



## **Project Identification**

Project Name : 2024 Hailstorm Damage Repair Project – Metal Roof Replacement.

Project Number : CMC 1002203-8

Project Information : Reference Specifications and Documents Attached

You are hereby invited to submit a quote for the above-referenced project(s).

### **Following is a summary description of the project(s).**

#### **Bid A: Metal Roof Buildings**

Removal, disposal and replacement of the metal standing seam roofing systems on two (2) buildings in the City of Crosslake, Minnesota. Please reference the attached documents for a more detailed description of the scope of work for each building. Bids shall provide separate line items for Roofing and Gutter replacement for both buildings.

It is anticipated the project shall commence within 30 days after awarding the project and shall be completed by May 15, 2025. Completing after this date will result in a \$500 per day penalty.

To bid for this contract, the contractor must be licensed and insured. Proof of licensure and proof of insurance should be submitted with the bid. The bid proposal shall include a statement that the contractor complies with all applicable local, state, and federal statutory requirements, including the Equal Employment Opportunity Act and any other applicable requirements.

A performance bond for 100% of the quoted amount shall be required at the time of contract signing.

Bids will be received from September 12, 2024 until October 3, 2024, at 12:00 pm local time. Bid opening and awarding will take place on October 14, 2024.

All bids shall be hand delivered or sent to City of Crosslake: City Hall c/o Charlene Nelson, City Clerk.

Mailing Address: City of Crosslake 13888 Daggett Bay Road, Crosslake, MN 56442

Email Address: [cityclerk@cityofcrosslake.org](mailto:cityclerk@cityofcrosslake.org)

All Bids shall be submitted on this bid proposal form and shall be submitted prior to the deadline.

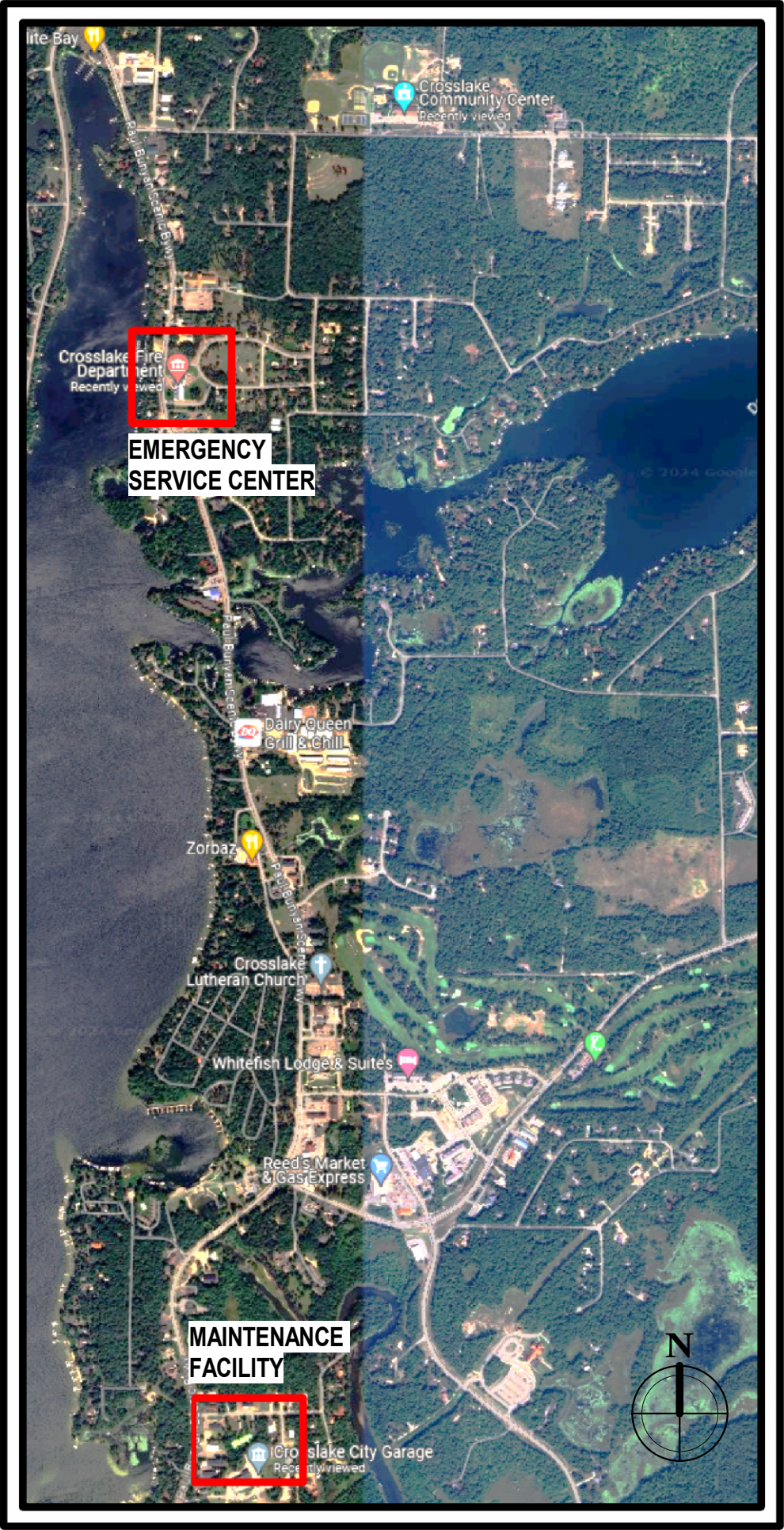
Any questions regarding the bid or the project shall be addressed to Charlene Nelson, City Clerk ([cityclerk@cityofcrosslake.org](mailto:cityclerk@cityofcrosslake.org)).

BUILDING		AMOUNT
Location #1 – Emergency Service Center		
	Metal Roofing System	
	Gutters	
	Total	
Location #11 – Maintenance Facility		
	Metal Roofing System	
	Gutters	
	Total	
Total Bid Amount		



# CITY OF CROSSLAKE ROOF HAIL DAMAGE METAL ROOF LOCATIONS

SHEET INDEX METAL ROOFS		
SHEET	SHEET NAME	REV
ARCHITECTURAL		
G0.0	COVER SHEET & SITE PLAN METAL ROOFS	
A1.0	EMERGENCY SERVICE CENTER	
A1.1	EMERGENCY SERVICE CENTER	
A2.0	MAINTENANCE FACILITY	
A2.1	MAINTENANCE FACILITY	



REV#	DATE	DESCRIPTION	BY	RVW



## ROOFING NOTES

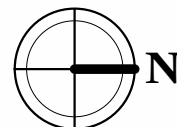
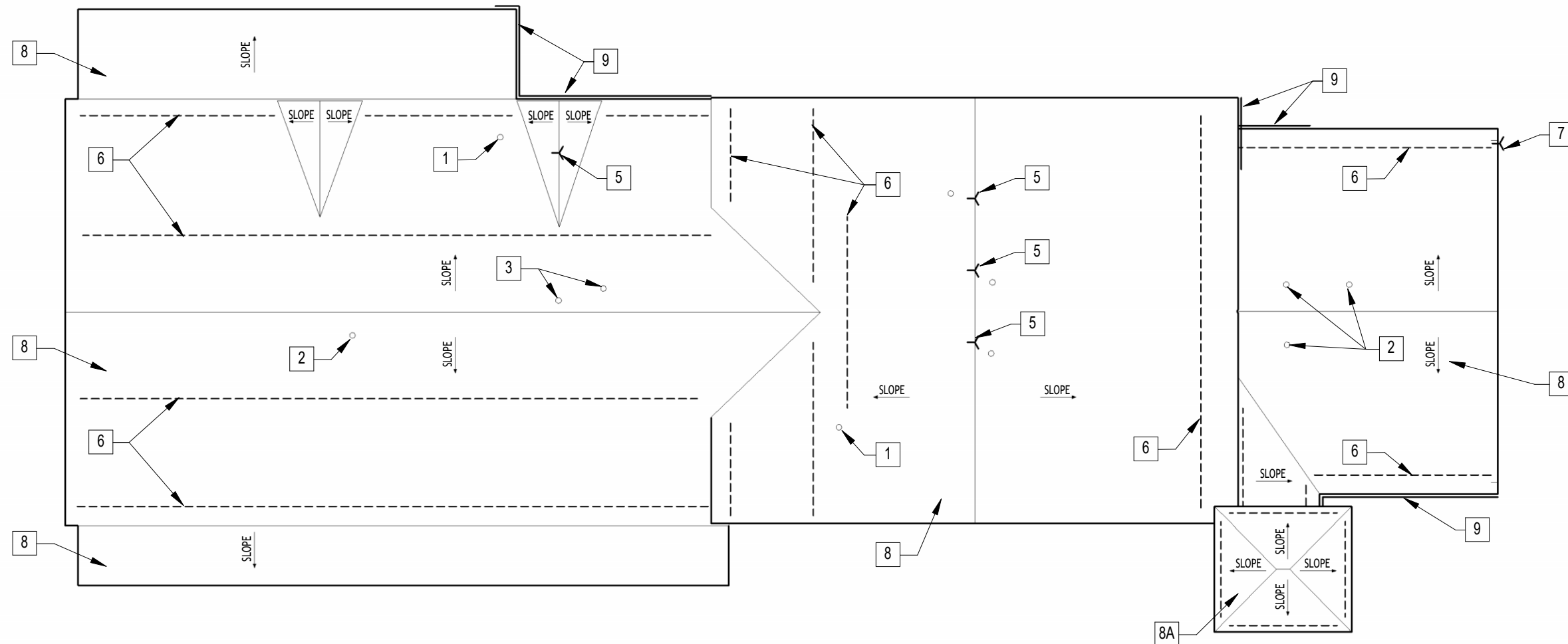
- SCOPE OF WORK INCLUDES:
  - REMOVAL OF EXISTING METAL ROOF & ALL COMPONENTS DOWN TO ROOF SHEATHING OR STRUCTURE SUPPORTING EXISTING ROOF.
  - INSTALLATION OF NEW STANDING SEAM METAL ROOF & ALL REQUIRED COMPONENTS TO MATCH EXISTING TYPE & QUALITY.
  - REMOVAL OF EXISTING GUTTERS.
  - REMOVAL FROM SITE & DISPOSAL OF ALL MATERIAL REMOVED FROM ROOF IS TO BE CONTRACTOR'S RESPONSIBILITY.
  - RESTORATION OF THE SITE/TURF AROUND BUILDING, TO INCLUDE ACCESS PATHS, IS TO BE CONTRACTOR'S RESPONSIBILITY.
- INSTALLATION OF NEW SHINGLES:
  - TO MEET 2020 MINNESOTA BUILDING CODE
  - INDUSTRY STANDARD PRACTICES
  - MANUFACTURER INSTALLATION INSTRUCTIONS.
- INSTALLATION OF NEW GUTTERS TO MATCH LOCATION & SIZE OF EXISTING. CONTRACTOR TO FIELD VERIFY SIZE & LINEAR FEET NOTED IN DRAWINGS.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE & PROTECT ANY ROOF APPURTENANCES THAT ARE NOT PART OF THE ROOF SYSTEM & TO REINSTALL AFTER NEW ROOF SYSTEM HAS BEEN INSTALLED. CONTRACTOR TO COORDINATE WITH CITY PRIOR TO REMOVAL.
- CONTRACTOR TO PROVIDE ALL REQUIRED COMPONENTS TO INSTALL NEW ROOF TO MATCH EXISTING ROOF INSTALLATION.
  - FLASHING
  - RIDGE CAP
  - EDGE TRIM/FLASHING
  - KICKOUT FLASHING WHERE ROOF INTERSECTS WITH A WALL
  - VALLEY FLASHING
  - ALL REQUIRED UNDERLAYMENTS TO MATCH EXISTING INSTALLATION, TO INCLUDE ICE & WATER SHIELD MEMBRANE.
- ALL EXISTING GUTTERS & RAINLEADERS ARE TO BE REMOVED & RE-INSTALLED. CONTRACTOR'S OPTION TO INSTALL NEW GUTTERS & RAINLEADERS IN-LEU OF RE-INSTALLING EXISTING.
- ALL PVC & METAL PENETRATIONS ARE TO BE PAINTED TO MATCH ROOF SHINGLE COLOR OR EXISTING PENETRATION COLOR. PREPARE SURFACES AS REQUIRED FOR PAINT APPLICATION.
- NEW ROOF COLOR TO MATCH EXISTING COLOR. COORDINATE WITH OWNER IF EXISTING COLOR IS NOT AVAILABLE.

## **BUILDING/SITE INFORMATION**

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1. ROOF TO BE COVERED BY INDUSTRY STANDARD WARRANTY FOR STANDING SEAM METAL ROOF. PROVIDE CERTIFIED WARRANTY DOCUMENTS TO OWNER AFTER INSTALLATION.
  - A. TOTAL SQUARE FOOTAGE OF ROOF = 20,506 SF
  - B. WASTE FACTOR NOT INCLUDED. REFERENCE 'HOVER' REPORT FOR WASTE FACTOR CALCULATIONS.
2. HEIGHT OF SOFFIT ABOVE GRADE:
  - A. MAIN BUILDING - NORTH: 11' - 6"
  - B. MAIN BUILDING - SOUTH: 11' - 6"
  - C. GARAGE BUILDING: 18' - 0" (ACCESS FROM NORTH/SOUTH ROOFS)
3. ROOF APPURTENANCES: (SEE ROOF PLAN FOR LOCATIONS)
  - A. (2) FURNACE EXHAUST FLUES
  - B. (6) VENT PIPES
  - C. (5) ANTENNA
  - D. CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL COUNTS & SIZES OF PENETRATIONS THROUGH ROOF.
4. BUILDING IS CLEAR OF OBSTRUCTIONS THE FULL PERIMETER EXCEPT FOR THE ENTRANCE AT THE SOUTHWEST CORNER. SMALL TREES ARE LOCATED CLOSE TO LOWER SLOPED ROOF.
5. SEE APPENDIX A-1 FOR HOVER REPORT WITH DETAILED MEASUREMENTS.
6. GOOGLE MAPS LOCATION:
  - A. 37028 COUNTY RD 66, CROSSLAKE, MN 56442

Key #	Description
1	EXISTING EXHAUST FLUE - 5" DIAMETER. PROVIDE NEW BOOT & SNOW/ICE PROTECTION PER INDUSTRY STANDARDS.
2	EXISTING PVC VENT PIPE - 4 1/2" OD. PROVIDE NEW BOOT PER INDUSTRY STANDARDS.
3	EXISTING PVC VENT PIPE - 3 1/2" OD. PROVIDE NEW BOOT PER INDUSTRY STANDARDS.
5	EXISTING ANTENNAE WITH TRIPOD MOUNT. REMOVE & REINSTALL. PROVIDE WATERPROOF INSTALLATION AT BASE PLATES & ROOF. PROVIDE WATERPROOF BOOT FOR ALL ELECTRICAL/CABLE PENETRATIONS THROUGH ROOF.
6	EXISTING SNOW & ICE STOP. PROVIDE NEW TO MATCH EXISTING AT ALL EXISTING LOCATIONS. INSTALL PER ROOF MANUFACTURER'S INSTALLATION INSTRUCTIONS.
7	EXISTING ANTENNAE WITH SIDEWALL MOUNT. REMOVE & REINSTALL. PROVIDE WATERPROOF INSTALLATION AT BASE PLATES & ROOF. PROVIDE WATERPROOF BOOT/COVER/SEALANT FOR ALL PENETRATIONS THROUGH ROOF.
8	EXISTING STANDING SEAM 22 GAUGE METAL ROOF WITH SEAMS @ 16" OC.
8A	EXISTING STANDING SEAM 22 GAUGE METAL ROOF WITH SEAMS @ 16" OC. ROOF IS AT TOWER, SEE HOVER REPORT IN APPENDIX A-1 FOR DIMENSIONS.
9	REMOVE & REPLACE EXISTING GUTTERS WITH NEW GUTTERS TO MATCH EXISTING IN SIZE & LOCATION. EXISTING RAIN LEADERS TO REMAIN. APPROXIMATELY 100'-0" IN ALL LOCATIONS. NEW GUTTERS TO BE 6" DEEP PROFILE TO MATCH EXISTING. CONTRACTOR TO PROVIDE ALL REQUIRED HANGERS & ACCESSORIES FOR INSTALLATION & CONNECTION TO EXISTING RAIN LEADERS.



## CITY OF CROSSLAKE

106486

10 SEPT 2024

[illegible]

CITY OF CROSSLAKE, MN / CLAIM REF NO. CMC 1002203-8  
13888 Daggett Bay Road Crosslake, MN 56442

# A1.0





SOUTHWEST CORNER



SOUTH BUILDING FRONT



TYPICAL ROOF EDGE & STANDING SEAM



NORTH BUILDING FRONT



ROOF @ SIDEWALL



SOUTHEAST CORNER



TYPICAL ICE/SNOW STOP




FLASHING @ SIDEWALL OF TOWER



TYPICAL FLUE & ICE/SNOW STOP



ANTENNA @ GARAGE RIDGE



ENGINEERING SYSTEMS, INC.  
4215 Campus Drive  
Aurora, Illinois 60504  
630-851-4566 Phone

PROJECT LOCATION  
CITY OF CROSSLAKE

ESI PROJECT NO.  
106486

ORIGINAL ISSUE  
10 SEPT 2024

REV#	DATE	DESCRIPTION	BY	RVW

EMERGENCY SERVICE CENTER

CITY OF CROSSLAKE, MN / CLAIM REF NO. CMC 1002203-8  
13888 Daggett Bay Road Crosslake, MN 56442

08/22/24

A1.1



ROOFING NOTES

1. SCOPE OF WORK INCLUDES:

A. REMOVAL OF EXISTING METAL ROOF & ALL COMPONENTS DOWN TO ROOF SHEATHING OR STRUCTURE SUPPORTING EXISTING ROOF.

B. INSTALLATION OF NEW STANDING SEAM METAL ROOF & ALL REQUIRED COMPONENTS TO MATCH EXISTING TYPE & QUALITY.

C. REMOVAL OF EXISTING GUTTERS.

D. REMOVAL FROM SITE & DISPOSAL OF ALL MATERIAL REMOVED FROM ROOF IS TO BE CONTRACTOR'S RESPONSIBILITY.

E. RESTORATION OF THE SITE/TURF AROUND BUILDING, TO INCLUDE ACCESS PATHS, IS TO BE CONTRACTOR'S RESPONSIBILITY.

2. INSTALLATION OF NEW SHINGLES:

A. TO MEET 2020 MINNESOTA BUILDING CODE

B. INDUSTRY STANDARD PRACTICES

C. MANUFACTURER INSTALLATION INSTRUCTIONS.

3. INSTALLATION OF NEW GUTTERS TO MATCH LOCATION & SIZE OF EXISTING.

CONTRACTOR TO FIELD VERIFY SIZE & LINEAR FEET NOTED IN DRAWINGS.

4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE & PROTECT ANY ROOF APPURTENANCES THAT ARE NOT PART OF THE ROOF SYSTEM & TO REINSTALL AFTER NEW ROOF SYSTEM HAS BEEN INSTALLED. CONTRACTOR TO COORDINATE WITH CITY PRIOR TO REMOVAL.

5. CONTRACTOR TO PROVIDE ALL REQUIRED COMPONENTS TO INSTALL NEW ROOF TO MATCH EXISTING ROOF INSTALLATION.

A. FLASHING

B. RIDGE CAP

C. EDGE TRIM/FLASHING

D. KICKOUT FLASHING WHERE ROOF INTERSECTS WITH A WALL

E. VALLEY FLASHING

F. ALL RQUIRED UNDERLAYMENTS TO MATCH EXISTING INSTALLATION, TO INCLUDE ICE & WATER SHIELD MEMBRANE.

6. ALL EXISTING GUTTERS & RAINLEADERS ARE TO BE REMOVED & RE-INSTALLED. CONTRACTOR'S OPTION TO INSTALL NEW GUTTERS & RAINLEADERS IN-LEU OF RE-INSTALLING EXISTING.

7. ALL PVC & METAL PENETRATIONS ARE TO BE PAINTED TO MATCH ROOF SHINGLE COLOR OR EXISTING PENETRATION COLOR. PREPARE SURFACES AS REQUIRED FOR PAINT APPLICATION.

8. NEW ROOF COLOR TO MATCH EXISTING COLOR. COORDINATE WITH OWNER IF EXISTING COLOR IS NOT AVAILABLE.

BUILDING/SITE INFORMATION

1. ROOF TO BE COVERED BY INDUSTRY STANDARD WARRANTY FOR STANDING SEAM METAL ROOF. PROVIDE CERTIFIED WARRANY DOCUMENTS TO OWNER AFTER INSTALLATION.

A. TOTAL SQUARE FOOTAGE OF ROOF = 28,108 SF

B. WASTE FACTOR NOT INCLUDED. REFERENCE 'HOVER' REPORT FOR WASTE FACTOR CALCULATIONS.

2. HEIGHT OF SOFFIT ABOVE GRADE:

A. FRONT OF BUILDING: 16' - 0"

B. REAR OF BUILDING: 20' - 9"

3. ROOF APPURTENANCES: (SEE ROOF PLAN FOR LOCATIONS)

A. (4) FURNACE EXHAUST FLUES

B. (4) VENT PIPES

C. (1) ANTENNAE

D. CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL COUNTS & SIZES OF PENETRATIONS THROUGH ROOF.

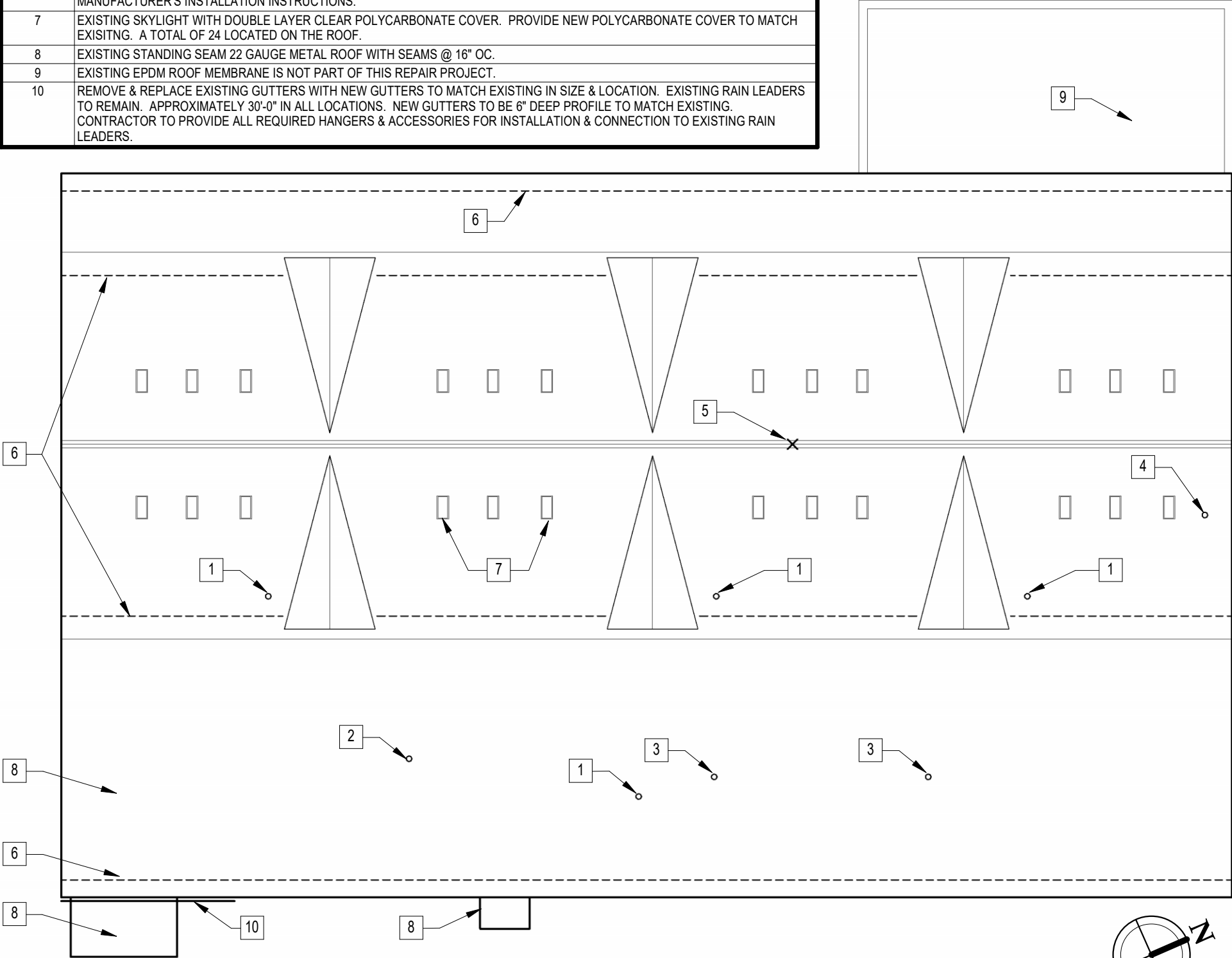
4. BUILDING IS CLEAR OF OBSTRUCTIONS THE FULL PERIMETER EXCEPT FOR THE ENTRANCE AT THE SOUTHWEST CORNER. SMALL TREES ARE LOCATED CLOSE TO LOWER SLOPED ROOF.

5. SEE APPENDIX A-1 FOR HOVER REPORT WITH DETAILED MEASUREMENTS.

6. GOOGLE MAPS LOCATION:

A. 13870 Whipple Dr, Crosslake, MN 56442

MAINTENANCE FACILITY KEY LEGEND	
Key #	Description
1	EXISTING EXHAUST FLUE - 5" DIAMETER. PROVIDE NEW BOOT & SNOW/ICE PER INDUSTRY STANDARDS.
2	EXISTING PVC VENT PIPE - 4 1/2" OD. PROVIDE NEW BOOT PER INDUSTRY STANDARDS.
3	EXISTING PVC VENT PIPE - 3 1/2" OD. PROVIDE NEW BOOT PER INDUSTRY STANDARDS.
4	EXISTING METAL VENT PIPE - 3 1/2" OD. PROVIDE NEW BOOT PER INDUSTRY STANDARDS.
5	EXISTING ANTENNAE WITH TRIPOD MOUNT. REMOVE & REINSTALL. PROVIDE WATERPROOF INSTALLATION AT BASE PLATES & ROOF. PROVIDE WATERPROOF BOOT FOR ALL ELECTRICAL/CABLE PENETRATIONS THROUGH ROOF.
6	EXISTING SNOW & ICE STOP. PROVIDE NEW TO MATCH EXISTING AT ALL EXISITNG LOCATIONS. INSTALL PER ROOF MANUFACTURER'S INSTALLATION INSTRUCTIONS.
7	EXISTING SKYLIGHT WITH DOUBLE LAYER CLEAR POLYCARBONATE COVER. PROVIDE NEW POLYCARBONATE COVER TO MATCH EXISITNG. A TOTAL OF 24 LOCATED ON THE ROOF.
8	EXISTING STANDING SEAM 22 GAUGE METAL ROOF WITH SEAMS @ 16" OC.
9	EXISTING EPDM ROOF MEMBRANE IS NOT PART OF THIS REPAIR PROJECT.
10	REMOVE & REPLACE EXISTING GUTTERS WITH NEW GUTTERS TO MATCH EXISTING IN SIZE & LOCATION. EXISTING RAIN LEADERS TO REMAIN. APPROXIMATELY 30'-0" IN ALL LOCATIONS. NEW GUTTERS TO BE 6" DEEP PROFILE TO MATCH EXISTING. CONTRACTOR TO PROVIDE ALL REQUIRED HANGERS & ACCESSORIES FOR INSTALLATION & CONNECTION TO EXISTING RAIN LEADERS.



ENGINEERING SYSTEMS, INC.

4215 Campus Drive  
Aurora, Illinois 60504  
630-851-4566 Phone

PROJECT LOCATION  
CITY OF CROSSLAKE

ESI PROJECT NO.  
106486  
ORIGINAL ISSUE  
10 SEPT 2024

REV#						
DATE						
DESCRIPTION						
BY						
RVW						

MAINTENANCE FACILITY  
CITY OF CROSSLAKE, MN / CLAIM REF NO. CMC 1002203-8  
13888 Daggett Bay Road Crosslake, MN 56442

LOCATION #11

A2.0





SLOPED ROOF @ MAIN ENTRANCE



VALLEY FLASHING @ DORMER &  
ROOF SLOPE TRANSITION



TYPICAL ROOF CORNER



ANTENNA @ RIDGE



MAIN ROOF @ LOWER EPDM ROOF @ NORTHEAST  
CORNER




TYPICAL SKYLIGHT



TYPICAL FLUE PENETRATION



TYPICAL SNOW/ICE STOP



**ENGINEERING SYSTEMS, INC.**  
4215 Campus Drive  
Aurora, Illinois 60504  
630-851-4566 Phone

**PROJECT LOCATION**  
CITY OF CROSSLAKE

**ESI PROJECT NO.**  
106486

**ORIGINAL ISSUE**  
10 SEPT 2024

REV#	DATE	DESCRIPTION	BY	RVW

**MAINTENANCE FACILITY**


CITY OF CROSSLAKE, MN / CLAIM REF NO. CMC 1002203-8  
13888 Daggett Bay Road Crosslake, MN 56442

08/22/24

**A2.1**

HOVER REPORTS

EMERGENCY SERVICE CENTER  
MAINTENANCE FACILITY



ENGINEERING SYSTEMS, INC.  
4215 Campus Drive  
Aurora, Illinois 60504  
630-851-4566 Phone

PROJECT LOCATION

CITY OF CROSSLAKE

ESI PROJECT NO.

106486

ORIGINAL ISSUE

6 SEPT 2024

REV#	DATE	DESCRIPTION	BY	RVW

APPENDIX

CITY OF CROSSLAKE, MN / CLAIM REF NO. CMC 1002203-8  
37028 COUNTY ROAD 66, CROSSLAKE MN


09/06/24

A-1



HOVER REPORTS

EMERGENCY SERVICE CENTER  
MAINTENANCE FACILITY



ENGINEERING SYSTEMS, INC.  
4215 Campus Drive  
Aurora, Illinois 60504  
630-851-4566 Phone

PROJECT LOCATION  
CITY OF CROSSLAKE

ESI PROJECT NO.  
106486

ORIGINAL ISSUE  
22 AUG 2024

APPENDIX

CITY OF CROSSLAKE, MN / CLAIM REF NO. CMC 1002203-8  
37028 COUNTY ROAD 66, CROSSLAKE MN

05/04/21

A-1

PRELIMINARY FOR REVIEW ONLY – NOT FOR CONSTRUCTION

REV#	DATE	DESCRIPTION	BY	RVW



[VIEW 3D MODEL](#)



Areas	Siding	Other
Facades	6578 ft <sup>2</sup>	3908 ft <sup>2</sup>
Openings	2270 ft <sup>2</sup>	221 ft <sup>2</sup>
Trims*	260 ft <sup>2</sup>	-
Unknown (no photos)*	-	-
Total	9108 ft <sup>2</sup>	4129 ft <sup>2</sup>

\*Any trim or unknown material that touches siding is included in the 'Siding' column. If it does not touch siding, then it's included in the 'Other' column.

Openings	Siding	Other
Quantity	40	10
Tops Length	259' 7"	42' 9"
Sills Length	80' 6"	39' 5"
Sides Length	475' 5"	115' 9"
Total Perimeter	815' 7"	197' 10"

Corners	Siding	Other
Inside Qty	8	7
Inside Length	65' 4"	107' 9"
Outside Qty	7	426
Outside Length	73' 3"	881' 6"

Accessories	Siding	Other
Shutter Qty	0	0
Shutter Area	0 ft <sup>2</sup>	0 ft <sup>2</sup>
Vents Qty	8	2
Vents Area	41 ft <sup>2</sup>	9 ft <sup>2</sup>

Trim	Siding	Other
Level Starter	847' 1"	942' 7"
Sloped Trim	63' 6"	23' 4"
Vertical Trim	27' 4"	15' 9"

Roofline	Length	Avg. Depth	Soffit Area
Eaves Fascia	493' 6"	-	-
Level Frieze Board	500' 6"	2' 9"	3026 ft <sup>2</sup>
Rakes Fascia	413' 1"	-	-
Sloped Frieze Board	370'	1' 3"	425 ft <sup>2</sup>

### SIDING WASTE TOTALS

Siding & Trim Only*	Area	Squares
Zero Waste	6838 ft <sup>2</sup>	68½
+10%	7521 ft <sup>2</sup>	75¼
+18%	8070 ft <sup>2</sup>	80¾

+ Openings < 20ft <sup>2</sup>	Area	Squares
Zero Waste	7301 ft <sup>2</sup>	73¼
+10%	8030 ft <sup>2</sup>	80½
+18%	8617 ft <sup>2</sup>	86¼

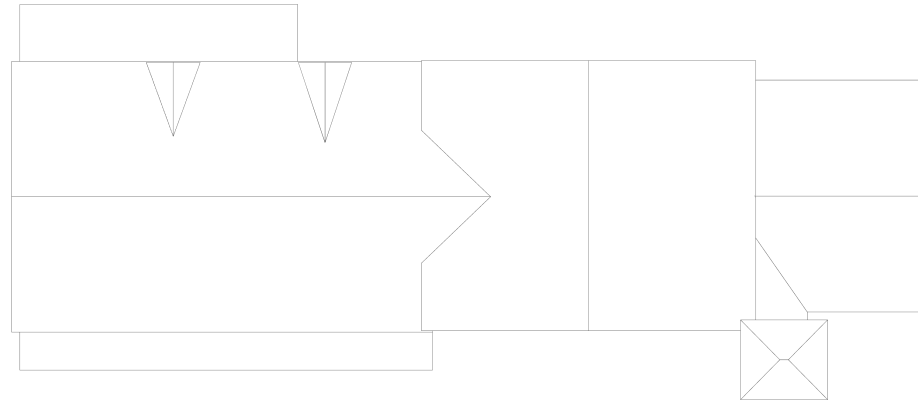
+ Openings < 33ft <sup>2</sup>	Area	Squares
Zero Waste	7322 ft <sup>2</sup>	73¼
+10%	8053 ft <sup>2</sup>	80¾
+18%	8641 ft <sup>2</sup>	86½

\*The first three rows of the Siding Waste Factor table are calculated using the total ft<sup>2</sup> of siding facades, ft<sup>2</sup> of trim touching siding, and ft<sup>2</sup> of unknowns touching siding.

Roof	Area	Total	Length
Roof Facets	20506 ft <sup>2</sup>	17	-
Ridges / Hips	-	10	345' 11"
Valleys	-	9	170' 5"
Rakes	-	18	413' 1"
Eaves	-	16	493' 6"
Flashing	-	8	51' 8"
Step Flashing	-	8	78' 5"
Drip Edge/Perimeter	-	-	906' 7"

Roof Pitch*	Area	Percentage
4 / 12	17355 ft <sup>2</sup>	84.63%
2 / 12	2211 ft <sup>2</sup>	10.78%
6 / 12	540 ft <sup>2</sup>	2.63%
12 / 12	212 ft <sup>2</sup>	1.03%

\* Only top 4 values shown. Reference Roof Pitch page for all values.

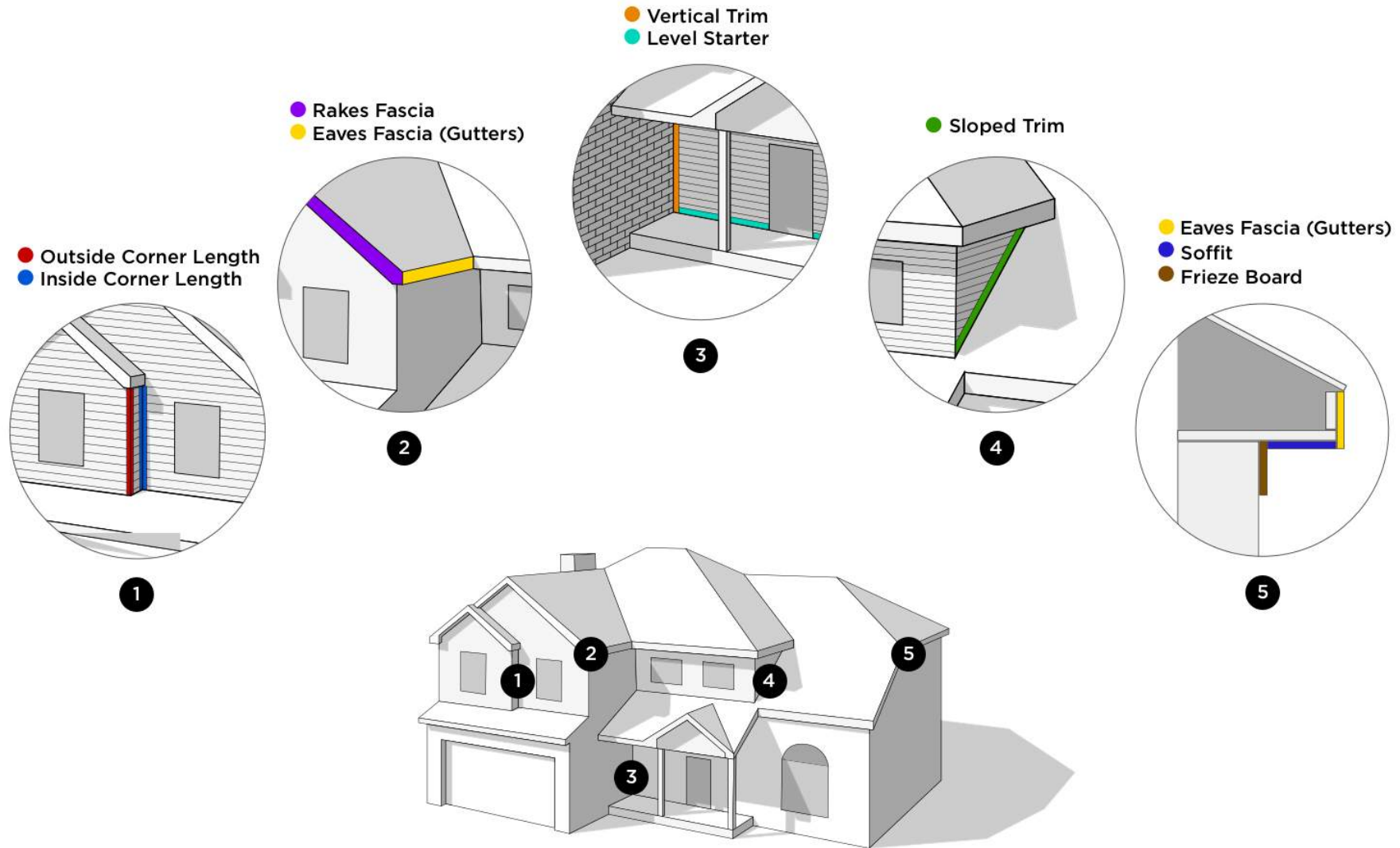


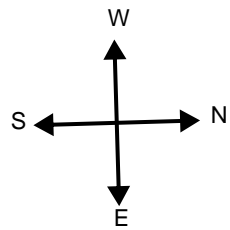
### Example Waste Factor Calculations

	Zero Waste	+5%	+10%	+15%	+20%
Area	20506 ft <sup>2</sup>	21531 ft <sup>2</sup>	22557 ft <sup>2</sup>	23582 ft <sup>2</sup>	24607 ft <sup>2</sup>
Squares	205⅓	215⅓	225⅔	236	246⅓

The table above provides the total roof area of a given property using waste percentages as noted. Please consider that area values and specific waste factors can be influenced by the size and complexity of the property, captured image quality, specific roofing techniques, and your own level of expertise. Additional square footage for Hip, Ridge, and Starter shingles are not included in this waste factor and will require additional materials. This table is only intended to make common waste calculations easier and should not be interpreted as recommendations.



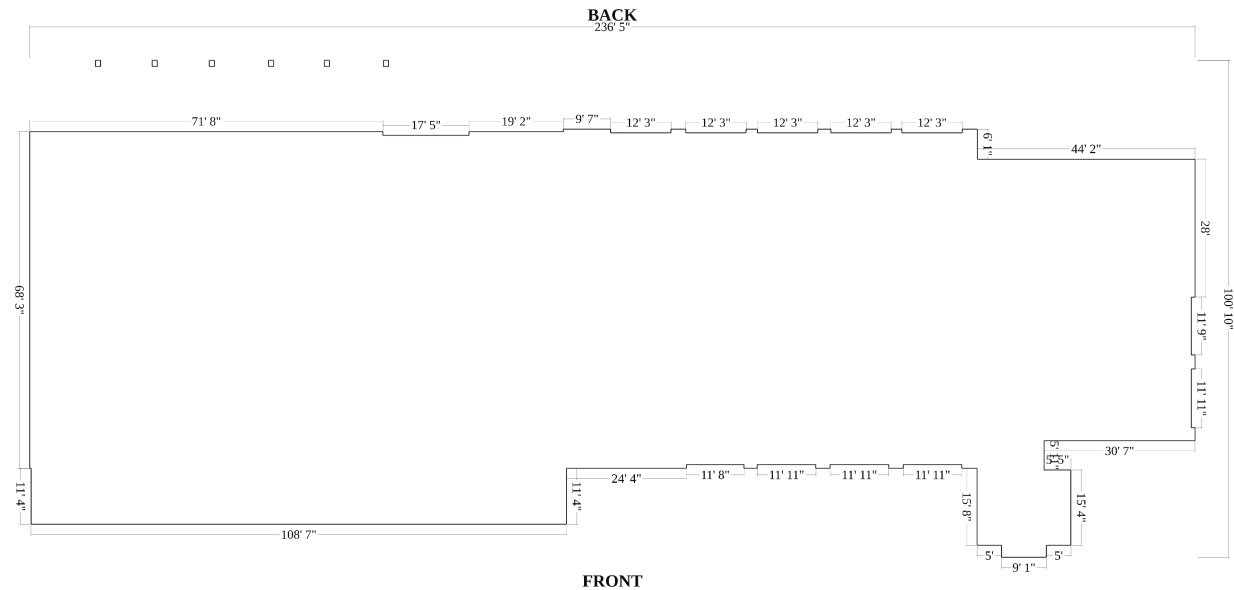




Number of Stories: 1

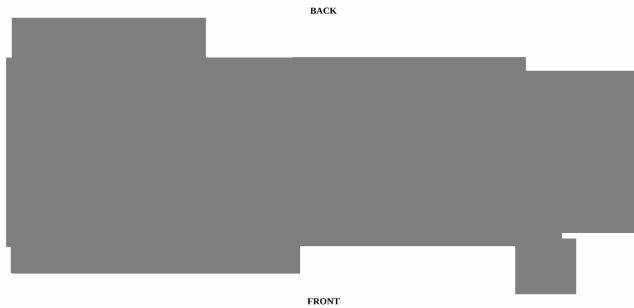
Footprint Perimeter: 725' 8"

Footprint Area: 17215 ft<sup>2</sup>

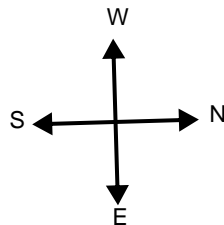


Siding Per Elevation

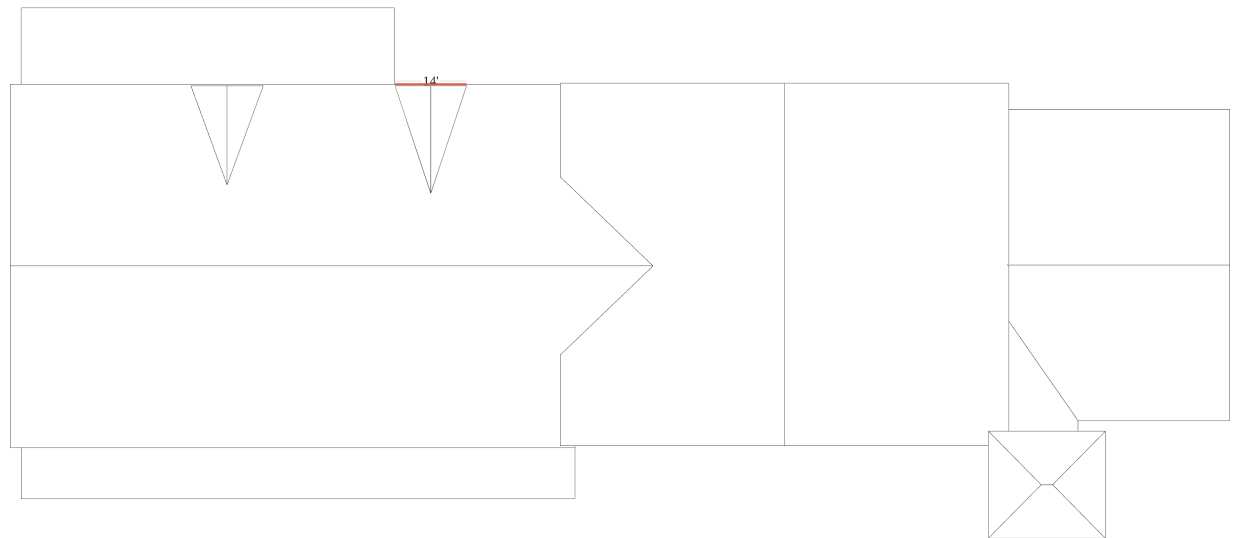
FRONT			RIGHT			LEFT			BACK		
SI-1	-	972 ft <sup>2</sup>	SI-6	-	20 ft <sup>2</sup>	SI-19	-	3 ft <sup>2</sup>	SI-12	-	462 ft <sup>2</sup>
SI-2	-	859 ft <sup>2</sup>	SI-7	-	69 ft <sup>2</sup>	SI-20	-	35 ft <sup>2</sup>	SI-13	-	427 ft <sup>2</sup>
SI-3	-	64 ft <sup>2</sup>	SI-8	-	137 ft <sup>2</sup>	SI-21	-	31 ft <sup>2</sup>	SI-14	-	113 ft <sup>2</sup>
SI-4	-	431 ft <sup>2</sup>	SI-10	-	193 ft <sup>2</sup>	SI-22	-	658 ft <sup>2</sup>	SI-15	-	691 ft <sup>2</sup>
SI-5	-	163 ft <sup>2</sup>	SI-11	-	303 ft <sup>2</sup>	SI-23	-	389 ft <sup>2</sup>	SI-16	-	189 ft <sup>2</sup>
SI-9	-	306 ft <sup>2</sup>							SI-17	-	33 ft <sup>2</sup>
									SI-18	-	30 ft <sup>2</sup>
2795 ft <sup>2</sup>			722 ft <sup>2</sup>			1116 ft <sup>2</sup>			1945 ft <sup>2</sup>		



Number of Stories: 1



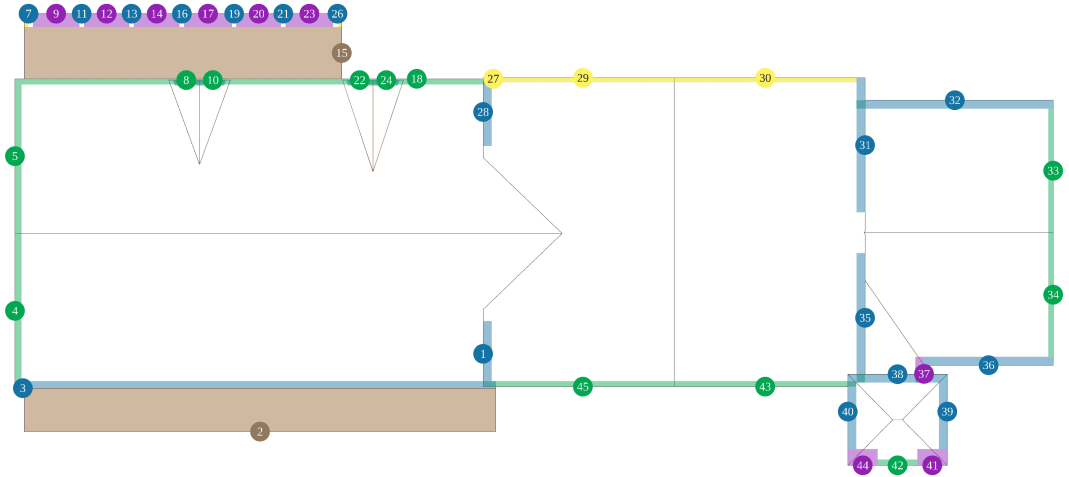
	Cornice Strips	Length	Count
	Strips Story 1	14'	1
	<b>Total</b>	<b>14'</b>	<b>1</b>





### Soffit Summary

Depth	Type	Count	Total Length	Total Area
6" - 12"	rakes	4	90' 11"	91 ft <sup>2</sup>
	eaves	1	9"	1 ft <sup>2</sup>
12" - 18"	rakes	10	256' 1"	334 ft <sup>2</sup>
	eaves	2	117' 4"	153 ft <sup>2</sup>
18" - 24"	eaves	17	338' 5"	626 ft <sup>2</sup>
24" - 48"	eaves	9	83' 8"	263 ft <sup>2</sup>
> 48"	eaves	2	181' 8"	1984 ft <sup>2</sup>
Totals			1068' 11"	3451 ft <sup>2</sup>



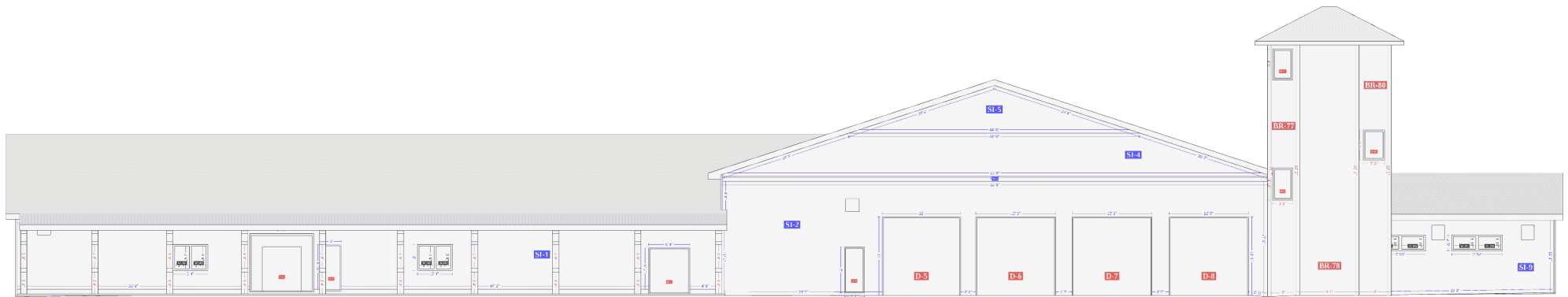
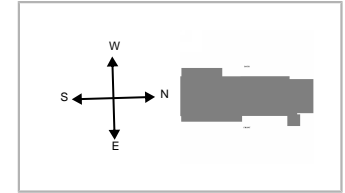
## Soffit Breakdown

	num	Type	Depth	Length	Area	Pitch
●	1	eave	24"	15' 1"	30 ft <sup>2</sup>	4 / 12
●	2	eave	122"	108' 7"	1101 ft <sup>2</sup>	2 / 12
●	3	eave	20"	109' 3"	179 ft <sup>2</sup>	4 / 12
●	4	rake	18"	37' 7"	56 ft <sup>2</sup>	4 / 12
●	5	rake	18"	37' 7"	56 ft <sup>2</sup>	4 / 12
✂	6	rake	11"	1' 3"	1 ft <sup>2</sup>	2 / 12
●	7	eave	22"	2'	4 ft <sup>2</sup>	2 / 12
●	8	rake	16"	8' 4"	10 ft <sup>2</sup>	11 / 12
●	9	eave	37"	10' 9"	33 ft <sup>2</sup>	2 / 12
●	10	rake	16"	8' 4"	10 ft <sup>2</sup>	11 / 12
●	11	eave	22"	1'	2 ft <sup>2</sup>	2 / 12
●	12	eave	37"	10' 5"	33 ft <sup>2</sup>	2 / 12
●	13	eave	22"	1'	2 ft <sup>2</sup>	2 / 12
●	14	eave	37"	10' 7"	33 ft <sup>2</sup>	2 / 12
●	15	eave	145"	73' 1"	883 ft <sup>2</sup>	2 / 12
●	16	eave	22"	1'	2 ft <sup>2</sup>	2 / 12
●	17	eave	37"	11'	34 ft <sup>2</sup>	2 / 12
●	18	eave	16"	108' 3"	141 ft <sup>2</sup>	4 / 12
●	19	eave	22"	1'	2 ft <sup>2</sup>	2 / 12

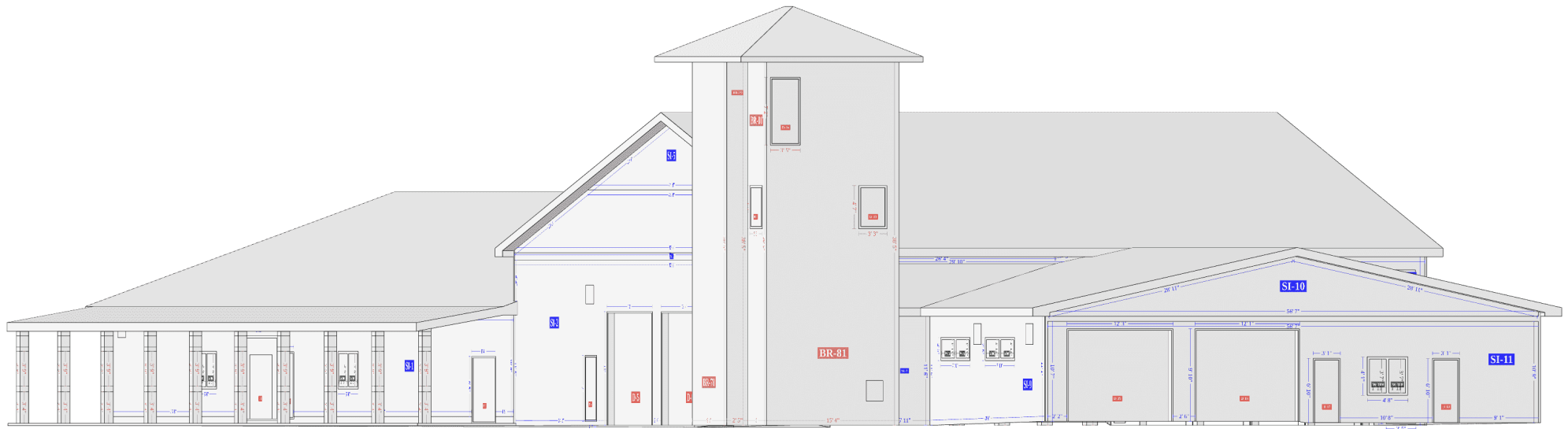
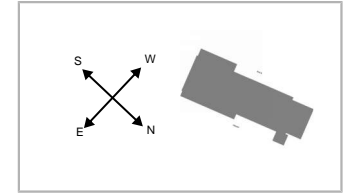
	num	Type	Depth	Length	Area	Pitch
●	20	eave	37"	10' 3"	32 ft <sup>2</sup>	2 / 12
●	21	eave	22"	1'	2 ft <sup>2</sup>	2 / 12
●	22	rake	16"	8' 9"	11 ft <sup>2</sup>	12 / 12
●	23	eave	37"	10' 11"	34 ft <sup>2</sup>	2 / 12
●	24	rake	16"	8' 9"	11 ft <sup>2</sup>	12 / 12
✂	25	rake	11"	1' 3"	1 ft <sup>2</sup>	2 / 12
●	26	eave	22"	2'	4 ft <sup>2</sup>	2 / 12
●	27	eave	10"	9"	1 ft <sup>2</sup>	4 / 12
●	28	eave	24"	15' 8"	31 ft <sup>2</sup>	4 / 12
●	29	rake	12"	44' 2"	44 ft <sup>2</sup>	4 / 12
●	30	rake	12"	44' 2"	44 ft <sup>2</sup>	4 / 12
●	31	eave	24"	30' 11"	61 ft <sup>2</sup>	4 / 12
●	32	eave	23"	45' 3"	89 ft <sup>2</sup>	4 / 12
●	33	rake	14"	29' 2"	33 ft <sup>2</sup>	4 / 12
●	34	rake	14"	29' 2"	33 ft <sup>2</sup>	4 / 12
●	35	eave	24"	29' 10"	59 ft <sup>2</sup>	4 / 12
●	36	eave	23"	29' 9"	58 ft <sup>2</sup>	4 / 12
●	37	eave	24"	5' 11"	12 ft <sup>2</sup>	4 / 12
●	38	eave	23"	19'	36 ft <sup>2</sup>	6 / 12

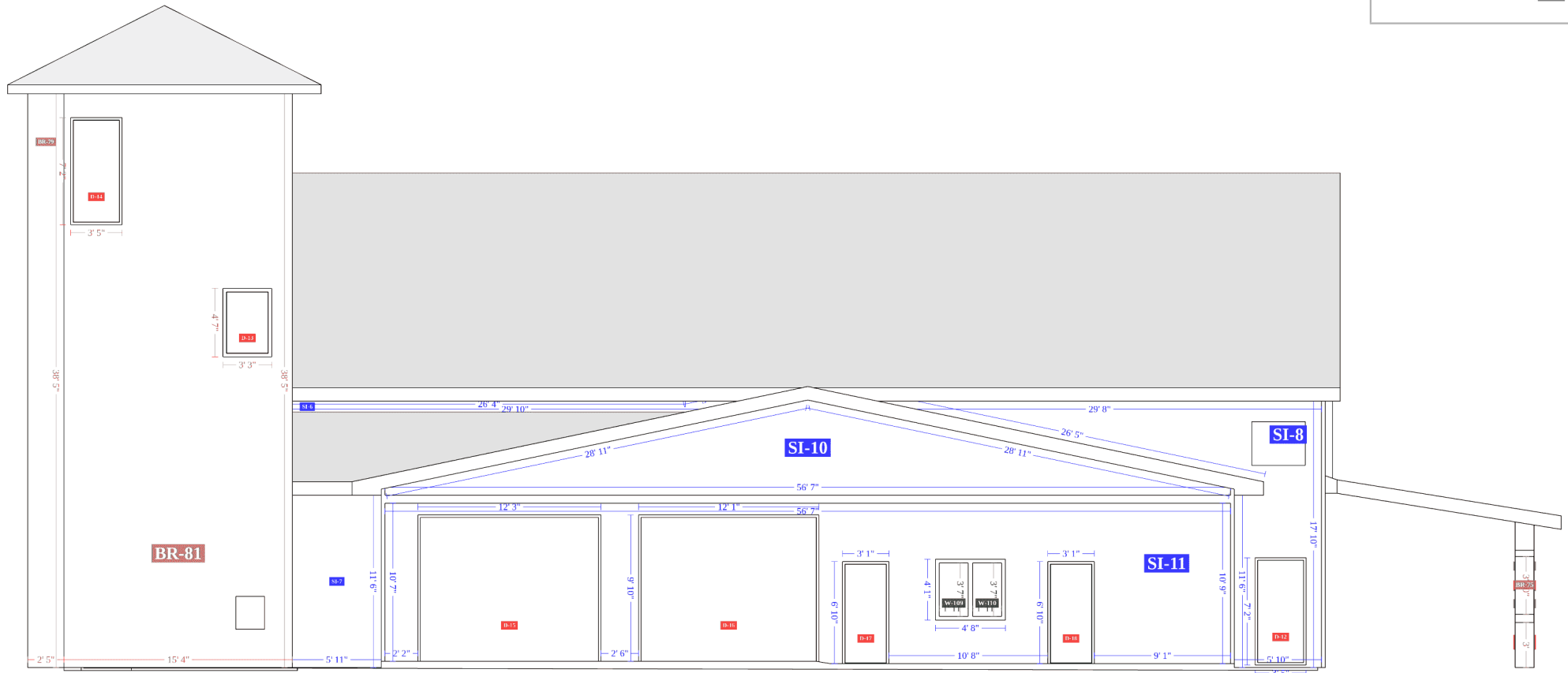
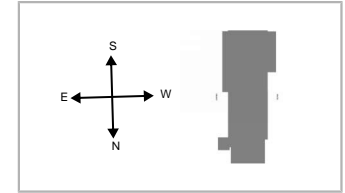
	num	Type	Depth	Length	Area	Pitch
●	39	eave	23"	17' 3"	33 ft <sup>2</sup>	6 / 12
●	40	eave	23"	17' 3"	33 ft <sup>2</sup>	6 / 12
●	41	eave	45"	6' 11"	26 ft <sup>2</sup>	6 / 12
●	42	eave	16"	9' 1"	12 ft <sup>2</sup>	6 / 12
●	43	rake	15"	44' 1"	56 ft <sup>2</sup>	4 / 12
●	44	eave	45"	6' 11"	26 ft <sup>2</sup>	6 / 12
●	45	rake	15"	44' 2"	57 ft <sup>2</sup>	4 / 12

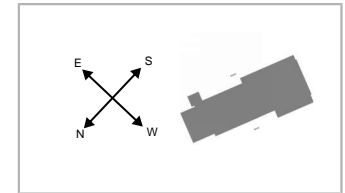
✂ Feature is too small to label on the plan diagram



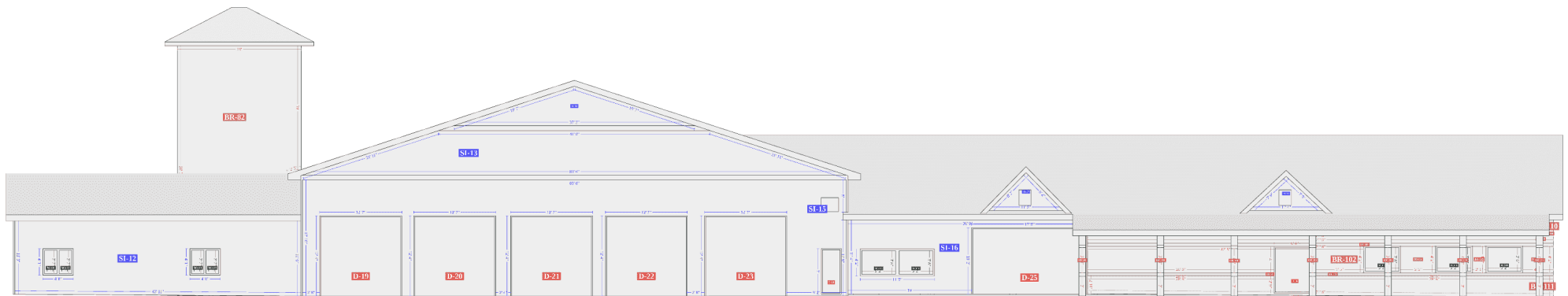
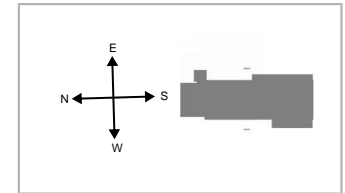






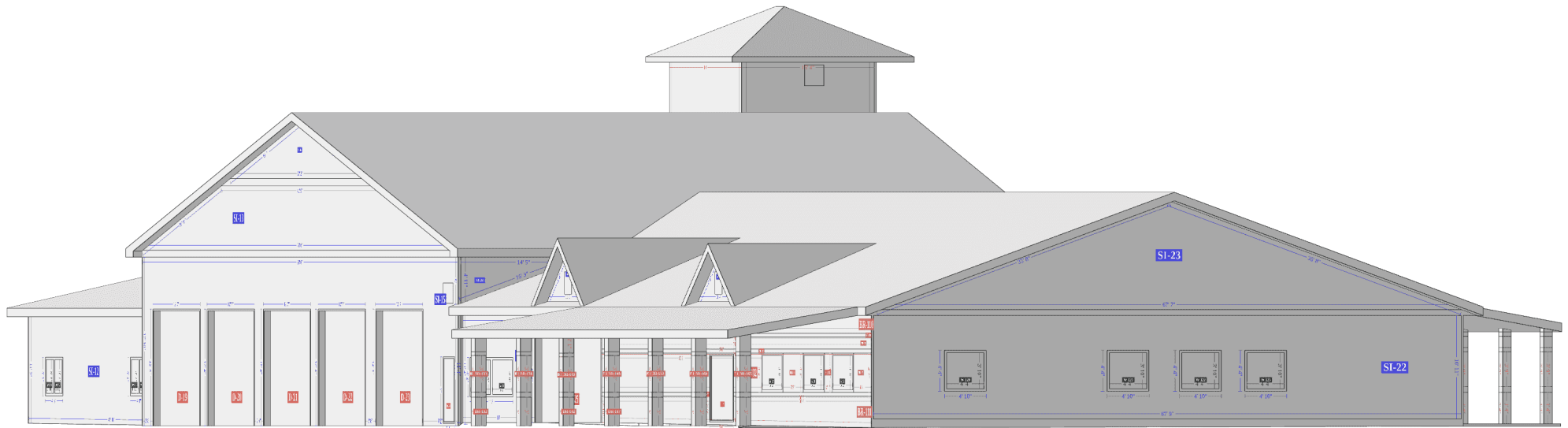








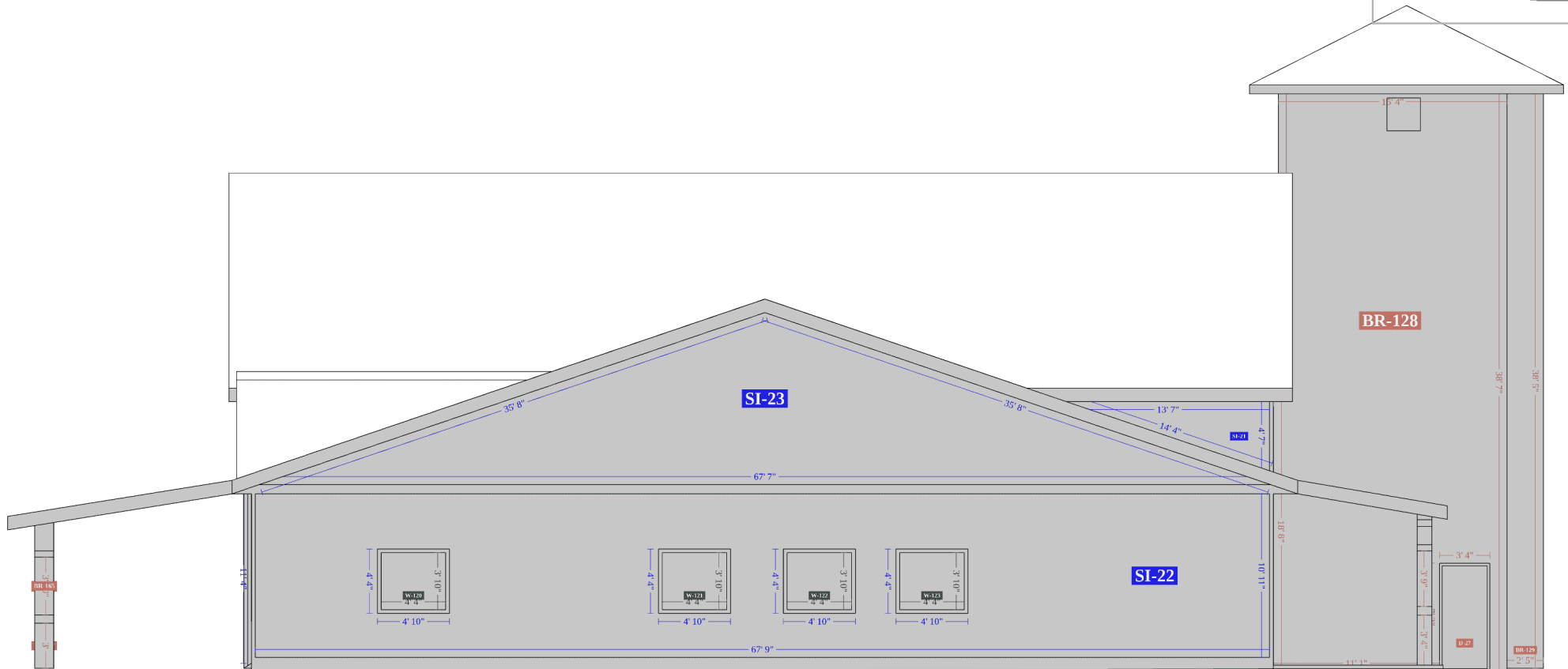
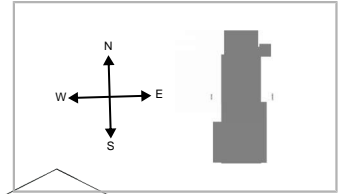
BACK-LEFT





## Complete Measurements

37028 County Road 66, Crosslake, MN  
LEFT







LEFT-FRONT





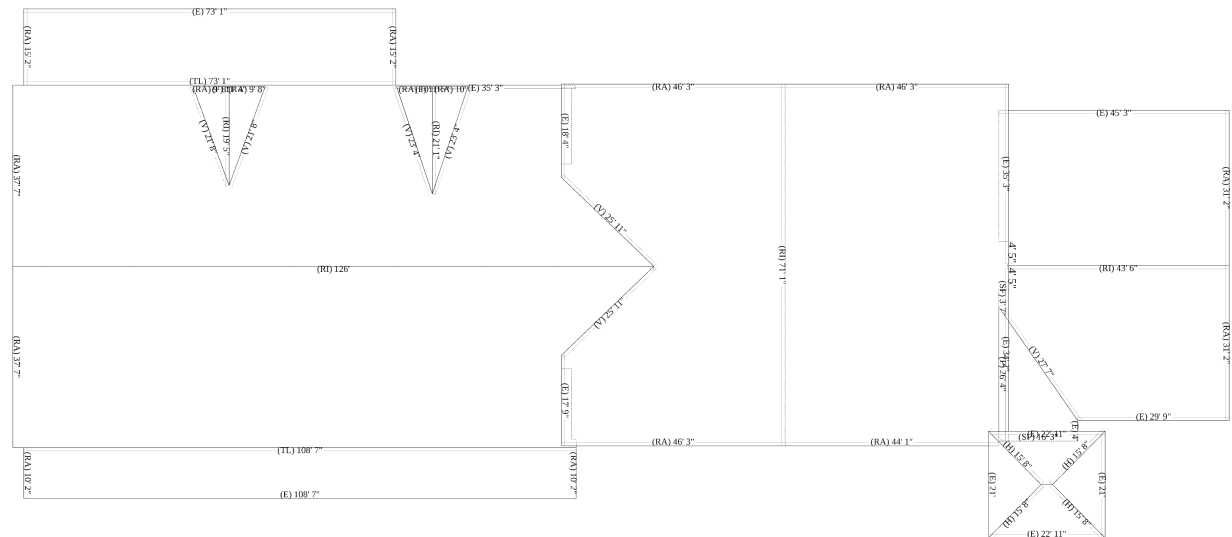
## Complete Measurements

# 37028 County Road 66, Crosslake, MN

## ROOF MEASUREMENTS

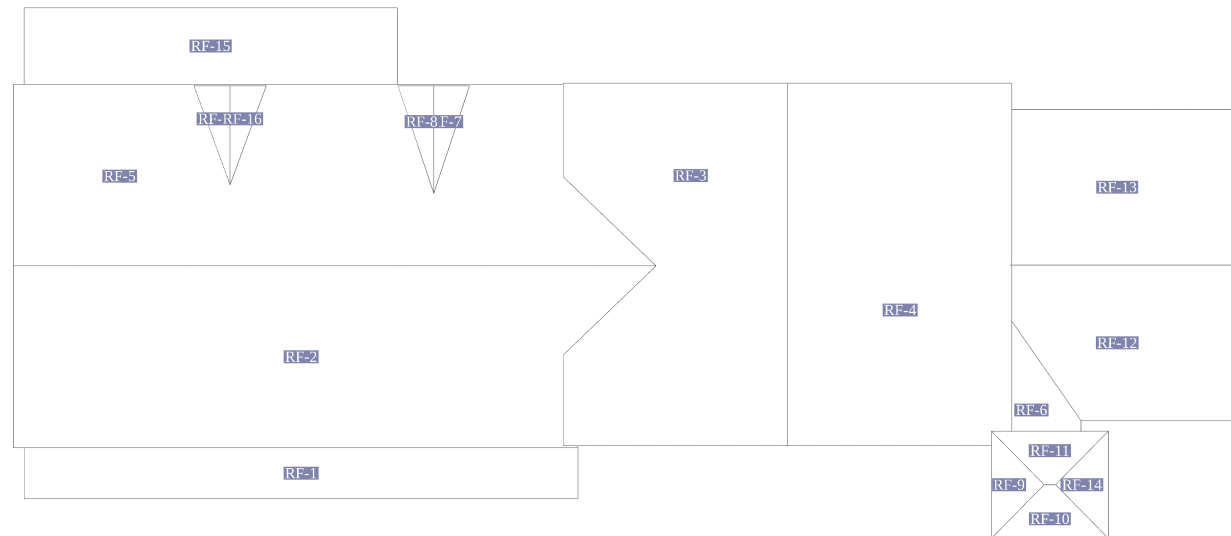
Roof	Length
Ridges (RI)	283' 4"
Hips (H)	62' 7"
Valleys (V)	170' 5"
Rakes (RA)	413' 1"
Eaves (E)	493' 6"
Flashing (F)*	51' 8"
Step Flashing (SF)*	78' 5"
Transition Line (TL)	181' 8"

\*Please view the 3D model for more detail (e.g. flashing, step flashing and some other roof lines may be difficult to see on the PDF)

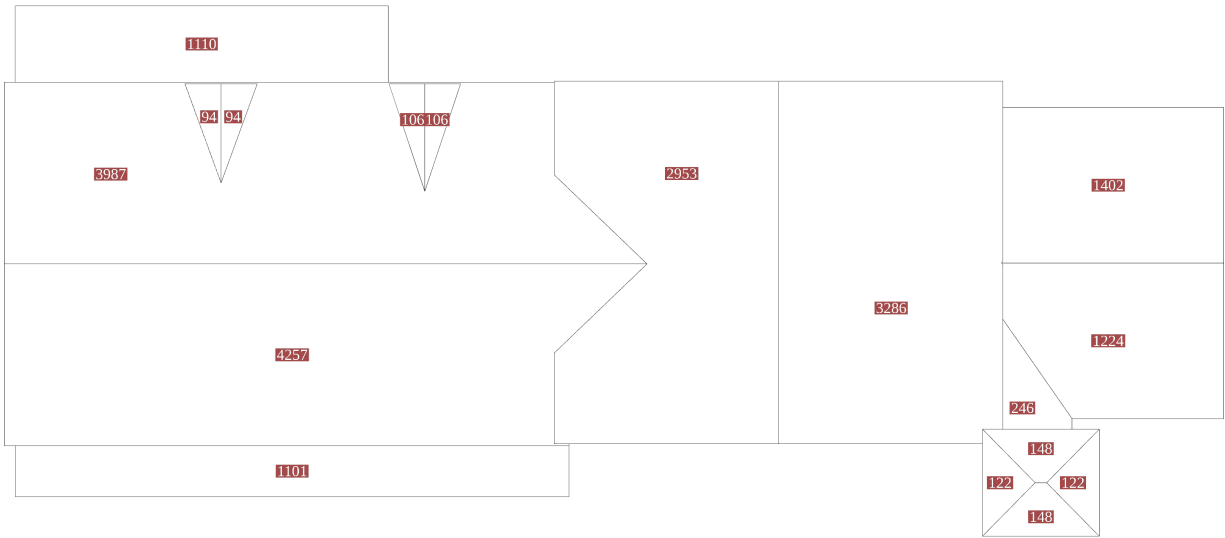


### Roof Facets

Facet	Area	Pitch
RF-1	1101 ft <sup>2</sup>	2/12
RF-2	4257 ft <sup>2</sup>	4/12
RF-3	2953 ft <sup>2</sup>	4/12
RF-4	3286 ft <sup>2</sup>	4/12
RF-5	3987 ft <sup>2</sup>	4/12
RF-6	246 ft <sup>2</sup>	4/12
RF-7	106 ft <sup>2</sup>	12/12
RF-8	106 ft <sup>2</sup>	12/12
RF-9	122 ft <sup>2</sup>	6/12
RF-10	148 ft <sup>2</sup>	6/12
RF-11	148 ft <sup>2</sup>	6/12
RF-12	1224 ft <sup>2</sup>	4/12
RF-13	1402 ft <sup>2</sup>	4/12
RF-14	122 ft <sup>2</sup>	6/12
RF-15	1110 ft <sup>2</sup>	2/12
RF-16	94 ft <sup>2</sup>	11/12
RF-17	94 ft <sup>2</sup>	11/12

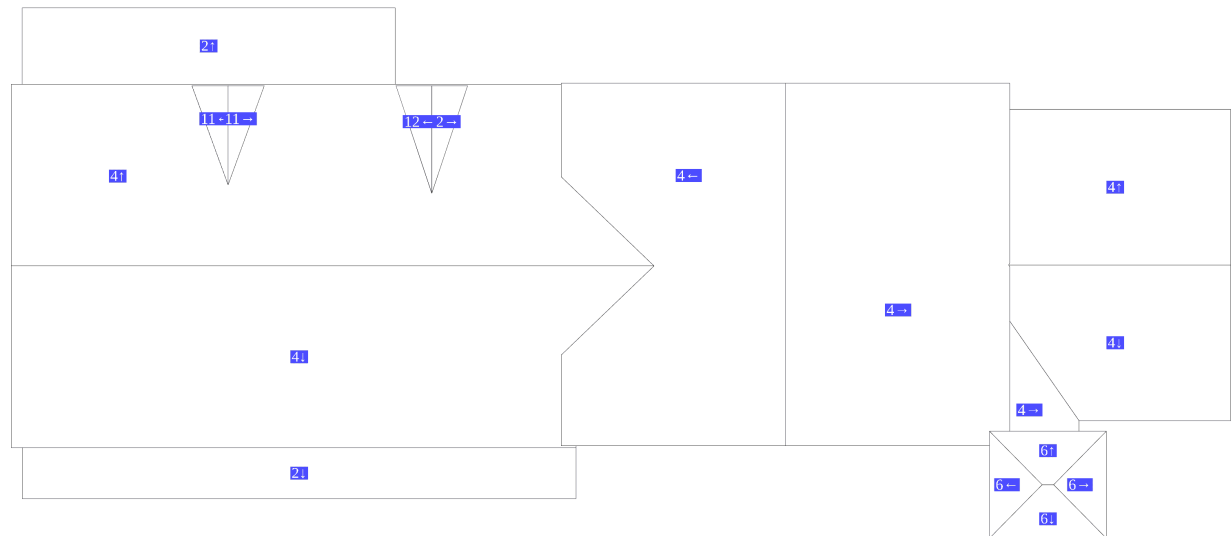


Roof	Facets	Total
Total	17	20506 ft <sup>2</sup>





Roof Pitch	Area	Percentage
4 / 12	17355 ft <sup>2</sup>	84.63%
2 / 12	2211 ft <sup>2</sup>	10.78%
6 / 12	540 ft <sup>2</sup>	2.63%
12 / 12	212 ft <sup>2</sup>	1.03%
11 / 12	188 ft <sup>2</sup>	0.92%











**VIEW 3D MODEL**



Areas	Siding	Other
Facades	1817 ft <sup>2</sup>	12643 ft <sup>2</sup>
Openings	-	1348 ft <sup>2</sup>
Trims*	-	563 ft <sup>2</sup>
Unknown (no photos)*	-	85 ft <sup>2</sup>
Total	1817 ft <sup>2</sup>	14639 ft <sup>2</sup>

\*Any trim or unknown material that touches siding is included in the 'Siding' column. If it does not touch siding, then it's included in the 'Other' column.

Openings	Siding	Other
Quantity	0	39
Tops Length	-	129' 4"
Sills Length	-	61' 11"
Sides Length	-	305' 11"
Total Perimeter	-	497' 2"

Corners	Siding	Other
Inside Qty	2	36
Inside Length	4'	201' 6"
Outside Qty	7	49
Outside Length	15' 7"	303' 4"

Accessories	Siding	Other
Shutter Qty	0	0
Shutter Area	0 ft <sup>2</sup>	0 ft <sup>2</sup>
Vents Qty	0	10
Vents Area	0 ft <sup>2</sup>	203 ft <sup>2</sup>

Trim	Siding	Other
Level Starter	471' 7"	3128' 6"
Sloped Trim	317' 10"	27' 3"
Vertical Trim	-	199' 1"

Roofline	Length	Avg. Depth	Soffit Area
Eaves Fascia	509'	-	-
Level Frieze Board	926' 6"	4' 3"	984 ft <sup>2</sup>
Rakes Fascia	481' 5"	-	-
Sloped Frieze Board	653' 3"	2' 4"	690 ft <sup>2</sup>

### SIDING WASTE TOTALS

Siding & Trim Only*	Area	Squares
Zero Waste	1817 ft <sup>2</sup>	18¼
+10%	1998 ft <sup>2</sup>	20
+18%	2144 ft <sup>2</sup>	21½

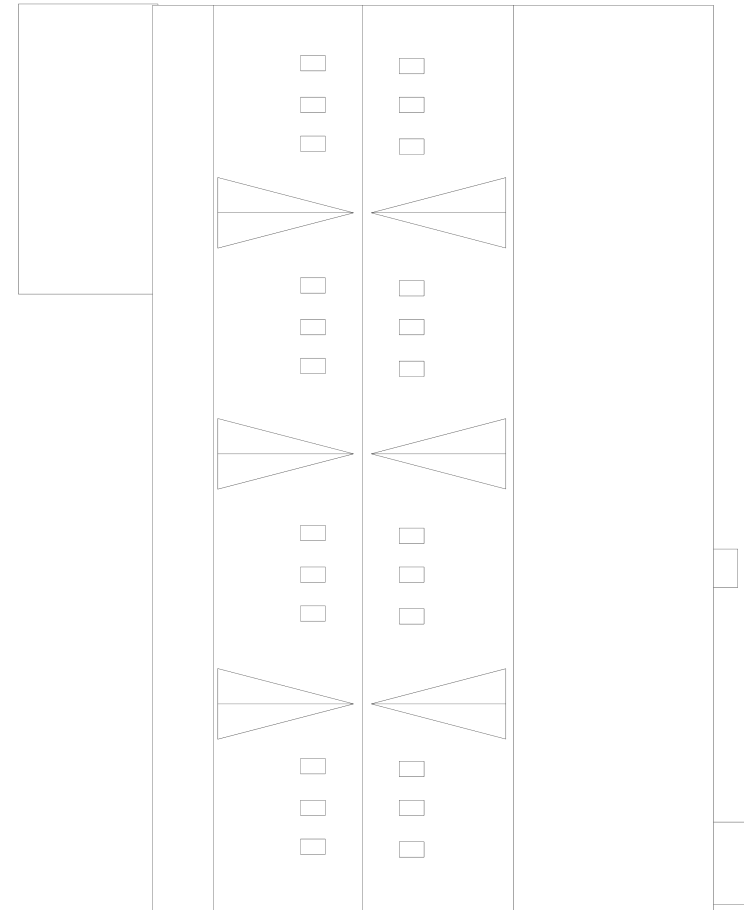
+ Openings < 20ft <sup>2</sup>	Area	Squares
Zero Waste	1817 ft <sup>2</sup>	18¼
+10%	1998 ft <sup>2</sup>	20
+18%	2144 ft <sup>2</sup>	21½

+ Openings < 33ft <sup>2</sup>	Area	Squares
Zero Waste	1817 ft <sup>2</sup>	18¼
+10%	1998 ft <sup>2</sup>	20
+18%	2144 ft <sup>2</sup>	21½

\*The first three rows of the Siding Waste Factor table are calculated using the total ft<sup>2</sup> of siding facades, ft<sup>2</sup> of trim touching siding, and ft<sup>2</sup> of unknowns touching siding.

Roof	Area	Total	Length
Roof Facets	28108 ft <sup>2</sup>	19	-
Ridges / Hips	-	7	383' 8"
Valleys	-	12	384' 10"
Rakes	-	25	481' 5"
Eaves	-	9	509'
Flashing	-	42	177'
Step Flashing	-	53	295' 8"
Drip Edge/Perimeter	-	-	990' 4"

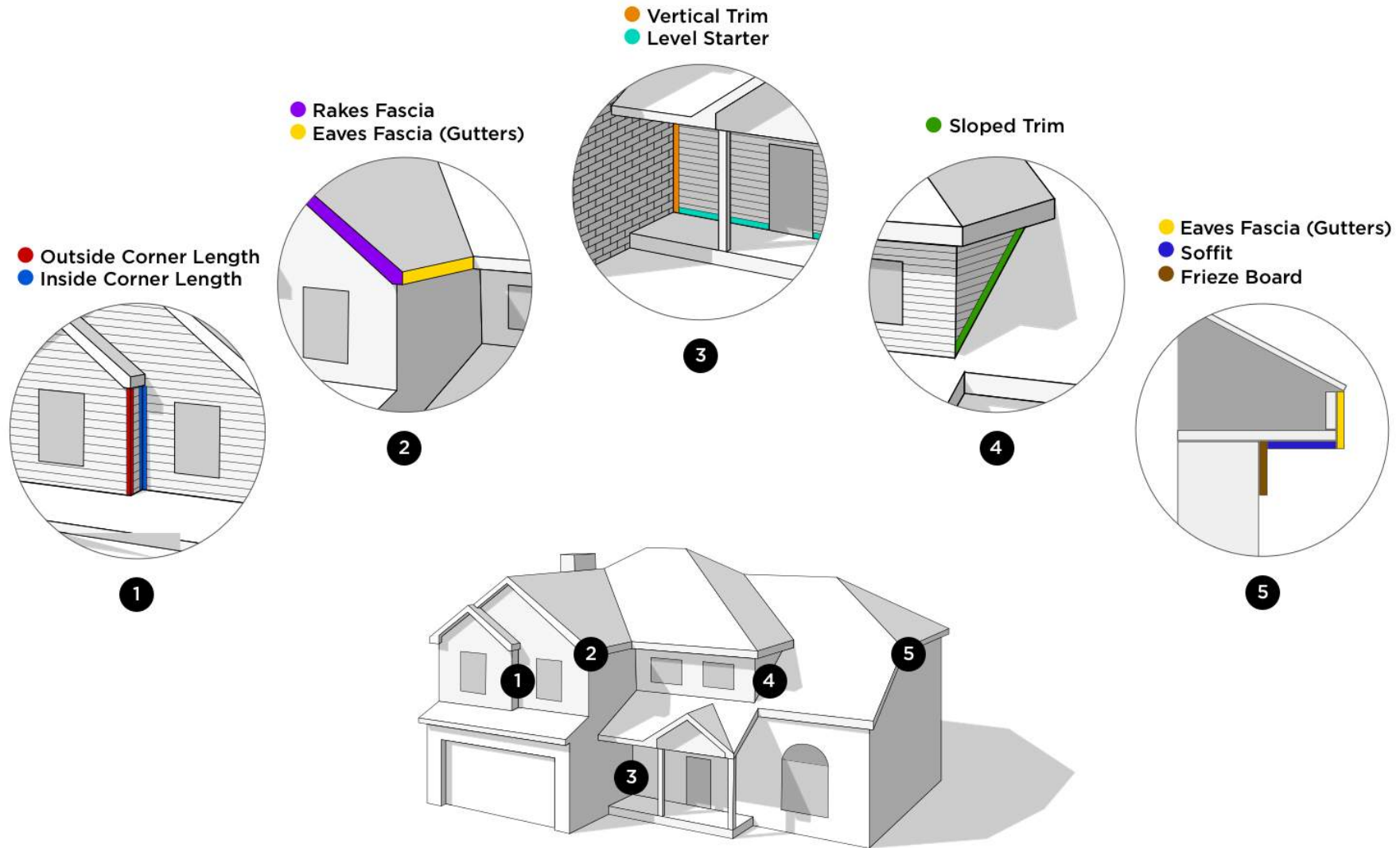
Roof Pitch*	Area	Percentage
3 / 12	12301 ft <sup>2</sup>	43.76%
2 / 12	9121 ft <sup>2</sup>	32.45%
1 / 12	4730 ft <sup>2</sup>	16.83%
11 / 12	1956 ft <sup>2</sup>	6.96%

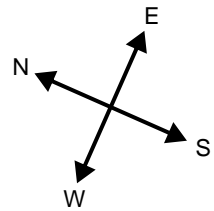


### Example Waste Factor Calculations

	Zero Waste	+5%	+10%	+15%	+20%
Area	28108 ft <sup>2</sup>	29513 ft <sup>2</sup>	30919 ft <sup>2</sup>	32324 ft <sup>2</sup>	33730 ft <sup>2</sup>
Squares	281⅓	295⅓	309⅓	323⅓	337⅓

The table above provides the total roof area of a given property using waste percentages as noted. Please consider that area values and specific waste factors can be influenced by the size and complexity of the property, captured image quality, specific roofing techniques, and your own level of expertise. Additional square footage for Hip, Ridge, and Starter shingles are not included in this waste factor and will require additional materials. This table is only intended to make common waste calculations easier and should not be interpreted as recommendations.

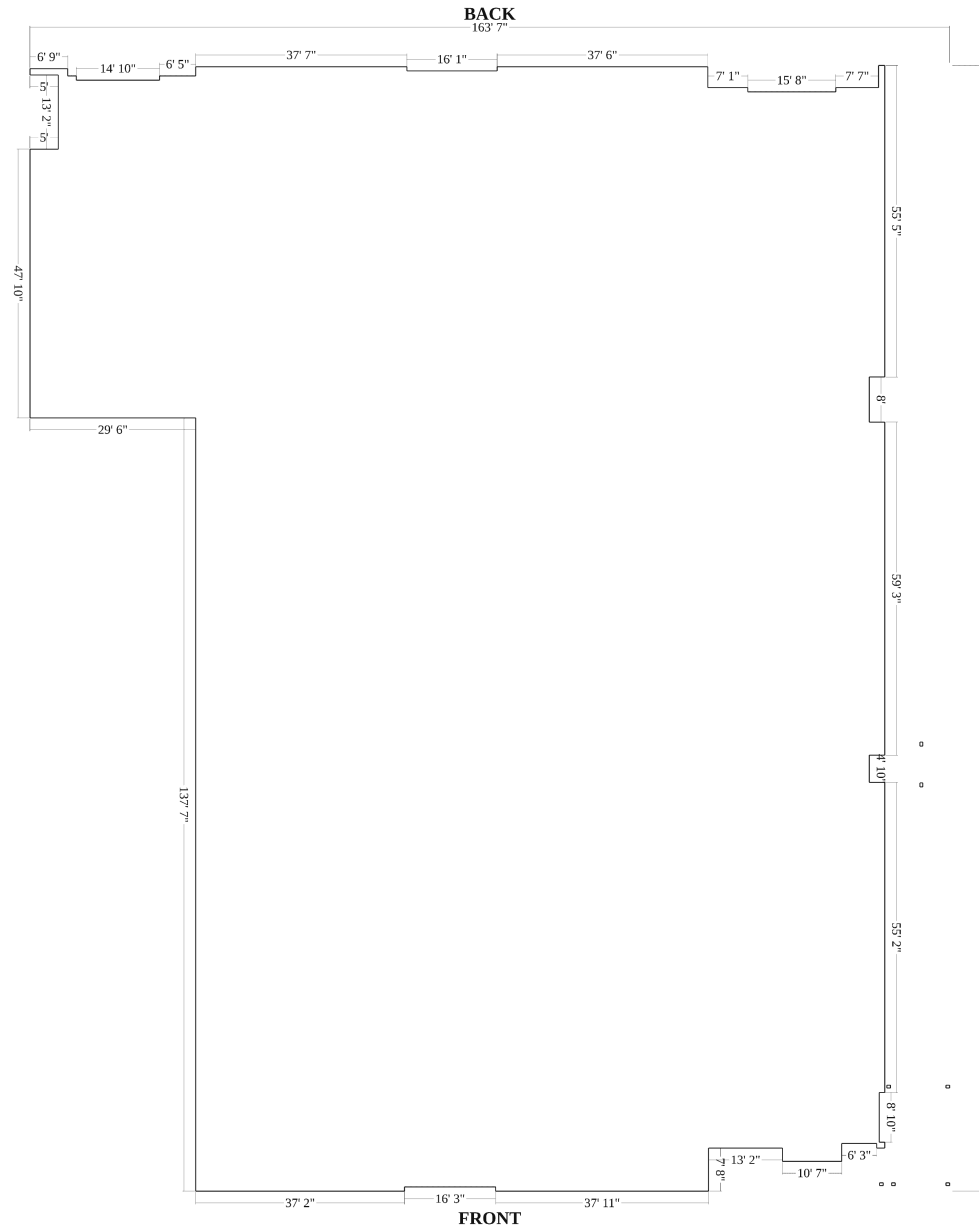




Number of Stories: > 1

Footprint Perimeter: 766' 5"

Footprint Area: 25834 ft<sup>2</sup>



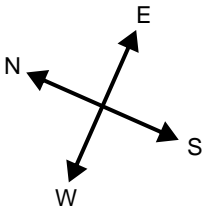


Siding Per Elevation

FRONT			RIGHT			LEFT			BACK		
SI-1	-	297 ft <sup>2</sup>	SI-3	-	481 ft <sup>2</sup>	SI-7	-	131 ft <sup>2</sup>	SI-5	-	297 ft <sup>2</sup>
SI-2	-	63 ft <sup>2</sup>	SI-4	-	4 ft <sup>2</sup>	SI-8	-	481 ft <sup>2</sup>	SI-6	-	63 ft <sup>2</sup>
360 ft <sup>2</sup>			485 ft <sup>2</sup>			612 ft <sup>2</sup>			360 ft <sup>2</sup>		

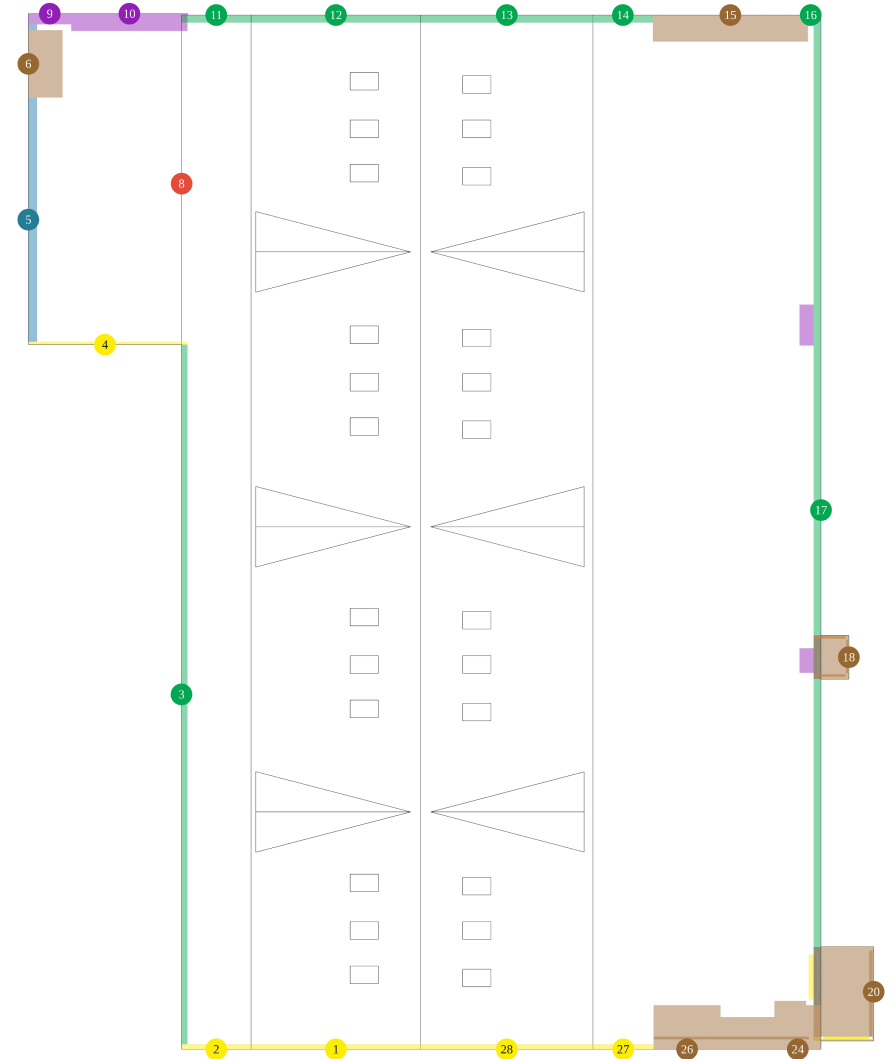


Number of Stories: > 1



### Soffit Summary

Depth	Type	Count	Total Length	Total Area
0" - 1"	eaves	1	63' 1"	2 ft <sup>2</sup>
1" - 6"	rakes	1	6"	0 ft <sup>2</sup>
	eaves	1	10' 7"	4 ft <sup>2</sup>
	-	2	12' 6"	6 ft <sup>2</sup>
6" - 12"	rakes	5	125' 10"	112 ft <sup>2</sup>
	eaves	2	10' 3"	6 ft <sup>2</sup>
	-	2	17' 10"	13 ft <sup>2</sup>
12" - 18"	rakes	5	95' 7"	142 ft <sup>2</sup>
	eaves	2	330' 10"	448 ft <sup>2</sup>
18" - 24"	eaves	2	48' 11"	83 ft <sup>2</sup>
24" - 48"	rakes	2	31' 3"	95 ft <sup>2</sup>
	-	2	12' 10"	35 ft <sup>2</sup>
> 48"	rakes	3	54' 6"	341 ft <sup>2</sup>
	eaves	4	40' 7"	442 ft <sup>2</sup>
	-	4	2' 5"	34 ft <sup>2</sup>
Totals			857' 6"	1763 ft <sup>2</sup>



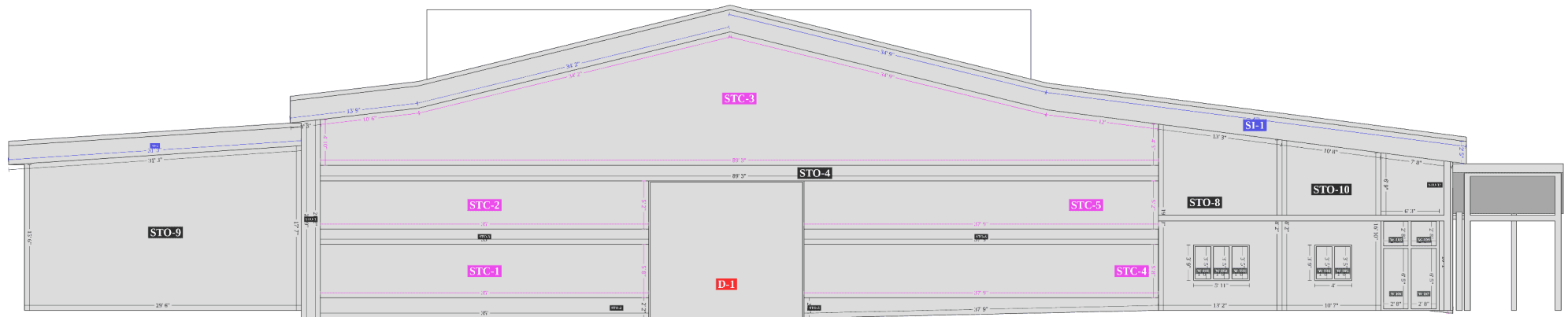
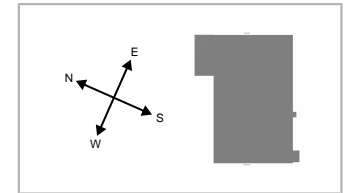
## Soffit Breakdown

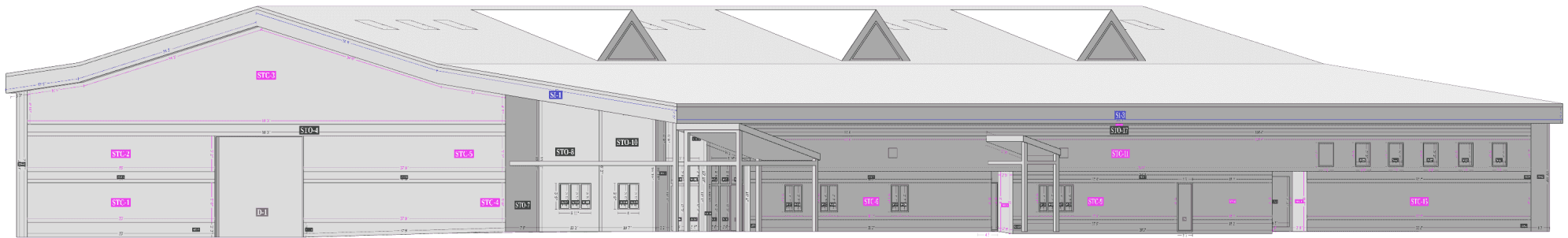
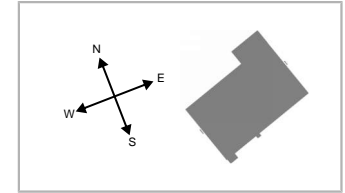
	num	Type	Depth	Length	Area	Pitch
	1	rake	12"	34' 2"	34 ft <sup>2</sup>	3 / 12
	2	rake	12"	13' 9"	14 ft <sup>2</sup>	1 / 12
	3	eave	14"	137'	163 ft <sup>2</sup>	1 / 12
	4	rake	7"	31' 3"	18 ft <sup>2</sup>	1 / 12
	5	eave	20"	47' 10"	81 ft <sup>2</sup>	1 / 12
	6	eave	81"	13' 2"	89 ft <sup>2</sup>	1 / 12
	7	eave	20"	1' 2"	2 ft <sup>2</sup>	1 / 12
	8	eave	0"	63' 1"	2 ft <sup>2</sup>	1 / 12
	9	rake	25"	8' 5"	18 ft <sup>2</sup>	1 / 12
	10	rake	41"	22' 10"	77 ft <sup>2</sup>	1 / 12
	11	rake	18"	13' 9"	20 ft <sup>2</sup>	1 / 12
	12	rake	18"	34' 2"	51 ft <sup>2</sup>	3 / 12
	13	rake	18"	34' 9"	52 ft <sup>2</sup>	3 / 12
	14	rake	18"	11' 10"	18 ft <sup>2</sup>	2 / 12
	15	rake	63"	30' 8"	160 ft <sup>2</sup>	2 / 12
	16	rake	15"	1' 1"	1 ft <sup>2</sup>	2 / 12
	17	eave	18"	193' 10"	285 ft <sup>2</sup>	2 / 12
	18	eave	106"	6' 11"	61 ft <sup>2</sup>	3 / 12
	19	rake	3"	6"	0 ft <sup>2</sup>	3 / 12

	num	Type	Depth	Length	Area	Pitch
	20	eave	217"	11' 9"	213 ft <sup>2</sup>	3 / 12
	21	eave	4"	10' 7"	4 ft <sup>2</sup>	3 / 12
	22	eave	6"	9'	5 ft <sup>2</sup>	3 / 12
	23	eave	10"	1' 3"	1 ft <sup>2</sup>	3 / 12
	24	eave	110"	8' 8"	79 ft <sup>2</sup>	2 / 12
	25	rake	76"	10' 8"	67 ft <sup>2</sup>	2 / 12
	26	rake	104"	13' 3"	115 ft <sup>2</sup>	2 / 12
	27	rake	12"	12'	12 ft <sup>2</sup>	2 / 12
	28	rake	12"	34' 9"	34 ft <sup>2</sup>	3 / 12
	29	-	33"	8'	22 ft <sup>2</sup>	2 / 12
	30	-	6"	6' 3"	3 ft <sup>2</sup>	3 / 12
	31	-	79"	5"	3 ft <sup>2</sup>	3 / 12
	32	-	33"	4' 10"	13 ft <sup>2</sup>	2 / 12
	33	-	6"	6' 3"	3 ft <sup>2</sup>	3 / 12
	34	-	203"	8"	11 ft <sup>2</sup>	3 / 12
	35	-	12"	8' 10"	9 ft <sup>2</sup>	2 / 12
	36	-	6"	9'	5 ft <sup>2</sup>	3 / 12
	37	-	75"	10"	5 ft <sup>2</sup>	2 / 12
	38	-	365"	6"	15 ft <sup>2</sup>	2 / 12

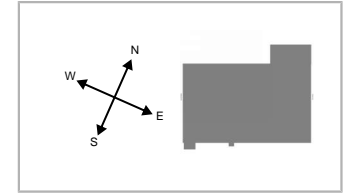
Ø Feature is too small to label on the plan diagram

- Feature could not be labelled with complete certainty





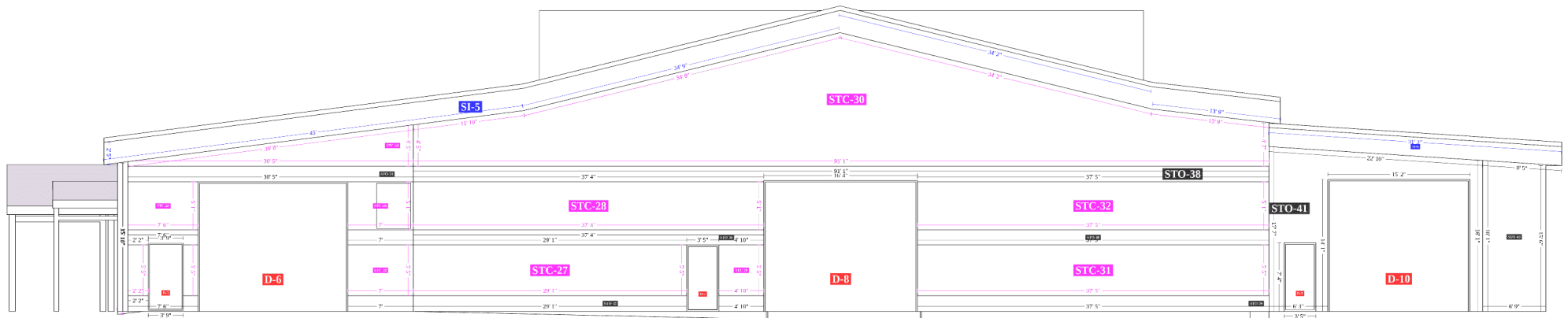
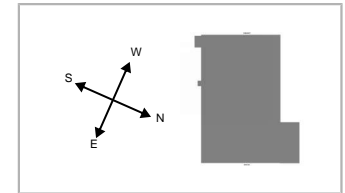


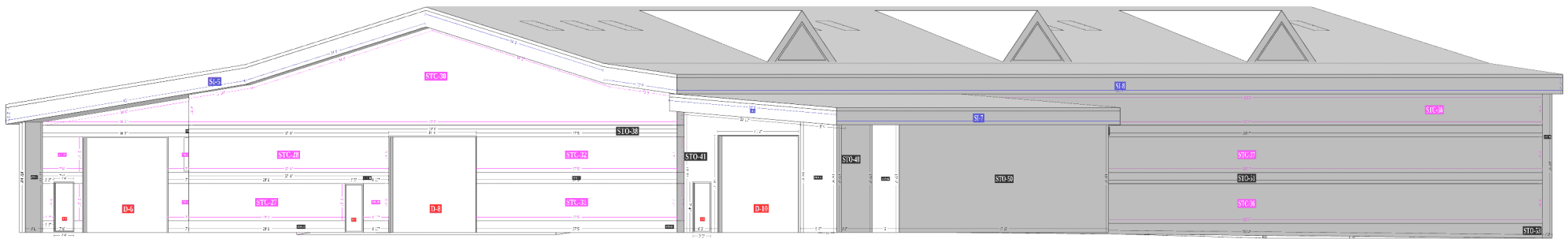
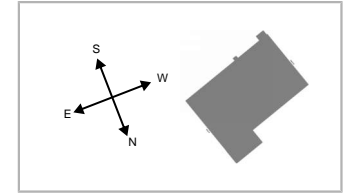




13870 Whipple Drive, Crosslake, MN  
RIGHT-BACK



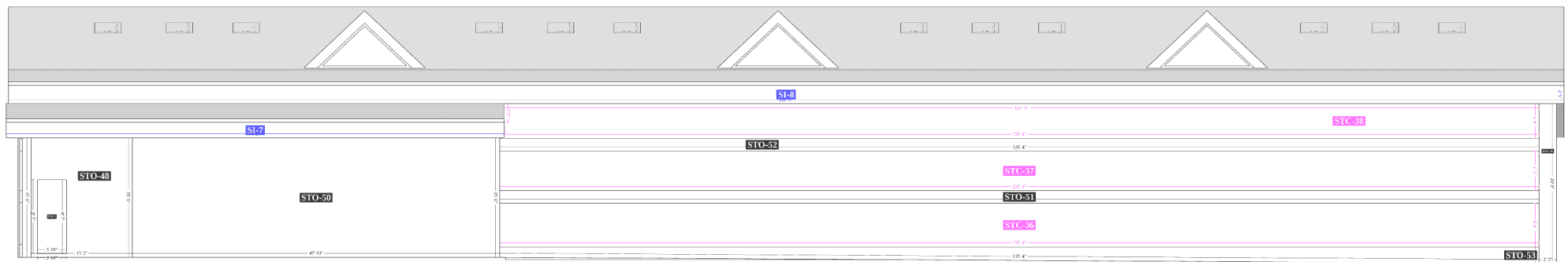
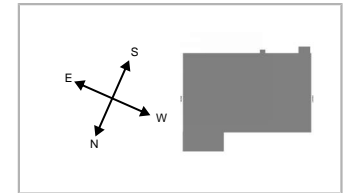




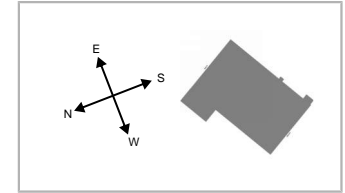


## Complete Measurements

13870 Whipple Drive, Crosslake, MN  
LEFT

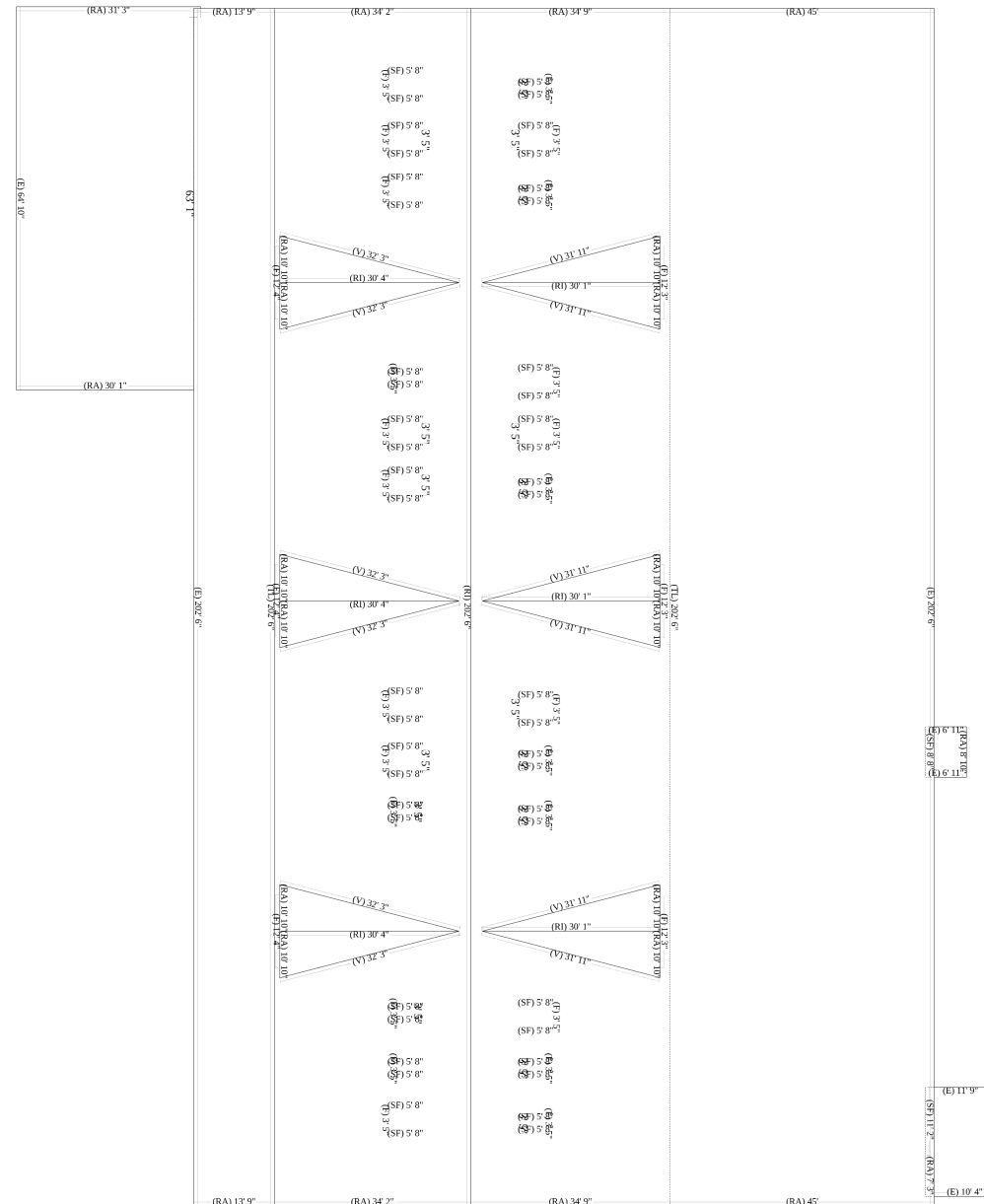






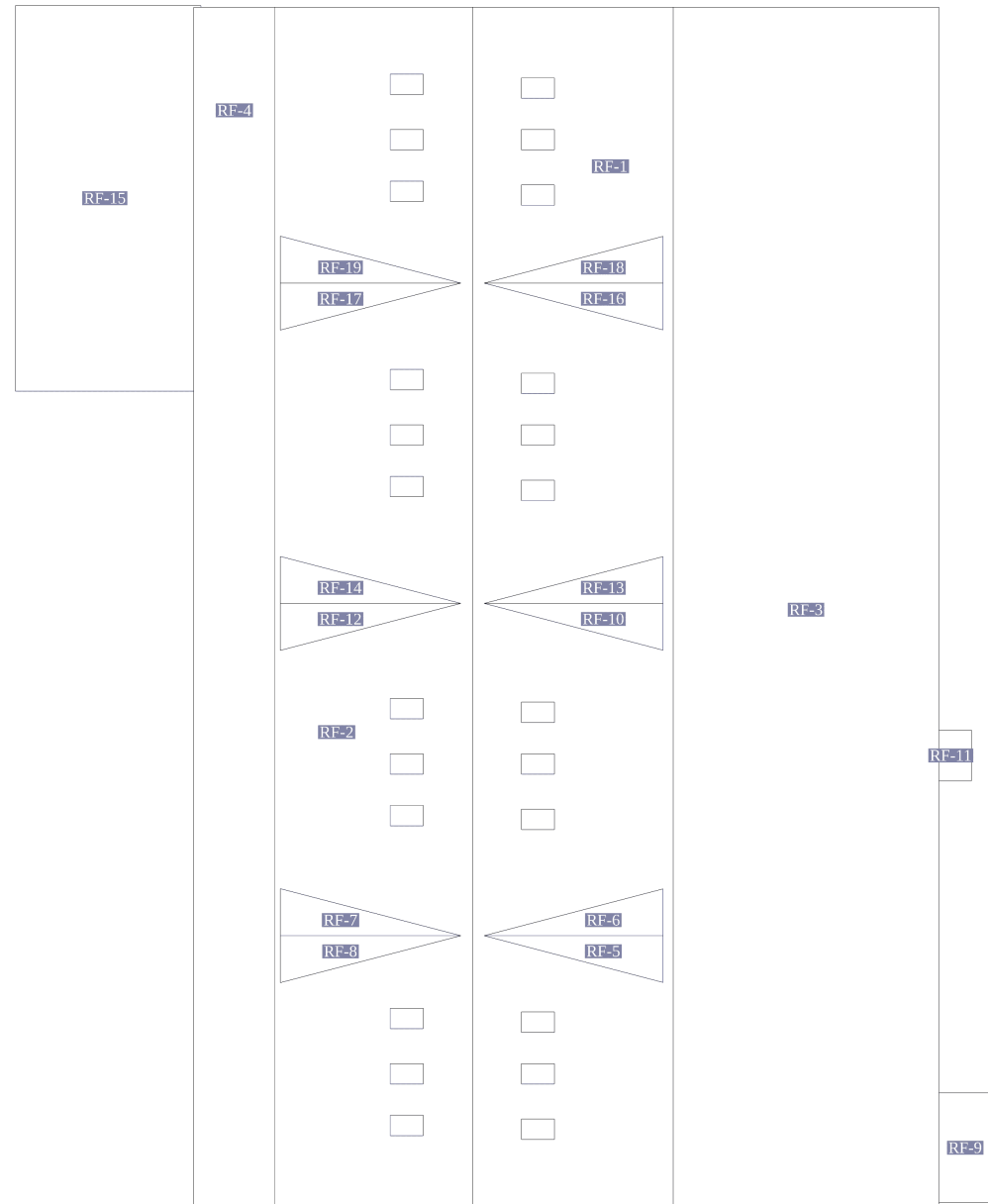
Roof	Length
Ridges (RI)	383' 8"
Hips (H)	-
Valleys (V)	384' 10"
Rakes (RA)	481' 5"
Eaves (E)	509'
Flashing (F)*	177'
Step Flashing (SF)*	295' 8"
Transition Line (TL)	405'

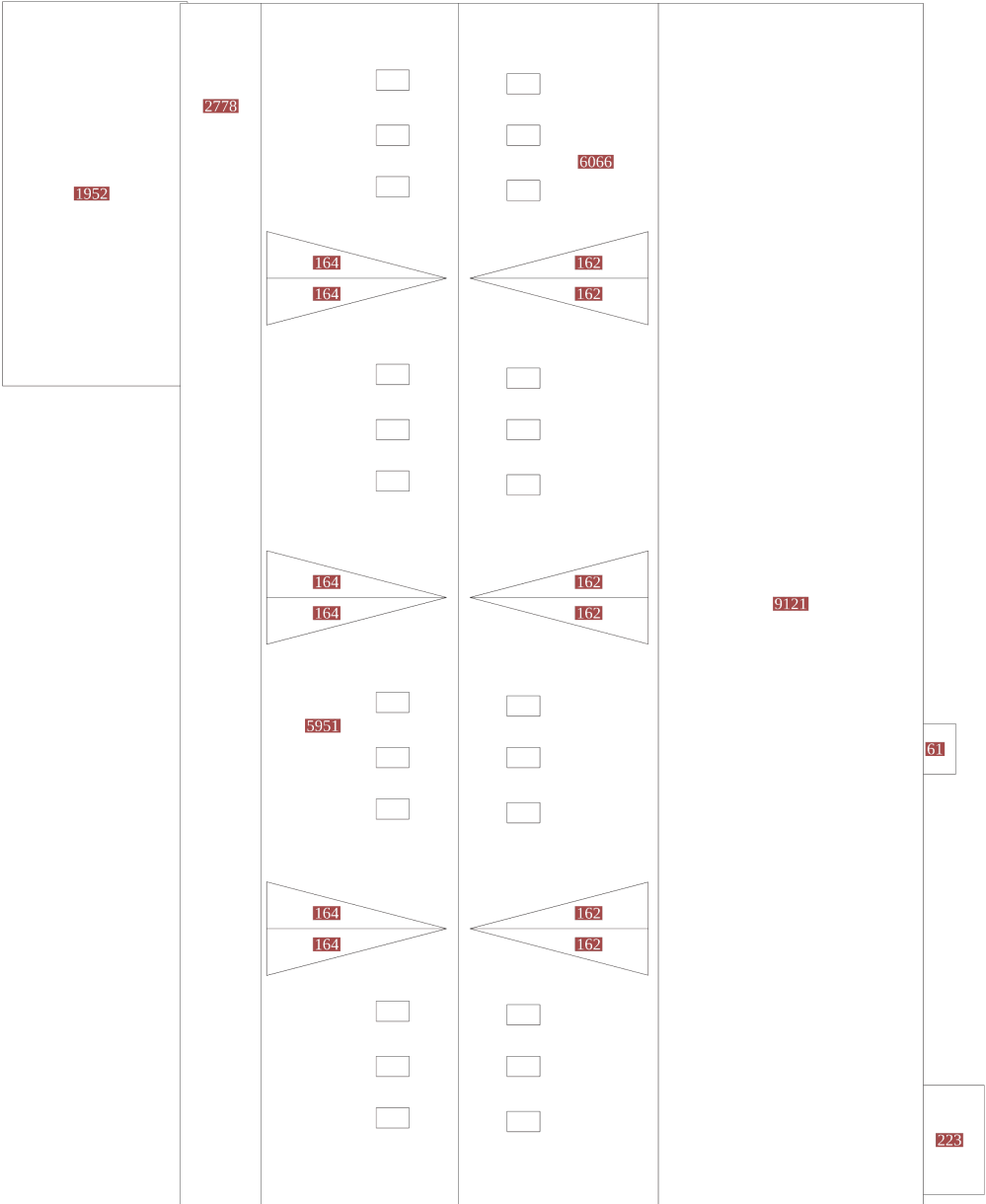
\*Please view the 3D model for more detail (e.g. flashing, step flashing and some other roof lines may be difficult to see on the PDF)



### Roof Facets

Facet	Area	Pitch
RF-1	6066 ft <sup>2</sup>	3/12
RF-2	5951 ft <sup>2</sup>	3/12
RF-3	9121 ft <sup>2</sup>	2/12
RF-4	2778 ft <sup>2</sup>	1/12
RF-5	162 ft <sup>2</sup>	11/12
RF-6	162 ft <sup>2</sup>	11/12
RF-7	164 ft <sup>2</sup>	11/12
RF-8	164 ft <sup>2</sup>	11/12
RF-9	223 ft <sup>2</sup>	3/12
RF-10	162 ft <sup>2</sup>	11/12
RF-11	61 ft <sup>2</sup>	3/12
RF-12	164 ft <sup>2</sup>	11/12
RF-13	162 ft <sup>2</sup>	11/12
RF-14	164 ft <sup>2</sup>	11/12
RF-15	1952 ft <sup>2</sup>	1/12
RF-16	162 ft <sup>2</sup>	11/12
RF-17	164 ft <sup>2</sup>	11/12
RF-18	162 ft <sup>2</sup>	11/12
RF-19	164 ft <sup>2</sup>	11/12





Roof	Facets	Total
Total	19	28108 ft <sup>2</sup>



## Complete Measurements

13870 Whipple Drive, Crosslake, MN  
ROOF PITCH

Roof Pitch	Area	Percentage
3 / 12	12301 ft <sup>2</sup>	43.76%
2 / 12	9121 ft <sup>2</sup>	32.45%
1 / 12	4730 ft <sup>2</sup>	16.83%
11 / 12	1956 ft <sup>2</sup>	6.96%

