oneDRAW Application

Overview

Technical User Document

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Introduction

Welcome to the oneDRAW User Guide! This guide will get you acquainted with the features and functionalities that make oneDRAW an asset for innovative solar project planning management.

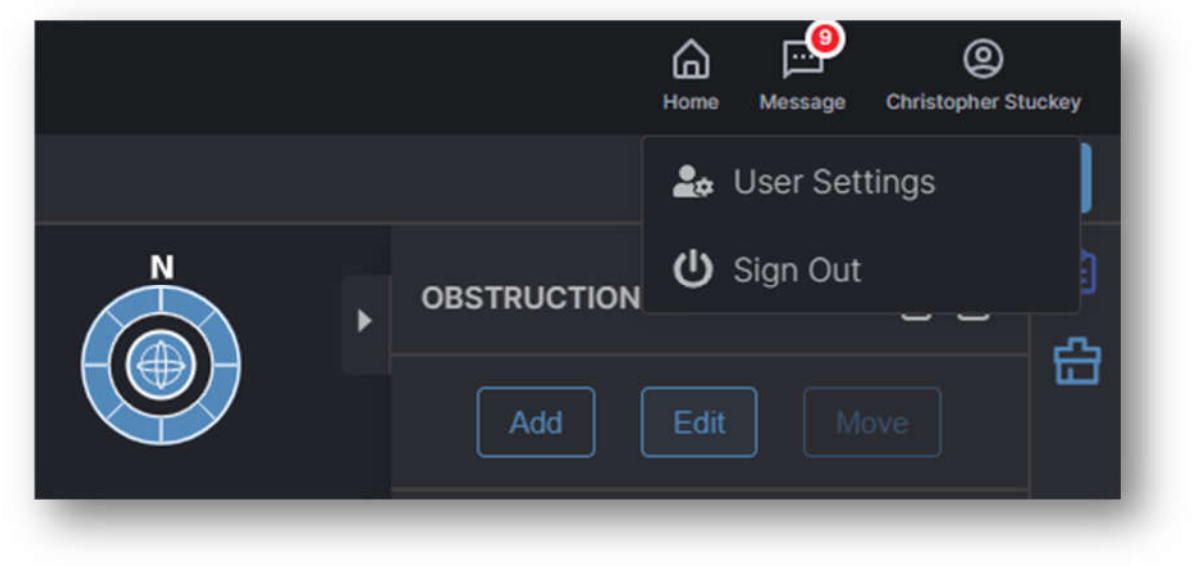
About oneDRAW

oneDRAW is designed as a bridge that seamlessly connects the design process and sales efforts, with the primary goal of expediting the journey from lead generation to roof installation. We recognize that time is precious, and oneDRAW is tailored to make your experience efficient, precise, and hassle-free. This versatile tool caters to the needs of both operations and sales teams within the Trinity organization, enhancing collaboration, accelerating decision-making, and optimizing the entire solar project management process.

In the following sections, we will delve into the details of the oneDRAW application, covering topics such as user settings, roles, panel design, tree removal, and so much more. Our goal is to equip you with the knowledge and tools necessary to enhance your efficiency and precision when utilizing oneDRAW. We invite you to continue reading to explore the full potential of oneDRAW for your solar project management endeavors.

1. Settings & Configurations

The settings page in oneDRAW provides users with a centralized hub for personalizing their oneDRAW experience and configuring essential system preferences. To access this settings menu, simply, click on your name and click on *User Settings*.



Below is a detailed description of the settings page's key functionalities and features:

User Information Display:

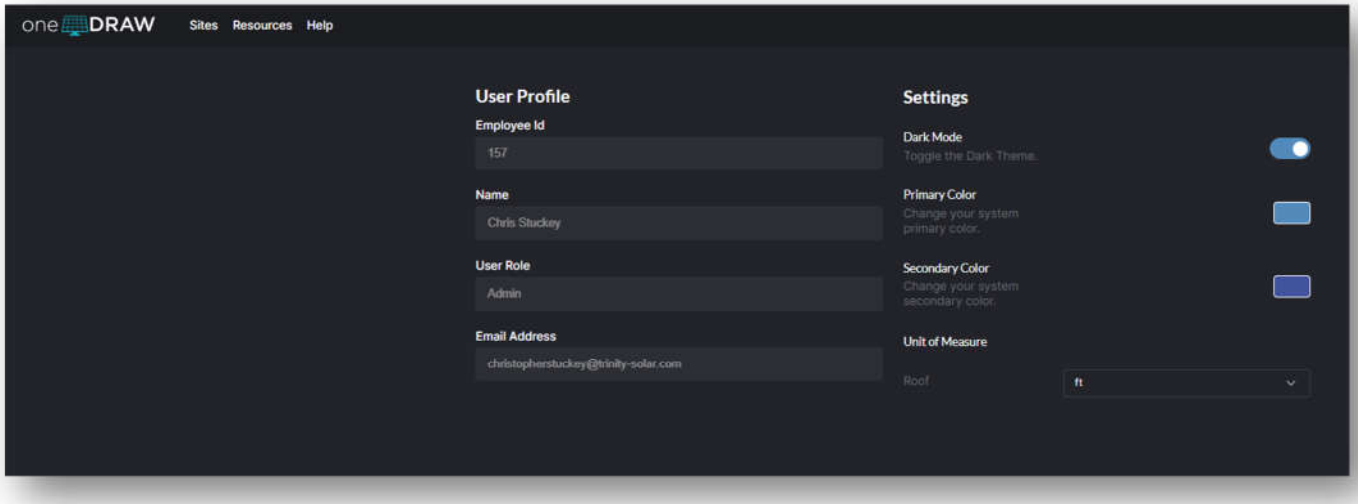
- **Employee Name:** The user's name is prominently displayed at the top of the settings page for easy identification.
- **Role:** The user's role within the organization is displayed below the name to provide context.
- **Email Address:** The user's email address is visible, ensuring quick access to contact information if needed.

Visual Preferences:

- **Toggle Dark Mode:** Users can choose between light and dark modes to suit their visual preferences. Dark mode is ideal for low-light environments and reduces eye strain.
- **Accent Color Selection (Primary & Secondary):** Users have the flexibility to change the accent color of the application, allowing for a touch of personalization and visual distinction.

Units of Measurement Configuration:

- **Length Units:** Users can configure length units to match their preferred system, with options including meters, feet, and inches.



2. User Roles

Visual Preferences:

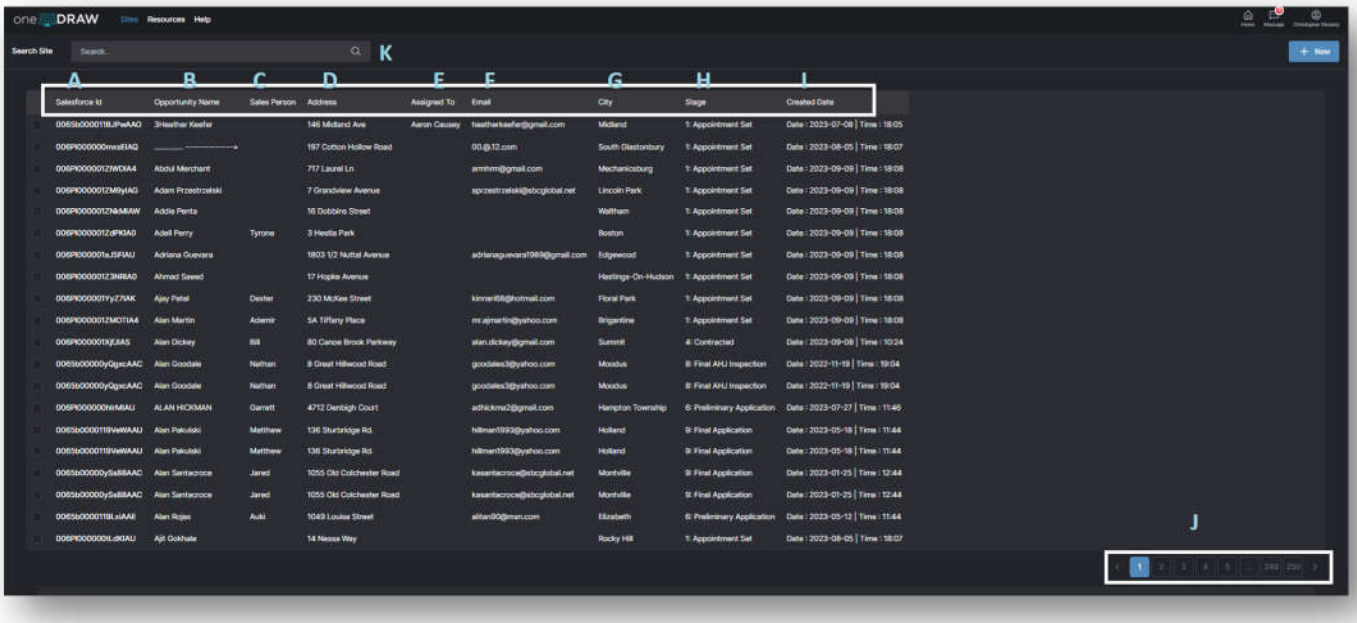
In oneDRAW, we understand that different team members have unique responsibilities and requirements when it comes to solar project management. To enhance efficiency and productivity, oneDRAW offers a dynamic set of tools and features tailored to specific roles within your organization. Here's a brief overview of how these role-based tools empower different teams:

1. **Admins (Administrators):**
    - Responsibilities: Administrators are responsible for overseeing and managing the oneDRAW software and its users. Their duties typically include user management, permissions control, system configuration, and ensuring the overall functionality and security of the software.
2. **RSA (Residential Solar Advisor):**
    - RSAs occupy a pivotal role in the initial phases of solar projects, employing oneDRAW to design solar layouts that align meticulously with township regulations. Their expertise ensures that solar installations not only maximize energy production but also comply with local requirements. RSAs collaborate closely with Sales teams, providing customers with an accurate visual representation of potential solar installations. In doing so, they act as the bridge between solar concepts and tangible project designs, setting the foundation for successful solar projects.
3. **Sales:**
    - Sales serves as the frontline users of oneDRAW in the context of solar sales efforts. They utilize the software's diverse features, including module editing as well, siding and shingle customization to craft engaging and informative presentations for potential customers. These sales professionals rely on oneDRAW's data and visual aids to reveal the benefits of going solar, address and to address any customer inquiries comprehensively. Collaboration with Design and Operations teams as well as oneDRAW’s integration with oneBUTTON ensures that customer expectations harmonize seamlessly with proposed solar projects, resulting in a streamlined sales process.

4. **Sales Ops (Sales Operations):**
    - Sales Ops teams provide invaluable support to the sales process by tailoring solar designs to meet specific customer requirements. These professionals work closely with Sales teams to customize solar project proposals, ensuring they align precisely with individual customer preferences. By leveraging oneDRAW, Sales Ops professionals make the necessary adjustments to designs, crafting personalized proposals that resonate with potential customers.
5. **Read Only:**
    - Read-only users view project details without editing privileges, making it ideal for reference or review purposes, ensuring data integrity and security.
6. **Design:**
    - Designers create three-line drawings and plan sets, serving as blueprints for solar installations. They translate project concepts into actionable plans, specifying equipment and providing clear project guidance**.**
7. **Structural:**
    - Structural experts focus on assessing rooftop load-bearing capacities, ensuring solar projects are structurally sound and compliant with safety regulations. They collaborate with Design and Sales teams, offering recommendations for structural modifications when necessary.

3. Home Page

The oneDRAW home page serves as your Hub for design management. This central dashboard presents a structured table of opportunities, featuring essential columns such as Salesforce ID, opportunity name, salesperson, design address city, Salesforce stage, and design creation date. Your view is customized based on your role, ensuring that you see opportunities relevant to your role.



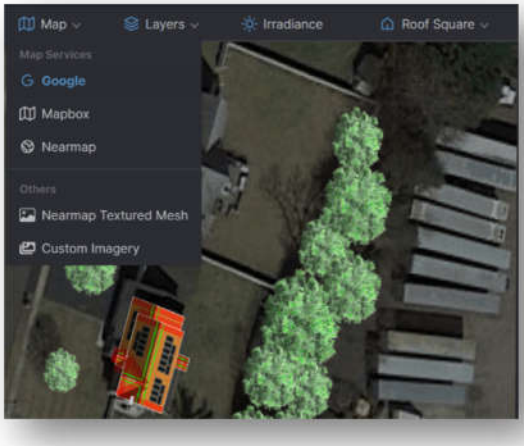
Letter	Label	Description
A	Salesforce ID	Full Salesforce Opportunity ID
B	Opportunity Name	The name of the customer
C	Salesperson	First name of Salesperson
D	Address	Address associated with design
E	Assigned To	N/A
F	Email	Customer's email
G	City	City of associated with customer's address
H	Stage	Stage of Opportunity in Salesforce
I	Created Date	Date design was received
J	Pages	Grants users the ability to go back to look for older designs
K	Search Bar	Quickly search for the opportunities you are looking for using the above information

4. Features

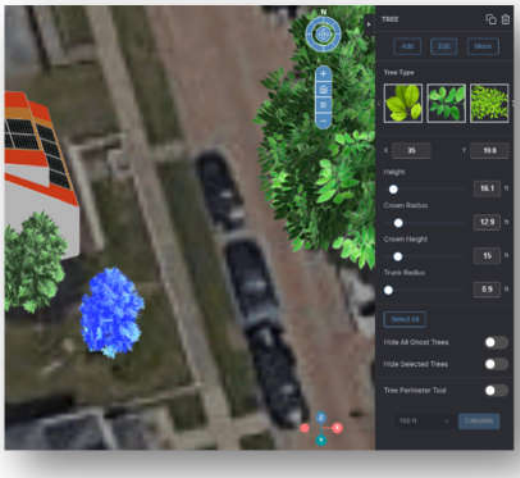
Within oneDRAW, users are equipped with dynamic features unique to their needs. These specialized tools collectively elevate the capabilities of Admin, Operations and Sales roles to support getting an opportunity from lead to installation as fast and precise as possible.

Explore the detailed oneDRAW features list below to:

- **User Management/User Permissions**: Streamline user access and permissions, ensuring role-based control and data security.

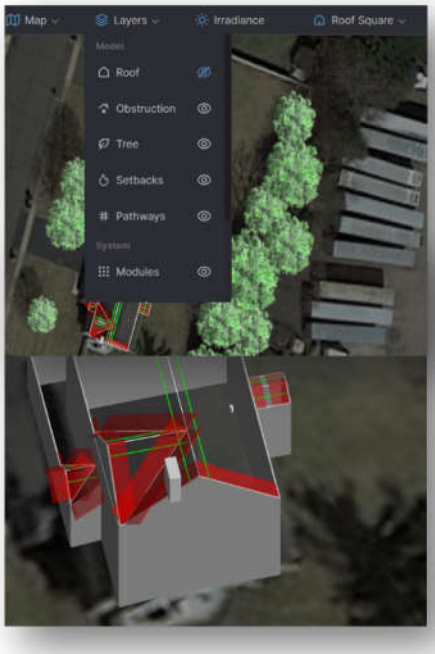


- **Imagery Toggling:** Easily switch between imagery sources like NearMap, Mapbox, and Google for enhanced project visualization. Plus, add your custom imagery to oneDRAW.
- **Tree Configuration:** In oneDRAW, the Tree Configurations feature allows for easy customization of tree parameters, including type, height, crown radius, crown height, and trunk radius. This fine-tuning capability ensures precise solar project planning tailored to specific conditions.



- **Tree Identification:** Users can select a parameter of 150, 200, or 250 feet to display a diameter around the home, allowing for quick and accurate identification of the number of trees within that specified area.
- **Tree Cart/ Removal Price Calculation:** Quickly estimate the cost of tree removal directly within the oneDRAW application, by building a cart like checking out your desired purchased items from your favorite websites.
- **Tree Manipulation:** Add, move, and remove trees based on your role. Sales reps can "ghost trees" or hide trees to tailor the view without altering the project.

- **Dynamic Setback/Pathways:** Dynamic setbacks are displayed and easily configurable to adhere to local ADHJ regulations and requirements.
- **Shade Calculations & Reports:** Execute precise shading calculations and generate comprehensive reports for accurate solar predictions.
- **Lidar – Mesh and Point Cloud:** Harness Lidar technology, supporting both mesh and point cloud data for additional verification of site designs.



- **oneBUTTON Integration:** Users will be able to seamlessly transition from oneBUTTON to oneDRAW with the click of a button. Upon design finalization, all information with uploaded immediately to oneBUTTON.
- **Layer Management:** Easily toggle on and off visibility of layers such as trees, obstructions, setbacks, pathways, and modules, providing a clear and focused view of your project.
- **Roof Square Calculator:** Calculate roof square footage, including a 15% waste margin, for precise material estimations**.**
- **Shingle Toggle:** Enable shingle visuals based on the products offered by Trinity, facilitating potential solar and roofing package sales.
- **Compass Display:** Get orientation information with a compass that shows the design's direction.
- **2D and 3D Imagery:** Toggle between 2D and 3D imagery for comprehensive visualization.
- **Ruler Function:** Measure any points on the design using the ruler function, which snaps to points on the home for precise measurements.
- **Google Streetview Integration:** Access a split-screen display of the house on Google Street View alongside the 3D model.
- **Questionable Roof**: Property structures as "questionable roof" based on pitch, roof material, detached structures, unclear obstructions, or other criteria, facilitating targeted to inform departments that further inspection is needed.

5. Design Tool Bar Features

The oneDRAW Design Toolbar serves as your control center, providing a comprehensive array of tools to enhance your efficiency in managing solar project designs.

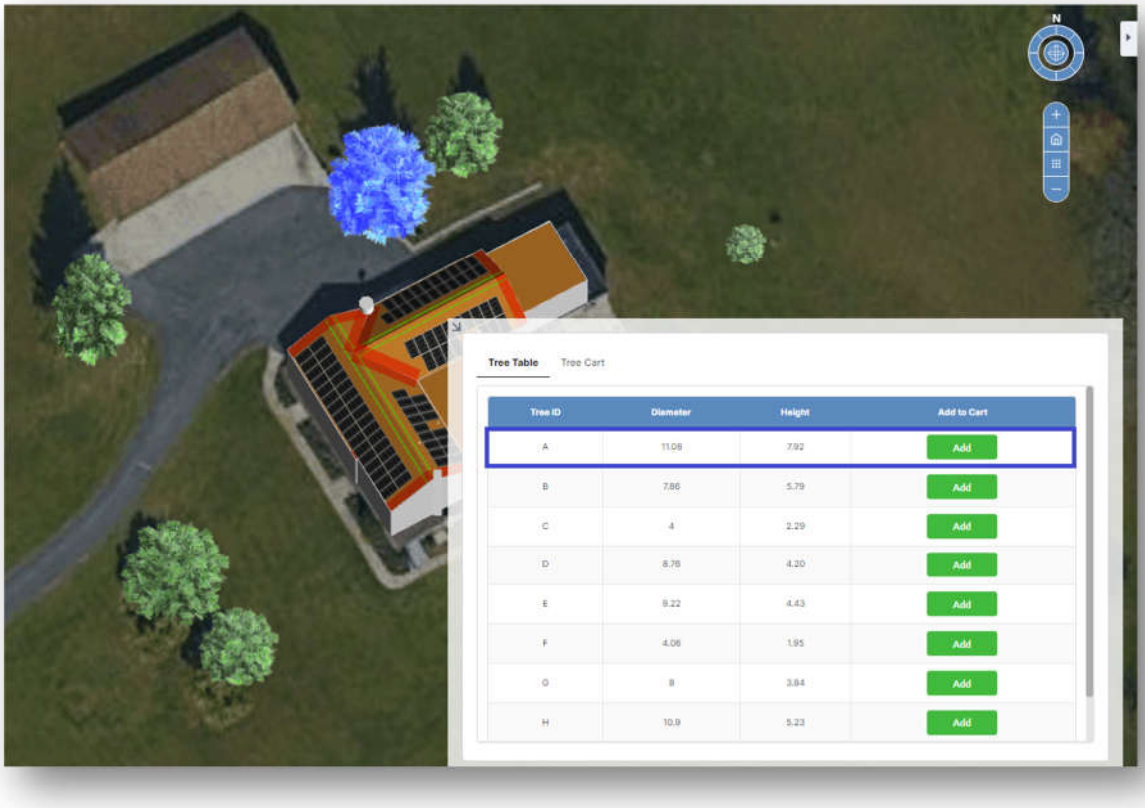
Reference	Feature Description
1	Manage your designs with the click of a button. This drop-down grants the user the ability to add designs, select from saved versions, Rename, copy, and delete models.
2	Save Your Changes
3	Revert Recent Change (Ctrl-Z)
4	Add Recent Changes Back
5	Download. glb model
6	Refresh Shade Calculations
7	Push Pull Tool
8	Toggle Map Source (NearMap, Google, Mapbox, or Custom Imagery)
9	Remove display of layers (Trees, obstructions, modules, or Roof Layers)
10	Run Irradiance reports
11	Calculate site roof square data
12	Compass
13	Zoom In
14	Reorient View
15	Toggle off Roof Layers
16	Zoom Out
17	Model Site Menu (Roof, Obstruction, and Tree Menu)
18	System Design Menu (Modules edit, Solar Access, Irradiance)
19	Power Calculations (What If and Price Calculations)

6. Tree Removal Cart Feature

This section will give an overview of the *Tree Removal Cart* feature in oneDRAW. With this feature, you can estimate the cost of tree removal, a crucial aspect of solar project planning. Whether you are looking to assess the financial implications of tree removal or optimize your solar project design, this feature provides the necessary insights. Read on to learn how to effectively utilize this tree removal cost estimation tool.

Navigating to Tree Removal Cart Feature:

- To navigate to the Tree Removal Cart feature, click on the Power calculations icon on the left-hand side menu .
- Next, click *Tree Cart.*



Adding Trees to Cart:

Once you are in the *Tree Table*, you can easily add and remove trees to your cart using the following steps:

- **Selecting Trees:** To add a tree to your cart, click the "Add" button next to the desired tree. Each tree on the site is labeled with a letter to help you easily identify the trees you want to add to the cart.
- **Completing the Questionnaire:** After clicking "Add," the user will then be prompted to complete a brief questionnaire to define the characteristics of each selected tree. This information is crucial for accurate pricing and planning. The questionnaire includes the following fields:
    - **Location:** User must indicate if the tree is in the front, rear, left or right side of the customer's home.
    - **DBH (Diameter at breast height):** This value is dynamically filled out.
    - **Height:** The field indicates the height range of the tree.
    - **Stump:** Identifying the type of cutting (Grinded or Flush cut)
    - **Is Haul Wood:** This is a Yes/No field that identifies if the wood will be left or hauled from the site.
    - **No of Obst:** This quantity field will identify how many obstructions are on the property.

      Note: It is important to note that all fields on the questionnaire will impact the price of tree cutting, so provide accurate information for the most precise cost estimation.
- **Dynamic Cart Updates:** As you add trees, you will see a dynamic cart being built just as if you were shopping from your favorite sites. This cart will show you the number of trees you've added and the total cost. Additionally, there will be a corresponding table that provides a detailed description of each selected tree based on the information you provided in the questionnaire.

7. Hotkeys / Shortcut Keys

We recognize that time is valuable for its users, and thus oneDRAW offers a range of shortcut keys to help users quickly access the tools they use the most.

Below is a list of hotkeys that are implemented in oneDRAW:

Key	Action
CTRL + Z	Revert Change
Esc	Cancel Action
I	View Irradiance
M	Module Properties
O	Obstructions
P	Push Pull Tool
R	Roof Properties
S	Solar Access Properties
T	Tree Properties

8. Glossary

Whether you are a seasoned solar expert or entirely new to the industry, our glossary caters to all levels of expertise. It serves as your quick-reference guide for comprehending oneDRAW and solar-related terms, ensuring that anyone can navigate the oneDRAW application with ease.

Solar System Information:

- **Array:** Arrays are comprised of multiple solar panels, which work together to produce electricity.
- **Efficiency:** A measurement of how well a solar panel/system converts sunlight into electricity.
- **Inverter:** The device that converts direct current (DC) electricity, which is what a solar panel generates, to alternating current (AC) electricity, which the electrical grid uses.
- **Irradiance:** The power per unit area received from the sun in the form of electromagnetic radiation.
- **kWh:** Residential electricity usage is measured in kilowatt-hours (kWh). One kilowatt-hour (1 kWh) is equal to the amount of energy you would use if you kept a single 1,000-watt appliance running for one hour.
- **kwh – Actual:** Represents the estimated electricity production, calculated via PVWatts, considering all system variables, including equipment efficiencies and system losses such as shade. This value is a more accurate estimate of the actual electricity that one could expect the PV system to produce. This value should be used when utilizing IGS' EPC calculator.
- **kwh – Utility:** Estimated system production without shade included in calculation.
- **Module/Panels:** A solar module, or photovoltaic (PV) module, is a collection of solar cells that absorb sunlight to generate electricity.
- **Multiplier:** A measure of how much solar exports occur at high or low-price times.
- **Solar Access:** The ability of a system to receive sunlight without obstruction from buildings, foliage or other impediment). Solar access is calculated by using a sun path diagram.
- **Photovoltaic (PV):** the conversion of light into electricity.

Roof Information:

- **Azimuth/ Orientation:** Position relative to the sun. This is among the primary factors that determine how much sunlight solar panels receive.
- **Roof Square:** An area of roof that measures 10 by 10 feet to make up a total of 100 square ft. This critical unit of measurement helps your contractor determine how much material they'll need to order for your roofing project, from underlayment to bundles of roof shingles.
- **Setback:** Required by federal, local, and international codes. They require a certain amount of space between a solar panel on a roof and rooftop components (an HVAC system or vent). This space is necessary for firefighters to vent smoke, perform rescue operations, and keep fire from spreading to other buildings.
- **Pathways:** A form of setbacks that is a 36-inch, unobstructed walkways, from Eave (bottom of roof) to the ridge (Peak of roof).
- **IRC:** On a flat roof, the panels must have 36″ around all edges and 18″ around any obstacle, such as a skylight or air conditioner.
- Roof Properties
    - **Eave:** The horizontal overhangs at the bottom edge of a roof section. Eaves can project or protrude beyond the edge of a building.
    - **Hip:** The inclined external angle formed by the intersection of two sloping roof planes. Hips run from the ridge to the eaves.
    - **Ridge:** The highest point of a roof, where two roof slopes meet to form a peak. The ridge is the horizontal line that runs the length of the roof at the top of the two slopes. The ridge is also known as the apex or peak.
    - **Rake:** The horizontal overhangs at the bottom edge of a roof section. Eaves can project or protrude beyond the edge of a building.
    - **Valley:** The area where two roof surfaces meet at a slope to form an interior angle. The purpose of a roof valley is to allow water to flow down the roof properly.
- **Pitch/Tilt:** The angle in degrees of the roof.
- **Questionable Roof:** A label to associate with a roof that informs structural teams that a roof or structure needs further inspection.

Technical Information

- **LiDAR:** Stands for Light Detection and Ranging, is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth.

9. oneDRAW Framework Details

In this section, we provide an overview of the underlying framework and technologies that power oneDRAW. Explore the technical intricacies below to gain a deeper understanding of the technology driving oneDRAW's success.

oneDRAW Framework Details	
Application Type	• Web Application
Frontend	• Markup: HTML, JSX • Styling: CSS, Sass, Semantic UI (2.4.1), styled components • Scripting: JavaScript • Frontend Framework: React (Version:18) • Router Library: react-router-dom • Store for State Management Library: zustand • Framework for 3D Rendering / Controls: three JS (Version 148), Web GL • Azure Authorization: Msal (Azure Login) (azure/msal-browser)
Imagery/Terrain API used	• NearMap Static Imagery API • Mapbox Imagery API • Google Image API • Google Streetview API • Google Roadways API

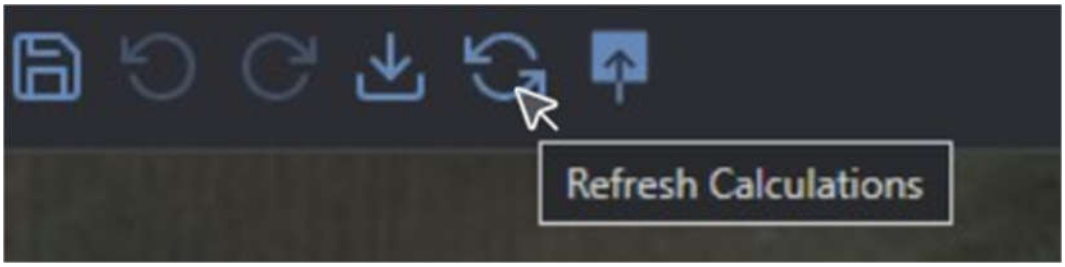
• **Libraries/npm packages Used**	• Google JavaScript Map Client: @googlemaps/js-api-loader, @react-google-maps/api • Charts: apexcharts, react-apexcharts • HTTP request/response: axios • Icons: react-icons • User Interface Utility: react-circular-progressbar, react-color-palette, react-spinners, @splidejs/react-splide, html-to-image, react-paginate, react-outside-click-handler,react-paginate • Color Theme (Light/Dark Mode): lighten-darken-color • Irradiance HeatMap Utility: heatmap.js, suncalc • Irradiance / Sun Vector Calculations: suncalc, heatmap.js • Form Validations: validator • Latitude/Longitude Calculation/Conversion (map utility): geolib • CSV Parsing: papaparse • XML Parsing: xml-parser • Context Menu: rctx-contextmenu • 3D Rendering Utility Libraries: three-mesh-bvh, three-fatline, troika-three-text, es6-tween • For Environment Variables Management: env-cmd

10. oneDRAW FAQ

Whether you're troubleshooting issues, seeking clarification on specific features, or looking for guidance on best practices, the oneDRAW FAQ section is designed to offer quick and informative answers. Below, you'll find a selection of example questions that cover a range of topics, helping you navigate the oneDRAW software effectively and efficiently.

Questions:

- **How can we provision a new team member access to oneDRAW?**
    - Managers can request access for their team by filling out the form on following link:
        - https://trinity-solar.com/BTsupport
- **Who can we contact to troubleshoot oneDRAW issues?**
    - If you need assistance troubleshooting sites or would like to report a bug please create a support ticket using the following link:
        - https://trinity-solar.com/BTsupport
- **I am experiencing issues logging in through Azure (O365) credentials, what can I do?**
    - Clear cache and cookies from your browser.
    - If the issue persists after clearing cache and cookies, try re-launching oneDRAW from on Private Browsing / Incognito Mode.
- **I recently made changes to the model; how can I refresh the shade to reflect changes to my model?**
    - Users can refresh shade calculations after changes by clicking the circular arrows in the toolbar.



- **Can I import custom imagery into oneDRAW?**
    - Yes, oneDRAW supports the ability to import custom imagery. Users can do so by hovering over the *Map* feature in the toolbar. Then, click *Custom Imagery.* You will then see a Custom Imagery menu display on the right-hand side which grants users the ability to upload their own image to substitute the default terrain picture.
    - From this menu, users are granted options to move, rotate, change width and height as well as the opacity of your imagery using the available sliders.
- **What is the difference between default and actual production?**
    - Default production represents the estimated electricity production, calculated via PVWatts, only factoring some site variables, and applying default values to equip ment efficiency and system losses such as shade. Default production is the value that some utility companies refer to when sizing a system in accordanc e with the interconnection agreement.
    - Actual production represents the estimated electricity production, calculated via P VWatts, taking into account all system variables, including equipment efficiencies and system losses such as shade. This value is a more accurate estimate of the actual electricity that one could expect the PV system to produce. This value sho uld be used when utilizing IGS' EPC calculator.