

UAV PHOTOGRAMMETRY SURVEYING

CTLGroup now offers photogrammetry and aerial drone services as a new, efficient, and detailed method for surveying buildings and façades.

Unmanned aerial vehicles (UAVs), also known as drones, controlled by CTLGroup's FAA certified UAV pilots can access hard to reach areas without the use of scaffolding or hands-on measurements, saving our clients time and cost. Often times a building can be fully documented in a single pass.

Using the images obtained through the drone, CTLGroup utilizes specialized photogrammetric software to produce as-built CAD drawings, dimensionally accurate 2D & 3D models, and custom animations to share "big picture" information with stakeholders. These surveys can be useful for performing façade inspections, administering repair programs, providing documentation for record, and producing marketing material.

CTLGroup demonstrated this technology with Frank Lloyd Wright's Unity Temple in Oak Park, IL. Since the completion of a façade restoration in 2017, CTLGroup has conducted follow-up facade evaluations using digital imaging and UAV-enabled photogrammetry technology to create a 3D model and to geo-tag and correlate photographs of the façade conditions to the CAD drawings.

Advantages

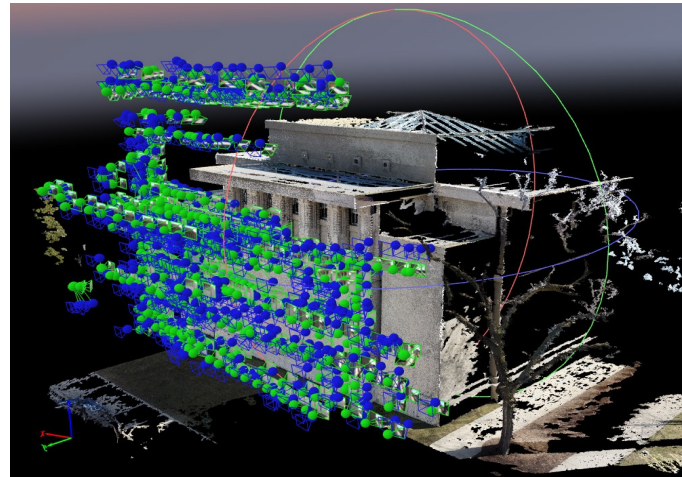
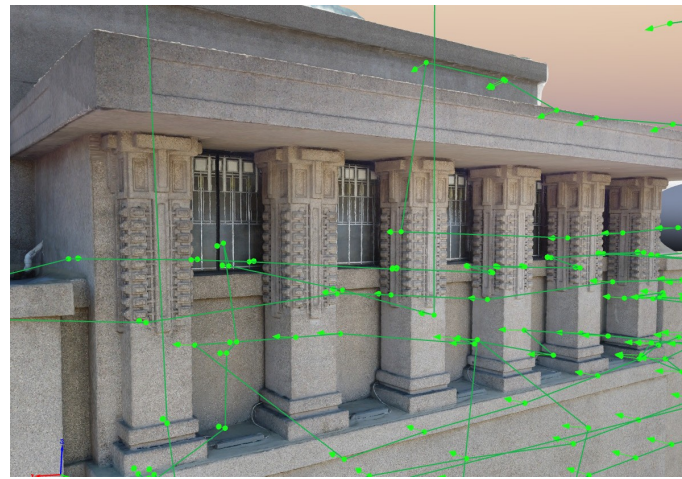
- Obtain as-built drawings efficiently
- Document present condition
- Gain quantitative information on difficult-to-reach areas
- Prepare condition survey (including NDE) work products
- With planning, could automatically overlay quantitative NDE results on orthomosaic or drawing
- Comprehensive full-field measurements, fast
- Scalable to large buildings and small details alike
- Quantitative, and less vulnerable to measurement errors due to difficult access, cold, fatigue, etc.
- Invulnerable to transcription errors
- Supports exports to familiar work products as well as novel visualizations

Use Cases

- As-built drawings unavailable (e.g., lost, destroyed, never existed)
- As-built drawings not already in CAD (e.g., most buildings on earth)
- Obtain as-built and condition survey information and satisfy multiple deliverable requirements in a single pass
- Develop synoptic view – otherwise, typically not possible in dense urban environment (other buildings in the way)

Deliverables

- Orthophotos / orthomosaics (annotated)
- CAD drawings: As-built drawings, Base sheets for field annotation
Instant condition survey work product, Estimate repair quantities directly from orthomosaic, Total length of cracks, Total area of delamination, etc.
- Advanced animations, etc., for "big picture" explanation
- Dimensionally accurate photorealistic models for stakeholders



CAD drawing with orthomosaic overlay

