



FLY. UPLOAD. ANALYZE. PRESENT.

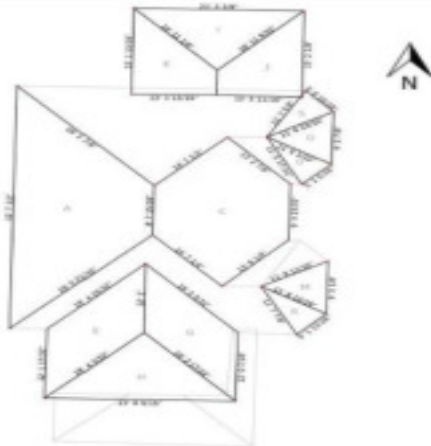
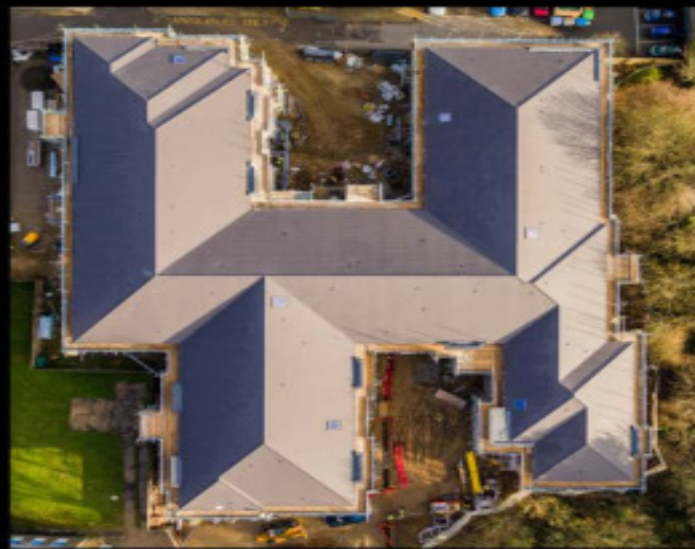


Figure 4: Edge Measurements



Aerial UAS Drone Roofing Survey and Mapping Report

ABOUT CONNEXICORE

MANAGED DRONE FLIGHT SERVICES

ConnexiCore™ is a nationwide Commercial UAS Drone Solutions Provider. With a nationwide network of expert (FAA) licensed pilots in all 50 states who specialize in drone videography and aerial promotional marketing we are positioned to service nearly any commercial industry.

INDUSTRY-FOCUSED DRONE EXPERTISE

- Precision Agriculture
- Architectural Engineering and Construction
- Land Development Marketing

For our industrial inspection clients ConnexiCore delivers and analyzes data efficiently and effectively through our secure cloud-based image analysis and storage platform called ConnexiCore Cloud. Our turn-key systems integration approach starts and ends by managing the entire process for you: from flying the drones, analyzing the data, extracting insights from that data, and delivering measurable and actionable tasks to support decision making

UAS OPERATIONS, TRAINING AND CONSULTING SERVICES

ConnexiCore is acclaimed for working with public safety and commercial organizations across the country, so we know that launching a safe, legal, and efficient commercial drone program can be difficult, time-consuming and costly. ConnexiCore defines and designs a UAS program by carefully adhering to the 3 areas of any commercial drone program:

- Identifying the regulatory framework
- Creating a training regimen
- Purchasing the right equipment and software

Get your organization's drone program off to the right start with our all-inclusive suite of comprehensive courses, including ground school and hours of flight training. Learn what it takes to start or finish your UAV program, determine what UAVs are best for your needs. ConnexiCore UAS Operations consulting packages will propel your drone program further, so you can begin to see value throughout your business as quickly as possible. ConnexiCore will assist your organization in developing a foundation to build on and customize for your specific needs while saving countless hours of work and allowing you to benefit from the experience of others in the industry

How Drones Are Used For Roof Inspections

Whether you are a roofing company, managing a building, working with solar panels, inspecting for an insurance claim, or any other number of reasons, it makes sense to consider using drones for roof inspections for a range of benefits, including safety, cost, and time. Until recent innovations, there was just no way around it. If you wanted to do a proper roof inspection and analysis, you had to:

- Climb up on a ladder
- Walk the roof
- Identify and notate obvious areas of interest
- You might take photographs
- Even take core samples for the final roof report and remediation plan

Drone mission planning

This is no different from the traditional approach roofers and project managers have used for decades, but now it's pinning waypoints, setting altitudes, confirming airspace and more.

Fly the drone

The next stage in the workflow is arriving on site and conducting the flight where possibly hundreds of images are captured before the flight is completed. The flight aspect of the workflow is about minimizing time on the roof, letting you get onsite, collect a high-quality dataset, and then move on.

Collect drone data

Drones can generate a variety of data types. This could include high-resolution roof images that are date and geo-tagged to pinpoint and annotate for expert inspection. Drones can also deploy thermal cameras, which have become a powerful tool for conducting roof inspections. Since wet areas on a roof retain heat longer than dry areas, thermal imagery can detect temperature differences and help inspectors pinpoint areas of concern that warrant a closer look.

Drone data analysis

It's not really about the drones, it's about the data and how to leverage it. But data alone is useless unless it can be processed into actionable business insights. Just having 500 roof images, or even point cloud 3D models doesn't help you achieve your objectives. You need answers based on data. For example,

- How long is this roof edge?
- What is the surface area of this roof plane?
- What are the damages or roof obstructions?

By leveraging sophisticated drone roof inspection software, such as Drone Deploy, these cloud-based software tools allow you to share, collaborate, and answer questions on the data.

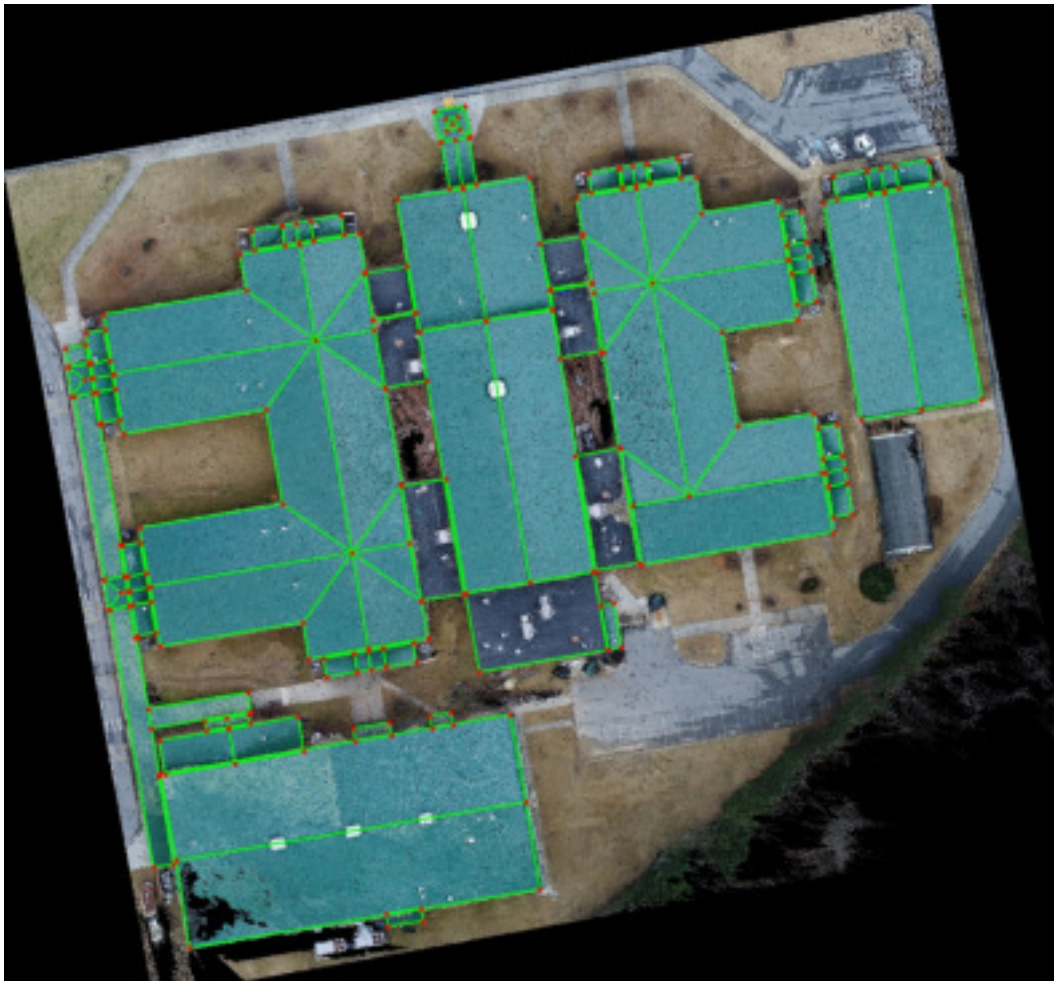


Figure 1: 3D Model of the Property

Contents

- Property Overview
- Surfaces
- Perimeter, Pitch and Surface Area
- Edge Measurements
- Edge Type

Surfaces

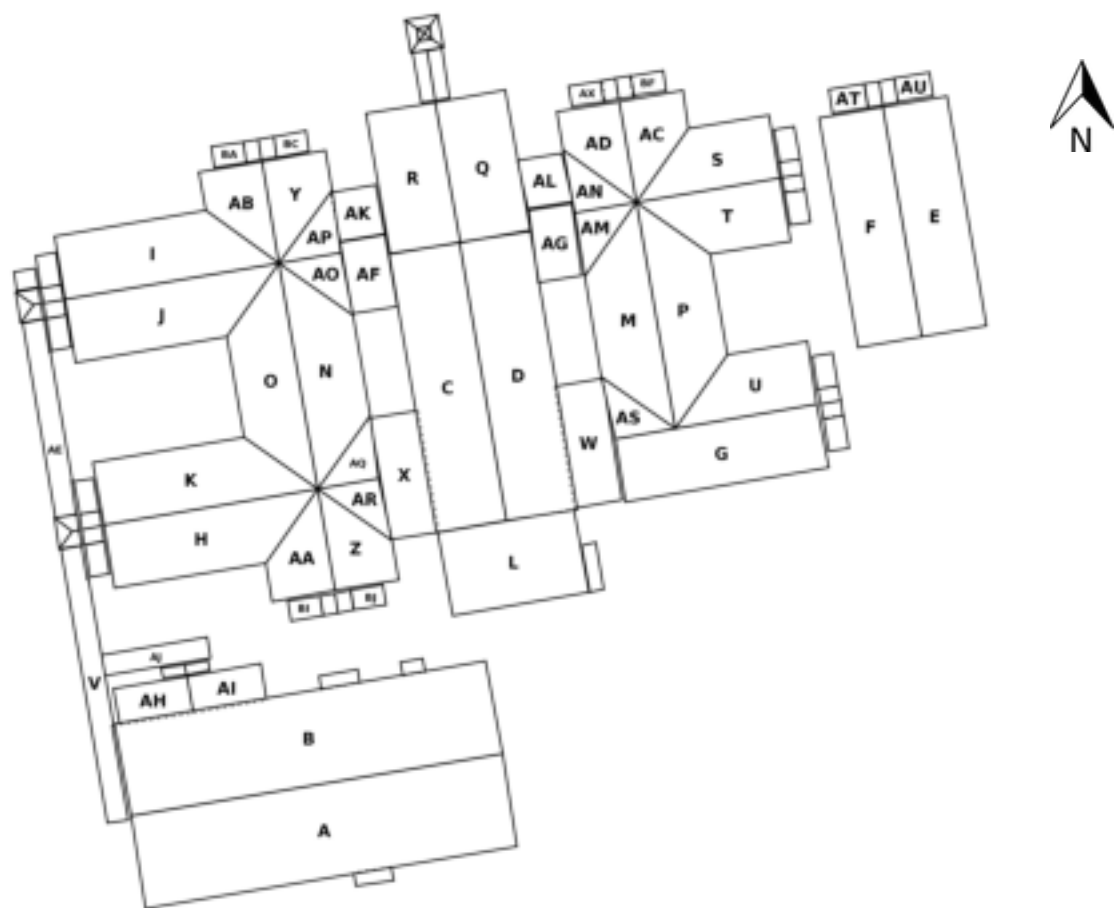


Figure 3: Surfaces

Edge Measurements.

Surface(s): A, B, C, D, E, F, G, H, I, J, K, S, T, U, AJ, AK, AL, AV, AW, AX, BA, BE, BI, BM, CG, CH, CT

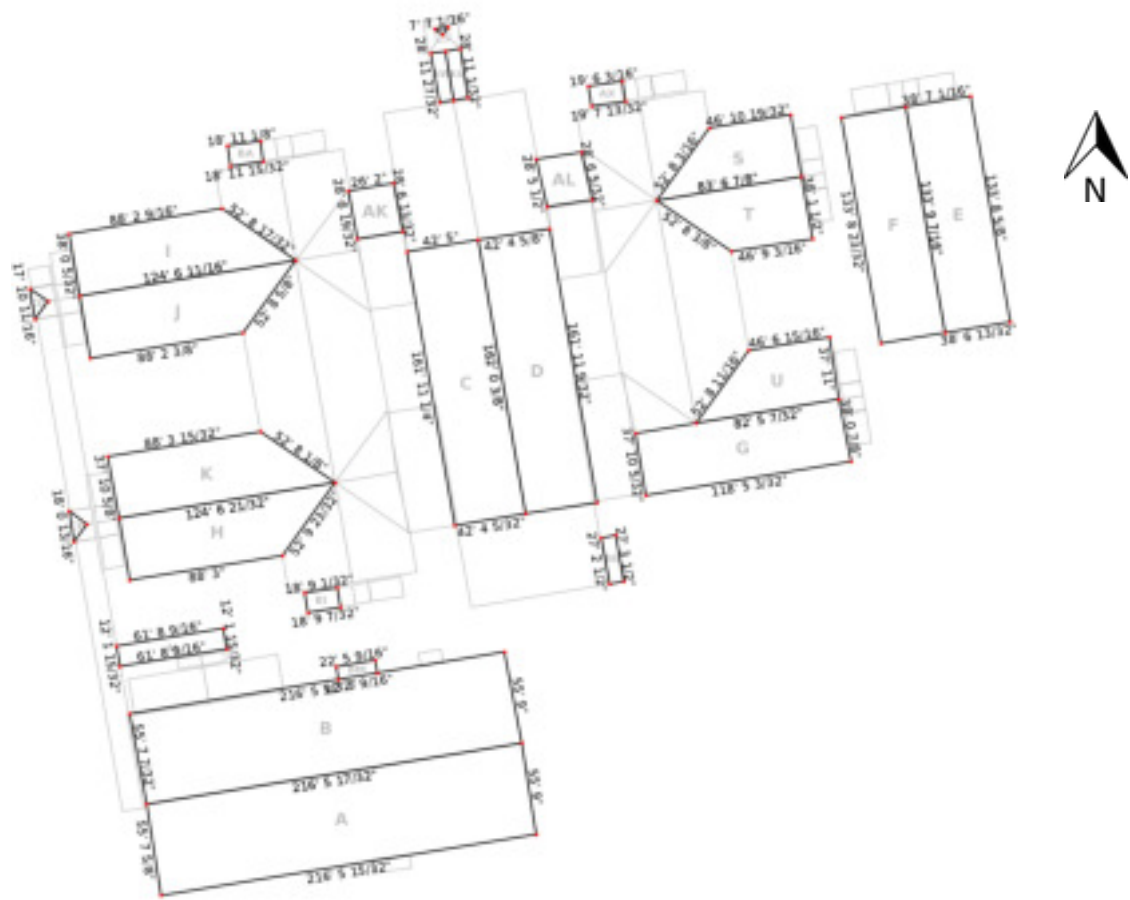


Figure 4: Edge Measurements

Perimeter, Pitch and Surface Area

Label	Perimeter	Slope	Pitch	Surface Area
B	544' 2 31/32"	14.94	3.2/12	12049.03
C	408' 8 13/16"	14.7	3.1/12	6865.29
D	408' 8 15/32"	13.7	2.9/12	6862.44
E	344' 7 19/32"	13.89	3.0/12	5157.9
F	344' 5 19/32"	14.91	3.2/12	5146.44
G	311' 6 15/16"	14.16	3.0/12	4471.53
H	303' 5 27/32"	14.2	3.0/12	4046.91
I	303' 6"	14.68	3.1/12	4045.58
J	303' 5 7/8"	14.28	3.1/12	4034.02
K	303' 4 31/32"	14.88	3.2/12	4020.83
L	255' 9 5/32"	0.48	0.1/12	3849.98
M	295' 10 21/32"	14.95	3.2/12	3616.03
N	295' 6 3/4"	13.38	2.9/12	3610.06
O	295' 6 1/8"	15.01	3.2/12	3606.57
P	295' 8 13/16"	13.82	3.0/12	3606.2
Q	247' 6 3/4"	13.77	2.9/12	3437.67
R	247' 5 15/32"	15.03	3.2/12	3431.62
S	221' 1 7/32"	15.0	3.2/12	2474.88
T	221' 2"	14.57	3.1/12	2465.32
U	219' 7 29/32"	14.65	3.1/12	2448.05
V	345' 6 7/32"	2.5	0.5/12	2013.48
W	197' 7 3/8"	0.31	0.1/12	1982.22
X	197' 7 21/32"	0.57	0.1/12	1981.96
Y	173' 0 25/32"	13.4	2.9/12	1564.24
Z	172' 7 5/32"	13.72	2.9/12	1559.07
AA	172' 5 23/32"	14.86	3.2/12	1544.49
AB	172' 4 7/8"	14.85	3.2/12	1543.23
AC	172' 0 1/16"	14.08	3.0/12	1538.02
AD	171' 4 1/4"	15.2	3.3/12	1529.78
AE	252' 5 1/32"	0.79	0.2/12	1448.91
AF	135' 10 15/32"	1.73	0.4/12	1093.43
AG	133' 10 9/16"	2.37	0.5/12	1051.49
Total	–	–	–	108096.67

Table 1: Perimeter, Pitch and Surface Area (units: ffi / ffi²)

Perimeter, Pitch and Surface Area

Label	Perimeter	Slope	Pitch	Surface Area
AH	130' 11 1/8"	14.95	3.2/12	937.62
AI	130' 9 13/32"	13.51	2.9/12	937.48
AJ	147' 8 3/32"	3.59	0.8/12	748.13
AK	109' 5 5/16"	2.78	0.6/12	747.12
AL	109' 3 1/32"	1.79	0.4/12	742.98
AM	126' 8 17/32"	14.01	3.0/12	683.02
AN	126' 8"	14.28	3.1/12	682.3
AO	126' 4 15/32"	13.57	2.9/12	678.1
AP	126' 4 9/32"	13.95	3.0/12	677.74
AQ	125' 11 1/4"	14.73	3.2/12	669.25
AR	125' 10 3/32"	14.8	3.2/12	667.3
AS	125' 7 9/32"	15.52	3.3/12	659.9
AT	68' 11 11/16"	1.96	0.4/12	285.98
AU	68' 7 29/32"	1.69	0.4/12	283.1
AV	75' 2 5/32"	14.51	3.1/12	250.03
AW	75' 2 23/32"	16.46	3.5/12	250.02
AX	62' 10 13/32"	1.06	0.2/12	232.17
AY	62' 4"	0.8	0.2/12	228.36
AZ	62' 3 17/32"	2.37	0.5/12	228.01
BA	61' 10 5/8"	3.43	0.7/12	227.25
BB	62' 0 13/16"	1.85	0.4/12	227.07
BC	61' 9 23/32"	2.42	0.5/12	226.91
BD	61' 11 15/16"	1.42	0.3/12	226.7
BE	71' 1 19/32"	6.8	1.4/12	226.29
BF	62' 2 7/8"	1.32	0.3/12	225.84
BG	60' 11 1/16"	1.3	0.3/12	219.65
BH	60' 10"	2.04	0.4/12	219.14
BI	60' 8 1/2"	2.28	0.5/12	217.46
BJ	60' 6 19/32"	1.56	0.3/12	216.67
BK	60' 8 29/32"	2.26	0.5/12	215.68
BL	60' 7 19/32"	1.59	0.3/12	215.62
BM	60' 7 1/8"	4.47	0.9/12	175.97
Total	-	-	-	13428.86

Table 1: Perimeter, Pitch and Surface Area (units: ffi / ffi²)

Perimeter, Pitch and Surface Area

Label	Perimeter	Slope	Pitch	Surface Area
BN	59' 0 31/32"	3.11	0.7/12	169.22
BO	46' 10 5/8"	2.31	0.5/12	136.79
BP	47' 2 15/32"	25.79	5.8/12	134.96
BQ	46' 10 3/32"	26.95	6.1/12	132.53
BR	44' 1 7/32"	27.48	6.2/12	120.57
BS	43' 11 7/16"	27.32	6.2/12	119.88
BT	43' 9 5/32"	26.67	6.0/12	118.78
BU	43' 9 11/32"	25.34	5.7/12	118.71
BV	43' 9 3/16"	28.33	6.5/12	118.68
BW	43' 4 3/4"	27.82	6.3/12	116.68
BX	43' 3 25/32"	26.15	5.9/12	116.47
BY	43' 2 1/8"	28.23	6.4/12	115.59
BZ	43' 1 5/32"	26.7	6.0/12	115.43
CA	43' 1 7/32"	26.25	5.9/12	115.25
CB	43' 1 1/8"	27.25	6.2/12	115.09
CC	42' 11 5/32"	27.5	6.2/12	114.61
CD	42' 11"	27.7	6.3/12	114.45
CE	42' 9 21/32"	26.29	5.9/12	113.94
CF	41' 7 15/32"	8.11	1.7/12	101.76
CG	44' 11 21/32"	26.69	6.0/12	90.93
CH	44' 10 13/32"	27.15	6.2/12	89.39
CI	44' 0 5/16"	26.7	6.0/12	87.61
CJ	40' 10"	27.03	6.1/12	86.81
CK	40' 10"	27.48	6.2/12	86.37
CL	40' 9 5/8"	27.4	6.2/12	85.93
CM	44' 1 5/8"	26.56	6.0/12	85.78
CN	43' 9 21/32"	25.83	5.8/12	84.81
CO	43' 9 5/8"	25.96	5.8/12	84.55
CP	40' 1 13/16"	24.33	5.4/12	82.3
CQ	39' 8 11/32"	14.31	3.1/12	80.78
CR	39' 8 25/32"	14.73	3.2/12	80.75
CS	20' 7 15/16"	43.46	11.4/12	20.16
Total	–	–	–	3355.56

Table 1: Perimeter, Pitch and Surface Area (units: ffi / ffi²)

Perimeter, Pitch and Surface Area

Label	Perimeter	Slope	Pitch	Surface Area
CT	20' 7 11/32"	43.52	11.4/12	20.08
CU	20' 6 5/8"	43.11	11.2/12	19.81
CV	20' 4 13/16"	42.79	11.1/12	19.61
Total	–	–	–	59.5

Table 1: Perimeter, Pitch and Surface Area (units: ffi / ffi²)

Edge Measurements.

Surface(s): L, M, N, O, P, Q, R, V, AH, AI, AT, AY, BB, BC, BF, BG, BJ, BN, CF, CI

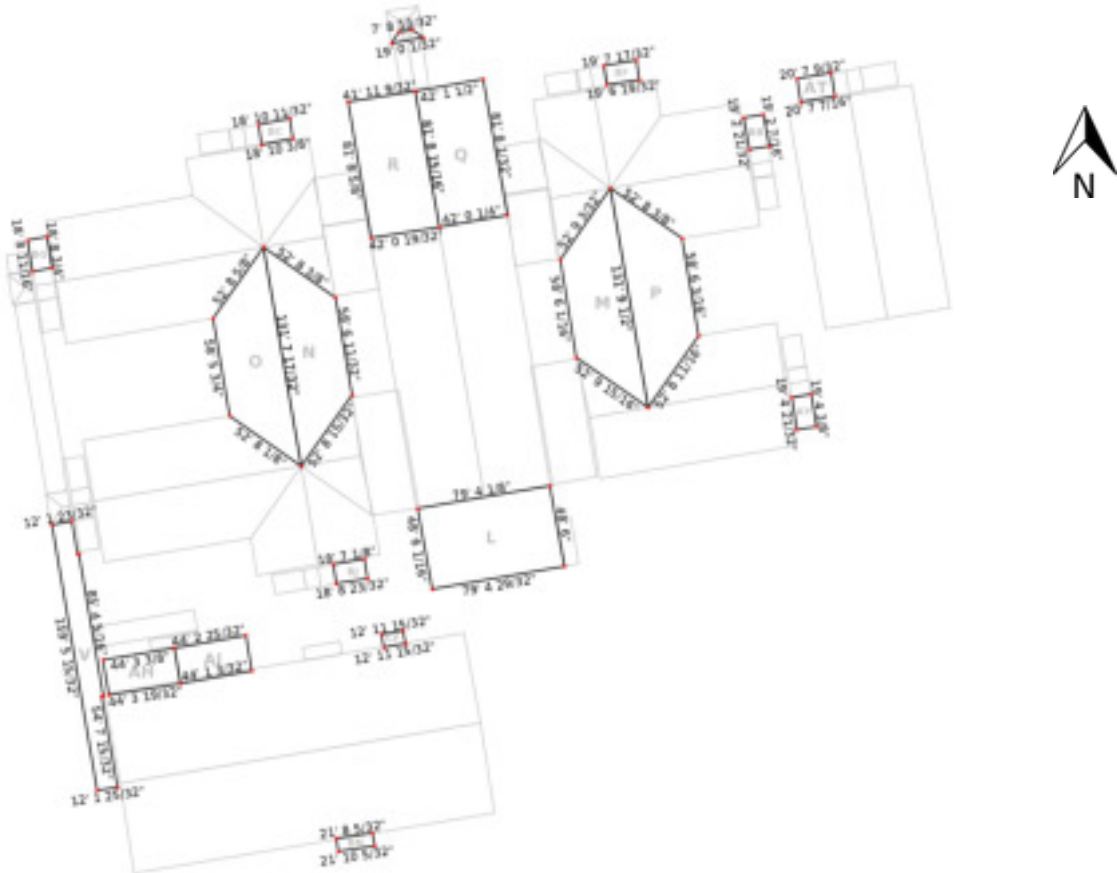


Figure 5: Edge Measurements

Edge Measurements.

Surface(s): W, X, Y, AB, AC, AD, AE, AF, AG, AU, AZ, BD, BZ, CD, CM, CQ, CR

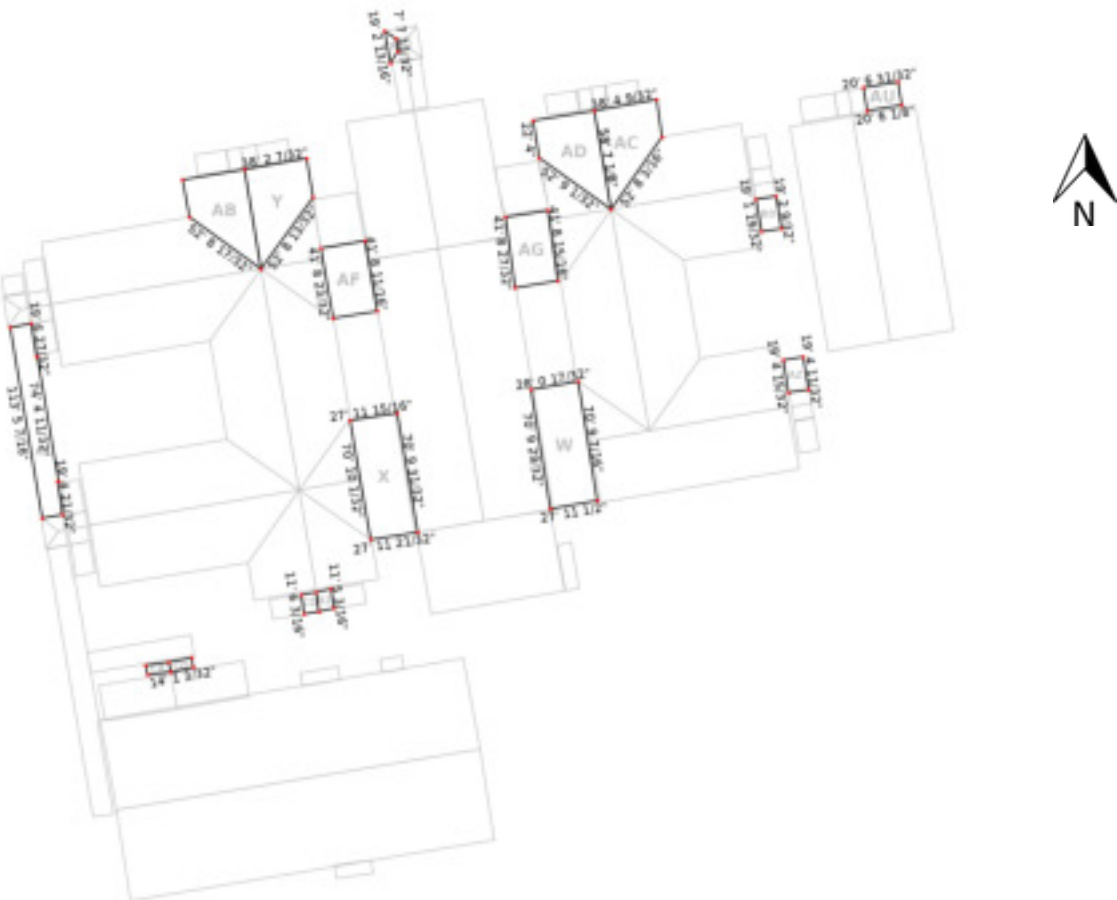


Figure 6: Edge Measurements

Edge Measurements.

Surface(s): Z, AA, AM, AN, AO, AP, AS, BH, BK, BP, BQ, BR, BS, BT, BU, BV, BW, BY, CA, CN

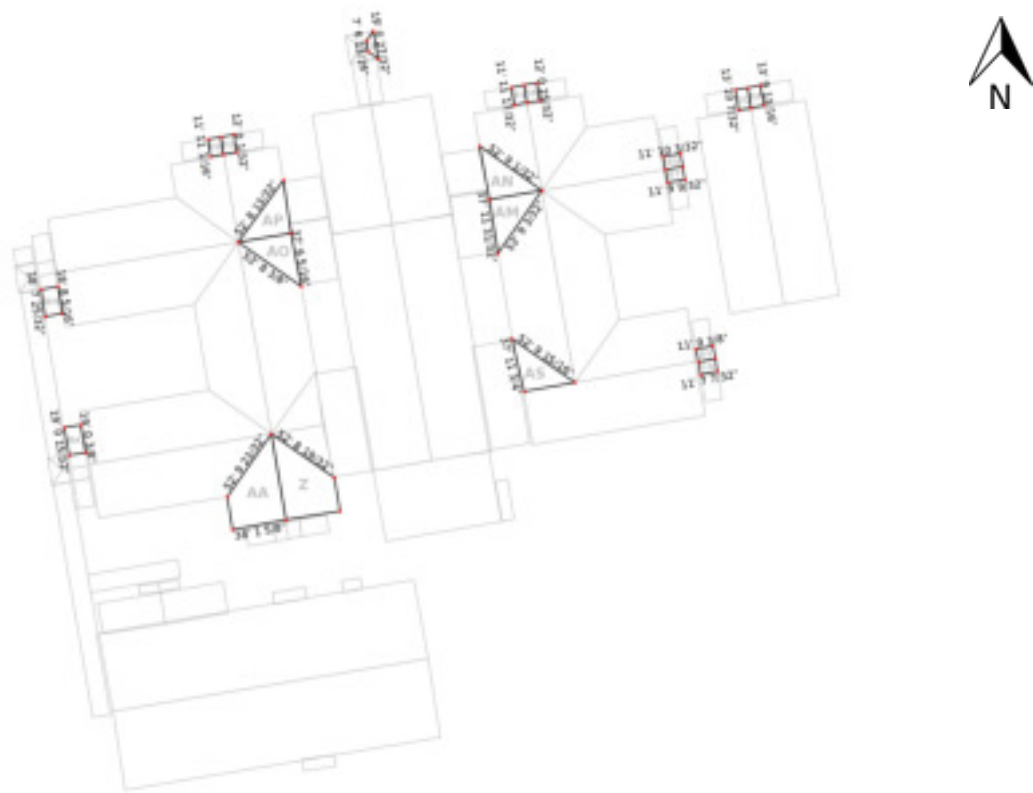


Figure 7: Edge Measurements

Edge Measurements.

Surface(s): AQ, AR, BL, BO, CO

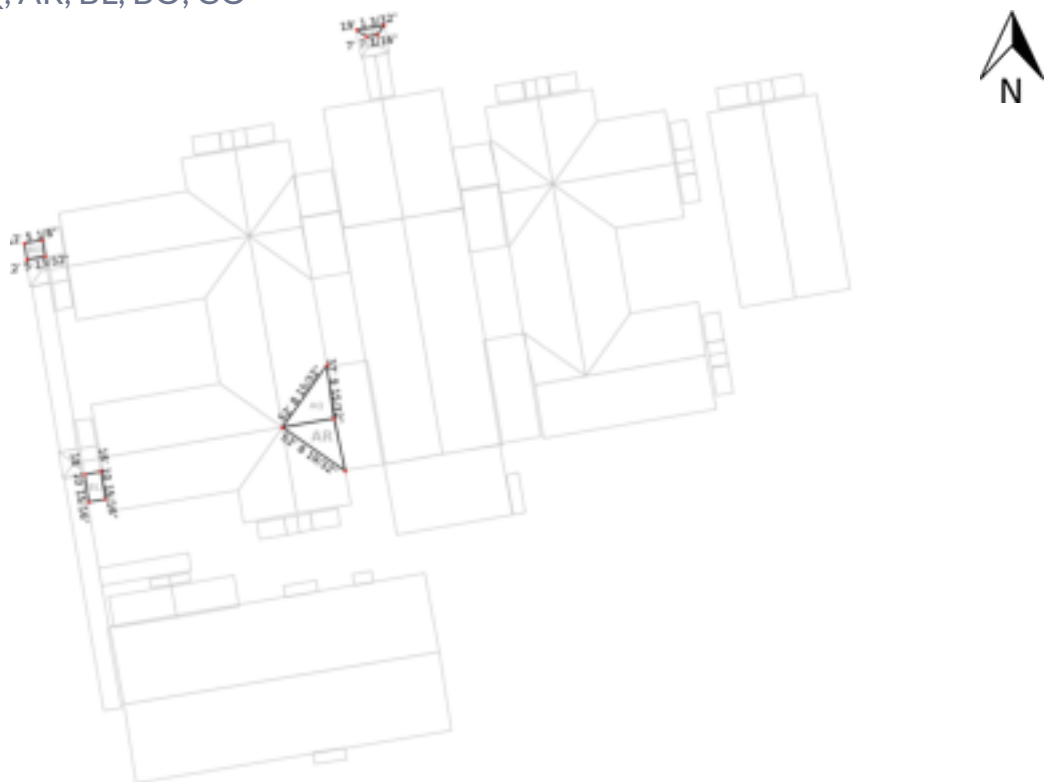


Figure 8: Edge Measurements

Surface(s): BX, CB, CC, CE, CS, CV

Figure 9: Edge Measurements

Surface(s): CJ, CK, CL, CP, CU

Figure 10: Edge Measurements

Edges Types



Figure 11: Roof Edge Classification (units: ffi)

Edge Type Summary

Classification	Edge Count	Total Length
VALLEY	14	738' 2 3/8"
EAVE	134	4440' 8 7/16"
RAKE	66	1840' 3 19/32"
HIP	12	114' 2 3/8"
FLASHING	0	0"
STEP_FLASHING	80	1725' 3 3/16"
UNKNOWN	0	0"
PARAPET	0	0"
Total	306	0

Table 2: Edge Type Summary (units: ffi)

