How the concerns in the NYC interpretation have been addressed by Bocci and other Relevant Information.

The 2019 interpretation raised several concerns for proper equipment grounding and bonding including access to inspect the connection of the equipment bonding jumper to the metal box when metallic wiring methods and metal boxes were installed. The 2023 interpretation resolved this with the limit installations to non-metallic wiring methods and non-metallic boxes based on the accepted TIA 1690 and modified manufacturer's instructions provided at that time.

The additional concerns raised for internal splices in the box were also resolved with the 2023 interpretation, the TIA 1690, and manufacturer's instructions only allowing the single set of circuit conductors for each device and prohibiting any splicing or continuation of the branch circuit through the box.

Bocci Response to NYC Interpretation. As noted in the installation instructions, Attachment D, the requirement for individual sets of circuit conductors to be installed for each device and no splicing to additional devices or continuation of the branch circuit remains. This continues to resolve the issue raised in the 2019 interpretation item no. 3. No splices are permitted in the device box except the connections to the receptacle leads which are accessible with the receptacle removed as shown in attachment B photo 5.

This also aligns with the actions to date of NEC CMP-8 in processing TIA 1690 for the 2026 NEC., see Attachment C. As can be seen in attachment C, CMP-8 acted to adopt the TIA language as presented with one exception. The action of CMP-8 modified the TIA language with removal of the restriction of only allowing non-metallic wiring methods and non-metallic boxes based on evidence presented to the code panel. This modified language for 314.29(A) would permit the reduced opening allowance with all wiring methods and device boxes following manufacturer's instructions.

The only modification being sought in this interpretation action is allowing metallic wiring methods and metal boxes to be used for New York City.

To address the accessibility questions, a mockup of a wall section was built with metal wiring method (in this case EMT) and deep metal boxes as required by the manufacturer's installation instructions, see attachment B, photos 1, 2, and 3. See also attachment D for the referenced manufacturer's installation instructions.

Regarding accessibility, the most severe case is marble, stone or millwork that has a maximum thickness of 1 1/4 inches as shown in attachment B Photos 3 and 4. The "finish" surface for the mockup was comprised of a sandwich of 1/2-inch and 3/4-inch plywood to make the 1 1/4-inch thickness. This is in addition to a 1/2-inch spacer representing the device box extension past the stud and/or 1/2-inch drywall installed behind the 1 1/4-inch finish surface material.

Photos 6 and 7 show that with the receptacles removed the equipment grounding (green) screw is visible for inspection for both the single gang and two-gang receptacle installations. This should resolve items 1 and 4 of the 2019 interpretation.

While the concern raised in the 2019 interpretation, item no. 1 only noted type MC cable, the bonding of the equipment grounding conductor is required for all wiring methods, even NM-B cable where metal boxes are installed.

The reference in item no. 4 of the 2019 interpretation to 2011 NEC section 314.40 is a construction requirement for metal device boxes to have provision to attach the equipment bonding screw. This is a requirement of the listing for these device boxes and as shown the provision for installation of the screw was present and was visible.

As shown in these photos the equipment grounding conductor connection and bonding of the metal box can be completed and is visible for inspection with the receptacle removed, the same as in a standard receptacle installation.

The connection of the receptacle's individual supply equipment grounding conductor, the equipment bonding conductor to the box, and the receptacle equipment bonding conductor is accomplished with the 3-port connector shown in attachment B photo 7. The equipment bonding jumpers installed are UL listed and come in either single or dual conductor with the single green hex equipment grounding screw as shown in Photo 8.

The 3-port connector and the equipment bonding jumpers are supplied by the manufacturer as part of the installation kit. Photo 8 in attachment B also shows a 5/16" hex driver manufactured by Klein Tools, and commonly available, that will allow checking tightness of the equipment bonding or, in very rare instances, replacement if that is ever required.

Where there are new construction installations with type AC cable, as identified in the 2019 interpretation item no. 2, verification of the anti-short bushings can be accomplished with use of an inspection mirror. If the ECRIC determines this is not acceptable, then establishing a limit to not allow the 22 System receptacles only where type AC cable is installed would resolve that concern. This would then allow the Bocci 22 System where a number of other metal wiring methods of conduit, tubing or type MC cable are employed.

Additional Relevant Information. The 22 system was CSA Listed in 2009 and subsequently UL Listed in 2015 providing coverage in both countries. This item has been selling in the US and Canada for 15 years with over 100,000 units sold *without a single safety incident*. Bocci has received no safety complaints, no complaints of malfunctioning, no complaints about lack of access to the wiring, no lawsuits, and no insurance claims whatsoever concerning the listed 22 System.

The 22 System was developed because there was a strong aesthetic demand for it in highly customized designs and installations. Before the 22 System, architects and trades went to great lengths to hide and obscure receptacles and other wall accessories for certain custom applications. These efforts and solutions were often site-invented and inevitably "homemade" with no testing or engineering, which likely increased safety hazards that may not ever been seen.

Attachment B - Photos

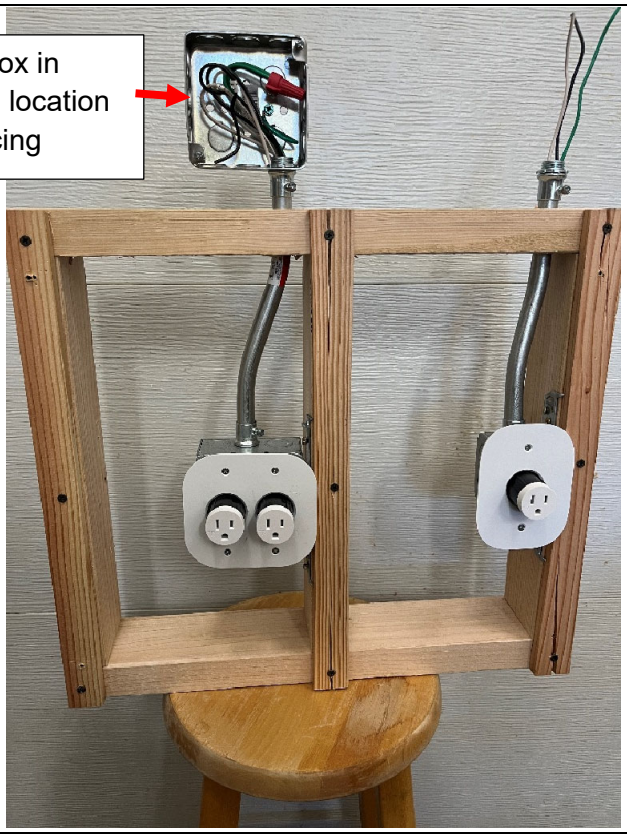


Photo 1 – Mockup Wall Section w/o Surface Front

Photo 2 – Mockup Wall Section w/o Surface Rear

Photo 3 – Installed 22 System Receptacles in Millwork

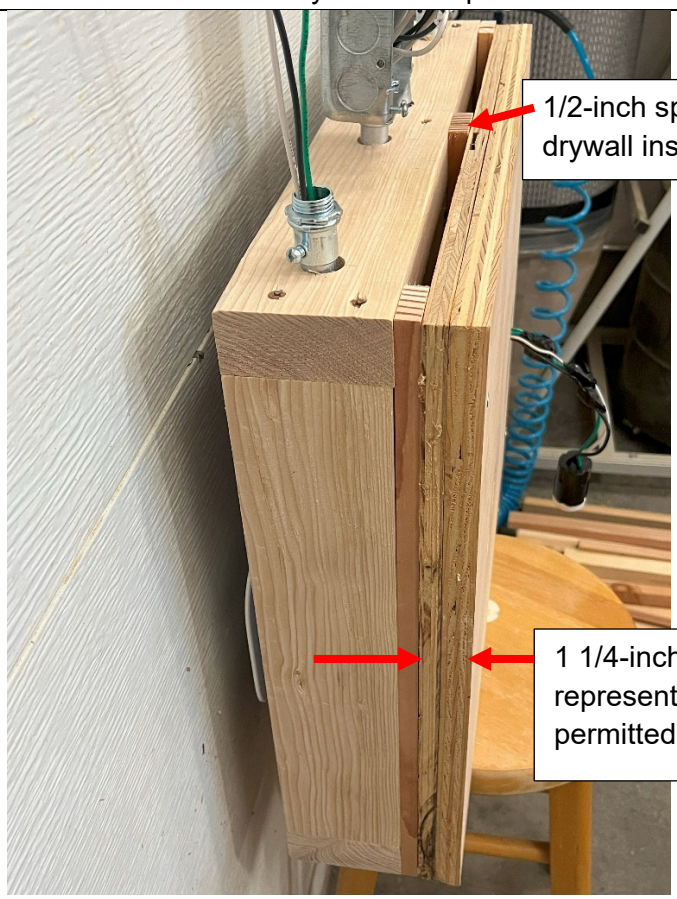


Photo 4 – 1 1/4 Inch Millwork Installed Over 1/2 Inch Spacer

Photo 5 – 22 System Receptacles Removed

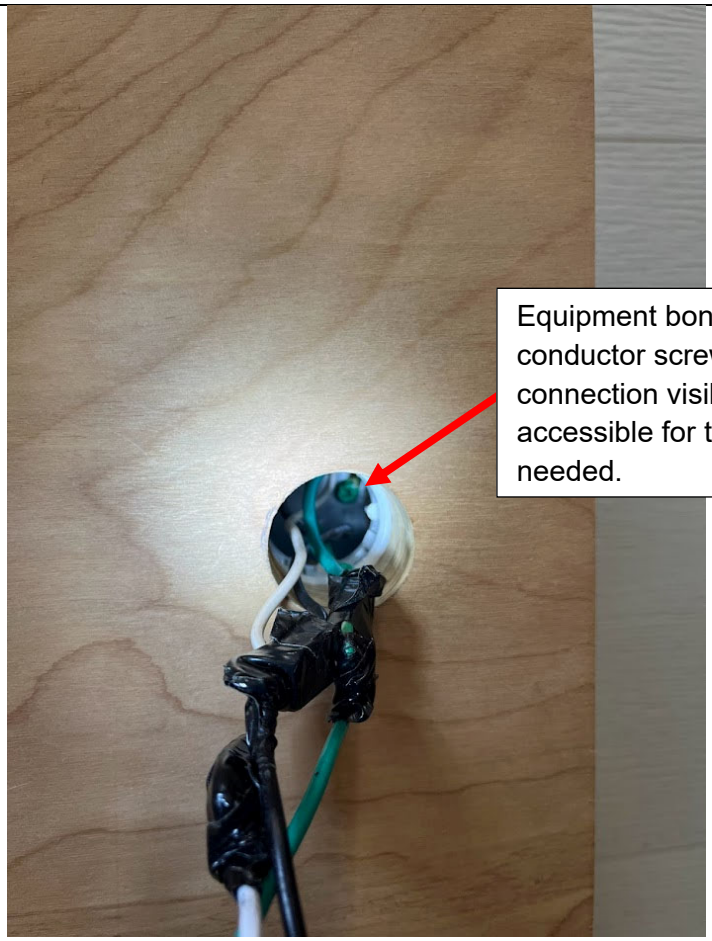


Photo 6 – Single Gang Box Equipment Grounding Screw and Bonding Conductor

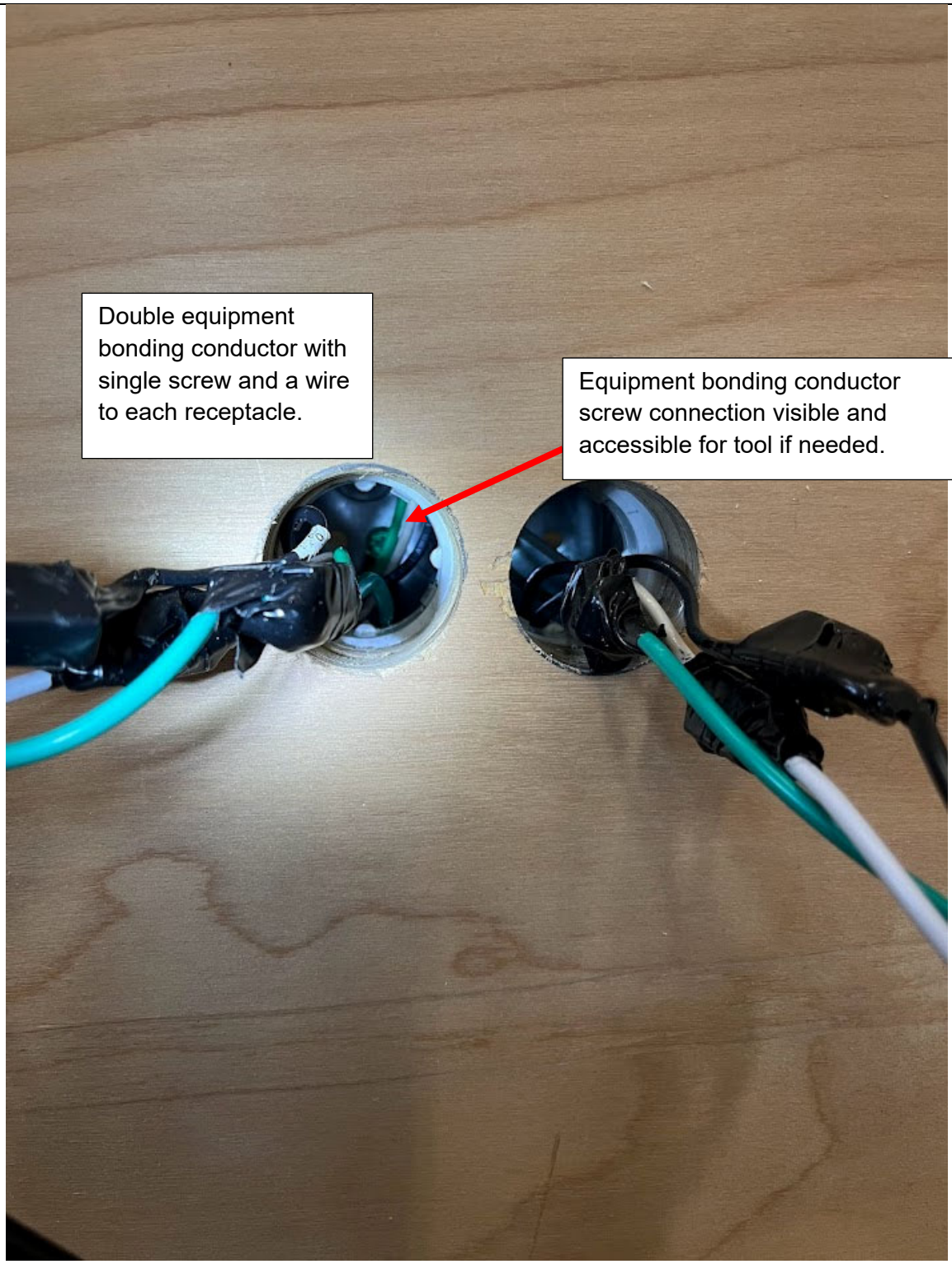


Photo 7 – Two Gang Box Equipment Grounding Screw and Bonding Conductors

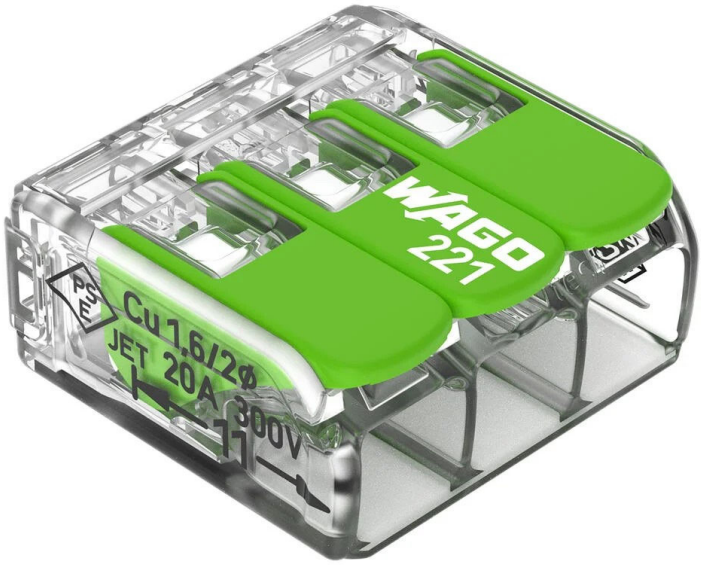


Photo 8 – Example 3-Port Connector for Equipment Grounding/Bonding

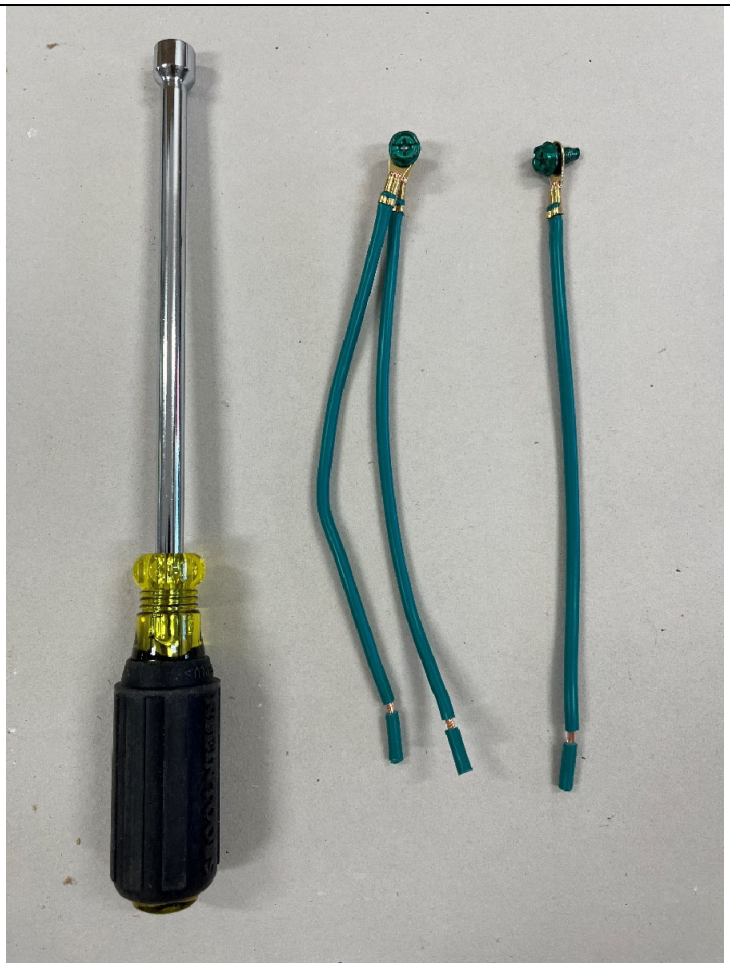


Photo 9 – Single and Double UL Listed Equipment Bonding Conductors and 5/16” Hex Driver

First Revision No. 7516-NFPA 70-2024 [Section No. 314.29(A)]

(A) ~~In~~ Buildings and Other Structures.

Boxes and conduit bodies shall be installed at the interiors and exteriors of buildings and other structures so the contained wiring and devices are accessible. Boxes and conduit bodies that are recessed into or behind finished surfaces of buildings and structures shall have access to their internal contents maintained by openings in their covers and in the building finish that comply with 314.29(A)(1), 314.29(A)(2), or 314.29(A)(3) as applicable. Removable finished covers and faceplates that maintain this access shall be permitted.

(1) Boxes 1650 cm^3 (100 $in.^3$) or Less in Size.

~~The openings~~ Openings in the building surfaces, if reduced from the outer walls of ~~the box~~ boxes , shall comply with the following: ~~shall be centered not more than 25 mm (1 in.) from the centerline of the box, and shall not extend beyond the walls of the box. If rectangular, the opening shall be not less than 73 mm (2 7/8 in.) by 45 mm (1 3/4 in.) in size. If circular, the opening shall not be less than 90 mm (3 1/2 in.) in diameter.~~

(1) They shall be centered not more than 25 mm (1 in.) from the centerline of ~~the box~~ boxes.

(2) They shall not extend beyond the walls of ~~the box~~ boxes .

(3) If rectangular, ~~the opening~~ they shall not be ~~not~~ less than 73 mm (2⅞ in.) by 45 mm (1¾ in.) in size.

(4) If circular, ~~the opening~~ they shall not be less than 90 mm (3½ in.) in diameter.

Exception: Smaller openings in building surfaces that accommodate one or more individual devices shall be permitted if all ~~of~~ the following conditions are met:

(0) ~~The outlet box that supplies the device(s) is nonmetallic.~~

(1) The branch- circuit wiring that supplies each device consists of a separate ~~nonmetallic~~ cable assembly originating outside the box, or individual sets of conductors in a single ~~nonmetallic~~ raceway, all of which originate outside the box. Other than the connections to a single device, ~~these~~ the branch-circuit conductors are not spliced in the box, or continued to another device, and no other wiring or raceways enter the box.

(2) Each device is capable of removal from the building surface opening without being damaged. If a special tool is required for this purpose, the applicable circuit directory for the device records the location of the tool, together with a product code/QR code for acquiring a replacement if necessary.

(3) All connections for each device to the branch- circuit wiring are made with listed clamping-type wire connectors, which are supplied with the devices. The branch-circuit conductors are arranged to permit the connector(s) to be exposed after the device has been fully removed.

(4) The device assemblies are listed for this application.

(2) Boxes Larger Than 1650 cm^3 (100 $in.^3$) in Size.

~~The openings~~ Openings shall not be smaller than the outer walls of ~~the box~~ boxes .

(3) Conduit Bodies.

~~The openings~~ Openings shall not be smaller than the outer walls of ~~the~~ conduit ~~body~~ bodies .

Supplemental Information

File Name	Description	Approved
NEC_CMP8_FR-7516_314.29.docx	For Staff Use	

Submitter Information Verification

Committee: NEC-P08
Submittal Date: Mon Jan 15 10:00:11 EST 2024

Correlating Committee Actions

The correlating committee may override this FR with a First Correlating Revision or with a Committee Note

Create FCR or CN

Committee Statement

Committee Statement: This revision clarifies that the requirements apply to the exterior and interior of buildings and structures.

The panel has reviewed the text revisions issued under TIA-1690 which became PI1595. Further revisions to the text are in the exception to permit metal boxes and wiring methods with the reduced opening devices.

Response Message: FR-7516-NFPA 70-2024

Public Input No. 1750-NFPA 70-2023 [Section No. 314.29(A)]

Public Input No. 1595-NFPA 70-2023 [Section No. 314.29]

Ballot Results

✔ **This item has passed ballot**

15 Eligible Voters
1 Not Returned
14 Affirmative All
0 Affirmative with Comments
0 Negative with Comments
0 Abstention

Not Returned

Edwards, Jeff Paul

Affirmative All

Adams, Doug

Campbell, David M.

Day, Chris

Gerstetter, David A.

Herrera, Javier

Jimenez, Joaquin

Kriner, Jeffrey

Martin, Michael C.

McNulty, Josiah Daniel

Moore, Thomas E.

Nause, Andrew

Roe, Rhett A.

Smith, Raymond H

West, Rodney J.

Installation Instruction—North America: Drywall

c UL us LISTED

22

Single Outlet - 2 inch box - 12.5 Cubic inches
Double Outlet - 4 inch box - 35 Cubic inches
Double Wide Outlet - 6 inch box - 48 Cubic inches

NOTE: The 22 System is a departure from conventional cover plate systems, and requires a licensed electrician and precise and skilled craftsmanship during installation. If you have never installed a 22 System device, we recommend a practice installation.

This instruction manual is designed for the following products: 22.3.XX

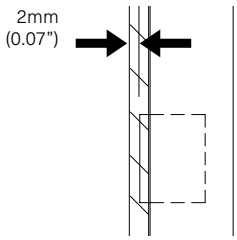
The branch circuit wiring that supplies each device consists of a separate cable assembly originating outside the box, or individual sets of conductors in a single raceway, all of which originate outside the box. Other than connecting to a single device, the conductors must not be spliced in the box or continued to another device. No other wiring shall enter the box. If a metal device box is installed, the equipment bonding conductor for the box shall be installed prior to installation of the wall finish.

Connections for each device to the conductors shall be made with the provided clamping wire connectors.

The included sticker with QR code shall be added to the circuit directory panel recording the location of the 22 System Tool.

1. For optimum strength, make sure the back of the mounting plate meets the device box (the surface of the device box must be approx. 2mm (0.07") back from the face of the drywall). If there is no direct contact between the back of the mounting plate and the device box, the system will perform but not at its peak strength.

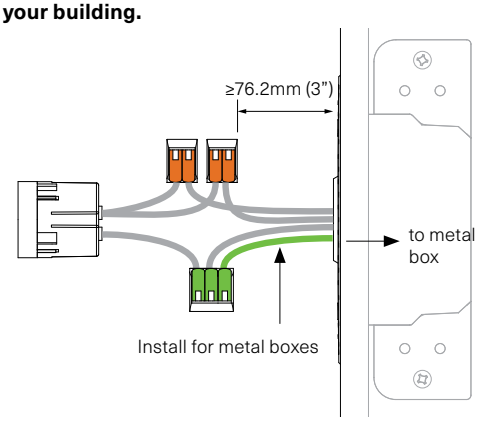
   The device box used must be min. 54mm (2-1/8") deep (shallow boxes will not fit the depth of the component).



2. **WARNING**
   When installing a product connected to the line voltage, please ensure the power is disconnected at the circuit breaker.

   The conductors must have sufficient length (≥76.2mm /3") to be accessible from the front of the finished wall surface.

   ⚠
   IMPORTANT: The branch circuit wiring that supplies each device consists of a separate conductors of which originate outside the box. No other wiring shall enter the box. Please refer to your local electrical and building authorities to determine what kind of boxes and raceways are allowed for your building.



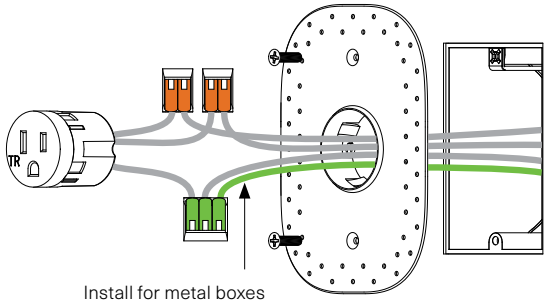
IMPORTANT: For metal box installations

During electrical installation, install the provided equipment bonding conductor to the metal device box.

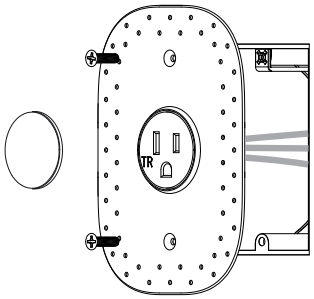
With the provided 3-port clamping wire connectors, connect the other end to the branch circuit equipment grounding wire, then connect to the equipment grounding conductor for the device.

Before installing the substrate, ensure the green grounding screw is visible when the receptacle is removed.

3. Make all necessary connections using the provided wire connectors. Insert the device into the mounting plate. Ensure that all four locking tabs are engaged.

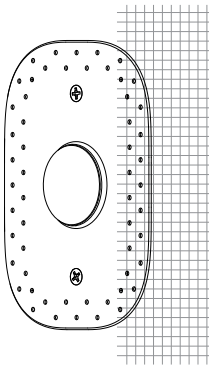


4. Devices come with a two-layer protective silicone cap -leave this in place after the device has been inserted into the mounting plate. This will be used in further steps to mask the device face during the "mudding in" process. Fasten the mounting plate to the device box using the included screws.

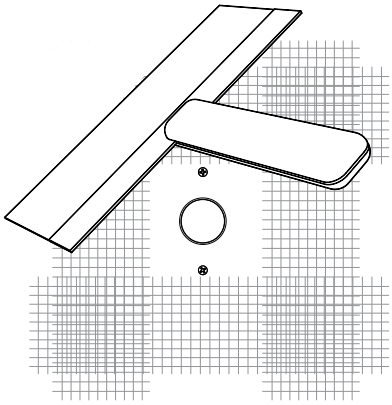


Installation Instruction—North America: Drywall

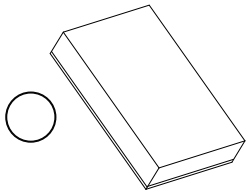
5. Tape the mounting plate edges with fiber mesh drywall tape.



6. Use a drywall filler compound to “mud over” the entire assembly - feather from the center of the mounting plate outwards for 600mm (2’) using a large drywall trowel.

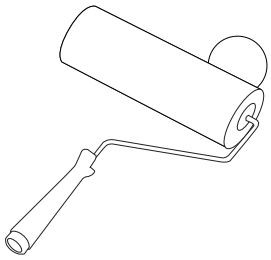


7. Using a foam sanding block, sand the entire area until the rim and the protective cap of the device are exposed. For long-term performance, it is essential to sand right down to the plastic rim.



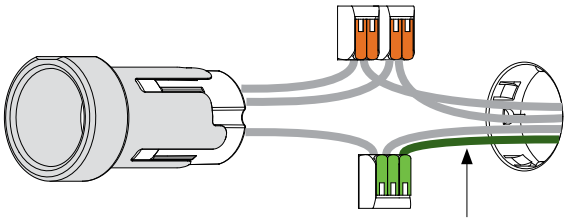
8. Partially peel back the paper face of the protective cap, ensuring the silicon layer remains snugly in place around the operative component. This will allow you to locate the component after painting.

9. Paint over the entire assembly.



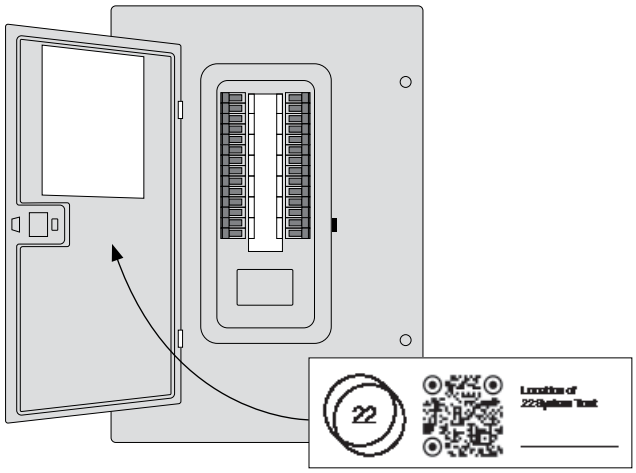
10. Once dry, peel back the entire paper face. A tab in the silicon layer of the protective cap will be exposed under the paper - this will allow you to remove the silicon layer and expose the device.

11. **IMPORTANT: For inspection and maintenance, a 22 System Tool (sold separately) is required to access the connectors and conductors. Please see Removal Guide for details.**



Install for metal boxes

12. Record the location of the 22 System Tool on the provided sticker with QR code and affix it to the circuit directory panel.



Installation Instruction—North America: Alternate Material

For installation in finish materials such as millwork, stone, glass, tile, metal, etc.

Single Outlet - 2 inch box - 12.5 Cubic inches
Double Outlet - 4 inch box - 35 Cubic inches
Double Wide Outlet - 6 inch box - 48 Cubic inches

NOTE: The 22 System is a departure from conventional cover plate systems, and requires a licensed electrician and precise and skilled craftsmanship during installation. If you have never installed a 22 System device, we recommend a practice installation.

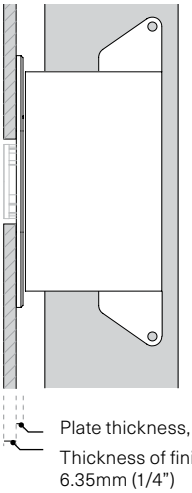
This instruction manual is designed for the following products: 22.3.XX

The branch circuit wiring that supplies each device consists of a separate cable assembly originating outside the box, or individual sets of conductors in a single raceway, all of which originate outside the box. Other than connecting to a single device, the conductors must not be spliced in the box or continued to another device. No other wiring shall enter the box. If a metal device box is installed, the equipment bonding conductor for the box shall be installed prior to installation of the wall finish.

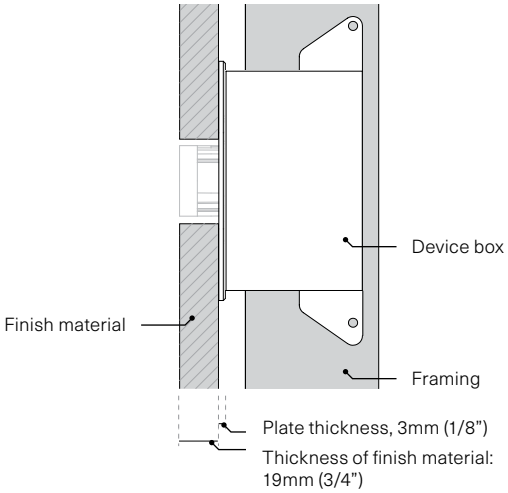
Connections for each device to the conductors shall be made with the provided clamping wire connectors.

The included sticker with QR code shall be added to the circuit directory panel recording the location of the 22 System Tool.

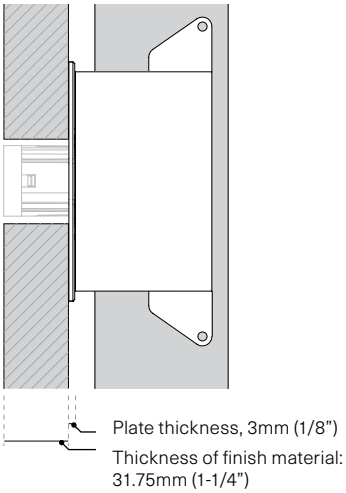
1. Determine finish material thickness and select the appropriate device depth (short/medium/long):



Short: Install the device box 9.5mm (0.37") away from finished wall surface.



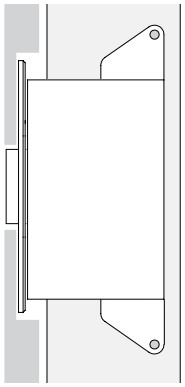
Medium: Install the device box 22mm (0.87") away from finished wall surface.



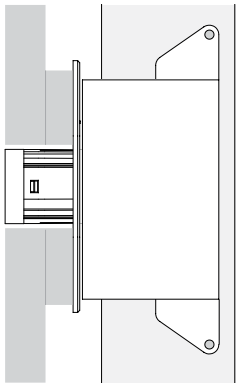
Long: Install the device box 35mm (1.35") away from finished wall surface.

2. Recess and install the device box.

NOTE: If the finish material thickness is not one of the three standard scenarios shown above, select the closest option and machine down or shim up to achieve the correct depth.



Machine down
(Suitable for soft material)



Shim up
(Suitable for hard material)

Installation Instruction:
Alternate Material

For installation in finish materials such as millwork, stone, glass, tile, metal, etc.

3. **WARNING**
When installing a product connected to the line voltage, please ensure the power is disconnected at the circuit breaker.

The conductors must have sufficient length (≥76.2mm /3") to be accessible from the front of the finished wall surface.

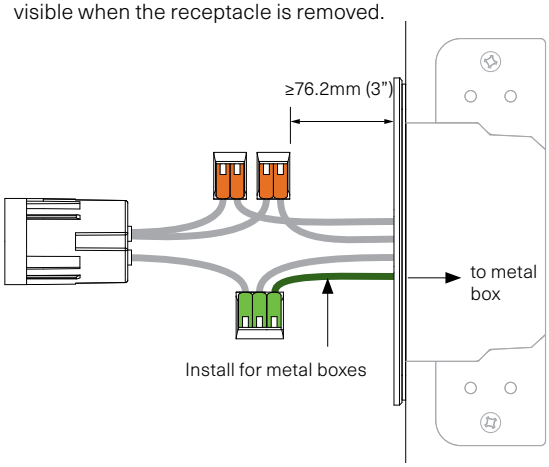
⚠
IMPORTANT: The branch circuit wiring that supplies each device consists of a separate cable assembly originating outside the box, or conductors in a raceway all of which originate outside the box. No other wiring shall enter the box.

IMPORTANT: For metal box installations

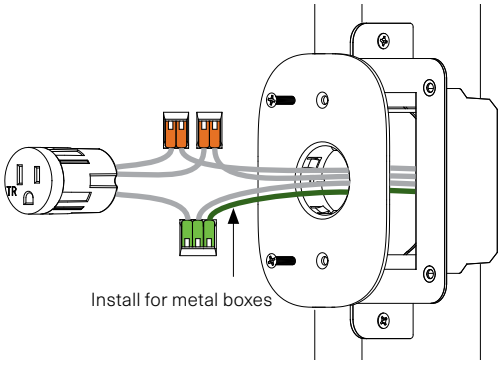
During electrical installation, install the provided equipment bonding conductor to the metal device box.

With the provided 3-port clamping wire connectors, connect the other end to the branch circuit equipment grounding wire, then connect to the equipment grounding conductor for the device.

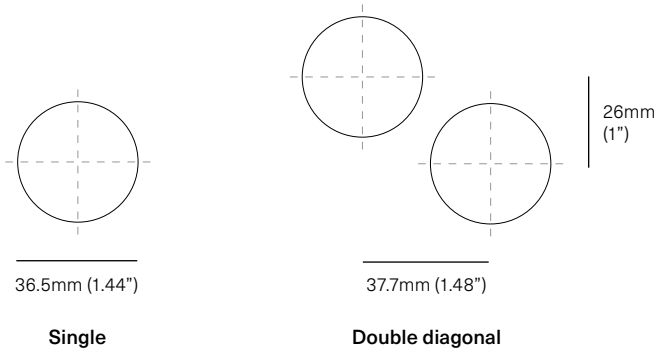
Before installing the substrate, ensure the green grounding screw is visible when the receptacle is removed.



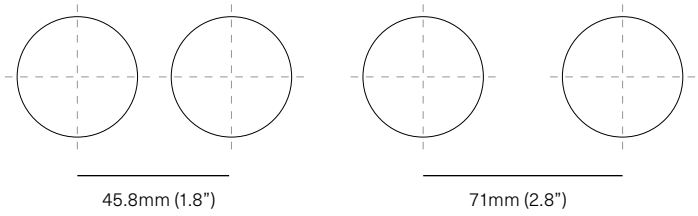
4. Affix the mounting plate to the device box. Make all necessary connections using the provided wire connectors. Insert the device into the mounting plate. Ensure that all four locking tabs are engaged.



5. Measure and drill hole locations in your finish material. The reveal size must be at least 36.5mm (1.4375") diameter.

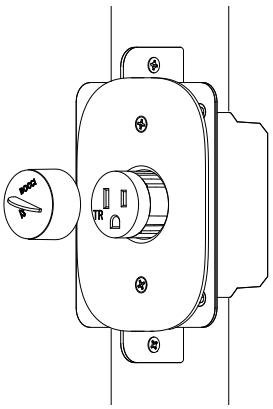


Single **Double diagonal**



Double linear **Double wide**

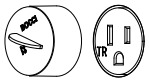
6. If a wet material such as grout, mortar, plaster etc is used, use the trim cap (22.1.2) to block the face of the devices to create the necessary reveal. It is recommended to use a Medium barrel for these applications.



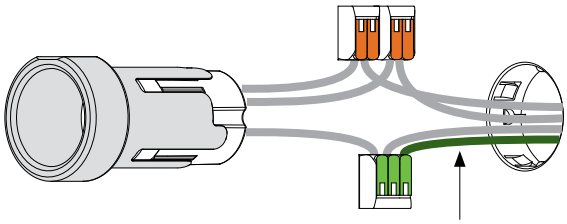
Installation Instruction:
Alternate Material

For installation in finish materials such as millwork, stone, glass, tile, metal, etc.

7. Install finish material, remove trim cap (22.1.2) if used.



8. **IMPORTANT: For inspection and maintenance, a 22 System Tool (sold separately) is required to access the connectors and conductors. Please see the Removal Guide for details.**



Install for metal boxes

9. Record the location of the 22 System Tool on the provided sticker with QR code and affix it to the circuit directory panel.