

# Site Survey Checklist

This document is intended to give a short summary of what information is needed before a project can be designed and quoted for using the SegenSolar portal. It talks briefly about what information to gather on a survey and things to consider when choosing products. We have more detailed documents covering each specific topic and our Sales and Design teams can offer guidance as well.

**Installation Address** It's important to produce every components list based on the address of the site. When you log into the portal and create a new design, all the components will be matched together based on your registered address. Calculations such as inverter matching, battery sizing and wind loading are only accurate if they are done using the correct address.





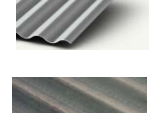

## PV Module Types

**What type of PV module** will you be using? The modules are the most visible part of the system and some thought should be given to how best achieve the required system size while factoring in any constraints (such as roof dimensions, shading, customer requirements etc.). In general, for commercial roof areas it is common to use more high powered PV modules. They are physically larger and take up more space on the roof, but fewer are needed to attain the total, and fewer mounting components and less time are needed. Other module types have built in optimisation and are ideal for shaded roofs or making the most of a small roof area.

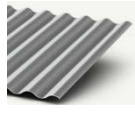

SegenSolar has a range of PV modules suitable for whatever type of project you have. View the live selection on the portal in the Products area. We will also draw your attention to new releases in the News and Featured Products section.

## Roof Dimensions and Details: What sort of roof is it and how big is it?

**Pitched Roof** - Choose the roof type that best matches the site. VarioSole is used for tile & batten roof areas or for attaching to the substructure. MetaSole+ is for metal sheet roofs areas.

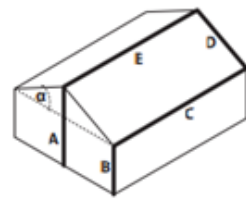
 Plain tile  
 Slate  
 Modern Interlocking  
 Pantile  
 Corrugated Metal  
 Corrugated Concrete

Renusol  No Mounting  
 On Roof (VarioSole)  On Roof (MetaSole+)

 Corrugated Metal  
 IBR/Trapezoidal

**Dimensions**

Saddle  Mono-pitch  Hipped



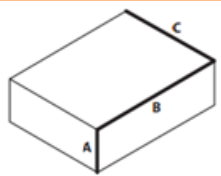
A.) Ridge height [m]	<input type="text"/>
B.) Eaves height [m]	<input type="text"/>
C.) Eaves length [m]	<input type="text"/>
D.) Gableboard [m]	<input type="text"/>
E.) Ridge length [m]	<input type="text"/>
α.) Inclination [°]	<input type="text"/>

**Flat Roof** If the roof is flat, how would you like to arrange the module array? Will the array be attached to the roof or weighed down with ballast? North facing or east/west?

Flat Roof Tray (ConSole+)  Flat Roof Bracket (TriSole+)  Renusol FS10 (East/West)



### Dimensions



A.) Building height [m]

B.) Building length [m]

C.) Building depth [m]

D.) Ballast [ ]yes [ ]no

E.) Substructure connection [ ]yes [ ]no

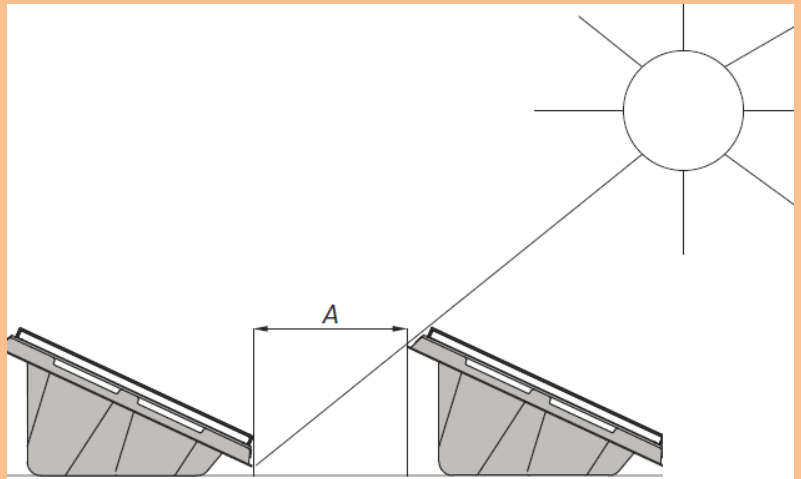
**Ballast Requirements** If the system is to be ballasted, please be aware that the manufacturer must advise what the correct amount of weight is. You can access the Renusol Pro Tool here:

<http://renusol.solarprotool.com/Home/Index>, or speak to us.

### Row Spacing

On a flat roof array that's facing the sun, it's important to consider the distance you're leaving between the rows. A 'shadow gap' that is too small will result in detrimental shading at periods of the year where the sun is lower in the sky.

During the winter (when the sun is lower) it's often preferable to accept some shading losses if it means being able to fit in additional capacity for the summer. This decision should be made on a site-by-site basis. Please contact us for guidance if you're not sure.



## Choosing Inverters

Choosing an appropriate inverter(s) to match an array is vital for ensuring the system works properly and produces the sort of yields that your client expects. There are many factors that affect how an inverter is matched to an array, but SegenSolar's design tools can help you.

In order to select the correct inverters for a project, you will need to know the following:

**How many electrical phases are there in the building?** Normally a domestic building will have a single phase and commercial building will have three. That can vary though and it's important to know.

**What is your PV rating?** Before you can decide what inverter rating is appropriate, you'll need to decide on the size of the PV array.

**Will you need to use more than one inverter?** If so, you will need to factor in how much space the units will require on a wall and whether there is an appropriate room in which they can go. Bear in mind that inverters work best within a certain temperature range and should not be accessible to untrained people.

**Any constraints on the string design?** The amount and length of strings will vary by project. If you have a complex roof area to cover with modules, it's likely to require inverters with more MPPTs to help with flexible design.

**How long are the cable runs?** The SegenSolar tool will calculate how much DC cable your design will require but you will need to have estimated the distance from the inverter to the modules on the roof.

**Choose the inverter manufacturer** - based on what features you are looking for. SegenSolar have a wide range of inverters from various manufacturers and they all have their own strengths that might suit your project. Look at product pages to get detailed descriptions of features and download manufacturer documents to discuss with your clients.

## Accessories

Aside from the basics of converting DC electricity in to mains AC, an inverter is the hub of your system and you need to consider what other parts your system needs.

**AC and DC isolation switches** are an important safety feature of any system. They are sometimes included in the inverter, but it's useful to have individual switches for DC strings to enable easier fault finding. Often end-users will find an external rotary switch easier to understand than something integral to the inverter.

**Surge Protection** is an important consideration in South Africa. Protect the inverter from lightning damage by installing appropriately sized surge arrestors on the AC and DC side. Some inverters have some level of protection built in. Speak to us about any specific requirements you have.

**System monitoring** is usually included to ensure that any problems are dealt with quickly and so the end-user can have visibility of performance and yield. Often the inverter will be able to send performance data to an online portal, and you will need to decide how best to connect the inverter to the Internet to enable that. SegenSolar can advise on the best way to monitor a given system and recommend appropriate products for any requirements you have.

## Battery Storage

Does your project involve storing excess energy in a battery system? There is now a wide range of battery storage options available to cater for whatever installation you're doing. There is more detailed information available in SegenSolar's **Battery Storage Guide**, but here is a brief summary of the types of system available.

Full Hybrid ● AC Inverters ● DC to DC ●

**Hybrid Inverters** are a DC-connected system that is ideal for new installations or as part of an upgrade. A hybrid inverter basically does the job of a normal inverter while also constantly monitoring the energy demands in the building, and deciding whether there is excess energy available to charge a battery. Hybrids are a neat option because they typically have fewer components and are relatively simple installs. Some hybrid inverters have additional features, such as the ability to work during a power failure.

**DC to DC Storage** systems are ideal for retrofitting to an existing PV system. The charge controller is connected to the DC strings between the modules and inverter. Any excess energy not needed immediately in the building will be diverted to the battery. When energy is needed later in the evening, and the PV array is no longer producing enough, the battery will be discharged through the existing inverter. These systems are simple to install but have limited functionality.

**AC Storage Systems** are connected completely separately to the existing PV circuit, and so are ideal for retro-fitting. The battery charge controller will see energy coming from the PV (or other power source) and decide whether there is any excess. Because the AC battery system is separate from the PV system, it's possible to size it perfectly for the energy requirements of the site. Very scalable and the best choice for commercial storage projects.

### Battery Systems: Essential Information

For any battery system, and particularly for AC connected, it's important to consider the following:

- **What is the system for?** Completely running the building off grid? Enhancing self-consumption? Providing back-up when the grid fails?
- **What amount of power** does the house need at any one time (peak demand in kW)? If the system is intended to enhance self-consumption only, then the power demands won't vary very much. In a fully off grid system, the battery system must cope with whatever sudden power demand the building has.
- **How long does the stored energy need to last for?** A system intended only to help lower electricity bills by contributing to energy demands doesn't need to last more than a few hours, but if the site doesn't have a reliable grid connection, the stored energy might need to last for a whole day or longer.
- **For other battery sales and design considerations, please see our Battery Storage Guide.**

