door where conditions do not allow a wall stop or a floor stop presents a tripping hazard.
3. Where overhead holders are specified provide friction type at doors without a closer and positive type at doors with a closer.
4. Surface holders shall be furnished with sex nuts and thru bolts.

5. Acceptable manufacturers and/or products: Glynn-Johnson, Rixson, Sargent
- R. Door Stops and Holders
1. Provide door stops for all doors in accordance with the following requirements:
    - a. Provide wall stops wherever possible. Provide convex type where mortise type locks are used and concave type where cylindrical type locks are used.
    - b. Where wall stops cannot be used, provide dome type floor stops of the proper height.
    - c. At any opening where a wall or floor stop cannot be used, a medium duty surface mounted overhead stop shall be used.
  2. Roller type stops shall be used in areas when the interfering swing of one door may cause damage through contact with another door.
  3. All stops to be fastened to concrete shall use expansion shields and machine screws.
  4. Acceptable manufacturers and/or products: Ives, Burns, Rockwood
- S. Thresholds, Seals, Door Sweeps, and Gasketing:
1. Provide thresholds, weatherstripping (including door sweeps, seals, astragals) and gasketing systems (including smoke, sound, and light) as specified and per architectural details. Match finish of other items as closely as possible. Provide door sweeps, seals, and astragals of a type where resilient or flexible seal strip is easily replaceable and readily available.
  2. Seals shall be manufactured from silicone rubber with a self-adhesive strip. Seals shall be bulb design with a 1/4" compression and designed to be installed on metal or wood door frames.
  3. All exterior doors to have a sweep consisting of a 1-3/4" brush in an aluminum housing.
  4. All exterior door openings to have perimeter weatherstripping that consists of minimum 3/4" brush in an aluminum housing.
  5. Thresholds shall be thermal barrier flat saddle type, handicap accessible to meet ANSI 117.1 1980, and shall be manufactured from aluminum.
  6. Thresholds installed at exterior openings to be supplied with Stainless Steel fasteners.
  7. Acceptable manufacturers and/or products: National Guard, Pemko, Reese, Zero
- T. Silencers:

1. Provide "Push-in" type silencers for each hollow metal or wood frame. Provide 3 for each single frame and 2 for each pair frame. Omit where gasketing is specified or required by code.
2. Acceptable manufacturers and/or products: Ives, Burns, Rockwood

U. Magnetic Holders:

1. Provide wall mounted electromagnetic door release with a minimum of 25 pounds of holding force, and a positive release button to initiate the closing motion. Projection of holder and armature must be coordinated with other hardware and wall conditions to ensure that door sits parallel to wall when fully open. Where magnetic holders are used on fire-rated doors, they must be wired into the fire control panel for fail-safe operation.
2. Acceptable manufacturers and/or products: LCN

2.3 FINISHES **(MATCHES THOSE ALREADY USED IN SPECIFIC BUILDING. POLISHED BRASS (US3) USED MOST OFTEN, BUT SATING CHROME (US26D) HAS BEEN USED IN THE PAST AS WELL.)**

A. Finish of all hardware shall be US3 (BHMA 605/632) with the exceptions as follows:

1. Continuous Hinges: US32D (BHMA 630).
2. Door Closers: Powder Coat to Match.
3. Latch Protectors: US32D (BHMA 630).
4. Weatherstripping: Gold Anodized Aluminum.
5. Thresholds: Extruded Architectural Bronze, Polished

B. Finish of all hardware shall be US26D (BHMA 626/652) with the exceptions as follows:

1. Hinges at Exterior Doors: US32D (BHMA 630).
2. Push Plates, Pulls, and Push Bars: US32D (BHMA 630).
3. Protection Plates: US32D (BHMA 630).
4. Overhead Stops and Holders: US32D (BHMA 630).
5. Door Closers: Powder Coat to Match.
6. Wall Stops: US32D (BHMA 630).
7. Latch Protectors: US32D (BHMA 630).
8. Weatherstripping: Clear Anodized Aluminum.
9. Thresholds: Mill Finish Aluminum.

2.4 KEYING

- A. All permanent cylinders and cores will be Schlage Everest 29 T FSIC (Full Size Interchangeable Core) restricted keyway.
- B. Phillips Exeter will provide all permanent Schlage cores as part of the project cost.
- C. The General Contractor or Construction Manager will supply and install Schlage Interchangeable Core housings for all locks.

- D. During construction the General Contractor or Construction Manager will provide and install temporary, Schlage cores as needed to secure exterior building doors
- E. All Key switches shall have Schlage Interchangeable Core housings.
- F. Questions about Phillips Exeter keying and cylinders should be directed to:  
  
Marshall Miller  
Phillips Exeter Locksmith  
1-603-777-4439 (p)  
[mmiller@exeter.edu](mailto:mmiller@exeter.edu)
- G. Approved products: Schlage

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Prior to installation of any hardware, examine all doors, frames, walls and related items for conditions that would prevent proper installation of finish hardware. Correct all defects prior to proceeding with installation.

#### **3.2 INSTALLATION**

- A. Coordination:
  - 1. Prior to installation of hardware, schedule and hold a meeting for the purpose of instructing installers on proper installation and adjustment of finish hardware. Representatives of locks, exit devices, closers, automatic operators, and electrified hardware shall conduct training; provide at least 10 days notice to representatives. After training a letter of compliance, indicating when the training was held and who was in attendance, shall be sent to the Architect.
  - 2. Prior to installation of electrified hardware, schedule and hold a meeting for the purpose of coordinating finish hardware with security, electrical, doors and frames, and other related suppliers. A representative of the supplier of finish hardware, and doors and frames, the electrical subcontractor, and the Owner's security contractor shall meet with the Owner, Architect, and General Contractor prior to ordering finish hardware. After training a letter of compliance, indicating when the training was held and who was in attendance, shall be sent to the Architect.
- B. Hardware will be installed by qualified tradesmen, skilled in the application of commercial grade hardware. For technical assistance if necessary, installers may contact the manufacturer's rep for the item in question, as listed in the hardware schedule. Sole installation vendors shall include:
  - 1. Andover Controls
- C. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.

- D. Install each hardware item in compliance with the manufacturer's instructions and recommendations, using only the fasteners provided by the manufacturer.
- E. Do not install surface mounted items until finishes have been completed on the substrate. Protect all installed hardware during painting.
- F. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- G. Operating parts shall move freely and smoothly without binding, sticking, or excessive clearance.
- H. Existing Doors and/or Frames: Remove existing hardware being replaced, tag, and store according to contract documents. Field modify and prepare existing door and/or frame for new hardware being installed. Provide necessary fillers, Dutchmen, reinforcements, and fasteners for mounting new hardware and to cover existing door/frame preps.
- I. Wire (including low voltage), conduit, junction boxes, and pulling of wire is by Division 16, Electrical. Electrical Contractor shall connect wire to door position switches and run wire to central room or area as directed by the Architect. Wires shall be tested and labeled with the Architects opening number. Connections to/from power supplies to electrified hardware and any connection to fire/smoke alarm system, and/or smoke evacuation system where specified is by Division 16 (Electrical).

### 3.3 ADJUSTING, CLEANING, AND DEMONSTRATING

- A. Adjust and check each operating item of hardware and each door, to insure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly.
- B. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make a final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- C. Clean adjacent surfaces soiled by hardware installation.
- D. Instruct Owner's personnel in the proper adjustment, lubrication, and maintenance of door hardware and hardware finishes.

### 3.4 FIELD QUALITY CONTROL

- A. Prior to Substantial Completion, the installer, accompanied by representatives of the manufacturers of locks, exit devices, closer, and any electrified hardware, shall perform the following work:
  - 1. Examine and re-adjust each item of door hardware as necessary to restore function of doors and hardware to comply with specified requirements.

2. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures.
3. Replace hardware items that have deteriorated or failed due to faulty design, materials, or installation of hardware units.
4. Prepare a written report of current and predictable problems of substantial nature i. the performance of the hardware.
5. At completion of project, a qualified factory representative for the manufacturers of locksets, closer, exit devices, and access control products shall arrange and hold a training session to instruct the Owner's personnel on the proper maintenance, adjustment, and/or operation of their respective products. After training a letter of compliance, indicating when the training was held and who was in attendance, shall be sent to the Architect.

### 3.5 PROTECTION

- A. Provide for the proper protection of complete items of hardware until the Owner accepts the project as complete. Damaged or disfigured hardware shall be replaced or repaired by the responsible party.

### 3.6 HARDWARE SCHEDULE

- A. Provide hardware for each door to comply with requirements of Section "Finish Hardware," hardware set numbers indicated in door schedule.
- B. It is intended that the following schedule includes complete items of finish hardware necessary to complete the work. If a discrepancy is found in the schedule, such as a missing item, improper hardware for a frame, door or fire codes, this preamble will be the deciding document.
- C. Locksets, exit devices, and other hardware items are referenced in the Hardware Sets for series, type, and function. Refer to the preamble for special features, options, cylinders/keying, and other requirements.
- D. Hardware Sets

Set created by Allegion  
John Gant AHC, FDAI, CCPR  
john.gant@allegion.com  
www.allegionne.com  
Phone: 802-482-4763  
Cell: 781-775-5010



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 1/18/2017

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |  |  |
|--|--|
| <input type="checkbox"/> Academic Buildings  | <input type="checkbox"/> Dormitories                   |
| <input type="checkbox"/> Administrative      | <input checked="" type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                       |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                       |
| <input type="checkbox"/> Other _____         |  |
| <input type="checkbox"/> Other _____         |  |

**Overview of system/product/guideline:**

The following is the PEA Design Guideline for faculty homes for garage door openers

**Links to additional product information:**

[www.garaga.com](http://www.garaga.com)

1 888 296-3049  FIND A DEALER
[PRODUCTS](#)
[BUILD YOUR DOOR](#)
[FREE QUOTE](#)
[Home](#) > [Commercial & Industrial](#) > [LiftMaster 3900](#)

## LiftMaster 3900

### Garage Doors

[Residential](#)
[Commercial, Industrial and Agricultural](#)

### Garage Door Openers

[Residential](#)
[Commercial & Industrial](#)
[LiftMaster 3900](#)
[LiftMaster ATS](#)
[LiftMaster MT](#)
[LiftMaster MH](#)
[LiftMaster MJ](#)
[LiftMaster APT](#)
[LiftMaster T](#)
[LiftMaster GT](#)
[LiftMaster GH](#)
[LiftMaster RBH](#)
[LiftMaster J](#)
[LiftMaster H](#)
[LiftMaster HCTDCU](#)


## LiftMaster 3900

Features	Standard Security Systems	Included in package	Optional Accessories	Documents to Download
----------	---------------------------	---------------------	----------------------	-----------------------

### FEATURES

The Model 3900 is a jackshaft door opener, as manufactured by The Chamberlain Group, Inc. and is for use on light-duty commercial standard, vertical and high lift sectional doors with torsion assemblies. It is rated up to 10 cycles per hour during peak periods. It features a compact design ideal for limited height, cathedral, or obstructed ceiling installations.



#### Features:

**Motor :** Heavy-duty 24VDC with variable speed smooth start and stop.

**Voltage :** 120V

**Maximum door weight :** 650 lbs.

**Minimum sideroom required :** 14"

**Requirements:** for doors up to 14' high, 18' wide or 180 square foot maximum

Quick-Connect™ terminals for faster wire installation.

Compact design.

6-foot power cord that makes connecting to a power source easier than ever.

Push button limit settings.

Wall-mount installation: mounts on the left or right side of door. No rails to hang, the door opener simply mounts on the wall and attaches to the door torsion bar. Unit requires an electrical outlet within 6 feet.

Patented absolute positioning technology.

UL and CSA listed.

Lifetime motor warranty.

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## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings             | <input checked="" type="checkbox"/> Dormitories |
| <input type="checkbox"/> Administrative                 | <input type="checkbox"/> Faculty Residences     |
| <input checked="" type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                |
| <input type="checkbox"/> Campus Wide                    | <input type="checkbox"/> Utility                |
| <input type="checkbox"/> Other _____                    |   |
| <input type="checkbox"/> Other _____                    |   |

### Overview of system/product/guideline:

Student mirrors-Series framed mirror, OR plate glass mirror:  
Nominal 6.0mm (0.23") thick, conforming to ASTM C 1036. Type I,  
Class 1, Quality q2 and with silvering, electro-plated copper coating  
and protective organic coating.

### Links to additional product information:

Blank area for links to additional product information.



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 9

Specification Section:

09 65 19-Resilient Tile Flooring

Description of Material or System:

Flooring product for Faculty Kitchens and Baths

Last Updated:

4/7/2016

Updated by:

Annie Pleatsikas

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- Academic Buildings
- Administrative
- Athletic Facilities
- Campus Wide
- Other \_\_\_\_\_
- Other \_\_\_\_\_
- Dormitories
- Faculty Residences
- Support
- Utility

Overview of system/product/guideline:

Use Metroflor Solidity 30 Moroccan Sandstone & Appalachian Stone 16" X 16" resilient floor tile.

Links to additional product information:

<http://www.metroflorusa.com/>



Glue Down Floor System	
Section Name	Solidity 30 Moroccan Sandstone & Appalachian Stone
	Institutional, Commercial & Residential
	16" x 16" (406.4 x 406.4mm)
Wear Layer	20 mil (0.5mm) Ceramic Bead Finish
Substrate	0.118" (3.0mm)
Adhesive/Carton	20 mil (0.5mm) Ceramic Bead Finish
Sq. Ft./Tile	1.77
Sq. Mtr./Tile	0.164
Sq. Ft./Carton	35.5
Sq. Mtr./Carton	3.28
Boxes Per Pallet	44
Residential Warranty	Limited Lifetime
Commercial Warranty	10-Year Limited

LEED Information			
LEED CREDIT	CATEGORY DESCRIPTION	QUALIFYING DESCRIPTION	PTS
IEQ Credit 4.1	Low-Emitting Materials Adhesives & Sealants	Low VOC; complies with SCAQMD # 1168	1
IEQ Credit 4.3	Low-Emitting Materials Floor Systems	An alternative compliance path using FloorScore is acceptable for credit achievement. 100% of the non-carpet finished flooring must be FloorScore-certified and must constitute at least 25% of the finished floor area. Examples of unfinished flooring include floors in mechanical rooms, electrical rooms and elevator service rooms.	1

ASTM Test Results		
	Results	Requirements
ASTM 1700-04 Classification	Class III, Type B	
ASTM E 662-03 Smoke Density Test (Flaming)	< 450	<450
ASTM E 662-03 Smoke Density Test (Non-Flaming)	< 450	<450
ASTM F 970 Static Load	± .005	± .005
ASTM F 1514 Resistance to Heat	ΔE < 8	ΔE < 8
ASTM F 1515 Resistance to Light	ΔE < 8	ΔE < 8
ASTM D 2047-04 Static Coefficient Wet	> .60	> .60
ASTM D 2047-04 Static Coefficient Dry	> .60	> .60
ASTM E 648-03 Critical Radiant Flux	> .60	> .60
ASTM F 1914 Residual Indentation	< 8%	< 8%
ASTM F 137 Flexibility	Passes	1" mandrel, no cracks or breaks
ASTM F 925-02 Chemical Resistance	Passes	No more than slight effect
ASTM F 2199-02 Dimensional Stability	± 0.020 in	± 0.020 in
ASTM D 3884 Abrasion Wheel	> 35,000	No minimum requirements

Norwalk, CT

Effective Date 1/23/2013

[www.metroflorusa.com](http://www.metroflorusa.com)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 9

Specification Section:

09 67 00-Fluid-Applied Flooring

Description of Material or System:

Guidelines for floors at student shower areas

Last Updated:

4/7/2016

Updated by:

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings             | <input checked="" type="checkbox"/> Dormitories |
| <input type="checkbox"/> Administrative                 | <input type="checkbox"/> Faculty Residences     |
| <input checked="" type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                |
| <input type="checkbox"/> Campus Wide                    | <input type="checkbox"/> Utility                |
| <input type="checkbox"/> Other _____                    |   |
| <input type="checkbox"/> Other _____                    |   |

Overview of system/product/guideline:

Floors in wet areas such as student showers in dormitories and locker rooms shall be treated with a material that has a seamless application.

Materials should be able to be flushed and mopped without long term damage and shall be flexible to allow for building settlement.

Floors shall be treated in such a way that they are pitched to a drain that will allow for proper drainage after shower use or cleaning operations.

Links to additional product information:



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

Sherwin Williams is campus standard, no exceptions unless specifically submitted and approved by Owner.

### Links to additional product information:

Sherwin Williams Local Store:

Store Number 5445  
Store Name STRATHAM  
Address 42 PORTSMOUTH AVE  
City, State, Zip STRATHAM, NH 03885-6519  
Phone (603) 772-6602  
Fax (603) 772-7578  
Manager RYAN S HOWIE  
Local Rep: Michael Guyre

### Store Hours

Please call the store for Holiday hours: (603) 772-6602  
Sunday 10:00 AM - 6:00 PM  
Monday 7:00 AM - 7:00 PM  
Tuesday 7:00 AM - 7:00 PM  
Wednesday 7:00 AM - 7:00 PM  
Thursday 7:00 AM - 7:00 PM  
Friday 7:00 AM - 7:00 PM  
Saturday 8:00 AM - 6:00 PM



## SCHEDULE

### Interior Finishes

#### Interior Walls

Primer: - Multi-Purpose Zero VOC Interior/Exterior Latex Primer White

Primer: - PVA Drywall Primer & Sealer White

*Alternative Primer Option*

Finish: - ProMar® 200 Zero VOC Interior Latex Eg-Shel

*Patch and sand any imperfections to smooth, clean surface. Prime with Sherwin-Williams Multi-Purpose Latex Primer.*

*Apply two coats of ProMar 200 Zero VOC Eg-Shel.*

Primer: - Drywall Primer Interior Latex White

*Alternative Primer Option.*

#### Interior Trim (Wood)

Primer: - Multi-Purpose Zero VOC Interior/Exterior Latex Primer White

Finish: - SuperPaint® Interior Latex Semi-Gloss Extra White

*Caulk baseboard, door casings, chair rails, and crown molding when applicable. Fill all nail holes with wood putty or spackle. Prime any new or bare wood with Sherwin-Williams Multi-Purpose Latex Primer. Apply two coats of finish using Sherwin-Williams SuperPaint Interior Semi-Gloss.*

#### Kitchens and Baths

Finish: - ProMar® 200 Zero VOC Interior Latex Semi-Gloss Extra White

*Prepare walls and trim according to standard. Apply two coats of finish using ProMar 200 Zero VOC Semi-Gloss.*

#### Metal Surfaces

Spot Prime: - Pro Industrial Pro-Cryl® Universal Acrylic Primer

*Sand any exposed surface rust. Spot prime these areas with Pro-Cryl Universal Acrylic Primer.*

Finish: - DTM Acrylic Coating Semi-Gloss

*Apply two coats of finish using DTM Acrylic Sem-Gloss.*

#### Metal Handrails

Primer: - Pro Industrial Pro-Cryl® Universal Acrylic Primer

*Sand any exposed surface rust. Spot prime with Pro-Cryl Universal Acrylic Primer.*

Finish: - Pro Industrial Urethane Alkyd Enamel

*Apply two coats of finish using Pro Industrial Urethane Alkyd Enamel.*

#### Moresco or Calcimine Ceilings

Primer: - ProBlock® Interior Oil-Based Primer White

Finish: - ProMar® 200 Zero VOC Interior Latex Flat Extra White

*Scrape all loose or peeling paint. Clean surface with damp rags and allow to dry completely. Prime with ProBlock Interior Oil Primer. Apply two coats of finish using ProMar 200 Zero VOC Flat.*

Finish: - ProMar® 400 Zero VOC Interior Latex Flat Extra White

*Alternative Finish Option.*

#### Interior Wood Stain

First Coat: - Minwax or Sherwin-Williams WoodClassics



All interior wood stains should be either Minwax or Sherwin-Williams WoodClassics. Color to be determined by PEA.

### **Interior Wood Stains**

Finish: - Minwax Fast-Dry Polyurethane

*After a minimum of eight hours, apply finish coat of Minwax Fast-Dry Polyurethane.*

Finish: - Minwax Polycrylic Waterbased Urethane

*For a low-odor, water clean-up finish apply Minwax Polycrylic Waterbased Urethane. Please note for this option, stain must dry for at least 24 hours prior to applying this finish.*

### **Floors**

Finish: - ArmorSeal® Tread-Plex 100% Acrylic Floor Coating

*Prepare all floors by removing any old coatings. Surface must be clean, dull, and dry. Apply two coats of ArmorSeal Tread-Plex. This recommendation is not all-inclusive for every floor. Situations may require Sherwin-Williams to assess the situation and make alternative surface preparation and product recommendation.*

### **Water Stains or Graffiti**

Primer: - White Pigmented Shellac Primer

*Prime all water stains or graffiti with White Pigmented Shellac. Topcoat following the PEA standard.*

Primer: - ProBlock® Interior Oil-Based Primer

*Alternative Primer Option.*

Primer: - BIN Shellac Pigmented Primer Sealer

*Alternative Primer Option.*

### **Concrete**

Primer: - Loxon® Concrete & Masonry Primer, Interior/Exterior Latex

*Prime all interior bare concrete with Loxon Concrete and Masonry Primer. Topcoat following PEA standard.*

## **Exterior Finishes**

### **New Construction**

Primer: - Exterior Oil-Based Wood Primer White

Finish: - SuperPaint® Latex Gloss House & Trim Paint

*Caulk all siding to door and window Turpin, clean and prepare all surfaces to be painted. Prime with Sherwin-Williams Exterior Oil-Based Primer. Apply two coats of finish using Sherwin-Williams SuperPaint Exterior Gloss.*

### **Previously Painted Surfaces**

Primer: - Exterior Oil-Based Wood Primer White

Primer: - Prime Rx Peel Bonding Primer

Finish: - SuperPaint® Latex Gloss House & Trim Paint

*Remove all peeling and flaking paint by scraping entire surface. Pressure wash and prepare all surfaces to be painted. Remove all dirt, mold, and mildew. Caulk siding to door and window trim. Prime all bare surfaces with Sherwin-Williams Exterior Oil-Based Primer. Prime entire surface with Sherwin-Williams PrimeRx Peel Bonding Primer. Apply one coat of SuperPaint Exterior Gloss.*

**END OF SECTION**



## **SURFACE PREPARATION**

### **1) Drywall (Interior and Exterior)**

Must be clean and dry. All nail heads must be set and spackled. Joints must be taped and covered with a joint compound. Spackled nail heads and tape joints must be sanded smooth and all dust removed prior to painting. Exterior surfaces must be spackled with exterior grade compounds.

### **2) Previously Coated Surfaces**

Maintenance painting will frequently not permit or require complete removal of all old coatings prior to repainting. However, all surface contamination such as oil, grease, loose paint, mill scale, dirt, foreign matter, rust, mold, mildew, mortar, efflorescence, and sealers must be removed to assure sound bonding to the tightly adhering old paint. Glossy surfaces of old paint films must be clean and dull before repainting. Thorough washing with an abrasive cleanser will clean and dull in one operation, or, wash thoroughly and dull by sanding. Spot prime any bare areas with an appropriate primer.

Recognize that any surface preparation short of total removal of the old coating may compromise the service length of the system. Check for compatibility by applying a test patch of the recommended coating system, covering at least 2 to 3 square feet. Allow to dry one week before testing adhesion per ASTM D3359. If the coating system is incompatible, complete removal is required.

**END OF SPECIFICATION**



# Phillips Exeter Academy Construction Standards and Guidelines

**Division of Work:**

**Specification Section:**

**Description of Material or System:**

**Last Updated:** 4/20/2017

**Updated by:**

<p><b>Included in this section:</b></p> <p><input type="checkbox"/> Product Specifications</p> <p><input type="checkbox"/> Design Guidelines</p> <p><input type="checkbox"/> Design Details/Drawings</p> <p><input type="checkbox"/> Supplemental Information</p> <p><input type="checkbox"/> Other _____</p> <p><input type="checkbox"/> Other _____</p>	<p><b>Guideline applies:</b></p> <p><input checked="" type="checkbox"/> Academic Buildings</p> <p><input checked="" type="checkbox"/> Administrative</p> <p><input checked="" type="checkbox"/> Athletic Facilities</p> <p><input type="checkbox"/> Campus Wide</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> Other</p>	<p><input checked="" type="checkbox"/> Dormitories</p> <p><input type="checkbox"/> Faculty Residences</p> <p><input checked="" type="checkbox"/> Support</p> <p><input type="checkbox"/> Utility</p> <p>_____</p> <p>_____</p>
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**Overview of system/product/guideline:**

Custom paint colors must be Sherwin Williams and be the following forumula for shutters and doors

**Links to additional product information:**

[www.sherwinwilliams.com](http://www.sherwinwilliams.com)

CUSTOM ESSEX GREEN EXTERIOR PAINT FORMULA

6500-47632 GALLON A84T00154 SPR EXT. GL ULTRA

CE Color Cast	OZ.	32	64	128
W1 White		9		1
B1 Black	4	32	1	
G2 New Green	2	34		1
Y3 Deep Gold		51	1	1
Custom Sher-color match				

CLASSIC BURGUNDY EXTERIOR PAINT FORMULA

6500-47632 GALLON A84T00154 SPR EXT. GL ULTA

CE Color Cast	OZ.	32	64	128
---------------	-----	----	----	-----

B1 Black		18		
----------	--	----	--	--

R2 Maroon		28	1	
-----------	--	----	---	--

R3 Magenta	8	17		
------------	---	----	--	--

Custom Sher-color match



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 10

Specification Section:

10170/10 21 13.19-Plastic Toilet Compartments

Description of Material or System:

Solid Plastic Toilet Partitions

Last Updated:

12/18/2015

Updated by:

Annie Pleatsikas

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

Overview of system/product/guideline:

The following is the PEA Design Guideline for solid plastic toilet partions

Links to additional product information:

[www.scratonproducts.com](http://www.scratonproducts.com)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 10

Specification Section:

10 28 00-TOILET, BATH, AND LAUNDRY ACCESSORIES

Description of Material or System:

Bathroom Trash Receptacles and Soap Dispensers

Last Updated:

4/7/2016

Updated by:

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |  |   |
|--|---|
| <input type="checkbox"/> Academic Buildings  | <input checked="" type="checkbox"/> Dormitories |
| <input type="checkbox"/> Administrative      | <input type="checkbox"/> Faculty Residences     |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                |
| <input type="checkbox"/> Other _____         |   |
| <input type="checkbox"/> Other _____         |   |

Overview of system/product/guideline:

Attached are the cut sheets / product data for the bathroom trash receptacles and soap dispensers.

Links to additional product information:

[www.grainger.com](http://www.grainger.com)  
[www.symmetryhandhygiene.com](http://www.symmetryhandhygiene.com)



Sign In |  Email Sign Up | New Customer? Register Now | Help

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PRODUCTS | RESOURCES | SERVICES | WORLDWIDE | REPAIR PARTS |

Cleaning > Receptacles and Containers > Waste Containers

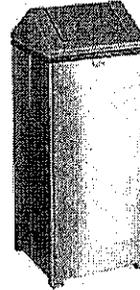
## UNITED RECEPTACLE Waste Receptacle, Swing Doors, SS, 24 G

☆☆☆☆☆ | Write a Review | Read all Reviews | Read all Ask & Answer

Share this Product

Indoor Waste Receptacle, Swing Doors, Square, Hinged Top, Color Stainless Steel, Length 14 In., Width 14 In., Height 35-1/2 In., Material Stainless Steel, Smooth Finish, UL/FM Standards, Includes 16 gal. Leak proof Rigid Plastic Liner, Top opens to a 90 degree angle, (2)6.5 In. x 9 1/2 In. Pushd Door Openings, Stainless Steel Legs With Plastic Buttons Protect Floors, Capacity 24 gal.

Grainger Item #	2KDT9
Price (ea.)	\$692.00
Brand	UNITED RECEPTACLE
Mfr. Model #	T1424SSPL
UNSPSC #	47121702
Ship Qty.	1
Sell Qty. (Will-Call)	1
Ship Weight (lbs.)	34.0
Availability	<b>Ready to Ship</b>
Catalog Page No.	1565
Country of Origin	USA
(Country of Origin is subject to change.)	



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Qty.

Price shown may not reflect your price. Sign in or register.

When can I get it? Use your ZIP code to estimate availability.

Qty:  ZIP code:

Tech Specs	Additional Information	Compliance & Restrictions	MSDS	Required Accessories	Optional Accessories	Alternate Products	Repair Parts
Item Type	Indoor Waste Receptacle						
Shape	Swing Doors						
Top	Square						
Color	Hinged						
Length	Stainless Steel						
Width	14"						
Height	14"						
Material	35-1/2"						
Finish	Stainless Steel						
Standards	Smooth						
Includes	UL/FM						
Capacity	16 gal. Leak proof Rigid Plastic Liner, Top opens to a 90 degree angle, (2)6.5" x 9 1/2" Pushd Door Openings.						
Green Environmental Attribute	Stainless Steel Legs With Plastic Buttons Protect Floors						
	24 gal.						
	Minimum 30% Post-Consumer Recycled Content						

**Customers Also Viewed**



Waste Receptacle, Swing Doors, White, 24 G  
Brand: UNITED RECEPTACLE  
Grainger Item #: 5LY30  
Price: \$290.75  
Qty:



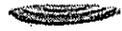
Waste Receptacle, 40 G, SS  
Brand: UNITED RECEPTACLE  
Grainger Item #: 2KDU1  
Price: \$905.00  
Qty:



Waste Receptacle, 40 G, White  
Brand: UNITED RECEPTACLE  
Grainger Item #: 2KDU3  
Price: \$508.00  
Qty:



Indoor Waste Receptacle, Square, 40 Gal  
Brand: RUBBERMAID  
Grainger Item #: 3VPW1  
Price: \$336.75  
Qty:

Customers Also Bought					1 of 5
					
5-Wheel Round Dolly, 20-55 Gal. Brand: RUBBERMAID	Cart, Service Brand: RUBBERMAID	Waste Container, Slim, Gray, 23 gal. Brand: RUBBERMAID	Wastebasket, Fire Safe, Beige, 10 G Brand: RUBBERMAID	Receptacle Lid, 55 G Brand: RUBBERMAID	
Grainger Item #: 5W007 Price: \$86.05 Qty: <input type="text"/>	Grainger Item #: 1FD42 Price: \$278.00 Qty: <input type="text"/>	Grainger Item #: 3U641 Price: \$75.95 Qty: <input type="text"/>	Grainger Item #: 5M745 Price: \$85.40 Qty: <input type="text"/>	Grainger Item #: 4W017 Price: \$41.75 Qty: <input type="text"/>	

Other Popular Terms for this Product



Buckeye International, Inc.  
2700 Wagner Place, Maryland  
Heights, Mo 63043-3471, USA

PO No.: 49050

Part No.: 99012001

Revision No.: C

Description: 1.25L DISP w/SYM Logo



# GRAY

Manufacturing Date: 2012-7-18

Quantity: 6 Pcs

N.W.: 2.32 KG G.W.: 2.92 KG

Country Of Origin: Made in China



## Non-Alcohol Foaming Hand Sanitizer



Available in:  
Foam: 550 ml bottle, 1250 ml

## Hand Sanitizer



Available in:  
Foam: 550 ml bottle, 1250 ml, 2000 ml  
Liquid: 1200 ml, 2000 ml, 2 oz. bottle

## Antimicrobial Hand Wash



Available in:  
Foam: 1250 ml, 2000 ml  
Liquid: 1250 ml, 2000 ml

## Green Certified Hand Wash



Available in:  
Foam: 550 ml bottle, 1250 ml, 2000 ml  
Liquid: 1250 ml, 2000 ml

The CDC recommends washing your hands as one of the best defenses against the spread of germs and, if no soap and water is available, using a hand sanitizer.

*\*This product meets the Green Seal™ Standard for Institutional Hand Cleaners, GS-41, based on its reduced human and aquatic toxicity and reduced smog production potential.*

## Hair, Hand and Body Wash



Available in:  
Foam: 1250 ml, 2000 ml  
Liquid: 1250 ml, 2000 ml

## General Purpose Hand Wash



Available in:  
Foam: 1250 ml, 2000 ml  
Liquid: 1250 ml, 2000 ml

## Moisturizing Hand Lotion



Available in:  
Liquid: 1250 ml

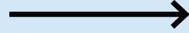
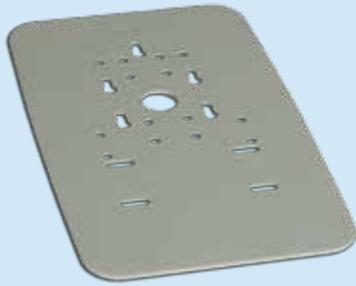
## Industrial Hand Cleaner



Available in:  
Liquid: 2000 ml

## Accessories

### Dispenser Mounting Plate



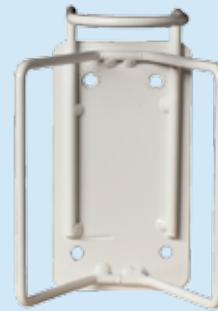
## Accessories

### Dispenser Stand

- 51" tall
- 38-lb. weighted base
- Adjustable feet for all surfaces
- Available in black



### Pump Bottle Bracket



To purchase Symmetry™ products,  
call: 1-800-321-2583

[www.symmetryhandhygiene.com](http://www.symmetryhandhygiene.com)



**Buckeye International, Inc.**

2700 Wagner Place • Maryland Heights • MO 63043  
(314) 291-1900 • [www.buckeyeinternational.com](http://www.buckeyeinternational.com)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

Attached are the cut sheets / product data for toilet paper and paper towel dispensers.

### Links to additional product information:

[www.kimberly-clark.com](http://www.kimberly-clark.com)

**Leighton, Mark F.**

---

**From:** Searle-Spratt, Michael L.  
**Sent:** Thursday, November 08, 2012 11:23 AM  
**To:** Landry, James J.; Leighton, Mark F.  
**Subject:** FW: Dispensers

---

**From:** Galemba, Katherine M.  
**Sent:** Thursday, November 08, 2012 10:58 AM  
**To:** Searle-Spratt, Michael L.  
**Subject:** Dispensers

Kimberly Clark Dispensers

Towel Dispenser Sanitouch- #09996

Toilet Paper JRT Twin Coreless -#09608

Let me know if you need anything else-Kate

Kate Galemba  
Procurement and Business Services Manager

Tel- 603-777-3442  
Fax-603-777-4370

Phillips Exeter Academy  
20 Main Street  
Exeter NH 03833



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/16/2017

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other 1 piece shower enclosure
- Other 3 piece shower enclosure

**Guideline applies:**

- |  |  |
|--|--|
| <input type="checkbox"/> Academic Buildings  | <input type="checkbox"/> Dormitories                   |
| <input type="checkbox"/> Administrative      | <input checked="" type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                       |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                       |
| <input type="checkbox"/> Other               | <hr/>  |
| <input type="checkbox"/> Other               | <hr/>  |

**Overview of system/product/guideline:**

The following is the PEA specification for Bath Enclosures. The preferred model is one piece, realizing that space constraints will dictate a three piece model. Final approval required by PEA. All enclosures to be White.

**Links to additional product information:**

[www.oasisbath.com](http://www.oasisbath.com)

# VURSA SERIES TUB / SHOWER

Oasis®

One Piece Model

TS-6032R ABF / ANS09-FLD



60-INCH MODEL

TS-6032

Rough-In Dimensions

60" wide x 33-1/4" deep x 73-3/4" high (w/ 16-inch apron)

Finished Dimensions

60" wide x 32" deep x 72-1/2" high (w/ 16-inch apron)

Unit Features



- One - Piece Fiberglass Composite Construction
- Sanitary Grade Polyester Gelcoat Surface
- 2" Dia. Drain / RH or LH (see reverse side for location)
- 2-1/2" Dia. Overflow (see reverse side for location)
- Generous, Multi-Level Back Wall Shelving
- Accessory Shelf With Wash Cloth Rod
- Textured Floor Pattern
- 1/2-inch Balsa Wood Core Floor Structure

Special Notes

- Optional ABF Model (provides 3 Inches of drain clearance)
- Factory Applied Reinforcement Packages Available
- Factory Applied Bar Configurations Available
- Factory Applied ADA & ANSI Compliant Bar & Seat Packages Available
- UL Listed Whirlpool System Available

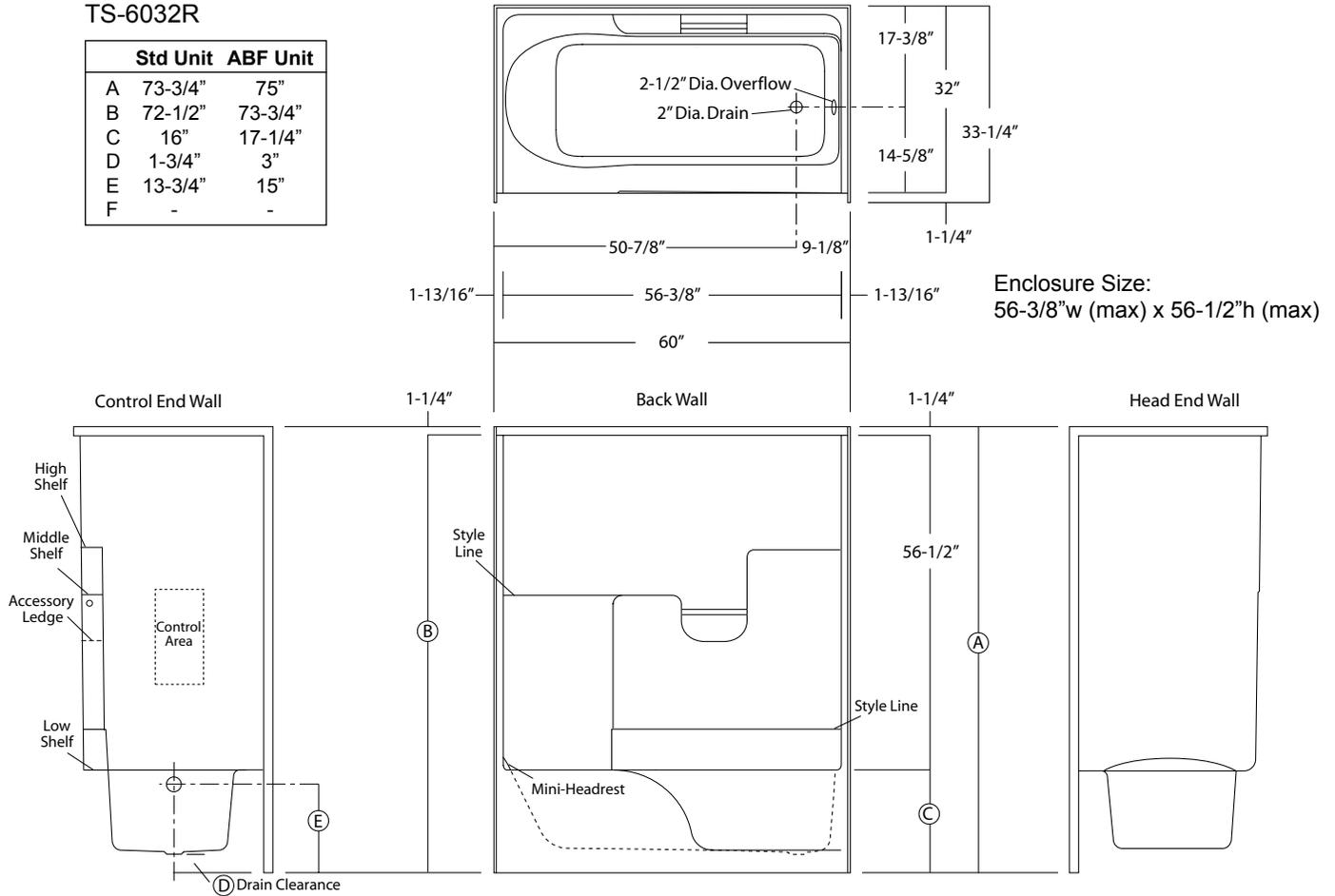
Order No.: TS-6032R (RH drain / 16" apron)  
 TS-6032L (LH drain / 16" apron)

TS-6032R ABF (RH drain / 17-1/4" apron)  
 TS-6032L ABF (LH drain / 17-1/4" apron)

60" x 32", one-piece gelcoated fiberglass tub/shower with 16" apron (1-3/4" drain clearance), multi-level back wall shelves, accessory shelf with acrylic wash cloth rod, and drain on end indicated.

### TS-6032R

	Std Unit	ABF Unit
A	73-3/4"	75"
B	72-1/2"	73-3/4"
C	16"	17-1/4"
D	1-3/4"	3"
E	13-3/4"	15"
F	-	-



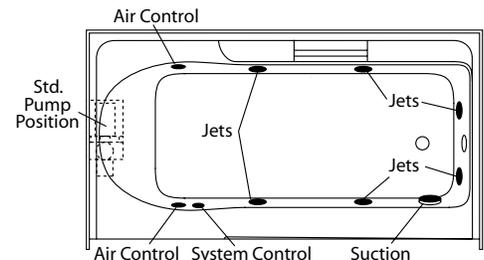
### Package Order No.: 6P (Builder System)

Package includes: 6-Adjustable jets, twin air injection controls, pneumatic on/off control, and 5.50 amp pump/motor.

Options: In-Line Heater (1\*) (order: ILH)  
 Ozone Generator (1\*) (order: OZG)  
 SS Shower Rod (1\*) (order: ADD/SHWR ROD-TS)

Notes: (1\*) Factory installed options  
 System available with component packages.

Sump Dimensions: 51" long x 20-1/2" wide x 13-1/2" deep  
 Sump Capacity: 38 gal. (unoccupied - to overflow)  
 Whirlpool Operating: 28 gal.



# VURSA kd SERIES TUB / SHOWER

Three Piece Model

Oasis®

TS3P-6030R ABF / 5BAR shown



MULTI-PIECE MODEL

TS3P-6030 (3-piece)

Rough-In Dimensions

60" wide x 31-1/4" deep x 77-1/2" high (w/ 16-inch apron)

Finished Dimensions

60" wide x 30" deep x 76-1/4" high (w/ 16-inch apron)

Unit Features



- Three - Piece Fiberglass Composite Construction
- Sanitary Grade Polyester Gelcoat Surface
- Front-Side Installation With Minimal Sealant Requirements
- 2" Dia. End Drain
- 2-1/2" Dia. Overflow
- Apron Drip Ledge Minimizes Water Migration
- Corner Accessory Ledge
- Generous, Multi-Level Back Wall Shelving
- Wall Design Accommodates Grab Bar Applications
- Textured Floor Pattern
- 1/2-inch Balsa Wood Core Floor Structure

Special Notes

- Optional ABF Model (provides 3-inches of drain clearance)
- UL Listed Whirlpool System Available
- 'QwikClic' Technology (Patents Pending)
- Factory Applied Reinforcement Packages Available (see following pages)
- Factory Applied Bar & Seat Packages Available (see following pages)





## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/18/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |  |   |
|--|---|
| <input type="checkbox"/> Academic Buildings  | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative      | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support            |
| <input type="checkbox"/> Campus Wide         | <input checked="" type="checkbox"/> Utility |
| <input type="checkbox"/> Other _____         |   |
| <input type="checkbox"/> Other _____         |   |

### Overview of system/product/guideline:

Preferred vendor for louvered dryer vent caps is Seiho-SFZ or SFZC series

### Links to additional product information:

<http://www.hvacquick.com>



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 1/12/2017

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |  |  |
|--|--|
| <input type="checkbox"/> Academic Buildings  | <input checked="" type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative      | <input checked="" type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                       |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                       |
| <input type="checkbox"/> Other _____         |  |
| <input type="checkbox"/> Other _____         |  |

**Overview of system/product/guideline:**

The following is the PEA Design Guideline campus Dryer Vent

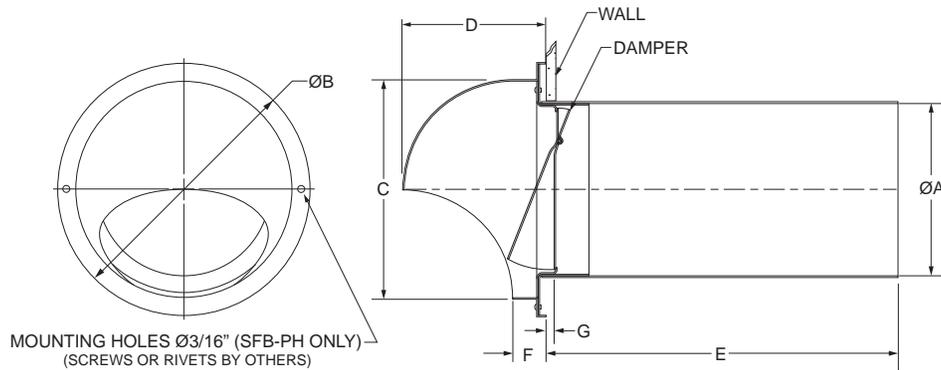
**Links to additional product information:**

[www.seiho.com](http://www.seiho.com)

## Model: **SFB-P/SFB-PH** Dryer Vent

- Standard with Back-Draft Flapper Damper
- With Heavy Duty 8.6" Long Aluminum Pipe
- Large Free Area Reduces Clogging
- Ø3/16" Mounting Holes (SFB-PH)

- Material: Aluminum
- Standard Finish: Clear Anodized



MODEL	A	B	C	D	E	F	G	FREE AREA
SFB 4P/SFB 4PH	4	6 <sup>3</sup> / <sub>32</sub>	5 <sup>1</sup> / <sub>8</sub>	3 <sup>17</sup> / <sub>32</sub>	8 <sup>1</sup> / <sub>2</sub>	1	<sup>9</sup> / <sub>32</sub>	0.056 sq.ft.
SFB 6P/SFB 6PH	6	8 <sup>3</sup> / <sub>32</sub>	7 <sup>3</sup> / <sub>32</sub>	4 <sup>17</sup> / <sub>32</sub>	8 <sup>1</sup> / <sub>2</sub>	1	<sup>9</sup> / <sub>16</sub>	0.140 sq.ft.

Product information is subject to change without notice. All dimensions in inches.

JOB NAME: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_  
 ARCHITECT: \_\_\_\_\_  
 ENGINEER: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

SUBMITTED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

**Model SFB-P/SFB-PH**  
**Dryer Vent**

Form No.487-26



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 1/18/2017

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

**Overview of system/product/guideline:**

The following is the PEA Design Guideline and preferred vendor for exterior shutters. Color; Evergreen, size TBD per project

**Links to additional product information:**

<http://www.customshuttercompany.com/>



(800) 470-0685

Handcrafted & Maintenance-Free Shutters & Hardware



[Exterior Shutters](#) | [Interior Shutters](#) | [Horizontal Wood Blinds](#) | [Shutter Hardware](#) | [Resource Center](#) | [Request Quote](#)

### Fiberglass Shutters - Even Louver

**Material:** Fiberglass  
**Product:** Even Louver

**Widths:** 9" to 30"  
**Lengths:** 13 1/2" to 108"

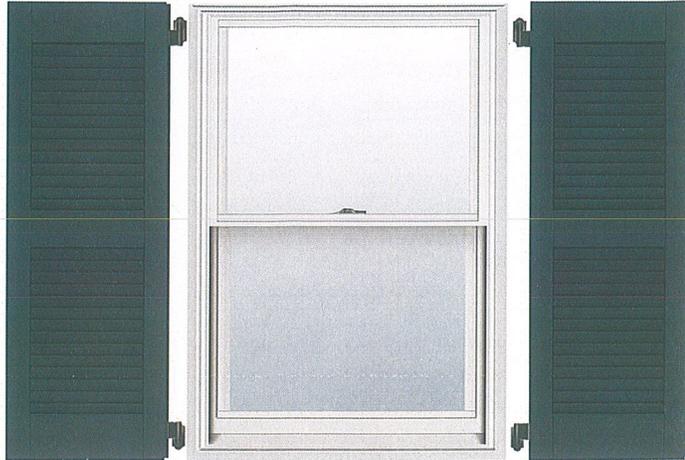
**Shutter Hardware:** [Click Here](#) for hardware

**Finish:** Two-part Acrylic Urethane  
[Click Here](#) to view 40 Standard Colors

**Warranty:** Limited Lifetime warranty  
**Lead Time:** 3 - 4 weeks

[Click Here](#) for a price quote

[Return to Fiberglass Shutters](#)



Copyright © 2017 Custom Shutter Company. All Rights Reserved.

[Exterior Shutters](#) | [Interior Shutters](#) | [Wood Blinds](#) | [Shutter Hardware](#) | [Measuring for Shutters](#) | [FAQ](#) | [About Us](#) | [Contact Us](#) | [Home](#) | [Site Map](#)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 11

Specification Section:

11 12 00-PARKING CONTROL EQUIPMENT

Description of Material or System:

Parking and Campus Gates

Last Updated:

4/7/2016

Updated by:

Annie Pleatsikas

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

Overview of system/product/guideline:

See attached guidelines and specs for campus gates.

Links to additional product information:

DoorKing



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 3/21/2017

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |  |  |
|--|--|
| <input type="checkbox"/> Academic Buildings  | <input type="checkbox"/> Dormitories                   |
| <input type="checkbox"/> Administrative      | <input checked="" type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                       |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                       |
| <input type="checkbox"/> Other _____         |  |
| <input type="checkbox"/> Other _____         |  |

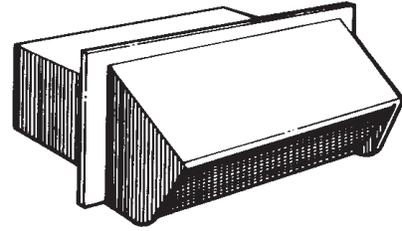
**Overview of system/product/guideline:**

The following is the PEA preferred model for range hoods and bath ventilation.

**Links to additional product information:**

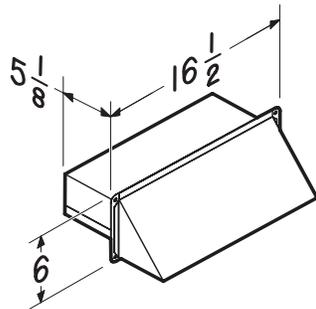
[www.broan.com](http://www.broan.com)

### WALL CAPS



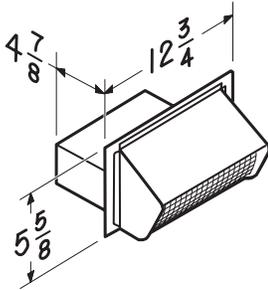
#### Model WC638

- For 3 1/4" x 14" duct
- Spring-loaded backdraft damper and bird screen
- 26 GA CRCQ Steel, black finish



#### Model 639

- For 3 1/4" x 10" duct
- Spring-loaded backdraft damper and bird screen
- 24 GA CRCQ Steel, black electrically-bonded epoxy finish
- Do not use for dryer venting

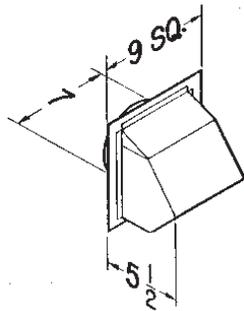


#### Model 649

- Same features as Model 639
- .025 Aluminum - natural finish

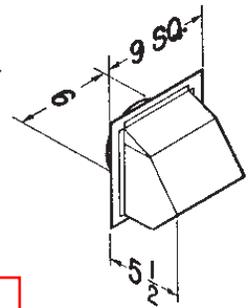
#### Model 647

- For 7" round duct
- Spring-loaded backdraft damper and bird screen
- .025 Aluminum - natural finish
- Do not use for dryer venting



#### Model 843BL

- For 6" round duct
- Spring-loaded backdraft damper and bird screen
- 22 GA CRCQ Steel, black electrically-bonded epoxy finish
- Attachment collar 1 1/4" long
- Do not use for dryer venting



#### Model 641

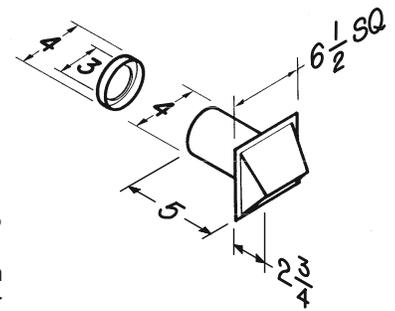
- Same features as Model 843BL
- .025 Aluminum - natural finish

#### Model 641FA

- Same features as Model 641
- Without backdraft damper
- Includes mesh screen
- Intended for make-up air inlet applications

#### Model 885BL

- For 3" or 4" round duct (4" to 3" transition included)
- Spring-loaded backdraft damper and bird screen
- 24 GA CRCQ Steel, black electrically-bonded epoxy finish
- Do not use for dryer venting



Broan-NuTone LLC Hartford, Wisconsin www.broan.com 800-558-1711

REFERENCE	QTY.	REMARKS	Project
			Location
			Architect
			Engineer
			Contractor
			Submitted by
			Date

## **Traffic & Parking Control Gate**

### **Materials**

- Traffic & Parking Control Gate shall be one of the 1600 series models as manufactured by DoorKing, Inc. 120 Glasgow Avenue; Ingelwood, CA 90301; Telephone 310-645-0023; FAX 310-641-1586; www.doorking.com.
- Systems Description: The traffic and parking control gate operator shall be a microprocessor based solid-state control board operator, suitable for low-cycle applications.
- Model: Selected models shall be from the 1600 series DoorKing Access Control Solutions, with designated options for: Arm Kits, Arm length, Vehicle Loop Detectors or other optional equipment as needed.

### **Execution**

- Traffic & Parking Control Gate shall be installed by a qualified technician with experience working on automatic gate operators.
- Equipment shall be located as indicated on the Drawings and in accordance with manufacturer's assembly and installation instructions, and mounted directly on a concrete pad, firmly secured, plumb and level.
- Wiring shall be uniform and in accordance with national electric codes and manufactures instructions.
- Systems shall be completely tested to assure that all components and accessories function in accordance with plans and specifications.

**PARKING CONTROL EQUIPMENT**  
**SECTION 11 12 00**  
**PARKING GATE OPERATOR**  
**DoorKing Models 1602**

Display hidden notes. (Don't know how? [Click Here](#))

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. Furnish and install a complete microprocessor based parking gate operator system, with a solid-state board to control all functions of the parking gate operator, as described herein and shown on the plans. Include all necessary boards, power supplies, loop detectors, barrier arm(s), connectors, and accessories for a complete operational system.

**1.2 CONTRACT DOCUMENTS**

- A. All equipment and work specified in this section shall comply, with all the General Conditions of the specifications, contract documents, and drawings as indicated.

**1.3 RELATED WORK**

- A. Parking control contractor shall coordinate all work with other contractors and trades where necessary.
- B. All necessary conduit, raceways and pull boxes shall be installed by the electrical contractor.
- C. Installation of the parking gate operator system shall be coordinated with the installation of other parking control related systems.

**1.4 QUALITY ASSURANCE**

- A. Installation shall comply with all applicable codes.
- B. All equipment shall be new, in current production, and the standard products of a manufacturer of vehicular access and parking control equipment.
- C. Manufacturer shall guarantee availability of parts, for a minimum of seven (7) years from date of shipment.
- D. If required, manufacturer shall be able to demonstrate features, functions, operating characteristics to the Owner.
- E. System shall be installed by a factory authorized contractor, with technicians specifically trained in this system.
- F. On-site maintenance and repair service shall be available locally and within four (4) hours of notification for emergency condition.

**1.5 REFERENCE STANDARDS**

- A. Vehicular Parking Gate Operator shall be in compliance with Underwriters Laboratories Inc. (UL) Standard for Safety - Door, Drapery, Gate, Louver and Window Operators and Systems, UL 325 Fourth Edition; and Underwriters Laboratories Inc. (UL) Standard for Safety - Tests for Safety-Related Controls Employing Solid-State Devices, UL 991 Second Edition.

- B. Vehicular Parking Gate Operator shall be tested for compliance to UL 325 and UL 991 and shall be LISTED by a Nationally Recognized Testing Laboratory (NRTL).

#### 1.6 SUBMITTALS

- A. Provisions: Comply with Section 01 33 00 SUBMITTALS.
- B. Shall include an equipment list, data sheet(s), system description, block diagrams on equipment to be finished and electrical wiring diagrams for installation.
- C. Shall include all data necessary to evaluate design, quality, and configuration of proposed equipment and system(s).

#### 1.7 WARRANTY

- A. Products shall include a factory warranty that equipment is free from defects in design, material, manufacturing and operation. Factory warranty period shall be for five (5) years; 60-months from date of shipment, for parts and workmanship.
- B. Manufacturer shall not be responsible for improper use, handling, or installation of the product.
- C. Installing contractor shall guarantee the equipment, wire and installation for 12-months from date of acceptance.

### PART 2 - PRODUCTS

#### 2.1 ACCEPTABLE MANUFACTURERS

- A. The system as described herein is based on the DoorKing 1600 series vehicular parking gate operator system manufactured by DoorKing, Inc., Inglewood, California. The vehicular parking gate system specified meets requirements of the specifications and shall be considered as the acceptable Base Bid.
- B. Substitutions must meet requirements of Prior Approval, as outlined in the contract documents. Substitutions that meet prior approval requirements must be listed as alternates by addendum, and shall be shown separately on the bid forms. Consideration will be based on ability to comply with all aspects of the specifications, the desired functional operation, quality, reliability, design, size, and appearance of the equipment, and the support capabilities of the manufacturer.

#### 2.2 SYSTEM DESCRIPTION

- A. Parking Gate Operator:
  - 1. The parking gate operator shall use a microprocessor based solid-state control board that controls all functions of the parking gate operator. The system is designed so that mechanical relays or limit switches are not required. Operators shall be rated for continuous duty for use in commercial and industrial applications.
  - 2. Power shall be transmitted to the gate arm drive shaft through harmonic acting crank and connecting arm.
  - 3. Crank, connecting arm and main shaft shall be solid steel construction and plated to avoid rusting.
  - 4. Mechanical action of the driven arm shall be such that mechanical stops or braking devices are not necessary.

5. Operator housing shall use 12-gauge G90 galvanized steel to avoid rusting and shall be painted white.
6. Operator shall be designed for either left or right-hand mount.

B. Control Circuit:

1. The parking gate operator shall use magnetic sensing to set the up and the down arm limits.
2. An adjustable timer shall be built into the control board to allow the barrier arm to automatically close.
3. Control board shall have connections for optional Gate Tracker board. Gate tracker shall record operator cycles (x100), input errors, loop detector errors, obstruction hits, and power up events. Record shall be time and date stamped.
4. Control board shall have two ports for plug in of optional loop detectors, (DoorKing, Models 9409 or 9410).
5. The control board shall have an up input memory buffer and a down memory counter for high traffic applications.
6. A dry set of relay contacts shall be available for external use, and shall be capable of working in conjunction with an up or down inductance loop.
7. The control board shall be capable of interfacing with card readers, RF transmitters, and coin and ticket machines.
8. Functions will be user programmable by DIP-switches located on the control board.
9. Control circuit shall include auto-manual toggle switch and power on-off switch.

C. Environmental Control:

1. The parking gate operator shall be pre-wired to accept optional heater and fan kits.

D. Gate Sequencing:

1. Control board shall include special inputs for sequencing the parking gate operator with slide or swing gate operators when installed in PAMS (Perimeter Access Management Solution) applications.
2. Sequencing logic shall be an integral part of the control board logic and shall not rely on external or add-on relays.

E. Electronic Reverse: The parking gate operator shall be equipped with an inherent electronic current sensor. The electronic reverse shall automatically cause a descending arm to raise if it strikes an object during the down cycle.

F. Secondary Entrapment Prevention

1. Non-contact sensors, or contact sensors, or combination thereof, shall be utilized to prevent persons from becoming entrapped in the gate system.
2. Warning signs shall be installed in accordance with manufacturer's installation instructions and UL 325 guidelines.

G. A complete operational system shall be provided.

## 2.3 EQUIPMENT

A. Parking Gate Operators:

1. Model 1602

- a. Low-cycle wide-lane applications.
- b. Maximum gate arm length is 28 feet.
- c. 1 horsepower continuous duty motor.
- d. Primary reduction and power transfer is provided by a double cog belt driving a 60:1 worm gear reducer running in a continuous oil bath.
- e. The operator will rotate the arm 90° in approximately 5 seconds.
- f. 38 inches high, 15 inches wide, 15.75 inches deep.
- g. Power
  - i. 115 VAC
  - ii. 230 VAC
  - iii. 460 VAC

B. Barrier Arms:

1. 3-Piece Wood Arm P/N 1602-040
  - a. 1 x 4 inch, 3-piece wishbone style arm painted white with yellow/black warning tape.
2. 3-Piece Aluminum Arm - 20 Ft. Length.
  - a. 3-inch round wishbone style aluminum arm painted white with yellow/black warning tape.
3. 3-Piece Aluminum Arm - 24 Ft. Length.
  - a. 3-inch round wishbone style aluminum arm painted white with yellow/black warning tape.
4. 3-Piece Aluminum Arm - 28 Ft. Length.
  - a. 3-inch round wishbone style aluminum arm painted white with yellow/black warning tape.

C. Optional Equipment:

1. Vehicle Loop Detectors
  - a. P/N 9410-010 Single channel detector.
  - b. P/N 9409-010 Two channel detector.
2. Non-contact sensors (photo-cells).
  - a. P/N 8080-010 Infrared thru-beam, 165 foot sensing distance.
  - b. P/N 8080-011 Photo-reflective beam, 30 foot sensing distance.
  - c. P/N 8080-030 Polarized photo-reflective beam, 35 foot sensing distance.
  - d. P/N 8080-031 Infrared thru-beam 65 foot sensing distance.
3. Contact sensors
  - a. P/N 8080-016 Single-sided sensitivity with mounting channel.
4. Environmental Control
  - a. P/N 1601-092 Heater kit.
  - b. P/N 1601-093 Fan kit.
5. Foam padding P/N 1601-260
6. Traffic Control Signal (Red/Green) P/N 1603-208
7. Manual Crank Kit P/N 1601-270
8. Gate Tracker: The vehicular slide gate operator shall have output for connection to Gate Tracker control board (P/N 2351-010). Gate Tracker shall maintain a detailed electronic record of cycles, input errors, loop detector errors, obstruction hits, and each time power is applied to the operator, time and date stamped.
9. Convenience open (battery backup) drive system.

D. A complete operational system shall be provided.

PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. It is preferred, but not required, that this product be installed by a qualified technician who is certified by the Institute of Door Dealer Education and Accreditation (IDEA) as a Certified Automatic Gate Operator Installer (CAGOI).
- B. Equipment shall be mounted directly to a concrete pad, firmly secured, plumb, and level.
- C. Wiring shall be uniform and in accordance with national electric codes and manufacturers instructions.
- D. All splices shall be in easily accessible junction boxes or on terminal boards.
- E. All cable runs in all junction boxes shall be tagged and identified.
- F. Coordinate all work with other effected trades and contractors.

### 3.2 SYSTEM INITIALIZING AND PROGRAMMING

- A. System shall be turned on and adjustment made to meet requirements of specifications and on-site conditions.
- B. System shall function as specified.

### 3.3 SYSTEM TEST PROCEDURES

- A. System shall be completely tested to assure that all components and accessories are hooked-up and in working order.
- B. System shall be pre-tested by contractor and certified to function in accordance with plans and specifications.
- C. System shall be tested in presence of owner's representative.

### 3.4 OWNER INSTRUCTIONS

- A. Installation contractor shall conduct up to (1) hour of instruction in use and operation of the system to designated owner representatives, within (30) days of acceptance.
- B. Installation contractor shall conduct up to (1) hour of technical training, in trouble shooting and service of the system, to designated owner representatives within (90) days of system acceptance.

### 3.5 MANUALS AND DRAWINGS

- A. Contractor shall provide owner with (2) copies of standard factory prepared operation, installation and maintenance manuals. Manuals shall include typical wiring diagrams.
- B. Contractor shall provide owner with (2) copies of any risers, layouts, and special wiring diagrams showing any changes to standard drawings, if required on project.

### 3.6 MAINTENANCE

- A. The manufacturer recommends periodic maintenance at three month intervals as described in the installation and maintenance manual.
- B. External reversing devices should be checked at least once a month.

END OF SECTION



# 1602 PARKING CONTROL BARRIER GATE OPERATOR

• COMMERCIAL • INDUSTRIAL



- Designed to control wide traffic lanes (27 feet maximum) in limited use applications
- Suitable for low-cycle applications to restricted access areas such as prisons, airport security areas or industrial sites
- Electronic limit settings
- Three-piece aluminum arms available in 20, 24 and 27 foot lengths. Three-piece wood arm available in 20 foot length only
- 5-year limited warranty



**automatic p.a.m.s.**  
sequencing with slide and swing gates



**foam padding**  
available for added protection

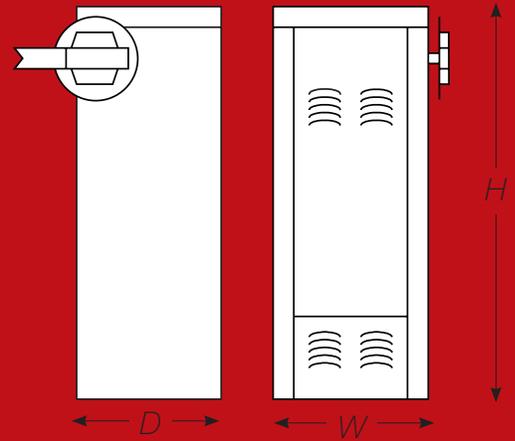


**fan/heater kits**  
options available for extreme weather



**wishbone style aluminum**  
arms up to 27 feet in length and wood arms up to 20 feet in length

# 1602 PARKING CONTROL BARRIER GATE OPERATOR



## 1602 1 HP

15" W x 38" H x 15" D (38.1cm W x 96.5cm H x 38.1cm D)

	CLASS OF OPERATION	MAX ARM LENGTH	TYPE	MOTOR	INPUT	OPTIONS
<b>1602</b>	II, III, IV	20 Ft (6.1 m) 20 Ft (6.1 m) 24 Ft (7.3 m) 27 Ft (8.2 m)	Wood Aluminum Aluminum Aluminum	1 HP Continuous Duty AC Motor	115 VAC, 60 HZ, 9.7A 230 VAC, 60 HZ, 4.9A* 460 VAC, 60 HZ, 2.5A*	Convenience Open Package † Heater Kit Fan Kit

\* These operators use a step-down transformer to achieve 115 VAC operating voltage.

† Optional factory installed DC powered drive system provides an automatic method to open the gate when primary (AC) power fails.

## Technical Features

### Mechanical

Primary Reduction is provided by a 60:1 worm gear reduction system running in a continuous oil bath

Arm rotates 90° in approximately 5 seconds

G90 galvanized steel housing, painted white rated NEMA 4x

Fail-secure mechanical release method

Left- or right-hand mount

360° gear box rotation before the motor changes direction. This provides for smooth operation, evens wear across the entire gear-box, and increases the life span of the operator

#### Arm Kits

Three-piece 3" round aluminum arm available in 20, 24 and 27 foot length

Three-piece 1x3" kiln dried wood arm available in 20 foot length only

All arm kits include counter-balance weights

### Electrical

Magnetic electronic limit controls

Auto-close timer 1-23 seconds

P.A.M.S. (Perimeter Access Management System) sequence with a slide or swing gate operator

Up input memory buffer

Down memory option

Multiple up commands

Port for plug-in open (up) detector

Port for plug-in reverse (down) detector

Ports for plug-in loop detectors

Programming switches

Built-in power On/Off switch

Gate Tracker™ reporting output provides operator data to access control system (DKS 1833, 1835, 1837 or 1838 only)

### Miscellaneous

Environmental: 10°F to 140°F (-12°C to 62°C)

Thermostatically controlled heater kit recommended for colder environments

Shipping weight approximately 160-180 Lbs (72-81 kg)  
Arm kit: 45 Lbs (20 kg)



Access Control Solutions since 1948

Distributed by:

#### MEMBER:



#### DOORKING® INC.

120 Glasgow Avenue, Inglewood, California 90301 U.S.A.  
Tel: 310-645-0023 FAX: 310-641-1586 www.doorking.com

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Rev.11/12



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input checked="" type="checkbox"/> Utility |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

The following is the PEA Design Guideline for window treatments:

### Links to additional product information:



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 1/18/2017

Updated by:

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- Product Specifications
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- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

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| <input type="checkbox"/> Academic Buildings  | <input checked="" type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative      | <input checked="" type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                       |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                       |
| <input type="checkbox"/> Other _____         |  |
| <input type="checkbox"/> Other _____         |  |

**Overview of system/product/guideline:**

The following is the PEA Design Guideline for faculty homes, apartments and dorm rooms

**Links to additional product information:**

[www.friedlandshades.com](http://www.friedlandshades.com)

17 Industrial Drive  
Cliffwood Beach, N.J. 07735  
Tel. (732) 290-9800  
Fax (732) 290-2933

## Fabric Specifications

Superglass Matte  
Superglass Moire

<b>CONSTRUCTION:</b>	<b>4 PLY LAMINATED FIBERGLASS (3 PLY PVC /1 LY FIBERGLASS)</b>
<b>FINISHED WEIGHT:</b>	<b>TOTAL WEIGHT IS 12 OZ PER SQUARE YARD</b>
<b>OPACITY:</b>	<b>100% BLACK-OUT</b>
<b>BREAKING STRENGTH:</b>	<b>240 LBS WARP DIRECTION 960 LBS FILL DIRECTION</b>
<b>TEAR STRENGTH:</b>	<b>1,700 GRAMS WARP DIRECTION 1,800 GRAMS FILL DIRECTION</b>
<b>FLAME RESISTANCE:</b>	<b>-US FEDERAL GOVT. SPEC.CCC-C0521E -NATIONAL FIRE PROTECTION ASSOC. (NFPA) NO. 701 SMALL SCALE -BOSTON FIRE DEPT. BFD 1 X-1 -CALIFORNIA FIRE MARSHAL SECTION 13115</b>
<b>ADHESION:</b>	<b>PVC FILMS INSEPARABLE</b>
<b>WASH ABILITY:</b>	<b>MATERIAL CAN BE WASHED ON BOTH SIDES WITH MILD 5% DETERGENT SOLUTION.</b>
<b>USAGE:</b>	<b>ROLLER SHADE AND VERTICAL BLIND FABRICS</b>
<b>FABRIC WARRANTY:</b>	<b>PANTA-FLEX FABRICS ARE GUARANTEED TO BE FREE OF ANY MANUFACTURING DEFECTS FOR A PERIOD OF 5 YEARS. DURING THE 5 YEAR PERIOD PANTA-FLEX SHALL MAINTAIN ITS FLAME RESISTANCE, TOTAL WEIGHT, WASHABILITY, COLOR UNIFORMITY, AND TENSILE STRENGTH.</b>



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Description of Material or System:

Last Updated: 4/18/2016

Updated by:

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| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                       |
| <input type="checkbox"/> Campus Wide         | <input checked="" type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____         |  |
| <input type="checkbox"/> Other _____         |  |

### Overview of system/product/guideline:

All cabinet boxes to be constructed of solid plywood. Cabinet doors to be Shaker style, stained maple. Cabinet bases: Provide PVC sink base. NO PARTICLE BOARD, dovetailed joints, full extension drawers w/drawer slides, soft close hinges and drawers. Provide pull at all cabinet doors and drawers; style and color to be approved by owner.

### Links to additional product information:

[www.schrock.com](http://www.schrock.com); [www.kraftmaid.com](http://www.kraftmaid.com)



## Phillips Exeter Academy Construction Standards and Guidelines

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Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

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- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

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| <input type="checkbox"/> Academic Buildings  | <input type="checkbox"/> Dormitories                   |
| <input type="checkbox"/> Administrative      | <input checked="" type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                       |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                       |
| <input type="checkbox"/> Other _____         |  |
| <input type="checkbox"/> Other _____         |  |

### Overview of system/product/guideline:

The Corian we've used in other homes on campus is "Savannah".

### Links to additional product information:

<http://www.dupont.com/products-and-services/construction-materials/surface-design-materials/brands/corian-solid-surfaces/products/corian-all-colors/sub-products/savannah.html>



## Phillips Exeter Academy Construction Standards and Guidelines

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Description of Material or System:

Last Updated: 4/18/2016

Updated by:

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| <input type="checkbox"/> Campus Wide         | <input checked="" type="checkbox"/> Utility |
| <input type="checkbox"/> Other _____         |   |
| <input type="checkbox"/> Other _____         |   |

### Overview of system/product/guideline:

Preferred vendor for walk off mats is Waterhog; purchased by PEA, paid for by project. Color:156 Medium Gray

### Links to additional product information:

[afm.waterhogfloormats.com](http://afm.waterhogfloormats.com)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

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- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |  |   |
|--|---|
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| <input type="checkbox"/> Administrative      | <input type="checkbox"/> Faculty Residences     |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                |
| <input type="checkbox"/> Other _____         |   |
| <input type="checkbox"/> Other _____         |   |

### Overview of system/product/guideline:

Dorm furniture is standard issue and all pieces are of uniform sizes. The attached is a list of what is to be expected in a standard dormitory room for student furniture.

### Links to additional product information:

Furniture Manufacturer's Representative:  
<http://www.mckallagat.com/>

Rick McKallagat  
PO Box 20524  
Worcester, MA 01602  
508-756-5062 Fax: 508-829-7855 Cell: 508-868-2949

## Leighton, Mark F.

---

**From:** Simmons, Connie  
**Sent:** Friday, March 08, 2013 8:33 AM  
**To:** Leighton, Mark F.; Pleatsikas, Anne E.; jtessitore@cutlerb.com  
**Subject:** furniture standards for dorm rooms

**Manufacturer: Moduform (All light oak finish)**

Pedestal Desk, 48w24d30h, # 953B-2-O-LO

Five Drawer Chest, 44h18d30w, 5 equal drawers, # 954DCC-2-O-LO

Bookcase, 2 fixed shelves, # 953BC-2-4836-0-LO

Bunk Bed, Track Plate to match DCI, 82"wx38"dx36"h Special, # 959TP-Bed-DCI-LO

**Manufacturer: Holsag Canada**

Campus 4 Chairs, all wood, natural finish

**Manufacturer: Bourdons Institutional Sales**

36"x 80" Life Safety Comfort Mattress

Rick McKallagat  
PO Box 20524  
Worcester, MA 01602  
508-756-5062 Fax: 508-829-7855 Cell: 508-868-2949  
View my furniture lines: <http://www.mckallagat.com>  
Transformations demo - [www.trshowroom.com](http://www.trshowroom.com)

Connie Simmons  
Events and Services Manager  
Phillips Exeter Academy  
603-777-4435



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other
- Other

### Guideline applies:

- Academic Buildings
- Administrative
- Athletic Facilities
- Campus Wide
- Other
- Other
- Dormitories
- Faculty Residences
- Support
- Utility

### Overview of system/product/guideline:

Natural wood legs, Sherpa-maroon and Shire Ascot.

### Links to additional product information:

<http://www.transformationsfurniture.com/highstreet-renewable-furniture/>



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other
- Other

### Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings         | <input checked="" type="checkbox"/> Dormitories |
| <input type="checkbox"/> Administrative             | <input type="checkbox"/> Faculty Residences     |
| <input type="checkbox"/> Athletic Facilities        | <input type="checkbox"/> Support                |
| <input type="checkbox"/> Campus Wide                | <input type="checkbox"/> Utility                |
| <input type="checkbox"/> Other <input type="text"/> |   |
| <input type="checkbox"/> Other <input type="text"/> |   |

### Overview of system/product/guideline:

Table lamp with #3283918 white drum shade.

### Links to additional product information:

[https://www.gordonsace.com/inet/storefront/store.php?mode=showproductdetail&product=-1&link\\_id=-1&link\\_itemcode=3283637&category=&department=30&class=359&fineline=035903](https://www.gordonsace.com/inet/storefront/store.php?mode=showproductdetail&product=-1&link_id=-1&link_itemcode=3283637&category=&department=30&class=359&fineline=035903)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other
- Other

### Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings         | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative             | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities        | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide     | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other <input type="text"/> |   |
| <input type="checkbox"/> Other <input type="text"/> |   |

### Overview of system/product/guideline:

Attached is the site bench specification and a photo of the actual bench.

### Links to additional product information:

## **Campus Bench**

### **Materials**

- Campus Bench shall be Scarborough Bench (Backed -72"- Horizontal Strap) as manufactured by Landscapeforms, 431 Lawndale Avenue, Kalamazoo, MI 49048-9543; Telephone 800-521-2546; FAX 269-381-3455.
- Construction: Freestanding - Surface mountable
- Finishes: Powder-coated steel; Color: Black.

### **Execution**

- Campus Bench shall be located as indicated on the Drawings and in accordance with manufacturer's assembly and installation instructions.
- Campus Bench shall be surface mounted on masonry pad as specified on the Drawings with dimensions determined by Project Manager.





## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

All campus bike racks shall be of similar type and style.

### Links to additional product information:

Bike Security Racks Co., Inc.

[www.bikeracks.com](http://www.bikeracks.com)

## **Bike Racks**

### **Materials**

- Bike racks shall be Bike-Rail, (BR-model) as manufactured by Bike Security Racks Company, 12 Sawyer Loop, Wentworth, NH 03282; Telephone 800-545-2757; FAX 603-786-9652. Capacity shall be determined by Project Manager.
- Construction: Schedule 40, ASTM A500, welded seamless-steel pipe for header and posts and (3/8" x 3") H.R. steel flat-bar for base ends. A schedule 40, black plastic sleeve cover shall be installed on top header of bike rack.
- Finishes: Heavy duty hot-dipped galvanized finish and black thermoplastic powder coat (8-10 mils) thick.

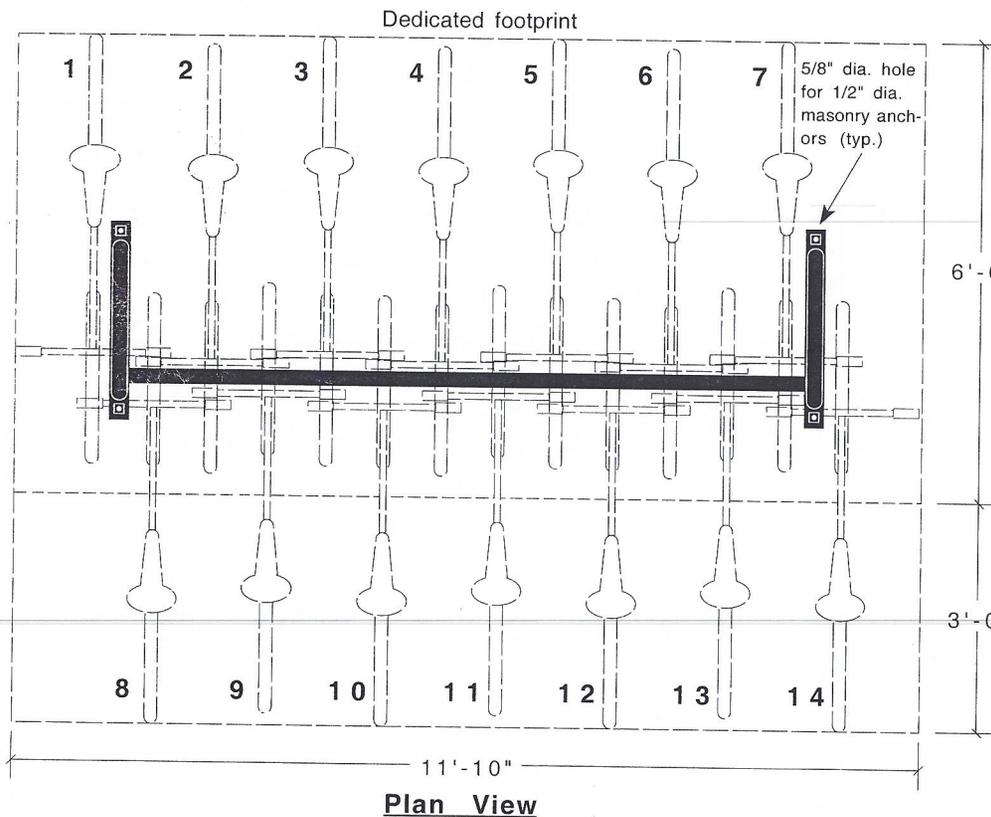
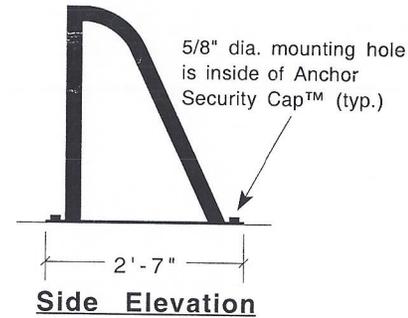
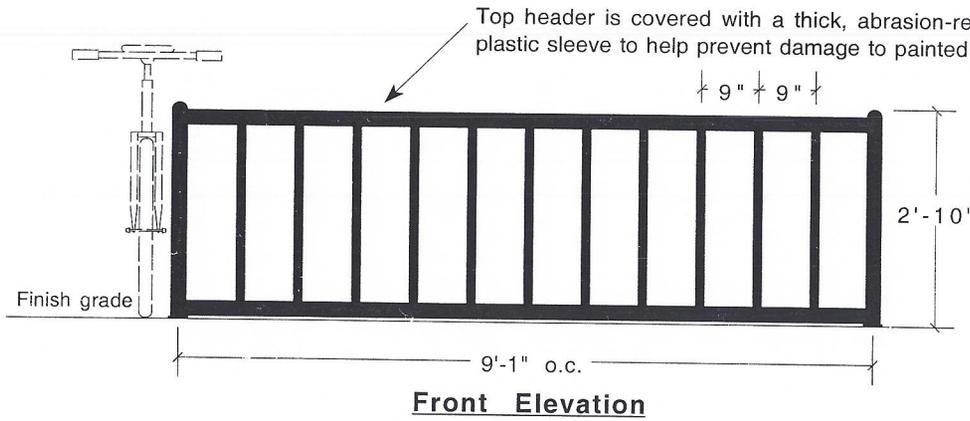
### **Execution**

- Bike racks shall be located as indicated on the Drawings and in accordance with manufacturer's assembly and installation instructions.
- Mounting option and anchoring method shall be determined by Project Manager.

# BR-12.9 Bike-Rail™ Version 9, Surface-Mounted, Moderate Security Bike Rack



Bike Security Racks Co., Inc.  
 12 Sawyer Loop  
 Wentworth, NH 03282  
 (800) 545-2757 Ph.#  
 (603) 786-9652 FAX



## ORDERING INFORMATION

Bike-Rail™ Version 9 Bike Racks  
 Surface-Mounted Models

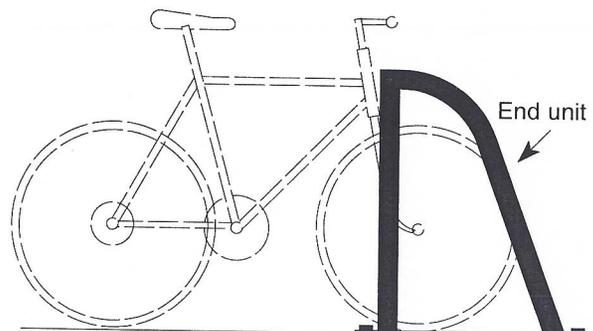
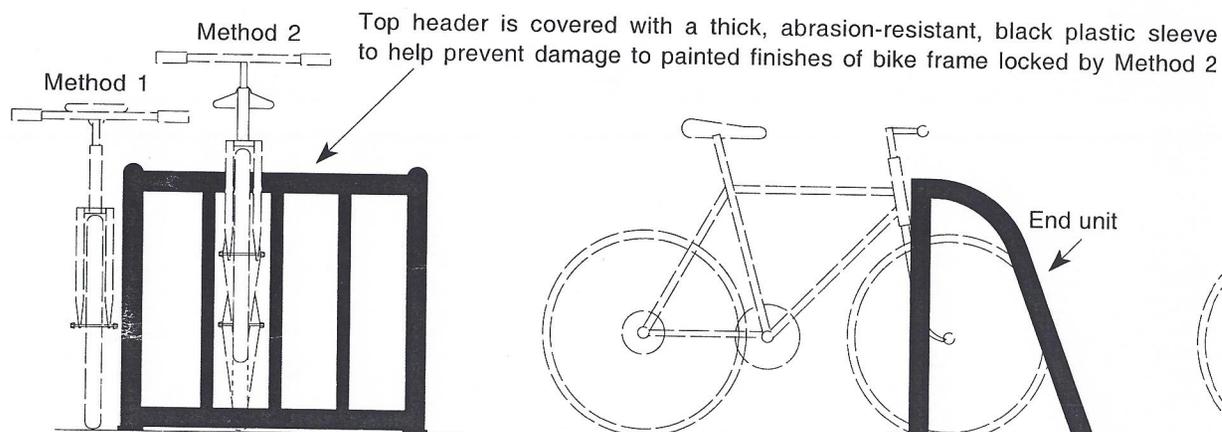
Model #	Length	Bike Capacity	
		1 side	2 sides
BR- 4.9	3' - 1"	3	6
BR- 6.9	4' - 7"	4	8
BR- 8.9	6' - 1"	5	10
BR-12.9	9' - 1"	7	14
BR-16.9	12' - 1"	9	18
BR-20.9	15' - 1"	11	22
BR-24.9	18' - 1"	13	26

Intermediate sizes quoted on request.

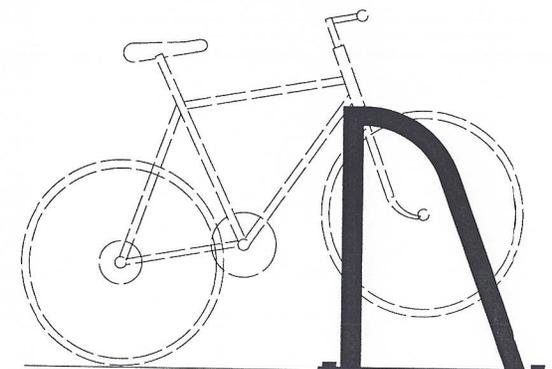
## Two Common Methods of Locking Bicycles to Bike-Rail™



Bike Security Racks Co., Inc.  
 12 Sawyer Loop  
 Wentworth, NH 03282  
 (800) 545-2757 Ph.#  
 (603) 786-9652 FAX



Method 1



Method 2

### Specifications

- Model#:**
- BR-12.9 Bike-Rail™ : Moderate Security Bike Rack
- Capacity:**
- Single-sided access: (7) on 18" centers
  - Double-sided access: (14) bikes on 9" centers
- Materials:**
- 2" nom., Sched. 40, ASTM A500, welded seamless-steel pipe for bottom header and end units
  - 1-1/2" nom., Sched. 40, ASTM A500, welded seamless-steel pipe for top header
  - 1" nom., Sched. 40, ASTM A500, welded seamless-steel pipe for posts
  - 3/8" x 3" H.R. steel flat-bar for base of end units
  - 1-1/2" nom., Sched. 40, black plastic sleeve covers top header
- Finishes:**
- Hot-dipped galvanizing
  - Black, abrasion-resistant thermoplastic powder coating 8 to 10 mils thick
  - Standard-colored, abrasion-resistant thermoplastic powder coating 8 to 10 mils thick (extra)
  - Hot-dipped galvanized substrate plus thermoplastic powder coating 8 to 10 mils thick (extra)
  - Satin-finished #304 stainless-steel construction (extra)
- Fabrication:**
- All metallurgical joints are MIG welds
  - Rear side of posts are partially welded to allow venting during galvanizing process
  - Bike-Rail Coupler Units™ are used to butt-join bike racks 18'-1" or longer



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 12

Specification Section:

12 93 23 - Trash and Litter Receptors

Description of Material or System:

Trash Receptacles

Last Updated:

4/7/2016

Updated by:

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other Catalog Cutsheet
- Other \_\_\_\_\_

Guideline applies:

- Academic Buildings
- Administrative
- Athletic Facilities
- Campus Wide
- Other \_\_\_\_\_
- Other \_\_\_\_\_
- Dormitories
- Faculty Residences
- Support
- Utility

Overview of system/product/guideline:

Recycling bins to be used campus wide.

Links to additional product information:

[www.grainger.com](http://www.grainger.com)

printed October 10, 2012



### Recycling Container, 23 gal, Square

Recycling Container, Square, Capacity 23 gal., Color Blue, Length 16-1/2 In., Width 15-1/2 In., Height 30-7/8 In.

Grainger Item #	5M822
Price (ea.)	<b>\$81.50</b>
Brand	RUBBERMAID
Mfr. Model #	3569-73 Blue
Ship Qty.	1
Sell Qty. (Will-Call)	1
Ship Weight (lbs.)	7.1
Availability	Ready to Ship
Catalog Page No.	N/A

Price shown may not reflect your price. Log in or register.

#### Additional Info

There is currently no additional information for this item.

#### Tech Specs

Item: Recycling Container  
 Type: Square  
 Capacity: 23 gal.  
 Color: Blue  
 Length: 16-1/2"  
 Width: 15-1/2"  
 Height: 30-7/8"

#### Notes & Restrictions

There are currently no notes or restrictions for this item.

#### MSDS

This item does not require a **Material Safety Data Sheet (MSDS)**.

#### Required Accessories

There are currently no required accessories for this item.

#### Optional Accessories

Liner, 30x37in, Pk500



Item #: 3U870  
 Brand: TOUGH GUY  
 Usually Ships: Ready to Ship  
 Price (ea): \$70.40

Liner, 30x37in, Pk500



Item #: 3U871  
 Brand: TOUGH GUY  
 Usually Ships: Ready to Ship  
 Price (ea): \$81.65

Liner, 30x37in, Pk500



Item #: 4KN31  
 Brand: TOUGH GUY  
 Usually Ships: Ready to Ship  
 Price (ea): \$81.65

Liner, 35x39in, Pk25



Item #: 5WG07  
 Brand: TOUGH GUY  
 Usually Ships: Ready to Ship  
 Price (ea): \$11.93

Liner, 30x37in, Pk500



Item #: 5XL47  
 Brand: TOUGH GUY  
 Usually Ships: Ready to Ship  
 Price (ea): \$58.85

Liner, 30x36in, Pk250



Item #: 5XL54  
 Brand: TOUGH GUY  
 Usually Ships: Ready to Ship  
 Price (ea): \$52.80

Cut Resistant Gloves, White/Orange, M, PR



Item #: 3FTU4  
 Brand: HEXARMOR  
 Usually Ships: Ready to Ship

Price (ea): \$82.40

---

**Recycling Single Stream Lid, Blue**



Item #: 6TUA5  
Brand: UNTOUCHABLE  
Usually Ships: Ready to Ship  
Price (ea): \$102.60

---

**Alternate Products**

**Recycling Can, Blue, 25 G**



Item #: 4UAU9  
Brand: TOUGH GUY  
Usually Ships: Ready to Ship  
Price (ea): \$69.50

---

**Repair Parts**

A Repair Part may be available for this item.  
Visit our Repair Parts Center or contact your  
local branch for more information.



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 2

Specification Section:

12 93 23 - Trash and Litter Receptors

Description of Material or System:

Trash Receptacles for exterior applications

Last Updated:

4/7/2016

Updated by:

Annie Pleatsikas

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other Catalog Cutsheet
- Other \_\_\_\_\_

Guideline applies:

- Academic Buildings
- Administrative
- Athletic Facilities
- Campus Wide
- Other \_\_\_\_\_
- Other \_\_\_\_\_
- Dormitories
- Faculty Residences
- Support
- Utility

Overview of system/product/guideline:

Recycling bins to be used campus wide.

Links to additional product information:

## **Trash & Mixed Recycling Receptacles**

### **Materials**

- Trash & Mixed Recycling Receptacles shall be model (EC32rcLX-2) (Double-32 Gallon Roll Cart Enclosure) recycled plastic unit as manufactured by Landmark Studio & Design, W184 S8425 Challenger Drive; Muskego, WI 53150-7821; Telephone 888-337-7677; FAX 262-679-8485.
- Construction: 2-compartment recycled plastic lumber container with rigid liners, black posts and black single border panels, sloped roof, and access doors as specified by Project Manager. Waste and Mixed-Recycling compartments shall have rectangular openings.
- Labels: Waste compartment shall have a Green logo with white lettering and Mixed Recycling shall have a Blue logo with white lettering.

### **Execution**

- Trash & Mixed Recycling Receptacles shall be located as indicated on the Drawings and in accordance with manufacturer's assembly and installation instructions.
- Mounting option and anchoring method shall be determined by Project Manager.



DRAWING NUMBER | 1030 1

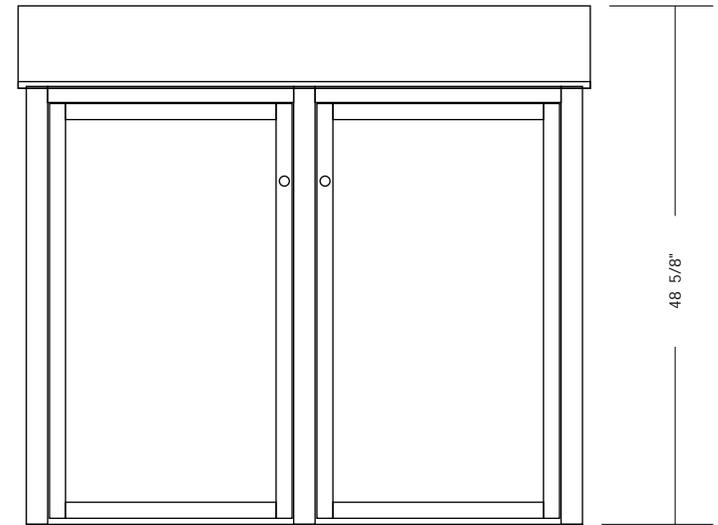
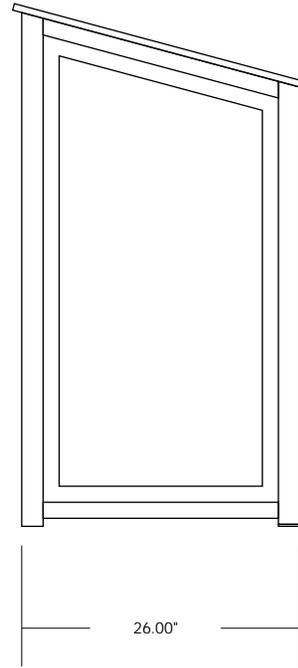
CLIENT NAME	Phillips Exeter
SALES DATE	
PROOF DATE	7-24-13
ACCOUNT REPRESENTATIVE	CHAD

NOTES ▶ The inside dimensions of each section of the enclosure are 24 1/4" wide by 22 3/4" deep  
 The height to the bottom of Waste Opening is 38 1/2"  
 The dimensions of this unit are base off a line size of 19 3/8" x 21 1/16" x 37 5/8"  
 The liner dimensions were given to us by you our customer

Front

Side

Back



PRODUCT CODE	EC32LX-2-Cust			MATERIAL	HDPE		COLORS	MFG READY
TRIM-EDGE / INSET	LOGO (Y / N)	ENGRAVED / DECAL	RESIN POURED (Y / N)	RESIN COLORS	M&T			

CUSTOMER APPROVAL

By signing, you are approving the layout for production. In signing this release form, the customer is approving the layout, spelling, colors, and any other modifications that are shown or described. Orders cut to this layout are non-returnable. Delivery is 4-5 weeks after receipt of signed approval. PLEASE SIGN BELOW AND FAX OR EMAIL TO YOUR ACCOUNT REPRESENTATIVE. Note: These proofs and/or drawings in whole or in part, may NOT be used except by written agreement with Landmark Golf Course Products.

CHECK IF APPROVED VIA EMAIL  
 (office use only)

Signature \_\_\_\_\_

Date \_\_\_\_\_



49.5"

  
MIXED RECYCLING

  
WASTE

26.5"

FOOT



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

Hydronic control valves to be Belimo with unions and isolation valves on both sides

### Links to additional product information:

<http://www.belimo.us/americas/>



# Phillips Exeter Academy Construction Standards and Guidelines

**Division of Work:**

**Specification Section:**

**Description of Material or System:**

**Last Updated:** 2/16/2017

**Updated by:**

<p><b>Included in this section:</b></p> <p><input checked="" type="checkbox"/> Product Specifications</p> <p><input checked="" type="checkbox"/> Design Guidelines</p> <p><input type="checkbox"/> Design Details/Drawings</p> <p><input type="checkbox"/> Supplemental Information</p> <p><input type="checkbox"/> Other _____</p> <p><input type="checkbox"/> Other _____</p>	<p><b>Guideline applies:</b></p> <table border="0"> <tr> <td><input type="checkbox"/> Academic Buildings</td> <td><input type="checkbox"/> Dormitories</td> </tr> <tr> <td><input type="checkbox"/> Administrative</td> <td><input type="checkbox"/> Faculty Residences</td> </tr> <tr> <td><input type="checkbox"/> Athletic Facilities</td> <td><input type="checkbox"/> Support</td> </tr> <tr> <td><input checked="" type="checkbox"/> Campus Wide</td> <td><input type="checkbox"/> Utility</td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> </table>	<input type="checkbox"/> Academic Buildings	<input type="checkbox"/> Dormitories	<input type="checkbox"/> Administrative	<input type="checkbox"/> Faculty Residences	<input type="checkbox"/> Athletic Facilities	<input type="checkbox"/> Support	<input checked="" type="checkbox"/> Campus Wide	<input type="checkbox"/> Utility	<input type="checkbox"/> Other _____		<input type="checkbox"/> Other _____	
<input type="checkbox"/> Academic Buildings	<input type="checkbox"/> Dormitories												
<input type="checkbox"/> Administrative	<input type="checkbox"/> Faculty Residences												
<input type="checkbox"/> Athletic Facilities	<input type="checkbox"/> Support												
<input checked="" type="checkbox"/> Campus Wide	<input type="checkbox"/> Utility												
<input type="checkbox"/> Other _____													
<input type="checkbox"/> Other _____													

**Overview of system/product/guideline:**

The following is the PEA Design specification for faculty homes and apartments steam condensate meters

**Links to additional product information:**

[www.niagrameters.com](http://www.niagrameters.com)

## Pressure Drop Curves

Sizes 3/4" to 10" for MTX Models 413, 421 and WPX Model 222

GPM	MTX Models				WPX Models					
	3/4"	1"	1.5"	2"	2"	3"	4"	6"	8"	10"
2	<.1									
3	0.11									
3.5	0.2				<i>* PSI Drops estimated from a logarithmic curve.</i>					
4.4	0.29	<.1								
6.6	0.58	0.2								
8.8	1	0.31	<.1							
13.2	2.5	0.725	0.28	<.1						
14.4	3.5	1	0.34	0.145						
17.6	4.35	1.45	0.435	0.21						
19.5	4.8	1.7	0.58	0.26						
22	7.1	2.3	0.725	0.29						
33		4.35	1.45	0.58						
44		7.5	2.9	1.2	<.1					
55		13	4.35	2	0.12					
66			5.8	2.9	0.145					
77			8.5	3.4	0.29					
88			12.5	4.35	0.33					
110				7.25	0.59	<.1	<.1	<.01		
132				10	0.725	0.16	0.12	0.0145		
154					1.1	0.22	0.2	0.02		
176					1.45	0.29	0.25	0.029		
198					1.85	0.435	0.36	0.04		
220					2.6	0.5	0.435	0.0435	<.01	
330					5.8	1.3	1.1	0.0725	0.02	
440					7.4	1.8	1.45	0.145	0.0435	<.01
660						2.9	2.7	0.29	0.072	0.02
880						7.25	6	0.6	0.145	0.043
1100							12	0.75	0.23	0.06
1320								1.3	0.3	0.08
1760								1.45	0.435	0.11
2200									0.85	0.27
3300									1.45	0.44
4400										0.8
	.75"	1.0"	1.5"	2"	2"	3"	4"	6"	8"	10"

Table 3

## Flow Ranges - WPX Model 222

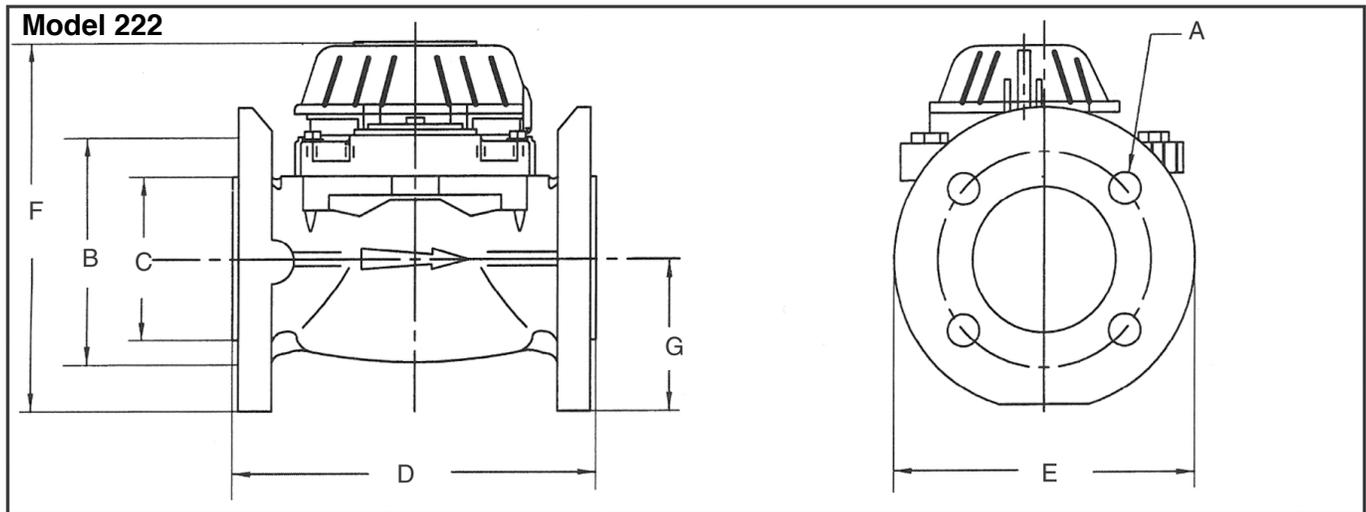
Water flow rates at standard conditions 60°F

Minimum and maximum flow rates to achieve accuracy

Meter Size	Flow Rates GPM		with Optional Outputs		
	min	max	Reed Switch Model 840 gallons/contact	Infra -Red Transmitter Model 573 full scale frequency	Infra -Red Transmitter Model 573 pulses/gallon
2"	4.40	396.00	10/100	66.00	10.00
3"	3.50	880.00	100/1000	14.70	1.00
4"	7.90	1321.00	100/1000	22.00	1.00
6"	17.60	1514.00	100/1000	25.70	1.00
8"	26.40	2862.00	100/1000	47.70	1.00
10"	88.00	5284.00	1000/10000	8.80	0.1

Table 4

**Dimensions - WPX Model 222**



**Figure 6**

Size		2"	3"	4"
Flange		6.50 (165.10)	7.87 (199.99)	8.66 (219.96)
Bolt holes #		4	4	8
Bolt hole diameter	A	.75 (19.05)	.75 (19.05)	.75 (19.05)
Bore circle diameter	B	4.75 (120.65)	6.00 (152.40)	7.50 (190.50)
Bore diameter	C	2" Nominal	3" Nominal	4" Nominal
Length	D	7.87 (200)	8.86 (225)	9.84 (250)
Width	E	6.10 (165)	7.87 (200)	8.66 (220)
Height	F	7.80 (198)	9.57 (243)	10.20 (259)
Center to base line	G	2.95 (75)	3.50 (89)	4.13 (105)
Weight lbs. (kg)		22.49 (10.2)	28.66 (13)	35.27 (16)

Size		6"	8"	10"
Flange		11.22 (284.99)	13.40 (340.00)	16.00 (406.40)
Bolt holes #		8	8	12
Bolt hole diameter	A	.88 (22.23)	.88 (22.23)	1.0 (25.40)
Bore circle diameter	B	9.50 (241.30)	11.75 (295)	14.25 (361.95)
Bore diameter	C	6" Nominal	8" Nominal	10" Nominal
Length	D	11.81 (300)	13.78 (350)	17.72 (450)
Width	E	11.22 (285)	13.39 (340)	15.94 (405)
Height	F	14.96 (380)	16.06 (408)	17.13 (435)
Center to base line	G	5.31 (135)	6.42 (163)	7.60 (193)
Weight lbs. (kg)		85.98 (39)	103.62 (47)	165.35 (75)

inches (mm)

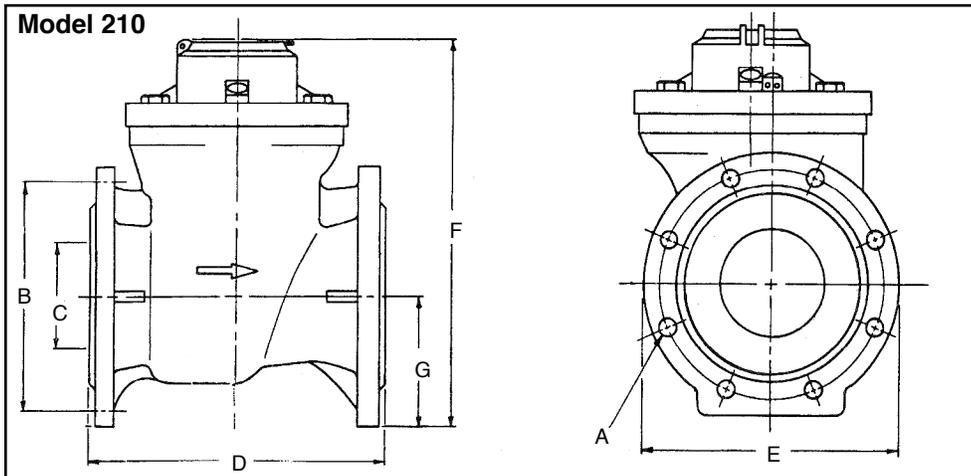
**Table 6**

## Flow Ranges - WPX Model 210

Water Flow Rates at Standard Conditions 60° F. Minimum and maximum flow rates to achieve accuracy.

Meter Size	Flow rates (GPM)		Option Outputs		
			Reed Switch Model 840	Pulse Transmitter Model 860	
inch	min	max	gallons/contact	full scale frequency	pulses/gallon
2"	8.0	305.00	10/100	50.83	10.00
3"	20.00	660.00	100/1000	22.00	2.00
4"	30.00	1100.00	100/1000	36.67	2.00
6"	45.00	1870.00	100/1000	31.17	1.00
8"	60.00	2860.00	100/1000	47.67	1.00
10"	80.00	4400.00	1000/10000	14.67	0.20

## Dimensions - WPX Model 210



**Figure 7**

Size		2"	3"	4"	6"	8"	10"
Flange		6.50 (165.10)	7.87 (199.99)	8.66 (219.96)	11.22 (284.99)	13.40 (340)	16.00 (406.40)
Bolt holes #		4	4	8	8	8	12
Bolt hole diameter	A	0.63 (15.88)	0.63 (15.88)	0.63 (15.88)	0.75 (19.05)	0.75 (19.05)	0.88 (22.23)
Bore circle diameter	B	4.75 (120.65)	6.00 (152.40)	7.50 (190.50)	9.50 (241.30)	11.75 (295)	14.25 (361.95)
Bore diameter	C	Nominal	Nominal	Nominal	Nominal	Nominal	Nominal
Length	D	7.87 (200)	8.90 (226.06)	9.80 (248.92)	11.80 (299.72)	13.78 (350)	17.70 (499.50)
Width	E	6.50 (165.10)	7.87 (199.99)	8.66 (219.96)	1.22 (284.99)	13.40 (340)	16.00 (406.40)
Height	F	10.80 (274.32)	11.50 (233.68)	12.20 (309.88)	14.25 (361.95)	15.30 (388.62)	17.44 (442.98)
Center to base line	G	2.95 (74.93)	3.70 (93.98)	4.17 (105.92)	5.30 (149.86)	6.40 (162.56)	8.00 (203.20)
Weight lbs. (kg)		22.50 (10.20)	31.00 (14.06)	42.80 (19.41)	71.65 (32.50)	99.00 (44.90)	238.00 (107.96)

**Table 7**

inches (mm)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

Thermostatic Control Valves to be Honeywell Braukman

### Links to additional product information:

<https://customer.honeywell.com/en-US/Pages/Department.aspx?cat=HonECCCatalog&category=Valve+Linkages&catpath=1.1.4.2>



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

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|---|---|
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| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input checked="" type="checkbox"/> Utility |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

The following is the PEA Design Guideline for downspout boots:

### Links to additional product information:

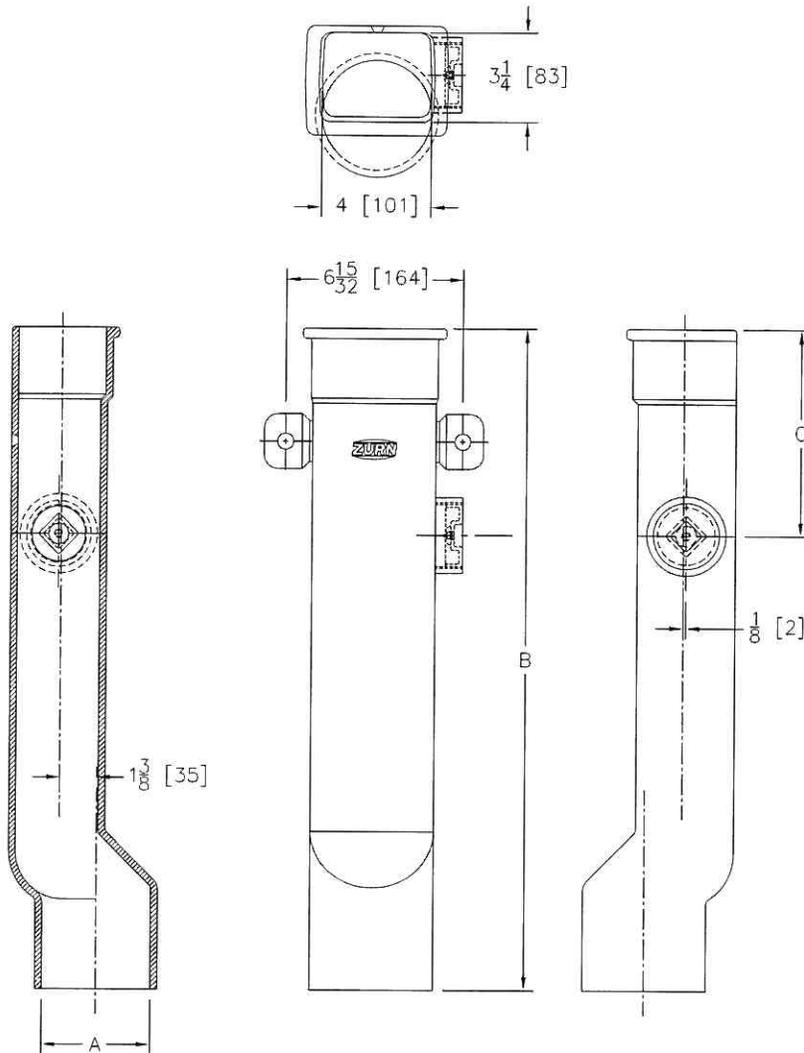


**Z192-CA**  
**4 X 3 [102 X 76]**  
**DOWNSPOUT BOOT WITH CLEANOUT ACCESS**

SPECIFICATION SHEET

TAG \_\_\_\_\_

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Changes Without Notice



Dimensions In Inches			
Size	A Pipe Size	B	C
4 x 3 x 12 [102 x 76 x 305]	4 [102]	12 [305]	4 11/32 [111]
4 x 3 x 18 [102 x 76 x 457]		18 [457]	7 1/2 [191]
4 x 3 x 24 [102 x 76 x 610]		24 [610]	7 1/2 [191]

**ENGINEERING SPECIFICATION** ZURN Z192-CA Cast iron body and strap with 1/4 [6] dia. cast holes for flat head bolts and 2 [51] NPT cleanout access with plug.

**OPTIONS** (Check/specify appropriate options)

**PIPE SIZE** (Specify size/type) **OUTLET**  
 4 [102] \_\_\_\_\_ NH No-Hub

**PREFIXES**  
 \_\_\_ Z D.C.C.I. Body\*

**SUFFIXES**  
 \_\_\_ -G Galvanized Cast Iron

<b>REV.</b>	<b>DATE: 9/29/06</b>	<b>C.N. NO. 95672</b>
<b>DWG. NO. 82905</b>	<b>PRODUCT NO. Z192-CA</b>	

\*REGULARLY FURNISHED UNLESS OTHERWISE SPECIFIED

ZURN INDUSTRIES, INC. ♦ SPECIFICATION DRAINAGE OPERATION ♦ 1801 Pittsburgh Ave. ♦ Erie, PA 16514  
 Phone: 814/455-0921 ♦ Fax: 814/454-7929 ♦ World Wide Web: www.zurn.com

In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905/405-8272 Fax: 905/405-1292

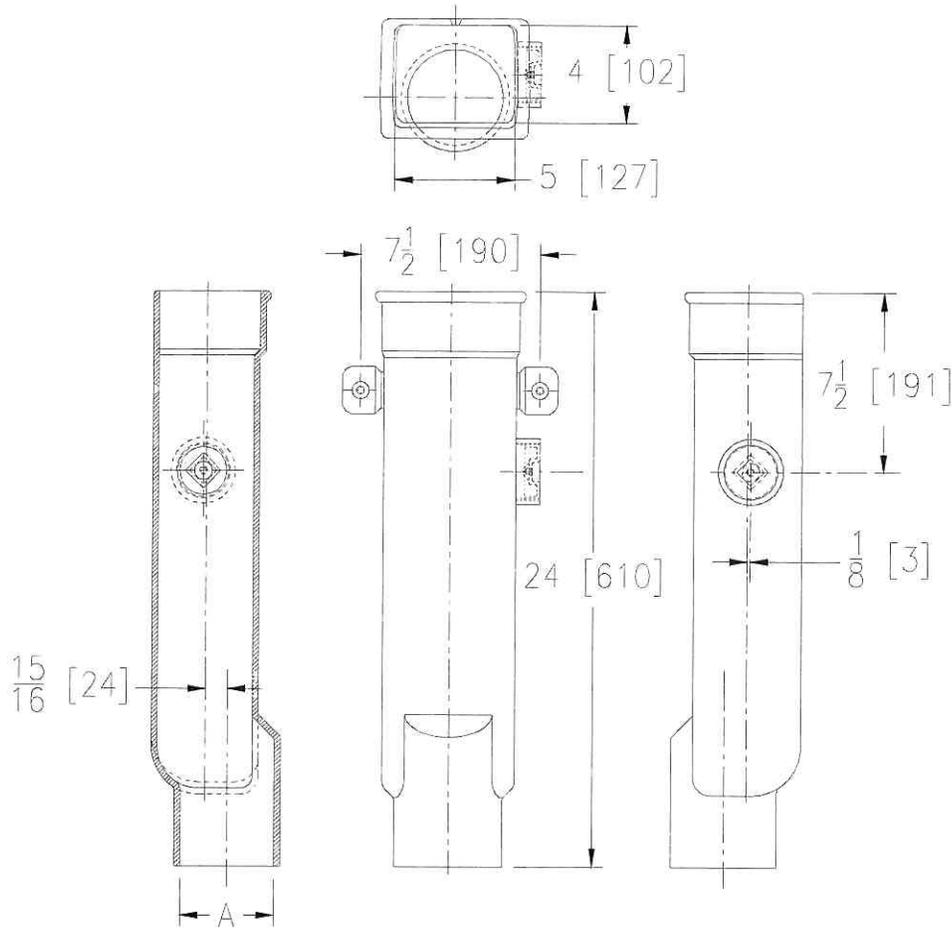


**Z191-CA  
DOWNSPOUT BOOT  
W/ CLEANOUT ACCESS WITH PLUG**

SPECIFICATION SHEET

TAG \_\_\_\_\_

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Changes Without Notice



Product Designation	Size	A Pipe Size	Approx. Wt. Lbs. [kg]
Z191	5 x 4 x 24 [127 x 102 x 610]	4 [102]	30 [14]

**ENGINEERING SPECIFICATION:** ZURN Z191-CA Downspout Boot, Dura-coated cast iron body and strap with 1/4 [6] dia. cast holes for flat head bolts & 2 [51] N.P.T. cleanout access with plug.

**OPTIONS** (Check/specify appropriate options)

**PIPE SIZE**

4 [102]

**OUTLET**

\_\_\_ NH No-Hub

**PREFIXES**

\_\_\_ Z D.C.C.I. Body\*

**SUFFIXES**

\_\_\_ -G Galvanized Cast Iron

<b>REV. A</b>	<b>DATE: 5/20/10</b>	<b>C.N. NO. 111142</b>
<b>DWG. NO. 67610</b>	<b>PRODUCT NO. Z191-CA</b>	

\*REGULARLY FURNISHED UNLESS OTHERWISE SPECIFIED



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 22

Specification Section:

22 30 00-PLUMBING FIXTURES AND EQUIPMENT

Description of Material or System:

Elongated 1.28 GPF Flushometer Toilet

Last Updated:

4/18/2016

Updated by:

Mick Cooper

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Academic Buildings  | <input checked="" type="checkbox"/> Dormitories |
| <input type="checkbox"/> Administrative                 | <input type="checkbox"/> Faculty Residences     |
| <input checked="" type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                |
| <input type="checkbox"/> Campus Wide                    | <input type="checkbox"/> Utility                |
| <input type="checkbox"/> Other _____                    |   |
| <input type="checkbox"/> Other _____                    |   |

Overview of system/product/guideline:

Preferred vendor for Elongated Flushometer toilet is American Standard-Lucerne

Links to additional product information:

[www.americanstandard.com](http://www.americanstandard.com)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 22

Specification Section:

22 30 00-Packaged Domestic Water Heaters

Description of Material or System:

Water Heater for Dormitories

Last Updated:

4/7/2016

Updated by:

Mick Cooper

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |  |   |
|--|---|
| <input type="checkbox"/> Academic Buildings  | <input checked="" type="checkbox"/> Dormitories |
| <input type="checkbox"/> Administrative      | <input type="checkbox"/> Faculty Residences     |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                |
| <input type="checkbox"/> Other _____         |   |
| <input type="checkbox"/> Other _____         |   |

Overview of system/product/guideline:

Dormitory water heaters to be Leslie or Graham

Links to additional product information:

<http://www.lesliecontrols.com/products/heaters/heaters.htm>



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/20/2017

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Academic Buildings  | <input checked="" type="checkbox"/> Dormitories |
| <input checked="" type="checkbox"/> Administrative      | <input type="checkbox"/> Faculty Residences     |
| <input checked="" type="checkbox"/> Athletic Facilities | <input checked="" type="checkbox"/> Support     |
| <input type="checkbox"/> Campus Wide                    | <input checked="" type="checkbox"/> Utility     |
| <input type="checkbox"/> Other _____                    |   |
| <input type="checkbox"/> Other _____                    |   |

**Overview of system/product/guideline:**

Please see attached for Phillips Exeter Academy preferred plumbing fixture vendors

**Links to additional product information:**

- [www.kohler.com](http://www.kohler.com)
- [www.americanstandard.com](http://www.americanstandard.com)
- [www.moen.com](http://www.moen.com)
- [www.toto.com](http://www.toto.com)
- [www.elkay.com](http://www.elkay.com)
- [www.oasisbath.com](http://www.oasisbath.com)
- [www.symmons.com](http://www.symmons.com)

# Plumbing Fixtures Phillips Exeter Academy

## April 20, 2017

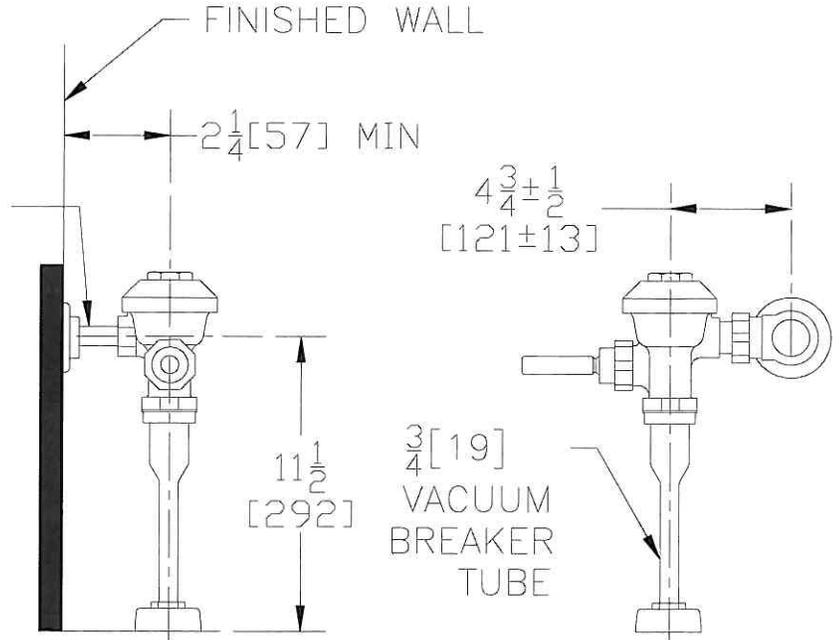
- Water Closets
  - Fixtures
    - Kohler
    - Toto
  - Flush Valves
    - Sloan
- Wall Hung Lavatories
  - Fixtures
    - Kohler
    - American Standard
  - Faucets
    - Kohler
- Under mount Lavatories
  - Fixtures
    - Kohler
    - American Standard
  - Faucets
    - Kohler
- Urinal
  - Fixture
    - Kohler
  - Flush Valve
    - Sloan
- Mop Sink
  - Fixture
    - Swanstone
  - Faucet
    - Chicago Faucet
- Showers
  - Fixture
    - Oasis
  - Faucet
    - Symmons
  - Mixing Valve
    - Symmons



# Exposed Z6003AV Model For 3/4" Urinals



3/4 [19]  
I.P.S.  
SUPPLY



### Flow Options

- EWS 0.5 Gallons Per Flush
- WS1 1.0 Gal. Low Consumption
- Standard Flush 1.5 Gallons Per Flush

### Suffix Options (Check/Specify Appropriate Options)

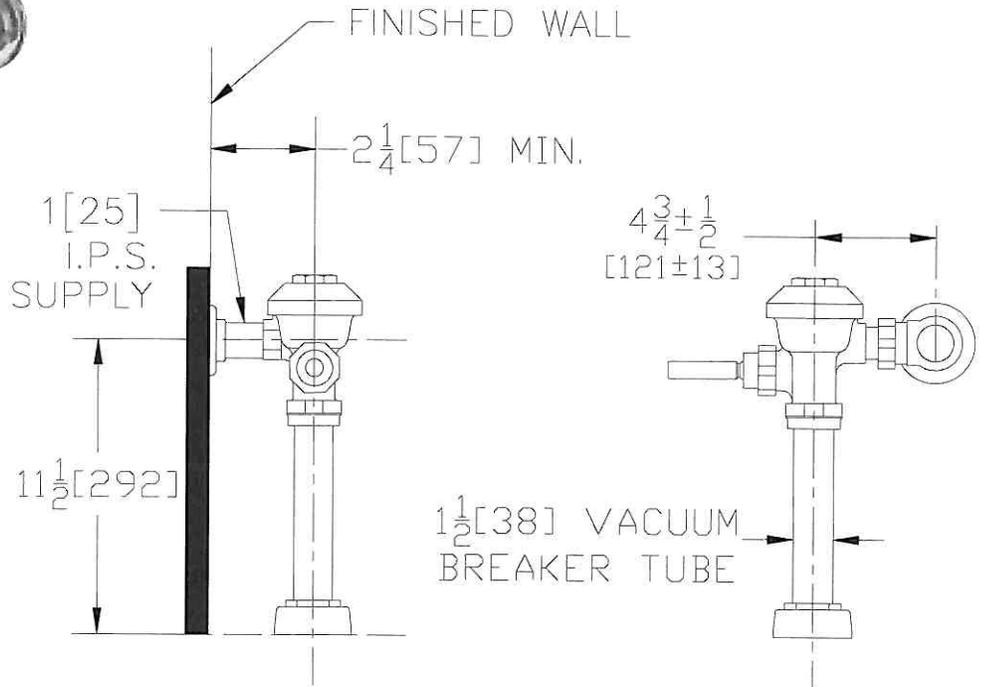
- \_\_\_\_\_ -BG BioCare Handle
- \_\_\_\_\_ -H Handle on Front of Flush Valve
- \_\_\_\_\_ -L 1" [25] Metal Push Button
- \_\_\_\_\_ -L3 3" [76] Metal Push Button
- \_\_\_\_\_ -YJ Split Ring Pipe Support
- \_\_\_\_\_ -YK Solid Ring Pipe Support
- \_\_\_\_\_ Other

**ENGINEERING SPECIFICATION: ZURN Z6003AV AquaVantage® 'AV' Exposed Urinal Flush Valve-** Exposed, quiet diaphragm-type, chrome plated flushometer valve with a polished exterior. Complete with Zurn's AquaVantage® TPE, chloramine resistant, dual seal diaphragm with a clog resistant, triple filtered by-pass. The valve is ADA compliant with a non-hold open and no leak handle feature, high back pressure vacuum breaker, one piece hex coupling nut, adjustable tail-piece, spud coupling and flange for top spud connection. Control stop has internal siphon-guard protection, vandal resistant stop cap, sweat solder kit, and a cast wall flange with set screw. Internal seals are made of chloramine resistant materials.

This space is for Architectural/Engineering Approval



## Exposed Z6000AV Model For Water Closets



### Flow Options

<input type="checkbox"/>	<b>-WS1</b>	1.6 Gal. Low Consumption Flush
<input type="checkbox"/>	<b>-FF</b>	4.5 Gal. Full Flush
<input type="checkbox"/>	<b>Standard Flush</b>	3.5 Gallons Per Flush

### Suffix Options (Check/Specify Appropriate Options)

_____	<b>-BG</b>	BioCare Handle
_____	<b>-H</b>	Handle on Front of Flush Valve
_____	<b>-L</b>	1" [25] Metal Push Button
_____	<b>-L3</b>	3" [76] Metal Push Button
_____	<b>-YJ</b>	Split Ring Pipe Support
_____	<b>-YK</b>	Solid Ring Pipe Support
_____	<b>-YO</b>	Bumper on Angle Stop
_____		Other

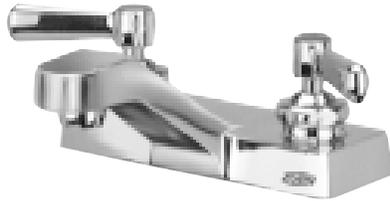
**ENGINEERING SPECIFICATION: ZURN Z6000AV AquaVantage® 'AV' Exposed Closet Flush Valve** - Exposed, quiet diaphragm-type, chrome plated flushometer valve with a polished exterior. Complete with Zurn's AquaVantage® TPE, chloramine resistant, dual seal diaphragm with a clog resistant, triple filtered by-pass. The valve is ADA compliant with a non-hold open and no leak handle feature, high back pressure vacuum breaker, one piece hex coupling nut, adjustable tailpiece, spud coupling and flange for top spud connection. Control stop has internal siphon-guard protection, vandal resistant stop cap, sweat solder kit, and a cast wall flange with set screw. Internal seals are made of chloramine resistant materials.

This space is for Architectural/Engineering Approval



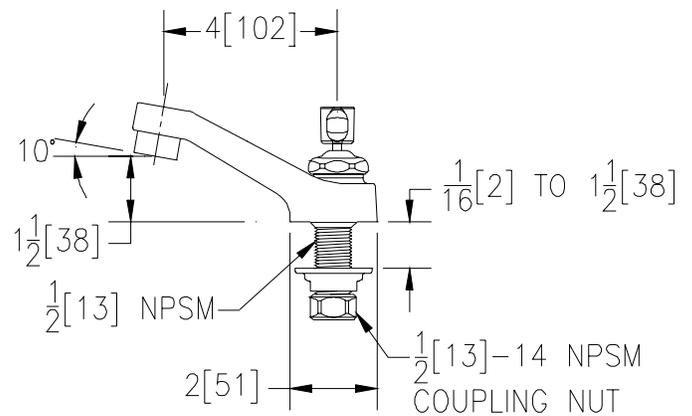
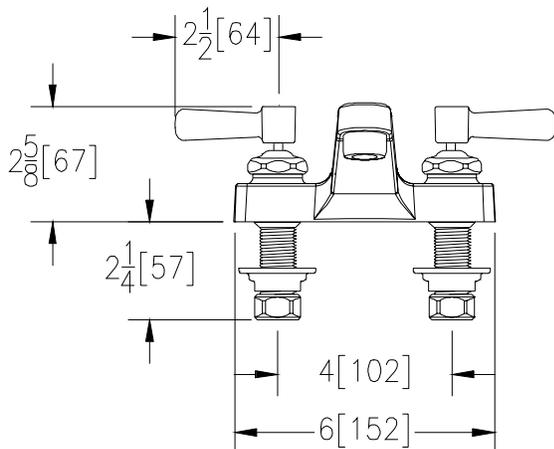
# 4" CENTERSET Z-81101

TAG \_\_\_\_\_



### Engineering Specification: Zurn AquaSpec® Z-81101

Polished chrome-plated cast brass faucet body with integral shanks, quarter turn ceramic disc cartridges and a 4" [102mm] long integral cast spout. Unit is furnished with a 2.0 GPM [7.6 L] variable orifice aerator (complying with ANSI A112.18.1 Standard for flow), 2-1/2" [64mm] vandal-resistant color-coded brass lever handles, mounting hardware and 1/2" [13mm] NPSM coupling nuts for standard lavatory risers.



Note: All dimensions are for reference only. Do not use for pre-plumbing

### OPTIONAL ACCESSORIES

Suffix	Description
___-G	1-1/4" [32mm] Grid Strainer Drain
___-PT	1-1/4" [32mm] Cast Brass P-Trap with a 7-1/2" [191mm] Long 17-Gauge Wall Bend
___-2M	2.0 GPM [7.6 L] Vandal-Resistant Male Aerator
___-3M	0.5 GPM [1.9 L] Vandal-Resistant Male Aerator
___-4M	2.0 GPM [7.6 L] Vandal-Resistant Male Laminar Flow

ZURN INDUSTRIES, INC. ♦ COMMERCIAL BRASS OPERATION ♦ 2855 GIRTS ROAD ♦ JAMESTOWN NY 14701

Phone: 1-716-665-1132 ♦ Fax: 1-716-665-1135 ♦ World Wide Web: [www.zurn.com](http://www.zurn.com)

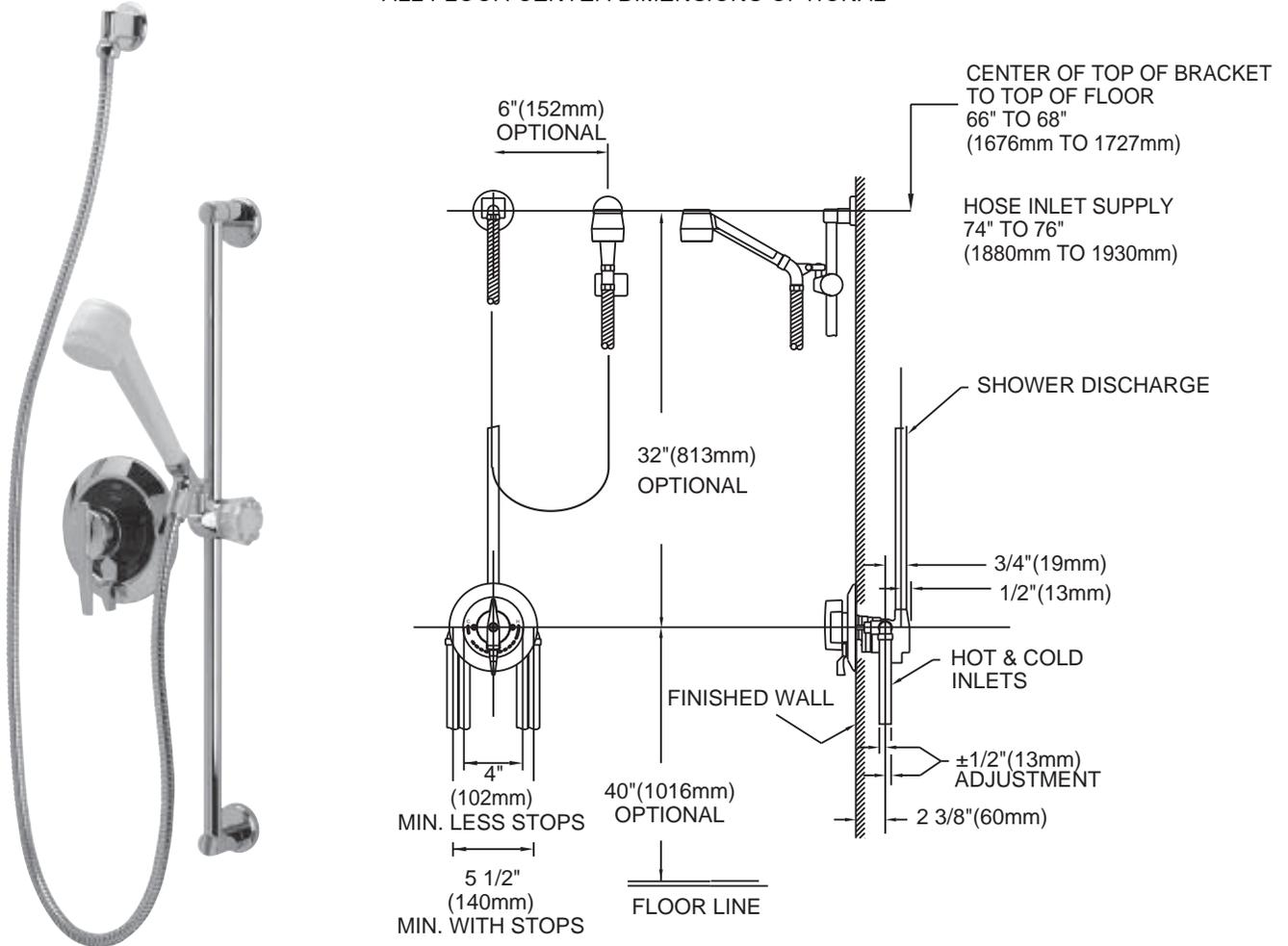
In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905/405-8272 Fax: 905/405-1292



**Z7120-HW  
TEMP-GARD SHOWER UNIT**

TAG

*DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCES  
CONCEALED PIPE AND FITTINGS NOT FURNISHED BY MANUFACTURER  
ALL FLOOR CENTER DIMENSIONS OPTIONAL*



**ENGINEERING SPECIFICATIONS:** ZURN Z7120-HW Single handle pressure balancing mixing shower unit, with single bronze stem, stainless steel balancing piston integral with stem assembly, and brass adjustment limit stop screw in cap. Complete with double seal packing, adjustable brass packing nut, and removable brass seats; all exposed trim with polished nickel chrome plated surface. Valve supplied with hand/wall shower head, 60" flexible metal hose, 24" mounting bar wall connection. The valve inlets and shower outlet are in 1/2" female copper sweat connections.

**OPTIONS** (Check/specify appropriate options)

Use with Z7000 prefix

- AH Acrylic Handle
- CC Conversion Cover Plate
- LH Single Blade Lever Handle ADA Compliant
- MT Metal Cover, Escutcheon & Stem Handle
- RC Reverse Coring (For back-to-back installations)
- SS Integral Service Stops (Allows water shut-off at valve for service)
- VB In-Line Vacuum Breaker see (HW 6)
- VH 60" Vinyl hose (in place of metal hose) see (HW 7)
- WF Wall Mounting Flange for Fiberglass or Panel Wall Installation
- Handwall options see Z7000-HW

**STANDARDS**

Tested to meet the following standards for valves and plumbing fittings:  
ASSE Standard No. 1016  
CSA Standard B125-M89  
Shower heads meet ANSI A112.18.1



ZURN INDUSTRIES, INC. ♦ COMMERCIAL BRASS OPERATION ♦ 2855 GIRTS ROAD ♦ JAMESTOWN NY 14701

Phone: 1-716-665-1132 ♦ Fax: 1-716-665-1135 ♦ World Wide Web: www.zurn.com

In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905/405-8272 Fax: 905/405-1292

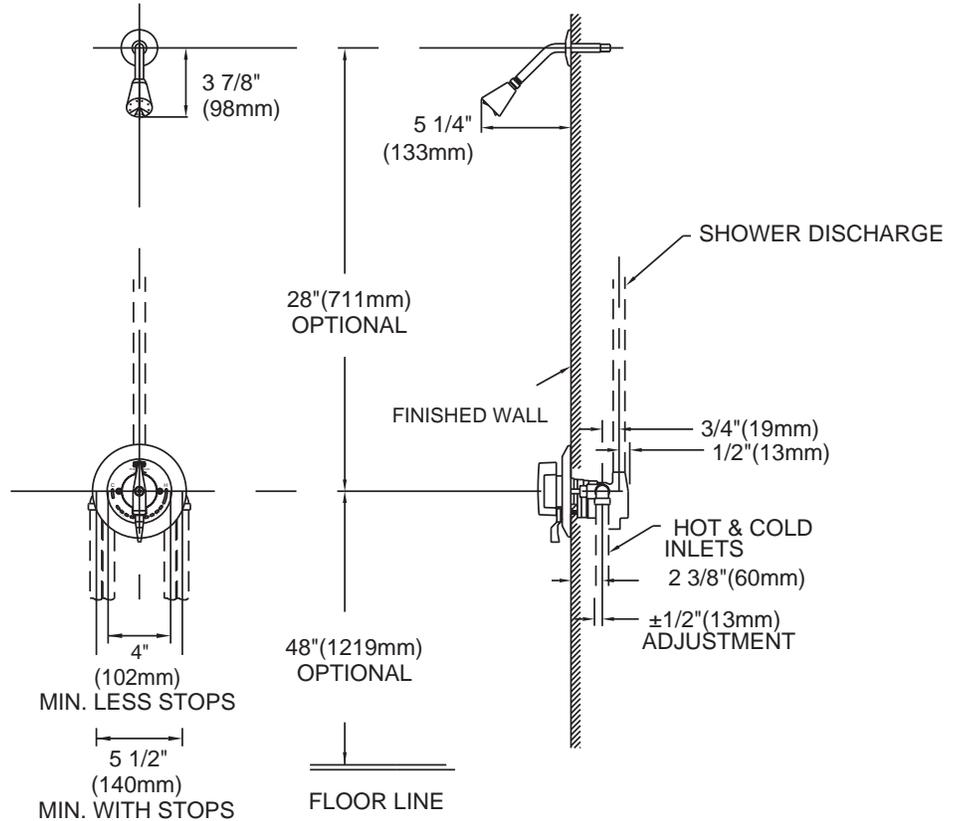
Rev. Date: 2/20/02 C.N. No. 89446  
Dwg. No. 66228 Product No. Z-7120-HW



**Z7121  
TEMP-GARD SHOWER UNIT**

TAG

*DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCES  
CONCEALED PIPE AND FITTINGS NOT FURNISHED BY MANUFACTURER  
OTHER PIPE AND FITTINGS NOT FURNISHED BY MANUFACTURER*



**ENGINEERING SPECIFICATION:** ZURN Z7121 Single handle pressure balancing mixing shower unit with volume control, with single bronze stem, stainless steel balancing piston integral with stem assembly, and brass adjustment limit stop screw in cap. Complete with double seal packing, adjustable brass packing nut, and removable brass seats; all exposed trim with polished nickel chrome plated surface. Valve supplied with standard shower head, arm and flange. The hot and cold inlets and shower outlet are in 1/2" female copper sweat connections.

**OPTIONS** (Check/specify appropriate options)

Use with Z7000 prefix

- AH Acrylic Handle
- CC Conversion Cover Plate
- LH Single Blade Lever Handle
- MT Metal Cover, Escutcheon & Stem Handle
- RC Reverse Coring (for back-to-back installations)
- SS Integral Service Stops (allows water shut-off at valve for service)
- WF Wall Mounting Flange for Fiberglass or Panel Wall Installation

**STANDARDS**

Tested to meet the following standard for valves and plumbing fittings:  
A.S.S.E. Std. No. 1016  
CSA B125-M89  
Shower Heads meet ANSI A112.18.1



ZURN INDUSTRIES, INC. ♦ COMMERCIAL BRASS OPERATION ♦ 2855 GIRTS ROAD ♦ JAMESTOWN NY 14701

Phone: 1-716-665-1132 ♦ Fax: 1-716-665-1135 ♦ World Wide Web: www.zurn.com

In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905/405-8272 Fax: 905/405-1292

Rev. Date: 2/20/02

Dwg. No. 66229

C.N. No. 89447

Product No. Z-7121



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/18/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Academic Buildings | <input checked="" type="checkbox"/> Dormitories |
| <input type="checkbox"/> Administrative                | <input type="checkbox"/> Faculty Residences     |
| <input type="checkbox"/> Athletic Facilities           | <input type="checkbox"/> Support                |
| <input type="checkbox"/> Campus Wide                   | <input type="checkbox"/> Utility                |
| <input type="checkbox"/> Other _____                   |   |
| <input type="checkbox"/> Other _____                   |   |

### Overview of system/product/guideline:

Preferred vendor for Electronic Faucets is Chicago Faucets-Deck Mounted Single Hole Faucet

### Links to additional product information:

[www.chicagofaucets.com](http://www.chicagofaucets.com)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 22

Specification Section:

22 40 00-PLUMBING FIXTURES AND EQUIPMENT

Description of Material or System:

Wall mounted water coolers

Last Updated:

4/7/2016

Updated by:

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

Overview of system/product/guideline:

Attached is the product submittal for wall mounted water coolers.

Links to additional product information:

[www.filtrine.com](http://www.filtrine.com)



SINCE 1901

**OPERATION AND MAINTENANCE  
INFORMATION FOR  
Serial No 6374-12**

**SECTION I**

- 1 Submittals
- 2 Unit Tag

**SECTION II**

- 1 Start Up Procedure
- 2 Plumbing Diagrams
- 3 Wiring Diagrams

**SECTION III**

- 1 Spare Parts Order Form
- 2 Unit Website References
- 3 Maintenance Items

**SECTION IV**

- 1 Warranty Certificate



**Filtrine**

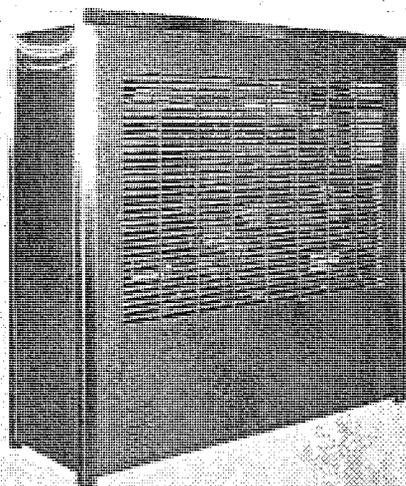
SINCE 1901

**SECTION I**

- 1** Submittals
- 2** Unit Tag



## FREE STANDING CHILLER/PURIFIERS to serve multiple fountains or dispensers as required



TYPICAL FREE STANDING CHILLER/PURIFIER

### FREE STANDING CHILLER/PURIFIER

- Compact... uses little floor space... *optional wall mount.*
- Quiet... engineered for indoor environment.
- Energy-saving design for low operating cost.
- Louvered, hinged access panel with key lock for easy servicing.
- Sustainable design backed by *Lifetime Warranty.*

### CHILL and SAVE ENERGY

The Chiller/Purifier is able to serve constant 50°F chilled water because, unlike conventional electric water coolers [EWC's], an ES Chiller/Purifier employs a large energy- saving, insulated reservoir. This allows the unit to build a reserve of chilled water during low usage periods to fill personal water containers and handle the peak demands of lunch hours, coffee breaks, etc. and still meet the low average draw. A single free-standing unit uses less energy than multiple EWC's serving a comparable population.

### A TASTEMASTER® PURIFIER FOR EVERY WATER REQUIREMENT

#### TM MODELS REMOVE

0.5 micron particles, organic tastes/odors, chlorine and cysts

#### TM-L MODELS REMOVE

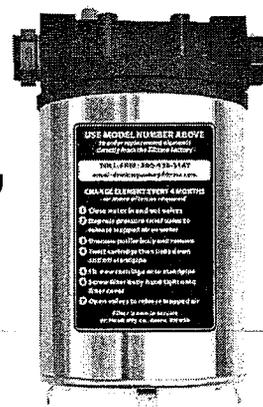
Lead, 0.5 micron particles, organic tastes/odors, chlorine and cysts *Consult factory for specs*

### TASTEMASTER PURIFIERS DELIVER



The TasteMaster Purifier is engineered for long life and efficient operation:

- FDA grade polypropylene body in stainless steel housing
- "DualSeal" design insures maximum performance for life of element



The TasteMaster Purifier protects many types of outlets including:

- PUSH BUTTON FILLERS
- GOOSENECK FILLERS
- BUBBLERS
- ICE MAKERS
- COFFEE MACHINES
- BEVERAGE DISPENSERS

The natural material in purifier element will biodegrade over time.  
Element is easy to install...  
*no tools required.*



FILTRINE IS ISO 9001-2008 REGISTERED  
PRODUCT LINE APPROVED MARK AVAILABLE

LIFETIME WARRANTY

FILTRINE Mfg Co • 15 Kit St. Keene, NH 03431 USA  
800-930-3367 • 603-352-5500 • FAX 603-352-0330  
[www.filtrine.com](http://www.filtrine.com) • [drinkingwater@filtrine.com](mailto:drinkingwater@filtrine.com)



ES-FS  
[EB]  
REV D 04.25.12

# FREE-STANDING CHILLER/PURIFIERS

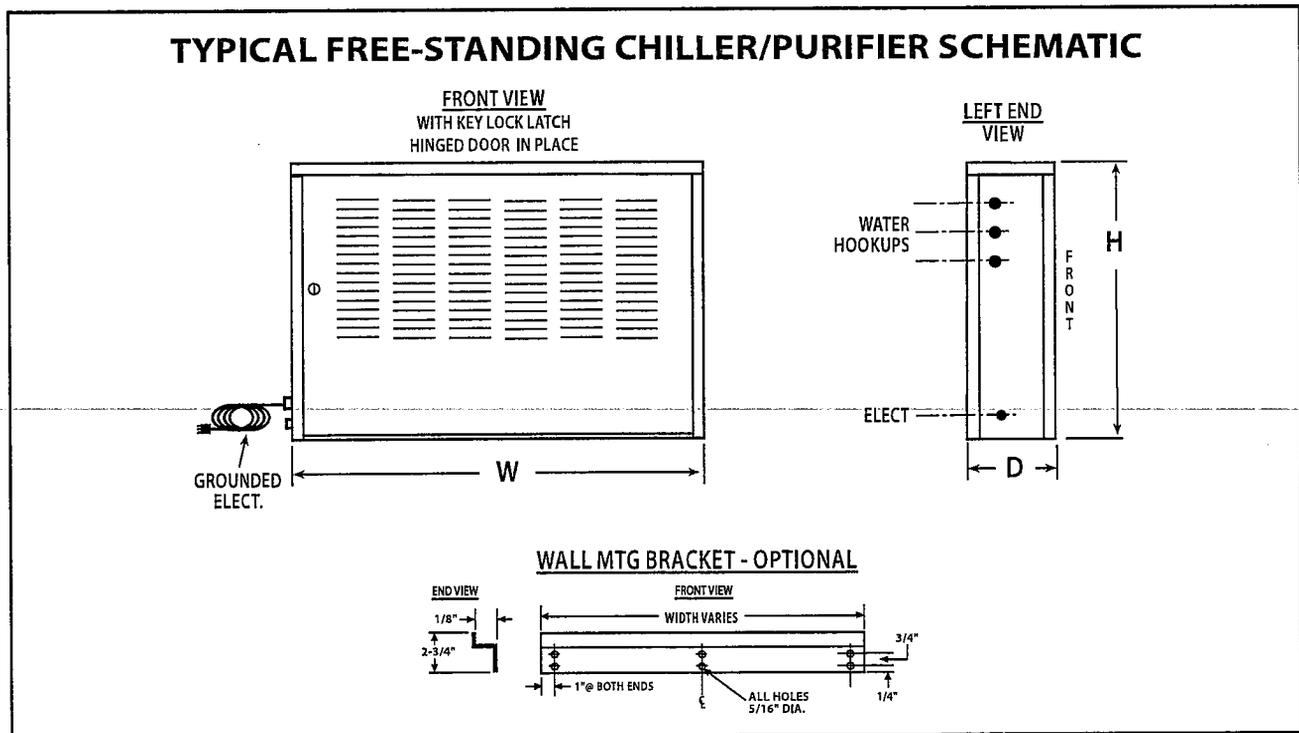
**READY-TO-ISSUE SPECIFICATION:** In order to provide 50°F purified drinking water to potable water outlets as shown on plan, contractor shall furnish Free-Standing Chiller/Purifier Unit To Include: Hermetic compressor 115/60/1 with condenser, thermostat, expansion valve, sight glass and dehydrator. Cooling tank #304 stainless steel, insulated with closed cell thermoelastomer with stainless steel immersion coil evaporator. Purifier to remove sediment particles, chemicals such as chlorine, organic tastes and odors. Stainless steel pump to circulate 50°F water to all outlets. All contained in a free-standing rustproof, enameled steel cabinet with hinged, key-latched grille for ventilation and service access. No hinge or screws shall be visible on front of the mounted unit. Chiller/Purifier Shall Be: Model ES-[ ]-RFC-FS as manufactured in USA with USA parts and labor by Filtrine Manufacturing Company Keene, NH and shall include Lifetime Warranty.

ES-RFC-FS CHILLER/PURIFIER DATA FOR RECIRCULATING MODELS													
FILTRINE MODEL No.	PERSONS SERVED *	PIPING ALLOWANCE - TOTAL LOOP		COMP MOTOR hp	TANK gal	CIRC PUMP hp	SUPPLY POWER **	PURIFIER		ENCLOSURE DIMENSIONS inches			WATER CONN inches
		ft	ips					PRE-FILTER	TASTE MASTER	W	D	H	
ES-2-RFC-FS	100	100	1/2	1/5	2	1/50	115/60/1 - FLA 6	N.A.	TM1-0.5	42	10	26	3/8
ES-4-RFC-FS	200	200	1/2	1/4	4	1/50	115/60/1 - FLA 7	PF4	TM1-0.5	36	16	26	3/8
ES-6-RFC-FS	300	300	1/2	1/3	6	1/25	115/60/1 - FLA 9	PF4	TM1-0.5	46	16	26	1/2
ES-8-RFC-FS	400	400	1/2	1/2	8	1/25	115/60/1 - FLA 12	PF4	TM1-0.5	52	16	32	1/2

\* Assume 1 qt. [0.9L] per day per person in typical usage. Capacities based on 80°F [27°C] inlet, 50°F [10°C] outlet. ES models include extra capacity to handle heat loss of insulated piping in the circulating loop up to the length shown. When piping runs exceed allowance shown, reduce population served by 25 people per 50 feet of additional piping.

\*\* Other voltages available... consult factory.

ES-RF-FS CHILLER/PURIFIER DATA FOR NON-RECIRCULATING MODEL										
FILTRINE MODEL No.	PERSONS SERVED *	NOTE this unit meant to serve a single fountain only	COMP MOTOR hp	TANK gal	SUPPLY POWER **	PURIFIER	ENCLOSURE DIMENSIONS inches			WATER CONN inches
							W	D	H	
ES-2-RF	100		1/5	2	115/60/1 - FLA 6	TM1-0.5	36	10	26	3/8



FILTRINE Mfg Co • 15 Kit St. Keene, NH 03431 USA  
 800-930-3367 • 603-352-5500 • FAX 603-352-0330  
[www.filtrine.com](http://www.filtrine.com) • [drinkingwater@filtrine.com](mailto:drinkingwater@filtrine.com)



ES-FS  
 [EB]  
 REV D 04.25.12



# Model 107-14-HL Non-Recessed, High/Low Drinking Fountain



## FOUNTAIN SPECIFICATIONS

### FOUNTAIN MATERIAL - 16 gauge

Stainless Steel  Bronze

### FINISH

Satin  Mirror  Statuary Bronze  
 Oil Rubbed Bronze  Powder Coat

### COVER PLATE MATERIAL - 16 gauge

Stainless Steel  Bronze

### FINISH

Satin  Mirror  Statuary Bronze  
 Oil Rubbed Bronze  Powder Coat

### BUBBLER TYPE

Integral PUSH BUTTON valve  
 Separate SOFT TOUCH button valve  
 Integral EASY TOUCH lever valve  
 Separate SIDE MOUNT lever valve

### BUBBLER FINISH

Stainless Steel  Bronze

### FINISH

Satin  Mirror  Statuary Bronze  
 Oil Rubbed Bronze

### VANDAL-PROOF BUBBLER - OPTION

Tamper-resistant set screw secures bubbler to fountain

### "HANDS-FREE" PHOTOCELL ACTIVATION - OPTION

Uses [4] AA batteries [included]  
Features automatic shutoff [30 second]  
- prevents vandalism and water waste

### BOTTLE FILLER - OPTION

With integral push back lever valve on cover plate, over low bowl

### SECURITY PANEL - OPTION

On bottom of fountain, secured with tamper-resistant screws

### ACCESS PANEL - OPTION

Standard 6" H or specify \_\_\_\_\_ inches with finish to match cover plate

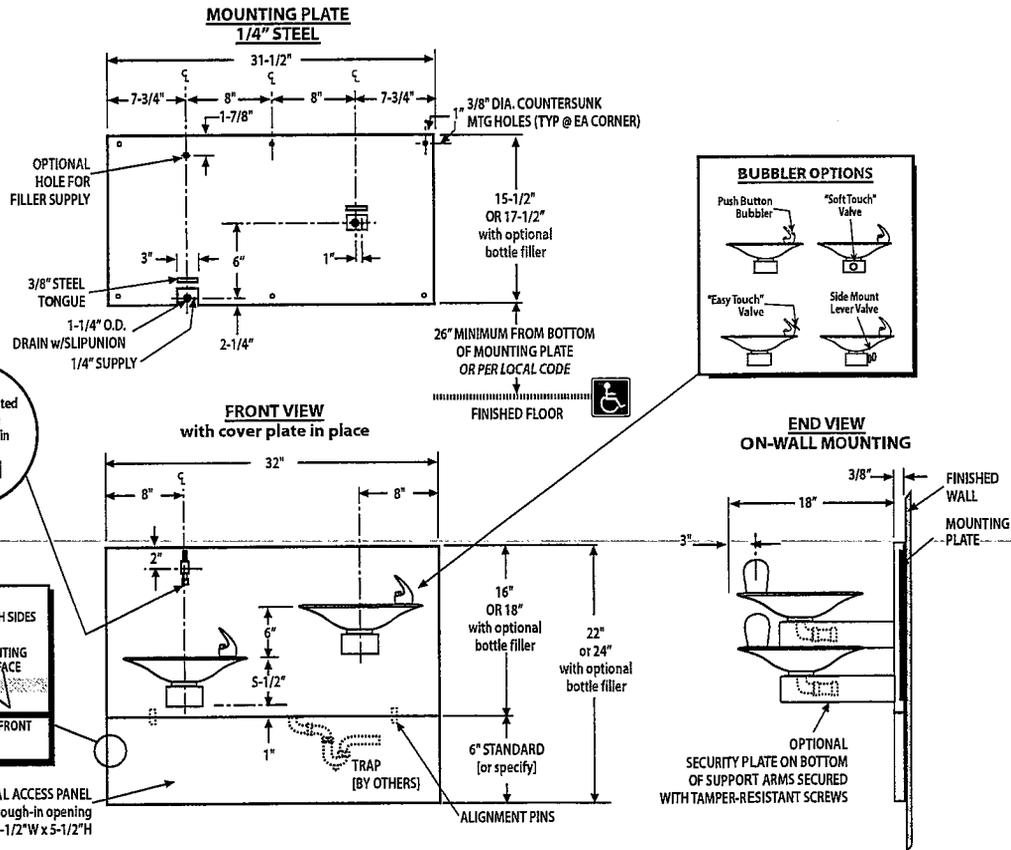
### LOW FOUNTAIN LOCATION

LEFT - DEFAULT  RIGHT - OPTION

Select Access Panel Option

## Model 107-14-HL Non-Recessed High/Low Drinking Fountain

REFERENCE INFORMATION... Contact Filtrine for quote or submittal



FILTRINE Mfg Co • 15 Kit St. Keene, NH 03431 USA  
800-930-3367 • 603-352-5500 • FAX 603-352-0330  
www.filtrine.com • drinkingwater@filtrine.com



FILTRINE IS ISO 9001-2008 REGISTERED

107-14-HL [EB]  
REVISED  
07.19.12



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 3/22/2017

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |  |   |
|--|---|
| <input type="checkbox"/> Academic Buildings  | <input checked="" type="checkbox"/> Dormitories |
| <input type="checkbox"/> Administrative      | <input type="checkbox"/> Faculty Residences     |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                |
| <input type="checkbox"/> Other _____         |   |
| <input type="checkbox"/> Other _____         |   |

**Overview of system/product/guideline:**

The preferred vendor for faculty faucets is Kohler

**Links to additional product information:**

[www.kohler.com](http://www.kohler.com)



# Phillips Exeter Academy Construction Standards and Guidelines

**Division of Work:**

**Specification Section:**

**Description of Material or System:**

**Last Updated:** 1/31/2017

**Updated by:**

<b>Included in this section:</b>	<b>Guideline applies:</b>
<input checked="" type="checkbox"/> Product Specifications	<input type="checkbox"/> Academic Buildings
<input checked="" type="checkbox"/> Design Guidelines	<input type="checkbox"/> Administrative
<input type="checkbox"/> Design Details/Drawings	<input type="checkbox"/> Athletic Facilities
<input type="checkbox"/> Supplemental Information	<input type="checkbox"/> Campus Wide
<input type="checkbox"/> Other _____	<input type="checkbox"/> Other
<input type="checkbox"/> Other _____	<input checked="" type="checkbox"/> Dormitories
	<input checked="" type="checkbox"/> Faculty Residences
	<input type="checkbox"/> Support
	<input type="checkbox"/> Utility
	_____
	_____

**Overview of system/product/guideline:**

The following is the PEA preferred vendor for dormitory and faculty residence shower faucet

**Links to additional product information:**

[www.kohler.com](http://www.kohler.com)

Location:



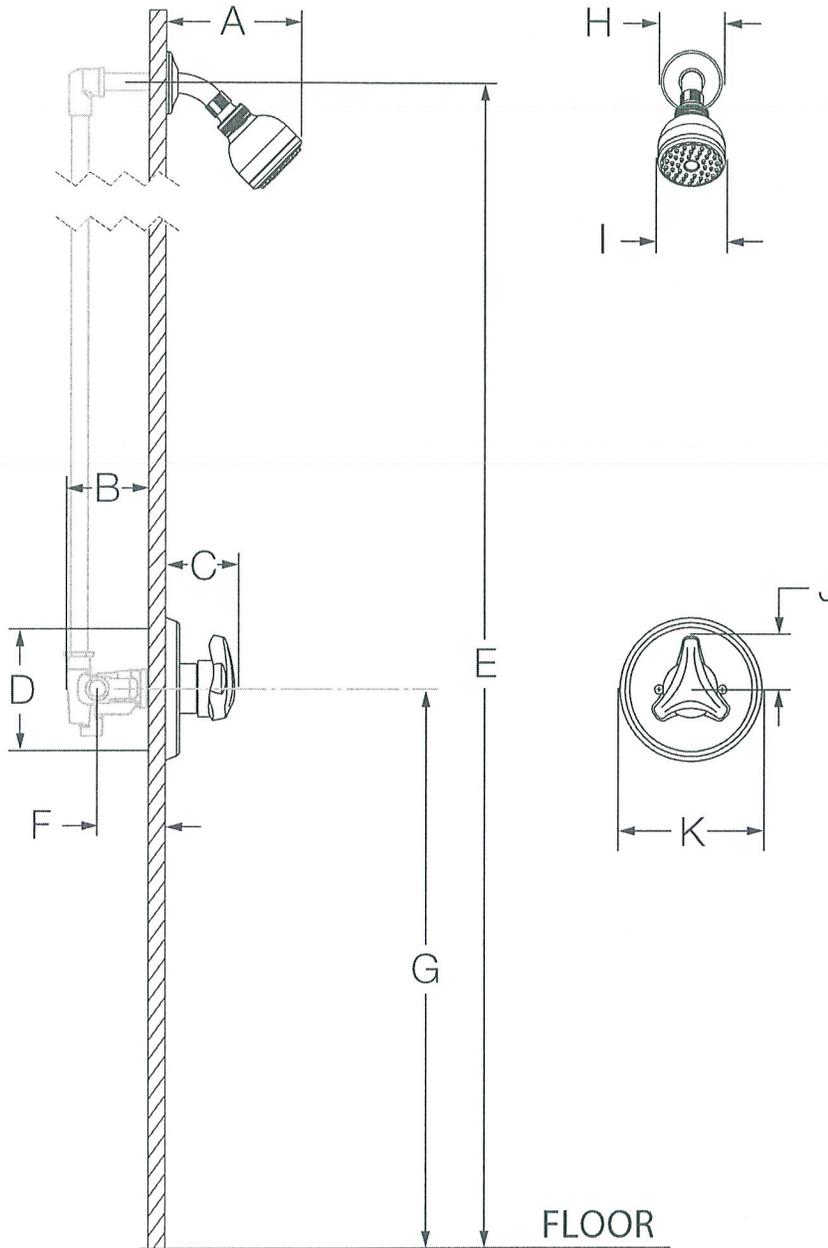
**SYMMONS**<sup>®</sup> **Origins**<sup>™</sup>  
the smart choice<sup>™</sup>

9601-P  
Shower System  
**Specification Submittal**

Model Numbers	Specification
<input type="checkbox"/> <b>9601-P</b> <i>Origins Shower System</i>	<p>Shower system powered by the Temptrol® Pressure Balancing valve. Features adjustable stop screw to limit handle turn, 1 mode showerhead with easy to clean rubber nozzles and standard 2.5 gpm (9.5 L/min) flow restrictor. Components made from metal and nonmetallic materials plated in standard polished chrome finish.</p> <div style="text-align: right;"></div>
<p><b>Modifications</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>-1.5</b>  1.5 gpm (5.7 L/min) flow restrictor</li> <li><input type="checkbox"/> <b>-2.0</b>  2.0 gpm (7.6 L/min) flow restrictor</li> <li><input type="checkbox"/> <b>-231</b> Super showerhead in place of Clear-Flo</li> <li><input type="checkbox"/> <b>-295</b> Institutional showerhead in place of Clear-Flo</li> <li><input type="checkbox"/> <b>-X</b> Integral service stops</li> <li><input type="checkbox"/> <b>-CHKS</b> Integral check stops</li> <li><input type="checkbox"/> <b>-IPS</b> 1/2" female IPS connections</li> <li><input type="checkbox"/> <b>-REV</b> Reverse coring for back to back installations</li> <li><input type="checkbox"/> <b>-B</b> Chrome brass escutcheon</li> <li><input type="checkbox"/> <b>-D</b> Chrome brass dome cover</li> <li><input type="checkbox"/> <b>-VP</b> Vandal proof escutcheon screws</li> <li><input type="checkbox"/> <b>-OP</b> 13" oval plate</li> <li><input type="checkbox"/> <b>-L/HD</b> Less showerhead</li> <li><input type="checkbox"/> <b>-TRM</b> Trim only, valve not included</li> </ul>	
	<p><b>Compliance</b></p> <ul style="list-style-type: none"> <li>-ASME A112.18.1/CSA B125.1</li> <li>-WaterSense 1.5 gpm (5.7 L/min)</li> <li style="padding-left: 40px;">2.0 gpm (7.6 L/min)</li> </ul> <div style="text-align: right;">   </div>
	<p><b>Warranty</b></p> <p><b>Limited Lifetime</b> - to the original end purchaser in consumer/residential installations.  <b>5 Years</b> - for industrial/commercial installations.  Refer to <a href="http://www.symmons.com/warranty">www.symmons.com/warranty</a> for complete warranty information.</p>

**Note:** Append appropriate -suffix to model number.

## Dimensions

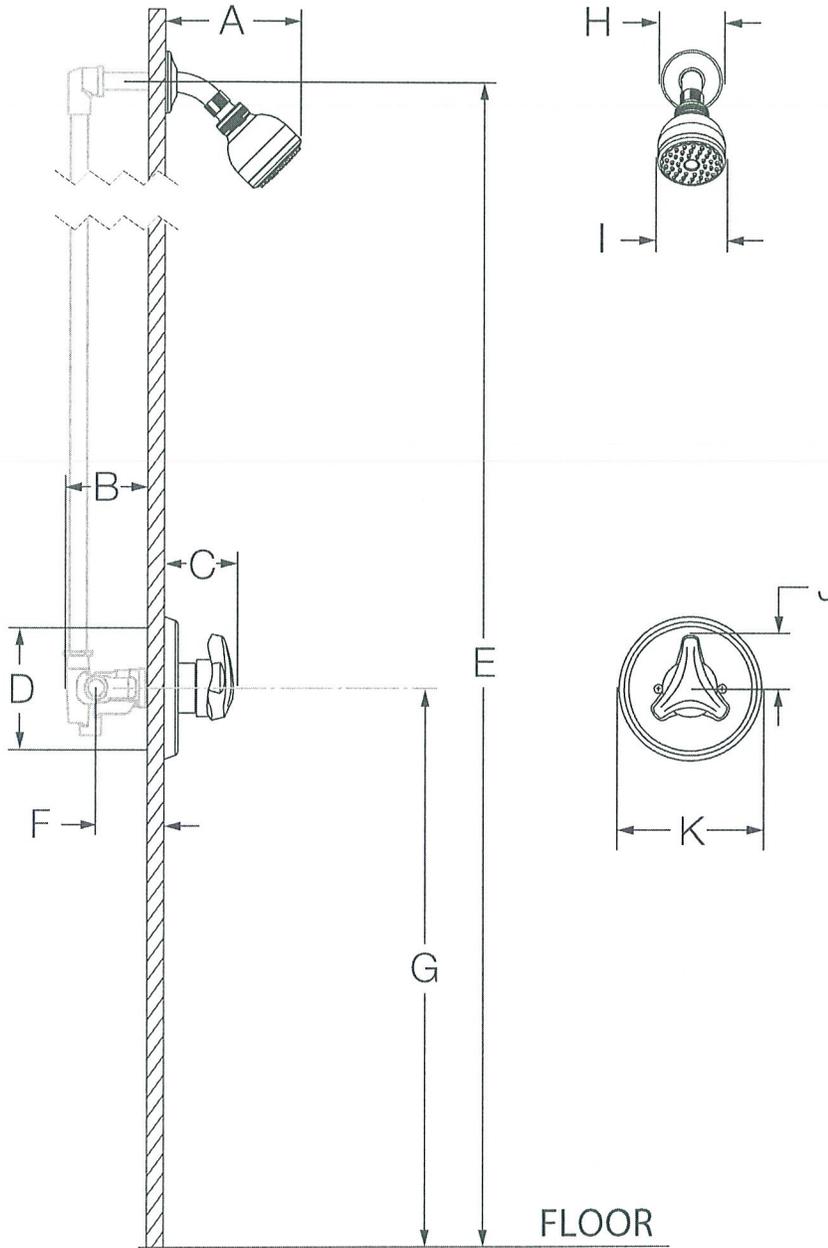


Measurements	
A	6 3/8", 162 mm
B	3 1/2", 89 mm
C	2 7/8", 73 mm
D	Shower Valve Hole Size Min. Ø 3", 76 mm Max. Ø 4", 102 mm
E	Ref. 77", 1956 mm
F	Rough-in 2 3/8" ± 1/2", 60 mm ± 13 mm
G	Ref. 42", 1067 mm
H	Ø 2 1/2", 64 mm
I	Ø 2 3/4", 70 mm
J	2 1/8", 54 mm
K	Ø 5 3/4", 146 mm

### Notes:

- 1) All dimensions measured from nominal rough-in (see F as reference).
- 2) Dimensions subject to change without notice.

## Dimensions



Mesures	
A	6 3/8 po, 162 mm
B	3 1/2 po, 89 mm
C	2 7/8 po, 73 mm
D	Taille du trou Min. Ø 3 po, 76 mm Max. Ø 4 po, 102 mm
E	Réf. 77 po, 1956 mm
F	Robinetterie brute 2 3/8 po ± 1/2 po, 60 mm ± 13 mm
G	Réf. 42 po, 1067 mm
H	Ø 2 1/2 po, 64 mm
I	Ø 2 3/4 po, 70 mm
J	2 1/8 po, 54 mm
K	Ø 5 3/4 po, 146 mm

### Remarques:

- 1) Toutes les dimensions sont mesurées à partir de la robinetterie brute nominale (voir F en référence).
- 2) Les dimensions sont sujettes à changer sans préavis.

### Features

- Premium construction ensures durability and reliability
- 4-7/8" (124 mm) diverter spout with NPT connection
- Reversible 1/2" quarter-turn washerless ceramic disc valves
- Lever handles
- Includes showerhead with arm and flange

### Required Accessories

K-304/K-P304 Series Rite-Temp® Valves



### Codes/Standards

ASME A112.18.1/CSA B125.1

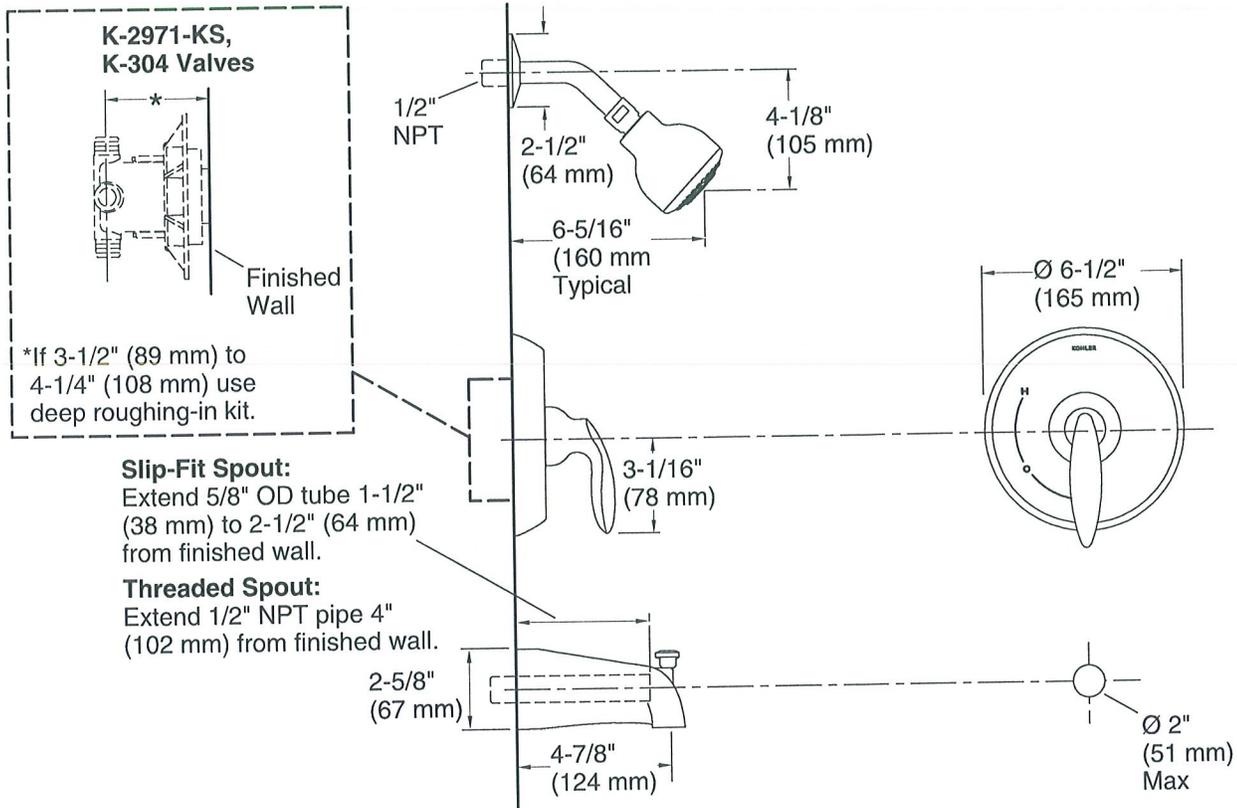
ASSE 1016

DOE - Energy Policy Act 1992

EPA WaterSense®

California Energy Commission (CEC)

See website for detailed warranty information.



### Technical Information

All product dimensions are nominal.

#### Showerhead:

Rated maximum flow: 2.5 gal/min (9.5 l/min)

Pressure: 80 psi (5.5 bar)

### Notes

Install this product according to the installation guide.

**NOTICE:** Risk of product damage. Long screws, for installing trim, can damage the K-2971-KS valve. Consult the trim installation guide to verify if the thin wall installation kit (88526) is needed.

Avoid cross-flow conditions. Do not install a shut-off device on either valve outlet.

Cap the shower outlet if deck-mount spout, diverter, or handshower is connected to the spout outlet.

Install straight pipe or tube drop of 7" (178 mm) to 18" (457 mm) with single elbow between the valve and wall-mount spout.

### Features

- Metal construction.
- For 4" (102 mm) centers.
- 4-7/16" (112 mm) spout reach.
- Metal pop-up drain with lift rod and tailpiece.
- Stationary spout.
- ADA compliant lever handles.
- Red/blue indexing.
- Complements the Coralais Suite.
- 1.2 gal/min (4.5 l/min) maximum flow rate [max at 60 psi (4.14 bar)].

### Optional Accessories

1160594 Large Spray Aerator 0.35 gpm (1.3 l/min)



ADA

### Codes/Standards

ASME A112.18.1/CSA B125.1

NSF 61

NSF 372

All applicable US Federal and State material regulations

DOE - Energy Policy Act 1992

EPA WaterSense®

ADA

ICC/ANSI A117.1

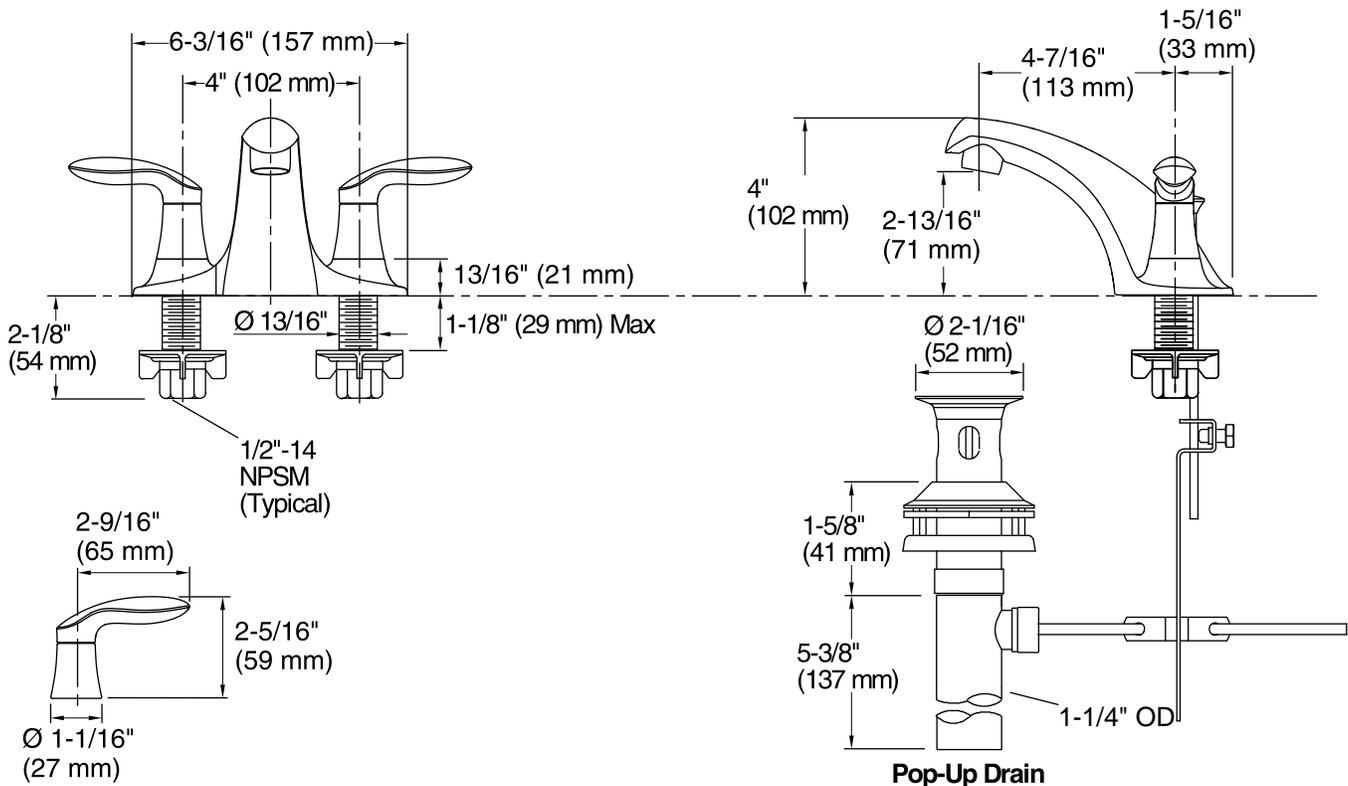
### KOHLER® Faucet Lifetime Limited Warranty

See website for detailed warranty information.

### Available Color/Finishes

*Color tiles intended for reference only.*

Color	Code	Description
	CP	Polished Chrome
	G	Brushed Chrome



### Technical Information

All product dimensions are nominal.

Valve body: Machined Brass

Drain with overflow: YES

Drain tailpiece included:

### Spout:

Spout reach: 4-7/16" (112 mm)

Handle clearance: 2-9/16" (65 mm)

### Faucet:

Flow rate: 1.2 gal/min (4.5 l/min)

Pressure: 60 psi (4.1 bar)

### Notes

Install this product according to the installation guide.

ADA compliant when installed to the specific requirements of these regulations.



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 7/1/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |  |  |
|--|--|
| <input type="checkbox"/> Academic Buildings  | <input type="checkbox"/> Dormitories                   |
| <input type="checkbox"/> Administrative      | <input checked="" type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                       |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                       |
| <input type="checkbox"/> Other _____         |  |
| <input type="checkbox"/> Other _____         |  |

**Overview of system/product/guideline:**

The following is the PEA Design Guideline campus water fountains

**Links to additional product information:**

[www.filtrine.com](http://www.filtrine.com)



# Model 107-14-HL

## Non-Recessed, High/Low Drinking Fountain



### STAINLESS STEEL FOUNTAIN

FOUNTAIN & COVER PLATE FINISH  
 Satin  Mirror  Powder Coat  
 BUBBLER FINISH  
 Mirror [S]  Satin

### BRONZE FOUNTAIN

FOUNTAIN & COVER PLATE FINISH  
 Satin  Mirror  
 Statuary  Oil rubbed  
 BUBBLER FINISH  
 Satin [S]  Mirror  
 Statuary  Oil rubbed

### BUBBLER: SPECIFY

Separate "Soft Touch" button valve [S]  
 Integral push button valve  
 Integral "Easy Touch" lever valve  
 Separate Side Mount lever valve

### BUBBLER: VANDAL PROOF [O]

Secured to fountain with vandal proof screws

### "HANDS-FREE" PHOTOCELL ACTIVATION [O]

Includes [4] Lithium AA batteries - approx. 400,000 activation cycles. 30 sec. automatic shutoff helps prevent vandalism and water waste

### BOTTLE FILLER: VANDAL PROOF [O]

Features "Soft Touch" valve. Panel on bottom of support arm secured with vandal proof screws. Mounted on cover plate.

### BOTTLE FILLER: LEVER VALVE [O]

Push back valve. Mounted on cover plate

### SECURITY PANEL ON BOTTOM OF FTN [O]

Secured with vandal proof screws

### ACCESS PANEL [O]

6" H [S] or specify \_\_\_\_\_ inches  
 [Finish to match cover plate]

### LOW FOUNTAIN LOCATION

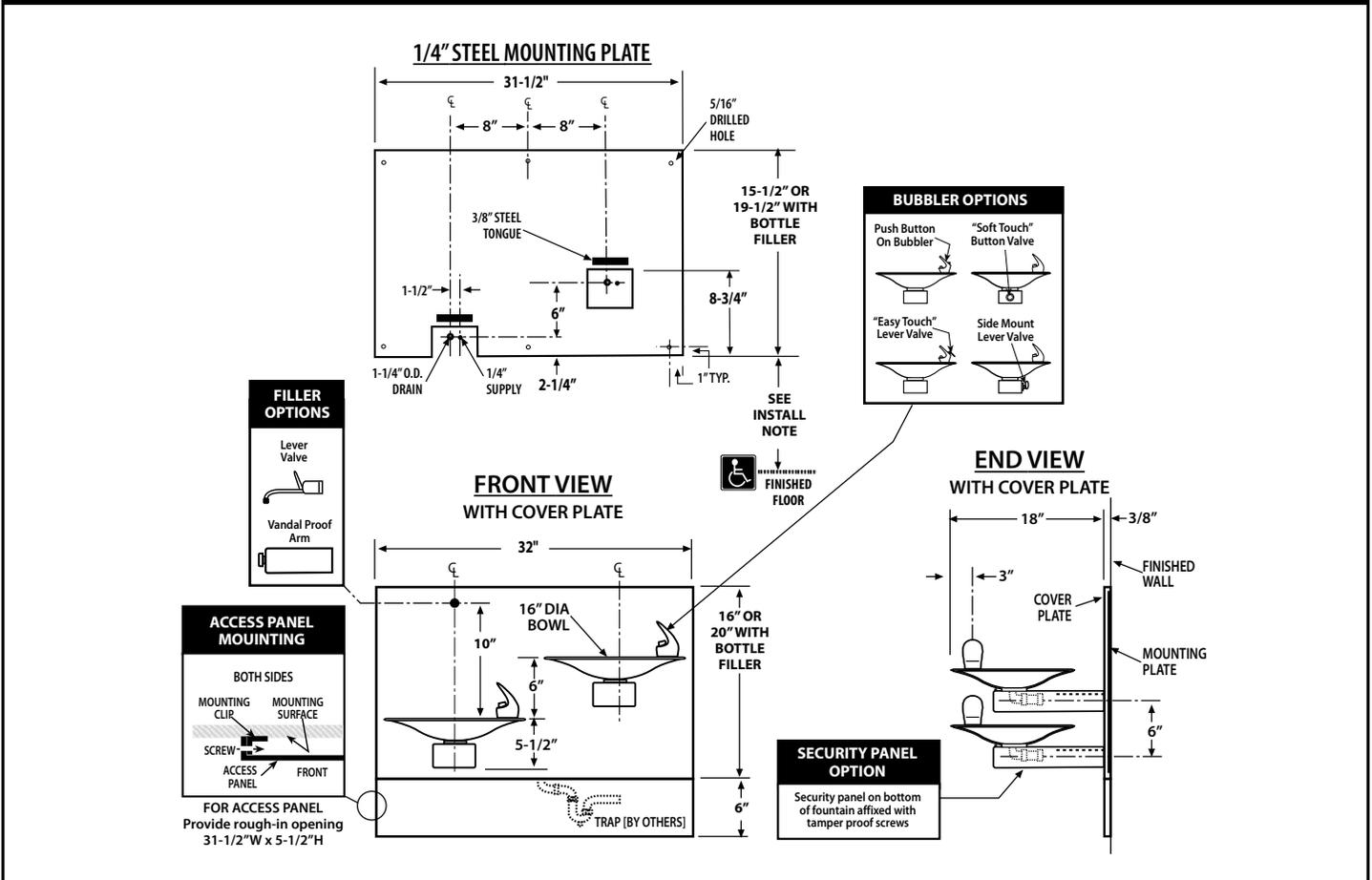
Left [S]  Right

### INSTALLATION NOTE

**26" FROM BOTTOM OF MOUNTING PLATE TO FINISHED FLOOR EQUALS 33-3/4" TO BUBBLER SPOUT**

[S] = STANDARD / [O] = OPTIONAL

### REFERENCE INFORMATION - PLEASE CONTACT FILTRINE FOR QUOTE OR SUBMITTAL







# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 3/21/2017

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

**Overview of system/product/guideline:**

The preferred vendor for shower head is Whedon

**Links to additional product information:**

[www.whedonproducts.com](http://www.whedonproducts.com)

*The Best Quality Showers & Faucet Attachments*

**Whedon Products, Inc.**

**"The Flow Pro"**

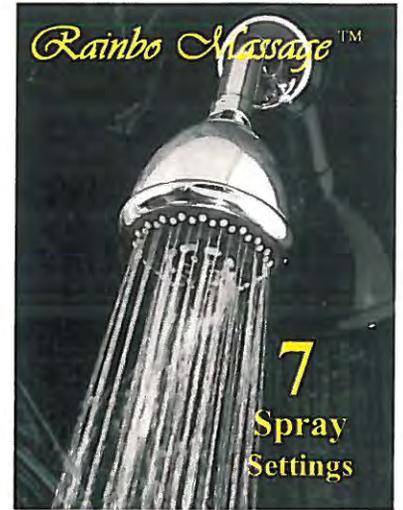
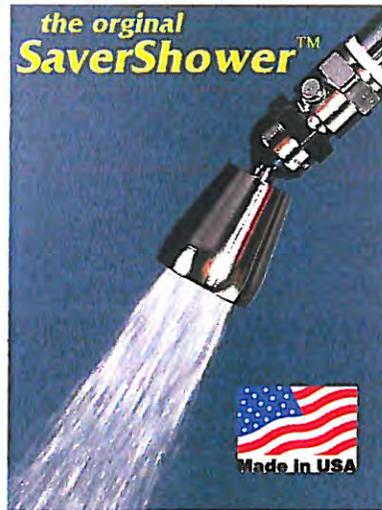


*We Make Less Water Feel Like More!*

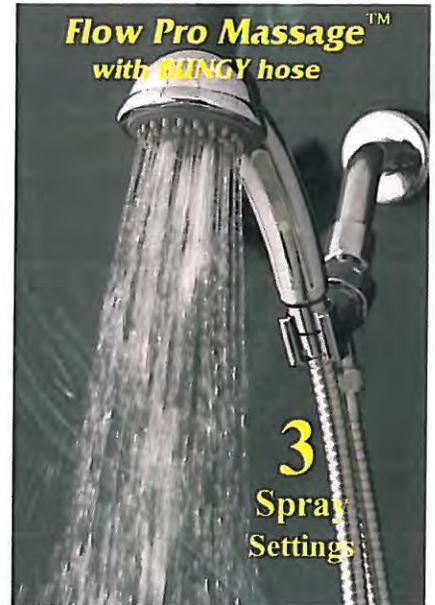
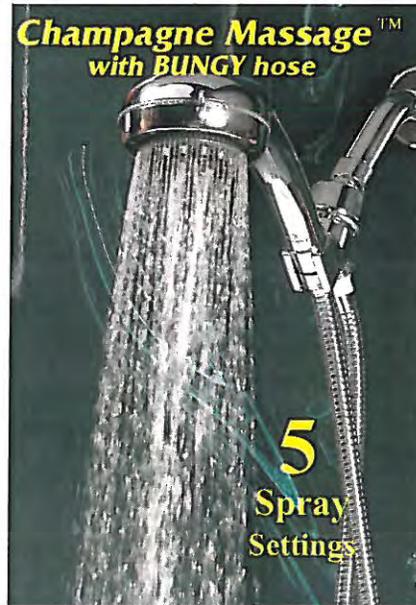
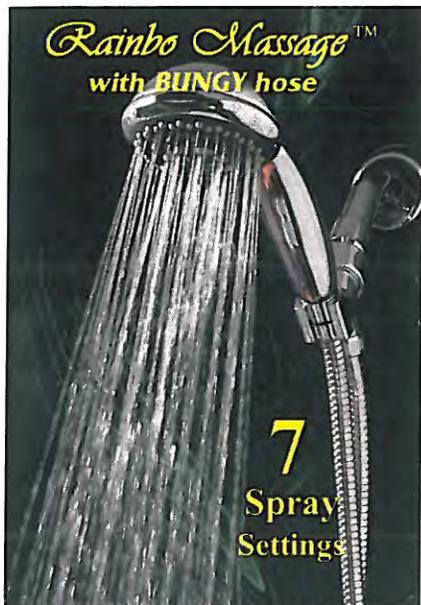
**Shower Products Catalog**

*July, 2015*

**The Best Quality Shower Heads ...**



**... and Hand Shower Systems  
featuring the BUNGY shower hose!**





**SaverShower™**  
Solid Brass High Velocity Shower Heads in 3 Flow Rates  
All Brass Parts Machined, Plated & Assembled in the U.S.A.  
New *Ultra Savers* provide greater savings and a great shower  
with pressure compensating flow regulators.



### the original SaverShowers™

SS1C	the original 1" SaverShower shower head	10	10.96
DS1C	Std. Designer 1-1/2" SaverShower	10	14.96
DS2C	Dlx. Designer SaverShower w/ push button	8	21.46
DS2C-BP	Dlx. Designer SaverShower, polished brass	8	38.96
DS2C-SN	Dlx. Designer SaverShower, satin nickel	8	38.96

Original design - provides great rinsing force and an invigorating wet feeling spray using only 2.2 GPM at normal pressure (50 psi), 2.5 GPM Max at 80 psi. Consistently rated best in independent tests - including four straight best in class ratings by Consumer Reports. Great for low pressure areas. 100% Made in the USA of solid brass and chrome plated, includes alternate spray disc for low pressure and consumer satisfaction guarantee.  
*"No one makes shower heads the way we make SaverShowers!"*



### Ultra 1.9 GPM SaverShower™

USP19C	Std. Ultra 1.9 GPM SaverShower	10	14.46
USP29C	Dlx. Ultra 1.9 GPM SaverShower w/ push button	8	20.96

Combines strong SaverShower spray with new pressure compensating flow regulator that limits flow to 1.9 GPM over a range of water pressures. Provides invigorating, wet feeling spray conical spray pattern of perfectly sized droplets for a forceful, invigorating and very wet feeling spray. Saves over 20% more than other water saving showers, complies with all Water Sense guidelines for water and energy conservation. Made in the USA of solid brass and chrome plated, provides consistently great performance in both low pressure and high pressure areas.



### Ultra Saver™ 1.5 GPM Shower head

USB3C	Std. Ultra Saver 1.5 GPM shower	8	11.46
USB4C	Dlx. Ultra Saver 1.5 GPM shower w/ push button	8	15.46

The lowest flow rate available that still gives a good, invigorating shower. Uses only 1.5 GPM maximum flow over a range of water pressures up to 80 psi. Provides much stronger spray than other 1.5 GPM showers, complies with all Water Sense guidelines for water and energy conservation. Made in the USA of solid brass and chrome plated.  
*Maximize your water and energy savings without sacrificing shower comfort!*

**Whedon Products, Inc. - The Flow Pro**

W. Hartford, CT 06110; (860) 953-7606; 800-541-2184; fax (860) 953-4510; sales@whedonproducts.com



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 22

Specification Section:

22 40 00-Plumbing Fixtures

Description of Material or System:

Kitchenette Water Filling Faucet

Last Updated:

4/7/2016

Updated by:

Annie Pleatsikas

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other Catalog Item
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

Overview of system/product/guideline:

Links to additional product information:

See attached document cut sheet.

Visit Our Sister Sites

Home About Us View Cart My Account/Order Status Contact Help

Search... Search

Green Energy & Water Efficient Hand Dryers Point of Use Water Coolers Water Filters Drinking Fountain Sales New Arrivals

BY MANUFACTURER

- ELKAY
- OASIS
- HAWS
- Sunroc
- Global Water Inc.
- Outdoor Shower Co
- Crystal Quest

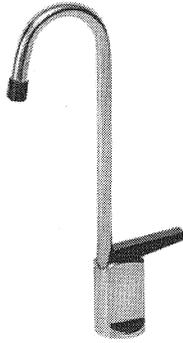
BY STYLE

- Refrigerated
- Non-Refrigerated
- Sports Bottle Fillers
- Split / Bi-Level
- For Outdoor Use
- Free Standing
- Vandal Resistant
- Antique - Historical
- Concrete Fountains
- Pet Friendly
- Stylish
- Remote Chillers
- ADA | Barrier Free
- Modular
- Wall Mounted
- Hot & Cold
- Cuspidors
- Frost-Resistant
- For Kids
- For Offices
- Commercial Sinks
- Outdoor Showers



Home > ELKAY >

Elkay LK1110 Glass Filler, Gooseneck with Push Lever, Stainless Steel, 8 1/4"



Larger Photo

3+1 Like

Lead Time - 3 to 7 business days  
List Price: \$217.00  
Our Price: \$148.75  
Save \$68.25!

Qty: 1 Add to cart

Add to Wish List

This item qualifies for FREE SHIPPING!  
Availability: In Stock  
Product Code: LK1110

Description

Model LK1110 Description

GENERAL  
LK1110 stainless steel single water gooseneck glass filler, manufactured with 100% lead-free material, plastic push lever control, 8-1/4" (210mm) high overall, 3/8" NPT connection.

Elkay LK1110 Glass Filler Spec Sheet

Related Products...

Elkay EZSTL8LC Refrigerated Drinking Fountain  
Our Price: \$822.19

Add Compare



Elkay DRKR14C SwirlFlo Drinking Fountain  
Our Price: \$352.42

Add Compare



Elkay LK4410SFRK Outdoor Drinking Fountain  
Our Price: \$4,284.50

Add Compare



Elkay EWA8L1Z Refrigerated Drinking Fountain  
Our Price: \$769.24

Add Compare



Elkay DRKR10C SwirlFlo Drinking Fountain  
Our Price: \$224.02

Add Compare



Share your knowledge of this product with other customers... Be the first to write a review

Browse for more products in the same category as this item:

ELKAY  
ELKAY > Parts and Accessories

My Recent History



# Phillips Exeter Academy Construction Standards and Guidelines

**Division of Work:**

**Specification Section:**

**Description of Material or System:**

**Last Updated:** 3/6/2017

**Updated by:**

<p><b>Included in this section:</b></p> <p><input checked="" type="checkbox"/> Product Specifications</p> <p><input checked="" type="checkbox"/> Design Guidelines</p> <p><input type="checkbox"/> Design Details/Drawings</p> <p><input type="checkbox"/> Supplemental Information</p> <p><input type="checkbox"/> Other _____</p> <p><input type="checkbox"/> Other _____</p>	<p><b>Guideline applies:</b></p> <table border="0"> <tr> <td><input type="checkbox"/> Academic Buildings</td> <td><input type="checkbox"/> Dormitories</td> </tr> <tr> <td><input type="checkbox"/> Administrative</td> <td><input type="checkbox"/> Faculty Residences</td> </tr> <tr> <td><input type="checkbox"/> Athletic Facilities</td> <td><input type="checkbox"/> Support</td> </tr> <tr> <td><input checked="" type="checkbox"/> Campus Wide</td> <td><input type="checkbox"/> Utility</td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> </table>	<input type="checkbox"/> Academic Buildings	<input type="checkbox"/> Dormitories	<input type="checkbox"/> Administrative	<input type="checkbox"/> Faculty Residences	<input type="checkbox"/> Athletic Facilities	<input type="checkbox"/> Support	<input checked="" type="checkbox"/> Campus Wide	<input type="checkbox"/> Utility	<input type="checkbox"/> Other _____		<input type="checkbox"/> Other _____	
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<input checked="" type="checkbox"/> Campus Wide	<input type="checkbox"/> Utility												
<input type="checkbox"/> Other _____													
<input type="checkbox"/> Other _____													

**Overview of system/product/guideline:**

The following is the PEA Design specification to be used campus wide, for domestic hot and cold water, and hydronic heating systems.

**Links to additional product information:**

[www.viega.com](http://www.viega.com)

## Viega PEX Tubing Systems



Viega offers three main PEX tubing products: ViegaPEX, ViegaPEX Ultra and FostaPEX tubing. Unlike copper, all PEX tubing products from Viega offer proven resistance to aggressive water conditions and temperature aging for longer life expectancy.

Our PEX tubing meets and exceeds strict standards within the plumbing industry for potable water. ViegaPEX is also one of the few brands that has obtained the PEX5006 (CL5) chlorine resistance ratings, allowing ViegaPEX to be used in continuously recirculating hot water systems.

[back](#)

### ViegaPEX tubing

ViegaPEX is a durable product made of cross-linked polyethylene. The cross-linked polyethylene, or PEX, is stable for higher temperature applications such as plumbing and radiant heating. ViegaPEX offers a superior chlorine resistance and protection against corrosion and is resistant to ultra violet (UV) light for up to 60 days.



[back](#)

### ViegaPEX Ultra tubing

ViegaPEX Ultra provides exceptional protection against UV radiation from the sun for applications where tubing could be exposed to the outdoors for up to 6 months. ViegaPEX Ultra is also available in sizes from 3/8" to 2" for larger applications.



[back](#)

### Viega FostaPEX

Fosta stands for Form-Stable PEX, so the piping will keep its shape after it is bent. A distinctively versatile product, FostaPEX balances stability with flexibility to create a unique tubing system that not only bends with ease but also holds its shape. Outer layers of aluminum and PE make this feature possible, while simultaneously extending UV protection. FostaPEX is a lead-free oxygen barrier pipe, which makes it compatible not only with potable water systems but also in hydronic applications. FostaPEX also has a low coefficient of expansion compared to standard PEX products and, since one fitting



system connects to all types of ViegaPEX tubing including FostaPEX, distributors need only one inventory and contractors need only one tool set.

Viega began production of FostaPEX in November 2009 at the Viega Manufacturing and Distribution Facility in McPherson, KS. Viega's FostaPEX production line in McPherson is currently the only multilayer production line in North America that produces pipe for both plumbing and heating applications. Viega FostaPEX is the only product on the market with a fully dimensional PEX tubing wall, allowing it to be used with the standard Viega PEX Press fitting system. Other PEX-AL-PEX tubing products require special fittings



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 23

Specification Section:

23 22 13-Steam and Condensate Piping

Description of Material or System:

Steam Traps

Last Updated:

4/7/2016

Updated by:

Mick Cooper

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input checked="" type="checkbox"/> Utility |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

Overview of system/product/guideline:

Steam traps shall be manufactured by Barnes & Jones or Tunstall.

Links to additional product information:

<http://barnesandjones.com/resource/>  
<http://www.tunstall-inc.com/>



# Memorandum

---

**Date:** August 28, 2012  
**Job No.:** RFS #12-7165  
**To:** Mark Leighton, Phillips Exeter Academy  
**From:** James Boudreau, Rist-Frost-Shumway Engineering, P.C. (RFS)  
**Re:** Phillips Exeter Academy  
2013 Steam Infrastructure "Lessons Learned"

The following list of "Lessons Learned" has been compiled by RFS with input from both PEA and RFS.

1. Provide steam control to building heating and building domestic hot water systems independently. This would include separate steam regulating valves and isolation valves for each as required.
2. Provide steam condensate flow meters at each condensate return system per PEA standards. Steam condensate flow meters shall have local readouts.
3. Provide steam pressure transmitters upstream and downstream of all new steam pressure regulating valves. If two regulating valves are installed, one for heat and one for domestic hot water, then provide one pressure transmitter for building steam supply and one each downstream of each of the steam regulating valves. Pressure transmitters shall always be installed at the location of the steam pressure gauges for ease of field calibration.
4. Provide valve identification per PEA standards for Facilities' reference and use. The valve identification should include the normal valve position with steam on.
5. Provide PPP (pressure powered pumps) for all steam condensate return systems where applicable and/or reasonable. CDs should show PPP as an option for PEA evaluation during bid process.
6. Provide steam vault high water alarms through the BAS when water levels exceed 6" above vault floor. Use of the water bug level alarm should be consistent on all projects.
7. "Liftmate" vault cover seals have failed in some instances allowing stormwater to enter the vault from the surface. RFS to investigate options for improvement in this area, and will ensure grading around vaults minimizes the potential for stormwater intrusion.
8. PEA prefers threaded connections in lieu of welded connections on smaller diameter condensate pipe.
9. No plastic supports or anchors shall be used within vaults. In some prior instances plastic anchors have been used to support electrical conduit and melted within the vault.
10. "Ladder-Up" to be specified at all vault ladders.

cc: RFS Steam Project Team

JLS:alb

J:\Master\7165\Correspondence\7165.2012-08-29.PEA Steam Lessons Learned.jtb.m.doc



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division23

Specification Section:

23 22 23-Steam Condensate Pumps

Description of Material or System:

Condensate Pumps

Last Updated:

4/7/2016

Updated by:

Mick Cooper

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

Overview of system/product/guideline:

Condensate pumps to be steam powered or Spirax

Links to additional product information:

<http://www.lesliecontrols.com/products/heaters/heaters.htm>



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 23

Specification Section:

23 52 00-Heating Boilers and Accessories

Description of Material or System:

Residential Boilers

Last Updated:

4/7/2016

Updated by:

Mick Cooper

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

Overview of system/product/guideline:

Residential Boilers to be Knight (gas fired) or Buderus (oil fired)

Links to additional product information:

<http://www.buderus.us/> <http://www.knightheatingboiler.com/>



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 23

Specification Section:

23 80 00-HEATING, VENTILATING, AND AIR CONDITIONING EQUIPMENT

Description of Material or System:

Ecostyle Panel Radiators

Last Updated:

4/18/2016

Updated by:

Annie Pleatsikas

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

Overview of system/product/guideline:

Ecostyle Panel Radiators is the vendor of choice for radiant and convective radiators. Color and model TBD by owner.

Links to additional product information:

[www.ecostyle.us.com](http://www.ecostyle.us.com)

# Ecostyle Panel Radiators



- **Elegant Design**
- **Engineered for efficiency**
  - **Easy to sub-zone**
  - **Provides hybrid heat - radiant and convective**
- **Well suited for standard efficiency and condensing boilers**
- **Stove enameled finish for scratch and corrosion resistance**





## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 23

Specification Section:

23 82 36-Finned-Tube Radiation

Description of Material or System:

Cast Iron Baseboard Panel

Last Updated:

4/18/2016

Updated by:

Annie Pleatsikas

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |  |  |
|--|--|
| <input type="checkbox"/> Academic Buildings  | <input checked="" type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative      | <input checked="" type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                       |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                       |
| <input type="checkbox"/> Other _____         |  |
| <input type="checkbox"/> Other _____         |  |

Overview of system/product/guideline:

Weil McLain snug cast iron baseboard is the preferred product.

Links to additional product information:

[www.weil-mclain.com](http://www.weil-mclain.com)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 25

Specification Section:

25 00 00-BUILDING AUTOMATION AND CONTROL

Description of Material or System:

Building Automation Systems

Last Updated:

4/7/2016

Updated by:

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

Overview of system/product/guideline:

Following is the PEA Design Guideline for Building Automation Systems.

Links to additional product information:

## **SECTION 17000 - BUILDING AUTOMATION SYSTEM**

### **PART 1 – GENERAL**

#### **1.00 General Notes to Designers**

The information in this section 17000 represents current standards as of the date at the bottom of this page. Coordination with the appropriate sections of the mechanical and electrical specifications is required by the design team in order for mechanical and electrical systems to interface with the BAS control standards. The Construction Documents divisions 15000 and 16000 must appropriately reference the BAS Specifications and vice versa whether the BAS Division stands alone as Division 17000 or not. The following are general items requiring coordination. BAS designers and engineers, referred to as “designers” for the purpose of this document, shall include other appropriate sections in mechanical and electrical specifications as required to meet the BAS control standards in this section. Phillips Exeter Academy in this section shall be referred to as "PEA".

- A. Where installed, perimeter radiation or local fan coil units shall be used to maintain night setback temperatures, rather than turning on large air handling systems when only a few rooms need unoccupied mode heating. Where perimeter radiation or local fan coils are installed, an individual temperature control sensor shall be provided for each room for heating control. Office space shall have a push button override button programmed for two hour intervals of delivered heating when the system is in the night, weekend or holiday setback program.
- B. At the time Design Development Documents are delivered to PEA, the project architect and or mechanical and electrical engineers shall provide signed written certification that the design meets all requirements of the New Hampshire State Energy Code in accordance with the New Hampshire State Building Code. PEA may require additional specific energy efficiency measures defined on a case by case basis.
- C. Electric heat shall not be allowed for any space, unless approved in writing by PEA.

#### **1.01 General Notes to Designers**

##### **"UL" Listed Control Panels**

- A. All DDC / ATC / BAS control panels shall be assembled in a “UL” certified panel building facility and labeled as a "UL" assembly. All work shall meet "UL" Code 508A. All Panels shall be UL listed and labeled metallic interface panels with hinged, lockable doors and shall be provided for all BAS controllers, except VAV box controllers incorporating an integral damper actuator. All Control assemblies

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- shall display third party certification and label acceptable to the NH State Fire Marshall.
- B. All components installed shall be labeled "UL" or "UR". Two or more components within an enclosure shall be classified as an assembly, and shall meet the requirements of "UL" 508A.
  - C. All UL panels shall be assembled to match existing campus patterns, using the same components as existing panels on campus where applicable.
  - D. All safety circuits shall be isolated by a two pole din rail interior panel mounted 24VAC control relay with LED indicator. One contact shall shut down system through a hard wired loop; the second contact shall be wired to an input on the field controller for alarming. All relays shall be labeled, ex. (Freeze, Smoke).
  - E. Wire duct shall be used to house all control cabling and to separate class one and class two wiring.
  - F. Proper separation will be maintained between class one and class two circuits. The use of barriers shall be used for separation within control panels, and separate conduits outside of control panels.
  - G. Terminal blocks shall be used and numbered to match as built documentation. (The use of wire nuts is not permitted).
  - H. All conductors/cables entering the control panel shall be labeled and numbered to match as built documentation.
  - I. Low Voltage transformers shall be fused on primary and secondary (Line and Load).
  - J. Panel mounted receptacles shall be fused at 5 Amps and labeled "Service USE Only"
  - K. Panel exterior shall be labeled with BAS panel #, and Power Panel / Circuit # for panel power.
  - L. Asbuilt documentation shall be posted on the inside door of each Control Panel (exceptions: VAV, CUH, PUH, FCU) unless grouped together in large panel, and included in O&M manuals after job completion.
  - M. Control panels shall be located in mechanical rooms, Electrical closets, or walk in areas that can be serviced without the use of ladders whenever possible. Control Panels installed in public areas shall be of the recessed lockable type. (Exceptions: VAV, CUH, PUH, FCU) unless grouped together in large panel. They shall be installed in accordance with NEC, and all clearances shall apply. Enclosures or controllers other than VAV controllers shall not be installed in ceilings without written approval by PEA.

## **1.02 General Technical Notes to Designers**

### **A. Temperature Control**

1. Classroom, Office and Multi-use space temperature control shall be provided with the capability of automatic unoccupied set point shift for all spaces with heating and/or air conditioning. Wall mounted individual room temperature sensors are preferred. Zone temperature sensors controlling several rooms shall not be allowed unless pre-approved by PEA and all

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- rooms in each zone have equal heating and cooling load characteristics and equal functional uses.
2. Self-contained thermostatic radiator valves cannot provide automatic temperature setback, and shall not be allowed in renovations without approval from PEA.
  3. The level of temperature control and mechanical ventilation provided by the existing building HVAC system shall be maintained or improved.
- B. PEA requires that all Primary Building HVAC systems shall be controlled and monitored by the campus Building Automation System (BAS). Additional DDC control panels and BAS network connections shall be added as required. Secondary buildings shall be considered on a case by case basis.
- C.
1. All HVAC systems and related controls shall meet the following minimum standards and design guidelines.
  2. All HVAC systems shall be controlled by a complete DDC Building Automation System (BAS). Special permission from PEA Facilities Management is required for any HVAC equipment not directly controlled by the BAS. **All packaged HVAC equipment shall be furnished without third party electronics, and shall be built to allow field fit up of DDC controllers and end devices.** The BAS shall be fully integrated with the existing campus BAS system, and shall be fully compatible in all aspects with the existing campus BAS system hardware and software including alarm systems, energy monitoring, and hard-wired/fiber-optics communication links.
  3. The BAS System shall be manufactured by Andover Controls or Siemens.
  4. Specialized, field or factory-installed, non-BAS microprocessor control packages, such as, automated lighting control systems, chiller control packages, will be allowed only with special permission from PEA, and will be reviewed and approved to ensure adequate provisions for communication of necessary information to the BAS. BAC net/IP is the preferred communication protocol between the BAS and other PEA-approved, non-BAS devices. In general, all HVAC control functions shall be performed by the BAS.
  5. All software to fully meet control and data logging requirements of the specifications and shall be contained within a building controller. Each Point shall be set up for extended logging.
  6. Input points shall be wired to the same controller as the associated output points. Relying on a communications bus for input/output/set-point control information transfer is not acceptable except in the case of global control points such as outside air temperature and humidity, building KW demand, and hot and chilled water system status. Global control points shall be pre-approved by PEA.
  7. All input/output and numeric points associated with a specific system or piece of equipment shall be located on the same BAS controller.

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8. The designer shall provide a proposed BAS point list and sequence of operation to PEA for pre-approval prior to completion of specifications and as part of the Design Development Document submission.
9. All alarm points shall be consistent with current PEA naming conventions, conditions parameters and algorithms.

**1.03 Submittals**

In addition to normal review, BAS contractor construction submittals shall be provided to PEA for review before granting final submittal approval.

**1.04 Spare Parts**

Contractors will be required to provide the following numbers of controllers to PEA prior to completion of the project.

Number of devices used on project: Number of spares to be provided:

0-4	0
5-10	1
11-20	2
20 +	3

**PART 2 - PRODUCTS**

**2.01 Controllers**

- A. All controllers will be fully programmable. Programs will be accessible to PEA through the BAS manufacturers programming tools. Application specific controllers with fixed function programming will not be allowed.
- B. "Net I/O" is allowed only where directly plugged into Network Controllers. Remotely wired Net I/O is not allowed except for special applications pre-approved by PEA. Net I/O use in quantities greater than eight total I/O modules per building shall be pre-approved by PEA.
- C. The network controller shall have a node limit capacity allowing for 20 percent future node expansion. The Net Controller power supply shall be 120/240 VAC with the UPS option.
- D. All non-terminal unit controllers will have integral HOA switches with LED's.
- E. All BAS controllers shall be fully compatible with the existing PEA workstations and database.
- F. All BAS controllers shall include flash memory and battery-backup to maintain software programs for a minimum of twenty-four hours.
- G. All BAS controllers shall include LED pilot lights, software-reporting HAND-OFF-AUTO override switches, and analog potentiometers for all output points. Override switches are required on all outputs for trouble-shooting by PEA plumbers and electricians, and for equipment testing by PEA. The only exception to the requirement for output override switches shall be for VAV box

controllers, gas-fired heating equipment, and small fan coil units where preapproved by PEA. HOA overrides shall not be combined with system status feedback inputs unless the combination device can differentiate (and report to the workstations) whether an inverse status was caused by loss of the status feedback input or by operation of an HOA override switch. Devices such as "MOB" units with a separately wired input point indicating use of override are acceptable.

## 2.02 Output Devices

- A. All BAS output devices shall be configured/wired for "FAIL-SAFE" operation. Engineers shall specify during Design Development all output devices for PEA to review and approve prior to the execution of Construction Documents. Each output device shall revert to the designated failure position on loss of BAS controller power, loss of secondary control device power, and/or loss of controller software. Upon loss of power or control signal, all hot water and steam control valves and return air dampers shall fail in the open position; and outside air and exhaust air dampers shall fail in the closed position. (Exception: steam valves on steam to hot water heat exchangers shall fail closed.) The fail position feature shall be spring-driven. All hot water circulating pumps shall fail on. Failure mode operation relying upon a battery or other non-spring driven device is not acceptable.
- B. All variable speed drives provided by the electrical contractor shall be manufactured by "ABB" or "Yaskawa". Please coordinate with Section 16000 of the specifications. All BAS VFD Control cabling shall be shielded.
- C. All valve actuators shall have sufficient power and response time for the application. All valves shall have sufficient power to close against system pressure.
- D. All control relays shall have integral LED indicator lights.
- E. All BAS output devices should be electric/electronic. Pneumatic control devices are not acceptable without prior approval from PEA.
- F. Electric modulating actuators shall directly accept a variable voltage control signal. Pulse-width modulation or other methods of modulating control are not acceptable. (Exception: tri-state pulse width modulated damper actuators are allowable on VAV boxes, (As long as a true damper position feedback input is provided.) **All valves, valve actuators, and electric damper actuators shall be manufactured by "Belimo"**.)
- G. **All analog output signals shall be voltage, no 4 - 20 MA will be permitted.**

## 2.03 Input Devices

- A. BAS water sensing elements shall be dry type, installed in immersion wells.
- B. Duct sensing elements (except freeze stats) shall be averaging type in large ducts, or in locations where air stratification may result in an unreliable reading from a probe type sensor. Averaging sensor elements shall be of sufficient length for the application.

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- C. Freeze stat elements shall not be averaging type. Freeze stats shall be manual reset, and shall trip if any one-foot section of the sensing element falls below set point.
- D. Freeze stats shall be installed on all hot water and steam coils exposed to outside air. Freeze stats shall be double pole. One pole shall be hardwired to shut off fan, open coil valve, and close outside air damper independently of the BAS. The second pole shall provide freeze stat status as a BAS input. Exception: When used in conjunction with two pole control relay inside BAS Panel.
- E. Temperature sensors shall be provided for return air, mixed air, and supply air on all air handling units. Mixed air sensing elements shall be of sufficient length to provide full coverage of the mixing box. As a minimum, averaging type sensors shall be required for all mixed and supply air ducts over 8 square feet in cross sectional area. Averaging sensors may be required for smaller ducts if the duct configuration may cause air stratification at the sensor location. (All temp sensors shall be 10K electronic thermister type).
- F. Carbon dioxide sensors shall be provided in the return air of all dedicated air handlers serving auditoriums, lecture halls, and large classrooms for control of outside air ventilation to provide proper indoor air quality with maximum energy efficiency.
- G. One carbon dioxide sensor calibration kit shall be provided for each model of carbon dioxide sensor used on the project.
- H. Pneumatic devices connected to electronic transducers are not acceptable.
- I. Humidity sensors shall be +/- 2% RH accuracy, fully electronic with no moving parts.
- J. Devices to provide positive feedback status inputs shall be installed on all fans and pumps controlled by the BAS. Pump statuses and Constant volume Fan statuses shall be provided by a motor current sensing transducer. All current switches shall be provided as part of an integral UL-approved assembly. Status feedback for VFD's, chillers, and boilers are typically provided by fault and/or alarm contacts provided by the equipment manufacturer. All current switches shall be provided as part of an integral UL-approved assembly.
- K. All direct-wired dedicated alarm input devices (e.g. sump level switches) shall have normally-closed contacts.
- L. All classroom, office and multi-use room temperature sensors shall have integral override pushbuttons. Contractor shall program 2-hour override for unoccupied or night setback settings into those sensors designated to have override capability by PEA.
- M. Design engineer shall work with PEA to determine which zone sensors will require set point adjusters, and document these on the design drawings.
- N. All input devices shall be voltage or converted to voltage using resistors.

**2.04 Meters**

- A. Metering to be determined as part of the design process and submitted to PEA for approval.

All meters shall match existing equipment on campus and use the same type of signal to BAS equipment. Meters shall be calibrated and signals verified by the meter manufacturer. A written calibration report shall be submitted with asbuilt drawings during the project close out.

## **2.05 Air Handlers**

- A. Sequence of operation for air handling units utilizing any percentage of outside air shall have heating coil valve control and integral factory-installed coil face and bypass dampers. Below 40 degrees outside air temperature the coil valve shall remain open and the face and bypass damper shall modulate to maintain set point. Above 40 degrees outside air temperature the face and bypass damper shall remain in full face, and the coil valve shall modulate to maintain set point. Air handler outside air and return air ductwork shall be of sufficient length and configured so as to prevent any air stratification problems in the mixing box and coil areas.
- B. Air handlers over 15,000 CFM shall have analog differential pressure transducers, to report filter loading status to the BAS.
- C. PEA requires that all damper controllers be externally mounted when possible. Air handlers, with externally mounted controllers located indoors shall be provided by the manufacturer with damper shaft extensions that allow all damper motors to be installed exterior to the air handler. External shafts, piping or linkage must not pass through or obstruct the easy operation of access panels necessary for maintenance, for that purpose and shall be provided by the equipment manufacture with shafts extended to the exterior ready for controller mounting. All interior controllers shall be accessible by hinged access panels of sufficient size to permit easy access, adjustments and removal. Doors or exterior casing will be provided with a view port to allow the position and operation of the controller to be easily observed. An internal light is required on all AHU's with an airflow capacity greater than or equal to 15,000 CFM. All air handlers located outdoors shall be provided with weather tight enclosures and damper shaft extensions that allow all damper motors to be installed outside of the system air stream. All such enclosures shall be 3<sup>rd</sup> party certified and labeled to meet the requirements of the NHSFMO.

## **PART 3 – EXECUTION**

### **3.01 Installation: Independent 3<sup>rd</sup> Party Testing and Labeling Requirements**

The New Hampshire State Fire Marshall's Office (NHSFMO) has ruled that all enclosures containing 2 or more electrical devices are assemblies that require approval and labeling by an independent third party testing company that is approved by the NHSFMO. This requirement applies to both custom-built panels, and instances where an electrical device (e.g. relay or current switch) is added to an already labeled assembly (e.g. motor starter, motor control center, control panel). Adding one or more electrical devices to an already labeled assembly requires that the assembly be re-examined and re-labeled with the added components. The BAS contractor shall be responsible for all costs associated

with on-site field inspections and labeling. Field inspections shall be done by a representative from an NBSFMO-approved independent third party testing company such as UL. Phillips Exeter Academy requires that all such equipment installed on the campus have all components installed at the factory and that all third party labeling occur at the factory when possible.

**3.02 Installation: General**

- A. Provide easy access through ceilings, walls, and ductwork to all HVAC and control equipment requiring maintenance service or inspection. Access doors shall be of size required by local jurisdiction, 24x24 inches minimum and labeled to indicate type of equipment inside. Hinged and latched access doors shall be provided for service of all dampers, coils, sensing elements, and other equipment located inside ductwork or air handlers. Access openings shall be readily accessible and large enough to reach any area of the equipment that may require inspection, cleaning, lubrication, tightening, adjustment, replacement, or other maintenance service. Access to mechanical spaces shall not require ladders or lifts and PEA requires that permission be granted in advance for any exceptions to this. Access dependant ladders or lifts shall be provided as part of the project.
- B. Static pressure control on VAV air handlers shall be provided by electronic variable speed drives. Inlet vane or bypass dampers are not acceptable.
- C. All output transducers and control relays shall be mounted in a UL labeled metallic field interface panel with a hinged, locked door .All devices shall be clearly labeled as to their function. Labels shall be fully descriptive, not software code names. Labels shall be attached to relay bases or control panel surface, not to the removable relay cube. All wires shall be tagged with numbers and a cross-reference chart provided indicating the wire numbers and their termination point.
- D. All BAS associated 120 VAC power wiring (including all input and output power supplies) shall originate from clearly marked, BAS-dedicated circuit breakers. All input/output transducers shall be powered from the same circuit that supplies power to the associated BAS controller. All BAS equipment shall be fused in accordance with manufacturer's recommendations.
- E. BAS controllers shall be labeled with the source of electrical power including panel number, circuit breaker number, and room number where electric panel is located.
- F. Outside air temperature and humidity sensing elements shall be located on the building exterior, north exposure, away from windows, doors, exhaust openings, roof surfaces, and other areas that may affect accuracy. Sensors shall be located at least 15 feet above grade, and shall have physical protection for the sensing element.
- G. The BAS has a dedicated VLAN network. The BAS contractor shall provide all media converters, hubs, switches, etc. required for connection of, and between the BAS controller/s (and local desktop/laptop workstation, if required) to the campus BAS network. The BAS Contractor is responsible for all network drops to

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- connect to the campus VLAN network. Network controller locations must be approved by PEA at the beginning of the design process.
- H. If UPS power or emergency power is available in the building, all DDC controllers and VLAN network devices shall be powered from that source.
  - I. BAS software shall meet PEA standard conventions for PID loops, optimum start/stop, alarms, BTU and energy monitoring, data storage, and other control routines. BAS contractor shall meet with PEA BAS manager to discuss software strategies and conventions prior to software development.
  - J. All BAS controller and point names shall reference final PEA room numbers, not construction document room numbers. The BAS contractor shall submit all naming conventions to PEA for approval prior to writing final system software and shall be consistent with prior BAS projects.
  - K. The BAS contractor shall provide graphical floor plan displays with final PEA room numbers (not construction document room numbers) on the existing PEA workstations. Additional graphic panel displays of all mechanical systems and terminal HVAC equipment shall be linked via mouse click to the floor plan displays. Spreadsheet and/or schematic type graphic panels shall be broken out by zone or area in accordance with standard PEA practices for graphic panels. Generally, animated graphic panels are not required, spreadsheet text panels are used for all systems, and schematic diagrams are used for complex systems such as large air handlers, chiller plants, and pumping/piping systems. Floor plans shall show color-coded control zones with room sensors and terminal units. All graphical panels shall have links to display or edit all set points, control points, inputs, and outputs associated with the equipment being displayed. All graphics will be custom tailored to reflect actual field installations, and also match existing front end graphic layouts. Each main page graphic will be stamped with a digital photo of the building being served. Electronic copies of all asbuilts shall be linked from the main graphic page.
  - L. All BAS controllers shall be mounted with sufficient free space below the controller to allow for future installation of the maximum allowable number of expansion modules or additional controllers. Field panels shall be appropriately sized, with no wiring or other equipment located in the expansion area below the controllers.
  - M. All safety devices such as freeze stats, humidity high limits, and high static pressure switches shall be manual reset and shall perform all associated shutdown/failsafe actions via hardwiring. Software shall not be used to exclusively perform any shutdown/failsafe actions from safety devices. For example, freeze stats shall shut off fan, fully open coil valve, and close outside air damper via hardwiring without relying on any software functions. Software shutdown/failsafe shall be provided as a redundant backup to the required hardwired shutdowns.
  - N. The BAS contractor shall provide all system alarms, schedules, and optimized start/stops in accordance with current PEA BAS conventions. Alarm, schedule, and control program strategies and configuration shall be consistent with existing conventions.

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- O. All BAS devices serving equipment powered by an emergency power source shall be powered by that same emergency power source.
- P. The BAS contractor shall be responsible for maintaining, and storing off-site, contractor's own control software and workstation related software back-ups until the end of the warranty period. The BAS contractor shall be responsible for duplicating any work necessitated by contractor's failure to maintain and store their own software backups until the end of the warranty period.
- Q. Discharge air temperature sensors shall be provided downstream of all heating and cooling coils (air handler coils, reheat coils, unit ventilators, fan coil units, VAV's, etc.)
- R. Optimized start/stop shall be provided for all heating and cooling equipment. Separate optimized start calculations shall be performed for the heating season and the cooling season. Start and stop target times shall be provided by a schedule that allows different target times for each day of the week, and for holidays and vacation periods. Schedule strategies and configuration shall be pre-approved by PEA prior to beginning software development.
- S. Provide a freeze protection safety program for all heating water pumps and heating zones to protect against failure of temperature sensors.

### 3.03 As Built Documentation

- A. The BAS contractor shall provide as-built drawings and written sequences of operation that reflect **final PEA assigned room numbers**.
- B. A copy of all as-built drawings shall be provided to PEA as part of the final project record drawings, in hard copy as well as electronic. Electronic As built links shall be added to BAS graphic home page or pages.
- C. The BAS contractor shall submit to PEA copies of all graphic files and a text export file of the complete software code on a read-only CD.
- D. The as built documentation shall include points list, I/O wiring diagrams, manufacturers' maintenance and troubleshooting data sheets for all BAS field devices, floor plans with all sensor and controller locations, BAS communications bus wiring diagrams showing location of the bus runs within the building, floor plan showing all electrical power panels and circuit numbers serving BAS equipment with locations of junction boxes.
- E. BAS contractor shall install the following documentation in a plastic sleeved holder at each BAS controller location: written sequence of operation, controller I/O wiring diagram, controller locations, and floor plan showing sensor and controlled-equipment locations.
- F. At each BAS controller, the BAS contractor shall mount an output override switch chart with complete descriptive names and software point names for each override switch. The chart shall clearly indicate what equipment is controlled by each numbered override switch.

### 3.04 Training

- A. The BAS contractor shall provide 16 hours of training on all projects exceeding 10,000 square feet. Training will include hardware installation, system administration and programming. After completion of the course/courses it is

expected that the PEA trainees will have the ability to select, install, program and service the new BAS system.

### 3.05 Testing and Verification

- A. The BAS contractor shall be familiar with all commissioning specifications and be responsible for providing commissioning assistance with all divisions as required.
- B. All tests required by this section shall be scheduled in advance with PEA and conducted in the presence of a PEA representative. BAS contractor shall obtain sign-off from the PEA observer and Commissioning Agent if applicable after successful completion of each test.
- C. Inputs and Outputs:
  - 1. For all inputs and outputs, BAS contractor shall prepare a point-to-point verification spreadsheet with columns for point name, date of verification test, test results, and PEA observer sign-off.
  - 2. BAS contractor shall verify all input points by altering conditions **at the input device** and observing that an appropriate change in value for that point occurs on a locally connected computer terminal. Shorting or opening wires at the input device shall be an acceptable method of altering input conditions.
  - 3. Results of each input test shall be recorded on a verification spreadsheet.
  - 4. BAS contractor shall verify all output points by disabling and modifying the output point value via a locally connected computer terminal and observing that an appropriate change occurs **at the controlled device**. Results of each output test shall be recorded on the verification spreadsheet.
  - 5. Any points failing the initial verification test shall be re-tested and recorded on the verification spreadsheet until the point passes the verification test.
  - 6. BAS contractor shall provide PEA with the completed verification spreadsheet prior to project acceptance.
- D. Lead-lag-standby equipment sets:
  - 1. All lead-lag-standby equipment sets shall be tested for proper sequence of operation by causing a failure of each piece of equipment in the equipment set and observing that the appropriate back-up unit operates. Simulating equipment failure via software is not an acceptable test.
- E. **Alarms:**
  - 1. All alarm software shall be of the same format as the existing alarm software.
  - 2. All alarms shall be tested by causing an alarm condition where ever possible. Simulation of alarm conditions via software is not an acceptable test.
  - 3. BAS contractor shall demonstrate that an alarm signal is received at the PEA alarm console when the alarm condition occurs.
  - 4. The condition shall be left in the alarm state and the BAS contractor shall demonstrate that the alarm signal clears when the alarm is acknowledged at a PEA workstation.

PHILLIPS EXETER ACADEMY  
CONSTRUCTION AND RENOVATION STANDARDS

4. The alarm condition shall then be returned to normal and the BAS contractor shall demonstrate that the active alarm display indicates a return to normal condition at a PEA workstation.

F. **Trend Logs:**

1. BAS contractor shall set up workstation trend log groups and log configurations on designated inputs, outputs, and numerics.
2. Generally, each system, control zone, or HVAC unit shall have a separate trend group. BAS contractor shall meet with PEA to identify group names, point log types and intervals, and group member lists.
3. In order to provide historical trend logs covering an entire weekend period, most trended points will require logs with 128 entries at 30-minute intervals. BAS contractor shall provide linked secondary numeric points in the building network controller if the field controller memory cannot accommodate the required number of log entries.
4. The BAS contractor shall review trend logs with the PEA to confirm proper operation of control sequences and shall perform all required software/hardware modifications to obtain proper operation.

G. **Modulating control loops:**

1. The BAS contractor shall inspect each modulating control loop for stability and response time.
2. Inspections shall take place at a PEA workstation with a PEA representative present.
3. Each modulating control loop shall be tested by creating a significant change in the set-point numeric and, after five minutes, returning the set point to its normal value. Response time to return to the normal set point shall be a maximum of 5 minutes. Certain types of outputs, as determined by PEA, will require faster or slower response time.
4. Oscillations during the response time period shall not exceed 10 percent of the set-point value.
5. At the end of the response time, control loops shall maintain set point within the following tolerances:

Air Pressure	+/- 0.5" w.c.	range 0-6" w.c.
	+/- 0.01" w.c.	range -0.1 to 2" w.c.
Airflow	+/- 2 percent of set-point in cfm	
Temperature	+/- 1.0 degrees F.	
Humidity	+/- 5% RH	
Fluid Pressure	+/- 2.0 psi	range 1-150 psi
	+/- 2.0" w.g.	range 0-50" differential pressure
6. BAS contractor shall tune modulating control loops as needed to meet the requirements of this section.

**END OF SECTION**



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

The attached is a cut sheet of a preferred generator. Kohler generators are also allowable.

### Links to additional product information:

# G250LG

# OLYMPIAN™

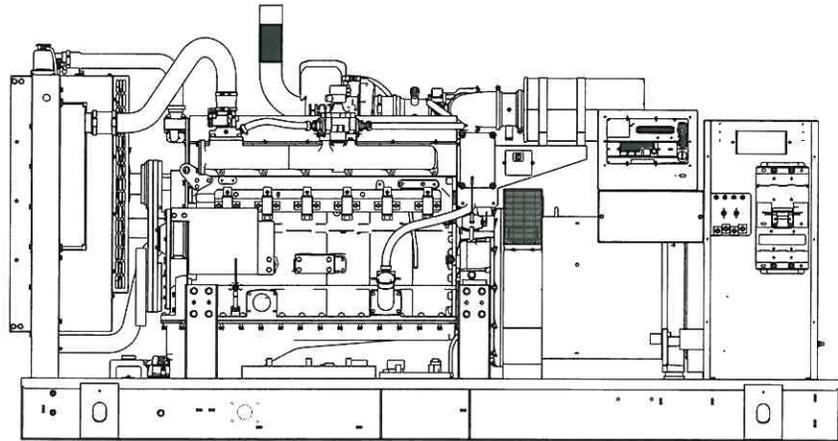
## Industrial Gaseous Generator Set

EPA Certified Stationary Emergency

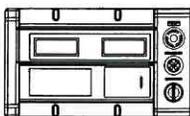
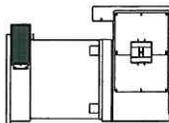
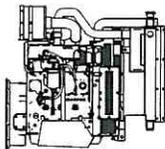
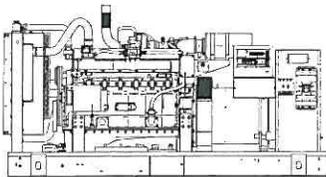
G250LG 250kW

1 of

Standby Power Rating  
313kVA 250kW 60 Hz



Generator image used for illustration purposes only



## features

### Generator Set

- PROTOTYPE & TORSIONALLY TESTED
- UL2200 TESTED
- RHINOCOAT PAINT SYSTEM
- WIDE RANGE OF ENCLOSURES

### Engine

- EPA COMPLIANT
- INDUSTRIAL TESTED
- POWER-MATCHED OUTPUT
- INDUSTRIAL GRADE

### Alternator

- TWO-THIRDS PITCH
- LAYER WOUND ROTOR & STATOR
- CLASS H MATERIALS
- DIGITAL 3-PHASE VOLTAGE CONTROL

### Controls

- ENCAPSULATED BOARD W/ SEALED HARNESS
- 4-20mA VOLTAGE-TO-CURRENT SENSORS
- SURFACE-MOUNT TECHNOLOGY
- ADVANCED DIAGNOSTICS & COMMUNICATIONS

## benefits

- ▶ PROVIDES A PROVEN UNIT
- ▶ ENSURES A QUALITY PRODUCT
- ▶ IMPROVES RESISTANCE TO ELEMENTS
- ▶ PROVIDES A SINGLE SOURCE SOLUTION

- ▶ ENVIRONMENTALLY FRIENDLY
- ▶ ENSURES INDUSTRIAL STANDARDS
- ▶ ENGINEERED FOR PERFORMANCE
- ▶ IMPROVES LONGEVITY AND RELIABILITY

- ▶ ELIMINATES HARMFUL 3RD HARMONIC
- ▶ IMPROVES COOLING
- ▶ HEAT TOLERANT DESIGN
- ▶ FAST AND ACCURATE RESPONSE

- ▶ EASY, AFFORDABLE REPLACEMENT
- ▶ NOISE RESISTANT 24/7 MONITORING
- ▶ PROVIDES VIBRATION RESISTANCE
- ▶ HARDENED RELIABILITY

primary codes and standards



## G250LG

## application and engineering data

### ENGINE SPECIFICATIONS

#### General

EPA Emissions Compliance	Stationary Emergency
EPA Emissions Engine Reference	See Emissions Data Sheet
Cylinder #	6
Type	Inline
Displacement - L	12.88
Bore - mm (in.)	135 (5.31)
Stroke - mm (in.)	150 (5.91)
Compression Ratio	10.92:1
Intake Air Method	Turbocharged/Aftercooled
Number of Main Bearings	7
Connecting Rods	Carbon Steel
Cylinder Head	Cast Iron HT250, OHV
Cylinder Liners	Ductile Iron
Ignition	Altronic CD1
Pistons	Aluminum
Crankshaft	Ductile Iron
Lifter Type	Solid
Intake Valve Material	Special Heat-Resistant Steel
Exhaust Valve Material	Alloy Steel, High Temp
Hardened Valve Seats	Alloy Steel, High Temp

#### Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full-flow cartridge
Crankcase Capacity - L (qts)	34.3 (36.4)

#### Cooling System

Cooling System Type	Pressurized Closed Recovery
Water Pump Flow	79 gal/min
Fan Type	Pusher
Fan Speed (rpm)	1894
Fan Diameter mm (in.)	762 (30)
Coolant Heater Wattage	2000
Coolant Heater Standard Voltage	240VAC

#### Fuel System\*

Fuel Type	Natural Gas
Carburetor	Down Draft
Secondary Fuel Regulator	Standard
Fuel Shut Off Solenoid	Standard
Operating Fuel Pressure	11" - 15" H <sub>2</sub> O

\*Fuel pressure must remain within specified range and not drop more than 1 in. w.c. from static (no-load) to full load.

#### Engine Electrical System

System Voltage	24VDC
Battery Charging Alternator (Amps)	Std
Battery Size	1155 CCA
Battery Group	8D
Battery Voltage	(2) 12VDC
Ground Polarity	Negative

### ALTERNATOR SPECIFICATIONS

Standard Model	520
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<50
Standard Excitation	Permanent Magnet
Bearings	Sealed Ball
Coupling	Direct, Flexible Disc
Load Capacity - Standby	250kW
Prototype Short Circuit Test	Yes

Voltage Regulator Type	Full Digital
Number of Sensed Phases	3
Regulation Accuracy (Steady State)	+/- 0.25%

#### Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	+/- 0.25%

### CODES AND STANDARDS COMPLIANCE (WHERE APPLICABLE)

NFPA 99	BS5514
NFPA 110	SAE J1349
ISO 8528-5	DIN6271
ISO 1708A.5	IEEE C62.41 TESTING
ISO 3046	NEMA ICS 1
	UL2200

## G250LG

## operating data (60Hz)

### POWER RATINGS (kW)

	Natural Gas	
Three-Phase 120/208VAC @0.8pf	250	Amps: 868
Three-Phase 120/240VAC @0.8pf	250	Amps: 752
Three-Phase 277/480VAC @0.8pf	250	Amps: 376
Three-Phase 346/600VAC @0.8pf	250	Amps: 301

### STARTING CAPABILITIES (sKVA)

		sKVA vs. Voltage Dip											
		480VAC						208/240VAC					
Alternator	kW	10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard	250	263	395	527	658	790	922	197	296	395	494	593	692
Upsize 1	300	303	454	605	757	908	1059	227	341	454	568	681	794

### FUEL

#### Fuel Consumption Rates\*

Natural Gas			
Percent Load	ft <sup>3</sup> /min	ft <sup>3</sup> /hr	m <sup>3</sup> /hr
25%	22.8	1368	38.7
50%	34.2	2052	58.1
75%	47.8	2868	81.2
100%	58.7	3522	99.7

\* Refer to "Emissions Data Sheet" for maximum fuel flow for EPA and SCAQMD permitting purposes.

### COOLING

Air Flow (inlet air combustion and radiator)	ft <sup>3</sup> /min (m <sup>3</sup> /min)	10,078 (285.4)
System Coolant Capacity	Gal (Liters)	19 (71.9)
Heat Rejection to Coolant	BTU/hr	788,204
Max. Operating Air Temp on Radiator	°F (°C)	122 (50)
Max. Ambient Temperature	°F (°C)	104 (40)
Maximum Radiator Backpressure	in H <sub>2</sub> O	0.5

### COMBUSTION AIR REQUIREMENTS

Flow at Rated Power      cfm

### ENGINE

Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	400
Piston Speed	ft/min	1773
BMEP	psi	223.9

\*\* Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

### EXHAUST

Exhaust Flow (Rated Output)	cfm (m <sup>3</sup> /min)	1602 (45.4)
Maximum Recommended Back Pressure	inHg	1.5
Exhaust Temp (Rated Output)	°F (°C)	1450 (788)
Exhaust Outlet Size (Catalyst)	in	5.0"

## G250LG

## standard features and options

### GENERATOR SET

- Genset Vibration Isolation Std
- IBC Seismic Certified/Seismic Rated Vibration Isolators Opt
- Steel Enclosure Opt
- Aluminum Enclosure Opt
- Enclosure Lighting Kits Opt

### ENGINE SYSTEM

#### General

- Oil Drain Extension Std
- Oil Heater Opt
- Critical Exhaust Silencer Std
- Stainless steel flexible exhaust connection Std
- Air cleaner Std
- Fan guard Std
- Radiator duct adapter Std

#### Fuel System

- Fuel lockoff solenoid Std
- Secondary Fuel Regulator Std
- Flexible fuel lines Opt

#### Cooling System

- 120VAC Coolant Heater Opt
- 208VAC Coolant Heater Opt
- 240VAC Coolant Heater Std
- Other Coolant Heater Opt
- Closed Coolant Recovery System Std
- UV/Ozone resistant hoses Std
- Factory-Installed Radiator Std
- Radiator Drain Extension Std

#### Engine Electrical System

- Battery charging alternator Std
- Battery cables Std
- Battery tray Std
- Battery heater Opt
- Solenoid activated starter motor Std
- 10A UL float/equalize battery charger Opt
- Rubber-booted engine electrical connections Std

### ALTERNATOR SYSTEM

- UL2200 GENprotect™ Std
- Main Line Circuit Breaker Opt
- 2nd Circuit Breaker Opt
- 3rd Circuit Breaker Opt
- Alternator Upsizing Opt
- Anti-Condensation Heater Opt
- Tropical coating Opt
- Permanent Magnet Generator Std

### CONTROL SYSTEM

#### Control Panel

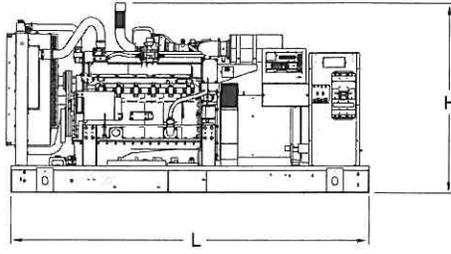
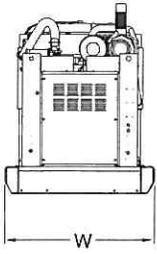
- Digital H-Panel Controller Std
- Programmable Crank Limiter Std
- 21-Light Remote Annunciator Opt
- Remote Relay Panel (8 or 16) Opt
- 7-Day Programmable Exerciser Std
- Special Applications Programmable PLC Std
- RS-485 Communications Std
- All-Phase Sensing DVR Std
- Full System Status Std
- 2-Wire Start Compatible Std
- Power Output (kW) Std
- Power Factor Std
- Reactive Power Std
- All phase AC Voltage Std
- All phase Currents Std
- Oil Pressure Std
- Coolant Temperature Std
- Coolant Level Std
- Oil Temperature Opt
- Fuel Pressure Std
- Engine Speed Std
- Battery Voltage Std
- Frequency Std
- Date/Time Fault History (Event Log) Std
- Low-Speed Exercise Std
- Isochronous Governor Control Std
- 40deg C - 70deg C Operation Std
- Waterproof Plug-In Connectors Std
- Audible Alarms and Shutdowns Std
- Not in Auto (Flashing Light) Std
- Auto/Off/Manual Switch Std
- E-Stop (Red Mushroom-Type) Std
- Remote E-Stop (Break Glass-Type, Surface Mount) Opt
- Remote E-Stop (Red Mushroom-Type, Surface Mount) Opt
- Remote E-Stop (Red Mushroom-Type, Flush Mount) Opt
- NFPA 110 Level I and II (Programmable) Std
- Remote Communication - RS232 Std
- Remote Communication - Modem Opt
- Remote Communication - Ethernet Opt
- 10A Run Relay Opt

#### Alarms (Programmable Tolerances, Pre-Alarms and Shutdowns)

- Low Fuel Pressure (Pre-programmed low fuel press. shutdown) Std
- Oil Pressure (Pre-programmed Low Pressure Shutdown) Std
- Coolant Temperature (Pre-programmed High Temp Shutdown) Std
- Coolant Level (Pre-programmed Low Level Shutdown) Std
- Oil Temperature Opt
- Engine Speed (Pre-programmed Overspeed Shutdown) Std
- Voltage (Pre-programmed Overvoltage Shutdown) Std
- Battery Voltage Std

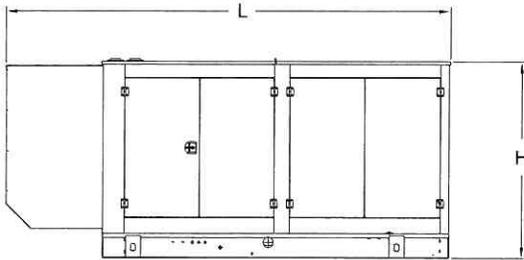
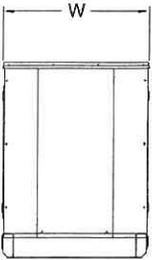
## G250LG

## dimensions, weights and sound levels



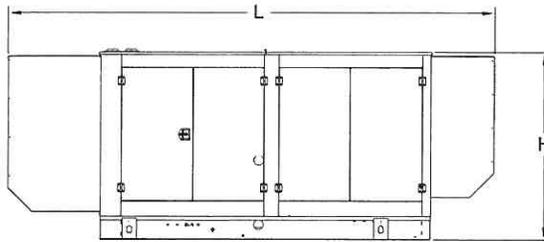
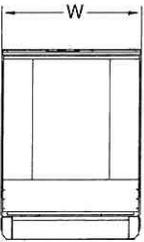
### OPEN SET (Includes Exhaust Flex)

L	W	H	WT	dBA*
136	57	96	6364	91



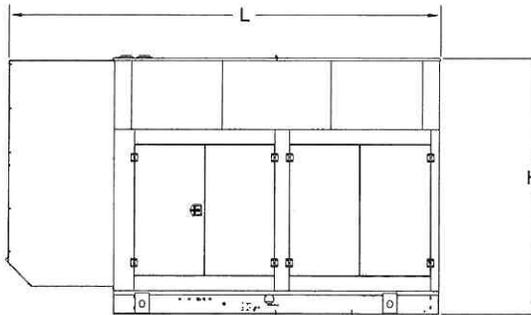
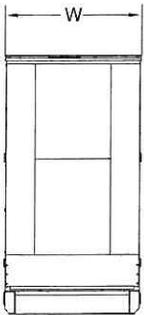
### STANDARD ENCLOSURE

L	W	H	WT	dBA*
174	56	67	7538	89



### LEVEL 1 ACOUSTIC ENCLOSURE

L	W	H	WT	dBA*
200	56	67	8094	82



### LEVEL 2 ACOUSTIC ENCLOSURE

L	W	H	WT	dBA*
180	56	96	8660	80

\*All measurements are approximate and for estimation purposes only. Sound levels measured at 23ft (7m) and does not account for ambient site conditions.

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Cat® Dealer for detailed installation drawings.

Information contained in this publication may be considered confidential. Discretion is recommended when distributing. Materials and specifications are subject to change without notice.

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# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 3/6/2017

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

**Overview of system/product/guideline:**

Caterpillar and Cummins are the preferred vendors of generators on campus.

**Links to additional product information:**

[www.cat.com](http://www.cat.com) [www.cummins.com](http://www.cummins.com)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 26

Specification Section:

26 05 00-BASIC ELECTRICAL MATERIALS AND METHODS

Description of Material or System:

Electrical Preferred Vendors and Manufacturers

Last Updated:

4/7/2016

Updated by:

Annie Pleatsikas

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

Overview of system/product/guideline:

The attached is a list of preferred vendors for various electrical materials and systems.  
Specifications shall be written to include all manufacturers listed, as well as the option for an approved equal.

Links to additional product information:



FACILITIES MANAGEMENT DEPARTMENT  
MEMORANDUM

TO: Mark Leighton

FROM: Tim Lozeau

DATE: 1/21/14

SUBJECT: Updated" Specification Review "

---

Hi Mark ; as per our discussion last Friday afternoon about Electrical Systems specifications @ On-campus Locations

- Sec. 274400 - Devices preferred :A) Hubbell B) Leviton
- Sec. 262300 – Generator System : A) Caterpillar B) Kohler
- Sec. 000000 - Transfer Switch's : A) Russell B) Asco C) Kohler
- Sec. 263210 - Hi-Voltage Transformers : A) Cooper B) ABB
- Sec. 264400 - Panelboards / Switchboards : A) Square D B) G. E.
- Sec. 267100 - Fire Alarms : A) Mircom B) Simplex- 2-yr. warr.
- Sec. 000000 - Radio Boxes : A) Keltron B) N/A
- Sec. 267500 - Nurse Call : A) Rauland B) Executone- 2-yr. warr.
- Sec. 265100 - Lighting : A) Lithonia B) Cooper C) Gotham
- Sec. 265020 - Ballast : A) Advance B) Universal C) Sylvania
- Sec. 000000 - Exterior lighting :A) Holophane B)Lithonia C)Beta
- Sec. 000000 – Lighting Controls : N-Light B) Wattstopper
- Sec. 265010 – Lamps : A) Sylvania B) General Electric



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 26

Specification Section:

26 05 29-Hangers and Supports

Description of Material or System:

Preferred manufacturers and vendors for light poles

Last Updated:

4/7/2016

Updated by:

Tim Lozeau

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- Academic Buildings
- Administrative
- Athletic Facilities
- Campus Wide
- Other \_\_\_\_\_
- Other \_\_\_\_\_
- Dormitories
- Faculty Residences
- Support
- Utility

Overview of system/product/guideline:

Preferred vendors for LED light poles are: Arlington, Beta, Lithonia

Links to additional product information:

<http://www.aifittings.com/> <http://www.betaled.com/us-en/home.aspx>  
<http://www.lithonia.com/>



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/3/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

**Overview of system/product/guideline:**

Preferred Vendors are N-light or Wattstopper

**Links to additional product information:**

Empty box for links to additional product information.

Project: \_\_\_\_\_

Location: \_\_\_\_\_

Product Type: \_\_\_\_\_

Contact/Phone: \_\_\_\_\_

Model #: \_\_\_\_\_

## ET8000 Series

### 7-Day Electronic Astronomic Time Switch

The ET8000 Series 7-Day Astronomic Time Switches feature independent 7-Day programming to provide flexibility for applications where load switching differs each day of the week. These time switches provide dependable and uncomplicated performance, plus to-the-minute programming for accurate load control and reduced energy costs. Up to 28 ON/28 OFF (56 events) can be preset to automatically repeat. Each event can be applied to any combo of circuits and days. Each circuit is provided with an independently scheduled Astronomic ON event and Astronomic OFF event. The program can be disabled at a time by placing the time switch in the Manual operating mode. Control buttons provide manual control of each circuit independently regardless of the operating mode. All models come with two industrial-grade AAA alkaline batteries to provide time keeping and automatic carryover for a minimum of three years. The batteries are easily replaced in the field without requiring removal of the time switch mechanism or field wiring. Each time switch is housed in a lockable enclosure to protect from vandalism and unauthorized tampering.

### Features

- Program can be repeated on a weekly basis
- Multi-volt operation from 120-277 VAC, 50/60 Hz
- To-the-minute programming for accurate load control and reduced energy costs
- Astronomic feature provides sunset ON and sunrise OFF settings to eliminate the need for separate photo control devices
- Astronomic programming can be combined with independent programs to provide a sunset ON and timed OFF program
- 2-circuit models are field (jumper) configurable for: 2 independent outputs, DPST output, or 1 channel ON pulse OFF pulse output
- Up to 28 ON/28 OFF setpoints or events and 4 Astronomic events
- Dusk/Dawn Astronomic events can be distributed throughout the days of the week
- Automatic Daylight Saving Time (DST) ON/OFF adjustment (factory enabled)
- Non-volatile EEPROM memory protects programming indefinitely
- Temporary override or permanent manual override available via control buttons

### Ratings

Enclosure Options:

Standard: Type 1 Gray Painted Steel  
 R-Option: Type 3R Gray Painted Steel  
 PD82 Option: Type 3R Gray High-Impact UV Resistant Polycarbonate Plastic with Clear Cover

Knockouts:

Combination 1/2" & 3/4" Knockouts  
 Bottom: 2, Left: 1, Right: 1, Back: 1

Input Voltage:

120, 208, 240, or 277 VAC 50/60 Hz

Operating Temperature:

-40°F to 155°F (-40°C to 68°C)



ET8015C



ET8115CPD82



ET8215CR

# ET8000 Series



## ET8015, ET8215 Models

N.O. Contact Ratings: Resistive: 30 Amps @ 120/240 VAC  
Resistive: 20 Amps @ 28 VDC  
Inductive: 30 Amps @ 120/240 VAC  
Tungsten: 5 Amps @ 120/240 VAC  
Ballast: 20 Amps @ 120-277 VAC  
Motor: 1 HP @ 120 VAC  
Motor: 2 HP @ 240 VAC

## ET8115 Models

N.O./N.C. Contact Ratings: Resistive: 20 Amps (N.O.), 10 Amps (N.C.) @ 120/240 VAC  
Inductive: 20 Amps (N.O.), 10 Amps (N.C.) @ 120/240 VAC  
Tungsten: 5 Amps (N.O.) @ 120/240 VAC  
Ballast: 20 Amps (N.O.), 3 Amps (N.C.) @ 120-277 VAC  
Motor: 1 HP (N.O.), ¼ HP (N.C.) @ 120 VAC  
Motor: 2 HP (N.O.), ½ HP (N.C.) @ 240 VAC

Pulse Feature: 2-circuit models feature 2-second pulse option for contactor and bell ringing applications.

Auto DST: Automatic adjustment for Daylight Saving Time

Battery Backup: Two field-replaceable AAA batteries maintain date and accurate time for a minimum of three years. Batteries can be replaced when power to mechanism is activated.

Wiring Terminals: #18 to #10 AWG wire

Minimum ON/OFF Time: 1 minute

Maximum ON/OFF Time: 6 days, 23 hours 59 minutes

Warranty: Limited 1 year

Model Number	Circuits	Switch	Volts AC	Rating	Enclosure	Shipping Weight
ET8015C	1	SPST	120, 208, 240, 277	30 Amps	Type 1 Steel	2.9 lbs. (1.3 kg)
ET8015CPD82	1	SPST	120, 208, 240, 277	30 Amps	Type 3R Plastic	3.6 lbs. (1.6 kg)
ET8015CR	1	SPST	120, 208, 240, 277	30 Amps	Type 3R Steel	3.6 lbs. (1.6 kg)
ET8115C	1	SPDT	120, 208, 240, 277	20/10 Amps	Type 1 Steel	2.9 lbs. (1.3 kg)
ET8115CPD82	1	SPDT	120, 208, 240, 277	20/10 Amps	Type 3R Plastic	3.6 lbs. (1.6 kg)
ET8115CR	1	SPDT	120, 208, 240, 277	20/10 Amps	Type 3R Steel	3.8 lbs. (1.7 kg)
ET8215C*	2	SPST	120, 208, 240, 277	30 Amps	Type 1 Steel	3.0 lbs. (1.4 kg)
ET8215CPD82*	2	SPST	120, 208, 240, 277	30 Amps	Type 3R Plastic	3.6 lbs. (1.6 kg)
ET8215CR*	2	SPST	120, 208, 240, 277	30 Amps	Type 3R Steel	3.7 lbs. (1.7 kg)

\*Can be wired to DPST

## Specification

The 7-Day Astronomic electronic-type time switch shall be capable of permitting up to 28 ON/28 OFF events. In addition, the time switch shall include selectable Astronomic (dusk/dawn) settings for each day and circuit to allow load switching at sunset and/or sunrise without a photo control device. The time switch shall provide a minimum ON or OFF time of 1 minute. The time switch to be powered by \_\_\_ (120)(208)(240)(277) VAC, \_\_\_ (50)(60) Hz power supply. The time switch mechanism features a snap-in design to provide easy mechanism removal for mounting the enclosure. The time switch enclosure shall be a \_\_\_\_\_ (Type 1 Steel)(Type 3R Steel)(Type 3R Plastic) lockable enclosure that shall be painted with an electrostatic process to eliminate the potential for corrosion. The time switch shall provide clear terminal identification on a see-through non-curling terminal insulator. Terminal connections shall be made using teeter-type terminal screws to provide secure connections for wire sizes up to #10 AWG. Switch configuration shall be \_\_\_\_\_ (SPST) (DPST)(SPDT) with a UL or CSA listed switch rating of:

### (If SPST:)

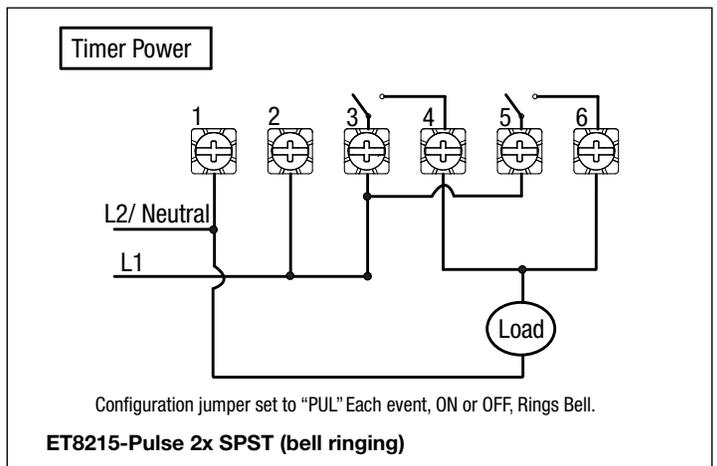
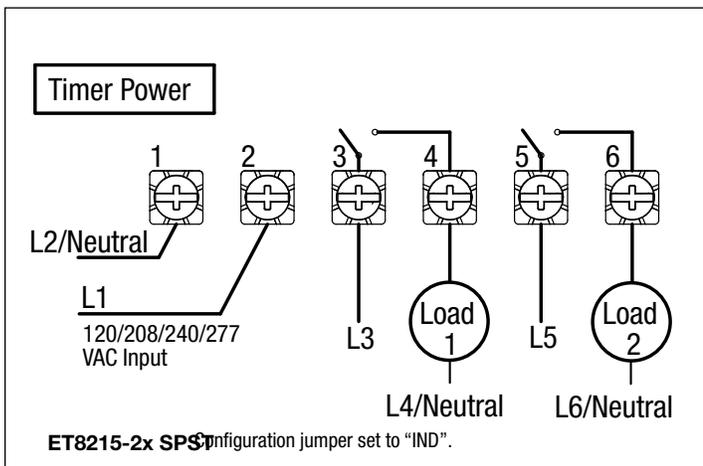
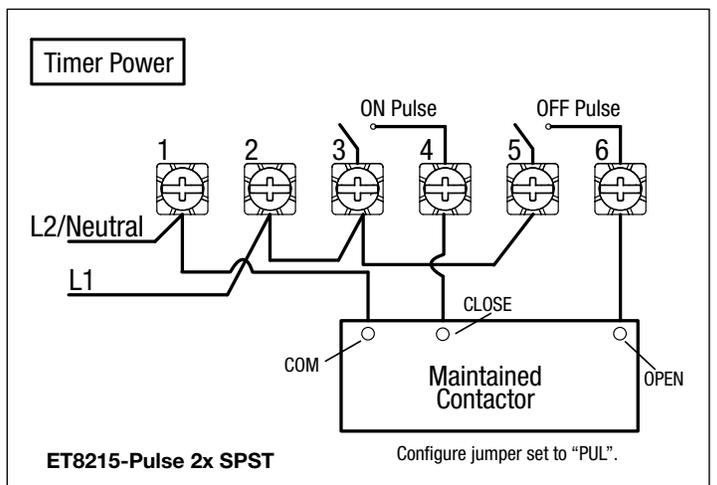
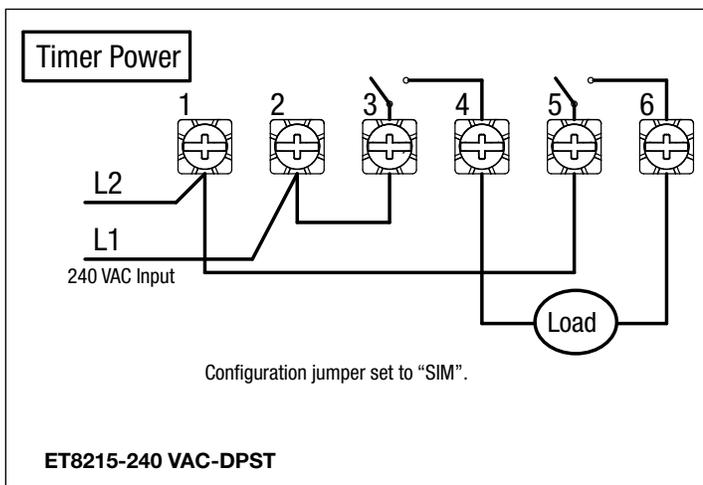
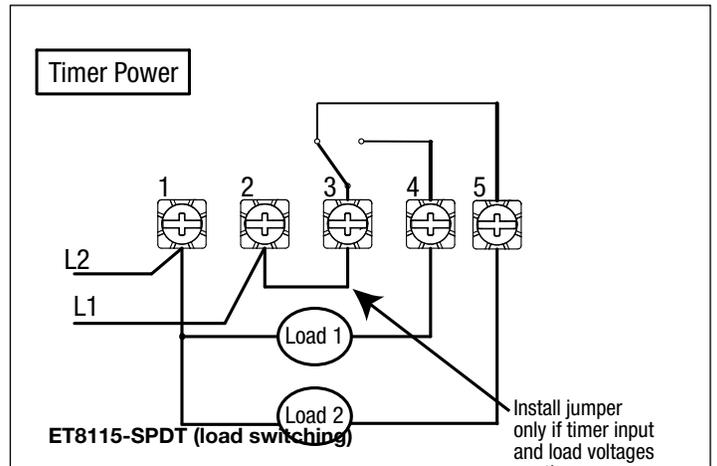
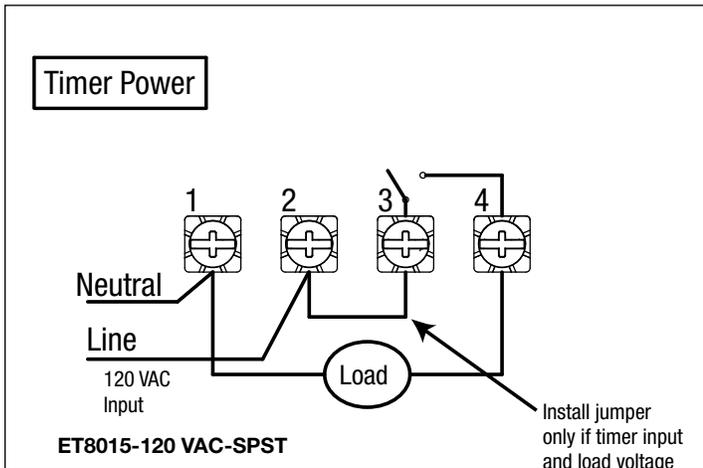
- Resistive: 30 Amps @ 120/240 VAC
- Resistive: 20 Amps @ 28 VDC
- Inductive: 30 Amps @ 120/240 VAC
- Tungsten: 5 Amps @ 120/240 VAC
- Ballast: 20 Amps @ 120-277 VAC
- Motor: 1 HP @ 120 VAC
- Motor: 2 HP @ 240 VAC

### (If SPDT:)

- Resistive: 20 Amps (N.O.), 10 Amps (N.C.) @ 120/240 VAC
- Inductive: 20 Amps (N.O.), 10 Amps (N.C.) @ 120/240 VAC
- Tungsten: 5 Amps (N.O.) @ 120/240 VAC
- Ballast: 20 Amps (N.O.), 3 Amps (N.C.) @ 120-277 VAC
- Motor: 1 HP (N.O.), ¼ HP (N.C.) @ 120 VAC
- Motor: 2 HP (N.O.), ½ HP (N.C.) @ 240 VAC

The time switch shall be UL or CSA listed under UL category 916 Energy Management Equipment and shall be Intermatic model \_\_\_\_\_ (See Model Numbers Listed).

## Diagrams





### EK4236S (Side Lens) & EK4736S (Top Lens)



#### Stem and Swivel Mount, Photo Control

The EK4236S and EK4736S are electronic photo controls that come with a swivel arm for easy reorientation of the photo control after installation. They fit standard 1/2" knockouts in standard outlet boxes and wall pack lighting fixtures. They are made with UV stabilized, high impact, plastic housing that stand up to outdoor environments and feature silicon light sensors with zero-crossing circuits to provide a long service life.

#### Features

- Dusk-to-dawn control of outdoor lighting
- Floodlights and security lighting
- Ideal for LED fixtures totaling 1650 W @ 277 VAC
- Non-drifting silicon light sensor IR filtered for human eye response
- Zero-cross technology helps device withstand severe inrush current and extend relay life
- Exceeds 10,000 ON/OFF operations at full load to meet the life expectancy of LED fixtures
- All components meet 15-year life requirements

#### Regulatory Listings

- ANSI C136.24 compliant
- UL certified to U.S. (UL773A) & CSA certified to Canadian (C22.2 No. 55-M1986/ TIL A-15) safety standards

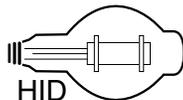
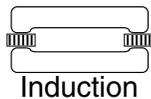
#### Operating Specifications

- Voltage: 105-305 VAC, 50/60Hz
- Dielectric strength: 2500 VAC
- Operating ambient temperature range: -40°F to 158°F (-40°C to 70°C)
- Instant turn ON light level 1.5 fc
- OFF light level: 2.25 fc
- Turn OFF to ON ratio 1.5:1 with 2-5 second delay
- Fail mode: ON
- Power consumption <.5W @ 277 VAC
- 255 Joule MOV surge protection component
- 6" long, 18awg wire leads

#### Warranty

- Limited 8-year manufacturer's warranty

#### Compatible with



Model Number	Max VAC	Tungsten (Watts)	Ballast (VA)	Electronic Ballast (LED)	Turn ON Foot Candles (fc)	Turn OFF to ON Ratio	Fail Mode
EK4236S (Side Lens)	105-305	1000	1800	6 Amps	1.5	1.5:1 with 2-5 second delay (2.25 fc OFF)	ON
EK4736S (Top Lens)	105-305	1000	1800	6 Amps	1.5	1.5:1 with 2-5 second delay (2.25 fc OFF)	ON

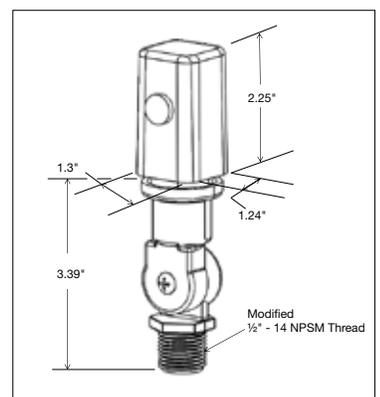
Project: \_\_\_\_\_

Location: \_\_\_\_\_

Product Type: \_\_\_\_\_

Contact/Phone: \_\_\_\_\_

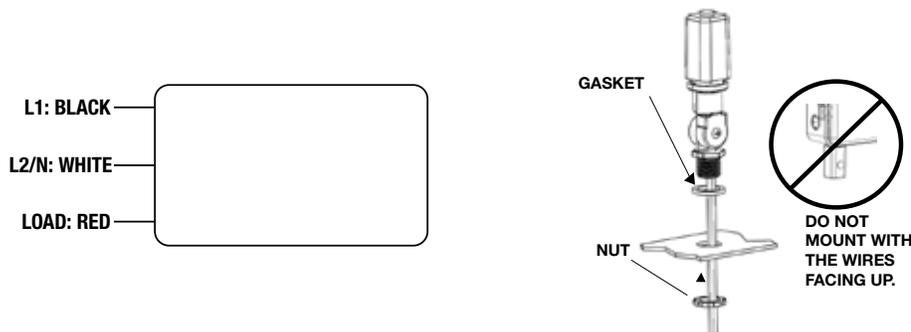
Model #: \_\_\_\_\_



## Specification

The photo control shall be an electronic control based on a solid-state photo sensor and relay switch circuit. Switch operation shall have a rating of 1000 Watts tungsten and 1800 Watts ballast at 105-305 VAC. For high inrush LED type fixtures, the photo control switch operation shall have a 6 Amp Electronic Ballast rating at 105-305 VAC. The photo control shall fail in an ON state. The photo control operating voltage shall be clearly identified on the control housing. The photo control shall be equipped with inherent delay action eliminating activation by light flashes. The photo control shall have a swivel arm for reorientation after installation. It also shall have a ½" NPSM threaded stem for fit to standard ½" knockouts in common electrical boxes and light fixtures and have min 6" long, 18 awg wire leads. The lens for light input shall be located in the top / side of the photo control. The photo control shall consist of industrial grade electronic components: 255 Joule MOV, solid state light sensor and silver alloy relay contacts. The photo control shall be 100% factory tested and function within specified light levels. The photo control shall be agency certified and tested accordingly. The photo control shall meet agency standards and all other requirements of ANSI C136.24. The photo control shall operate over a temperature range of -40°F to 158°F (-40°C to 70°C). The photo control should have a manufacturer's limited warranty of 8 years minimum. The photo control shall be the electronic dusk-to-dawn type, Intermatic model \_\_\_\_\_.

## Diagrams



## Limited Product Warranty

### (1) What is Covered By This Limited Warranty?

Intermatic Incorporated ("Intermatic") warrants Intermatic's EK4136S ("Product") to be free from defects in material or workmanship for a period of eight (8) years from date of purchase. This warranty is extended to the owner of the light fixture on which the photo control is installed only and is non-transferable ("purchaser"). If the purchaser discovers a defect in material or workmanship, the purchaser must promptly submit a warranty claim. Upon a determination by Intermatic that the Product is defective, Intermatic shall correct any defect in material or workmanship by replacing the Defective Product. Any repair to Product, including both parts and labor, shall be at Intermatic's expense. The foregoing remedy is the purchaser's exclusive remedy for a breach of warranty. The product must be installed in the appropriate application in complete accordance with the installation instructions. The Product must not be opened, modified, exposed to extreme heat or cold, submerged or subjected to abnormal use or service. Product failures due to damage by accident, dropping, or abuse in handling, acts of God, or any negligent use, are not covered by this warranty. Intermatic shall determine, in its sole discretion, whether any Product returned by a purchaser has been used in accordance with its instructions, is an appropriate model for the purchaser's use thereof, and whether the Product is defective.

### (2) Disclaimer of Warranty

THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER EXPRESSED WARRANTIES. TO THE EXTENT ALLOWED BY LAW, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION OF THIS LIMITED WARRANTY.

### (3) Limitation of Remedies

IN NO CASE SHALL INTERMATIC BE LIABLE FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES BASED UPON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT TORT, OR ANY OTHER LEGAL THEORY. SUCH EXCLUDED DAMAGES INCLUDE, BUT ARE NOT LIMITED TO, DAMAGE TO SOFTWARE, LOSS OF DATA, LOSS OF PROFITS, LOSS OF SAVINGS OR REVENUE, LOSS OF USE OF THE PRODUCT OR ANY ASSOCIATED EQUIPMENT, COST OF CAPITAL, COST OF ANY SUBSTITUTE EQUIPMENT, FACILITIES OR SERVICES, DOWNTIME, THE CLAIMS OF THIRD PARTIES INCLUDING CUSTOMERS, DAMAGE TO PROPERTY AND PERSONAL INJURY. SOME STATES DO NOT ALLOW LIMITS ON WARRANTIES OR ON REMEDIES FOR BREACH IN CERTAIN TRANSACTIONS, IN SUCH STATES, THE LIMITS IN THIS PARAGRAPH AND IN PARAGRAPH (2) MAY NOT APPLY.

### (4) Time Limit for Bringing Suit

No action arising out of any claimed breach of warranty may be brought more than one year after the cause of action has occurred.

### (5) No Other Warranties

Unless modified in writing signed by both parties, this agreement is understood to be the complete and exclusive agreement between the parties, superseding all prior agreements, oral or written, and all other communications between the parties relating to the subject matter of this agreement. No employee of Intermatic or any other party is authorized to make any warranty in addition to those made in this agreement. This warranty is made by: Intermatic Incorporated/After Sales Service, 7777 Winn Rd., Spring Grove, IL. 60081-9698/815-675-7000 <http://www.intermatic.com>

### (6) Claim Procedure

The warranty service is available by either (a) returning the product to the dealer from whom the unit was purchased, or (b) mailing the product, along with proof of purchase, postage prepaid, to the authorized service center listed below.

Address all communications and products returns to:

Intermatic Warranty Coordinator

7777 Winn Road Spring Grove, Illinois 60081-9698, Fax: 815-675-7055



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/3/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

**Overview of system/product/guideline:**

Preferred Vendors are Cooper or ABB

**Links to additional product information:**

Empty box for links to additional product information.



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 26

Specification Section:

26 24 00-Switchboards, Panelboards, and Control Centers

Description of Material or System:

Switchboards

Last Updated:

4/7/2016

Updated by:

Tim Lozeau

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

Overview of system/product/guideline:

Preferred vendors for electrical switchboards is Square D or General Electric

Links to additional product information:

<http://www.schneider-electric.com/products/us/en/53300-switchboards-and-switchgear/>  
<http://www.geindustrial.com/cwc/Dispatcher?REQUEST=PRODUCTS&familyid=38>



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 3/6/2017

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

**Overview of system/product/guideline:**

The preferred vendor for transfer switches are Asco and Russel

**Links to additional product information:**

- <http://www.asco.com>
- <http://www.russelectric.com/products/transfer-switches>



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/3/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

**Overview of system/product/guideline:**

Preferred Vendors are Square D or General Electric

**Links to additional product information:**

Empty box for links to additional product information.



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/3/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

**Overview of system/product/guideline:**

Preferred Vendors are Square D or General Electric

**Links to additional product information:**

Empty box for links to additional product information.



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/3/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

**Overview of system/product/guideline:**

Preferred Vendors are Hubbell and Leviton

**Links to additional product information:**

[www.hubbell.com](http://www.hubbell.com) or [www.leviton.com](http://www.leviton.com)



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/3/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- Academic Buildings
- Administrative
- Athletic Facilities
- Campus Wide
- Other \_\_\_\_\_
- Other \_\_\_\_\_
- Dormitories
- Faculty Residences
- Support
- Utility

**Overview of system/product/guideline:**

Preferred Vendors are Caterpillar or Kohler

**Links to additional product information:**

[www.caterpillar.com](http://www.caterpillar.com) or [www.kohler.com](http://www.kohler.com)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/18/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |  |   |
|--|---|
| <input type="checkbox"/> Academic Buildings  | <input checked="" type="checkbox"/> Dormitories |
| <input type="checkbox"/> Administrative      | <input type="checkbox"/> Faculty Residences     |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support                |
| <input type="checkbox"/> Campus Wide         | <input type="checkbox"/> Utility                |
| <input type="checkbox"/> Other _____         |   |
| <input type="checkbox"/> Other _____         |   |

### Overview of system/product/guideline:

Preferred network lighting controls is nLight

### Links to additional product information:

<http://nlightcontrols.com>



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 26

Specification Section:

26 50 00-LIGHTING

Description of Material or System:

Residential Interior LED Ceiling fixtures

Last Updated:

2/1/2017

Updated by:

Annie Pleatsikas

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- Academic Buildings
- Administrative
- Athletic Facilities
- Campus Wide
- Other \_\_\_\_\_
- Other \_\_\_\_\_
- Dormitories
- Faculty Residences
- Support
- Utility

Overview of system/product/guideline:

The following is the PEA Design Guideline for Residential interior ceiling fixtures

Links to additional product information:

[www.progresslighting.com](http://www.progresslighting.com)

# LED FLUSH

Ceiling ctc mount • Damp location listed



## Specifications:

### Description:

LED Flush Mount with white ribbed glass. 120V AC replaceable module. 3000K, 90+ CRI, 1,211 lumens. Dimmable to 10% with ELV type dimmers.

### Construction:

- White (-30) (painted)
- Etched ribbed glass bowlLED Module is replaceable (part # 93053641)
- Flicker-free dimming to 10% brightness with most ELV type dimmers (See Dimming Notes)
- Title 24 compliant
- Ceiling pan covers a standard 4" hexagonal recessed outlet box
- Mounting strap for outlet box included
- Six inches of wire supplied

### Performance:

Number of Modules	1
Input Power	17W
Input Voltage	120V
Input Frequency	60Hz
Lumens/LPW	1211/71.2 (LM-79) per module
CCT	3000K
CRI	90
Life	60,000 (L70/TM-21)
EMI/RFI	FCC Title 47, Part 15, Class B
Min. Start Temp	-30° C
Max. Operating Temp	30° C
Warranty	5 year warranty
Labels	cCSAus Damp location listed ENERGY STAR® qualified

## P2305-3030K9

### Images:



### Dimensions:

Diameter: 13-1/4"  
Height: 6-3/4"

### Catalog number:

Base	Finish	Color Temp	CRI
P2305	30 - White	30K - 3000K	9 - 90 CRI

## P2305-3030K9

# LED FLUSH MOUNT

### Dimming Notes:

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P2305 is designed to be compatible with many Electronic Low Voltage (ELV-Reverse Phase) controls.

The following is a partial list of known compatible dimmer controls:

#### Electronic Low Voltage ELV Reverse Phase Controls

Lutron	Diva Series	(Part Number DVELV-300P)
Lutron	Nova T Series	(Part Number NTELV-300)
Lutron	Vierti Series	(Part Number VTELV-600)
Lutron		(Part Number MAELV-600)
Lutron		(Part Number SPELV-600)
Leviton		(Part Number AWRMG-EAW)
Leviton		(Part Number 6615-P)

Digital type dimmers are not recommended.

Dimming capabilities will vary depending on the dimmer control, load, and circuit installation.

Always refer to dimmer manufacturer instructions or a controls specialist for specific requirements.

Dimmer control brand names where identified above are trade names or registered trademarks of each respective company.

# LED FLUSH

Ceiling ctc mount • Damp location listed



## Specifications:

### Description:

LED Flush Mount with white ribbed glass. 120V AC replaceable module. 3000K, 90+ CRI, 1,211 lumens. Dimmable to 10% with ELV type dimmers.

### Construction:

- White (-30) (painted)
- Etched ribbed glass bowlLED Module is replaceable (part # 93053641)
- Flicker-free dimming to 10% brightness with most ELV type dimmers (See Dimming Notes)
- Title 24 compliant
- Ceiling pan covers a standard 4" hexagonal recessed outlet box
- Mounting strap for outlet box included
- Six inches of wire supplied

### Performance:

Number of Modules	1
Input Power	17W
Input Voltage	120V
Input Frequency	60Hz
Lumens/LPW	1211/71.2 (LM-79) per module
CCT	3000K
CRI	90
Life	60,000 (L70/TM-21)
EMI/RFI	FCC Title 47, Part 15, Class B
Min. Start Temp	-30° C
Max. Operating Temp	30° C
Warranty	5 year warranty
Labels	cCSAus Damp location listed ENERGY STAR® qualified

## P2304-3030K9

### Images:



### Dimensions:

Diameter: 11-3/8"  
 Height: 5-3/4"

### Catalog number:

Base	Finish	Color Temp	CRI
P2304	30 - White	30K - 3000K	9 - 90 CRI

## P2304-3030K9

# LED FLUSH MOUNT

### Dimming Notes:

P2304 is designed to be compatible with many Electronic Low Voltage (ELV-Reverse Phase) controls.

The following is a partial list of known compatible dimmer controls:

#### Electronic Low Voltage ELV Reverse Phase Controls

Lutron	Diva Series	(Part Number DVELV-300P)
Lutron	Nova T Series	(Part Number NTELV-300)
Lutron	Vierti Series	(Part Number VTELV-600)
Lutron		(Part Number MAELV-600)
Lutron		(Part Number SPELV-600)
Leviton		(Part Number AWRMG-EAW)
Leviton		(Part Number 6615-P)

Digital type dimmers are not recommended.

Dimming capabilities will vary depending on the dimmer control, load, and circuit installation.

Always refer to dimmer manufacturer instructions or a controls specialist for specific requirements.

Dimmer control brand names where identified above are trade names or registered trademarks of each respective company.



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

Preferred vendor for LED lighting controllers is Wattstopper

### Links to additional product information:

<http://www.wattstopper.com/>



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/3/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- Academic Buildings
- Administrative
- Athletic Facilities
- Campus Wide
- Other \_\_\_\_\_
- Other \_\_\_\_\_
- Dormitories
- Faculty Residences
- Support
- Utility

**Overview of system/product/guideline:**

Preferred Vendors are Sylvania or General Electric

**Links to additional product information:**

Empty box for links to additional product information.



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/3/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
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| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

**Overview of system/product/guideline:**

Preferred Vendors are Advance, Universal, Sylvania, and Lutron

**Links to additional product information:**

Empty box for links to additional product information.



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
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| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

Preferred vendors for LED light poles are: Arlington, Beta, Lithonia

### Links to additional product information:

<http://www.aifittings.com/> <http://www.betaled.com/us-en/home.aspx>  
<http://www.lithonia.com/>



# Phillips Exeter Academy Construction Standards and Guidelines

**Division of Work:**

**Specification Section:**

**Description of Material or System:**

**Last Updated:** 9/7/2016

**Updated by:**

<p><b>Included in this section:</b></p> <p><input checked="" type="checkbox"/> Product Specifications</p> <p><input checked="" type="checkbox"/> Design Guidelines</p> <p><input type="checkbox"/> Design Details/Drawings</p> <p><input type="checkbox"/> Supplemental Information</p> <p><input type="checkbox"/> Other _____</p> <p><input type="checkbox"/> Other _____</p>	<p><b>Guideline applies:</b></p> <table border="0"> <tr> <td><input type="checkbox"/> Academic Buildings</td> <td><input type="checkbox"/> Dormitories</td> </tr> <tr> <td><input type="checkbox"/> Administrative</td> <td><input checked="" type="checkbox"/> Faculty Residences</td> </tr> <tr> <td><input type="checkbox"/> Athletic Facilities</td> <td><input type="checkbox"/> Support</td> </tr> <tr> <td><input type="checkbox"/> Campus Wide</td> <td><input type="checkbox"/> Utility</td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> </table>	<input type="checkbox"/> Academic Buildings	<input type="checkbox"/> Dormitories	<input type="checkbox"/> Administrative	<input checked="" type="checkbox"/> Faculty Residences	<input type="checkbox"/> Athletic Facilities	<input type="checkbox"/> Support	<input type="checkbox"/> Campus Wide	<input type="checkbox"/> Utility	<input type="checkbox"/> Other _____		<input type="checkbox"/> Other _____	
<input type="checkbox"/> Academic Buildings	<input type="checkbox"/> Dormitories												
<input type="checkbox"/> Administrative	<input checked="" type="checkbox"/> Faculty Residences												
<input type="checkbox"/> Athletic Facilities	<input type="checkbox"/> Support												
<input type="checkbox"/> Campus Wide	<input type="checkbox"/> Utility												
<input type="checkbox"/> Other _____													
<input type="checkbox"/> Other _____													

**Overview of system/product/guideline:**

The following is the PEA Design Guideline for undercabinet lighting

**Links to additional product information:**

[www.lithonia.com](http://www.lithonia.com)

## FEATURES & SPECIFICATIONS

### INTENDED USE

Provides task or accent lighting in commercial, retail, hospitality and residential applications. Ideal for use under and over cabinets, display cases, task lighting, office lighting, coves and utility/work areas.

### CONSTRUCTION

Low profile design, with on/off rocker switch. Can be direct wired or powered by 5' cord-and-plug (Included). Connect multiple fixtures with 13" connector cord (Included).

Rugged low profile aluminum housing, available in either white, bronze, or brushed nickel finish. Swivel head allows light to be directed to desired area.

### ELECTRICAL

LEDs have a 50,000 hour L70 rated life. Provides warm color temperature, 3000 K or 2700 K with CRI 83, and even illumination.

Standard with stepdown 120V driver (120V, 60Hz).

Can be used with standard dimmable switches.

### INSTALLATION

All mounting hardware included.

### LISTINGS

CUL listed to US and Canadian safety standards. ENERGY STAR® and Title 24 qualified.

### WARRANTY

5-year limited warranty. Complete warranty terms located at

[www.acuitybrands.com/CustomerResources/Terms\\_and\\_conditions.aspx](http://www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx)

NOTE: Actual performance may differ as a result of end-user environment and application.

All values are design or typical values, measured under laboratory conditions at 25°C.

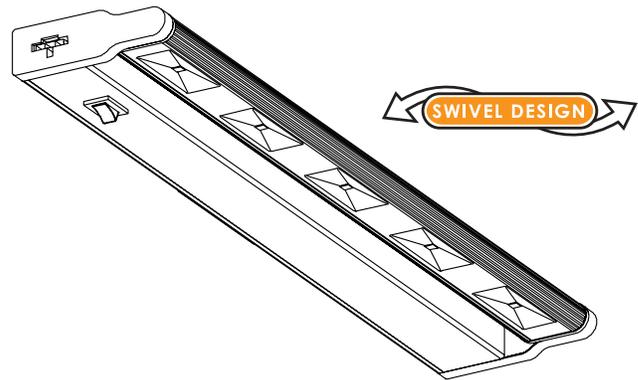
Specifications subject to change without notice.

Catalog Number
Notes
Type

Indoor General Purpose

# LED Cabinet Light

Linkable



### Specifications

Length: UCLD 12 - 12 (30.5)

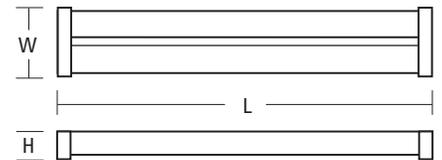
UCLD 18 - 18 (45.7)

UCLD 24 - 24 (60.9)

Width: 3-5/8 (9.2)

Height: 1 (2.5)

All dimensions are inches (centimeters)



### ORDERING INFORMATION

For shortest lead times, configure products using **bolded options**.

Example: UCLD 12 WH

Series	Driver	Color temperature	Finish
<b>UCLD 12</b> 12" long with 3 LEDs	<b>(blank)</b> 120V dimmable driver	<b>(blank)</b> 3000 K 2700 2700 K	<b>WH</b> White
<b>UCLD 18</b> 18" long with 5 LEDs			<b>BZ</b> Bronze
<b>UCLD 24</b> 24" long with 7 LEDs			<b>BN</b> Brushed nickel

### Accessories: Order as separate catalog number.

UCD JB	Splice box - allows for quick and easy direct wiring
UC ERC	1-1/8" row connector for end-to-end connections
UC ERC24	24" connector cord for longer length connections

# UCLD LED Cabinet Light

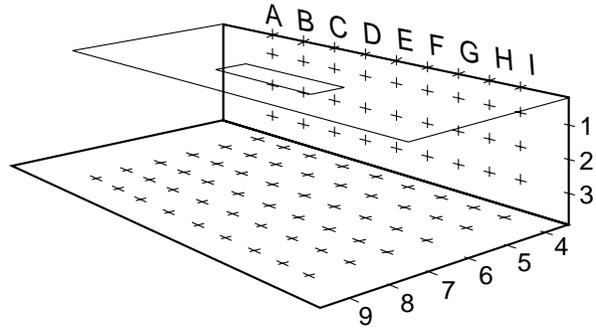
## PHOTOMETRIC DIAGRAMS

Photometry derived in accordance with IESNA LM41 procedure. Vertical and horizontal illuminance is calculated with fixture mounted 17" from work surface. Full photometric data report available within 2 weeks from request. Consult factory.

### UCLD 12 Report LTL 21648

Initial Point Illuminance on wall and horizontal work surface. (fc)  
X and Y coordinates are on 6" centers.

	X	A	B	C	D	E	F	G	H	I	
Vertical	1	1	1	2	4	6	4	2	1	1	Avg.=4 fc Max.=16 fc; Min.=1 fc Max. to min. ratio=16
	2	1	3	6	12	16	12	6	3	1	
	3	2	3	6	11	13	11	6	3	2	
Horizontal	4	3	5	9	15	18	15	9	5	3	Avg.=6 fc Max.=27 fc; Min.=1 fc Max. to min. ratio=27
	5	3	6	13	22	27	22	13	6	3	
	6	3	6	13	22	27	22	13	6	3	
	7	3	5	9	14	17	14	9	5	3	
	8	2	3	5	8	9	8	5	3	2	
	9	1	2	3	4	4	4	3	2	1	



### UCLD 18 Report LTL 21649

Initial Point Illuminance on wall and horizontal work surface. (fc)  
X and Y coordinates are on 6" centers.

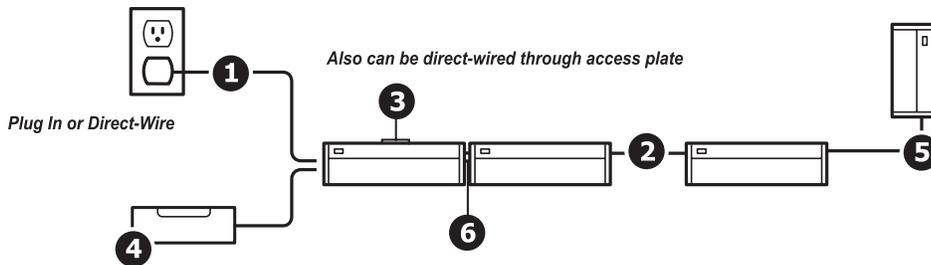
	X	A	B	C	D	E	F	G	H	I	
Vertical	1	1	2	4	7	8	7	4	2	1	Avg.=7 fc Max.=23 fc; Min.=2 fc Max. to min. ratio=11.5
	2	3	5	11	19	23	19	11	5	3	
	3	3	6	11	17	20	17	11	6	3	
Horizontal	4	5	9	16	25	28	25	16	9	5	Avg.=11 fc Max.=42 fc; Min.=1 fc Max. to min. ratio=42
	5	6	12	23	36	42	36	23	12	6	
	6	6	12	23	35	41	35	23	12	6	
	7	5	9	16	23	27	23	16	9	5	
	8	3	5	9	12	14	12	9	5	3	
	9	2	3	5	6	7	6	5	3	2	

### UCLD 24 Report LTL 21650

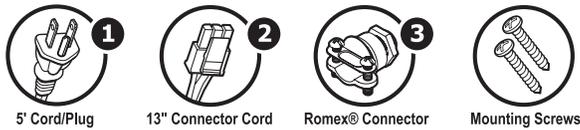
Initial Point Illuminance on wall and horizontal work surface. (fc)  
X and Y coordinates are on 6" centers.

	X	A	B	C	D	E	F	G	H	I	
Vertical	1	2	3	6	9	10	9	6	3	2	Avg.=10 fc Max.=28 fc; Min.=2 fc Max. to min. ratio=14
	2	4	8	16	25	28	25	16	8	4	
	3	5	9	16	23	25	23	16	9	5	
Horizontal	4	7	14	23	32	36	32	23	14	7	Avg.=15 fc Max.=52 fc; Min.=2 fc Max. to min. ratio=26
	5	9	18	32	46	52	46	32	18	9	
	6	9	18	32	46	52	46	32	18	9	
	7	7	13	22	30	34	30	22	13	7	
	8	5	8	12	16	18	16	12	8	5	
	9	3	5	6	8	9	8	6	5	3	

## Installation



## Included



## Accessories



## Suggested Dimmers

This fixture is designed to operate with most standard Triac Based (Forward Phase-Control or Leading Edge) dimmer and is not compatible with 0-10v dimming systems. Noted below is a listing of dimmers that have been tested with this fixture. This list of dimmers does not imply any guarantee or warranty of compatibility with a particular application. Dimmers that are not listed do not imply non-compatibility.

Lutron Diva DV-600P

Lutron SkyLark S-600P (Slide & On-Off Switch)

Lutron Ariadni AY-600P

Lutron Ariadni TG-603P

Lutron Maestro MA-600 (Digital Fade Dimmer)

Leviton IllumaTech IPI06-1LX

Leviton ToggleTouch TGI06-1LW (Digital Control)

Lutron MAELV-600BL (Digital Trailing Edge)

Lutron DVELV-300P-WH (Trailing Edge)

Note: When the installation exceeds 10 fixtures on a single dimmer or distribution lengths exceed 100 feet, please confirm that the end product performs properly. This is caused by a high degree of variability in the triac dimmers.



UCLD



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/5/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |  |
|---|--|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories                   |
| <input type="checkbox"/> Administrative         | <input checked="" type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support                       |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility                       |
| <input type="checkbox"/> Other _____            |  |
| <input type="checkbox"/> Other _____            |  |

**Overview of system/product/guideline:**

Preferred vendors for LED light poles are: Arlington, Beta Lithonia with dimmable drivers and wireless option

**Links to additional product information:**

[www.aifittings.com](http://www.aifittings.com) [www.betaled.com/us-en/home.aspx](http://www.betaled.com/us-en/home.aspx)  
[www.lithonia.com](http://www.lithonia.com)



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/3/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

**Overview of system/product/guideline:**

Preferred Vendors are Holophane, Lithonia and Beta

**Links to additional product information:**

Empty box for links to additional product information.



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Division 26

Specification Section:

26 00 00-ELECTRICAL

Description of Material or System:

Heat Trace

Last Updated:

4/7/2016

Updated by:

Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

Overview of system/product/guideline:

This is a SAMPLE specification section for heat trace applications. All systems shall be individually designed, this information is for guidance only.

Links to additional product information:

SECTION 268550

HEAT TRACE CABLES

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Provide heating cable with accessories for a complete and operable system. Furnish and install a complete UL Listed, CSA Certified, and FM Approved system of specified heating cable, components, and controls listed specifically for keeping roof eaves, gutters, and downspouts from being clogged by ice and snow.

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary General Conditions and other Division 01 specification sections, apply to this Section and to all Contractors, Subcontractors, or other persons supplying materials and/or labor, entering into the Project site and/or premises, directly, or indirectly.
- B. The Specifications and Drawings are intended to be complementary. A particular section, paragraph or heading in a Division may not describe each and every detail concerning work to be done and materials to be furnished. The Drawings are diagrammatic and may not show all of the work required or all construction details. Dimensions are shown for critical areas only; all dimensions and actual placements are to be verified in the field. It is to be understood that the best trade practices of the Division will prevail. It remains the responsibility of the Contractor or Subcontractor to provide all items, equipment, construction, and services required to the proper execution and completion of the Work.
- C. Reference listings are provided as a convenience to the Contractor or Subcontractor providing the Work of this Section and may not contain all the requirements affecting this Section. It remains the responsibility of the Contractor or Subcontractor to locate and comply with all requirements of the Contract Documents.

1.03 SUBMITTALS

- A. Submit product data in accordance with Section 260100.
- B. Product Data: For heating cable and control components including wiring diagrams
- C. Manufacturer's Installation Instructions: Indicate installation instructions.
- D. Calculations: Submit manufacturer's sizing calculations with shop drawings.
- E. Submit operational and maintenance manuals for complete system in accordance with Section 260100 to include, but not be limited to, description of operation, repair methods, and replacement parts numbers and availability, parts list of all components and service location with telephone numbers.
- F. Submit test results in accordance with Section 260800.
- G. Submit accurately recorded locations of heating cable, snow sensors, and branch circuit connections on final record documents.

**SAMPLE**

1.04 REGULATORY REFERENCES

- A. All specified items or systems shall be designed, manufactured, tested, and installed in compliance with applicable provisions of all governing codes, rules, laws, and ordinances in accordance with Section 260100.
  - 1. If there is a conflict between applicable documents, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the documents. The Contractor has the responsibility to determine and adhere to all applicable documents and to the most recent release when developing the proposal for installation.
  - 2. This document does not replace any code, either partially or wholly. The Contractor must be aware of local codes that may impact this project.

1.05 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum three years experience.

1.06 SYSTEM WARRANTY

- A. The system will have a complete 10-year warranty.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with requirements, provide products by the following:
  - 1. Pentair Thermal Management, Raychem Brand Heat Trace
  - 2. Tyco Thermal Controls
  - 3. Letco
- B. Substitutions: Items of equal quality, function and performance may be proposed for substituting by following the procedures outlined in Section 260100.

2.02 HEATING CABLE

- A. The self-regulating heating cable shall consist of two (2) 16 AWG nickel-coated copper bus wires embedded in a self-regulating polymer core that varies its power output to respond to temperature along its length, allowing the cable to be crossed over itself without overheating, to be used with wood, plastic, and asphalt building materials and to be cut-to-length in the field.
- B. The heating cable shall operate on 208 volts.
- C. All heating cable components shall be UL Listed, CSA Certified, or FM Approved for use as part of the system to provide roof and gutter de-icing. Component enclosure shall meet NEMA 4X requirements to prevent water ingress and corrosion.

- D. For sufficient power for roof and gutter de-icing and energy conservation, the self-regulating heating cable shall have a nominal power output of 12 watts per foot in snow and ice and 5 watts per foot in air, per IEEE 515-1997, and a crush resistance of 2000 lb per UL1588-1993.
- E. To provide superior abrasion resistance and mechanical impact resistance, the heating-cable outer jacket shall be an abrasion-resistant fluoropolymer. The cable shall have a minimum impact resistance of 10 ft-lb at 0° C installation temperature per IEEE 515-1997, and a crush resistance of 2000 lb per UL1588-1993.
- F. Cable and components shall be qualified for prolonged exposure to the sun per IEEE 515.1-1995, Section 4.3.2, and UL1588-1993.
- G. The cable and components shall be qualified to withstand continuous submersion in water for 2000 hours per IEEE 515.1-1995, Section 4.3.1.
- H. The heating cable shall be IceStop GM-2XT cable manufactured by Pentair Thermal Management/Raychem Electric Heat Trace or equivalent.

## 2.03 ACCESSORIES AND CONTROL

- A. The system will be supplied complete with attachment clips for all roof surfaces and valleys, as well as downspout hangers. For attachment of heating cable to copper valleys, use the copper 3" mini clip.
- B. End seals and power connection boxes shall be provided as required.
- C. Automatic Snow Controller: The system shall be controlled by GIT-1 gutter-mounted sensors along with a CIT-1 aerial-mounted sensor in combination with an EUR-5A control panel through an appropriate contactor.
- D. Power distribution and control panel shall be Part Number: HTPG-120/208-30-4-12/2P(30A)-12-225-C,D,G,L,P,T,S and have the following characteristics:
  - 1. Voltage: 120/208V.
  - 2. Panelboard Size: 30.
  - 3. Circuit Breaker Type: Ground fault with relay alarm.
  - 4. No. of CBs/No. of Pole (Size): 12/2 Pole (30A).
  - 5. Enclosure: NEMA 12 (48"H x 36"W x 10"D, NEMA 1/12/4, Carbon Steel Enclosure).
  - 6. Group Control Package (MCB & Contactor): 225.
  - 7. AIC Rating: 65,000 amps.
- E. Power distribution and control panel shall include the following options:
  - 1. Heat trace contactor failure light.
  - 2. Door disconnect.
  - 3. Panel power on light.
  - 4. Individual circuit breaker lights (12).
  - 5. Heat trace energized light.
  - 6. Terminal blocks (pre-wired).
  - 7. ETI EUR-5A snow controller included (for HTPG panel).
- F. The contactor shall be a three-pole contactor with a rating of 225 amps per pole in a NEMA-4X enclosure.

- G. Ground-Fault Circuit Breaker: Per the National Electrical Code, Article 426, the system shall be protected by 30-mA trip ground-fault circuit breakers, with relay alarms.

### PART 3 – EXECUTION

#### 3.01 EXAMINATION

- A. Verify that gutters, valleys, and eaves are ready to receive work.
- B. Verify field measurements are as shown on shop drawings.
- C. Verify that required utilities are available, in proper location, and ready for use.
- D. Commencement of installation means installer accepts conditions.

#### 3.02 INSTALLATION

- A. The heating cable shall be laid in gutters; shall be suspended in downspouts as a loop/double length and held in place by a downspout hanger; and shall be attached to the copper valleys using the copper 3” mini clip.
- B. On flat roof services, the cable shall be held in place using the “belt loop” method. The roofing contractor will adhere a 1.5” x 3” strip of roofing material to the roof leaving the center of the strip free of adhesive on both sides. The heating cable will lay along the top of the belt loop and will be cable tied in place. See detail on drawing.
- C. For gutter de-icing, install two run of heating cable in the gutters.
- D. The heating cable shall be protected from damage and installed according to manufacturer’s instructions.
- E. Install in accordance with manufacturer's instructions.
- F. Avoid pinching and making sharp bends in cable.
- G. Prevent damage by metal or other objects during installation.
- H. Coordinate sequencing of installation, protection from damage of finished installation, location of expansion and control joints in building, and methods used for covering installations with insulation.

#### 3.03 FIELD QUALITY CONTROL

- A. Test continuity of heating cable.

Heating Cable loop shall extend out of the downspout bottom a minimum of 12 inches.

3.04 TRAINING

- A. Provide training and demonstrate operation of heating cable controls to the Owner.

END OF SECTION 268550



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/3/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- Academic Buildings
- Administrative
- Athletic Facilities
- Campus Wide
- Other \_\_\_\_\_
- Other \_\_\_\_\_
- Dormitories
- Faculty Residences
- Support
- Utility

**Overview of system/product/guideline:**

Preferred Vendors are Rauland or Executone

**Links to additional product information:**

Empty box for links to additional product information.



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input checked="" type="checkbox"/> Utility |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

The following is the PEA Design Guideline for Fire Alarm Systems.

### Links to additional product information:

## Phillips Exeter Academy Design and Construction Standards

### Fire Alarm System

January 10, 2014

#### Approved Vendors

- Mircom
- Simplex

#### General

- Contractor shall provide a one year system warranty covering parts and labor.
- Provide a wireless transceiver for alarm transmission from the monitored location to the existing campus central “Keltron” Model-RF778F wireless transceiver/receiver with a minimum of 8-ea. programmable zones.
- Provide a wireless radio interior system interface, supporting hardware and all programming necessary to tie fire alarm system in to existing campus emergency notification system manufactured by American Signal.
- Locate the annunciator panel at main entrance/exit if main fire alarm control panel is mounted elsewhere.
- All devices/peripherals: must be same Brand as Main System. (Mircom or Simplex; no substitutes).

All power supply and fire alarm circuit conductor wiring shall be new solid or stranded copper conductors on all initiating device circuits and in raceway whenever possible; all circuits shall be identified and marked as per NFPA-760.30

#### Faculty Apartments

- Provide smoke detector with sounder bases in each sleeping room to provide a (minimum of 75 DB @ pillow) as per code.
- Provide CO / Smoke Detector with sounder base within 3' outside sleeping room doors.
- All smoke detectors in sleeping rooms and 3' outside of sleeping rooms will sound if one smoke detector is activated.
- Provide pull stations at each exit.
- Provide audible annunciation with speaker strobes as required by code.
- Provide rate of rise heat detectors in kitchens and also in living room **if** equipped with a fireplace.
- All pull stations, heat detectors, and smoke detectors when activated will set off “General Alarm” for building and will notify Campus Safety and Fire Department.
- A building “General Alarm” will activate speaker strobes and sounder bases in faculty apartment.
- Speaker strobes and smoke detectors for faculty apartments shall be on their own circuit.

#### Student Rooms

- Provide smoke detectors with sounder base in each student room.
- All pull stations, heat detectors, and smoke detectors when activated will set off “General Alarm” for building and will notify Campus Safety and Fire Department.
- ADA accessible and hearing impaired rooms are provided with system connected 177 candela strobe and system connected smoke detector with sounder-base. A

## Phillips Exeter Academy Design and Construction Standards

### Fire Alarm System

January 10, 2014

control module is provided to actuate the 177 candela strobe in the room upon room smoke detector actuation.

#### Corridors / Common Areas/Bathrooms

- All detection/initiation devices are system connected and will activate a “General Alarm” within the entire building.
- Speaker strobe units are located as required by code.

#### General Programming

- Audible annunciation through speaker strobes during a “General Alarm” shall state the following pre-recorded message:
  - **“Attention please. There has been a report of an emergency. Proceed calmly to the nearest exit and leave the building immediately. Do not use the elevators. Use stairwells where necessary. All handicap occupants shall use the building evacuation plan.”**
- Provide a second alarm test switch labeled “Campus Safety Fire Drill – Bypass of Faculty Apt Horn/Strobe” that will only activate devices in the student areas.
- Bypass switches for Elevators, Door Mags , Horn Strobes, Duct Detectors; Dampers; Every floors Pulls / Smokes, Fire Drill Switch ( up to a total of 12 Bypasses)

#### Closeout

- Manufacturer shall supply to the electrical contractor a complete set of engineering documents depicting the following information, the cost of which shall be included in the base price:
  - Complete riser diagrams showing overall system wiring.
  - FACP internal card locations with wire termination points shown.
  - Battery calculations showing standby and alarm current draws for a TRUE indication of the required 60 hour calculation.
  - Architectural prints with just fire alarm equipment and devices using vendor symbology to include address, loop number, and NAC wiring circuit and termination points on the architectural drawings. These should be provided on a per section basis and by floor.
  - A complete table showing all addressable devices, recommended labeling of devices, and proper switch settings for desired address contained on the drawings.
  - Depiction of wiring with recommended cable chart and point to point wiring layout between all devices.
  - All above items shall be performed on AutoCAD on a version compatible with Owner and supplied to the Owner.
  -

#### End of Section



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 3/7/2017

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |   |
|---|---|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

**Overview of system/product/guideline:**

Keltron is the preferred vendor of call initiating devices on campus.

**Links to additional product information:**

[www.keltron.com](http://www.keltron.com)



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

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- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
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### Guideline applies:

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| <input checked="" type="checkbox"/> Campus Wide | <input checked="" type="checkbox"/> Utility |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

The following is the PEA Design Guideline for smoke and Co detectors

### Links to additional product information:

# AC Wire-in Combination Carbon Monoxide & Photoelectric Smoke Alarm

- 120VAC Direct Wire with Battery Backup
- Alarm/Voice message warning system
- Front loading battery

Part Number 21007624

Model KN-COPE-I

## Voice Warning

Warns of hazard by announcing "Fire, Fire" or "Warning, Carbon Monoxide".

## Peak Level Memory

Alerts user when the unit has detected CO concentrations of 100ppm or higher.

## Smart Hush™

Silences the unit during nuisance alarm situations. (Smoke must be present before hush is activated)

## Two LED's

- Red – Alarm mode.
- Green – Indicates that AC power is present.

## Front Load Battery Door

## Adjustable Mounting Bracket

Allows for easy installation and alignment.

**Alerts user to replace CO alarm after 7 years of operation**



## Description

The Kidde Front-Loading Smoke and Carbon Monoxide alarm (part # 21007624) offers protection from two hazards – fire and CO – in one unit. Sold under the FireX brand, this AC-wire with battery backup alarm emits a beeping tone followed by a voice warning that clearly announces the danger by saying, "Fire! Fire!" or "Warning! Carbon Monoxide!". The uniquely designed front-loading battery compartment makes battery replacement quick and easy, and ensures proper installation. Manufactured with photoelectric sensors for detecting smoke and fire, this alarm also includes the world's most accurate CO sensing technology based on claims by major manufacturers.

## Alarm Warnings

**Fire:** The red LED will flash and be accompanied by three long alarm beeps followed by a verbal warning message "FIRE! FIRE!". The alarm will repeat pattern until unit is reset or smoke is eliminated.

**Carbon Monoxide:** Four short alarm beeps followed by a verbal warning "WARNING! CARBON MONOXIDE!". This continues until the unit is reset or the CO is eliminated.

**Low Battery:** One chirp followed by warning "LOW BATTERY". The red LED light will flash. This pattern will continue every minute for the first hour. After the first hour the red LED light will flash once every minute accompanied by the chirp sound. The "LOW BATTERY" warning will only sound once every fifteen minutes.

**Voice Hush Indication:** "HUSH ACTIVATED" and "HUSH CANCELLED" voice announcement

**Alarm Memory:** The green LED will blink once every 16 seconds to alert a user when the unit has alarmed for smoke or has detected a concentration of CO. If the alarm has detected a CO level of 100ppm or greater, when the Test/Reset button is pressed the unit will announce "CO PREVIOUSLY DETECTED".

If the alarm has detected abnormal levels of smoke since its last test, it will produce three rapid beeps.



## Features and Benefits

- **AC-Wire with battery backup** – Powered by home's electricity in order to provide continuous protection. An included 9V battery protects during short-term power outages.
- **Front-Loading Battery** – Speeds up replacement by eliminating the need to remove the unit from the ceiling or wall.
- **Unique Battery Door Design** – Will not close if battery is not installed properly.
- **Voice Warning** – Supplements warning from the traditional 85-decibel alarm by clearly stating the danger present, fire or carbon monoxide.
- **Photoelectric smoke sensor** – May detect visible fire particles associated with slow smoldering fires sooner than an ionization sensor.
- **Electrochemical CO sensor** – Provides accurate and continual CO protection during the product's life, remains stable during temperature and humidity changes and resists reactions to household gases that may cause false readings or reduce sensitivity.
- **Smart Touch Button** – One button performs the following functions:
  - Activates the Hush® feature to temporarily silence nuisance alarms (will announce "Hush mode activated," or "Hush mode cancelled.")
  - Simultaneously tests the unit's electronics and verifies proper operation
  - Activates the peak level memory feature (will announce "CO previously detected" if unit has detected levels of 100 ppm or higher)
  - Resets the unit during a CO alarm (Unit will re-enter alarm within 6 minutes of reset if 70ppm or more of CO is present).
  - Silences a low battery chirp for up to 12 hours
  - Silences the end of life chirp for two days
- **Tamper Resistant** – Unit will lock to mounting bracket and battery door will lock to deter theft or tampering.
- **Green LED** – Will flash every 30 seconds to indicate proper operation.
- **Red LED** – Flashes in conjunction with the alarm sounding.
- **End of Life Signal** – Seven years after initial power, the unit will "chirp" twice every 30 seconds to indicate the need to immediately replace the alarm.
- **Low Battery Signal** – Will chirp every minute and red LED will flash to indicate low battery condition.
- **Interconnectable** – Will interconnect with up to 24 other devices (18 of which can be initiating) including smoke, CO and heat alarms.

## Installation of Smoke Alarm

The combination alarm should be installed to comply with all local codes having jurisdiction in your area, Article 760 of the National Electric Code, and NFPA 72. Make certain all alarms are wired to a single, continuous (non-switched) power line, which is not protected by a ground fault interrupter. A maximum of 1000 ft. of wire can be used in the interconnect system. Use standard UL listed household wire (18 gauge or larger as required by local codes).

## Architectural and Engineering Specifications

The combination smoke and carbon monoxide alarm shall be Kidde Unit Number KN-COPE-I (part number 900-0213) or approved equal. It shall be powered by 120VAC, 60Hz source with a 9V battery backup. The temperature operating range shall be between 40°F and 100°F (4°C and 38°C) and the humidity operating range shall be 5% - 85% relative humidity.

The unit shall incorporate a photoelectric smoke sensor with nominal sensitivity of 2.05%/ft. The CO sensor shall be of a fuel cell design and shall meet the sensitivity requirements of Underwriters Laboratories UL2034 Single and Multiple Station Carbon Monoxide Detectors. The unit shall qualify for UL-approved wording on the package: "World's Most Accurate Carbon Monoxide Alarm"\*.

The combination alarm can be installed on the surface of any wall or ceiling following the UL/NFPA/Manufacturer's recommended placement guidelines. The alarm can be installed on any standard single gang electrical box, up to a 4" octagon junction box. The electrical connection (to the alarm) shall be made with a plug-in connector. The unit shall provide optional tamper resistance that deters removal of the unit from the wall or ceiling. No additional pieces shall be required to activate this feature.

A maximum of 24 Kidde devices can be interconnected in a multiple station arrangement. The interconnect system must not exceed the NFPA (National Fire Protection Association) limit of 18 initiating devices, of which 12 can be smoke alarms. With 18 initiating devices (smoke, heat, CO, etc), interconnected, it is still possible to interconnect 6 strobe lights and or relay modules.

The alarm shall include a test button that will electronically simulate the presence of smoke and CO and cause the unit to go into both modes of alarm. This sequence tests the unit's electronics to ensure proper operation. The CO sensor will not alarm to levels of CO below 30 ppm and will alarm in the following time range when exposed to the corresponding levels of CO.

- 70 ppm CO Concentration 60 – 240 minutes
- 150 ppm CO Concentration 10 – 50 minutes
- 400 ppm CO Concentration 4 – 15 minutes

The combination alarm shall have two methods of warning for danger: a piezoelectric horn that is rated at 85 decibels at 10 feet and a voice warning that identifies the danger. For a CO incident, the horn will sound in the repetitive manner – four (4) fast beeps, a short pause, four (4) fast beeps, a short pause. In between, the unit will announce "Warning Carbon Monoxide!" In a Smoke incident, the horn will sound in the repetitive manner – three (3) beeps, a pause, three (3) beeps, a pause. In between, the unit will announce "Fire! Fire!" The unit shall incorporate 2 LED's. A green LED will be steady on when AC power is present, flash every 30 seconds when in the

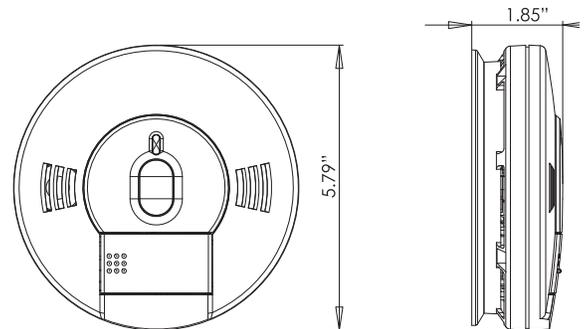
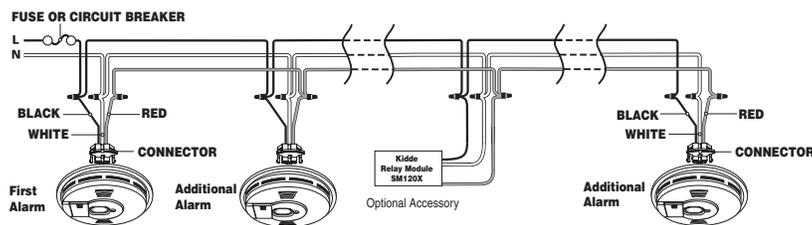
battery only mode, every 16 seconds to indicate alarm memory, and every 2 seconds to indicate the Hush™ mode is active. A red LED will flash in unison with the sounder pattern. The unit shall include the Smart Hush™ feature that silences the unit for approximately 8 minutes if a nuisance alarm condition occurs. The Green LED on the alarm will flash every 2 seconds while in Smart Hush™ and will automatically reset itself. It also provides voice announcement of "Hush Activated" when Smart Hush™ is activated and "Hush Cancelled" when the Hush cycle ends.

The unit shall also indicate a low battery warning utilizing each of the following methods: a brief alarm chirp, the voice announcement of "Low Battery!" The unit shall at a minimum meet the requirements of UL 2034, UL217, NFPA72, (chapter 11 2002 edition) The State of California Fire Marshall, NFPA101 (One and two family dwellings) Federal Housing Authority (FHA), Housing and Urban Development (HUD). It shall also include a 7-year manufacturer's limited warranty.

\*Claim approved by UL, based on manufacturer's reported testing.

## Technical Specifications

Part Number:	21007624
Model:	KN-COPE-I
Power Source:	120VAC, 60Hz 25mA max per alarm 9V battery backup
Smoke Sensor:	Photoelectric
CO Sensor:	Electrochemical
Audio Alarm:	85dB at 10ft
Temperature Range:	40°F (4.4°C) to 100°F (37.8°C)
Humidity Range:	5%-95% relative humidity
Size:	5.79" in diameter x 1.85" depth
Weight:	1lb
Wiring:	Quick connect plug with 8" pigtails
Interconnects:	Up to 24 Kidde devices (of which 18 can be initiating)
Warranty:	7 year limited



## Ordering Information

UPC: 0-47871-07624-6

Part Number	I 2 of 5	Pack Quantity	Dimensions (w x d x h inches)	Weight	Case/Skid
21007624	100 47871 07624 3	Master Pack (6 units)	6.8 x 13.25 x 6.6	6.7lbs	756



1016 Corporate Park Drive  
Mebane NC 27302  
1-800-880-6788 www.Kidde.com



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# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/3/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- Academic Buildings
- Administrative
- Athletic Facilities
- Campus Wide
- Other \_\_\_\_\_
- Other \_\_\_\_\_
- Dormitories
- Faculty Residences
- Support
- Utility

**Overview of system/product/guideline:**

Preferred Vendor is Keltron

**Links to additional product information:**



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

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- Design Guidelines
- Design Details/Drawings
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### Guideline applies:

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| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input checked="" type="checkbox"/> Utility |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

The following is the PEA Design Guideline for smoke and Co detectors

### Links to additional product information:

# 120VAC Wire In with 9V Battery Back Up Heat Alarm

**Model HD135F**

## Flashing Red LED

Flashes every 30-40 seconds to indicate proper operation

## Test Button

Tests unit's electronic circuitry,  
horn and battery function

## 9V Battery Back Up

Provides continuous protection  
even during power outages



## Description

The Kidde HD135F is a 120VAC Wire In Heat Alarm that responds to temperature rather than smoke. The alarm will sound if temperatures rise above 135°F. The Kidde HD135F is interconnectable. The interconnect system must not exceed the NFPA (National Fire Protection Association) limit of 18 initiating devices (Smoke, heat, CO, etc) interconnected, it is still possible to interconnect 6 strobe lights and or relay modules. This unit includes a 5-year limited warranty and is UL Listed.

## Benefits

The Kidde HD135F 120VAC wire in heat alarm gives you and your family an early warning to dangerous temperatures of 135°F or more. This unit can be used as a single station unit or it can be interconnected to up to 24 Kidde devices in a multiple station arrangement. The interconnect system must not exceed the NFPA (National Fire Protection Association) limit of 18 initiating devices (Smoke, heat, CO, etc) interconnected, it is still possible to interconnect 6 strobe lights and or relay modules. The HD135F includes a tamper resist pin to help deter tampering or theft.

## Features and Benefits

- **Interconnectable** – Interconnects with up to 24 Kidde devices of which 18 can be initiating.
- **Test Button** – Tests unit's electronic circuitry, horn and battery function.
- **9V Battery Back Up** – Provides continuous protection even during power outages.
- **Red LED** – Flashes every 30-40 seconds to indicate proper operation.
- **Low Battery Indicator** – Alerts user in the event of a low or missing battery.
- **Quick Connect Power Harness** – Makes installation fast and easy.



## Architectural and Engineering Specifications

The heat alarm shall be Kidde Unit HD135F or approved equal. It shall be powered by a 120VAC, 60Hz source along with a 9V battery backup. The temperature operation range shall be between -20F to +100F (-29C and +38C) and the humidity operation range shall be 5% - 95% relative humidity.

The heat alarm can be installed on any standard single gang electrical box, up to a 4" octagon junction box. The electrical connection (to the alarm) shall be made with a plug-in connector. A maximum of 24 Kidde devices can be interconnected in a multiple station arrangement. The interconnect system must not exceed the NFPA (National Fire Protection Association) limit of 18 initiating devices (Smoke, heat, CO, etc) interconnected, it is still possible to interconnect 6 strobe lights and or relay modules. The alarm shall provide optional tamper resistance that deters removal of the unit from the wall or ceiling.

The unit shall include a piezoelectric horn that is rated at 85dB at 10ft. The unit shall incorporate 2 LED's. A green LED will be constantly "ON" when AC power is present. A red LED will flash once approximately every 30-40 seconds to indicate that the smoke alarm is operating properly and will flash rapidly when the unit is alarming and will remain so until the air temperature is reduced.

The unit shall incorporate a test button. The test button shall test all the electronic circuitry, horn, and battery.

The unit shall at a minimum meet the requirements of UL217, NFPA72, (chapter 10 & 11 2002 edition) The State of California Fire Marshall, NFPA101 (One and two family dwellings, Federal Housing Authority (FHA), Housing and Urban Development (HUD).

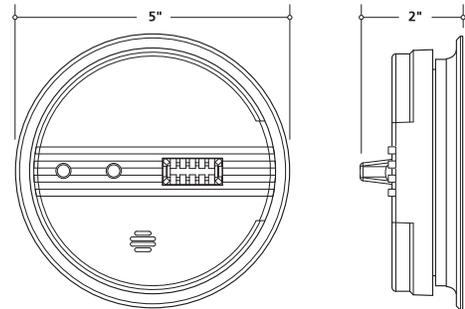
HEAT ALARMS ARE NOT DESIGNED TO PROTECT LIFE SAFETY AGAINST FIRE AND SMOKE. IN CASES WHERE LIFE SAFETY IS AN ISSUE, HEAT ALARMS SHOULD ONLY BE USED AS A SUPPLEMENT TO THE SMOKE ALARM INSTALLATION

## Technical Specifications

Model Number:	HD135F
UPC:	0-25417-84135-0
Power Source:	120VAC, 60HZ, 9V battery backup
Sensor:	Heat
Audio Alarm:	85dB at 10ft
Temperature Range:	-20F to +100F (-29C and +38C)
Humidity Range:	5%-95% relative humidity (RH)
Size:	5" in diameter x 2" depth
Weight:	.75lbs
Interconnects:	Up to 24 Kidde devices of which 18 can be initiating devices.
LED:	Green, AC power present, alarm mode; flashing Red indicates originating unit
Warranty:	5 year limited warranty

## Installation of Heat Alarm

The heat alarm should be installed to comply with all local codes having jurisdiction in your area, Article 760 of the National Electric Code, and NFPA 72. Make certain all alarms are wired to a single, continuous (non-switched) power line, which is not protected by a ground fault interrupter. A maximum of 1000 ft. of wire can be used in the interconnect system.



## Ordering Information

Gift Box UPC: 0-25417-84135-0

Part Number	1 of 5	Pack Quantity	Dimensions (w x d x h inches)	Weight	Case/Skid	Layers/Skid	Skid Weight
HD135F*	N/A	Individual	4.75 x 2.45 x 5.65	.75lbs	N/A	N/A	N/A
HD135F	200 25417 84135 4	Master Pack (6 units)	6.5 x 10.5 x 6.5	4.5lbs	60	5	270lbs

\* Not for sale by individual unit



1016 Corporate Park Drive  
Mebane NC 27302  
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# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/5/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |   |  |
|---|--|
| <input type="checkbox"/> Academic Buildings     | <input type="checkbox"/> Dormitories                   |
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| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support                       |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility                       |
| <input type="checkbox"/> Other _____            |  |
| <input type="checkbox"/> Other _____            |  |

**Overview of system/product/guideline:**

The following is the EA Design Guideline for smoke and CO Detectors

**Links to additional product information:**

Empty box for links to additional product information.

## AC Wire-in Combination Carbon Monoxide & Photoelectric Smoke Alarm

- 120VAC Direct Wire with Battery Backup
- Alarm/Voice message warning system
- Front loading battery

Part Number 21007624

Model KN-COPE-I

### Voice Warning

Warns of hazard by announcing "Fire, Fire" or "Warning, Carbon Monoxide".

### Peak Level Memory

Alerts user when the unit has detected CO concentrations of 100ppm or higher.

### Smart Hush™

Silences the unit during nuisance alarm situations. (Smoke must be present before hush is activated)

### Two LED's

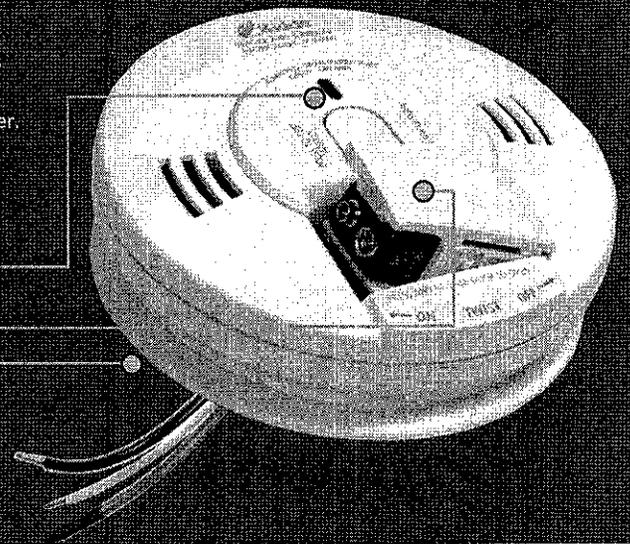
- Red – Alarm mode.
- Green – Indicates that AC power is present.

### Front Load Battery Door

### Adjustable Mounting Bracket

Allows for easy installation and alignment.

**Alerts user to replace CO alarm after 7 years of operation**



## Description

The Kidde Front-Loading Smoke and Carbon Monoxide alarm (part # 21007624) offers protection from two hazards – fire and CO – in one unit. Sold under the FireX brand, this AC-wire with battery backup alarm emits a beeping tone followed by a voice warning that clearly announces the danger by saying, "Fire! Fire!" or "Warning! Carbon Monoxide!". The uniquely designed front-loading battery compartment makes battery replacement quick and easy, and ensures proper installation. Manufactured with photoelectric sensors for detecting smoke and fire, this alarm also includes the world's most accurate CO sensing technology based on claims by major manufacturers.

## Alarm Warnings

**Fire:** The red LED will flash and be accompanied by three long alarm beeps followed by a verbal warning message "FIRE! FIRE!". The alarm will repeat pattern until unit is reset or smoke is eliminated.

**Carbon Monoxide:** Four short alarm beeps followed by a verbal warning "WARNING! CARBON MONOXIDE!". This continues until the unit is reset or the CO is eliminated.

**Low Battery:** One chirp followed by warning "LOW BATTERY". The red LED light will flash. This pattern will continue every minute for the first hour. After the first hour the red LED light will flash once every minute accompanied by the chirp sound. The "LOW BATTERY" warning will only sound once every fifteen minutes.

**Voice Hush Indication:** "HUSH ACTIVATED" and "HUSH CANCELLED" voice announcement

**Alarm Memory:** The green LED will blink once every 16 seconds to alert a user when the unit has alarmed for smoke or has detected a concentration of CO. If the alarm has detected a CO level of 100ppm or greater, when the Test/Reset button is pressed the unit will announce "CO PREVIOUSLY DETECTED". If the alarm has detected abnormal levels of smoke since its last test, it will produce three rapid beeps.



## Features and Benefits

- **AC-Wire with battery backup** – Powered by home's electricity in order to provide continuous protection. An included 9V battery protects during short-term power outages.
- **Front-Loading Battery** – Speeds up replacement by eliminating the need to remove the unit from the ceiling or wall.
- **Unique Battery Door Design** – Will not close if battery is not installed properly.
- **Voice Warning** – Supplements warning from the traditional 85-decibel alarm by clearly stating the danger present, fire or carbon monoxide.
- **Photoelectric smoke sensor** – May detect visible fire particles associated with slow smoldering fires sooner than an ionization sensor.
- **Electrochemical CO sensor** – Provides accurate and continual CO protection during the product's life, remains stable during temperature and humidity changes and resists reactions to household gases that may cause false readings or reduce sensitivity.
- **Smart Touch Button** – One button performs the following functions:
  - Activates the Hush® feature to temporarily silence nuisance alarms (will announce "Hush mode activated," or "Hush mode cancelled.")
  - Simultaneously tests the unit's electronics and verifies proper operation
  - Activates the peak level memory feature (will announce "CO previously detected" if unit has detected levels of 100 ppm or higher)
  - Resets the unit during a CO alarm (Unit will re-enter alarm within 6 minutes of reset if 70ppm or more of CO is present).
  - Silences a low battery chirp for up to 12 hours
  - Silences the end of life chirp for two days
- **Tamper Resistant** – Unit will lock to mounting bracket and battery door will lock to deter theft or tampering.
- **Green LED** – Will flash every 30 seconds to indicate proper operation.
- **Red LED** – Flashes in conjunction with the alarm sounding.
- **End of Life Signal** – Seven years after initial power, the unit will "chirp" twice every 30 seconds to indicate the need to immediately replace the alarm.
- **Low Battery Signal** – Will chirp every minute and red LED will flash to indicate low battery condition.
- **Interconnectable** – Will interconnect with up to 24 other devices (18 of which can be initiating) including smoke, CO and heat alarms.

## Installation of Smoke Alarm

The combination alarm should be installed to comply with all local codes having jurisdiction in your area, Article 760 of the National Electric Code, and NFPA 72. Make certain all alarms are wired to a single, continuous (non-switched) power line, which is not protected by a ground fault interrupter. A maximum of 1000 ft. of wire can be used in the interconnect system. Use standard UL listed household wire (18 gauge or larger as required by local codes).

## Architectural and Engineering Specifications

The combination smoke and carbon monoxide alarm shall be Kidde Unit Number KN-COPE-I (part number 900-0213) or approved equal. It shall be powered by 120VAC, 60Hz source with a 9V battery backup. The temperature operating range shall be between 40°F and 100°F (4°C and 38°C) and the humidity operating range shall be 5% - 85% relative humidity.

The unit shall incorporate a photoelectric smoke sensor with nominal sensitivity of 2.05%/ft. The CO sensor shall be of a fuel cell design and shall meet the sensitivity requirements of Underwriters Laboratories UL2034 Single and Multiple Station Carbon Monoxide Detectors. The unit shall qualify for UL-approved wording on the package: "World's Most Accurate Carbon Monoxide Alarm"\*.

The combination alarm can be installed on the surface of any wall or ceiling following the UL/NFPA/Manufacturer's recommended placement guidelines. The alarm can be installed on any standard single gang electrical box, up to a 4" octagon junction box. The electrical connection (to the alarm) shall be made with a plug-in connector. The unit shall provide optional tamper resistance that deters removal of the unit from the wall or ceiling. No additional pieces shall be required to activate this feature.

A maximum of 24 Kidde devices can be interconnected in a multiple station arrangement. The interconnect system must not exceed the NFPA (National Fire Protection Association) limit of 18 initiating devices, of which 12 can be smoke alarms. With 18 initiating devices (smoke, heat, CO, etc), interconnected, it is still possible to interconnect 6 strobe lights and/or relay modules.

The alarm shall include a test button that will electronically simulate the presence of smoke and CO and cause the unit to go into both modes of alarm. This sequence tests the unit's electronics to ensure proper operation. The CO sensor will not alarm to levels of CO below 30 ppm and will alarm in the following time range when exposed to the corresponding levels of CO.

70 ppm CO Concentration 60 – 240 minutes

150 ppm CO Concentration 10 – 50 minutes

400 ppm CO Concentration 4 – 15 minutes

The combination alarm shall have two methods of warning for danger: a piezoelectric horn that is rated at 85 decibels at 10 feet and a voice warning that identifies the danger. For a CO incident, the horn will sound in the repetitive manner – four (4) fast beeps, a short pause, four (4) fast beeps, a short pause. In between, the unit will announce "Warning Carbon Monoxide!" In a Smoke incident, the horn will sound in the repetitive manner – three (3) beeps, a pause, three (3) beeps, a pause. In between, the unit will announce "Fire! Fire!" The unit shall incorporate 2 LED's. A green LED will be steady on when AC power is present, flash every 30 seconds when in the

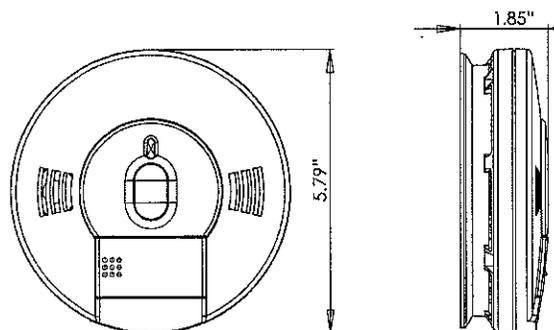
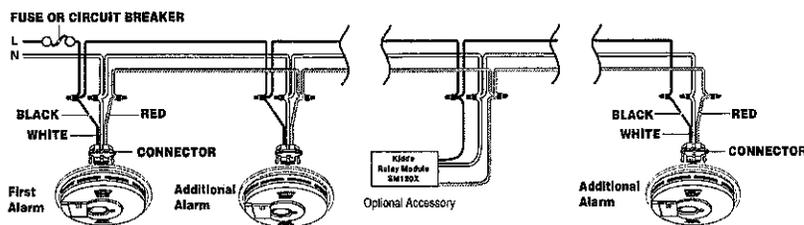
battery only mode, every 16 seconds to indicate alarm memory, and every 2 seconds to indicate the Hush™ mode is active. A red LED will flash in unison with the sounder pattern. The unit shall include the Smart Hush™ feature that silences the unit for approximately 8 minutes if a nuisance alarm condition occurs. The Green LED on the alarm will flash every 2 seconds while in Smart Hush™ and will automatically reset itself. It also provides voice announcement of "Hush Activated" when Smart Hush™ is activated and "Hush Cancelled" when the Hush cycle ends.

The unit shall also indicate a low battery warning utilizing each of the following methods: a brief alarm chirp, the voice announcement of "Low Battery!" The unit shall at a minimum meet the requirements of UL 2034, UL217, NFPA72, (chapter 11 2002 edition) The State of California Fire Marshall, NFPA101 (One and two family dwellings) Federal Housing Authority (FHA), Housing and Urban Development (HUD). It shall also include a 7-year manufacturer's limited warranty.

\*Claim approved by UL, based on manufacturer's reported testing.

## Technical Specifications

Part Number:	21007624
Model:	KN-COPE-I
Power Source:	120VAC, 60Hz 25mA max per alarm 9V battery backup
Smoke Sensor:	Photoelectric
CO Sensor:	Electrochemical
Audio Alarm:	85dB at 10ft
Temperature Range:	40°F (4.4°C) to 100°F (37.8°C)
Humidity Range:	5%-95% relative humidity
Size:	5.79" in diameter x 1.85" depth
Weight:	1lb
Wiring:	Quick connect plug with 8" pigtails
Interconnects:	Up to 24 Kidde devices (of which 18 can be initiating)
Warranty:	7 year limited



## Ordering Information

UPC: 0-47871-07624-6

Part Number	1 2 of 5	Pack Quantity	Dimensions (w x d x h inches)	Weight	Case/Skid
21007624	100 47871 07624 3	Master Pack (6 units)	6.8 x 13.25 x 6.6	6.7lbs	756



1016 Corporate Park Drive  
Mebane NC 27302  
1-800-880-6788 www.Kidde.com



**Distributed by:**



# Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 2/3/2016

Updated by:

**Included in this section:**

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

**Guideline applies:**

- |  |   |
|--|---|
| <input type="checkbox"/> Academic Buildings  | <input type="checkbox"/> Dormitories        |
| <input type="checkbox"/> Administrative      | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities | <input type="checkbox"/> Support            |
| <input type="checkbox"/> Campus Wide         | <input checked="" type="checkbox"/> Utility |
| <input type="checkbox"/> Other _____         |   |
| <input type="checkbox"/> Other _____         |   |

**Overview of system/product/guideline:**

Preferred vendor is Mircom or Simplex with 2 year warranty

**Links to additional product information:**

[www.activefirealarm.com](http://www.activefirealarm.com)

## Phillips Exeter Academy Design and Construction Standards

### Fire Alarm System

January 10, 2014

control module is provided to actuate the 177 candela strobe in the room upon room smoke detector actuation.

#### Corridors / Common Areas/Bathrooms

- All detection/initiation devices are system connected and will activate a "General Alarm" within the entire building.
- Speaker strobe units are located as required by code.

#### General Programming

- Audible annunciation through speaker strobes during a "General Alarm" shall state the following pre-recorded message:
  - **"Attention please. There has been a report of an emergency. Proceed calmly to the nearest exit and leave the building immediately. Do not use the elevators. Use stairwells where necessary. All handicap occupants shall use the building evacuation plan."**
- Provide a second alarm test switch labeled "Campus Safety Fire Drill – Bypass of Faculty Apt Horn/Strobe" that will only activate devices in the student areas.
- Bypass switches for Elevators, Door Mags, Horn Strobes, Duct Detectors, Dampers, Every floors Pulls / Smokes, Fire Drill Switch ( up to a total of 12 Bypasses)

#### Closeout

- Manufacturer shall supply to the electrical contractor a complete set of engineering documents depicting the following information, the cost of which shall be included in the base price:
  - Complete riser diagrams showing overall system wiring.
  - FACP internal card locations with wire termination points shown.
  - Battery calculations showing standby and alarm current draws for a TRUE indication of the required 60 hour calculation.
  - Architectural prints with just fire alarm equipment and devices using vendor symbology to include address, loop number, and NAC wiring circuit and termination points on the architectural drawings. These should be provided on a per section basis and by floor.
  - A complete table showing all addressable devices, recommended labeling of devices, and proper switch settings for desired address contained on the drawings.
  - Depiction of wiring with recommended cable chart and point to point wiring layout between all devices.
  - All above items shall be performed on AutoCAD on a version compatible with Owner and supplied to the Owner.
  -

End of Section

# Phillips Exeter Academy Design and Construction Standards

## Fire Alarm System

January 10, 2014

### Approved Vendors

- Mircom
- Simplex

### General

- Contractor shall provide a one year system warranty covering parts and labor.
- Provide a wireless transceiver for alarm transmission from the monitored location to the existing campus central "Keltron" Model-RF778F wireless transceiver/receiver with a minimum of 8-ea. programmable zones.
- Provide a wireless radio interior system interface, supporting hardware and all programming necessary to tie fire alarm system in to existing campus emergency notification system manufactured by American Signal.
- Locate the annunciator panel at main entrance/exit if main fire alarm control panel is mounted elsewhere.
- All devices/peripherals must be same Brand as Main System. (Mircom or Simplex; no substitutes).

All power supply and fire alarm circuit conductor wiring shall be new solid or stranded copper conductors on all initiating device circuits and in raceway whenever possible; all circuits shall be identified and marked as per NFPA-760.30

### Faculty Apartments

- Provide smoke detector with sounder bases in each sleeping room to provide a (minimum of 75 DB @ pillow) as per code.
- Provide CO / Smoke Detector with sounder base within 3' outside sleeping room doors.
- All smoke detectors in sleeping rooms and 3' outside of sleeping rooms will sound if one smoke detector is activated.
- Provide pull stations at each exit.
- Provide audible annunciation with speaker strobes as required by code.
- Provide rate of rise heat detectors in kitchens and also in living room **if** equipped with a fireplace.
- All pull stations, heat detectors, and smoke detectors when activated will set off "General Alarm" for building and will notify Campus Safety and Fire Department.
- A building "General Alarm" will activate speaker strobes and sounder bases in faculty apartment.
- Speaker strobes and smoke detectors for faculty apartments shall be on their own circuit.

### Student Rooms

- Provide smoke detectors with sounder base in each student room.
- All pull stations, heat detectors, and smoke detectors when activated will set off "General Alarm" for building and will notify Campus Safety and Fire Department.
- ADA accessible and hearing impaired rooms are provided with system connected 177 candela strobe and system connected smoke detector with sounder-base. A



## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

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Last Updated: 4/7/2016

Updated by:

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- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
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| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

See attached guidelines and specs for campus lawns, along with typical stake details.

### Links to additional product information:

Blank area for links to additional product information.

## **DIVISION 2 – SITEWORK**

### **02900 LANDSCAPING**

#### **Campus Lawns and Grasses - 02930**

##### **Materials**

- Topsoil shall be from on-site stockpiles augmented by topsoil furnished by Contractor and approved by Project Manger. Topsoil shall be a natural, fertile, friable loam, typical of cultivated soils of the locality. A soil analysis shall be performed on all topsoil to determine soil characteristics, fertility and pH.
- All topsoil shall be of good, rich, uniform grade without admixture of subsoil material. It shall be free from hard clods, stiff clay, hardpan, sods, large stones, lime, cement, bricks, coal, ashes, cinders, slag, concrete, asphalt, construction debris, boards, sticks, roots or other deleterious material.
- Commercial fertilizer shall be a complete fertilizer as recommended by the soil test. Fertilizer shall be delivered to the site in the original unopened containers, which shall bear the manufacturer's name and guaranteed statement of analysis. At least 40 percent by weight of the nitrogen content of the fertilizer shall be derived from organic materials. Fertilizer for lawn areas shall contain not less than 8 percent nitrogen, 6 percent phosphorus and 4 percent potash by weight of ingredients or as otherwise indicated by the soil analysis results.
- Lawn seed mix shall be a fresh, clean new seed crop. The Contractor shall furnish a dealer's guaranteed statement of the composition of the mixture and the percentage of purity and germination of each variety.
- Lawn seed shall be purchased from a recognized distributor and shall be composed of the following varieties mixed in the percentages indicated, or as specified by the Project Manager. Seed shall test to minimum percentages of purity and germination specified.
  - 33% Fine Fescue
  - 33% Perennial Ryegrass
  - 33% Kentucky Bluegrass Blend
- Fiber Mulch shall be composed of wood cellulose fiber containing no germination or growth inhibiting factors. The fiber shall be colored green to allow visual metering during application, have the properties of even dispersal and suspension when agitated in water, and when uniformly sprayed on soil surface to form an absorbent covering allowing percolation of water to underlying soil.
- Site Protection Fence shall be a Wood Stake and Rope Fence to protect all newly seeded areas.
- Wood Stakes shall be (4') in length and (1-1/2" x 1-3/4") with a chiseled point. A (7/16") hole shall be drilled on center, approximately (4-1/2") from the top of the stake.

Wood Stakes shall be painted with one coat of a Benjamin Moore Exterior MoorGard Low Luster Paint, Color: Essex Green.

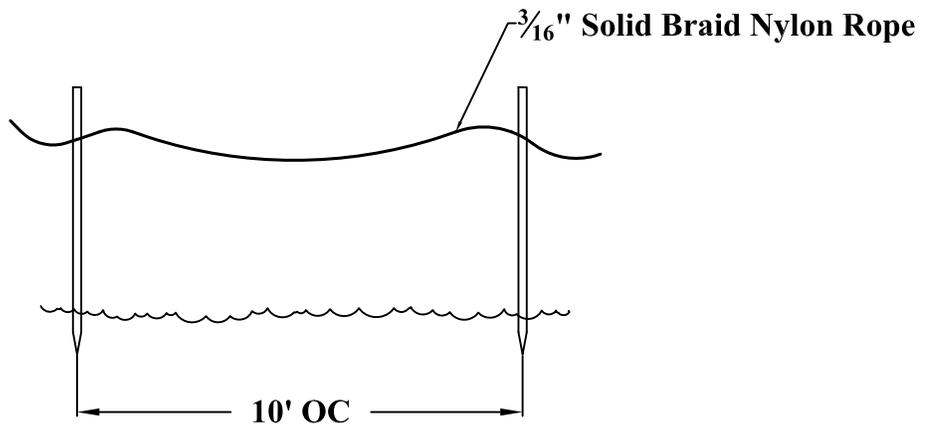
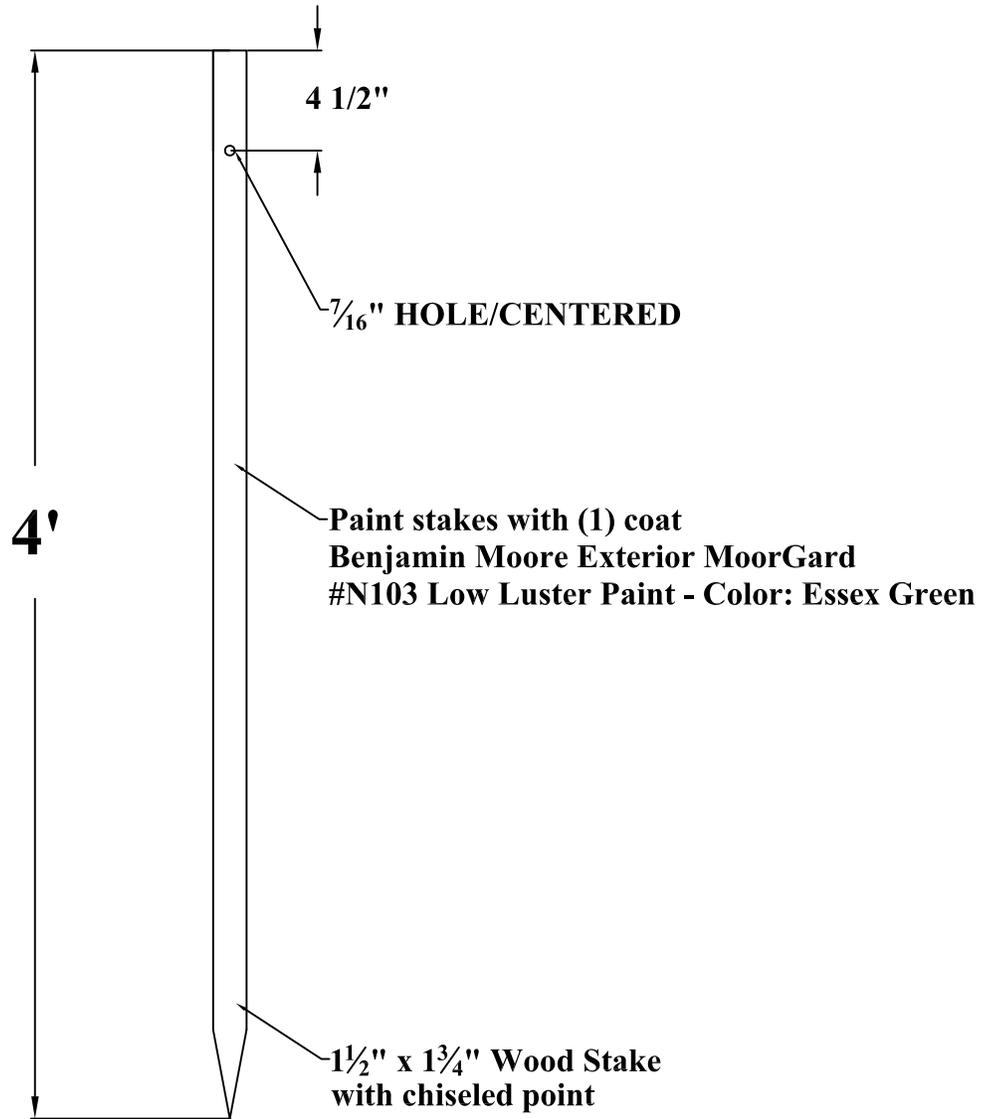
- Rope for fence shall be a (3/16") solid braid nylon rope; Color: White.

### **Execution**

- All work under this section shall be performed by staff experienced in lawn installation under the full-time supervision of a qualified foreman.
- After acceptance of subgrade work performed under other sections, whatever additional grading is necessary shall be performed to bring the subgrade to a true, smooth slope parallel to and except where otherwise indicated, 6-inches below grade of all areas to receive topsoil. Furnish and install grade stakes sufficiently spaced to insure correct line and grade of subgrade and finished grade. Immediately before placing topsoil, loosen the surface of all subgrade. In areas that have been severely compacted, scarify to a depth of 12-inches by approved methods.
- Place and spread topsoil to a depth sufficiently greater than the depth required for areas so after natural settlement and compaction, the complete work will conform to the lines, grades and elevations indicated. After topsoil has been spread, prepare it carefully by scarifying or harrowing and hand raking. Remove large stiff clods, lumps, brush, roots, stumps, litter and other foreign material and stones over 1-inch in diameter and dispose legally off site.
- Apply commercial fertilizer and work thoroughly into the topsoil in two applications. The first application shall be within one week before seeding or sodding, at the rate of 35 lbs per thousand square feet, harrowed into the top 2-inches of topsoil. The second application shall be as determined by the soil analysis recommendations.
- Apply ground limestone at the rate recommended by the soil analysis, and after the topsoil has been spread and graded.
- Incorporate superphosphate into the topsoil with the first application of commercial fertilizer at the rate of 20 lbs per thousand square feet or at the rate recommended by the soil analysis.
- The season for seeding shall be from April 1 to May 31 and from August 15 to October 15, unless otherwise approved by the Project Manager. The actual planting of lawns shall be done, however, only during periods within this season, which are normal for such work as determined by weather conditions and by accepted practice in this locality.
- Seeding shall consist of soil preparation, seeding, raking, rolling, weeding, watering and otherwise providing all labor and materials necessary to secure the establishment of acceptable turf.
- Immediately before any seed is sown, the ground shall be scarified, harrowed, raked and broomed until the surface is smooth, friable and of uniformly fine texture. No seeding shall be done during windy weather. Seed shall be sown in two directions at right angles to each other. Sow the seed evenly by hand or with approved seeding device in the proportions and at the rate of 5 lbs. per 100 square feet of area. The seed shall be covered with a thin layer of topsoil by light raking or other approved method, rolled in both directions with a hand roller weighing not more than 100 lbs. per foot of width, and watered with a fine spray.

- All slopes 3:1 or steeper shall be overseeded with Annual Ryegrass, 98 percent purity, 90 percent germination, at the rate of 1 lb per 1,000 square feet, in addition to the specified seed mix. This shall be a separate sowing executed after the sowing of the regular mixture and before the raking and rolling operations.
- Hydroseeding: At their option, the Contractor may accomplish seeding by use of approved hydroseeding equipment designed specifically for this work. Mix seed, fertilizer, wood cellulose fiber mulch and non asphaltic-fiber binder in required amount of water to produce a homogeneous slurry. Add fiber mulch after seed, water, and fertilizer have been thoroughly mixed and apply at the rate of 200 pounds per acre dry weight. The slurry shall be applied within 30 minutes of mixing to prevent burning of the seed by fertilizer. Immediately following the application of the slurry mix, make separate application of fiber mulch and fiber binder at the rate of 1,000 pounds dry weight, on the ground, material shall form a blotter like cover impregnated uniformly with grass seed. Cover shall allow rainfall or applied water to percolate to underlying soil.
- Maintenance: Shall begin immediately after each portion of lawn is planted and the Contractor shall be responsible for maintenance of the lawn including watering, weeding, fertilization, mowing and replanting as necessary to establish a uniform stand of the specified grasses and until final acceptance. Scattered bare spots, none of which are larger than 72 square inches, will be allowed in seeded areas up to a maximum of 2 percent of any lawn area. After the grass has started, all areas and parts of areas, which fail to show uniform stand of grass, for any reason whatsoever, shall be reseeded and such areas and parts of areas shall be reseeded repeatedly until all areas are covered with a satisfactory growth of grass. At time of first cutting, keep mower blades not less than 2-1/2-inches high. Contractor is responsible for maintenance until final acceptance or two cuttings, whichever is longer.
- Provide temporary Site Protection Fence around newly seeded areas to keep the area undisturbed until grass is well established. Wood Stakes shall be spaced (10') on center maximum. Install nylon rope through holes in stakes allowing adequate slack in rope for shrinkage.
- Prior to acceptance, any damage resulting from erosion, gulleys, washouts or other causes shall be repaired by filling with topsoil, tamping, refertilizing and reseeded.
- Upon acceptance of established lawns, the Contractor shall remove Site Protection Fence and provide materials to the Phillips Exeter Academy Grounds Department.

# SITE PROTECTION FENCE





## Phillips Exeter Academy Construction Standards and Guidelines

Division of Work:

Specification Section:

Description of Material or System:

Last Updated: 4/7/2016

Updated by:

### Included in this section:

- Product Specifications
- Design Guidelines
- Design Details/Drawings
- Supplemental Information
- Other \_\_\_\_\_
- Other \_\_\_\_\_

### Guideline applies:

- |   |   |
|---|---|
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| <input type="checkbox"/> Administrative         | <input type="checkbox"/> Faculty Residences |
| <input type="checkbox"/> Athletic Facilities    | <input type="checkbox"/> Support            |
| <input checked="" type="checkbox"/> Campus Wide | <input type="checkbox"/> Utility            |
| <input type="checkbox"/> Other _____            |   |
| <input type="checkbox"/> Other _____            |   |

### Overview of system/product/guideline:

Attached is the sod blend for replacement and new sod installations on campus.

### Links to additional product information:

Supplier:  
Maine Turf Company  
439 Fish Street  
Fryeburg, ME 04037  
  
207-697-3555  
Rep: Douglas Albert

