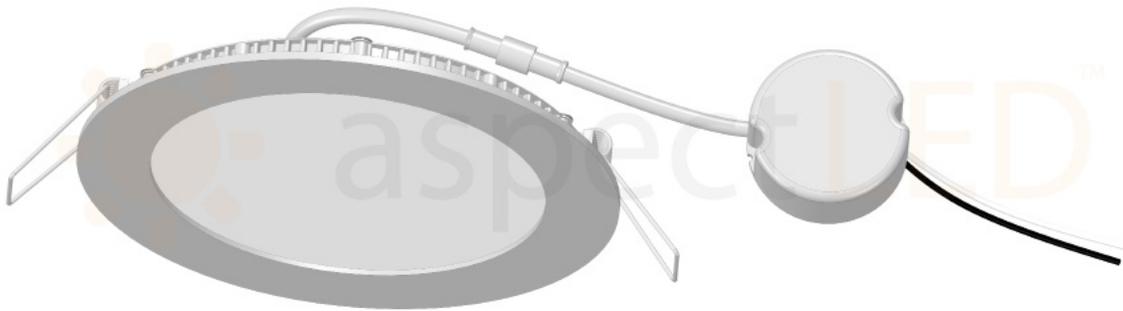




www.aspectled.com

Ultra-Thin Recessed LED Light Installation Guide



OVERVIEW

aspectLED's Ultra-Thin series of recessed lights are bright, energy efficient, attractively styled, and designed to fit into the tightest of spaces, making them perfect for virtually any residential or commercial application.

At under 1" tall, these recessed lights can fit into tight spaces that a traditional recessed can light won't, such as ceilings with ductwork/piping/obstructions, hot-roof ceilings with limited vertical clearance, and tight soffits.

aspectLED's Ultra-Thin recessed LED lights are low voltage recessed luminaires. A class 2 power unit (LED driver) must be used with this fixture. Never connect this low voltage luminaire directly to 120VAC! Only your class 2 power unit (driver) will connect to 120VAC, and your class 2 power unit (LED driver) will then supply your fixture with low voltage DC power.

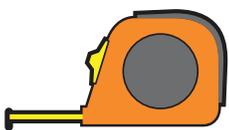
Installation is very straight-forward and is very similar to the same process you would use to install any light fixture. If you have any questions during your installation, please feel free to contact our electrician's helpdesk at 888-503-1317 option 3 or via e-mail at support@aspectled.com.

SPECIFICATIONS

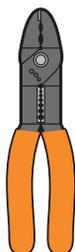
Ultra-Thin Model	SKU	Overall (Trim) Size	Cut-Out Hole Size	Wattage
3.5" Round	AL-RL-UTR-3	3 5/16" Diameter	3" Round	3 Watts
4.75" Round	AL-RL-UTR-4	4 3/4" Diameter	4 1/4" Round	6 Watts
4.75" Square	AL-RL-UTS-4	4 3/4" (W) x 4 3/4" (L)	4 1/8" (W) x 4 1/8" (L)	6 Watts
6" Round	AL-RL-UTR-6	5 15/16" Diameter	5 1/4" Round	9 Watts
6" Square	AL-RL-UTS-6	5 7/8" (W) x 5 7/8" (L)	5 1/4" (W) x 5 1/4" (L)	9 Watts
6.5" Round	AL-RL-UTR-65	6 11/16" Diameter	6 1/4" Round	12 Watts
9" Round	AL-RL-UTR-9	8 3/4" Diameter	8 1/8" Round	18 Watts
9" Square	AL-RL-UTS-9	8 3/4" (W) x 8 3/4" (L)	8 1/8" (W) x 8 1/8" (L)	18 Watts

TOOLS YOU'LL NEED

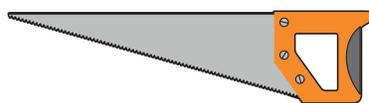
Tape Measure



Wire Stripper



Jab Saw



Screw Driver



Drill w/ Hole Saw
(optional)



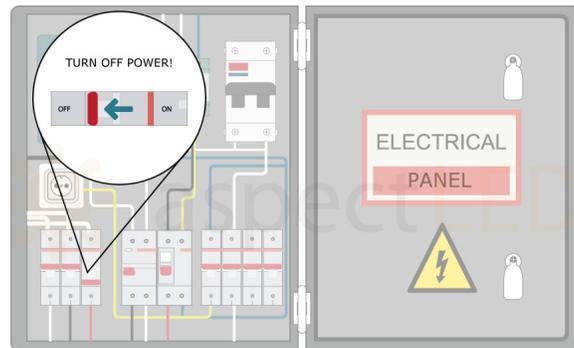
BEFORE YOU BEGIN

READ PRODUCT INSTALLATION INSTRUCTIONS (INCLUDED INSIDE PRODUCT BOX) BEFORE BEGINNING!

Before you begin with your installation, be sure to fully read all product instructions. They contain many useful tips and pointers that will help to ensure a perfect installation, save you time, and ensure your safety.

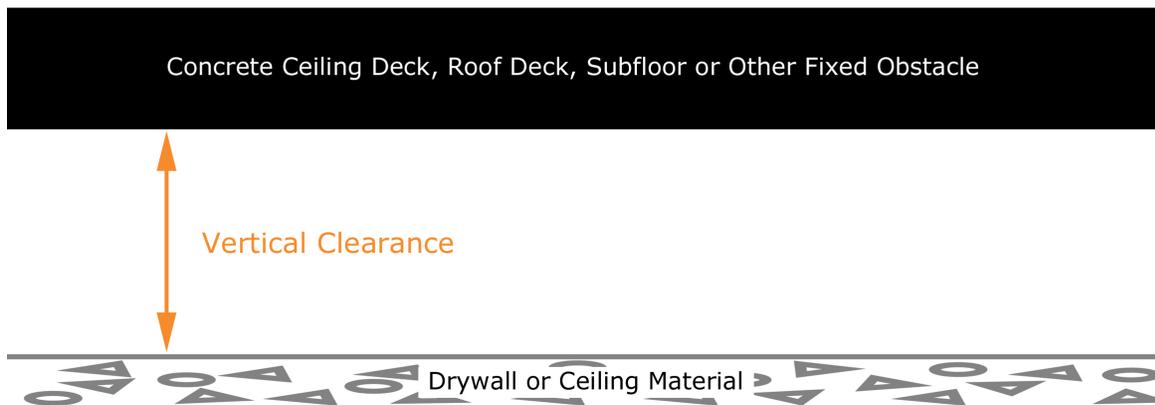
It is important that you install this product (and all other electrical products) in accordance with the National Electric Code (NEC) and all applicable local building and electrical codes for your area. If you are unfamiliar with the NEC, your local building/electrical codes, and/or the proper installation methods for electrical devices, always hire a qualified and licensed electrician to do the work for you.

Before beginning any electrical work, always disconnect power at the fuse or circuit breaker.



CHOOSING AN INSTALLATION METHOD

There are two different methods that you can use to install your aspectLED Ultra-Thin recessed LED lights. The amount of vertical clearance that you have at the light location will usually help you to decide which method to choose.



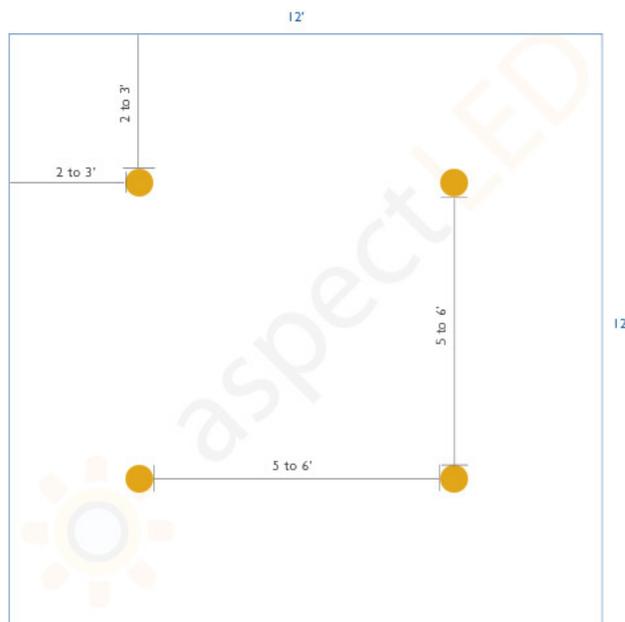
If you have at least 1.75" of space above your drywall, you will usually choose the conventional installation method (page 8). If you have a pipe, wire, joist or other obstacle in your way, you may be able to use the conventional installation method, if you have enough room to get a junction box through your hole.

If you have less than 1.75" of space above your drywall, you'll typically use the low clearance installation method (page 12).

PLANNING YOUR LAYOUT

Most electricians space recessed lights equally apart from each other forming a grid pattern on the ceiling. The distance between each light generally depends on the LED wattage of your light. Here are a few rough rules of thumb for spacing when using the lights as primary lighting (if you are using the lights as accent lighting or you have other lights in your room, you can space them further apart):

LED Wattage	Incandescent Equivalent	Recommended Spacing
3 Watts	25 Watt	3W fixtures are generally used for accent/cabinet lighting and are not usually used as general room lighting. If you do use them as general lighting, you'll want to space them roughly 2-3 feet apart.
6 Watts	50 Watt	6W fixtures are generally laid out in a grid such that they are 2'-3' off each wall and 4-5' apart from each other.
9 Watts	65 Watt	9W fixtures are generally laid out in a grid such that they are 3' off each wall and 5-6' apart from each other.
12 Watts	75 Watt	12W fixtures are generally laid out in a grid such that they are about 4-5' off each wall and about 6-7' apart from each other.
18 Watts	125 Watt	18W fixtures are generally laid out in a grid such that they are 5-6' off each wall and about 8-10' apart from each other.



For more layout suggestions and assistance, visit www.aspectled.com/pages/support-recessed-led-lights

RECOMMENDED ACCESSORIES

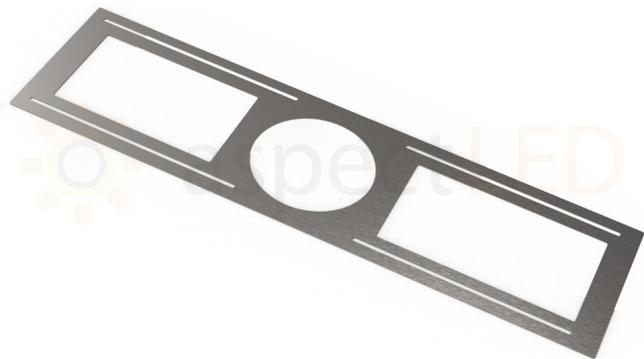
Ultra-Thin Extension Cables

These cables are used for the low clearance (remote driver) installation method, to extend the distance between the light fixture and the driver. Ultra-Thin extension cables are available in 2', 5', 10', and 25' lengths.



New Construction Rough-In Plate/Bracket

These rough-in brackets make installing ultra-thin recessed LED lights in new construction applications a breeze. Simply install the rough-in plates at your designated locations before installing drywall, have your drywallers cut/router the holes for your lights using the rough-in plate as a guide, and then snap your ultra-thin light into place after drywalling is completed.



To purchase any of these accessories, visit www.aspectled.com

DIMMING

If you purchased the dimmable option for your Ultra-Thin recessed LED lights, you'll be able to dim the class 2 power unit (driver) with most standard ELV style (reverse phase) dimmer switches.

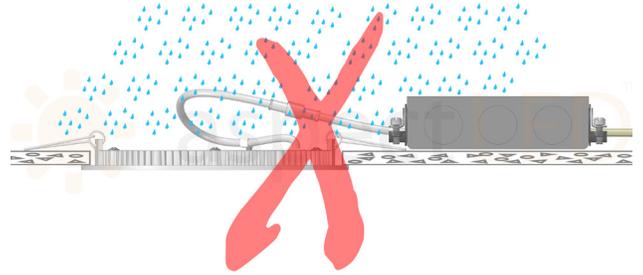
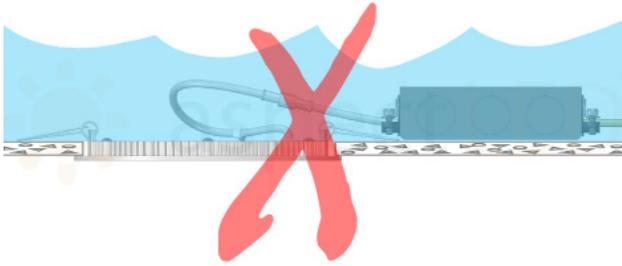
A few popular dimmers that we have thoroughly tested are: Lutron Skylark SELV-300P, Leviton Vizia VRE06-1LZ, Eaton AL Series (TAL06P, DAL06P), and the Lutron Diva DVELV-300P.

You can purchase compatible dimmers at www.aspectled.com or at most electrical product distributors, home improvement, and hardware stores.

IMPORTANT CONSIDERATIONS

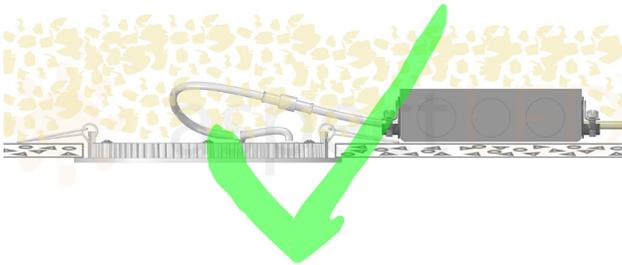
This fixture is suitable for use in dry or damp locations

When using this fixture in a damp location, it must be recess mounted in a ceiling where it is protected from rain or other moisture by a roof or floor above.



This fixture is IC rated for direct contact with insulation

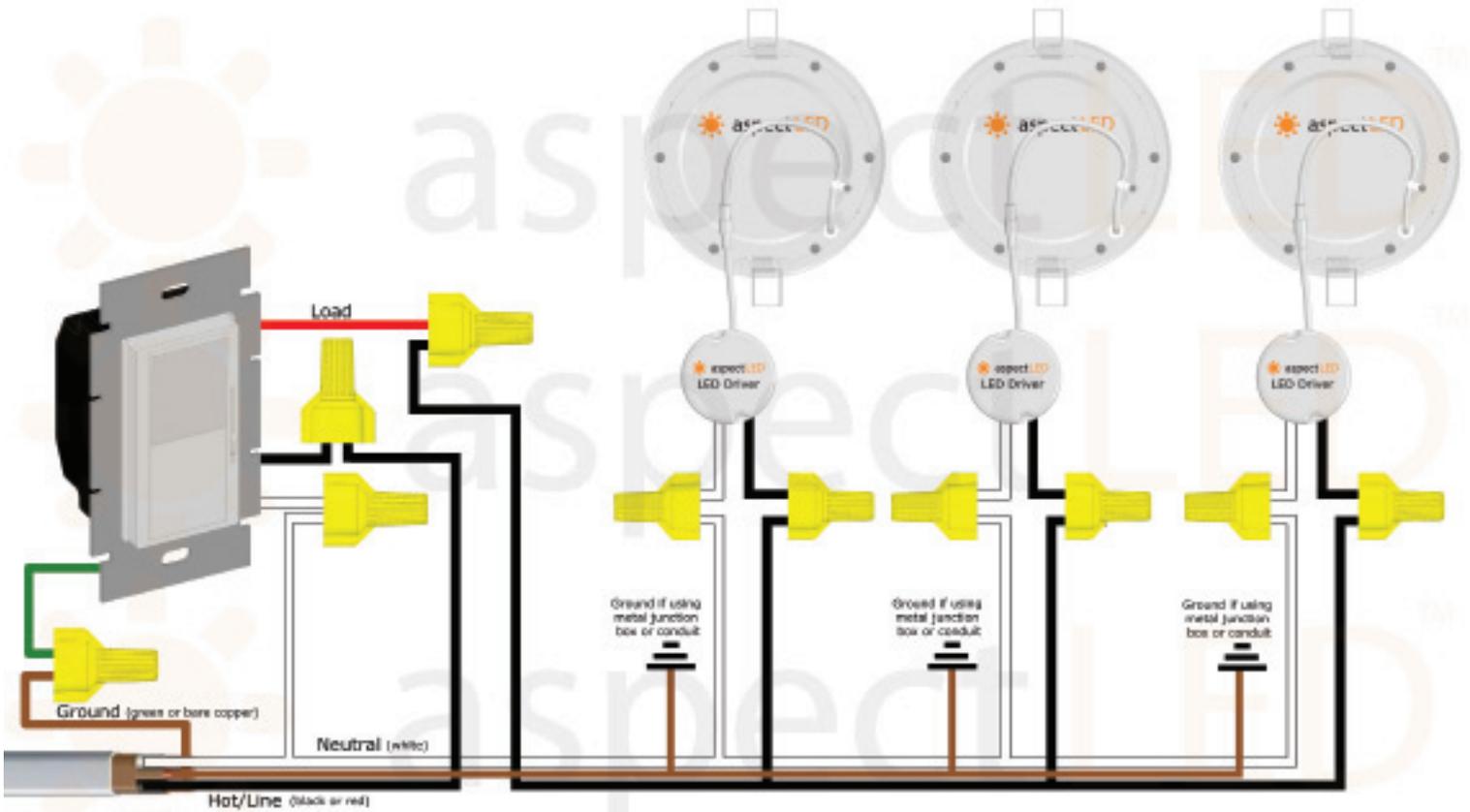
This fixture is a Type IC fixture. This fixture is rated and approved for direct contact with insulation. The driver must be inside of an approved junction box with a blank cover plate.



This fixture is Air-Tight

When used with the optional aspectLED foam gasket, which is installed between the light's trim ring and the ceiling material (usually drywall), this fixture is an airtight fixture.

WIRING DIAGRAM



CONVENTIONAL INSTALLATION METHOD

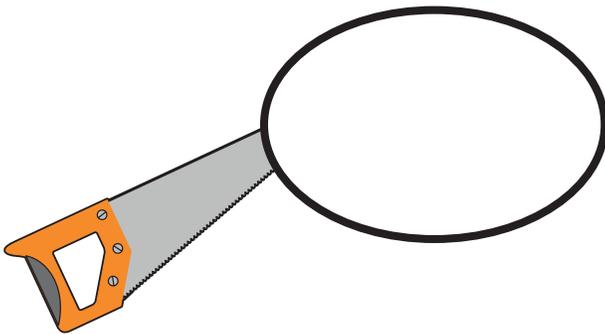
If you have over 1.75" of space above your drywall, or, if you only have a small obstruction (like a pipe or a wire) in your way, this will be the fastest and most straight-forward installation method. If you don't yet have drywall on your ceiling, please review page 17 (new construction applications).

1 Layout your light locations on the ceiling

Using a tape measure and the layout/grid design that you've decided on (see page 4), layout the location of each light on your ceiling and mark the center of each light location with a small pencil mark. The old adage of measuring twice and cutting once is worth thinking about as you're marking your light locations. No one wants to repair or patch a ceiling because they cut their hole in the wrong spot.

2 Cut the hole that you'll install the fixture into

Using the table on page 2, find the cut-out size that you'll need to make for your Ultra-Thin recessed LED light fixture. Draw the appropriately sized cut-out hole (round or square, depending on your fixture) on your ceiling using a pencil. Then, using a jab saw (or optionally, a drill with a holesaw for round cutouts), make a hole in your ceiling that is the correct size and shape for your light.



3 Run your wire to the light location

Run your electrical wire from the switch/dimmer location to your light fixture. Be sure to check your local code for which type of wire to run, most electrical codes require NM (also called Romex), BX, or MC wire. Leave about 12-16" of wire sticking out of your hole, which will give you enough wire to connect to your driver within your junction box.

CONVENTIONAL INSTALLATION METHOD (continued)

4 Make your electrical connections

Choose an appropriately sized electrical junction box that will allow you to fit your class 2 power unit (driver) inside of the box, with enough room to make your electrical connections. We recommend using a metal junction box, but many codes will allow a fiberglass, plastic or metal box.

If using a metal box, make two knockouts on your junction box and install the appropriate type of connector. For NM/Romex wire, you will typically use a NM/clamp connector. For BX or MC, you'll use a connector specific to the wire that you've used. For the output cable (from the driver to the light), you'll use an NM/clamp connector.

Install your class 2 power unit (driver) into your junction box, running the output wire out through an NM/clamp connector. Bring your incoming wire into the junction box and strip the black and white wires. If using a metal box, be sure to ground the electrical box using a green grounding screw.

Connect the black wire on your driver to the incoming hot/line wire (usually black) using UL listed wire nuts. Connect the white wire on your driver to the incoming neutral wire (usually white) using UL listed wire nuts.

Fast fact: Because the low voltage output wire/cable is rated for up to 300V, the sheathing on this cable will provide separation between the line voltage and the low voltage wiring inside of your junction box. DO NOT CUT OR SPLICE THE LOW VOLTAGE WIRING FROM YOUR DRIVER INSIDE OF YOUR JUNCTION BOX. Always route your low voltage cable directly out of your box and keep at least 1.5" of separation between your line voltage and low voltage wires.

Once you've finished making your electrical connections, install a blank cover plate over the face of the box, so that it is enclosed.



CONVENTIONAL INSTALLATION METHOD (continued)

5 Connect the driver to the light

Connect the driver cable plug to the plug on your light. Be sure to pay close attention to the arrows located on plug (there is one small arrow molded into the plug on the light side of the cable and one small arrow molded into the plug on the driver side of the cable). These arrows must point towards each other. Also, if you look inside the plug, you'll notice a groove on the light side and a bump/key on the driver side. Be sure that the bump/key fits nicely into the slot. Screw the connectors together.

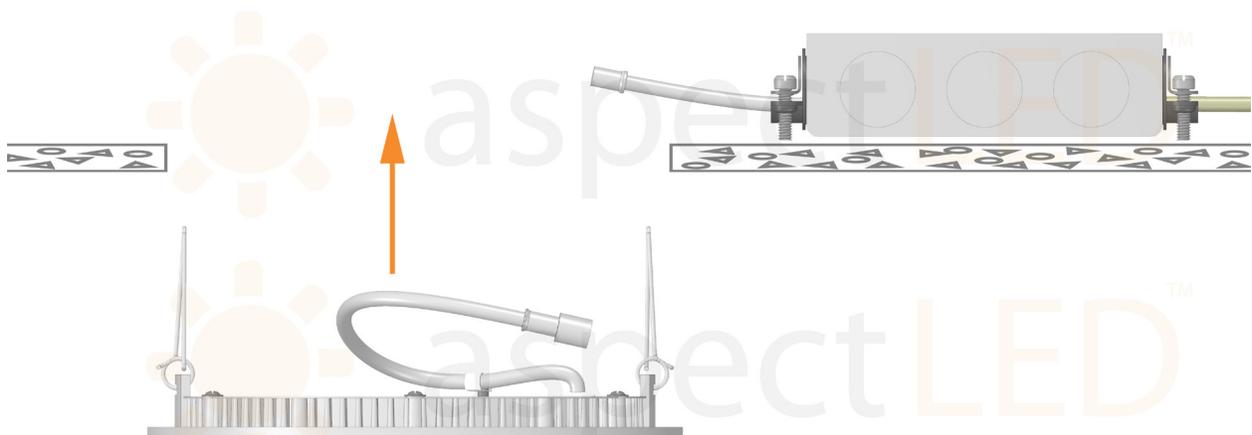
It is important to remember that each model light has its own specific driver and drivers are NOT interchangeable between different model lights.

6 Tuck the junction box through the hole

Carefully tuck the junction box up through the hole and allow it to sit on the ceiling at or near the light location, or screw the junction box to a nearby joist or other framing member if required by code. Code requires that your junction box be accessible at any time by simply removing the light, thus allowing you to inspect the connections or driver at any time without physically damaging your ceiling or other building materials. Be sure that your box will be readily accessible through the light cut-out hole by removing the light.

7 Install your light into the hole

After you've verified that your light cord is connected to the driver output cord, gently lift upwards on the retention clips on each side of your light fixture and carefully push it into your cut-out hole. Once the light fixture is in the hole, allow the spring-loaded retention clips to come down, holding the light firmly in place against the drywall or ceiling material. The maximum ceiling material thickness that these lights are designed to work in is 1.25".

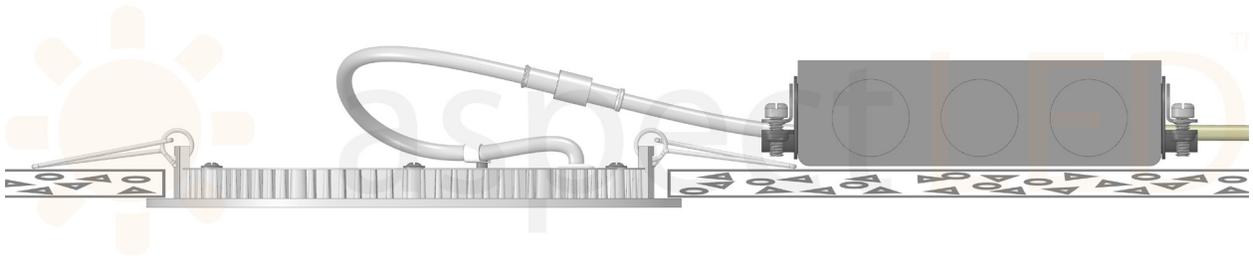


CONVENTIONAL INSTALLATION METHOD (continued)

8 That's it! You're finished!

Congratulations! You've successfully completed the conventional installation process. Once your light is installed into the ceiling, your project is finished. Now is a great time to take a moment to sit down and enjoy your favorite beverage while giving yourself a pat on the back for a job well done.

If you ever need to remove the light in order to access your junction box (or anything in the ceiling cavity above), simply grab hold of the sides of the light and gently pull downwards until the light comes about 1/2" down out of the hole. Before pulling the light all the way out of the hole, be sure to get a firm grip on the retention clips, so you can hold them upwards in order to avoid getting your fingers snapped in the springs. Then, pull the light the rest of the way out of the hole and gently let the retention clips back down. Remember, the retention clips have a similar strength to your average mousetrap! Be careful not to snap your fingers inside of the springs!



LOW CLEARANCE INSTALLATION METHOD

1 Find a place to locate your drivers

With the low clearance installation method, you'll put all of your drivers together (or in groups) in a remote location. Most electricians will find a nearby place where they can hide this larger junction box. Typically this is in a utility room, unfinished room/basement, cabinet, closet, or other location. It is important that you locate this junction box in a place where you can access it in the future, as electrical codes will require that it remain accessible without tearing apart things to get to it. When choosing the location for your drivers, remember that your drivers should be located within 100' of your lights.

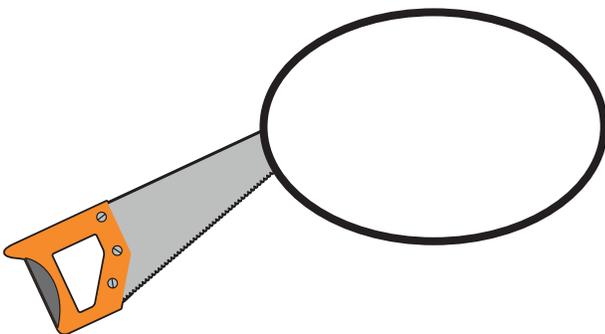
If you have multiple lights, you'll probably be using a larger junction box. Some common sizes are 6" x 6", 8" x 8" and 10" x 10". The size junction box that you will use will depend on the number of drivers that you plan to install into the box. Be sure to select a box that is large enough to fit all of your drivers and which leaves you plenty of room for safely and neatly making your wire connections.

2 Layout your light locations on the ceiling

Using a tape measure and the layout/grid design that you've decided on (see page 4), layout the location of each light on your ceiling and mark the center of each light location with a small pencil mark. The old adage of measuring twice and cutting once is worth thinking about as you're marking your light locations. No one wants to repair or patch a ceiling because they cut their hole in the wrong spot.

3 Cut the hole that you'll install the fixture into

Using the table on page 2, find the cut-out size that you'll need to make for your Ultra-Thin recessed LED light fixture. Draw the appropriately sized cut-out hole (round or square, depending on your fixture) on your ceiling using a pencil. Then, using a jab saw (or optionally, a drill with a holesaw for round cutouts), make a hole in your ceiling that is the correct size and shape for your light.



LOW CLEARANCE INSTALLATION METHOD (continued)

4 Run extension cables or low voltage wire to the light location

Run aspectLED Ultra-Thin extension cables, or low voltage wire from your central driver location to each light location. Remember that you must run one ultra-thin extension cable (or run of low voltage wire) for each light. You can not daisy chain multiple lights together.

If you are using aspectLED Ultra-Thin extension cables, always purchase the appropriate length cable and never connect multiple extension cables together.

If you choose to run your own low voltage wire from the driver box to each light, be sure to use a 2 conductor stranded wire with a voltage rating of at least 300V. Always consult a voltage drop/ampacity chart that factors the wattage of the fixture (load) and the distance from the driver to the light (run length) in order to determine the appropriate size your wires. If you use the aspectLED Ultra-Thin extension cables, we've already done the sizing for you.

You'll need a little bit of slack in your wire at the light location to allow you to install the light (and to remove it if you ever need to), so be sure to leave about 6-8" of wire sticking out of your hole at the light location. Also, be sure to leave some extra wire at the driver/junction box location, so you have enough slack to neatly organize your wires and to keep your low voltage wires safely separated from line voltage wires.



5 Mount your junction box and run 120VAC power to this location

At the location where you've decided to install your junction box and drivers (see step 1), securely mount your junction box. Run your electrical wire from the switch/dimmer location to this junction box. Be sure to check your local code for which type of wire to run, most electrical codes require NM (also called Romex), BX, or MC wire. Leave enough wire to connect to your drivers within your junction box. Make a knockout in the box for you to bring your 120VAC power feed into the box. For NM/Romex wire, you will typically use a NM/clamp connector. For BX or MC, you'll use a connector specific to the wire that you've used.

Make enough knockout holes to accommodate the output cables, which will feed each of your lights (from the driver to the light). You'll use an NM/clamp connector to hold these wires securely in place as they exit your junction box.

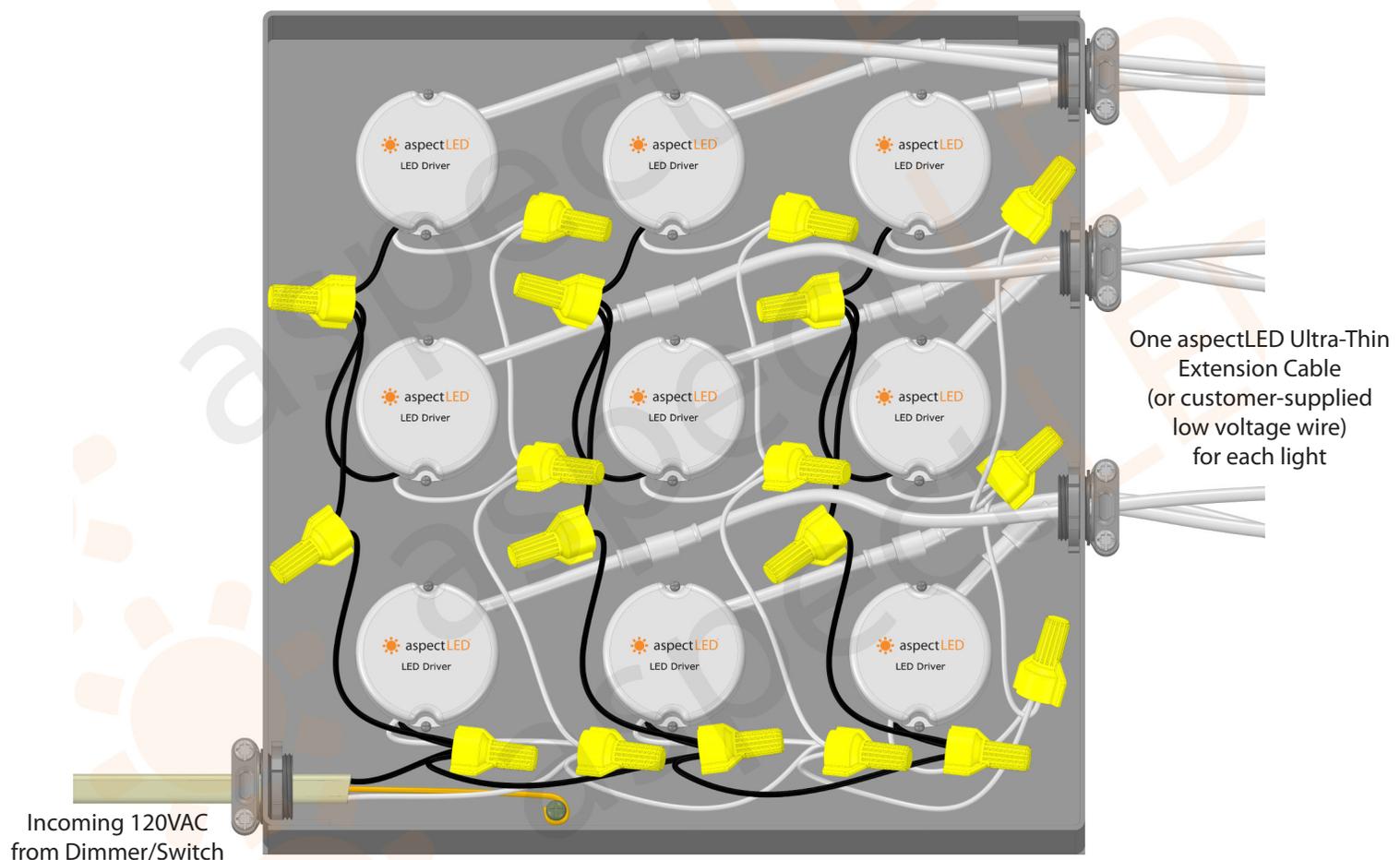
LOW CLEARANCE INSTALLATION METHOD (continued)

6 Install & wire your drivers

Install the class 2 power units (drivers) into your junction box, using self-tapping sheet metal screws, strong double stick tape, or other secure fasteners. Neatly connect your 120VAC power feed to each of the drivers, connecting all of the black (hot/line) wires from your drivers to the incoming hot/line wire, which is typically black or red. Then, connect all of the white (neutral) wires from your drivers to the incoming neutral wire, which is typically white. If using a metal box or conduit, be sure to appropriately ground the box by connecting your incoming ground wire to a ground screw (usually green) on the box. Always allow at least 1" in all directions around each class 2 power unit to allow for airflow.

Spending a few minutes to layout your junction box and neatly space your drivers and route your wiring will be well worth the investment if you ever need to access or service your junction box or drivers. You may find it necessary or desirable to make pigtails between drivers and/or to group drivers together. Also, we highly recommend labeling each driver with the location of the light that it feeds.

Be sure to route your wiring so that you maintain at least 1.5" between low voltage and line voltage connections and never make low voltage splices/connections inside of your junction box.



LOW CLEARANCE INSTALLATION METHOD (continued)

7 Connect the driver to the light

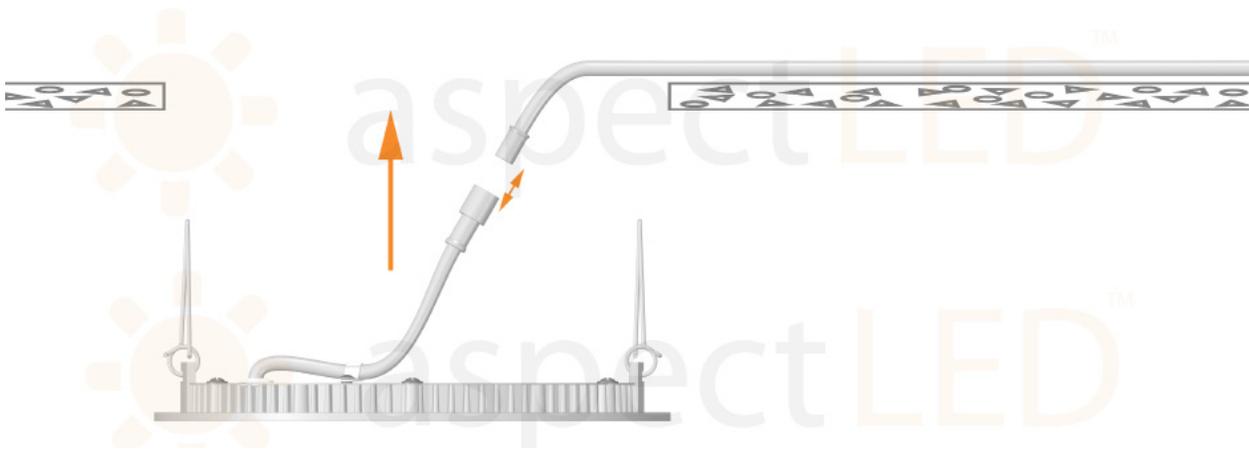
Connect the Ultra-Thin extension cable plug to the plug on your light. Be sure to pay close attention to the arrows located on plug (there is one small arrow molded into the plug on the light side of the cable and one small arrow molded into the plug on the driver side of the cable). These arrows must point towards each other. Also, if you look inside the plug, you'll notice a groove on the light side and a bump/key on the driver side. Be sure that the bump/key fits nicely into the slot. Screw the connectors together.

If you used your own wire for extending the distance between the driver and the light, cut off the aspectLED supplied connector on the light and driver and strip the black and red wires, then connect to your extension wire, being careful to keep the polarity consistent. We recommend using wire with a red and black conductor, making it easy to keep track of which wire is positive and negative.

It is important to remember that each model light has its own specific driver and drivers are NOT interchangeable between different model lights.

8 Install your light into the hole

Gently lift upwards on the retention clips on each side of your light fixture and carefully push it into your cut-out hole. Once the light fixture is in the hole, allow the spring-loaded retention clips to come down, holding the light firmly in place against the drywall or ceiling material. The maximum ceiling material thickness that these lights are designed to work in is 1.25".

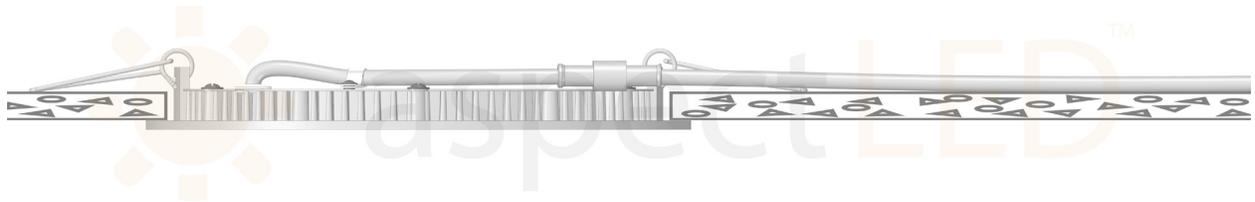


LOW CLEARANCE INSTALLATION METHOD (continued)

9 That's it! You're finished!

Congratulations! You've successfully completed the low clearance installation process. Once your light is installed into the ceiling, your project is finished. Now is a great time to take a moment to sit down and enjoy your favorite beverage while giving yourself a pat on the back for a job well done.

If you ever need to remove the light in order to access anything in the ceiling cavity above, simply grab hold of the sides of the light and gently pull downwards until the light comes about 1/2" down out of the hole. Before pulling the light all the way out of the hole, be sure to get a firm grip on the retention clips, so you can hold them upwards in order to avoid getting your fingers snapped in the springs. Then, pull the light the rest of the way out of the hole and gently let the retention clips back down. Remember, the retention clips have a similar strength to your average mousetrap! Be careful not to snap your fingers inside of the springs!



NEW CONSTRUCTION

For new construction applications, we recommend using aspectLED's Rough-In Bracket/Plates. You can purchase these items at www.aspectled.com.

Before installing drywall, layout your light locations and securely fasten the rough-in plate to your joists at each light location. The rough-in brackets have convenient slots in them allowing you to make minor adjustments to the bracket positioning after you've mounted them. Run wire (following the conventional or low clearance installation instructions in this document) to each of your light locations before drywalling.

Before drywalling, double check the location of each light. Once you've drywalled, you won't be able to adjust the positioning.

Instruct your drywallers to cut-out the holes for each light using the rough-in bracket as a template. Then, once drywall is finished, install your lights by following the remainder of the conventional or low clearance installation instructions in this document.

HAVE QUESTIONS OR NEED ASSISTANCE?

We're always here to help!

Feel free to contact our electrician's helpdesk at (888) 503-1317 option 3, or support@aspectled.com.