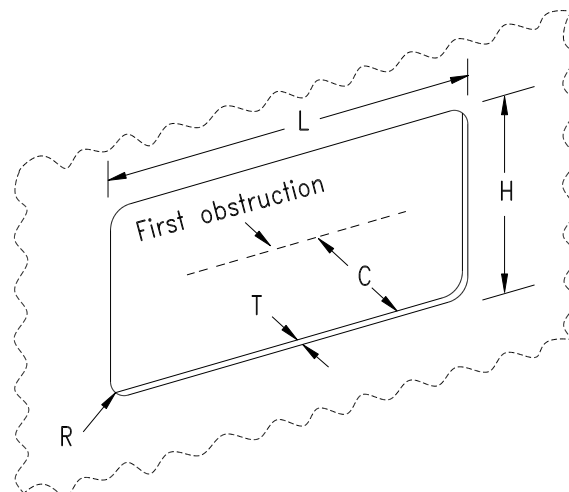


- a) NEMA-equivalent opening: This size shall provide openings that are dimensionally equivalent to standard (ANSI/NEMA OS 1, ANSI/NEMA WD 6) openings. In addition, a minimum depth of 30.5 mm (1.2 in) should be provided; and
- b) alternative (furniture-size) opening: These openings should have dimensions as specified in figure 7.

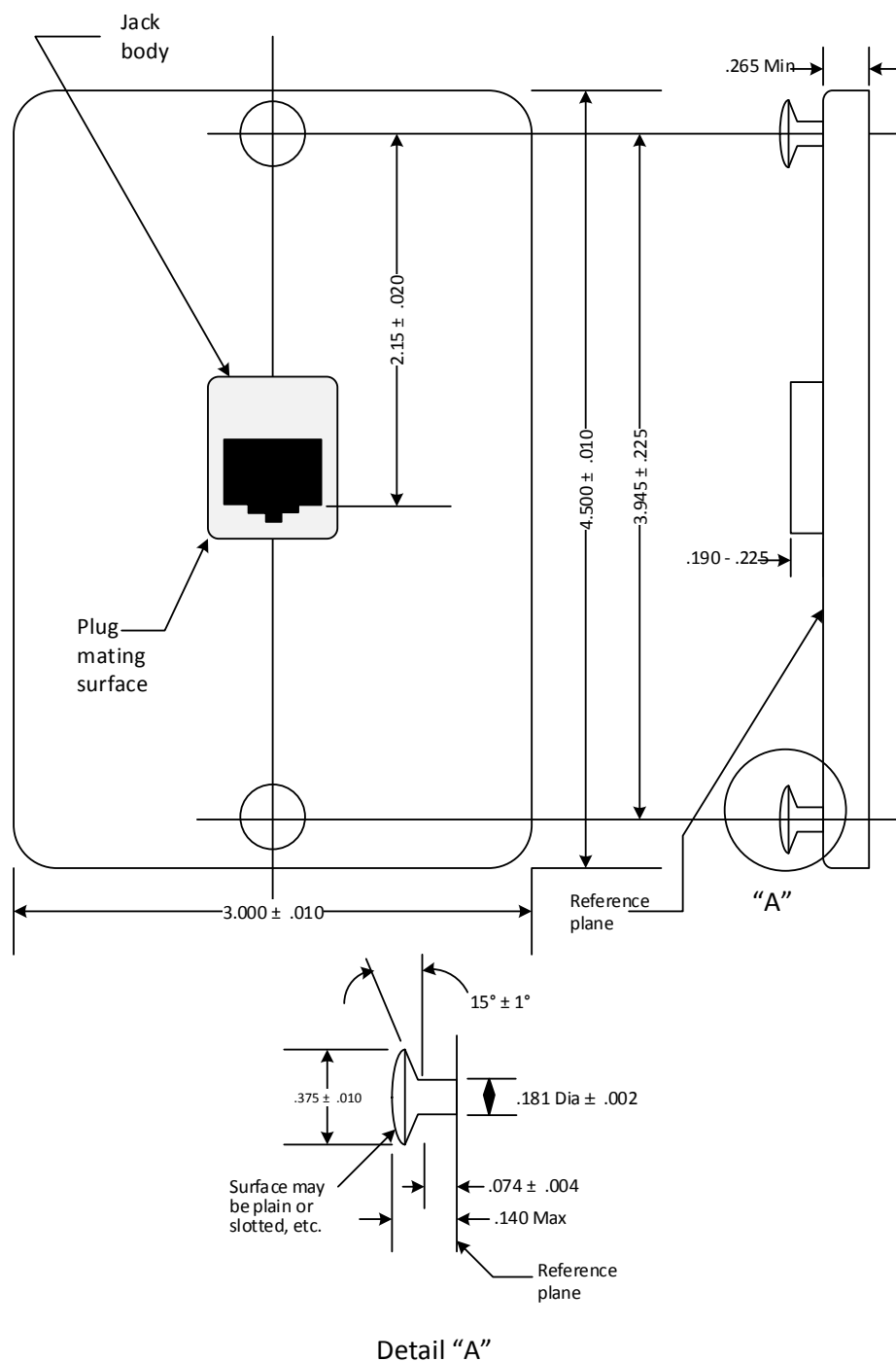


	Dimension		Tolerance	
	mm	(in)	mm	(in)
L	68.8	(2.71)	1.02	(0.040)
H	35.1	(1.38)	0.90	(0.035)
T	1.4	(0.055)	0.64	(0.025)
R	4.06	(0.16) max.	—	—
C	30.5	(1.2) min.	—	—

Figure 7 – Dimensions for furniture equipment outlet opening

6.7.8 Wall telephones

Flush or surface-mount outlets designed for mounting of wall telephones shall use the mounting plate shown in figure 14.



NOTE: Measurements are in inches.

Figure 8 – Telecommunications wall outlet mounting plate (dimensions typical)

6.7.9 Multi-user telecommunications outlet assembly (MUTOA)

MUTOAs should be provided with appropriate security, such as key locking, tool removable covers, or other suitable means. These assemblies shall not be located under access flooring. Furniture intended to house MUTOAs shall include sufficient space to accommodate cable

strain relief, terminations, and anticipated horizontal cable slack storage. The MUTOA shall be mounted in such a way that it does not obstruct the intended pathway cabling capacity.

6.7.10 Poke-thru devices

6.7.10.1 General

Poke-thru devices shall be listed for the purpose and classified as to fire resistance by a national recognized testing laboratory (NRTL).

6.7.10.1.1 Types

All poke-thru devices are either single service or dual service. A single service device contains either telecommunications or power. A dual service device contains both telecommunications and power.

6.7.10.1.1.1 Flush

The flush poke-thru device is, as the name suggests, flush with the top of the finished floor. It typically consists of a stem including a fire barrier, a retaining feature to anchor the poke-thru in the concrete or steel deck, and a finish trim with a cover plate.

6.7.10.1.1.2 Pedestal (raised, tombstone, monument)

The pedestal type poke-thru device is comprised of a stem including a fire barrier, a retaining feature to anchor the poke-thru device in the concrete or steel deck, and a finish trim with a device housing. This type of poke-thru device is not flush with the top of the finished floor.

6.7.10.1.2 Design and installation requirements

The fire resistance rating of the floor shall be maintained.

The requirements of the appropriate fire resistance directory, published by an NRTL, for allowable density of poke-thru devices and minimum spacing between poke-thru devices, shall be followed.

The location and density of the poke-thru devices shall be approved by a licensed structural engineer.

Locations and sizes of installed poke-thru devices shall be documented in building records.

The manufacturer shall provide information about the allowable cross sectional area of cables for each poke-thru device.

Abandoned poke-thru holes shall be properly firestopped.

6.7.11 Patch panel system

If a rack-mounted patch panel system is used for equipment outlets, a rack or cabinet should be installed to accommodate the patch panel. See 6.3.9 for additional information on racks and cabinets.

6.7.12 Other connecting hardware

When other connecting hardware is used appropriate mounting means shall be provided.

6.8 Consolidation point

The location of the consolidation point should be developed in accordance with the security plan of the building. Consolidation points should be provided with appropriate security, such as key-locking, tool-removable covers, or other suitable means. Furniture intended to house consolidation points shall include sufficient space to accommodate cable strain relief, terminations, and anticipated horizontal cable slack storage. The use of suspended ceiling space or access floor space for consolidation points may be acceptable, provided that the space is accessible without moving building fixtures, equipment, or heavy furniture, and without disturbing building occupants. In all cases, the use of consolidation points in plenum spaces used for environmental air shall conform to applicable building codes.

6.9 Splice box

6.9.1 Use of splice boxes

Splice boxes are intended to be used for housing splices and may also be used for pulling cable.

Conduit fittings shall not be used in place of splice boxes.

See 9.9.2.4 for additional requirements when splice boxes are also used as pull boxes.

6.9.2 Design guidelines

Splice boxes shall be readily accessible. Splice boxes shall not be placed in a fixed false ceiling space unless immediately above a suitably marked access panel.

Splice box design should be developed in accordance with the security plan of the building.

If the splice box is comprised of metallic components, it shall be bonded to ground in accordance with the authority having jurisdiction.

Splice boxes used with conduit shall be sized per table 4.

Table 4 – Splice box sizing

Metric designator (trade size)	Width mm (in)	Length mm (in)	Depth mm (in)	Width increase for additional conduit mm (in)
27 (1)	300 (12)	810 (32)	100 (4)	75 (3)
35 (1-1/4)	355 (14)	915 (36)	125 (5)	100 (4)
41 (1-1/2)	450 (18)	990 (39)	150 (6)	100 (4)
53 (2)	500 (20)	1065 (42)	175 (7)	125 (5)
63 (2-1/2)	610 (24)	1220 (48)	200 (8)	150 (6)
78 (3)	760 (30)	1375 (54)	225 (9)	150 (6)
91 (3-1/2)	915 (36)	1525 (60)	255 (10)	175 (7)
103 (4)	1065 (42)	1675 (66)	275 (11)	175 (7)

7 ACCESS PROVIDER SPACES AND SERVICE PROVIDER SPACES

7.1 General

Access provider spaces and service provider spaces are used for the location of transmission, reception, and support equipment. Sufficient space shall be developed for multiple access providers and service providers.

Access provider spaces and service provider spaces shall meet the requirements of 6.3 with additional requirements, exceptions and allowances as specified in clause 7.

Guidelines for access provider spaces and service provider spaces are shown in table 5 and figure 9. Access providers or service providers may have additional or different requirements for these spaces.

Table 5 – Summary of access provider spaces and service provider spaces

Space name	Minimum recommended space size	Functions/equipment
Access provider space	1.5 m x 2 m (4 ft x 6 ft)	Location for access provider transmission and support equipment
Service provider space	1.5 m x 2 m (4 ft x 6 ft)	Location for service provider transmission and support equipment

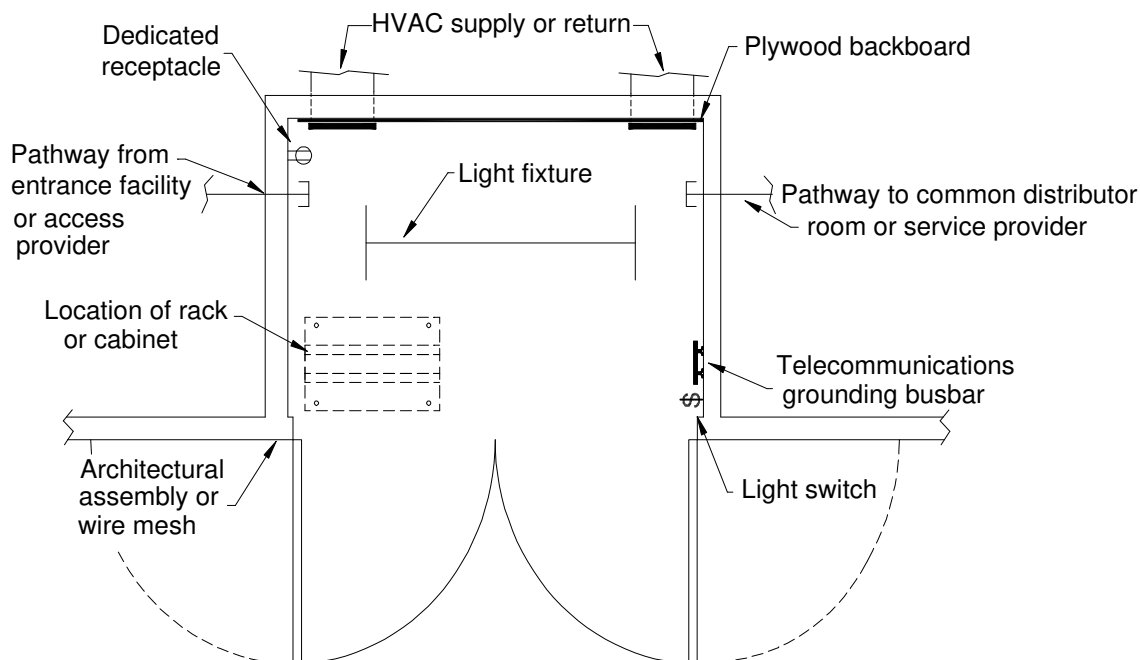


Figure 9 – Example of an access provider or service provider space

7.2 Location

Access provider spaces and service provider spaces should be in close proximity to Distributor C. The access provider and service provider spaces should be selected so that the area may be expanded. Access provider spaces and service provider spaces shall be located so that each can be accessed through common-use corridors. Wireless access provider spaces should be located as close as practicable to the wireless transmission/reception devices to which they are connected.

7.3 Pathways

Adequate cable pathway should be provided from access provider spaces to Distributor C, from service provider spaces to Distributor C, and from access provider spaces to service provider spaces.

7.4 Design

7.4.1 Architectural

7.4.1.1 Partitions

Where access providers and service providers share space, individual spaces should be segregated by means of partitions. Partitions may be comprised of wire mesh or architectural assemblies.

7.4.1.2 Signage

When wireless access provider spaces and service provider spaces are employed and wherever exposure to radio frequency electromagnetic fields may cause harm to personnel as characterized in FCC Bulletin OET 65, hazard warning signs with formats meeting standards as specified in IEEE C95.2 should be posted.

NOTE – The FCC requires that certain licenses and registrations be displayed in a conspicuous location.

7.4.2 Environmental

7.4.2.1 Heating, ventilation and air conditioning (HVAC)

7.4.2.1.1 General

Access provider and service provider equipment is often designed to operate in extreme environmental conditions such as temperature. Air handling requirements should be based on potential heating and cooling demand associated with equipment that may be present in the space including, but not limited to:

- a) servers;
- b) data switches;
- c) PBXs and key systems;
- d) coaxial amplifiers;
- e) video distribution equipment; and
- f) uninterruptible power supplies.

7.4.2.1.2 Continuous operation

HVAC shall be provided on a 24 hours-per-day, 365 days-per-year basis. One means of providing around-the-clock HVAC is use of a stand-alone unit.

7.4.2.1.3 Standby operation

If a standby power source is available in the building, consideration should be given to also connecting the HVAC system serving the telecommunications access provider space and service provider space to the standby supply.

7.4.2.1.4 Positive pressure

A positive pressure differential with respect to surrounding areas should be provided unless prohibited by the AHJ.

7.4.2.2 Other mechanical fixtures

Mechanical (e.g., piping, ductwork, pneumatic tubing) fixtures not related to the support of the access provider space and service provider space should not be installed in, pass through, or enter the access provider space or service provider space.

7.4.3 Electrical

7.4.3.1 Power

7.4.3.1.1 General

Access provider and service provider power requirements shall be specified by the respective provider. As a minimum guideline, provide at least one dedicated 20 A, 120 Vac nominal, non-switched duplex electrical receptacle for equipment in each access provider space and service provider space. Operators of access provider spaces and service provider spaces shall be allowed access to convenience duplex receptacle(s).

7.4.3.1.2 Standby power

If a standby power source is available in the building, consideration should be given to also connecting the electrical system serving the telecommunications access provider space and service provider space to the standby supply.

7.4.3.2 Bonding and grounding

Access shall be made available to the telecommunications bonding and grounding infrastructure specified by ANSI/TIA-607-B.

8 MULTI-TENANT BUILDING SPACES

8.1 General

Common distributor rooms serve multiple tenants in a multi-tenant building (see figure 10). Pathways and spaces that are located within a multi-tenant building are described in clause 6 and clause 9.

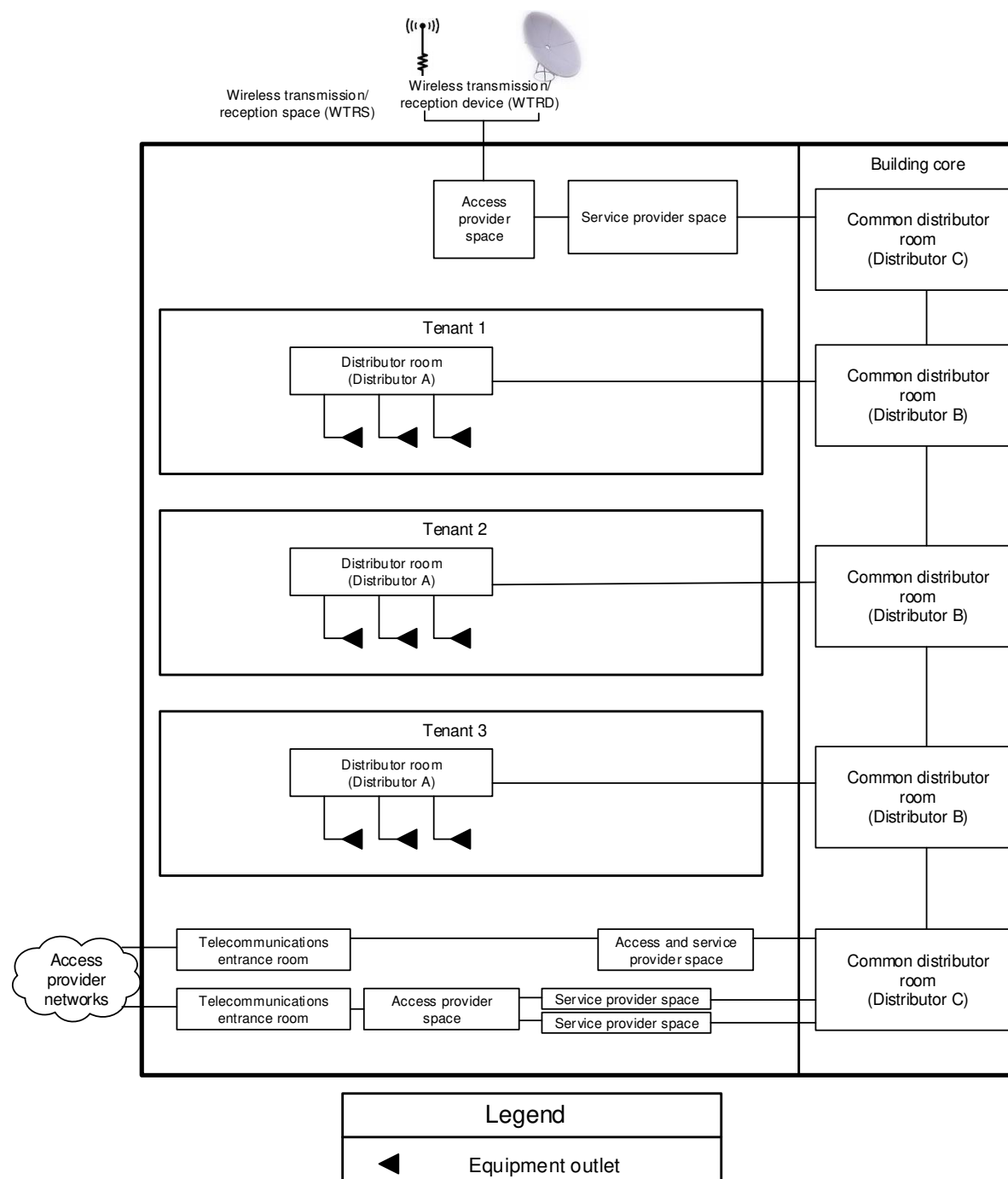


Figure 10 – Example of pathways and spaces in a multi-tenant building

8.2 Common distributor room

8.2.1 General

A common distributor room should contain only those facilities that serve multiple tenants in a building. Tenant customer premises equipment shall not be located in a common distributor room.

The common distributor room shall meet the requirements of 6.3 with additional requirements, exceptions and allowances as specified in 8.2. Figure 11 shows an example of a common distributor room.

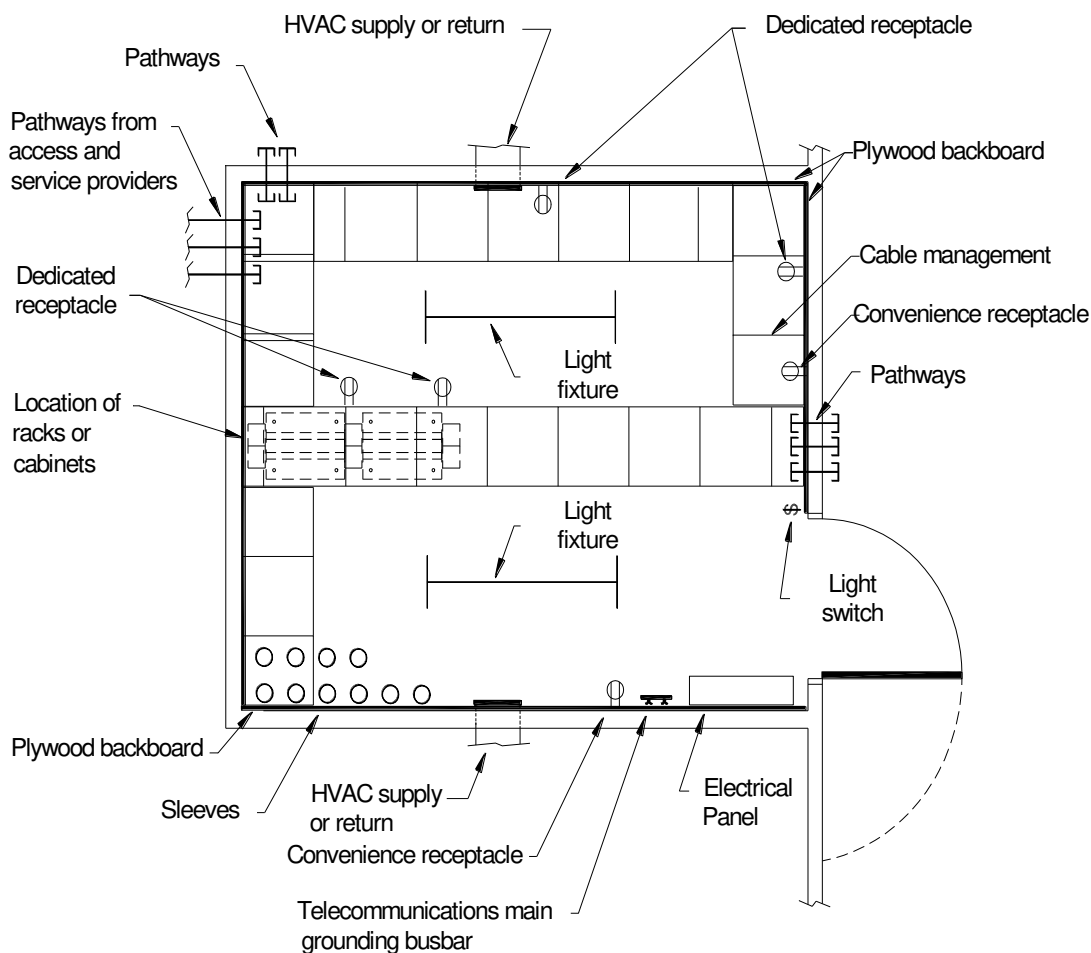


Figure 11 – Example of a common distributor room

8.2.2 Location

Whenever practicable, common distributor rooms in multi-story buildings should be vertically aligned. The common distributor room should be located central to the area served and accessible through common-use corridors.

8.2.3 Number and size of penetrations

Designers should take into consideration the following requirements when developing the quantity and size of common distributor room penetrations:

- a) cable infrastructures shared by multiple tenants;
- b) intra-building connectivity requirements;
- c) inter-building connectivity requirements;
- d) wireline access/service providers' bypass needs; and
- e) wireless access/service providers' bypass needs.

In the event that cable infrastructures shared by multiple tenants do not meet specific tenant needs, sufficient pathway capacity should be set aside to accommodate bypass of shared infrastructures (see 8.2.5).

8.2.4 Design

8.2.4.1 Architectural

8.2.4.1.1 General

The design of the common distributor room shall be based upon the present and future requirements of the space to be served.

8.2.4.1.2 Size

Common distributor rooms shall be sized per 6.4.4.1.1.

8.2.4.1.3 Quantity

When the area served exceeds 2000 m² (approximately 20 000 ft²) consideration should be given to providing more than one common distributor room.

8.2.4.2 Environmental

8.2.4.2.1 Standby operation

If a standby power source is available in the building, the HVAC system serving the common distributor room should be connected to the standby supply.

8.2.4.2.2 Positive pressure

A positive pressure differential with respect to surrounding areas should be provided unless prohibited by the AHJ.

8.2.4.3 Electrical

8.2.4.3.1 Power

8.2.4.3.1.1 General

A common distributor shall be equipped with a minimum of two 20 A, 120 Vac nominal, non-switched duplex electrical convenience receptacles and two dedicated 20 A, 120 Vac nominal, non-switched duplex electrical receptacles for equipment power. Convenience duplex outlets should be placed at 1.8 m (6 ft) intervals around the perimeter walls, at a height of 150 mm (6 in) above the floor.

NOTE – It may be desirable to install dedicated feed-through power panels to serve groupings of vertically-aligned common distributor rooms.

8.2.4.3.1.2 Standby power

If a standby power source is available in the building, consideration should also be given to connecting the electrical system serving the common distributor room to the standby supply.

8.2.4.3.2 Bonding and grounding

A bonding and grounding system as specified by ANSI/TIA-607-B shall be provided.

8.2.5 Common pathways and spaces bypass

Common pathways and spaces bypass occurs when the tenant's requirements exceed the common use pathways or spaces of a building. An example of this bypass is when a tenant wants to keep their cabling physically separate from the common pathways and spaces used by other tenants in the multi-tenant building. Bypass results in a capacity reduction of the building's common pathways and spaces. Common pathways and spaces bypass may be implemented using the specifications in clause 9. As the quantity of bypassing tenants increases, so do the building's pathways and spaces decrease. Without careful management, tenant bypass can negatively impact a multi-tenant building's pathways and spaces.

8.2.6 Campus pathways

Campus pathways for multi-tenant buildings in a campus environment shall meet the requirements of ANSI/TIA-758-B.