

Johns Hopkins Administrative Specification for Cable Plant Labeling and Records

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Homewood Campus

Medical Campus

Montgomery County Campus

Peabody Campus

Bayview Campus

Eastern Campus

Washington Campus

Downtown Center

Mt. Washington Campus

Applied Physics Laboratory Campus

Developed by Homewood Plant Operations & Information Technology @ Johns Hopkins

v. 2
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Administrative Specifications- Labeling & Records

Administrative specifications include labeling requirements and installation records. This section includes requirements and guidelines for OSP and ISP cable plant elements.

1 Safety and Restrictions

There are no specific safety information for this section.

2 Design Considerations

This specification is based on the ANSI/TIA/EIA-606-A - "Administration Standard for Commercial Telecommunications Infrastructure" standard for a Class 4 environment (multiple buildings, multiple campuses). The ANSI/TIA/EIA standard does not adequately address the outside plant elements to the satisfaction of the Johns Hopkins University.

This standard provides designers, installers and University staff with the guidelines to be used to document the Outside and Inside Cable Plants. Plant Operations requires adherence to this standard for all OSP cabling. It is recommended that designers meet with Plant Operations to review labeling. Most identifiers are set by Homewood Plant Operations and a review meeting would enable identifiers to be resolved during planning and design.

This standard will apply an application independent administrative process for identifying and characterizing cabling. Given the number of vendors and cabling projects at Johns Hopkins campuses, a uniform standard is required and strictly enforced to maximize the understanding of the cabling infrastructure.

This document is to replace all references to ANSI/TIA/EIA-606-A.

2.1 Administration

2.1.1 General

The ANSI/TIA/EIA-606A standard covers four levels of administration. This standard is based on Class 4, multiple network rooms within multiple buildings at multiple campuses. It is the most extensive class.

Within this class, there are requirements for identifiers, records, and labeling. Identifiers are unique designations that indicate each element of the infrastructure. Records comprise the information associated with each identifier, stored electronically for ready access. Labeling is the physical representation of the identifier that is attached to each element of the infrastructure.

2.1.2 Records

Plant Operations shall maintain a system by which records can be readily retrieved for any identifier. The software shall provide flexible reporting options on the OSP. These records shall exist in bound form as periodic reporting from the digital records. The digital records shall be considered the authoritative version.

Installers shall provide these records to Plant Operations at completion of new installations as well as moves/adds/changes. These records shall be provided in digital format as a text-based file.

2.1.3 Drawings

Drawings in AutoDesk AutoCAD and schematics in Microsoft Visio shall accompany the physical, paper-based records. All project records shall be in a single file, with JH architectural drawings linked as external references (XREF). The Contractor shall coordinate the final layout of all digital records with JH. The digital version of JH architectural drawings shall be considered the current version. Users of print drawings should confirm the accuracy of those drawings against the current digital records. Updates to drawings shall be done by Homewood Plant Operations or other JH entities as determined by the JH project manager.

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2.1.4 *Labels*

All identifier labels shall be of a size, color, and contrast to be readily visible by those maintaining the system. Labels should be resistant to environmental conditions likely to be encountered where they are installed, such as moisture or heat, and should be designed to have a useful life equal or greater to that of the component labeled. Where possible, industrial grade adhesive should be used on labels. Plant Operations shall approve a sample label for all cabling installations. Lack of pre-approval may result in re-labeling at the vendor's expense.

Building network rooms identifier labels shall be installed by Homewood Plant Operations. Network room identifier labels may be installed on the interior of a room at the primary access point at the discretion of Plant Operations.

Space identifier labels shall be installed by Homewood Plant Operations or by vendors, when provided with labels by Homewood Plant Operations. Conduits, cable trays, ladder trays, innerducts, and other cabling pathway elements shall be labeled with the pathway identifier at pathway openings and every 25 feet along the element, when possible.

Device labels shall be installed on the exterior of all devices, when possible. Device labels may be installed on the interior of a device at the primary access point. Plant Operations shall decide label positioning. Plant Operations and vendors may install these labels.

Cable labels shall be installed in such a position as to be visible during the installation and normal maintenance of the infrastructure. Labels shall be installed on cables every 25 feet when visible. Labels shall be installed at every point of transition between conduits, raceways, cable trays, and access points. Plant Operations and vendors may install these labels.

All backbone cables shall be labeled with physical, logical, and pathway identifiers. Physical identifier labels shall use black lettering on a white background. Logical identifier labels shall use red lettering, red background color, or be placed on a red tag. Pathway identifier labels shall use blue lettering, blue background color, or be placed on a blue tag. Color requirements may be waived if all identifiers are on a single label. When on a single label, the printed order shall be physical identifier, logical identifier, and pathway identifier, from top to bottom. Logical identifiers may be optional.

To maximize legibility, all labels shall be printed or generated by a mechanical device, and shall not be written by hand. Labels shall be able to withstand high and low temperatures without detaching. Labels in exterior spaces shall be able to withstand extended submersion.

2.1.5 *Reports*

Required Linkages

Each identifier shall be linked to each record or report in which it appears.

Required Reports

Plant Operations shall make available to IT@JH or other JH entities, at Plant Operations' discretion, reports comprising information from groups of records. Each report shall list all records of the selected identifier and all information in those records, or any desired subset of the records and of the information in those records.

H3. Identifiers

The primary identifier for an element in the infrastructure shall uniquely identify that element of the infrastructure. Secondary, non-unique identifiers are allowed for cable elements. This allows each physical segment of cable to be identified by a primary identifier. It also allows a secondary identifier for a cable, a logical identifier, to be used that can be carried over multiple segments. This logical identifier allows the original pairs/strands to be tracked from the source of the service.

Each building has a unique identifier. These identifiers were originally based on the building number designations of the Office of Facilities Management at the time this document was prepared. Changes in the designation of buildings by the Office of Facilities Management shall not be reflected in this standard. It is preferable to have discrepancies between two lists than to have to re-label cables to reflect changes in designation by Facilities Management. Plant Operations shall maintain a separate list within this document of building identifiers for the purposes of OSP administration. Vendors and Johns Hopkins staff shall use this list for administrative purposes.

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1 A summary of identifier formats is in a table later in this document. A sample map is provided that illustrates
2 combinations of primary (physical) and secondary (logical) identifiers.

3 All letters used in identifiers are in upper case.

4 **2.2 Identifiers**

5 Johns Hopkins campuses have a variety of identification schemes in place. While it is easy to implement the
6 following identification scheme to new construction, it is difficult to use this scheme in current locations using a
7 different scheme. For small projects and MAC work (moves, adds, and changes), it is likely to be better to extend
8 the existing labeling scheme to the new infrastructure. New construction of buildings or network rooms shall adhere
9 to the new administrative standard unless directed otherwise by JH project managers. Designers and contractors
10 shall coordinate labeling with JH project managers.

11 **2.2.1 Campus & Building Identifiers**

12 Campus identifiers are pre-determined by Homewood Plant Operations. Campus identifiers are two letters (e.g.
13 HW, EC).

Table 1: Campus Identifiers	
AP	Applied Physics Laboratory
BC	Baltimore City pathways (used for DPW pathways)
BGE	Baltimore Gas & Electric pathways
BV	Bayview Campus
CC	Columbia Center
CS	Camp Singewald, Washington County field station
DC	Washington, D.C.
DN	Downtown Center
EB	East Baltimore Medical Campus
EC	JHU@E, Eastern Campus
EV	Evergreen House
HW	Homewood
MC	Montgomery Campus
MW	Mt. Washington
PB	Peabody
VZ	Verizon pathways

14 “BGE” is an exception to the two-digit rule on campus
15 identifier length.

16 Each building shall have a unique identifier.

17 Building identifier shall have the following format:

18 **s-b HW-0001, HW-0002, EC-0001**

19 Building identifiers are pre-determined by Homewood Office of Facilities Management, Space Planning. New
20 building identifiers may be added by the Office of Facilities Management. The number element of a building
21 identifier is four digits with leading zeros as needed (e.g. 0001, 0010). Campus and building elements of an
22 identifier are always separated by a hyphen.

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Table 2: Building Identifiers

Numbers not shown may represent demolished buildings with those numbers being reserved for historical reference. Numbers are assigned by the Office of Facilities Management Space Planning. Cable plant campus codes may not correspond with Space Planning site codes. Cable plant campus codes are based on geographic considerations.

Multiple sections of a building may have different building codes, especially if constructed separately. If the cable plant is continuous between the sections and if the electrical service shares a common ground, the sections of the building shall be considered a single location for the implementation of cable plant identifiers. Gray entries in the identifier table indicate former buildings or sections of buildings covered by another identifier.

ARCHIBUS/FM Data Transfer			
Building Code	Building Name		
Applied Physics Laboratory			
AP-1000	Library Service Center	EB-0100	Welch Medical Library
Bayview Campus		EB-0101	Biophysics Building
BV-0938	Bayview - Administrative Center	EB-0102	Physiology Building
BV-0939	Bayview - AA Building	EB-0103	Woods Basic Science Building
BV-0948	Bayview - Bayview Medical Offices	EB-0104	Hunterian III
BV-0949	Bayview - FSK Pavilion	EB-0105	Pre-Clinical Teaching Building
BV-0960	Bayview - Triad Bldg	EB-0106	Traylor Building
BV-0961	Bayview - A Bldg	EB-0107	Turner Auditorium
BV-0962	Bayview - B Bldg	EB-0108	Reed Hall - West Wing
BV-0963	Bayview - Mason Lord Bldg	EB-0109	Reed Hall - East Wing
BV-0964	Bayview - G Bldg	EB-0110	Med School Admin Bldg
BV-0965	Bayview - CSC Bldg	EB-0111	Richard Ross Research Bldg
BV-0966	Bayview - Trailer	EB-0112	Denton Cooley Athletic Center
BV-0987	Bayview - Geriatrics Bldg	EB-0113	Alumni Swimming Pool
BV-0997	Bayview Alpha Center	EB-0114	Pinkard Bldg. - Nursing
Columbia Center		EB-0115	Bunting-Blaustein Cancer Research Bldg
CC-0913	CPIA - Columbia, MD	EB-0116	Temporary Admin. Building
CC-0973	SPSBE - Columbia Center	EB-0117	Broadway Research Building
CC-0975	SPSBE-Columbia Center	EB-0118	CRB - Tower 2 - Cancer Research
Camp Singewald, Washington County field station		EB-0200	Woods Building
CS-0950	Singewald - Main House	EB-0201	Wilmer Building
CS-0951	Singewald - Secondary House	EB-0202	Maintenance Building
CS-0952	Singewald - Bunk House	EB-0204	Houck Building
CS-0953	Singewald - Class Building	EB-0205	Billings Building
CS-0954	Singewald - Bunk House	EB-0207	CMSC
CS-0955	Singewald - Spring House	EB-0208	Marburg Building
CS-0956	Singewald - Workshop	EB-0209	Parks Building
CS-0957	Singewald - Daisy House	EB-0210	Brady Building
Washington, D.C.		EB-0211	Blalock Building
DC-0400	SAIS - Nitze Bldg (Wash. DC)	EB-0212	Radiology Building
DC-0401	SAIS - Bologna, Italy	EB-0213	Halsted Building
DC-0402	SAIS - Rome Bldg (Wash. DC)	EB-0214	Hurd Hall
DC-0403	German Studies - Wash. DC	EB-0215	New Auditorium
DC-0404	Bernstein/Offit Bldg. 1717 Mass. Ave.	EB-0216	Osler Building
DC-0804	1776 Mass. Ave. Wash. DC	EB-0217	Carnegie Building
DC-0805	Airline Pilots Bldg. Wash. DC	EB-0218	Pathology Building
DC-0986	STSCI - Washington DC	EB-0219	Adolf Meyer Building
Downtown Center		EB-0220	Parking Garage
DN-0946	100 N. Charles Street	EB-0221	Jefferson St Building
DN-0958	SPSBE-Downtown Center (NEW)	EB-0222	Central Power Plant
East Baltimore Medical Campus		EB-0223	Nelson/Harvey Building
		EB-0224	Monument St. Parking Garage
		EB-0225	Maumenee Building
		EB-0226	MRI Building
		EB-0227	Johns Hopkins Out-Patient Center
		EB-0228	Weinberg Cancer Center
		EB-0300	BSPH - Teaching/Research 1
		EB-0301	BSPH - Teaching/Research 2
		EB-0302	BSPH - Wolfe Street Building
		EB-0303	BSPH - Teaching/Research 3
		EB-0304	BSPH - Teaching/Research 4
		EB-0305	Hampton House
		EB-0307	2007 E. Monument St.
		EB-0308	411 N. Caroline St.
		EB-0310	621 N. Washington St.
		EB-0311	613 N. Washington St.
		EB-0313	627 N. Washington Street
		EB-0314	2021 E. Monument Street
		EB-0315	2017 E. Monument St.
		EB-0327	BSPH- Teaching/Research 5
		EB-0328	BSPH- Teaching/Research 6
		EB-0912	2024 E. Monument St.
		EB-0916	2027 E. Monument St.
		EB-0940	Church Home
		EB-0983	Kennedy Institute
		EB-0991	1830 Monument St.
		EB-0993	1235E. Monument St
		EB-0994	2041E. Monument St. Immunogenetics
		JHU@E, Eastern Campus	
		EC-0801	Eastern High School
		EC-0902	Caroline Street Building
		Evergreen House	
		EV-0500	Evergreen House
		Homewood	
		HW-0001	Garland Hall
		HW-0002	Merryman Hall
		HW-0003	Levering Hall
		HW-0004	Shriver Hall
		HW-0005	Barton Hall
		HW-0006	Latrobe Hall
		HW-0007	Shaffer Hall
		HW-0008	Maryland Hall
		HW-0009	Power Plant
		HW-0010	Whitehead Hall
		HW-0011	Milton S. Eisenhower Library
		HW-0012	Krieger Hall
		HW-0013	Ames Hall
		HW-0014	Gilman Hall
		HW-0015	Jenkins Hall
		HW-0016	Mergenthaler/Jenkins Hall
		HW-0017	Remsen Hall
		HW-0018	Homewood House
		HW-0019	AMRI
		HW-0020	AMRII
		HW-0021	Dunning Hall

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HW-0022	Macaulay Hall
HW-0023	Owen House
HW-0024	Faculty Club
HW-0025	Greenhouse
HW-0026	Nichols House
HW-0027	Athletic Center
HW-0028	ROTC Building
HW-0029	Merrick Barn Theatre
HW-0030	3211 N. Charles Street [Steinwald]
HW-0031	Bradford Apartments
HW-0032	Wolman Hall
HW-0033	Homewood Garage
HW-0034	McCoy Hall
HW-0035	3505 N. Charles Street & Annex
HW-0036	3506 Greenway [Rogers House]
HW-0037	Carnegie Embryological Center
HW-0038	Athletic Strands
HW-0039	JHU Press Warehouse
HW-0040	Levi Hall
HW-0041	Biology III
HW-0042	Tool House [Homewood House Outbuilding]
HW-0043	2933 N Charles Street [Baltimorean]
HW-0044	Gate House
HW-0045	Mudd Hall
HW-0046	Bloomberg Research Center
HW-0047	Homewood Apartments
HW-0048	2948 Wyman Park
HW-0049	3001 N. Charles Street
HW-0050	Steven Muller Building - STSCI
HW-0051	Bloomberg Instruction Center
HW-0052	Olin Hall
HW-0053	New Engineering Building [NEB]
HW-0054	2701 N. Charles St.
HW-0055	3503 N. Charles St.
HW-0057	AMRIII
HW-0058	AMRIII - B Building
HW-0059	AMRIII - Terrace
HW-0060	North Chiller Plant
HW-0061	STSCI Parking Garage
HW-0062	Belward Research Ctr. - Banks
HW-0063	Ivy Hall [10-12 E. 33rd St]
HW-0064	3301 N. Charles St.
HW-0065	2715 N. Charles Street [JHU Press]
HW-0066	4 East 33rd Street [3301 Carriage]
HW-0067	3213 N. Charles Street [Wolman House]
HW-0068	3509 N. Charles Street [Bunting-Meyerhoff Center]
HW-0069	Moravia Park Warehouse
HW-0070	9 W. 29th Street
HW-0071	Schelle Pavilion (New Athletic Stands)
HW-0072	Martin Center (Students Arts Center)
HW-0073	3001 Remington Ave.
HW-0074	3103 N. Charles St.
HW-0075	3105 N. Charles St.

HW-0076	Clark Hall
HW-0077	Hodson Hall
HW-0078	Recreation Center
HW-0079	3109 N. Charles Street [Hillel]
HW-0080	3003 N. Charles Street [Homewood Apts. Annex]
HW-0081	Chemistry Building
HW-0082	Chemistry Parking Deck
HW-0083	Storage Building-Athletic Field
HW-0084	San Martin Center-Shell/Garage
HW-0085	Seton Hall
HW-0086	Charles Street Building
HW-0087	St. Paul Street Building
HW-0097	Wyman Park Center-Building 2
HW-0099	Wyman Park Center-Building 3
HW-0802	800 Wyman Park Drive [Kirk-Steiff]
HW-0803	San Martin Center-Carnegie
HW-0806	Lacrosse Hall of Fame
HW-0914	Broadview Apts. - Univ. Parkway
HW-0915	2850 N. Charles Street- Dell House
HW-0918	3401 Greenway Rd - Eden Hall Condominium
HW-0969	Wyman Park Center-Building 1
HW-0982	2216 N. Charles St- WYPR
Montgomery Campus	
MC-0944	Montgomery County Ctr. II
MC-0971	DC Ctr. Rockville, MD
MC-0980	Montgomery County Ctr.
Mt. Washington	
MW-0600	Davis
MW-0601	McAuley
MW-0602	Conference Center
MW-0603	Founders Building
MW-0604	Power House
MW-0605	Childrens Guild
Peabody	
PB-0501	Peabody - Leakin Hall
PB-0502	Peabody - Conservatory
PB-0503	Peabody - Record Library
PB-0504	Peabody - Shapiro House
PB-0505	Peabody - Dorm & Cafeteria
PB-0506	Peabody - Towson Prep. Bldg.
PB-0507	Music Academic Building
PB-0508	Peabody - Elder Hostel
PB-0509	Peabody - 3-5 Centre St.
PB-0510	Peabody - 7-9 Centre St.
Misc. Building Codes	
0056	Villa Spelman - Italy
0318	Henderson House
0320	Alive/Eastern Health Clinic
0321	Candler Building - 111 Market Place
0322	Expansion Property
0323	Storage Building
0324	403 Washington St.
0326	JHU/Lighthouse - 1629E Balto.
0900	GSH - O'Neil Labs

0901	GSH - Associates Bldg.
0903	GSH - Professional Office Bldg
0904	Children's Hosp. - Pierce Bldg.
0905	GSH - POB II - Morgan Bldg.
0906	201 N. Charles St.
0907	509 W. Washington St.
0908	Pro-Hlth-1849 Gwynn Oak Ave. Balto, MD
0909	808 N. Chester St.
0910	SPSBE Catonsville, MD
0917	Maryland Athletic Bldg. - Timonium, MD.
0919	1627 Thames Street
0920	1629 Thames Street
0921	901 S Bond Street
0941	White Marsh Professional Bldg.
0942	Lancaster Square
0943	Tindecos Wharf
0945	World Trade Center - Baltimore
0947	Lighthouse Point
0959	Hagerstown Hlth Ctr
0967	Johns Hopkins Asthma & Allergy Center
0968	Brown's Wharf
0970	1631E. Balto. St.
0972	550 N. Broadway
0974	Levenson & Klein - Biddle St.
0976	JHU Regional Ofc - Calif.
0978	Greenspring Station
0979	Nanging Center
0981	503 N. Chester St. - Coflac Cl
0984	JH Health Plan - Eager St.
0985	ARIC Ctr. - Hagerstown, MD
0989	JH Patient Billing @ White Marsh
0990	CNR - 509 Washington St.
0992	Pediatrics - Severna Park
0995	JH Suburban Hlth - Falls Road
0996	Walter Reed - Forest Glen, MD
0998	Parkway Center

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2.2.2 OSP Space Identifiers

A space is an area used for housing the installation and termination of network equipment and cables. Spaces include tunnels, maintenance holes, handholes, handboxes, utility poles, and direct-buried locations. Each space shall have a unique identifier for the physical space. Tunnels, maintenance holes, handholes, and handboxes will have a sign within the space indicating the identifier for the space. Maps will provide identifiers for direct-buried locations and non-Johns Hopkins utility poles. Non-Johns Hopkins spaces may be identified by the owner identification with Johns Hopkins records.

Space identifiers shall have the following format:

***s-[b-f]*-ABnnn**

- s = site or campus abbreviation (two letter code)
- b = building code (three digit number), spaces within buildings only
- f = network room floor (one or two alphanumeric characters), spaces within buildings only
- *brackets may be omitted if space is not within a building and b-f is not used
- a = code from column A below
- b = code from column B below
- nnn = sequential number for space type AB

Space identifiers are for physical spaces. Some equipment may be a space and a device. A splice case may have a space identifier of HW-PBR012. The splice case is also a device, with the same identifier.

Table 3: Space Identifier Element Table

A	B	
P <i>Pathway</i>	BG	<i>Bridge</i>
	BR	<i>Branch Splice Case</i>
	BS	<i>Bridge Splice Case</i>
	CB	<i>Cabinet</i>
	CO	<i>Conduit</i>
	CT	<i>Cable Tray</i>
	DB	<i>Direct Buried locale/pathway</i>
	HB	<i>Handbox</i>
	HH	<i>Handhole</i>
	ID	<i>Innerduct</i>
	MH	<i>Maintenance Hole</i>
	PB	<i>Pull Box</i>
	PE	<i>Pedestal</i>
	PN	<i>Penetration</i>
	RK	<i>Rack</i>
	RT	<i>Roof Top</i>
	SL	<i>Sleeve</i>
	SS	<i>Straight Splice Case</i>
	TN	<i>Tunnel</i>
	UP	<i>Utility Pole</i>
	VL	<i>Vault</i>

Examples of space identifiers are:

- HW-PMH001** Homewood campus, maintenance hole 1
- HW-PCT001** Homewood cable tray pathway 1, likely in tunnel (no b-f code)
- HW-PBR002** Homewood branch splice case 2
- HW-PWF036** Homewood wall field 36
- HW-[0001-1]-PPB001** Homewood, building one, 1st floor, pull box 1

Space identifiers are pre-determined by Homewood Plant Operations. New space identifiers may be added by Homewood Plant Operations.

2.2.3 OSP Device Identifiers

Devices include any physical device into or onto which cable terminates or is housed. It also includes supporting hardware for the cable plant. Each device shall have a unique identifier.

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Device identifiers shall have the following format:

***s-[b-f]*-ABnnn**

- s = site or campus abbreviation (two letter code)
- b = building code (three digit number), spaces within buildings only
- f = network room floor (one or two alphanumeric characters), spaces within buildings only
- *brackets may be omitted if device is not within a building
- a = code from column A below
- b = code from column B below
- nnn = sequential number for space type AB

Table 4: Device Identifier Element Table

A	B
C <i>Copper</i>	BK <i>Block</i>
	CA <i>Case</i>
	CC <i>Cross Connect</i>
	ET <i>Entrance Terminal</i>
	FP <i>Feed Pair</i>
	HP <i>House Pair</i>
	MS <i>Mechanical Splice</i>
	PL <i>Panel</i>
	PT <i>Port</i>
	SH <i>Sheath</i>
F <i>Fiber</i>	CA <i>Case</i>
	FS <i>Fusion Splice</i>
	MS <i>Mechanical Splice</i>
	PL <i>Panel</i>
	PT <i>Port</i>
	TM <i>Termination</i>
X <i>Coax</i>	TP <i>Tap (coax)</i>
	TM <i>Termination</i>
A <i>Active Devices</i>	CMR <i>Camera</i>
	DLR <i>Dialer</i>
	ETL <i>Emergency Telephone</i>
	FAX <i>Fax</i>
	GBR <i>Glass Break</i>
	HNS <i>Handset</i>
	KSK <i>Kiosk</i>
	MDM <i>Modem</i>
	MIC <i>Microphone</i>
	MNT <i>Monitor</i>
	PAY <i>Payphone</i>
	PC <i>PC</i>
	PB <i>Pull box</i>
	RDR <i>Reader</i>
	SNS <i>Sensor</i>
	SPK <i>Speaker</i>
	STR <i>Strike</i>
TEL <i>Telephone</i>	
TV <i>Television</i>	
WLP <i>Wall Phone</i>	

Devices may have an additional element to indicate a division within the device. The format for division is to add “.ddd” to the device identifier, where “.ddd” is a sequential number.

Examples of device identifiers are:

- | | |
|----------------------|--|
| HW-CMS001 | Homewood copper mechanical splice 1 |
| HW-CMS001.004 | Homewood copper mechanical splice 1, splice module 4 |
| HW-ADLR001 | Homewood dialer 1 (e.g. emergency phone) |

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HW-[0004-G]-APAY001

Homewood, building 4, ground floor, payphone 1

Device identifiers are pre-determined by Homewood Plant Operations. New device identifiers may be added by Homewood Plant Operations only. Vendors shall contact Plant Operations for device identifiers.

2.2.4 *OSP Pathway Identifiers*

Pathways shall be identified by the space of origin, the space of destination, and the specific pathway element. Pathways include conduits, direct-buried pathways, and aerial pathways.

Pathway identifiers shall have the following format:

s-[sp1]/[sp2]-pe(sz).sd

[s1-sp1]/[s2-sp2]-pe(sz).sd (inter-campus pathways)

s1 = site or campus abbreviation (two letter code)

s2 = site or campus abbreviation (two letter code)

sp1 = space identifier of origin or destination

sp2 = space identifier of origin or destination

*brackets may be omitted if pathway is not to, from, or within a building

pe = pathway element

sz = size of pathway element, when applicable (e.g. 4")

sd = element subdivision, when applicable (e.g. innerduct)

Pathway elements are identified as:

Space identifier for the element plus a sequential number, plus a pathway size, where applicable. These identifiers are specific for a given pathway. For example, PDB001 can be used to describe a direct-buried pathway between two points. The same identifier can be used between two other point since the initial parts of the pathway identifier shall be different (e.g. HW-[004-1A]/PDB002-PDB001 and HW-[006-GA]/PDB003-PDB001).

Example of pathway identifiers are:

HW-PMH004/PTN001-PCN001(4")

(path from Homewood maintenance hole 4 to tunnel 1 using the 1st conduit, which is a 4" conduit, between these 2 points)

HW-[004-1A]/PDB002-PDB001

(path from Homewood Bldg 4, 1st floor, network room A to direct-buried location 2 using direct-buried path 1 between these 2 points)

HW-PBR003/PMH003-CST001

(path from Homewood branch splice 3 to maintenance hole 3 to copper stub 1- this is a stub out of the splice case in the maintenance hole)

HW-PTN001/PTN001-PCT001(9")

(path from Homewood tunnel 1 to tunnel 1 using cable tray 1 which is 9" wide- path within a single tunnel segment)

HW-PMH003/PMH004-PCN002(4").PID1

(path from Homewood maintenance hole 3 to maintenance hole 4 using innerduct 1 of the 2nd conduit which is a 4" conduit).

Vendors should confirm pathway identifiers with Plant Operations during planning and design of an installation.

2.2.5 *Interbuilding Backbone Cabling Identifier*

Physical Labeling

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Backbone cabling shall be identified by the building and network room of origin and destination and a sequentially numbered identifier, to accommodate multiple cables running between these two network rooms. Backbone cabling shall be identified by a logical identifier indicating the specific pairs/strands from the source of service (section 4.3.2.).

The physical identifier shall have the following format:

If the cable originates and ends on the same campus and

- | | |
|---|--------------------------------|
| 1. runs between two buildings' network rooms: | s-[b1-ft1]/[b2-ft2]-nnn |
| 2. runs between a building and a splice: | s-[b1-ft1]/dv-nnn |
| 3. runs between two splices: | s-dv1/dv2-nnn |

If the cable originates and ends on different campuses and

- | | |
|---|----------------------------------|
| 1. runs between two buildings' network rooms: | [s-b1-ft1]/[s-b2-ft2]-nnn |
| 2. runs between a building and a splice: | [s-b1-ft1]/[s-dv]-nnn |
| 3. runs between two splices: | [s-dv1]/[s-dv2]-nnn |

s = site or campus abbreviation
b = building code
f = network room floor
t = network room identifier
dv = OSP device or space
nnn = sequential cable number

Examples of physical identifiers:

HW-[0001-GA]/[0002-1A]-002 Cable from building to building

(Cable from Homewood building 1, ground floor, network room A to building 2, 1st floor, network room A, 2nd physical cable between these 2 points)

HW-[0001-GA]/PBR001-001 Cable from building to splice

(Cable from Homewood building 1, ground floor, network room A to branch splice 1, 1st cable between these 2 points.)

HW-PBR001/PSS001-001 Cable from splice to splice

(Cable from Homewood branch splice 1 to straight splice 1- first cable between these 2 points)

[EC-PSS002]/[HW-PSS001]-001 Cable from splice on one campus to splice one second campus

(Cable from Eastern straight splice 2 to Homewood straight splice 1, 1st cable between these 2 points)

HW-[0001-GA]/ARDR005-001 Cable from building to parking lot card reader

(Cable from Homewood building 1, ground floor, network room A to active device reader 5, 1st physical cable between these 2 points)

The label elements on either side of the slash are positioned in alphabetical order. This rule applies to all labels within this standard when two label elements are separated by a slash.

Only Plant Operations shall approve deviations from these cable identifiers.

Logical Labeling

Backbone cables shall be identified by the originating cable identifier, including pair/strand count. This label does not have to be unique to a physical cable. For example, a single logical label may follow several physical segments of a cable run connected by straight splices. This label will track the path of each pair/strand from the origin of service to the ultimate point of service.

The logical identifier shall have the following format:

s-[b-tf]-nnn.d1-d2

s = site or campus abbreviation

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b = building code for source of service
f = network room floor
t = network room identifier
nnn = sequential cable number for cable leaving source building
d1 = initial or only pair/strand number
d2 = last pair/strand number (if applicable)

Examples of logical identifiers:

HW-[0006-1A]-001.301-400

(Logical pairs 301-400 of the 1st cable leaving Homewood building 6, 1st floor, network room A)

HW-[0001-GA]-002.1-36

(Logical strands 1-36 of the 2nd cable leaving Homewood building 1, ground floor, network room A)

When labeling hybrid optical fiber, strand 1 is multimode fiber with additional multimode fibers sequentially numbers. The first single mode fiber takes the next sequential number and does not restart the numbering sequence at 1.

Plant Operations may waive logical labeling as a requirement for new installations.

2.2.6 *Network Room Identifiers*

Each network rooms shall have a unique identifier with a format described in this section. Each network room will have a small sign on the door indicating the identifier for the room. This sign may be on the inside of the door, if Plant Operations is prohibited from placing it on the outside of the door.

Network rooms identifiers shall have the following format:

s-b-ft HW-0001-GA, HW-0002-1A, EC-001-1A

s = site or campus abbreviation (two letter code)
b = building code (three digit number)
f = network room floor (one or two alphanumeric characters)
t = network room identifier (single sequential letter)

Floor identifiers can be numbers, letters, or a number/letter combination and can be two digits, if needed. This will accommodate 99 floors and includes ground [g], basement [b], mezzanine [m], penthouse [p], lobby [l], and sub-basement [s] (second sub-basement [s2], etc.). Additional floor identifiers may be added by Homewood Plant Operations only.

Network room identifiers are sequential letters starting at [A]. Network rooms include any space housing network equipment, device, and means of cable termination including splice cases and wall fields. Additional network room identifiers may be added by Homewood Plant Operations only. Vendors shall contact Plant Operations for network room identifiers.

2.2.7 *Intrabuilding Backbone Cabling Identifier*

Physical Labeling

Intra-building backbone cabling may be identified by the building and network room of origin and destination and a sequentially numbered identifier, to accommodate multiple cables running between these two network rooms. Intra-building backbone cablings may be identified by a logical identifier indicating the specific pairs/strands from the source of service (section 4.6.1.2.).

The physical identifier may have the following format:

s-b-f₁t₁/ f₂t₂-nnn

s = site or campus abbreviation
b = building code
f = network room floor
t = network room identifier
nnn = sequential cable number

Examples of physical identifiers:

HW-0001-GA/1A-002

(Cable from Homewood building 1, ground floor, network room A to 1st floor, network room A, 2nd physical cable between these 2 points)

Logical labeling

Intra-building backbone cables may be identified by the originating cable identifier, including pair/strand count. This label does not have to be unique to a physical cable. For example, a single logical label may follow several physical segments of a cable run connected by straight splices. This label will track the path of each pair/strand from the origin of service to the ultimate point of service. Not all intra-building backbone cables may have a logical label. For example, optical fiber connecting two switches does not have a logical identifier. Only optical fiber directly cross-connected to optical fiber within an inter-building backbone cable would have a logical label.

The logical identifier may have the following format:

s-[b-tf]-nnn.d₁-d₂

- s = site or campus abbreviation
- b = building code for source of service
- f = network room floor
- t = network room identifier
- nnn = sequential cable number for cable leaving source building
- d₁ = initial or only pair/strand number
- d₂ = last pair/strand number (if applicable)

Examples of logical identifiers:

HW-[0006-1A]-001.301-400

(Logical pairs 301-400 of the 1st cable leaving Homewood building 6, 1st floor, network room A)

HW-[0001-GA]-002.1-36

(Logical strands 1-36 of the 2nd cable leaving Homewood building 1, ground floor, network room A)

When labeling hybrid optical fiber, strand 1 is multimode fiber with additional multimode fibers sequentially numbers. The first single mode fiber takes the next sequential number and does not restart the numbering sequence at 1.

Networking or Telecommunications may waive logical labeling as a requirement for new installations.

2.2.8 ISP Pathway Identifiers

Pathways shall be identified by the space of origin, the space of destination, and the specific pathway element.

Pathway identifiers shall have the following format:

s-b-f₁t₁/ f₂t₂-pe(sz).sd

- s = site or campus abbreviation
- b = building code
- f = network room floor
- t = network room identifier
- pe = pathway element
- sz = size of pathway element, when applicable (e.g. 4")
- sd = element subdivision, when applicable (e.g. innerduct)

Pathway elements are identified as:

Space identifier for the element plus a sequential number, plus a pathway size, where applicable.

Example of pathway identifiers are:

HW-0001-1A/2A-PCN001(4")

(path from building 1, network room 1A to network room 2A. It is conduit #1 between these spaces and is 4")

HW-0001-2A/2B-PCT001(9")

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(path from building 1, network room 2A to network room 2B. It is cable tray #1 between these spaces and is 9"wide)

HW-0001-1A/2A-PCN001(4").PID1

(path from building 1, network room 1A to network room 2A. It is conduit #1, innerduct 1 between these spaces and is 4")

2.2.9 *Horizontal Cable Identifiers*

Physical Labeling

Horizontal links may be identified by the network room of origin and a sequentially numbered identifier based on termination location. Horizontal links may be identified by a logical identifier indicating the specific pairs/strands from the source of service (section 5.9.2.1.2).

The physical identifier may have the following format:

ft-annn

f = network room floor

t = network room identifier

a = one or two letters uniquely identifying the single patch panel, group of patch panels, termination block, or group of termination blocks

nnn = number uniquely identifying the port or block section within the single patch panel, group of patch panels, termination block, or group of termination blocks where the cable terminates

Examples of physical identifiers:

GA-B002 (*Cable from ground floor, network room A, termination device B, location 2*)

Termination devices shall be number continuously in a vertical stack of the same type of termination device. Patch panels on the same rack shall be identified with the same single letters (rack A, B, C...). A set of two 48-port panels would be labeled as A001 through A096. Termination blocks shall also be identified as groups with sequential numbering within a group. A set of two 300-pair 110 blocks would be labeled B001 through B144. Sequential lettering is to include all forms of cabling termination and be mutually exclusive between patch panels, termination blocks, and any other form of cable termination.

The horizontal link identifier shall be the work area outlet identifier. A "-V" for voice or a "-D" for data may be added to the end of the work area outlet identifier, but not to the horizontal link identifier. The "**ft**" portion of the horizontal link identifier may be omitted from the work area outlet identifier, *if a building has a single network room*. **This portion should not be omitted from the horizontal link identifier, just the work area outlet identifier (on the faceplate).**

Examples of optional work area outlet identifiers:

A002 (*Optional format for work area outlet wired from the only building network room, termination device A, location 2*)

B002-V (*Optional format for work area outlet wired from the only building network room, telecommunication termination device B, location 2*)

A002-D (*Optional format for work area outlet wired from the only building network room, patch panel A, port 2*)

Logical labeling

Horizontal link may be identified by the originating cable identifier, including pair/strand count. This label does not have to be unique to a physical cable. For example, a single logical label may follow several physical segments of a cable run connected by straight splices. This label will track the path of each pair/strand from the origin of service to the ultimate point of service.

The logical identifier may have the following format:

b-tf-*nnn*.*d*₁-*d*₂

b = building code for source of service

f = network room floor

t = network room identifier

nnn = sequential cable number for cable leaving source building
 d₁ = initial or only pair/strand number
 d₂ = last pair/strand number (if applicable)

Examples of logical identifiers:

0006-1A-001.301

(Logical pairs 301 of the 1st cable leaving Homewood building 6, 1st floor, network room A)

0001-GA-002.1-2

(Logical strands 1-2 of the 2nd cable leaving Homewood building 1, ground floor, network room A)

When labeling hybrid optical fiber, strand 1 is multimode fiber with additional multimode fibers sequentially numbers. The first single mode fiber takes the next sequential number and does not restart the numbering sequence at 1.

Networking or Telecommunications may waive logical labeling as a requirement for new installations.

2.2.10 Firestopping Identifier

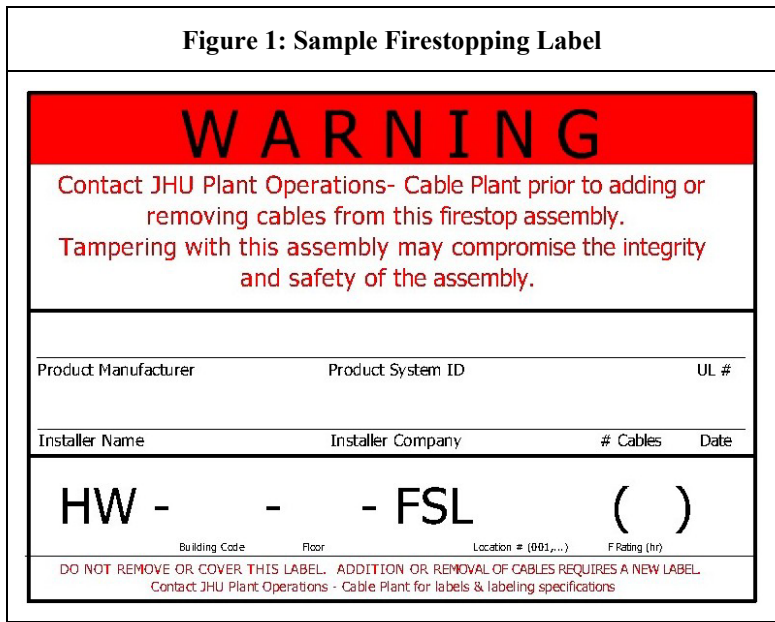
A firestopping location identifier shall identify each installation of Firestopping material.

The firestopping location identifier shall have the following format:

s-[b-f]-FSLn(h) HW-[0001-1]-FSL01(2)

- s = site or campus abbreviation
- b = building code for source of service
- f = building floor (one or two alphanumeric characters)
- n = two to four numeric characters identifying one firestopping location
- h = one numeric character specifying the hour rating of the firestopping system

Each firestopping location shall be labeled on both sides, where possible, of the penetration with the firestopping identifier. Each firestopping location shall be identified with a firestopping warning label similar to this label. The label shall include the manufacturer of the product, the installer and company name, the UL number for the product, the rating of the material, the installation date, and the number and type of cables passing through the opening.



The firestopping warning label can include the firestopping location identifier, eliminating the need for a separate label. The firestopping label shall be located within 12 inches of the penetration and, when possible, on both sides of the penetration.

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Penetration modifications requiring the repair/re-installation of the firestopping material require the addition of a new firestopping warning label. No previous firestopping warning labels shall be removed or obscured by new labels. In the event the penetration is *completely* cleaned of existing firestopping material and new material installed, the previous label shall be removed or obscured completely.

2.2.11 Grounding and Bonding Identifiers

2.2.11.1 TMGB Identifier

The Telecommunications Main Grounding Busbar is the main busbar for a building. The TMGB identifier is used to identify the single TMGB present in a single building system. The TMGB shall be labeled with the TMGB identifier.

TMGB identifier shall have the following format:

s-bf*t*-TMGB ***HW-0001-TMGB***
HW-[0001-1A]-TMGB

s = site or campus abbreviation
b = building code (three digit number)
*f = optional network room floor (one or two alphanumeric characters)**
*t = optional network room identifier (single sequential letter)**

** As each building shall only have one TMGB, no network room identifier is required. It may be added as an option to act as a reminder to its location in a building with multiple network rooms. Entrance facilities with a TMGB shall be labeled as a network rooms.*

2.2.11.2 TGB Identifier

The Telecommunication Grounding Busbar is a point of contact for telecommunication and network equipment to the building ground by way of the TMGB. Each network room should have a TGB, if it is not a building's main cross-connect (campus intermediary cross-connect for a specific building) with a TMGB. The TGB shall be labeled with the TGB identifier.

The TGB identifier shall have the following format:

s-[b-ft]-TGB ***HW-[0002-1A]-TGB***

s = site or campus abbreviation
b = building code (three digit number)
f = network room floor (one or two alphanumeric characters)
t = network room identifier (single sequential letter)

2.2.11.3 TBB Identifier

The Telecommunication Bonding Backbone is a conductor that interconnects the TMGB to one or more telecommunication bonding backbones within a building system. A building system may have multiple telecommunication bonding backbones. The TBB shall be labeled with a TBB identifier.

Contiguous buildings may share network grounding, if the buildings share a common electrical ground. Otherwise, each section of an overall building shell shall have its own network grounding system matching the building electrical power grounding system topology.

The TBB identifier shall have the following format:

s-b₁-ft₁/ft₂-TBB ***HW-0001-1A/2A-TBB***

s-[b₁-ft₁]/[b₂-ft₂]-TBB ***HW-[0001-1A]/[0002-2A]-TBB*** *Two attached buildings with a common electrical ground*

s = site or campus abbreviation
b = building code (three digit number)
f = network room floor (one or two alphanumeric characters)
t = network room identifier (single sequential letter)

2.2.11.4 GE Identifier

The Grounding Equalizer is a conductor that interconnects two telecommunication bonding backbones within a building system. A building system may have multiple GEs. The GE shall be labeled with a GE identifier.

Contiguous buildings may share network grounding, if the buildings share a common electrical ground. Otherwise, each section of an overall building shell shall have its own network grounding system.

The GE identifier shall have the following format:

<i>s-b₁-ft₁/ft₂-GE</i>	<i>HW-0001-1A/1B-GE</i>	
<i>s-[b₁-ft₁]/[b₂-ft₂]-GE</i>	<i>HW-[0001-3A]/[0002-3B]-GE</i>	<i>Two buildings with a common electrical ground</i>

s = site or campus abbreviation
b = building code (three digit number)
f = network room floor (one or two alphanumeric characters)
t = network room identifier (single sequential letter)

2.3 Records

Plant Operations shall maintain all cable plant records for OSP elements. Any changes to the cable plant shall be reported to Plant Operations for record entry/modification.

Required Linkages

Each identifier shall be linked to each record or report in which it appears.

Required Reports

Homewood Plant Operations shall make available to IT@JH or other JH entities, at Plant Operations discretion, reports comprising information from groups of records. Each report shall list all records of the selected identifier and all information in those records, or any desired subset of the records and of the information in those records.

2.3.1 Campus/Building Records

The site or campus records shall contain the following information:

- site or campus name
- site or campus location (e.g.: street address)
- contact information for local administrator(s) of infrastructure
- list of all buildings at the site or campus
- location of main cross-connect, if applicable
- access hours, if applicable
- comments

The building records shall contain the following information:

- building name
- building location (e.g.: street address)
- a list of all network rooms and their locations in the building
- contact information for access
- access hours
- comments

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2.3.2 Space Records

Space records shall contain the following information based on space type:

Table 5: Space Record Requirements

	Bridge	Cabinet	Cable Tray	Direct-buried Locations	Handboxes	Handholes	Maintenance Holes	Network Rooms	Splice Cases	Utility Poles	pedestal	penetration	Rack	Roof top	Sleeve	Tunnel	Vault	Wall Field
Building identifier		X						X			X			X	X			
Comments	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	
Contact information for local administrator(s)	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	
Dead conductors																		
Environmental information	O	O	X		X	X	X	X	O	O	O			O	O	X	X	
Grounding (Y/N)		X	X				X	X	X	X				X			X	
Hours of access	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	
Key information		X						X						X		X	X	
Location description	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	
Logical cable identifiers in space	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	
Maintenance records (date and service)	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	
Manufacturer		X	X		X	X	X		X	X							X	
Model		X	X		X	X				X							X	
Non-network/telecom cabling/ systems/equipment present (Y/N)	X	X	X	X	X	X	X	X	X					X		X	X	
Physical cable identifiers in space	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	
Site or campus identifier	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	
Size		X	X		X	X	X	X	X	X	X				X	X	X	
Space Identifier	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	
Stub present (Y/N)		X								X								
Type of Space	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	
Firestop identifier											X				X			

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2.3.3 Device Records

Device records shall contain the following information based on device type:

Table 6: Device Records Requirements																																				
X- Required O- Optional	Copper					Fiber					COAX		Active Devices																							
	Block	Case	Cross Connect	Mechanical Splice	Panel	Port	Sheath	Case	Fusion Splice	Mechanical Splice	Panel	Port	Sheath	Termination	Tap	Termination	Camera	Dialer	Fax	Glass Break	Handset	Modem	Microphone	Monitor	Payphone	PC	Pull box	Reader	Sensor	Speaker	Strike	Telephone	Television	Wall phone		
Building identifier	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Classification (branch, bridge, straight)				X				X	X																											
Comments	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Conductors in				X				X	X																											
Conductors out				X				X	X																											
Contact information for local administrator(s)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Dead conductors				X				X	X																											
Device Identifier	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Environmental information	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Firestop identifier						X						X																								
Grounding (Y/N)	X	X		X	X		X	X	X	X	X		X		X	X	O	X	O	O	O	O	O	O	O	O	O	X	O	O	O	O	O	O	O	
Hours of access	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Location description	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Logical cable identifiers to device	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Maintenance records (date and service)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Manufacturer	X	X		X	X		X	X	X	X				X	X	X	X	O	X	X	X	X	X	X	X	O	X	X	X	O	X	O	O	O	O	
Model	X	X		X	X		X	X	X	X				X	X	X	X	O	X	X	X	X	X	X	X	O	X	X	X	O	X	O	O	O	O	
Physical cable identifiers to device	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Site or campus identifier	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Size		X			X	X				X	X																									
Stub present (Y/N)				X				X	X																											
Telephone number																		X	O			O												X	X	
Type of Device	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

2.3.4 Pathway Records

The pathway records shall contain the following information:

- pathway identifier (the primary indexing identifier, e.g.: HW-PMH004/PTN001-PCN001(4’))
- physical cable identifier(s) in pathway
- type of pathway (e.g.: 4” PVC conduit, 3 x 1.5” innerduct)
- fill ratio

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- firestop information/identifier
- maintenance records (date and service)
- comments

2.3.5 *Backbone Cabling Records*

The backbone cable records shall contain the following information:

- backbone cable identifier (the primary indexing identifier, e.g.: 2A/3A1)
- backbone cable logical identifier
- pathway(s) identifiers(s)
- space(s) identifiers(s)
- type of cable (e.g.: 600pr 24ga shielded riser cable)
- type of connecting hardware, first network room (e.g.: 36 SC duplex coupler panel)
- type of connecting hardware, second network room (e.g.: 36 SC duplex coupler panel)
- table relating each backbone cable pair or strand to other backbone cable pairs or strands or to a horizontal link, to which it is cross-connected
- all test information, including tests performed and results
- comments

2.3.6 *Intra-Building Backbone Records*

The intra-building backbone cable records may contain the following information:

- intra-building backbone cable identifier (the primary indexing identifier, e.g.: HW-0001GA/1A-002)
- intra-building backbone cable logical identifier (HW-0001GA-0002.1-36)
- campus and building identifiers, as separate data fields
- type of cable (e.g.: 36 strand, 50/125µm, gel filled, copper armor)
- type of connecting hardware, first network room (e.g.: 36 SC duplex coupler panel)
- type of connecting hardware, second network room (e.g.: 36 SC duplex coupler panel)
- table relating backbone terminations to other backbone terminations or horizontal links, to which they are cross-connected
- all test information, including tests performed and results
- comments

2.3.7 *Horizontal Link Records*

The horizontal link records may contain the following information:

- horizontal link identifier (primary indexing identifier, e.g.: GA-B002)
- campus and building identifiers, as separate data fields
- horizontal link logical identifier (HW-001GA-001.601-602)
- cable type (e.g.: 4 pr, UTP, category 5e, plenum)
- location of telecommunications outlet/connector (room, office, or grid location)
- outlet connector type (e.g.: 8 position modular, T568A, category 5e)
- cable length (e.g.: 51m/154ft)
- cross-connect hardware type (e.g.: 48 port modular patch panel, T568A, category 5e)
- all test information, including tests performed and results
- service record of link (e.g.: passed category 5e at installation 1/12/99, re-terminated and re-tested at cross-connect 4/22/99 due to broken wire)
- comments

Additional items of information may be added at the end of the record, such as:

- location of test results
- location of outlet within room or office
- color of the connector or icon on the connector (e.g.: orange icon; or blue outlet)
- other telecommunications outlet/connectors at same location (generally, the other outlet connectors in the same faceplate)

- faceplate configuration (e.g.: single gang, four port, telco ivory)
- position of outlet connector on faceplate or MUTOA (eg.: top left)
- pathway to outlet (e.g.: fishable wall or surface raceway)
- presence or absence of MUTOA (is there a MUTOA in this link, yes or no)
- length of work area cord if MUTOA is present
- presence or absence of CP (is there a CP in this link, yes or no)
- equipment circuit currently using link (e.g.: 100BaseT switch port #16)
- current user name (e.g.: Max Headroom)

2.3.8 Firestopping Records

The firestopping records shall contain the following information:

- firestopping location identifier (primary indexing identifier, e.g.: 3-FSL02(3))
- location of the firestopping installation (eg.: room number and location within room)
- type and manufacturer of firestopping installed
- UL number for firestopping material
- date of firestopping installation
- name of installer of firestopping material
- number and cable-type description of cables in pathway
- service record of firestopping location (e.g.: 4/22/99 firestopping removed and replaced with same type by ABC Cabling to add cabling runs)
- comments

2.3.9 Grounding and Bonding Records

2.3.9.1 TMGB Records

The TMGB record shall contain the following information:

- telecommunications main grounding busbar identifier (primary indexing identifier, e.g.: HW-001-TMGB)
- location of the TMGB (network room identifier)
- size of the TMGB
- location of attachment of TMGB to electrical system ground or building structural steel
- location of test results for any tests performed on the TMGB, such as resistance to ground
- comments

2.3.9.2 TGB Records

The TGB records shall contain the following information:

- telecommunications grounding busbar identifier (primary indexing identifier, e.g.: HW-0032A-TGB)
- location of TGB (network room identifier)
- size of the TGB
- TBB identifier
- GE identifier, if present
- Comments

2.4 Color Coding Identification

This section is taken with minimal adjustment from the ANSI/TIA/EIA-606-A, draft1j.

This section describes requirements for color coding in administration of a cabling system.

Areas of cabling system infrastructure addressed are termination fields and horizontal cabling.

2.4.1 Color Coding of Termination Fields

Color coding of termination fields can make administration more efficient by making the cabling system more intuitive and easily understood for those maintaining the system.

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The color coding of termination fields specified in this Standard is based on the topology of backbone and horizontal cabling specified in ANSI/TIA/EIA-568-B.1 which allows one level of cross-connection in horizontal cabling and two levels of cross-connection in backbone cabling.

Cross-connections generally connect termination fields of different colors.

- a. A demarcation point, for example, a central office termination, shall be identified by the color orange (Pantone 150C).
- b. Network connections on the system-owner side of a demarcation point shall be identified by the color green (Pantone 353C).
- c. Connections from common equipment, for example, PBXs, computers, LANs, or multiplexers, shall be identified by the color purple (Pantone 264C).
- d. Connections to key telephone systems shall be identified by the color red (Pantone 184C).
- e. Terminations at both ends of intra-building backbone cables originating in the main cross-connect shall be identified by the color white.
- f. Terminations at both ends of intra-building backbone cables not originating in the main cross-connect shall be identified by the color gray (Pantone 422C).
- g. Terminations at both ends of inter-building backbone cables shall be identified by the color brown (Pantone 465C).
- h. Terminations of horizontal cable in the network room shall be identified by the color blue (Pantone 291C).
- i. Terminations of other circuits, including, but not limited to, alarms, security, or energy management, shall be identified by the color yellow (Pantone 101C).

A summary and illustration of these requirements are shown below.

<u>Termination Type</u>	<u>Color</u>	<u>Pantone #</u>	<u>Typical Application</u>
demarcation point	orange	150C	central office connection
network connection	green	353C	user side of central office connection
common equipment	purple	264C	connections to PBX, mainframe computer, LAN, multiplexer
key system	red	184C	connections to key telephone systems
first level backbone	white		terminations of intra-building backbone cable connecting MC to ICs
second level backbone	gray	422C	termination of intra-building backbone cable connecting ICs to network rooms
Inter-building backbone	brown	465C	termination of backbone cable between buildings
horizontal	blue	291C	terminations of horizontal cable in network rooms
Other	yellow	101C	alarms, security, or energy management

Refer to the ANSI/TIA/EIA-606-A standard, figure 2, for an illustration of this.

2.4.2. Color coding in horizontal cabling

2.4.2.1 Horizontal Cabling Components

Color coding may be used to differentiate horizontal cable runs, to identify services connected by patch cords, or to identify various services available in a work area outlet. To be of most value, such color coding should be consistent throughout the system.

2.4.2.2 Optical Fiber Cabling Components

Optical Fiber Patch Cords

Most communications circuits using optical fiber as a transmission medium require two strands of fiber. Patch cords and station cords with simplex connectors should use different color connectors or strain relief boots to assist in maintaining proper polarity. Refer to ANSI/TIA/EIA-568-B.1 for recommendations on maintaining polarity.

Optical Fiber Types and Connector Types

Cabling systems may contain optical fiber with different core sizes, or different bandwidth specifications within the same core size. System operators may find it desirable to identify terminations by color to assist in maintaining compatibility when making connections.

Angled PC, or APC, optical fiber connectors are not compatible with other types, and system operators may find it desirable to identify these terminations by color to assist in maintaining compatible connections.

3 *Installation Specifications*

Records are maintained by Homewood Plant Operations for OSP elements. Required record information for all spaces, pathways, devices, and cables are included in this document. Required information for grounding and firestopping elements are also included.

Campus drawings and maps are maintained by Homewood Plant Operations.

Identifiers for labels are determined by Homewood Plant Operations. Specifications for these identifiers are included in this specification and include all spaces, pathways, devices, and cables. Identifiers for grounding elements are also included.

The Contractor shall confirm the labeling plan with JHU prior to labeling. Questions about labeling shall be brought to JHU prior to labeling. Incorrect labels shall be corrected at the Contractor's expense.

Records shall be presented in electronic format. Records may be presented in text-based, tab-delimited format. Records may be presented in Microsoft Excel spreadsheets. The Contractor shall coordinate the format for delivery of records with Johns Hopkins.

The Contractor shall provide as-built drawings upon completion. The Contractor shall format these drawings as AutoCAD files compatible with AutoCAD 2000 (DWG or DXF file).

Figure 2: Sample Map

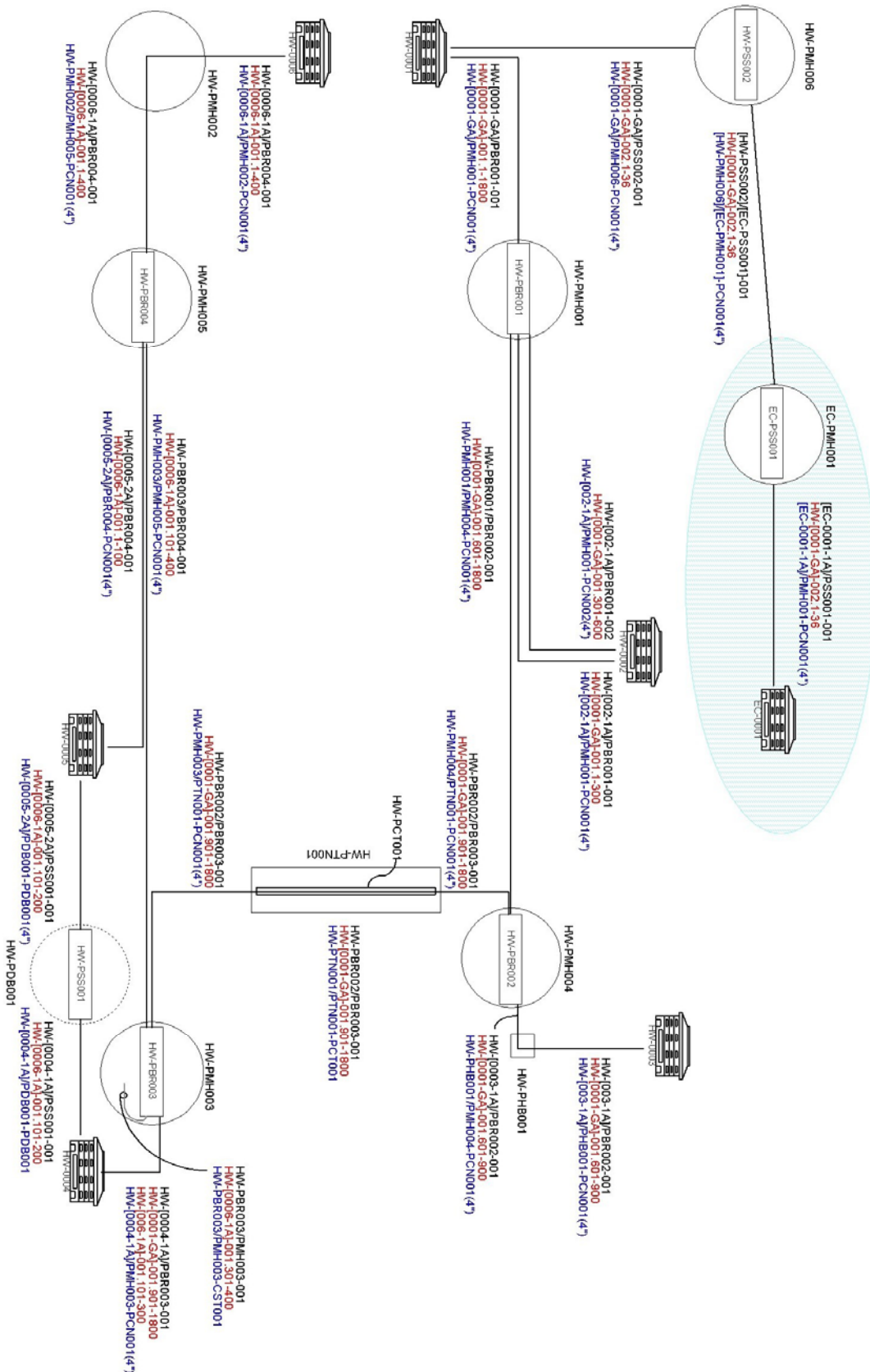
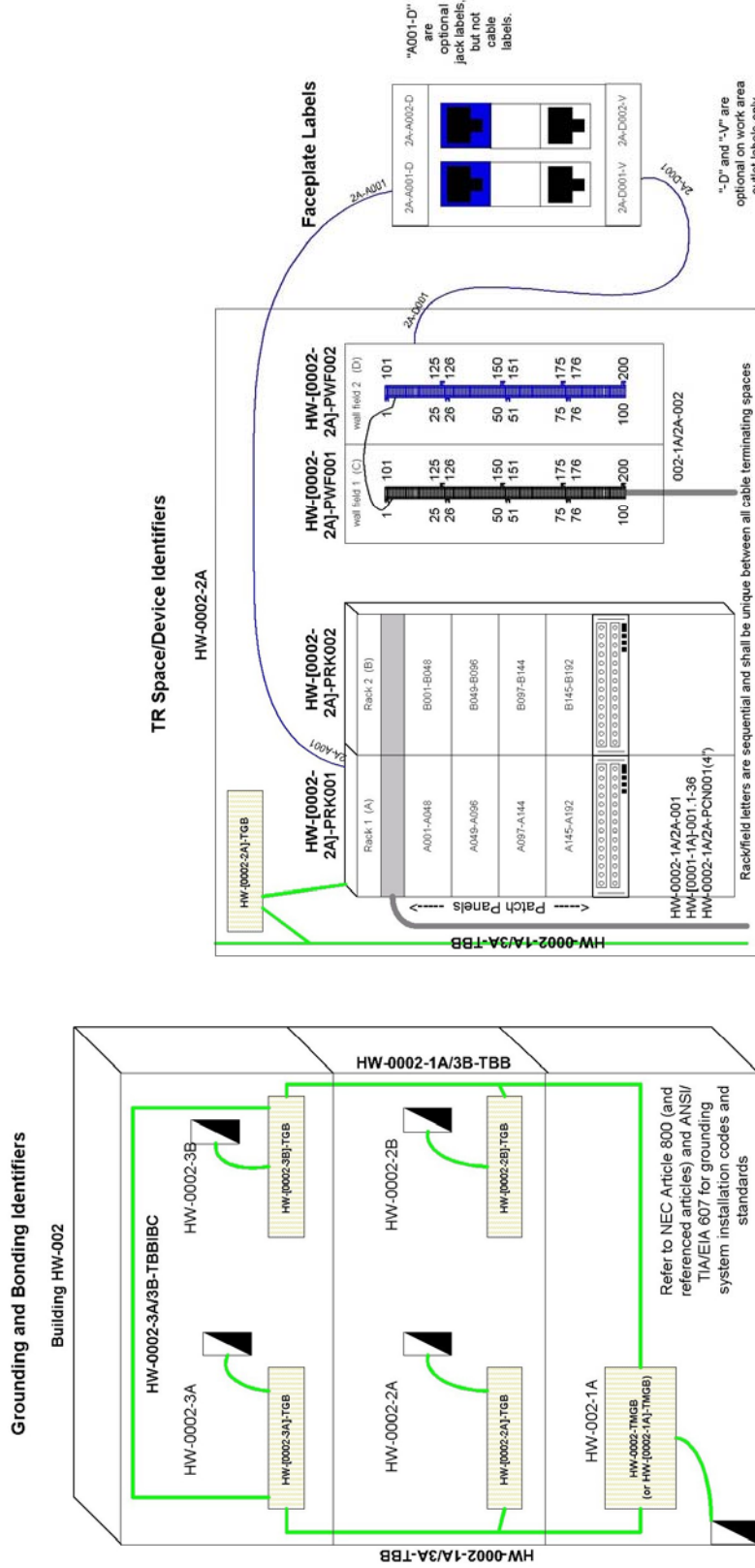


Figure 3: Intra-building labels



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Table 8: Identifier Summary

Buildings	<i>s-b</i>	HW-0001 EC-0001
Network Rooms	<i>s-b-ft</i>	HW-0001-GA HW-0002-1A EC-0001-1A
Spaces	* <i>s-[b-ft]</i> *-ABnnn	HW-PMH001 <i>Homewood campus, maintenance hole 1</i> HW-PCT001 <i>Homewood cable tray pathway 1</i> HW-PBR002 <i>Homewood branch splice case 2</i> HW-[0001-1]-PPB003 <i>Homewood, bldg 1, floor 1, pull box 3</i>
Devices	* <i>s-[b-ft]</i> *-ABnnn	HW-CMS001 <i>Homewood copper mechanical splice 1</i> HW-CMS001.004 <i>Homewood copper mechanical splice 1, module 4</i> HW-[0004-G]-ADLR001 <i>Homewood, bldg 4, ground floor, dialer 1</i>
Pathways	<i>[s₁-sp₁]/[s₂-sp₂]-pe(sz).sd – inter-campus</i> <i>s-[sp₁]/[sp₂]-pe(sz).sd – intra-campus</i>	HW-PMH003/PMH004-PCN002(4'').PID1 <i>(path from Homewood maintenance hole 3 to maintenance hole 4 using innerduct 1 of the 2nd conduit which is a 4" conduit)</i> HW-[0004-1A]/PDB002-PDB001 <i>(path from Homewood Bldg 4, 1st floor, network room A to direct-buried location 2 using direct-buried path 1 between these 2 points)</i> HW-PTN001/PTN001-PCT001(9'') <i>(path from Homewood tunnel 1 to tunnel 1 using cable tray 1 which is 9" wide- path within a single tunnel segment)</i>
Backbone Cabling-Physical	<i>s-[b₁-ft₁]/[b₂-ft₂]-nnn – inter-building</i>	HW-[0001-GA]/[0002-1A]-002 <i>(Cable from Homewood building 1, ground floor, network room A to building 2, 1st floor, network room A, 2nd physical cable between these 2 points)</i>
	<i>s-[b₁-ft₁]/dv-nnn – building to device/space</i>	HW-[0001-GA]/PBR001-001 <i>(Cable from Homewood building 1, ground floor, network room A to branch splice 1, 1st cable between these 2 points.)</i>
	<i>s-dv₁/dv₂-nnn – device/space to device/space</i>	HW-PBR001/PSS001-001 <i>(Cable from Homewood branch splice 1 to straight splice 1- 1st cable between these 2 points)</i>
	<i>[s-b₁-ft₁]/[s-b₂-ft₂]-nnn – inter-campus, inter-building</i>	[EC-0001-1A]/[HW-0001-GA]-001 <i>(Cable from Eastern building 1, 1st floor, network room A to Homewood building 1, ground floor, network room A, 2nd physical cable between these 2 pts.)</i>
	<i>[s-b₁-ft₁]/[s-dv]-nnn – inter-campus, building to device/space</i>	[EC-0001-1A]/[HW-PBR004]-001 <i>(Cable from Eastern building 1, 1st floor, network room A to Homewood branch splice 4, 1st physical cable between these 2 points.)</i>
	<i>[s-dv₁]/[s-dv₂]-nnn – inter-campus, device/space to device/space</i>	[EC-PSS002]/[HW-PSS001]-001 <i>(Cable from Eastern straight splice 2 to Homewood straight splice 1, 1st cable between these 2 points)</i>
	<i>s-[b₁-ft₁]/[b₂-ft₂]-TRACERnnn – inter-building tracer wire</i>	HW-[0001-GA]/[0002-1A]-TRACER001 <i>(Tracer wire from Homewood building 1, ground floor, network room A to building 2, 1st floor, network room A, 2nd)</i>
Backbone Cabling-Logical	<i>s-[b-tf]-nnn.d₁-d₂</i>	HW-[0006-1A]-001.301-400 <i>(Logical pairs 301-400 of the 1st cable leaving Homewood building 6, 1st floor, network room A)</i> HW-[0001-GA]-002.1-36 <i>(Logical strands 1-36 of the 2nd cable leaving Homewood building 1, ground floor, network room A)</i>
Firestopping	<i>s-[b-ft]-FSLn(h)</i>	HW-[0001-1]-FSL01(2) <i>(First floor, firestopping location 3, 2 hour rating)</i>
TMGB	<i>s-bf*t*-TMGB</i>	HW-0001-TMGB HW-[0001-1A]-TMGB <i>(optional network room location added)</i>
TGB	<i>s-b-ft-TGB</i>	HW-[0002-1A]-TGB
TBB	<i>s-b₁ft₁/b₂ft₂-TBB</i> <i>s-[b₁-ft₁]/[b₂-ft₂]-TBB</i>	HW-0001-1A/2A-TBB HW-[0001-1A]/[0002-2A]-TBB
TBBIBC	<i>s-b₁ft₁/b₂ft₂-TBBIBC</i> <i>s-[b₁-ft₁]/[b₂-ft₂]-TBBIBC</i>	HW-0001-3A/3B-TBBIBC HW-[0001-3A]/[0002-3B]-TBBIBC
Intra-building Backbone Cabling-Physical	<i>s-b-ft₁/f₂t₂-nnn</i>	HW-0001-GA/1A-002 <i>(Cable from Homewood building 1, ground floor, network room A to 1st floor, network room A, 2nd physical cable between these 2 points)</i>
Intra-building Pathways	<i>s-b-ft₁/f₂t₂-pe(sz).sd</i>	HW-0001-1A/2A-PCN001(4'') <i>(path from building 1, network room 1A to network room 2A. It is conduit #1 between these spaces and is 4'')</i> HW-0001-2A/2B-PCT001(9'') <i>(path from building 1, network room 2A to network room 2B. It is cable tray #1 between these spaces and is 9" wide)</i> HW-0001-1A/2A-PCN001(4'').PID1 <i>(path from building 1, network room 1A to network room 2A. It is conduit #1, innerduct 1 between these spaces and is 4'')</i>

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Intra-building Backbone Cabling- Logical	<i>s-[b-tf]-nnn.d₁-d₂</i>	Same as Backbone Cabling- Logical
Horizontal Links- Physical	<i>ft-annn</i>	GA-A002 (<i>cable label</i>) A002 (<i>one network room jack label option</i>) B002-V, A002-D (<i>jack label option</i>)
Horizontal Links- Logical	<i>s-[b-tf]-nnn.d₁-d₂</i>	Same as Backbone Cabling- Logical