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AUG 16 2016

CAMBRIDGE HISTORICAL COMMISSION

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831 Massachusetts Avenue, 2nd Fl., Cambridge, Massachusetts 02139
Telephone: 617 349 4683 Fax: 617 349 3116 TTY: 617 349 6112
E-mail: histcomm@cambridgema.gov URL: http://www.cambridgema.gov/Historic

APPLICATION FOR CERTIFICATE

1. **The undersigned hereby applies to the Cambridge Historical Commission for a Certificate of (check one box): (●) Appropriateness, ( ) Nonapplicability, or ( ) Hardship, in accordance with Chapter 40C of the Massachusetts General Laws and/or Chapter 2.78 of the Municipal Code.**

2. **Address of property:** Harvard Yard **, Cambridge, Massachusetts**

3. **Describe the proposed alteration(s), construction or demolition in the space provided below: (An additional page can be attached, if necessary).**

Installation of wireless access points (WAPs) and antennas to enable Wi-Fi service in Harvard Yard. See attached materials for details.

I certify that the information contained herein is true and accurate to the best of my knowledge and belief. **The undersigned also attests that he/she has read the statements printed on the reverse.**

Name of Property Owner of Record: President and Fellows of Harvard College, c/o Mark Verkennis, HPPM

Mailing Address: 1350 Massachusetts Avenue, Suite 573 Cambridge, MA 01970

Telephone/Fax: (617)496-1879 / (617) 495-0559 **E-mail:** mark_verkennis@harvard.edu

Signature of Property Owner of Record: Mark Verkennis
(Required field; application will not be considered complete without property owner's signature)

Name of proponent, if not record owner:

Mailing Address:

Telephone/Fax: **E-mail:**

(for office use only):

Date Application Received: 8/16/16 **Case Number:** 3677 **Hearing Date:** 9/8/16

Type of Certificate Issued: **Date Issued:**

Harvard Yard Wi-Fi Overview

Purpose

Existing Wi-Fi service in Harvard Yard is presently limited to building interiors with very limited outdoor coverage beyond them. As Harvard Yard has increasingly become an outdoor extension of the University's classrooms, offices and residence halls, the desire among Harvard's affiliates for improved Wi-Fi service in the Yard has grown. In response to student requests and feedback in various surveys and forums, Harvard University Information Technology (HUIT) proposes to establish Wi-Fi access points in Harvard Yard that will enable users to access University resources while outdoors in the Yard via wireless network service.

Proposal

Light Pole-Mounted Installations

HUIT proposes to install wireless access points (WAPs) to eleven (11) free standing light poles in Harvard Yard which also currently serve as emergency phone locations (poles with blue security lights). These locations already have power and in most cases Ethernet cabling to support the WAPs. The few poles without Ethernet have conduit and space to pull necessary cabling.

The WAPs consist of the access point hardware enclosed in a weather proof box (measuring approximately 11" X 9" X 4"). This enclosure will be mounted to the light pole in proximity to the existing blue lights using a mounting bracket that matches the pole contour. The enclosure, mounting bracket, and mounting hardware will be painted to match the existing pole color.

Initially, HUIT seeks to install WAPs at the five (5) locations located within the Old Harvard Yard area (see attached plan). This portion of Harvard Yard is within the boundary of the Old Cambridge Historic District. The remainder of the Yard installations will be reviewed with the Executive Director of the CHC. If approved, HUIT hopes to complete the initial installation by the end of September to serve returning students.

Building-Mounted Installations

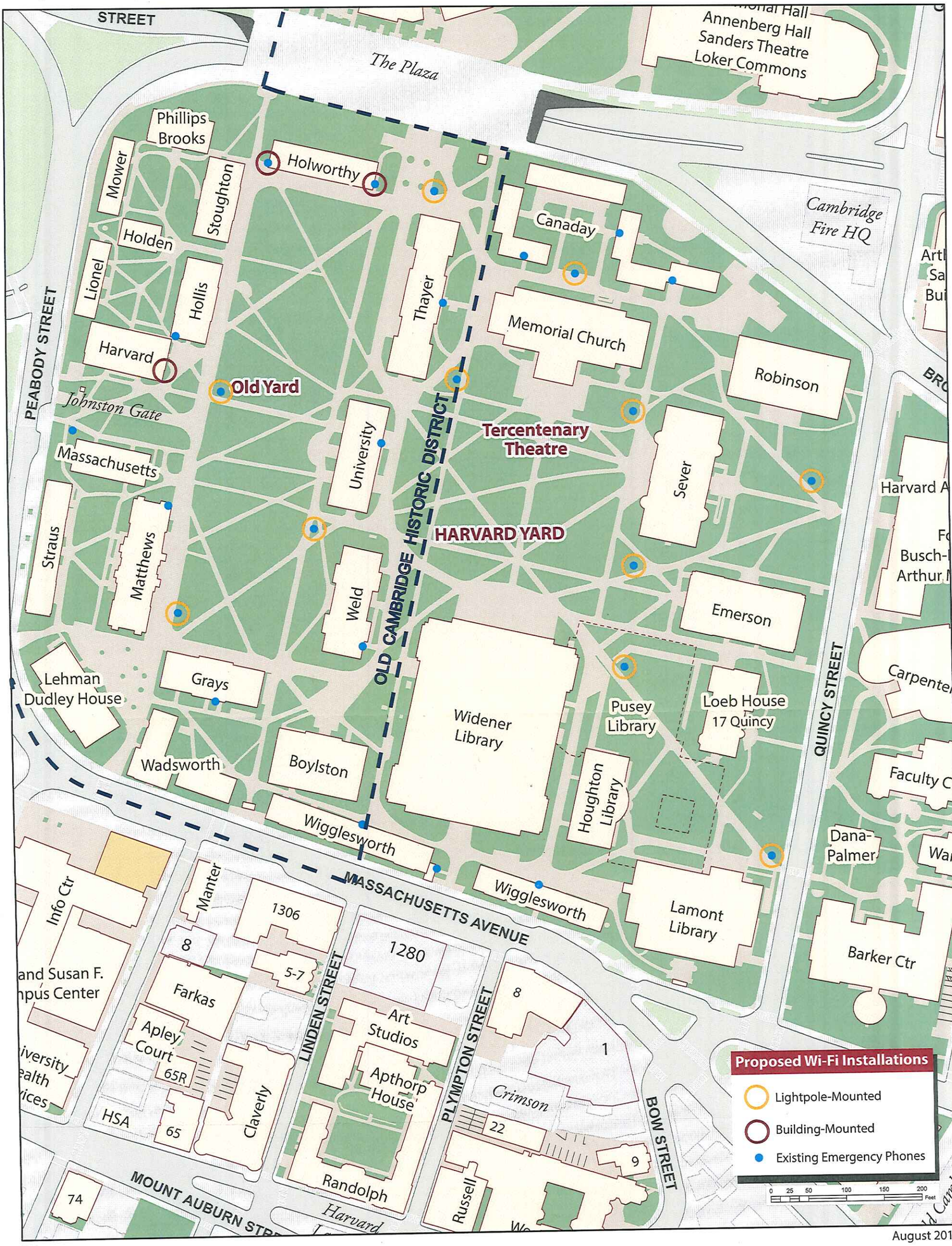
In order to provide adequate Wi-Fi coverage throughout the Old Yard, it is necessary to supplement the light pole mounted WAPs with a small number of external patch antennas. The patch antennas consist of a flat box enclosure (measuring approximately 11" X 6" X 1") which connects to network cabling. A total of three (3) antennas are proposed to be located on two buildings; Harvard Hall located on the west side of the Old Yard and Holworthy Hall on north side.

At Harvard Hall, the antenna will be mounted on a balustrade column facing the Old Yard and positioned to minimize the extent of exposed cabling. The antenna box and any exposed conduit or cable will be painted to match the existing balustrade paint color.

At Holworthy Hall two locations are proposed. At the southwest corner of the building, the antenna will be mounted facing Harvard Yard above the existing blue light. At the southeast corner, the antenna will be mounted facing the Yard between the existing lamp anchors. At both locations, the antenna box and any exposed conduit or cable will be painted to match the background color of the brick wall.

After implementing this initial phase, HUIT will assess Wi-Fi coverage in the Yard and determine the need for any supplemental installations. CHC review and/or Commission approval will be sought for any proposed installations as required.

Proposed Harvard Yard Wi-Fi Installations



August 2016

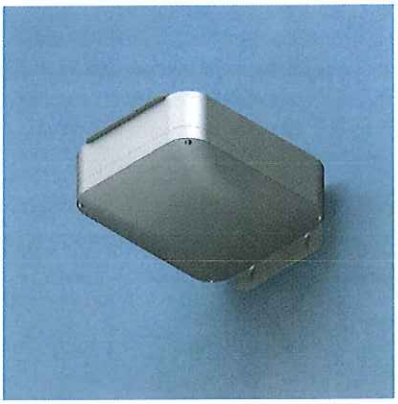
HARVARD
Planning & Project Management

WAP Enclosure (Light Pole Mounted)

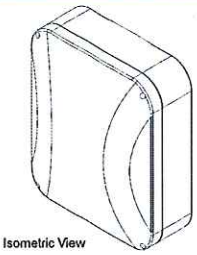
Model 1020-RAB

NEMA 4 WAP Enclosure:Screw-on cover, Right-angle

Category: Indoor/Outdoor NEMA



1020-RAB is a compact indoor/outdoor NEMA 4 enclosure that protects WAPs in challenging environments, and mounts the equipment in a horizontal orientation to achieve best wireless coverage. This rugged polycarbonate enclosure protects the WAP from weather, pressure spray, spilling liquids, dust, and impacts, and is transparent to wireless signals so WAPs with body-integrated antennas or small detachable antennas may be protected. This plastic is paintable for more effective concealment.



Isometric View

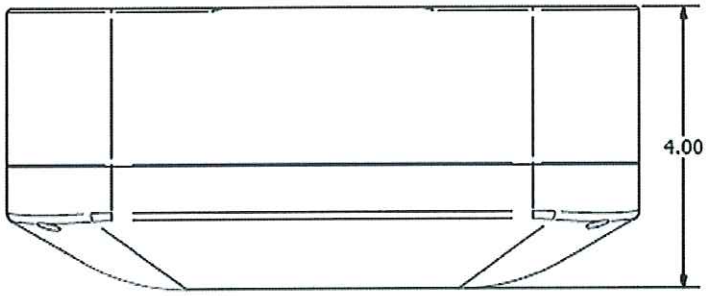
Features & Benefits

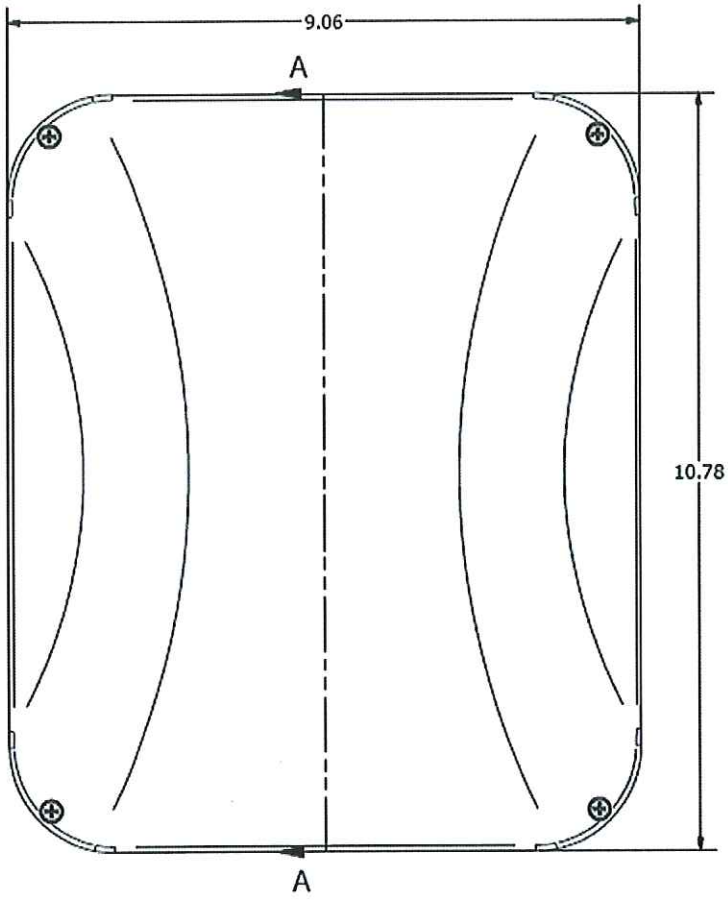
- Compact, rugged enclosure for installing WAPs in challenging environments; right angle bracket (RAB) included for wall mounting
- Designed to NEMA 1, 2, 4, 4X, 12, and 13, and IEC529-IP65 specifications for use in indoor/outdoor wet, dirty, or corrosive environments; UV stabilized for exposure to direct sunlight
- Virtually transparent to wireless signals
- Plastic is easily drilled and machined for custom cable ingress and installation; enclosure is paintable
- Cover attaches with four stainless steel screws; silicon gasket material provides seal

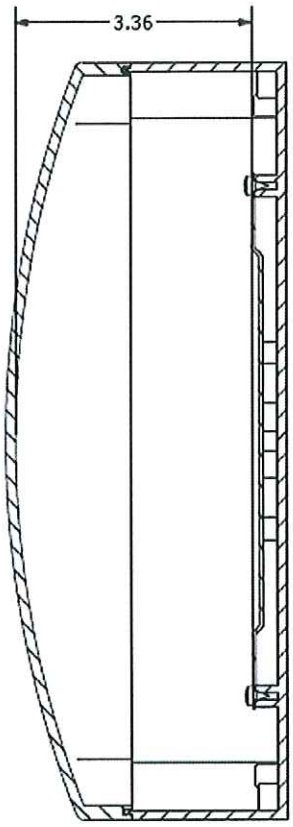
Technical Specifications

- Design: Rugged polycarbonate NEMA wireless access point enclosure designed for surface mounting indoors or outdoors. Includes right-angle bracket for mounting enclosure in preferred horizontal orientation on wall or pole. Right-angle wall bracket acts as sun shield for enclosure. Helps to reduce solar load on outdoor mounted enclosure.
- Performance: Designed to NEMA 1, 2, 4, 4X, 12, and 13, and IEC529-IP66 specifications for indoor/outdoor wet, dirty, or corrosive environments. UV-stabilized for exposure to direct sunlight. Transparent to wireless signals. Paintable.
- Exterior 10ga steel right-angle mounting bracket; grey powder-coated
- Oberon Skybar-shaped screw on cover with gasket; cover screws must be torqued to 8in-lbs.; cover screws are recessed into cover
- Internal universal T-bar bracket
- Construction: UL listed to UL508; body and cover are light gray UL94-V0 PBT/PC blended plastic
- AP max. operating temperature should be de-rated by 11° C inside the enclosure
- Exterior Size: 9.1 inches by 13.4 inches by 4 inches (340mm by 231mm by 102mm Interior dimensions 8.8 inches by 10.5 inches by 3.7 inches (224 mm by 267 mm by 95 mm)

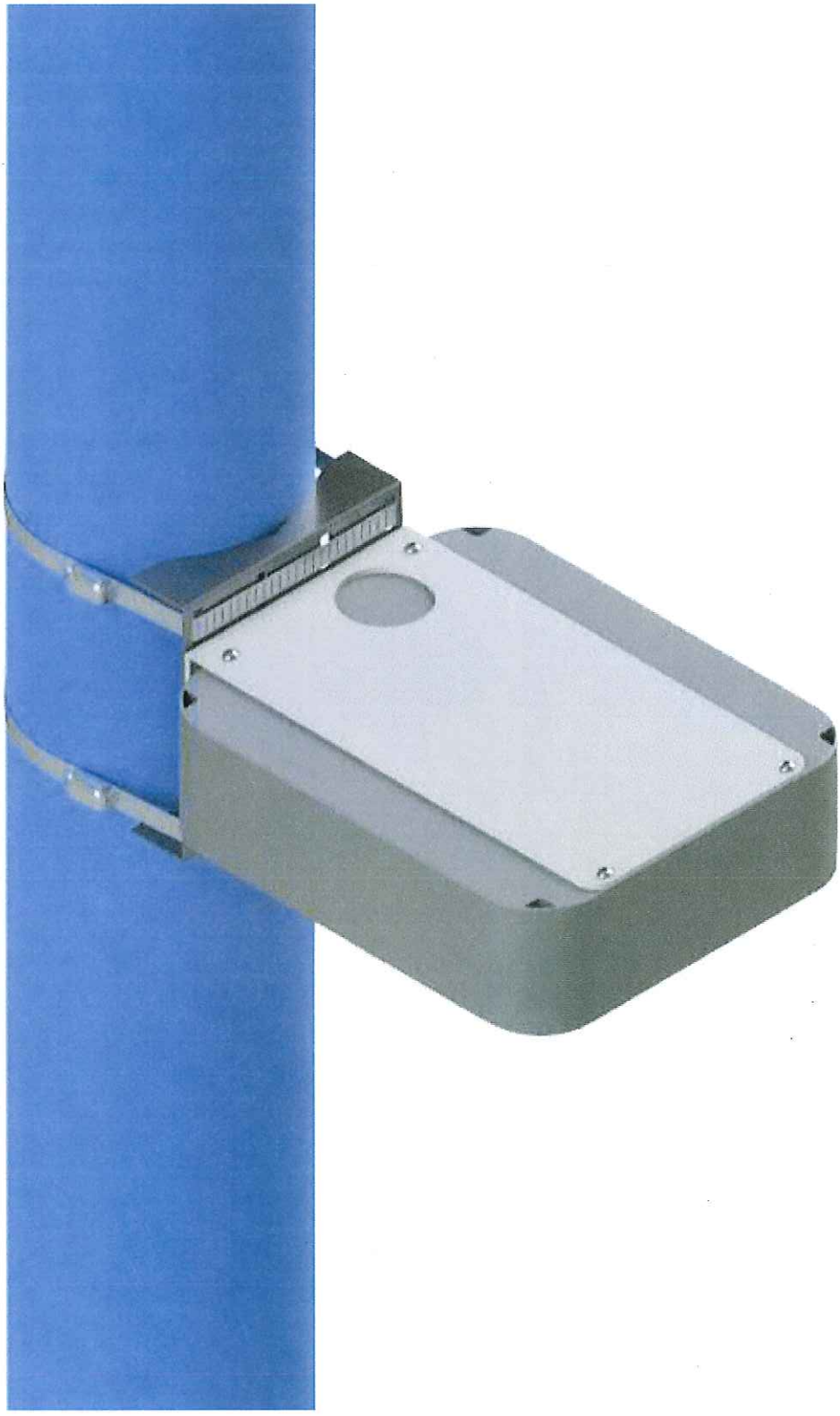
Dimensional Images





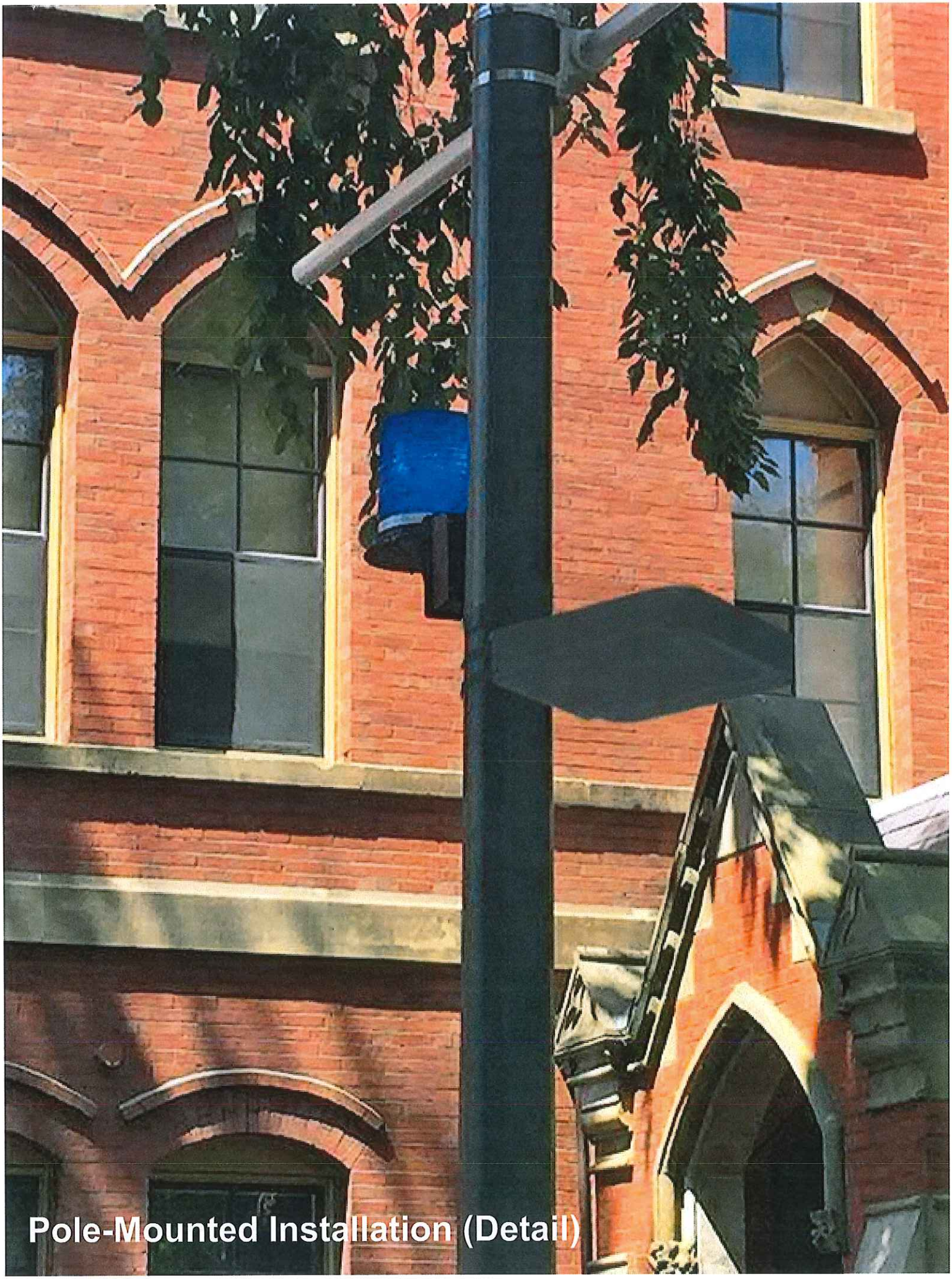


SECTION A-A
SCALE 1 : 1.75



Typical Pole-Mounted Installation

Typical Pole-Mounted Installation

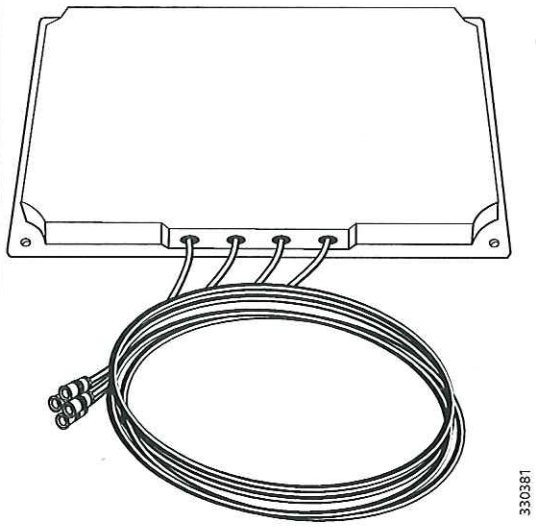


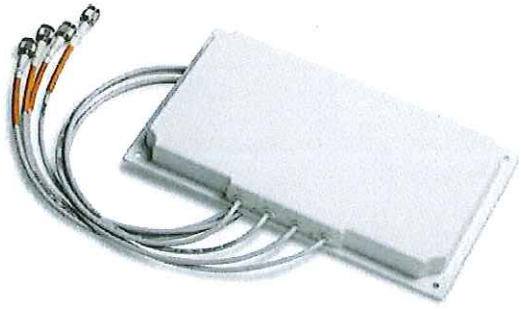
Pole-Mounted Installation (Detail)

Technical Specifications

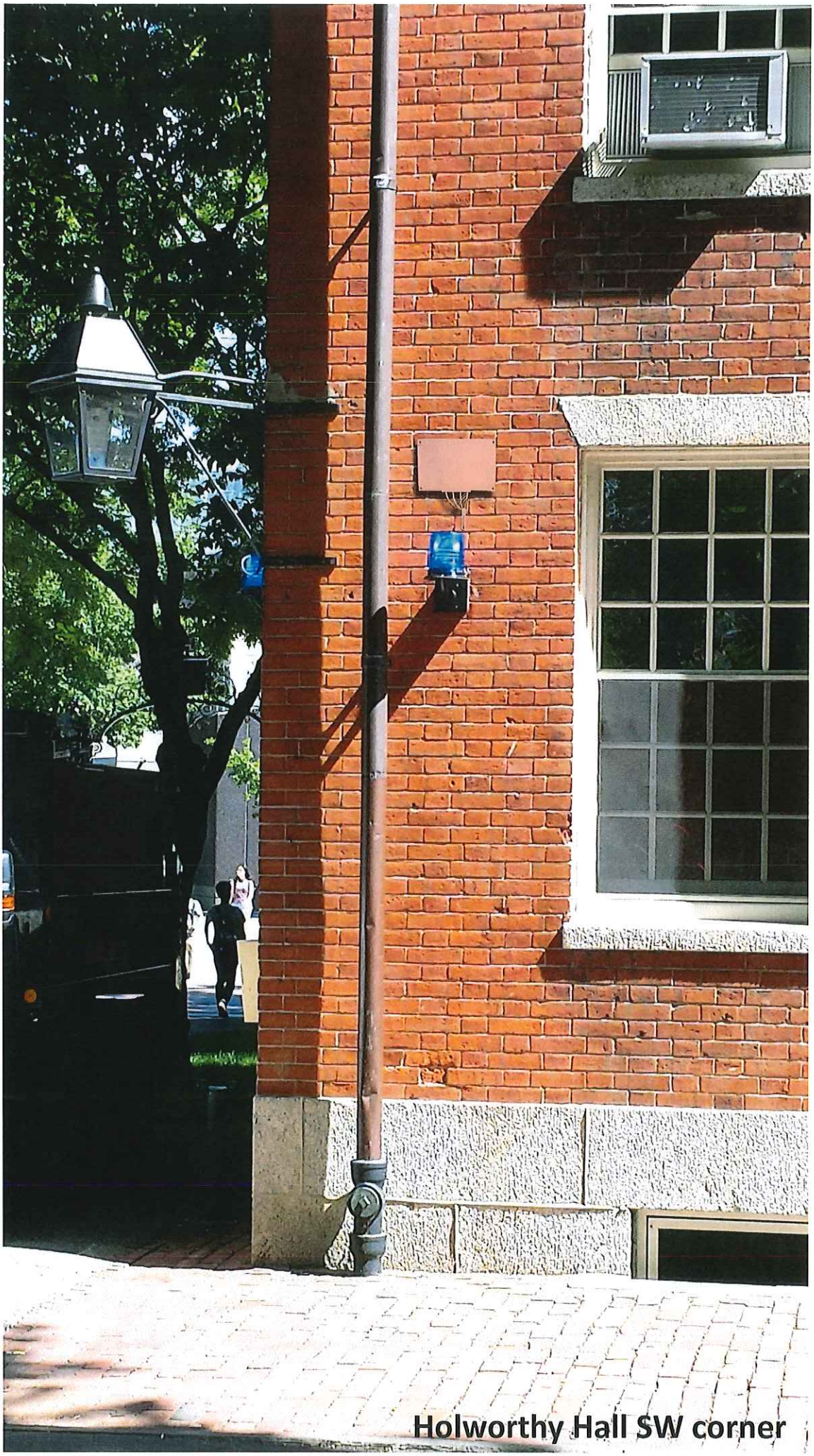
Table 1 AIR-ANT2566P4W-R 2.4-GHz/5-GHz MIMO 4-Element Patch Antenna Specifications

Antenna type	4-element dual-band MIMO
Operating frequency range	2400 to 2484 MHz
	5150–5850 MHz
VSWR	2:1 or less
Gain	6 dBi in both bands
Polarization	Linear, vertical
Azimuth Plane 3-dB Beamwidth	2.4 GHz band: 105°
	5 GHz band: 110°
Elevation Plane 3-dB Beamwidth	2.4 GHz band: 65°
	5 GHz band: 55°
Length	6.3 in. (16 cm)
Width	11 in. (27.9 cm)
Depth	1.2 in. (3.05 cm)
Weight	1.4 lbs
Cable length and type	3 ft. (91.4 cm) plenum rated
Connector	RP-TNC
Environment	Indoor/outdoor
Water/Foreign Body Ingress	IP54
Operating temperature range	-40° to 158° F
	-40° to 70° C

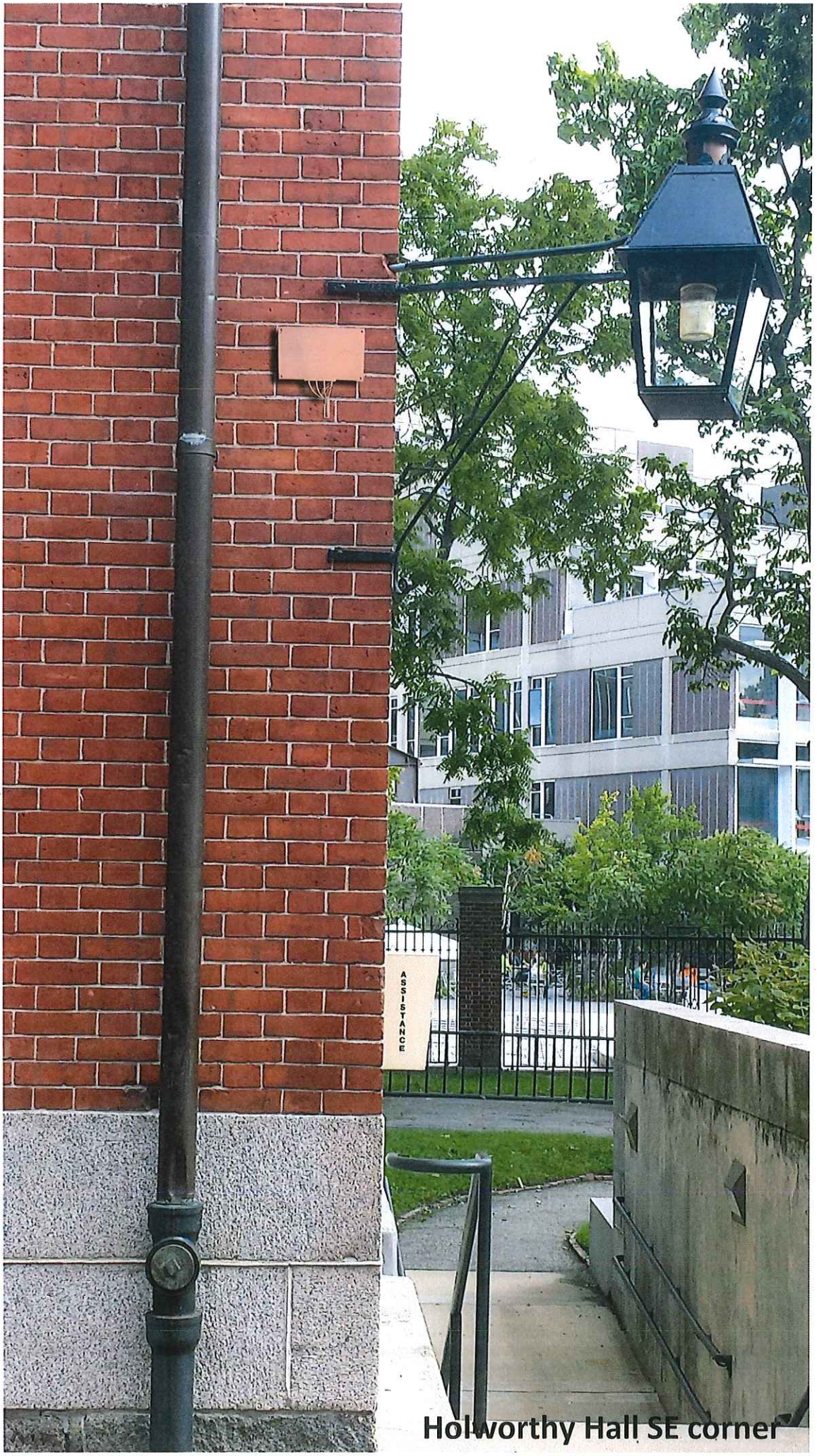





Harvard Hall



Holworthy Hall SW corner



Holworthy Hall SE corner