

# Smart Jobsite Strategies





**READY FOR  
ANYTHING?  
INSTALLATION  
DAY IS HERE.**

**Success involves more than completing projects. It's about creating a positive customer experience.**

No two residential solar jobsites are alike. You face a myriad of differences in rooftops and staging areas. Customer personalities are different too. But all projects share one thing in common: the goal of customer satisfaction. Your arrival at the jobsite is the moment the customer has been waiting for. Expectations are set, and it's up to you to deliver.

The way you arrange the jobsite and keep it organized sets the tone for the entire installation. It's your duty to ensure all goes well. This includes keeping the crew on task, watching over the work vehicle, tools and equipment, AND making safety a priority for all. At the end of the day, literally and figuratively, the customer's positive experience sets a foundation for your company to build a strong reputation and achieve growth.

# SAFETY COMES FIRST

## AND SECOND. AND THIRD.

Safety on the jobsite is paramount to productivity. Installation companies that focus on employee safety create a culture of excellence.

Your crew most likely knows how to safely use common trade tools. But the jobsite isn't truly safe unless crew members are using personal protective equipment that may include:

- hard hats
- boots
- ear protection
- reflective vests
- eye protection
- fall protection systems
- gloves

Take the next step in safety and consider training for you and your team through the Occupational Safety and Health Administration's 10-hour (for entry-level workers) and 30-hour training (for supervisors or workers with safety responsibility). The OSHA Outreach Training Program for the Construction Industry trains workers and employers on the recognition, avoidance, abatement and prevention of safety and health hazards in the construction workplace.



## BONUS POINTS

‘SAFETY  
IS MY  
MIDDLE  
NAME.’

Before climbing up to the roof, crew members should be able to ace a pop quiz on safety without hesitation.

Two questions to get you warmed up:

- 1 **What are four best practices for using fall protection rope?**
  - Don't get tangled with other people, rails or inverters
  - Ensure proper attachment to D-ring
  - Always be within six feet of grabbing the rope
  - Only one attachment to D-ring ever
  
- 2 **What are three rules for ladder safety?**
  - Position the ladder at a 4-to-1 ratio with a four-foot incline for every one foot outward
  - Maintain three points of contact with the ladder at all times
  - Never use the ladder's top rung as a step

**LET'S  
GET INTO  
SPECIFICS  
NOW,  
SHALL WE?**

## TIPS FOR MORE EFFICIENT INSTALLATIONS

Efficient crews typically smooth their workflow and reduce wasted time and energy. Installing solar is a coordinated effort.

Based on observations by our Field Application Engineers, interviews with installers, and installation efficiency experts, most installations are comprised of 10 steps:

1. Set customer expectations
2. Define monitoring and communications equipment location
3. Verify roof dimensions and design viability
4. Sound out location of studs
5. Land footing
6. Install rail (when applicable)
7. Install modules and inverter
8. Install junction boxes
9. Perform interconnection and AC electrical work
10. Conduct commissioning and cleanup

The following pages include suggestions to improve efficiency; however, ultimately you—the installer—are responsible for doing the proper job according to all required laws, regulations, codes and industry best practices.

1



## CUSTOMER EXPECTATIONS

## ONE CHANCE TO MAKE A FIRST IMPRESSION

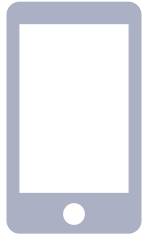
Before you set up ladders and get on the roof, building relationships with customers at the jobsite is important to the success of the install.

If you provide a positive customer experience, your company reputation and brand benefit, and those who like the experience are more likely to provide a referral.

## Steps to Successful Onsite Customer Relations

- ✓ Introduce yourself and who you work for
- ✓ Explain what you will be doing at the jobsite
- ✓ Explain how long the installation will take
- ✓ Walk through installation dynamics and set expectations about:
  - People on their rooftop
  - Construction noise
  - Access to home and internet
  - Access to restrooms
- ✓ Explain safety procedures
- ✓ Answer the customer's questions clearly and address any concerns

2



### MONITORING AND COMMUNICATIONS

## FUTURE-PROOFING INSTALLED SYSTEMS

In a time when the demands of the electric grid are constantly increasing, performance monitoring is becoming an indispensable part of the solar value proposition.

While most of the communications happen at the end of an install, prepping the communication devices at the beginning can save you time later.

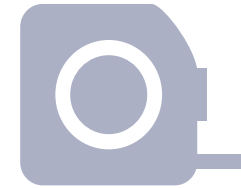


### ENPHASE ADVANTAGES

**Want a head start?** Connect the Envoy soon after arriving at the customer site and use the Installer Toolkit mobile app to check for any software or firmware upgrades.

**Surprised on the site?** Choosing microinverters enables on the fly redesign without the limitations inherent in a system with a string inverter.

3



### DESIGN VIABILITY

## MEASURE TWICE, INSTALL ONCE

You can't begin an installation without knowing what the system is supposed to look like. Design documents provide a picture and all the specifications, spelling out what the system owner has agreed to have installed on the building. Your system design will have the dimensions of the roof you are installing on.

Measure the roof to confirm these dimensions before you begin the installation, and note any vents or other roof protrusions that the designer may have missed.

Put a process in place for efficiently identifying, addressing and acting on changes if you or someone on your crew discover something that must be adjusted or changed from the original plan.

## STUDS

## 4

## TESTING, TESTING ... SOUND CHECK!

An experienced crew knows that they can't see the roof beams that will be needed to connect system mounting attachments from the rooftop, so they probably use their ears—and a hammer—to tap and listen for a “solid” reverberation that comes back from the stud.

Avoid a potential roof leak and unhappy client by drilling pilot holes to check that you're on the stud, and check every few feet to ensure stud location.

Two warnings from the experts:

- 1 If you miss the mark and end up with a lag bolt that spins because it is not seated firmly in the stud, remove the flashing and the L-foot, drill a new pilot hole, and caulk and flash any failed holes.
- 2 Ensure lag bolts are not over tightened as it can warp the flashing.



## FOOTINGS

## 5

## WHERE METAL MEETS THE ROOF

When it comes to a racking system, efficient installers look for systems that simplify the task, and stick with one or two chosen brands.

**EFFICIENCY IDEA:**

Sticking to one brand makes it easier to keep spare parts on hand, and if most of the roofs you install on are the same—such as asphalt shingle—it's even easier still.





# 6

## RAILING

### LEVEL UP YOUR SYSTEM

Some installers swear by a rail-less racking system, saying it saves both cost and crew time. If you go rail-less and use microinverters, explore AC modules with the microinverter pre-attached or hardware that allows you to attach the microinverter directly to the module's frame.

And while you're investigating alternative racking systems, consider the integrated roofing systems where the module becomes the roof. Most can be adapted to microinverters, and all give a low profile finish that some homeowners love.



#### ENPHASE ADVANTAGE

Love Enphase and want an AC Module? You're in luck. Enphase has announced it will launch AC modules with both SolarWorld and LG.

## MODULES

## 7

**“SLAPPING GLASS”  
WITH CARE**

Most installers choose 60-cell modules because they're easier to handle and can be moved by one crew member. But even with 60-cell modules, they are awkward to move.

**EFFICIENCY IDEA:**

Speed up installs by investing in a module lift to move the panels to the rooftop with ease. One lift can be shared among multiple crews, going to the jobs that need it most.

**ENPHASE ADVANTAGE**

Enphase makes it easy to create an array map by providing removable serial number stickers on the face of each microinverter.

1

Use the array mapping sheet provided in the installation manual supplied with each inverter box or a roof diagram from your system designer.

2

Put stickers on the Installation Map page in the order you pull them.

3

Map the serial numbers in the order as they actually reside on the roof. This allows your company and Enphase to accurately track production and performance of each microinverter-module combination.

## JUNCTION BOXES

## 8

## BRINGING IT ALL TOGETHER

When locating the correct place to add a junction box, review the site map included in your electrical review. The site map will show where multiple cables intersect and assigned conduit runs are planned. Mounting of the junction box should be done in compliance to local electrical code requirements. The two most common ways are:

- 1 mounting the box to the rail via a mounting bracket
- 2 securing the box to the roof itself

**Any time a roof penetration is required, a watertight seal will be necessary. Always strive to make the bare minimum number of roof penetrations.**

**EFFICIENCY IDEA:**

Going through the roof? Some installers that our Field Application Engineers talk to find a SolaDeck simplifies installation by combining the junction box with the roof penetration.

## INTERCONNECTION

## 9

## A SPECIALIZED STEP

After flashing, racking and cabling have been installed, a licensed electrical professional needs to continue the installation by correctly and accurately installing the electrical wiring.

There's a trade off between simplicity and aesthetics. Many installers run the wiring in conduit on the roof, others take the wiring through the roof if there's an available attic to improve aesthetics. Either way, it takes an electrician's specialized skills to properly run, install and terminate wire and connections.

**ENPHASE ADVANTAGE**

The Enphase AC Combiner Box simplifies interconnection by cutting out many steps, and its ability to be mounted outside and use a cellular modem instead of the home's Wi-Fi, means you can avoid entering the customer's home.



## COMMISSIONING AND CLEANUP

# 10

## TWO FINAL STEPS IN ONE

At last, the system is ready to turn on and test. Commissioning, or system verification, is the time when the crew verifies that all the inverters are producing power and sending data through monitoring systems, so time your installation to ensure this is completed while the sun's still up.



### EFFICIENCY IDEA:

While one crew member conducts quality assurance and commissioning, other crew members can clean up the jobsite, sort the trash and recyclables for easy unloading at the warehouse, and pack the work vehicle. Repack tools and ladders, and apply the campsite rule: leave the site in better condition than the way you found it.



### ENPHASE ADVANTAGE

Some systems have easy apps to speed up commissioning, such as the Enphase Installer Toolkit mobile app that ensures each microinverter is communicating with the Envoy before the crew leaves the site. It uses a cell phone's built-in camera as a scanner to ease the input of data as well.



# SO, THAT'S IT FOR THE JOBSITE?

## You're well on your way to streamlining, but there's always more you can do.

If you get these jobsite strategies running effectively and efficiently, you are setting up your whole business for success. Want to dig deeper? Here are some resources to check out:

### **Enphase accessories**

Streamline installation by using our AC Combiner Box and other installation accessories.

[enphase.com/en-us/products-and-services/accessories](https://enphase.com/en-us/products-and-services/accessories)

### **Enphase training**

Check out videos, webinars and live training sessions covering all aspects of designing and installing Enphase Systems.

[enphase.com/en-us/support/training](https://enphase.com/en-us/support/training)