# Oracle® Construction and Engineering Intelligence

## Safety Monitoring Guide

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# About This Guide

This guide describes how to use the Image Viewer and the Safety Monitoring dashboards. Your access to view these dashboards is set by your administrator.

### Audience

This guide is intended for anyone using the Safety Monitoring dashboards and Image Viewer within Construction and Engineering Intelligence.

### Documentation Accessibility

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### Conventions

The following text conventions are used in this document.

| Convention | Meaning |
|---|---|
| **boldface** | Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary. |
| *italic* | Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values. |
| `monospace` | Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter. |

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# Construction and Engineering Intelligence Overview

Construction and Engineering Intelligence is a smart AI-powered cloud application that identifies potential safety issues associated with construction projects. Construction and Engineering Intelligence's construction-trained AI delivers unbiased insights, predicts where to focus your attention, and prescribes specific actions to mitigate safety risk.

## Accessing Construction and Engineering Intelligence

When your organization is provisioned with Construction and Engineering Intelligence, you will receive the Construction and Engineering Intelligence Application URL in a Welcome email.

To sign in for the first time as a user of Construction and Engineering Intelligence:

1. In your Welcome email, click the application URL

   > **Note:**
   >
   > For a list of supported browser versions, see Client System Requirements.

2. In the **Username** field, enter the user name assigned to you.
3. In the **Password** field, enter your password. After your initial sign in, you can proceed to Resetting Your Password.
4. Click **Sign In**.
5. Use the **Navigator** pane to explore the menu options available to you. For more details, see Navigation Overview.

## About Your Login Credentials

New customers receive an initial email from `no-reply@oracle.com` to activate their Oracle Cloud account. The link has an expiration date mentioned at the bottom of the email. Make sure to activate your account before the link expires.

You will receive a separate welcome email that includes the URL to access Construction and Engineering Intelligence.

**Tip:**

- If you do not receive either email, check the spam or junk folder in your email account, or reach out to your customer success manager or Construction and Engineering Intelligence administrator.

- In case you miss the activation window to activate your Construction and Engineering Intelligence account, visit the URL listed in the initial welcome email and select the **Forgot Password?** link.

# Resetting Your Password

You can reset your password for Construction and Engineering Intelligence at any time.

To reset your password:

1. Navigate to the **Oracle Cloud Account Sign In** page.
2. Select the **Need help Signing in? Click here** link.
3. On the **Forgot your password** page, enter your user name, and then click **Next**.
4. Review the on-screen message, and click **Submit**.
5. Select **Password Reset** in the email you receive.
6. On the **Reset Your Password** page, complete the **New Password** and **Confirm New Password** fields.

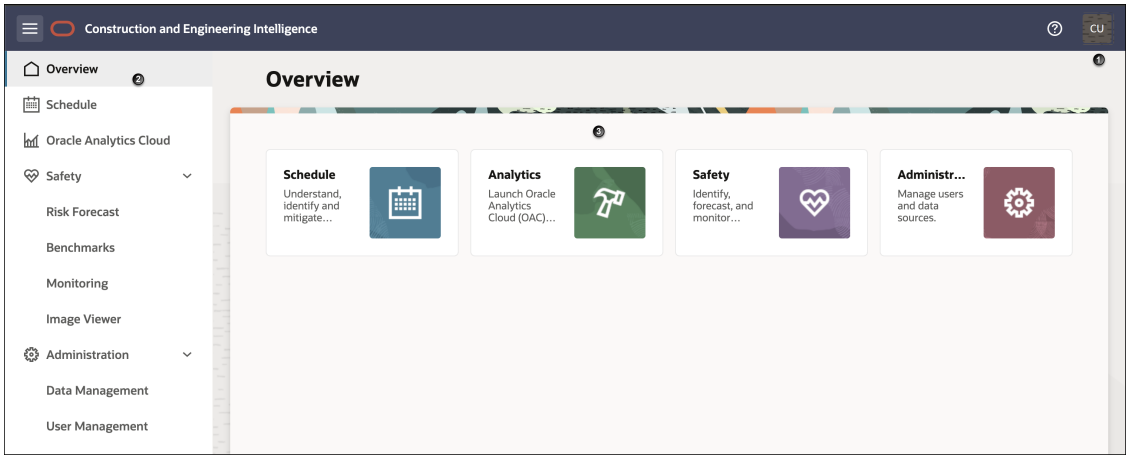
> **Note:**
>
> The **Confirm New Password** field will not be active until your new password meets the specified criteria.

7. Click **Submit**.
8. Select **Click here** to continue to navigate back to the **Oracle Cloud Account Sign In** page, and log in with your new password.

> **Note:**
>
> To allow time for system processing, it is recommended that you wait a few minutes before logging in with your new password.

# Navigation Overview

The **Home** page of Construction and Engineering Intelligence displays the following menu and options.




| Menu / Option | Description |
|---|---|
| **Navigation Menu** | Select to expand or collapse the Navigator pane. |
| **Help** | The Help menu displays the following options:<br>• **Oracle Help Center**: Select this option to access all guides in the Construction and Engineering Intelligence library.<br>• **Training**: Select this option to access training resources available for Construction and Engineering Intelligence.<br>• **Support**: Select this option if you need information on how to contact Oracle Support.<br>• **About**: View the product version and build information of Construction and Engineering Intelligence. |
| 1 | Displays the initials of the signed-in user.<br>Select this option to sign out of the application. |
| 2 | **Navigator**<br>The Navigator displays the modules you can access based on your role and the modules your organization has purchased.<br>• **Overview**: This is the main landing page.<br>• **Safety**: Select this option to access the safety module.<br>• **Analytics**: Select this option to connect, build, and view visualizations in Oracle Analytics Cloud. This module is displayed only if your organization has purchased the license for Construction and Engineering Analytics.<br>• **Administration**: This option is available only if you are an administrator for Construction and Engineering Intelligence. The following options display under Administration:<br>– **Data Management**: Select this option to set up and manage data sources.<br>– **User Management**: Select this option to set up and manage users. |
| 3 | The selected module page is displayed. You can select the tiles displayed on the page to navigate within the selected module. |

### Navigating within the Application

You can navigate within the application using either the Navigator or the tiles on the page.

**Using the Navigator:**

1. Click the **Navigation Menu** to display the **Navigator** pane.

2. In the **Navigator** pane, select a module.

Examples:

- To access the Administration module: From the **Navigation Menu**, select **Administration**.
- To access the Analytics module: From the **Navigation Menu**, select **Analytics**. A new tab opens with Oracle Analytics Cloud.
- To access the Benchmarks dashboard in the Safety module: From the **Navigation Menu** pane, select **Safety**, then select **Benchmarks**.
- To access the Monitoring dashboard in the Safety module: From the **Navigation Menu** select **Safety**, then select **Monitoring**.

**Using tiles**

From the **Overview** page or from any of the module pages, select the tiles displayed on the pane.

Examples:

- To select the Administration module: From the **Overview** page, select the **Administration** tile.
- To select the Analytics module: From the **Overview** page, select the **Analytics** tile. A new tab opens with Oracle Analytics Cloud .
- To access the Benchmarks dashboard in the Safety module: From the **Overview** page, select the **Safety** tile, then select the **Benchmarks** tile.
- To access the Monitoring dashboard in the Safety module: From the **Overview** page, select the **Safety** tile, then select **Monitoring** tile.

# Keyboard Shortcuts

### General Interactive Keyboard Shortcuts

| Action | Keys |
|---|---|
| Move to the next tab stop | Tab |
| Move to the previous tab stop | Shift+Tab |
| Toggle between row selection and cell selection | F8 |
| Open the column header menu, when focus is on the column header | Enter or Space |
| Increase column width, when focus is on the column header | Windows: Ctrl+Right arrow<br>Mac: Ctrl+Cmd+Right arrow |
| Decrease column width, when focus is on the column header | Windows: Ctrl+Left arrow<br>Mac: Ctrl+Cmd+Left arrow |
| Move column to next column position, when focus is on the column header | Shift+Right arrow |
| Move column to the previous column position, when focus is on the column header | Shift+Left arrow |
| Sort ascending on the current column, when focus is on the column header | Windows: Alt+Up arrow<br>Mac: Option+ Up arrow |
| Sort ascending on the current column in addition to the existing search columns, when focus is on the column header | Windows: Shift+Alt+Up arrow<br>Mac: Shift+Option+ Up arrow |

| Action | Keys |
|---|---|
| Sort descending on the current column, when focus is on the column header | Windows: Alt+Down arrow<br>Mac: Option+ Down arrow |
| Sort descending on the current column in addition to the existing search columns, when focus is on the column header | Mac: Shift+Option+Down arrow |
| Move to next tab stop in column header menu, when column header menu is open | Tab |
| Move to previous tab stop in the column header menu, when column header menu is open | Shift+Tab |
| Close the column header menu, when the column header menu is open | Escape |
| Show help (if defined) for an item, when a single row is viewed and focus is on the column | Windows: Alt+F1<br>Mac: Option+F1 |

### Date Picker

| Action | Keys |
|---|---|
| Open the popup, when the input has focus and Display Mode is set to popup | Down arrow |
| Close the popup and focus the input, when Display Mode is set to popup | Escape |
| Focus the next element | Tab |

**Note:**

When the Display Mode is set to popup and the last element is focused, pressing Tab moves focus to the first element.

| Action | Keys |
| --- | --- |
| Focus the previous element | Shift+Tab<br><br>**Note:**<br>When the Display Mode is set to popup and the first element is focused, pressing Tab moves focus to the last element. |
| Move focus to the same day of the previous week | Up arrow |
| Move focus to the same day of the next week | Down arrow |
| Move focus to the previous day | Left arrow |
| Move focus to the next day | Right arrow |
| Move focus to the first day of the current week | Home |
| Move focus to the last day of the current week | End |
| Change the grid of dates to the previous month | Page Up |
| Change the grid of dates to the next month | Page Down |
| Change the grid of dates to the previous year | Shift+Page Up |
| Change the grid of dates to the next year | Shift+Page Down |
| Select the focused date, when Show Time is off | Enter or Space |
| Select the focused date, when Show Time is on | Enter or Space, then Done |

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# Working with Image Viewer

The **Image Viewer** enables you to assess safety issues, construction activities, equipment usage, and AI-derived observations by viewing a list of media files associated with your project.

> **Note:**
>
> To view data in Image Viewer and use the Safety Monitoring dashboards, you must first integrate with Construction and Engineering Intelligence using Procore or Autodesk Construction Cloud.

To view the media files of your project:

1. From the ☰ **Navigation Menu**, click **Safety** and then select **Image Viewer**.
2. On the **Image Viewer** page, select your project from the **Select a Project to View Media** drop-down list.

   The total number of media files associated with a project also displays, if applicable.
3. Perform any of the following actions:
   - Select the **Tile** icon to view images in a tile format.
   - Select the **List** icon to view images in a list format.
   - Filter media files of a project.
   - View individual media files.
   - Download media files
   - View the tag tree of a project

## Filtering Media Files of a Project

To focus on a subset of media files associated with a project, you can filter the media files of a project.

To filter the media files:

1. From the ☰ **Navigation Menu**, click **Safety** and then select **Image Viewer**.
2. On the **Image Viewer** page, select your project from the **Select a Project to View Media** drop-down list.
3. In the search bar, you can specify any of the following types of filters:
   - Date Imported

A list of media files that meet the filter criteria display in the tile format or list format.

# Sorting Media Files

You can sort the media files as needed.

To sort media files:

1. From the ☰**Navigation Menu**, click **Safety** and then select **Image Viewer**.
2. On the **Image Viewer** page, select your project from the **Select a Project to View Media** drop-down list.
3. From the **Sort By** drop-down list, select any of the following options to sort media files by:
   - **File Upload Date**
   - **File Type**

# Viewing Individual Media Files

You can individually view a media file to zoom-in and review the associated information.

To view media files individually:

1. From the ☰**Navigation Menu**, click **Safety** and then select **Image Viewer**.
2. On the **Image Viewer** page, select your project from the **Select a Project to View Media** drop-down list.
3. Click on an individual image file.
   - <Name of the media file with file extension>
   - **Uploaded by**: Name of the user who uploaded the file.
   - **Created**: Date when the file was created.
   - **Last modified**: Date when file was last modified.
   - **File Type**: Indicates if it is a 2D image or 360 degree image.
   - **Uploaded**: Date when the file was last uploaded.
   - **Tags**: Number of tags associated with the image. If there is more than one object on the image for the same tag, that number will also be shown with the tag with an option to expand the list of objects in that tag.
4. In the side panel, you can:
   - View a list of media tags with varying levels of confidence: High, Medium, and Low. These levels of confidence indicate the precision associated with the image tag.
     - **High**: Indicates an image tag with 90% precision.
     - **Medium**: Indicates an image tag with 75% precision.
     - **Low**: Indicates an image tag with 50% precision.
   - Perform any of the following actions.
     - Click **< Previous** and **> Next** to scroll through the images.
     - Click **Download** to download an individual media file.
     - Click **X** to return to the **Image Viewer** page.

# Downloading Media Files of a Project

You can download one or more media files as a zip file to your local computer for further review or share media files with your project team members to assess further.

The downloaded zip file contains:

- All media files selected for download
- An Excel spreadsheet with the following information for each media file:
  - Media name
  - Size
  - Create date-time
  - Upload date-time
  - Source
  - Tags with high confidence
  - Uploader (if available)

To download the media files:

1. From the **Navigation Menu**, click **Safety** and then select **Image Viewer**.
2. On the **Image Viewer** page, select your project from the **Select a Project to View Media** drop-down list.
3. Select the check box for each media file, and then click **Download**.

   If multiple files are selected, a zip file is generated in the format, `<project Name>_<download date and time format>`. For example: *National_Park_2024-05-09%08.58.03.137_UTC*

# Viewing Level of Confidence AI Tags on Media Files

The tags associated with an image can be categorized into three levels of confidences: High, Medium, and Low. These levels of confidence indicate the precision associated with the image tag.

- A High confidence indicates an image tag with 90% precision.
- A Medium confidence indicates an image tag with 75% precision.
- A Low confidence indicates an image tag with 50% precision.

# Viewing the Tag Tree of a Project

To garner meaningful insights from the images, you can view all image tags associated with a project, as well as navigate a tag tree that displays a parent-child relationship between image tags.

To view the tag tree of a project:

1. From the **Navigation Menu**, click **Safety** and then select **Image Viewer**.

2. On the **Image Viewer** page, select your project from the **Select a Project to View Media** drop-down list.
3. Click **Tags**.
4. In the **Tags** pane, view a list of AI tags associated with the project.
5. You can perform any of the following actions:
   - In the **Search** bar, enter an AI tag to locate it in the tag tree.
   - From the **Sort By** drop-down list, select a sort option for the AI tags.
   - Click **X** to return to the **Image Viewer** page.

# 3
# Monitoring

The **Monitoring** dashboard displays reports using the safety and construction-related tags attached to job site photos. The safety tags are attached by the Construction and Engineering Intelligence AI that analyzes job site photos.

The Monitoring dashboard reports provide valuable insights that can help you evaluate potential safety risks at your project site. The following dashboard reports are displayed: construction activities over time, work at heights, PPE compliance, equipment activities and potential hazards.

## Accessing Monitoring Dashboards

To access the **Monitoring** dashboards:

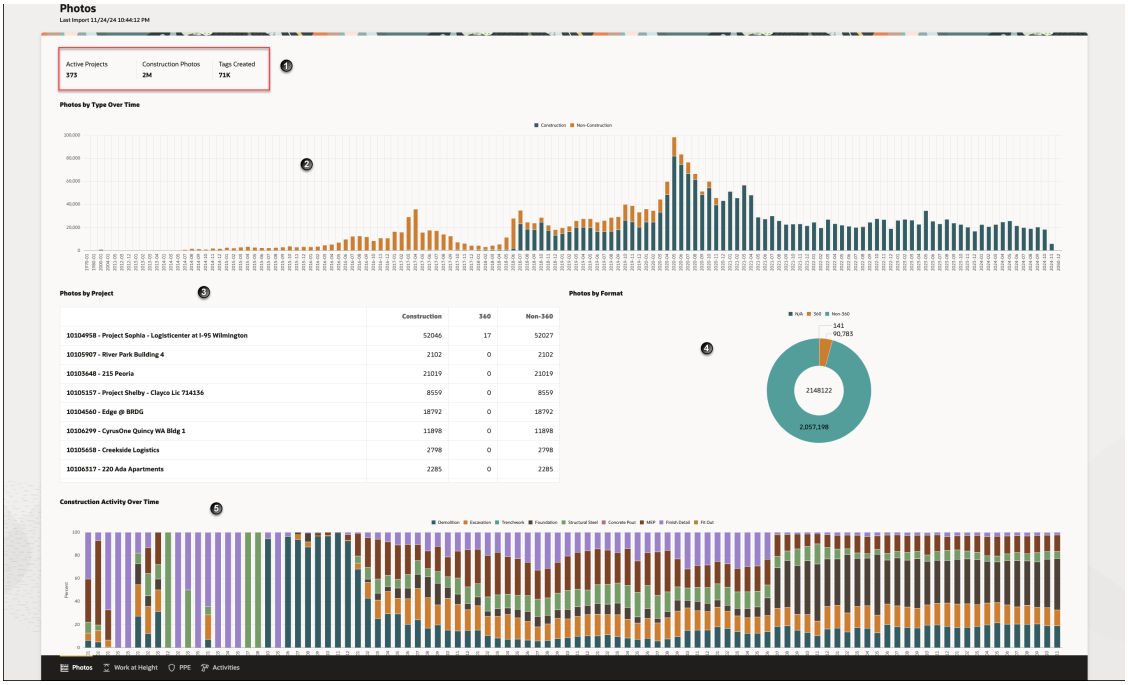
1. From the **Navigation Menu**, click **Safety** and then select **Monitoring**.

   The default page **Photos** is displayed.
2. Select a tab:
   - **Photos**
   - **Work at Height**
   - **PPE**
   - **Activities**

> **Note:**
>
> Your access to dashboard tabs is set by your administrator.

## Photos Dashboard

The **Photos** dashboard displays a summary of active projects and the job site photos associated with the projects.




| Screen Elements | Description |
|---|---|
| 1 | Active Projects: The number of projects that have at least one photo associated with them within the chosen data range. Construction Photos: The number of photos that have the Construction tag applied by the AI. Tags Created: The total number of AI tags applied to the image. |
| 2 | **Photos by Type Over Time:** Displays the distribution of construction and non-construction photos distribution as a monthly trend. View construction and non-construction photos distribution trend over a selected time period. |
| 3 | **Photos by Project:** View a list of active projects along with the number of construction photos, and number of photos by format. |
| 4 | **Photos by Format:** Displays the distribution of 360 and Non-360 photos (only for construction photos category) in the form of donut chart |
| 5 | **Construction Activity Over Time:** Displays the distribution of construction activities as monthly trend. The construction photos are tagged under the following categories: Demolition, Excavation, Trenchwork, Foundation, Structural Steel, Concrete Pout, MEP, Finish Detail, and Fit Out. |

# Work at Height Dashboard

Use the **Work at Height** dashboard to review the risk associated with working at height.

You can use the data to analyze the job site for potential safety risks. The charts allow you to view a distribution of AI tags (People at Height and Fall Arrest) associated with the construction photos for a chosen duration.

| Screen Elements | Description |
|---|---|
| 1 | **People at Height and Fall Arrest Issues Over Time:** Display the distribution of **People at Height** and **Fall Arrest** among all the construction photos as monthly trend. |
| 2 | **Work at Height by Project:** Display the number of AI tags for **People at Height**, **Exposed Holes**, and **Fall Arrest** among the construction photos available for each project. |
| 3 | **Photos by Equipment:** Display the distribution of equipment tags associated with construction photos. The following AI tags are used: Access Ladders, Boom Lifts, Extension Ladders, Folding Ladders, Platform Ladders, Scaffolding, Scissor Lifts, and Site Ladders. |
| 4 | **Construction Activity Over Time:** Displays the distribution of construction activities as monthly trend. The construction photos are tagged under the following categories: Demolition, Excavation, Trenchwork, Foundation, Structural Steel, Concrete Pout, MEP, Finish Detail, and Fit Out. |

# Personal Protective Equipment Dashboard

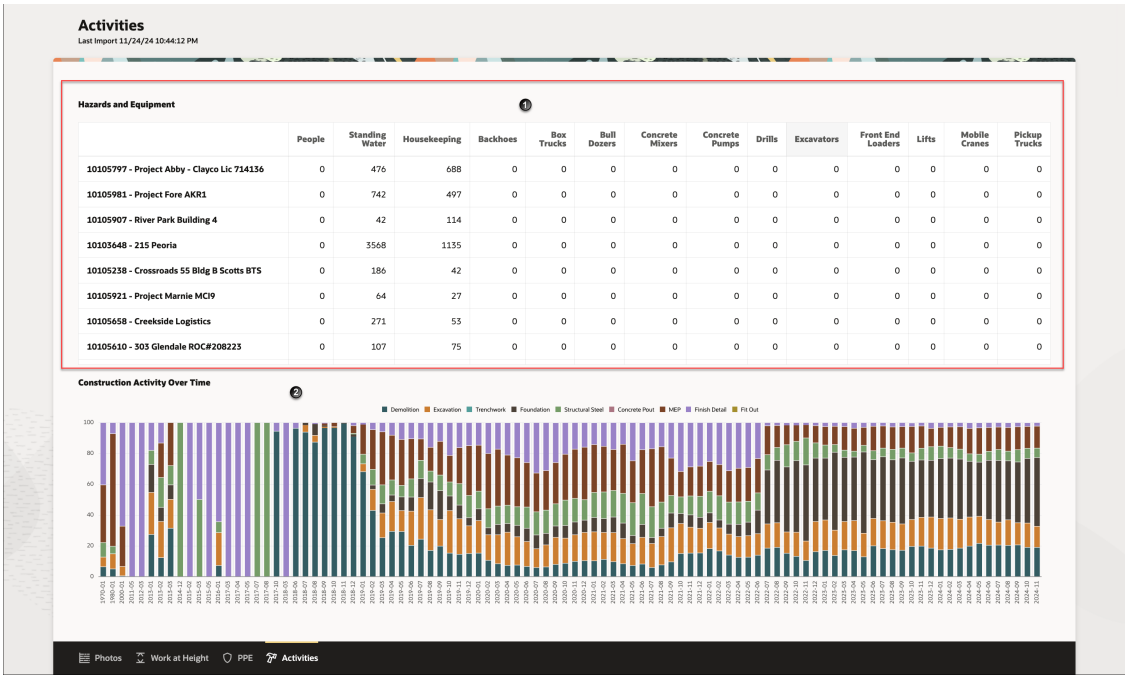
Use the **Personal Protective Equipment** dashboard to review the compliance of Personal Protective Equipment (PPE) at the job site.

You can use the data to analyze any potential safety risk at your job site.

| Screen Elements | Description |
|---|---|
| 1 | **Infraction Over Time:** Displays the distribution of number of tags for Glasses, Gloves, Hard Hats, and Hi-Vis tags and the number of People tags among all the construction photos as monthly trend. |
| 2 | **Compliance by Project:** Displays the number of AI tags for People, and the compliance percentage of Glasses, Gloves, Hard Hats, Hi-Vis, and Average PPE among the construction photos available for each project in the form of heat map. The color coding is done as shades of red in the blocks of 0-50%, 51-75%, 76-90%, and 91-99% compliance. The color is white for 100% compliance. PPE associated with the construction photos for the chosen duration for each project group and project. |
| 3 | **Infraction by Category:** Displays the distribution of Glasses, Gloves, Hard Hats, and Hi-Vis tags in the form of donut chart. |
| 4 | **Construction Activity Over Time:** Displays the distribution of construction activities as monthly trend. The construction photos are tagged under the following categories: Demolition, Excavation, Trenchwork, Foundation, Structural Steel, Concrete Pout, MEP, Finish Detail, and Fit Out. |

# Activities Dashboard

Use the **Activities** dashboard to review equipment activity and assess the potential hazards at your job site.




| Screen Elements | Description |
|---|---|
| 1 | **Hazards and Equipment:** Displays the number of AI tags for People, hazards (Standing Water and Housekeeping), and equipments (Backhoes, Box Trucks, Bull Dozers, Concrete Mixers, Concrete Pumps, Drills, Excavators, Front End Loaders, Lifts, Mobile Cranes, and Pickup Trucks) associated with the construction photos available for each project. |
| 2 | **Construction Activity Over Time:** Displays the distribution of construction activities as monthly trend. The construction photos are tagged under the following categories: Demolition, Excavation, Trenchwork, Foundation, Structural Steel, Concrete Pout, MEP, Finish Detail, and Fit Out. |