

General Workflow for Building Extraction

1. Data acquisition with sensor (if applicable)
2. Point cloud generation with LP360 Drone (if applicable)
3. Remove the noise
4. Thin the LAS dataset
5. Classify the ground
6. Run the “Building Filter”
7. Extract the buildings automatically using “Building extractor”

Building Filter and Extraction for Dense Datasets



Automatic Building Extraction



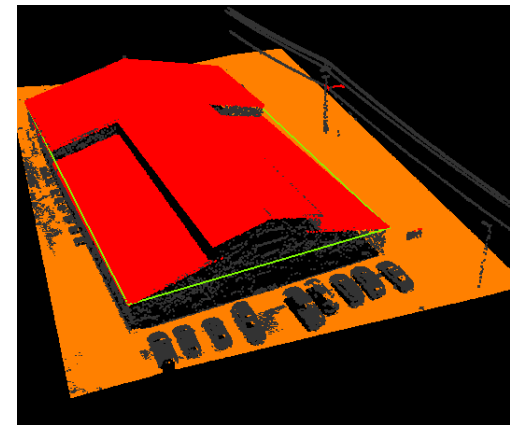
Using LP360 Feature Analyst to QA/QC Building Extraction Results

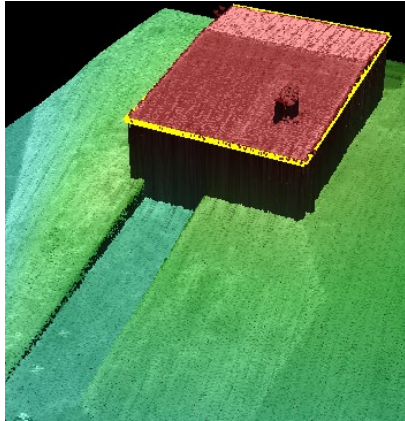


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Building Extraction in LP360

In this exercise, we will review the workflow for performing building extraction using LP360.





About the Building Extraction PCTs

LP360 includes Point Cloud Tasks (PCTs) for performing building classification and extraction from a point cloud.

The building classification is done using a planar points filter (**Building Filter PCT**) to search for and reclassify points that fit a defined plane. The user has control over the height range of the features, the minimum search window, Z-threshold, planar fit (goodness of fit), min and max angles, and so forth. The results of running a planar points filter on reasonably dense airborne LIDAR data is essentially an unsupervised building classifier.

These planar points are then reclassified as "Buildings," and a point class tracing algorithm (Building Extractor PCT) is applied to extract a polygon representing the individual roof planes.

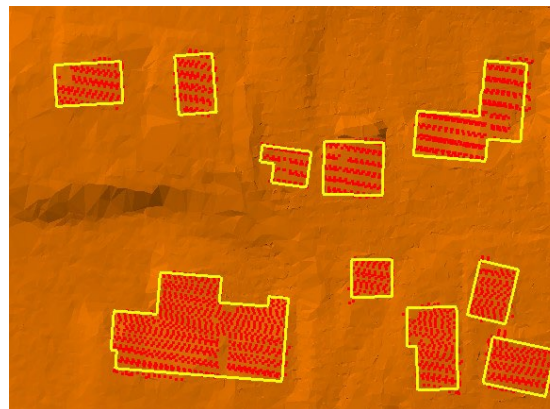
Understanding Your Workflow

When extracting buildings, there are a few things to know for processing.

First is thinning your LAS dataset. This is accomplished using the **Classify by Statistics PCT** type. Extracting buildings can be a time-consuming task. This step helps to decrease processing time, especially if you are working with dense LAS data.

Second is classifying your ground. This allows the "Building Filter" to identify planar surfaces above the ground and classify them. This is accomplished using the **Planar Point Filter PCT** type.

Third is the Building Extraction itself. This PCT type is **Point Group Tracing and Squaring**. This PCT will generate a new shapefile with polygons digitized around the buildings identified in the "Building Filter" step.



Extracting Buildings

As a note, the Building Extractor step of this workflow can take time to execute. If you have a large LAS dataset but urban areas only cover a small portion, there are options to execute this PCT over smaller, user-specified areas versus executing over the entire Active LAS Layer. These options include:

- By Polygon 
- By Envelop 
- By Circle 

Reviewing the Results

After you have executed the Building Extractor, you can inspect your new feature layer using Feature Analyst. This dialog allows you to calculate statistics about your building features.

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