



Design Build 201

Lighting and HVAC



Understanding the Rough-In

For our purposes, rough-in = parts of the building that go behind the sheetrock or finished surfaces.

- Switches
- Junction boxes
- Architectural lighting
- Outlets
- Data
- Low voltage



What goes into an electrical rough-in?

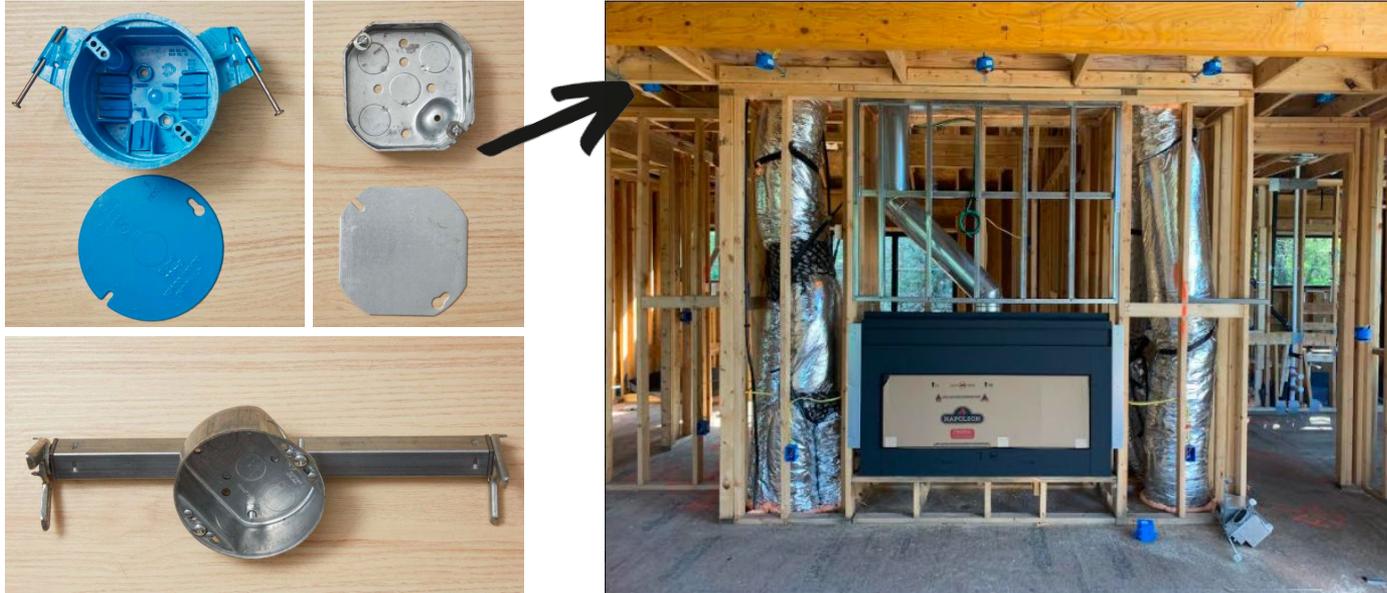
Switches





What goes into an electrical rough-in?

Junction boxes (for decorative lighting or hard wired appliances)





What goes into an electrical rough-in?

Architectural lighting (aka can lights, pot lights, high hats, etc)





What goes into an electrical rough-in?

Outlets





What goes into an electrical rough-in?

Data





What goes into an electrical rough-in?

Low voltage (for home automation, audio, window treatment controls, etc)



What Vendor is Responsible for What?

Some terms you need to know:

→ **Low voltage**

Special wiring used to operate home automation, some window treatments, data etc. Generally speaking it is less dangerous than 110V wiring (the type that powers outlets, lights etc). It is also quite fragile and sharp bends, rough handling can cause it to not work correctly.

→ **Line voltage or common voltage**

Standard electrical wire pulled to power residential devices such as light fixtures, outlets, switches, etc. When powered, line voltage can cause injury, harm, and sometimes death. Line voltage is not for amateurs to play around with. Although google will tell you anything above "low voltage" could be called "high voltage", electricians will laugh at you if you call standard residential wire high voltage as they think of power lines as high voltage.



Electrician will:

- Pull all interior line voltage wires
- Switches
- Junction boxes
- Outlets
- Architectural lighting
- Place panel boxes

Specialty Vendors will:

- Pull data
- Pull low voltage wire for home automation, speakers, window treatment controls etc



About Low Voltage

- There are endless options for low voltage systems (Alexa, Apple Home, and Lutron to name a few)
- It's impossible to become the expert in every single brand
- Figure out one or two home automation experts in your area and make them a part of your standard team.



What is the Interior Designer Responsible for?

The answer is it depends on your scope of work.

Material Design Offers 3 Levels of Service that relates to residential new construction.

Full Service

Design for Production Builder

Express Design



Electrical Tasks for Full Service

- Suggest all switch and light locations on RCP (coordinate with architect if necessary).
- Suggest data, and outlet locations (coordinate with architect if necessary).
- Suggest art lighting
- Review HVAC plans and look for collusions. Suggest HVAC alternates if appropriate.
- Review existing framing and make recommendations for adjustments
- Insure all backsplash outlets are in desirable locations
- Recommend home automation solutions and vendors, and make sure they get brought into the project early enough
- Recommend outlet locations based on future furniture locations (including floor outlets)
- Jobsite walks during construction process



Electrical Tasks for Design for Production Builder

- Review and mark-up of switch and light locations (on RCP)
- Review and mark-up of data and outlet locations (on electrical plan)
- Walk job site to review HVAC and framing locations
- Send note with suggested changes



Electrical Tasks for Express Design

- Review of switch, light, data, and outlet locations on plans.
- Suggest trims to fit plans as drawn.



Let's break it down

Make a checklist for your team to start with on each project.

Obviously, each project is going to be unique, but have a standard for your team that you at least start with.



Austin, Texas Production Builder Checklist

- No more than three switches ganged together unless ABSOLUTELY necessary (and then do a stack switch so it fits in a three switch box)
- Use 2way switches to create an obvious lit path from master bedroom to garage entry (or obvious car port entry)
- No switches over pocket door cavities
- No switches behind doors (*double check all door swings*)
- Make sure all fixtures outside and in bathrooms are rated for damp locations
- Closet fixtures must be closed
- If LED lighting is specified make sure location for driver is always indicated
- If LED bulb is used with dimmer, insure dimmable bulb is used
- If fan as light kit, check to see if RC or indicate 12/3 wire



Austin, Texas Production Builder Checklist

cont'd.

Standard Features To Include:

Bedrooms

- Fan in all guest bedrooms (no light kit)
- *4 can lights in all bedrooms (add one at entry in master if the space needs it)
- Decorative chandelier in master (in place of fan)
- Indicated outlets to outside of assumed bed location
- Indicate data and outlet across from assumed bed location

Bathrooms

- (Damp location) wall sconces over every bathroom sink (in primary, use side lighting or lighted mirrors)
- Master vanity has LED lighting in toe kick area and needs switched outlet
- No switch within 36" of wet area (such as shower)
- (Damp location) can light in all showers

Closets

- Light in every closet unless super small



Austin, Texas Production Builder Checklist

cont'd.

Kitchen

- Typically three pendants over kitchen islands (occasionally do a single slimline pendant if there are a lot of fixtures crammed together in the open living area)
- Generous can lights in kitchen
- Switched under cabinet lights
- Use cabinet plan to located micro, DW, REF, ice maker, and range on electrical plan
- Add cabinet elevations from cabinet maker to final set

Dining

- Decorative chandelier (or pair) over dining area to define space
- Typically no can lights in dining area



Austin, Texas Production Builder Checklist

cont'd.

Living Room

- Generous can lights
- Decorative fan (no light kit)
-

Stairways

- 2way switches at stairs
- Light all landings

Outdoor

- Can lights in covered porch area
- Fan in back covered porch area
- Generous outdoor sconces
- Closed garages get 2x4 light fixtures
- Open garages/carports lit with can fixtures
- llow for roll-up of garage door in placement of lights



Don't Forget:

- Put a note on any plans that you generate that all local codes must be followed.
- Make friends with the electrician—they will be your secret weapon.



Workflow

Before Construction

- Interior designer creates or marks-up RCP and electrical plan
- Interior designer marks up HVAC plan

During Construction

- Interior designer does quality control walk (Make sure your scope includes this, and you are being compensated for your time. In my experience, the client definitely gets a superior product when the designer spends a little time throughout the process on quality control. This is the time to make small adjustments without costing a fortune in repairing finishes)
- Work with builder to problem solve



Example Electrical Plan

