

**Let's talk about
what's possible.™**

**Architecture /
Construction
Display
Guidelines
09.25.23 rev**

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Agenda

Project Overview

Electrical

Structural / Seismic

Storage / Fire Safety

ADA Guidelines

Permitting

Project Overview

These guidelines address electrical components, structural review including seismic analysis, storage capacity including fire safety, ADA compliance and coordination of finishes. Not all codes are created equal; Nor are the codes interpreted equally. Each jurisdiction is responsible for regulating their own code enforcement and interpretations; as such, rarely does a single solution work in all instances nationwide. Therefore, the design criteria has been based on a most stringent code.

The comments and the recommendations within are provided by Best Buy to assist vendors and vendors' fixture contractors to ensure the necessary steps are taken to meet compliance within Best Buy buildings. Best Buy Architectural Development Manager will assist and guide the vendor by helping engage the appropriate reviews are completed for their fixture. Following these steps will reduce internal feedback addressing such items and provide an overall reduction in rework and timelines.

Contact information for Best Buy's prototype consultants are included below. These are included for reference and may be used for consultations. The vendor is directly responsible for any necessary contracting and payment to those consultants for any services rendered.

BBY Electrical Engineer

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BBY Structural Engineer

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Electrical

BBY Power Grid/ Circuits

Best Buy's preference is to provide switched power. Typically, a store's power grid consist of a mixture of 20amp continuous-power circuits and 20amp circuits controlled by an energy management system (EMS). EMS circuits (switched circuits) shut down while the store is closed to preserve power and to meet energy code requirements. Both are available as a shared-load circuit (sharing power with other nearby displays) or as a dedicated circuit when necessary. The vendor should identify any devices that require 24/7 power for overnight updates or any devices that may not reboot directly into a demo mode. Accent lighting and/or illuminated signage as part of the display is required to be controlled by an EMS circuit (switched) or a built-in occupancy sensor. Lights cannot have continuous power per code. Where a display requires both 24/7 power and EMS power, those power circuits must remain independent of each other. A vendor providing a powered display or experience should identify all power draw requirements for that experience and provide that information to the Best Buy Merchant Project Manager and Architectural Development Manager. If necessary, vendor to coordinate with BBY Electrical Engineer to create power plans based on the vendor's electrical criteria.

Integrated Electrical

Electrical wiring and power components can be included within a vendor display. In order to comply with common jurisdictional codes for electrical, where power needs to be accessed within a display (such as an electrical receptacle or where junction boxes are located), **easy access without tools** (per code) must be accommodated in the display design. If the display is to come "pre-wired", the entire display must be UL listed as an assembly; and documentation is to be provided to the Best Buy Merchant Project Manager and Architectural Development Manager. Vendor displays can be designed to be simply plugged in or to have a final power connection made inside the display by an electrician. In the event the display is designed to be plugged in, the vendor should work with Best Buy Architecture to determine the length of plug cord that may be required based on various installation locations. If the display includes a plug-strip, the plug-strip must also be UL listed with an accessible integral breaker and the vendor must notify Best Buy of this. Pre-wired display elements containing accent lighting or any other switched power element must have a separate plug for switched power. When the intent is to have power connections added to the display in the field, it is best to have the display come with empty junction boxes pre-mounted. This reduces the opportunity for improper placement or damage to the display due to improper attachment.



Electrical (continued)

Fixture Extensions/ Power Poles

Power from overhead will typically drop down into the display from a fixture extension (also called Power Pole). There are two options for securing the fixture extension to a vendor display; 1) a casework sleeve or 2) attachment with an L-Bracket. For vendor displays that are to reside on a Best Buy fixture gondola, power is routed within the fixture. In those instances, it is common for the vendor display to be designed to plug in.

Appliance Power Cords

Any vendor provided fixture or product that requires a 110V power cord to run in demo mode, shall come with a cord pre-installed. All electrical connections shall be made prior to arrival at the Best Buy facility with wire nuts (not electrical tape), and enclosed within a secure junction box. Power cords are required to meet all national electrical standards, as well as any state or local requirements. Power cords not installed prior to delivery to Best Buy require electrician labor to install.

Flat-Wire, Connectrac, or other methods of power

The use of flatwire, Connectrac (3.7 in-carpet), trenching, etc. need to be coordinated with BBY Architecture and IT (if applicable). Flatwire is not allowed in all jurisdictions as a valid raceway/conduit. If flatwire is used, modular carpet tiles will need to be utilized for flooring repair.

BBY Electrical Engineer

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Structural/Seismic

Seismic analysis/certification and anchoring

The governing Building Code in many jurisdictions requires seismic analysis and certification of fixtures prior to installation. In most instances this only affects fixtures with a height of 5'-9" and over, and will often require the fixture to include additional internal bracing as well as a method of anchoring the fixture to the floor. Note for life safety, any fixture that is prone to tipping, hung or mounted to a wall / deck / or another fixture also needs to be reviewed and determined if anchoring to the floor is warranted.

In locations where seismic analysis and certification is required, the jurisdiction will request to receive and review the fixture cut-sheets, as well as the certified seismic analysis results (structural calculations) with a current engineer stamp. A vendor providing such fixture should be prepared to provide these documents to the Best Buy Merchant Project Manager and Architectural Development Manager, at a minimum of 60 days prior to install for permitting. Best Buy uses AST as our preferred structural engineer and recommends AST as a source for seismic design. However, if the vendor chooses not to use AST, then the vendor will be required to have AST do a peer review at their cost (including permitting), prior to deploying into additional stores.

The seismic evaluation report and calculations require a stamp from a Professional Engineer. As there are 25 states that require seismic review, a stamp from each state will need to be provided as well. California has the highest seismic rating and calculations shall be designed for seismic coefficient, **Ss=2.5**. The report should also provide a rendering or photo of the fixture.

If fixtures are at a height of 5'-9" and over and depend on another structure for support; i.e. an endcap supported by an existing lowbay fixture then the structure supporting the fixture must be analyzed for the additional seismic loads. This scenario must be called to the attention of Best Buy Merchant Project Manager and Architectural Development Manager.

If the vendor believes that their fixture is exempt from seismic requirement of the code, then a certified letter shall be provided by a licensed engineer indicating the exemption. This scenario must be called to the attention of Best Buy Merchant Project Manager and Architectural Development Manager. Note, the vendor's engineer would be required to provide consulting services if a building official does not agree with the seismic exemption.

Vendors must provide the specified anchor bolts / fasteners called for in the seismic evaluation in their hardware kit of parts for their fixture display installation.

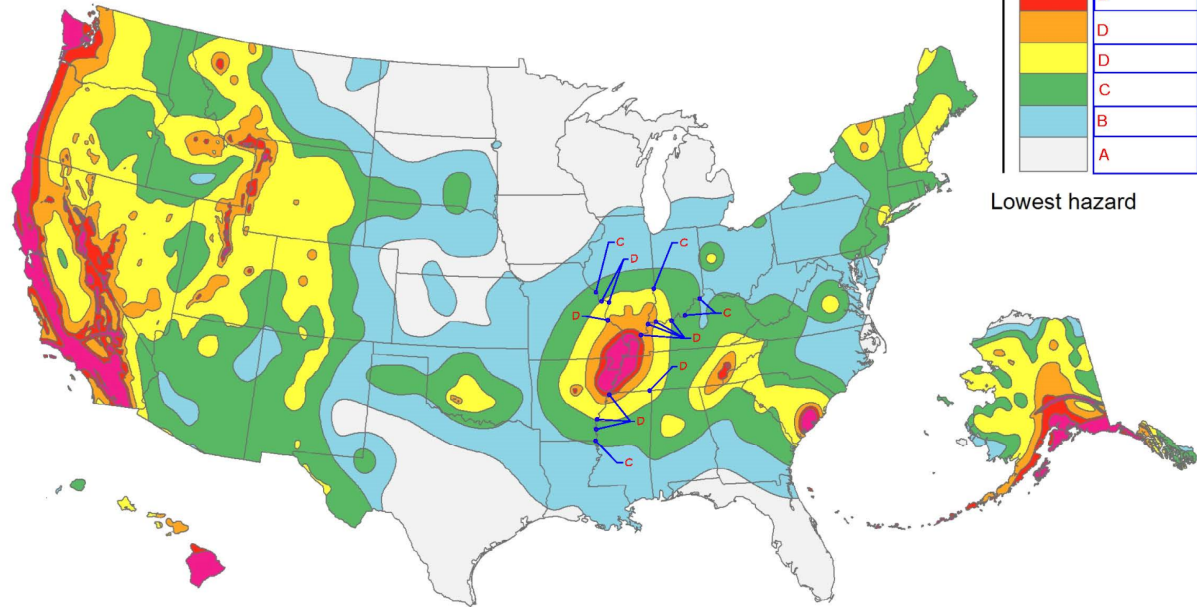
Structural/Seismic (continued)

Per IBC Section 105:

Seismic Design Categories C-E (moderate to high seismic zones); fixtures and displays with a height of 5'-9" and over require engineering seismic evaluation per code.

Some jurisdictions that fall within low-moderate zones (B-C) may also require seismic evaluations.

- Seismic Category C-E reflects approx. 324 Best Buy Stores



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Storage / Fire Safety

Product/ Equipment Storage

Product or equipment storage within a vendor display is sometimes needed. Cabinets and shelves are typically allowed and should be coordinated with the Best Buy Merchant Project Manager. Where secured locking cabinets are needed, Best Buy needs to control the locking hardware and keys. The vendor or vendor's fixture manufacturer can get pricing from Best Buy's Hardware Consultant. The Vendor or fixture manufacturer should work with the Best Buy Merchant Project Manager and Architectural Development Manager to obtain the locking mechanisms and determine the proper keying as needed.

High-Piled Storage

When Class I-IV storage is placed at 12'-0" and above, and Group A plastics are stored 6'-0" and above, it is considered high-piled storage. High-piled storage is reviewed differently and often requires the creation of a High-Piled Storage Plan (HPSP) and Commodity Classifications Report in order to properly permit the work with the jurisdiction. If the vendor fixture requires storage that differs from what is existing, a new HPSP will need to be provided to the Best Buy Architectural Development Manager for review.

Fire Suppression

It is important to note that vendor displays must not be designed in such a manner that it would inhibit Best Buy's fire suppression system from performing properly; this includes creating canopies above the display, ceiling clouds, or slatted and solid shelving that would prohibit adequate water penetration. When open shelving is used, it is required to use perforated shelving. If the vendor requires a design with any of these above features, this will require further review by the Best Buy Architectural Development Manager.

BBY Fire Consultant

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ADA Guidelines

This is by no means a replacement to current federal laws and statutes pertaining to ADA compliance, but to be used as a guide and should be referenced prior to development and deployment of any fixtures entering a Best Buy retail environment.

Vendors should reference the following code for compliance:

- Federal code – 2010 ADA Standards
- 2013 CA Building Code

Where code differs, the stricter will apply. California has historically had more stringent guidelines; therefore Best Buy designs to the stricter guidelines.

Vendor manufacturer should note that Best Buy has a “no tolerance” acceptance; therefore, the design of fixtures must meet the requirements specified by code and must be approved by Best Buy Architectural Development Manager and Design Manager.

BBY Accessibilty Consultant

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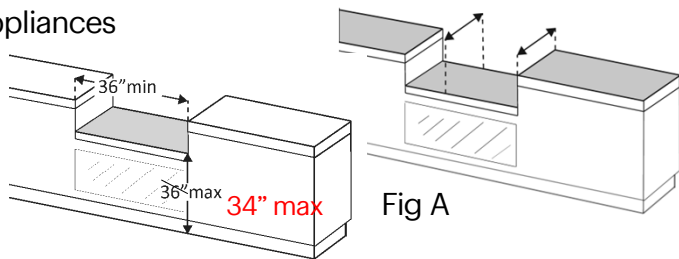


ADA Guidelines (continued)

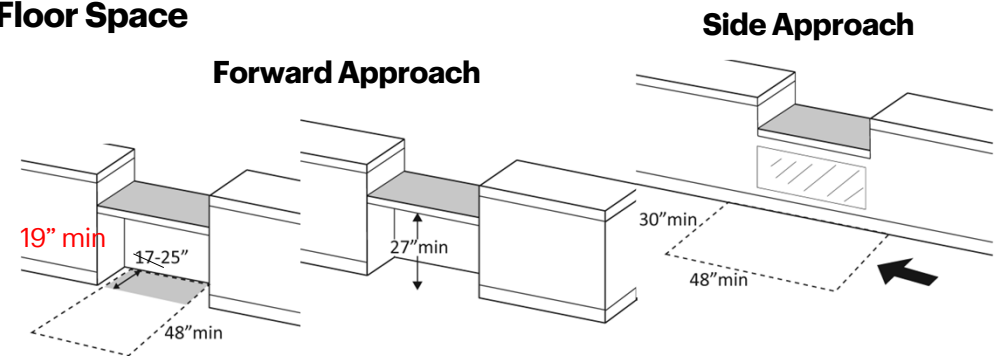
Accessible Sales & Service Counter -Height / Width and Clear Floor Space

Check out aisles and sales and service counters are defined as the following:

- Front of Store – customer service, Store Pickup, Geek Precinct, Checkout
- Departments - Computing, Mobile Phones, DI, Install Bay, Appliances etc. (all service counters are to be accessible)
- Home Theater
- Appliances



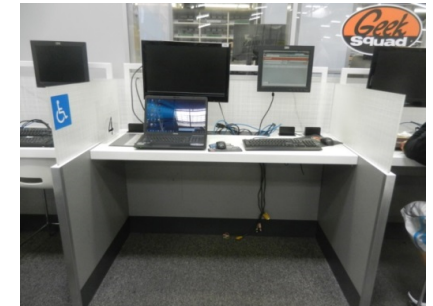
- Counter height <36" high (<34" in CA); therefore, **Best Buy prototype is designed to 34" max high**
- Where only a portion of a counter is lowered and the rest is higher then:
 - At least a 36" wide section shall be lowered (Fig A)
 - The depth of the lowered section must be equal to or greater than the depth of the high section



- Counter must provide 30"x48" clear floor space for forward or side approach
- Forward approach counters must provide knee & toe clearance below the counter at least 17" deep , (19" min depth in CA); therefore, **Best Buy prototype is designed to 19" min deep**

Accessible Work Stations

Work stations are defined as a work surface area to include writing surfaces or other tables or fixtures. Examples are geek service stations, employee work stations, mobile contracts, and appliance contracts.

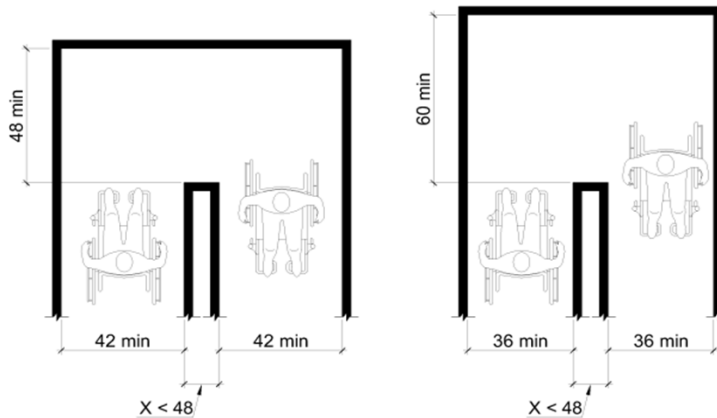


ADA Guidelines (continued)

Accessible Sales & Service Counter – Queue Lines

Any area of the store where customers are “channeled” and awaiting service is considered a queue area. The following considerations must be made for both wheelchair and visually impaired customers.

- Queue lines provide 36” minimum width
 - › Measured at the narrowest point – typically the base of the stanchion
 - › Stanchion should have low rail to provide cane detection
- U-Turns in Queue lines require either:
 - › 42” aisle width approaching the turn and 48” aisle width through the turn OR
 - › 36” aisle width approaching the turn and 60” aisle width through the turn



Que line with high rail is NOT cane detectable



Que line with low rail is cane detectable

ADA Guidelines (continued)

Merchandise Aisles

Aisle space consists of a main thoroughfare through merchandised gondola systems, wall systems, or merchandised tables and displays. The aisle space needs to have ample room for a disabled person to successfully navigate without the risk of injury to themselves or others.

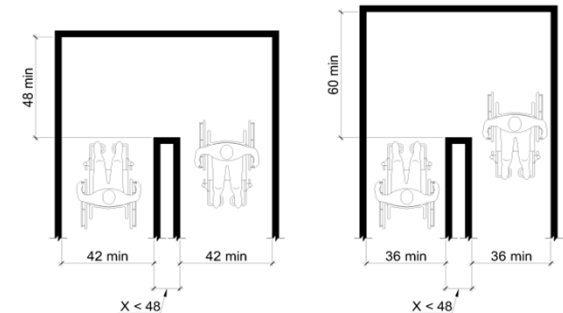
Merchandising and product placement within aisle space is permitted, however, consider placement and impact of merchandise in the aisles when crossing the racetrack from adjacent aisles and when making U-turns from aisles adjacent the racetrack.

- CA & IBC Code require aisles serving elements (“architectural components”) to be at least 44” wide.
- Aisles may have reduced width of 36” for distances of 24” to go around an obstruction such as a column (48” separation between reduced clearance)
- When product (non-moveable merchandise, which require tools to move) is placed in the middle of the racetrack aisle 44” clearance is needed on both sides to allow for access to endcaps and intersecting aisles
 - › Shippers or other moveable merchandise can be reduced to 36” clearance on both sides



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- U-Turns require extra width/depth
- Fire codes may require wider main aisles



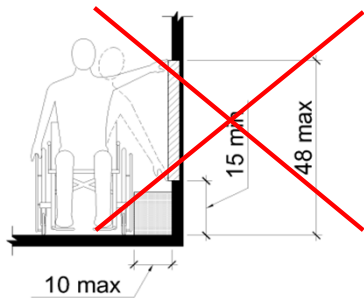
ADA Guidelines (continued)

Merchandise Aisles – side exemption

Self Service Shelving is exempt from the wheelchair reach ranges

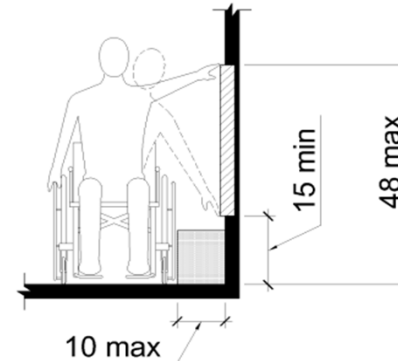
The US Department of Justice has said:

The Standards should be read broadly to apply to all types of shelves, racks, hooks, and similar self-service merchandising fittings, including self-service display units. Such fixtures are permitted to be installed above or below the reach ranges possible for many persons with disabilities so that space available for merchandising is used as efficiently as possible.”

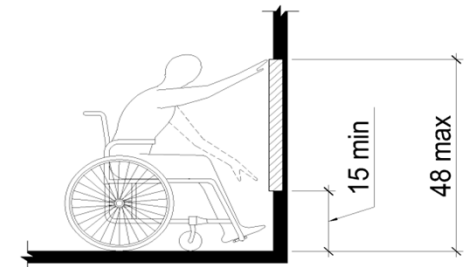


- Does not apply to merchandise
- Merchandise must still be located on an accessible route

Unobstructed Reaches, Side and Forward



Side Reach, Unobstructed



Forward Reach, Unobstructed

Where merchandise/product is accessible to customers in wheelchairs the following reach ranges apply:

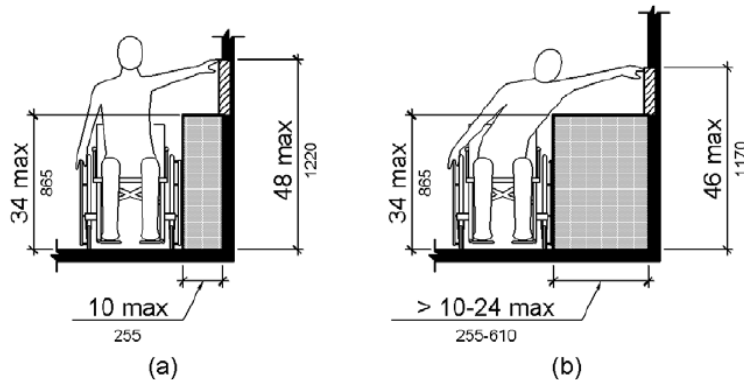
- The overall reach must be unobstructed both vertically and horizontally
- 15” min off the ground and no taller than 48” from the ground
- **For Side Approach:** Horizontal reach cannot exceed 10” from the customer to the product.

ADA Guidelines (continued)

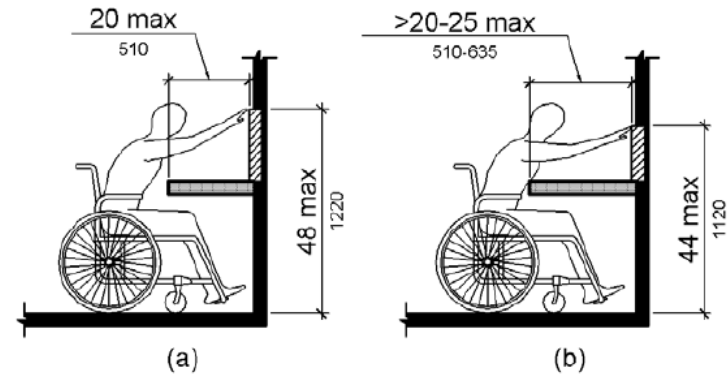
Obstructed Reaches

Where merchandise/product is accessible to customers in wheelchairs the following reach ranges apply:

- **Side Approach:** where a clear floor or ground space allows a parallel approach to an element and the high side reach is over an obstruction, then:
 - › The height of the obstruction shall be 34" max and the depth of the obstruction shall be 24" max. The high side reach shall be 48" max for a reach depth of 10" max.
 - › Where the reach depth exceeds 10", the high side reach shall be 46" max for a reach depth of 24" max.
- **Forward Approach:** where a high forward reach is over an obstruction, the clear floor space shall extend beneath the element for a distance not less than the required reach depth over the obstruction.
 - › The high forward reach shall be 48" max where the reach depth is 20 inches max.
 - › Where the reach depth exceeds 20", the high forward reach shall be 44" max and the depth shall be 25" max



(a) (b)
Side Approach, Obstructed



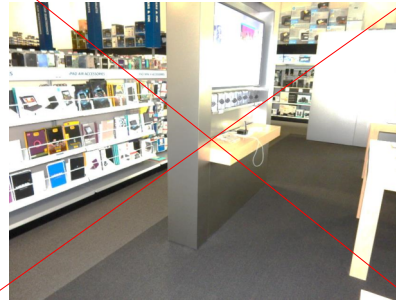
(a) (b)
Forward Approach, Obstructed

ADA Guidelines (continued)

Protruding Objects – Vendor Displays

All Displays in Best Buy Stores must comply with the following protrusion examples:

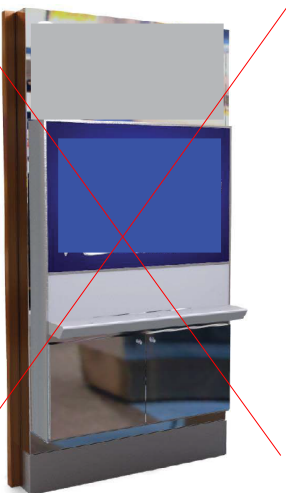
- Shelves must not protrude past 4” unless a barrier has been designed. Examples are shown in the photos.



Shelf is a hazard because it protrudes over 4”



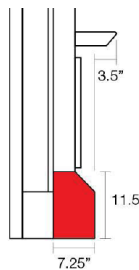
Shelf is not a hazard because a detectable element was added under the shelf



Shelf is a hazard because it protrudes over 4”



Shelf is not a hazard because the base of the fixture was widened, as shown in the profile



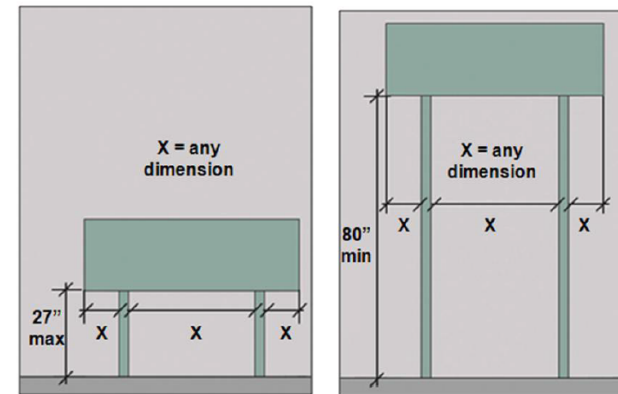
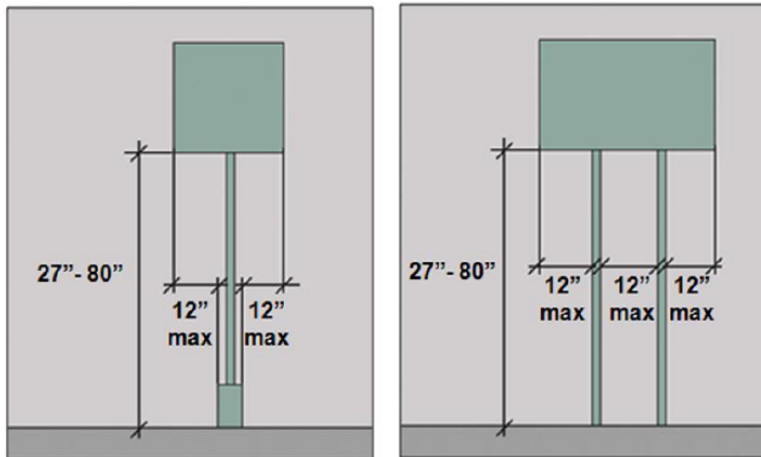
Counter overhangs base for knee/toe clearance and is a hazard – **needs an end panel**



ADA Guidelines (continued)

Protruding Objects – Post Mounted

This pertains to anything and everything mounted onto a post type device to remain erect: Signage, TV Monitors, Kiosks, etc.



Objects above 80" or below 27" can protrude any amount

- Post mounted objects can protrude outward from the posts up to 12" max

Permitting

Vendor to confirm if permits are to be provided by 3rd party or Best Buy to obtain permits. A Jurisdiction may require permits (Building or trade permit) for the following work:

- Electrical
- Racking for Seismic Zone Classifications
- High Pile Storage

Provide copies of the following to Best Buy Construction Project Manager and Architectural Development Manager:

- Any Permits required by Jurisdiction and also to be posted on site
- Inspections by Jurisdiction
- Special Inspections (ie., racking)
- Permit closed out and as-built plans/details provided to Best Buy Construction Project Manager

**See supplemental information from BBY Architecture.



Vendor Display Checklist

Category	Provide to BBY
Electrical	<ul style="list-style-type: none"> <input type="checkbox"/> UL Listing Information provided, if display is pre-wired <input type="checkbox"/> Confirm if power is required 24/7 <input type="checkbox"/> Power on Energy Management System (EMS) – required for lighting minimum. Preferred to be on switched power always. <input type="checkbox"/> SKU merchandise information for power requirements <input type="checkbox"/> Vendor specify location of outlets, if known <input type="checkbox"/> Confirm if all displays by vendor require power <input type="checkbox"/> Wiring Diagram provided <input type="checkbox"/> Has Dunham reviewed plan
Seismic	<ul style="list-style-type: none"> <input type="checkbox"/> Obtain seismic report for review and approval for fixtures with a height of 5'-9" and over <input type="checkbox"/> Report includes rendering and/or photo of fixture <input type="checkbox"/> Seismic calculations to be designed for seismic coefficient, Ss=2.5 <input type="checkbox"/> Report to be stamped by Professional Engineer for 25 states that require Seismic Evaluation <input type="checkbox"/> Specified anchor bolts / fasteners included in kit of parts by vendor <input type="checkbox"/> IF VPD does not use BBY preferred Structural Engineer, has peer review been completed by AST at vendor cost and provided to Best Buy.
ADA Guidelines	<ul style="list-style-type: none"> <input type="checkbox"/> Federal - 2010 ADA Standards <input type="checkbox"/> 2013 CA Building Code – where the code differs, the stricter will apply. California has historically had more stringent guidelines. <input type="checkbox"/> Peer review by BBY consultant, Neal Casper; as required
Flooring	<ul style="list-style-type: none"> <input type="checkbox"/> If flooring required; specification and process to be approved by BBY Design and Architecture.
Permits	<ul style="list-style-type: none"> <input type="checkbox"/> Building permit or trade permits required for electrical, seismic or High Pile Storage. Confirm if supplied by BBY or vendor provide to Best Buy.

Signed off by
Best Buy:

BBY Prototype Lead

BBY Architectural DM

BBY Store Design

