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**baxter  
fourplexes**

PHASE II  
BUILDING E

Owner/Contractor:  
Cook Inlet Housing Authority  
3510 Spenard Rd., Suite 100  
Anchorage, AK 99503

Structural Engineer:  
LDR Engineering Services, Inc.  
L.D. "Randy" Randolph  
(907) 227-0028

Designer:  
FRamE  
Clark Yerrington  
(907) 351-4805

APPLICABLE CODES  
2018 IRC and 2018 IBC with  
Municipal amendments.

- GENERAL NOTES
1. Notify Designer of any errors or discrepancies in the documents.
  2. Keep the job site clean and safe. Install temporary railings at level changes.
  3. Provide a portable toilet for use during construction.
  4. Consult Subcontractors to identify additional work items not specifically described herein.
  5. At walls greater than 10'-0" height, provide fire blocking at 10'-0" maximum spacing.

COOK INLET HOUSING AUTHORITY  
BAXTER MULTIPLEXES, PHASE II  
Tract B, valetskaya Addition No. 1  
NHN Erna Court  
ANCHORAGE, ALASKA

DR. BY: CLARK  
DATE: 23 JAN 26

DOOR SCHEDULE  
3-BR END UNIT [E1]

	width	height	type	material	finish	hardware	glazing	notes
100	2'-8"	6'-8"	exterior	fiberglass	paint	lockset/dbolt	none	1
101	2'-8"	6'-8"	exterior	fiberglass	paint	lockset/dbolt	none	1
102	3'-0"	6'-8"	exterior	fiberglass	paint	lockset/dbolt	none	1, 5
103	2'-8"	6'-8"	exterior	fiberglass	paint	lockset/dbolt	safety	1, 6
104	2'-8"	6'-8"	one pnl.	wood	clear	latchset	none	---
105	2'-8"	6'-8"	one pnl.	wood	clear	privacy lock	none	2
106	2'-8"	6'-8"	one pnl.	wood	clear	trolley trk./pull	none	---
107	4'-0"	6'-8"	one pnl.	wood	clear	latchset	none	---
108	[NOT USED]							
109	[NOT USED]							
201	2'-8"	6'-8"	one pnl.	wood	clear	privacy lock	none	---
202	2'-8"	6'-8"	one pnl.	wood	clear	privacy lock	none	---
203	2'-8"	6'-8"	one pnl.	wood	clear	privacy lock	none	---
204	2'-4"	6'-8"	one pnl.	wood	clear	privacy lock	none	2
205	2'-4"	6'-8"	one pnl.	wood	clear	latchset	none	---
206	2'-4"	6'-8"	one pnl.	wood	clear	latchset	none	---
207	5'-0"	6'-8"	one pnl.	wood	clear	track and pulls	none	---
208	5'-0"	6'-8"	one pnl.	wood	clear	track and pulls	none	---
209	[NOT USED]							

2-BR UNIT [E2]

110	2'-8"	6'-8"	exterior	fiberglass	paint	lockset/dbolt	none	1
111	3'-0"	6'-8"	exterior	fiberglass	paint	lockset/dbolt	none	1, 5
112	2'-8"	6'-8"	exterior	fiberglass	paint	lockset/dbolt	safety	1, 6
114	2'-4"	6'-8"	one pnl.	wood	clear	privacy lock	none	2
115	2'-8"	6'-8"	one pnl.	wood	clear	trolley trk./pull	none	---
116	2'-0"	6'-8"	one pnl.	wood	clear	latchset	none	---
117	[NOT USED]							

210	2'-8"	6'-8"	one pnl.	wood	clear	privacy lock	none	---
211	2'-8"	6'-8"	one pnl.	wood	clear	privacy lock	none	---
212	2'-4"	6'-8"	one pnl.	wood	clear	privacy lock	none	2
214	2'-4"	6'-8"	one pnl.	wood	clear	latchset	none	---
215	3'-0"	6'-8"	one pnl.	wood	clear	latchset	none	---
216	1'-6"	6'-8"	one pnl.	wood	clear	latchset	none	---
217	5'-0"	6'-8"	one pnl.	wood	clear	track and pulls	none	---
218	[NOT USED]							
219	[NOT USED]							

3-BR UNIT [E3]

118	2'-8"	6'-8"	exterior	fiberglass	paint	lockset/dbolt	none	1
119	3'-0"	6'-8"	exterior	fiberglass	paint	lockset/dbolt	none	1, 5
120	2'-8"	6'-8"	exterior	fiberglass	paint	lockset/dbolt	safety	1, 6
121	2'-4"	6'-8"	one pnl.	wood	clear	privacy lock	none	2
122	2'-0"	6'-8"	one pnl.	wood	clear	latchset	none	---
123	3'-0"	6'-8"	one pnl.	wood	clear	latchset	none	---
124	2'-8"	6'-8"	one pnl.	wood	clear	trolley trk./pull	none	---
125	6'-0"	6'-8"	one pnl.	wood	clear	track and pulls	none	---
126	[NOT USED]							
127	[NOT USED]							
220	2'-8"	6'-8"	one pnl.	wood	clear	privacy lock	none	---
221	2'-8"	6'-8"	one pnl.	wood	clear	privacy lock	none	---
222	2'-8"	6'-8"	one pnl.	wood	clear	privacy lock	none	---
223	2'-4"	6'-8"	one pnl.	wood	clear	privacy lock	none	2
224	4'-0"	6'-8"	one pnl.	wood	clear	latchset	none	---
225	6'-0"	6'-8"	one pnl.	wood	clear	track and pulls	none	---
226	6'-0"	6'-8"	one pnl.	wood	clear	track and pulls	none	---

DOOR SCHEDULE  
2-BR ACCESSIBLE UNIT [E4]

128	2'-8"	6'-8"	exterior	fiberglass	paint	lockset/dbolt	none	1
129	3'-0"	6'-8"	exterior	fiberglass	paint	lockset/dbolt	none	1, 5
130	3'-0"	6'-8"	exterior	fiberglass	paint	lockset/dbolt	none	1
131	3'-0"	6'-8"	one pnl.	wood	clear	privacy lock	none	---
132	2'-8"	6'-8"	one pnl.	wood	clear	privacy lock	none	---
133	3'-0"	6'-8"	one pnl.	wood	clear	privacy lock	none	2
134	4'-0"	6'-8"	one pnl.	wood	clear	latchset	none	---
135	2'-0"	6'-8"	one pnl.	wood	clear	latchset	none	---
136	5'-0"	6'-8"	one pnl.	wood	clear	latchset	none	---
137	5'-0"	6'-8"	one pnl.	wood	clear	track and pulls	none	---
138	3'-0"	6'-8"	one pnl.	wood	clear	trolley trk./pull	none	---
139	[NOT USED]							
140	[NOT USED]							

WINDOW SCHEDULE  
BUILDING E

	width	height	head ht.	operation	frame	glazing
	notes					
A	3'-0"	5'-0"	normal	single-hung	vinyl	clear safety 1
B	3'-0"	5'-0"	normal	single-hung	vinyl	clear 1
C	5'-0"	4'-0"	normal	fixed	vinyl	clear 1
D	3'-0"	4'-0"	normal	single-hung	vinyl	clear 1
E	2'-0"	4'-0"	normal	fixed	vinyl	clear safety 1, 3
F	3'-0"	5'-0"	normal	fixed	vinyl	clear safety 1
G	6'-0"	4'-0"	normal	horiz slider	vinyl	clear 1, 2
H	4'-0"	2'-0"	normal	fixed	vinyl	clear safety 1, 3
J	6'-0"	4'-0"	normal	horiz slider	vinyl	clear 1, 2
K	5'-0"	4'-0"	normal	fixed	vinyl	clear 1
L	3'-0"	4'-0"	normal	single-hung	vinyl	clear 1
M	3'-0"	4'-0"	normal	single-hung	vinyl	clear 1
N	3'-0"	4'-0"	normal	single-hung	vinyl	clear 1
P	3'-0"	5'-0"	normal	single-hung	vinyl	clear safety 1
R	3'-0"	5'-0"	normal	single-hung	vinyl	clear 1
S	3'-0"	5'-0"	normal	single-hung	vinyl	clear 1
T	3'-0"	5'-0"	normal	single-hung	vinyl	clear safety 1
U	4'-0"	4'-0"	normal	horiz slider	vinyl	clear 1, 2
V	5'-0"	4'-0"	normal	fixed	vinyl	clear 1
W	5'-0"	4'-0"	normal	fixed	vinyl	clear 1
X	4'-0"	4'-0"	normal	horiz slider	vinyl	clear 1, 2
Y	5'-0"	4'-0"	normal	horiz. slider	vinyl	clear 1, 2
Z	5'-0"	2'-0"	normal	fixed	vinyl	clear 1
AA	5'-0"	4'-0"	normal	horiz slider	vinyl	clear 1, 2
BB	3'-0"	4'-0"	normal	fixed	vinyl	clear 1
CC	5'-0"	4'-0"	normal	fixed	vinyl	clear 1
DD	5'-0"	4'-0"	normal	horiz. slider	vinyl	clear 1, 2
EE	3'-0"	4'-0"	normal	single-hung	vinyl	clear 1, 3
FF	5'-0"	4'-0"	normal	horiz. slider	vinyl	clear 1, 2
GG	5'-0"	4'-0"	normal	fixed	vinyl	clear 1
HH	6'-0"	4'-0"	normal	horiz. slider	vinyl	clear 1, 2
JJ	6'-0"	4'-0"	normal	horiz. slider	vinyl	clear 1, 2

ROOM FINISH SCHEDULE NOTES

- Walls and ceilings shall be painted gypsum board, typical.
- Substitute cementitious tile backer board for gypsum board at kitchen/laundry backsplash walls and tub/showers where ceramic wall tile occurs [if applicable].

WINDOW SCHEDULE GENERAL NOTES

- Sizes in Window Schedule are rough openings. Confirm frame size required with manufacturer, to allow for required insulation and shim space.
- "Normal" head height is aligned with adjacent tops of doors, +/- 6'-10" rough opening height (confirm).

WINDOW SCHEDULE NOTES

- Vinyl frame windows shall be high quality residential grade with insulated double glazing, low E and argon. Frame color white. Provide screens at operating windows.
- Meet all applicable requirements for sleeping room egress, including min. 5.7 square feet net clear opening area; 24 inch min. net clear height; 20 inch min. net clear width (R310.2.1); max. 44 inch sill height (R310.2.2) and operating hardware complying with R310.1.1.
- Translucent or patterned glass for privacy.

DOOR SCHEDULE NOTES

- Weatherstripping and threshold.
- Polished nickel hardware finish at bathroom side for bathroom use.
- Door bottom gasket: brush seal at head and jambs; furnished will all necessary hardware and accessories including track, spring or other counterbalance mechanism, opener, sensors, wall button, remotes, key lock. Thermacore, model 495 with flush wood grain panel finish, manufactured by Overhead Door, color as selected -- or approved substitution.
- 20-minute rated door/frame with weatherstripping, smoke/vapor seal, threshold and closer.
- Entry door in wood frame with integral full-height safety glass side lite as shown on Floor Plans. Confirm rough opening required. Flush panel door and plain rectangular side lite.
- Full safety glass lite.

AREA SUMMARY

UNIT E1 -- 3-BR 2-BA		
FIRST FLOOR -- LIV. AREA	564	SQ. FT.
SECOND FLR. -- LIV. AREA	666	
SUBTOTAL, LIVING AREA	1,230	
FLEX	31	
UNIT TOTAL	1,261	
UNIT E2 -- 2-BR 1.5-BA		
FIRST FLOOR -- LIV. AREA	444	SQ. FT.
SECOND FLR. -- LIV. AREA	487	
SUBTOTAL, LIVING AREA	931	
FLEX	46	
UNIT TOTAL	977	
UNIT E3 -- 3-BR 2-BA		
FIRST FLOOR -- LIV. AREA	595	SQ. FT.
SECOND FLR. -- LIV. AREA	637	
SUBTOTAL, LIVING AREA	1,232	
FLEX	49	
UNIT TOTAL	1,281	
UNIT E4 -- 2-BR 1-BA		
FIRST FLOOR -- LIV. AREA	934	SQ. FT.
FLEX	42	
UNIT TOTAL	976	
BUILDING GRAND TOTAL	4,495	SQ. FT.

STAIR COUNTED AT FIRST FLOOR ONLY, TYP.  
PORCHES EXCLUDED, TYP.

COOK INLET HOUSING AUTHORITY  
BAXTER MULTIPLEXES, PHASE II  
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#### EXCAVATION AND FILL

Slope finish grade away from buildings 6 inches minimum for a distance of 10'-0".  
Place any large rocks unearthed during excavation near the driveway.

#### SITE UTILITIES

Connect water service line to water main.  
Connect drain lines to sanitary sewer main.  
Provide natural gas service entrance and meter.  
Provide 200 amp electrical service entrance and meter.  
Provide service entrance for Cable TV/Internet.

#### SITE WORK AND LANDSCAPING

Preserve existing natural vegetation to the extent possible.  
Provide house numbers and unit numbers as shown on Elevations.

#### HEATING

Design of the heating and ventilation systems shall be by Contractor.  
Permits shall be acquired and paid for by the Contractor.  
Inspections shall be scheduled by the Contractor and/or Subcontractor.  
Provide natural gas fired furnace for each living unit, with minimum output of 50 BTUH per square foot of area served.  
Locate mechanical equipment in Shared Mechanical Room.

#### ELECTRICAL

Design of the electrical systems shall be by Contractor.  
Permits shall be acquired and paid for by the Contractor.  
Inspections shall be scheduled by the Contractor and/or Subcontractor.  
Rough in all boxes and conduct a walk-through review of the locations of all power outlets, switches, light fixtures and any other electrical items with Owner prior to wiring.  
Provide concealed Cable TV/Internet wiring and wall boxes from service entrance to locations indicated on Floor Plan.  
Switched outlets shall be half switched.  
Confirm power requirements for all Owner-furnished items.  
Provide smoke detectors in each bedroom and on each floor level at high point of ceiling. Provide carbon monoxide detector on each level. Detectors shall be hardwired in a series, so if one sounds they all do, with battery backup.  
Provide hardwired doorbell at main entry doors; locate chimes in hallway close to bottom of stairs.

#### SIDING

Install all siding over air infiltration retarder.  
Provide a sample of each type of siding to be used prior to installation or ordering of materials.  
Provide siding types as shown on Elevations.  
Provide all necessary trim, flashing, terminations and accessories, whether shown/noted or not.

#### EXTERIOR TRIM

Provide 2x8 cedar fascia, or fiber cement plank same dimension.  
Provide window trim, corner trim and other trim as shown/noted.

#### INSULATION

Provide foundation insulation as shown/noted in Sections and details.  
Provide minimum R-20 insulation at foundation walls.  
Provide minimum R-21 insulation, batt or blown-in cellulose at exterior walls.  
Provide minimum R-38 insulation, foam in place at rim joist.  
Provide minimum R-49 insulation, batt or blown-in cellulose at roofs, with minimum 2" vent space above.  
Provide minimum R-38 insulation, foam in place at floor cantilevers.  
Provide bird screen and insect screen at vent openings.  
Vent area shall be equivalent to 1/150th of roof area, 50% at each side at end walls.  
Provide 6-mil vapor retarder at warm side of all wall and roof insulation.

#### ATTIC VENTILATION

See Insulation section.

#### ROOFING

Provide asphalt composition shingles over ice and water shield (self-adhering modified bitumen membrane).  
Provide continuous embedded edge metal flashing at roof edges.  
Provide gutter and downspout/s according to best standard local practice.  
Locate downspout outlets 5'-0" beyond exterior wall.

#### DRYWALL AND PAINT

Provide 1/2" gypsum board at walls.  
Provide 5/8" gypsum board at ceilings.  
Provide samples of wall texture and paint/stain color samples, prior to commencement of work or ordering of materials.  
Provide exterior grade primer and paint at any siding types not supplied prefinished; and exterior soffit and fascia.  
Provide exterior-grade stain at exposed truss tails and underside of sheathing.  
Provide primer and two coats of water based latex enamel at interior.

#### INTERIOR TRIM

Typical base trim and door trim shall be rectangular MDF or 4" rubber base as selected. Prime and paint MDF with two coats semi-gloss, color to match adjacent walls.  
Window trim shall be min. 3/4" rectangular clear hem-fir, poplar or MDF sill with gypsum board returns at jambs and head. Gypsum board returns four sides OK for high windows.

#### CRAWL SPACE VENTILATION

Crawl spaces shall be mechanically ventilated.  
Provide constant velocity fan with 1 CFM per square foot of crawl space footprint.  
Transfer grilles, floor openings located opposite of fan/discharge to pull air across crawl space.  
Design and installation by Contractor.  
Comply with IRC 408.3, 2.1.

#### BUILDING CODE SUMMARY

International Residential Code, 2018 edition

Use -- two family dwelling R101.2

Allowable number of stories -- 3  
Actual number of stories -- 2

Exterior walls are not required to be fire rated, min. 5'-0" fire separation at property line. Table R302.1 (1)

Smoke alarms are required. R314

Address identifying signage is required. R319

Minimum stairway width, 36". R311.7.1

Stairway maximum riser height, 7-3/4"; minimum tread depth, 10". R311.7.5.1, R311.7.5.2

Handrails -- one side of stair runs only. Handrails are not required at stair flights with three or fewer risers. R311.7.8

Handrail height -- 34" above nosings, except at transitions as allowed by R311.7.8.1, exception 2.

Guard height -- minimum 34" above stair nosings. R312.1.2, exception 1

Guard height -- minimum 36" at deck railing and any other locations not along stair runs. R312.1.1

#### ZONING CODE SUMMARY

Title 21, Anchorage Municipal Code

Zoning district: R-3

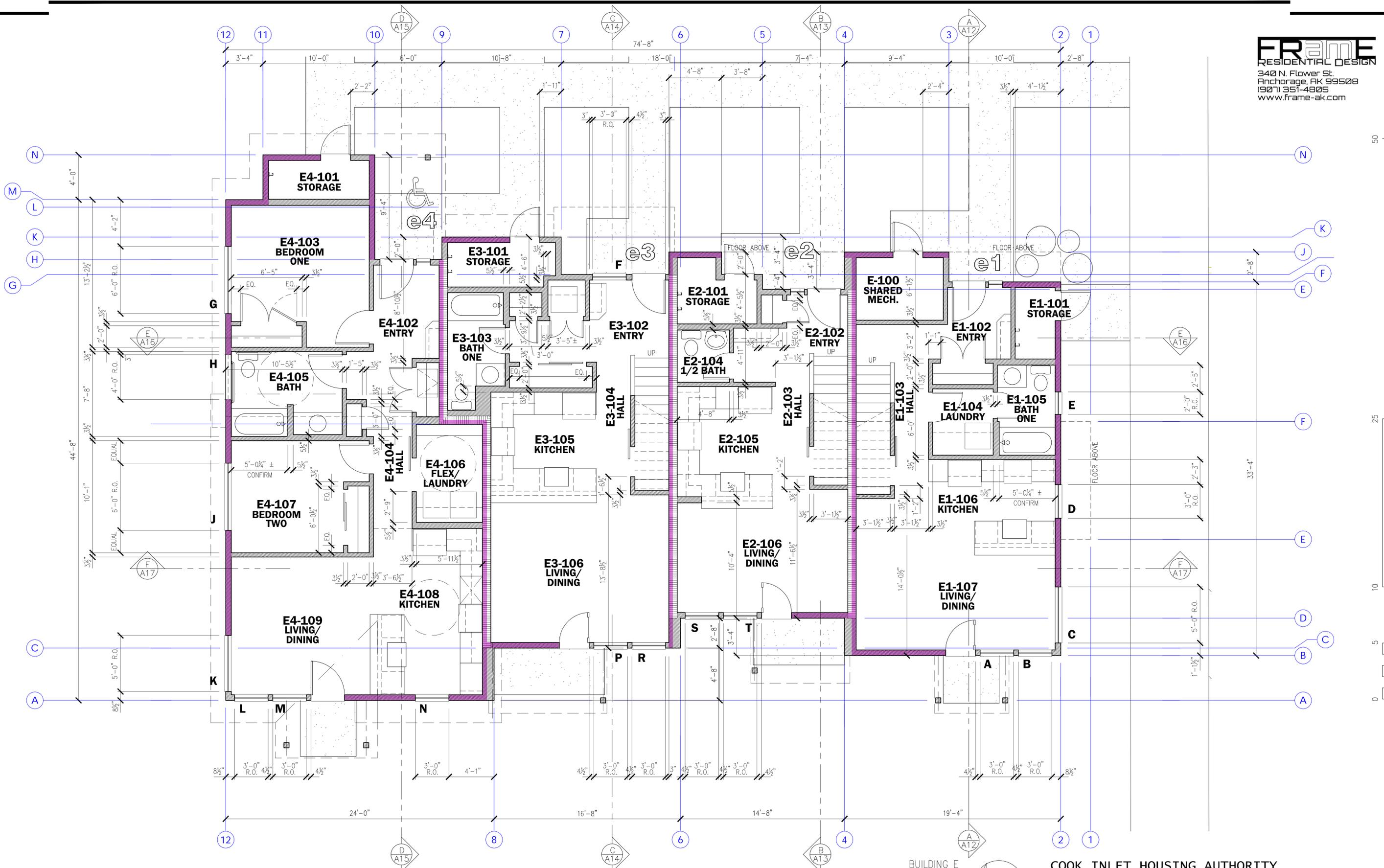
Property area: 47,418 sq. ft.

Lot coverage, allowed: 40% [multifamily]; 60% [townhouse] Table 21.06-1

Lot coverage, proposed: 49.3%

Height, allowed: 35 ft. Table 21.06-1

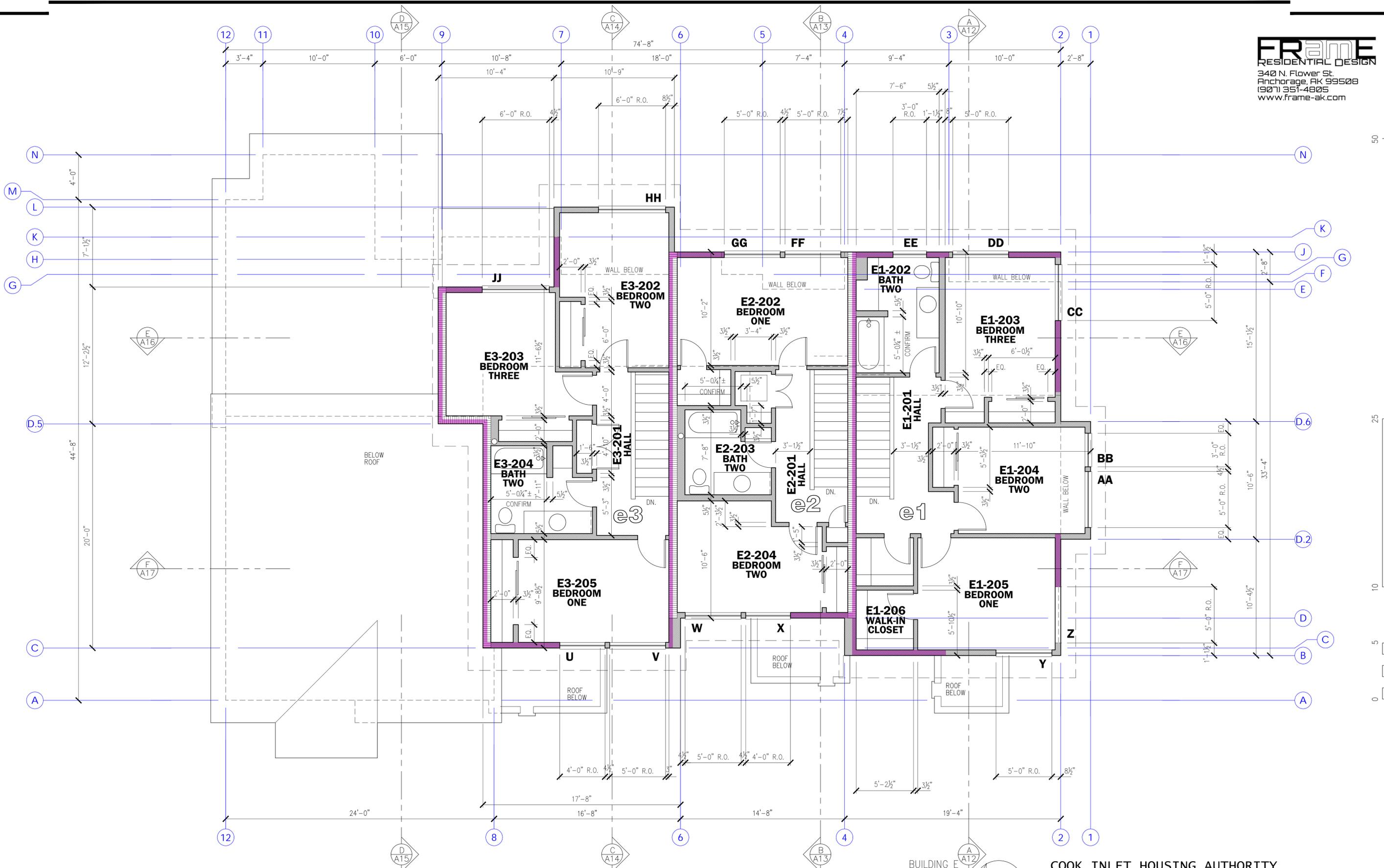
Height, proposed: 23 ft.



**Overall First Floor Plan**  
 BUILDING E  
 BUILDINGS D AND F -- SIMILAR/OPOSITE HAND

**COOK INLET HOUSING AUTHORITY  
 BAXTER MULTIPLEXES, PHASE II**  
 Tract B, valetskaya Addition No. 1  
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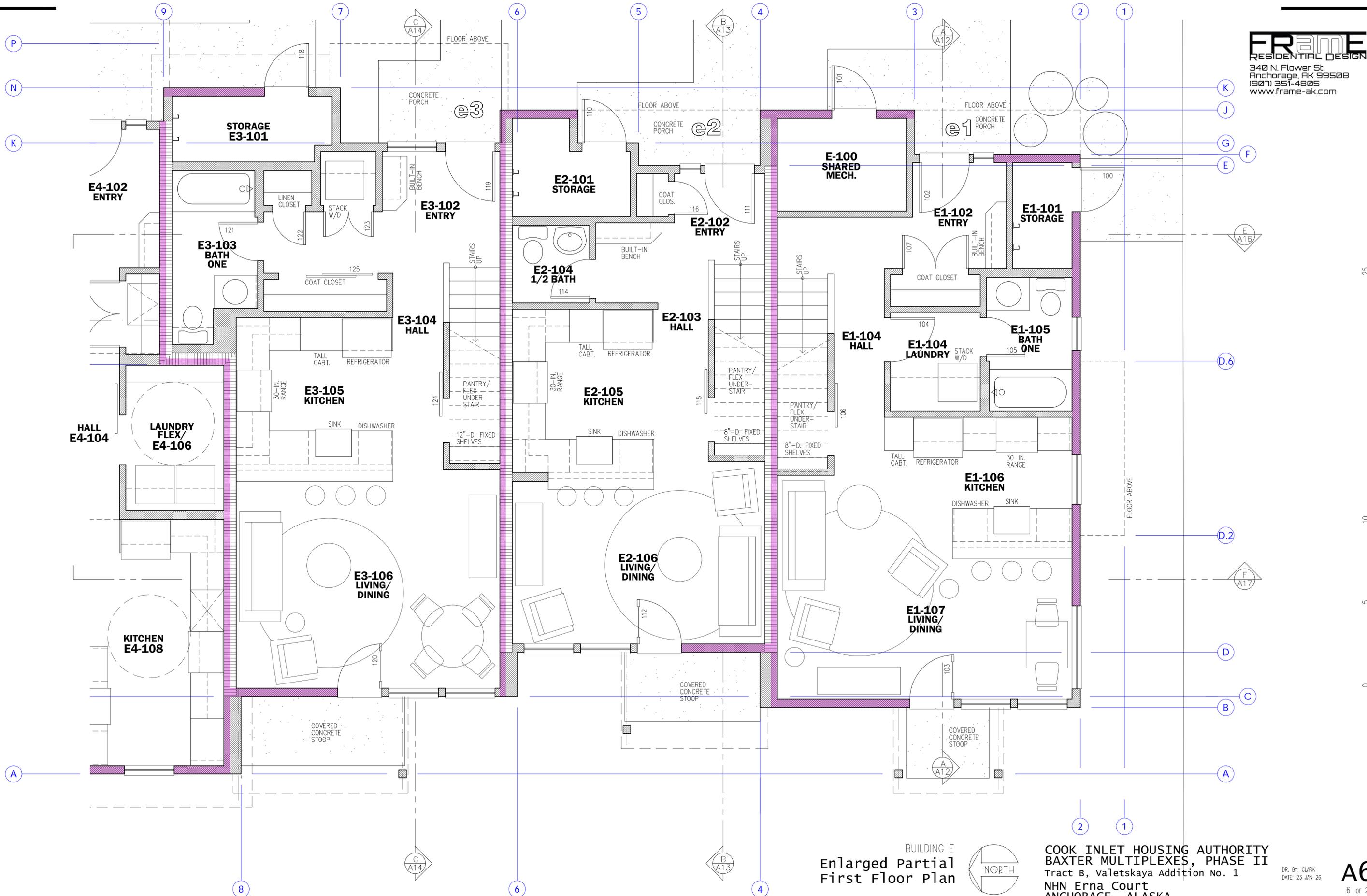
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BUILDING E  
**Overall**  
**First Floor Plan**  
BUILDINGS D AND F --  
SIMILAR/OPOSITE HAND

**COOK INLET HOUSING AUTHORITY**  
**BAXTER MULTIPLEXES, PHASE II**  
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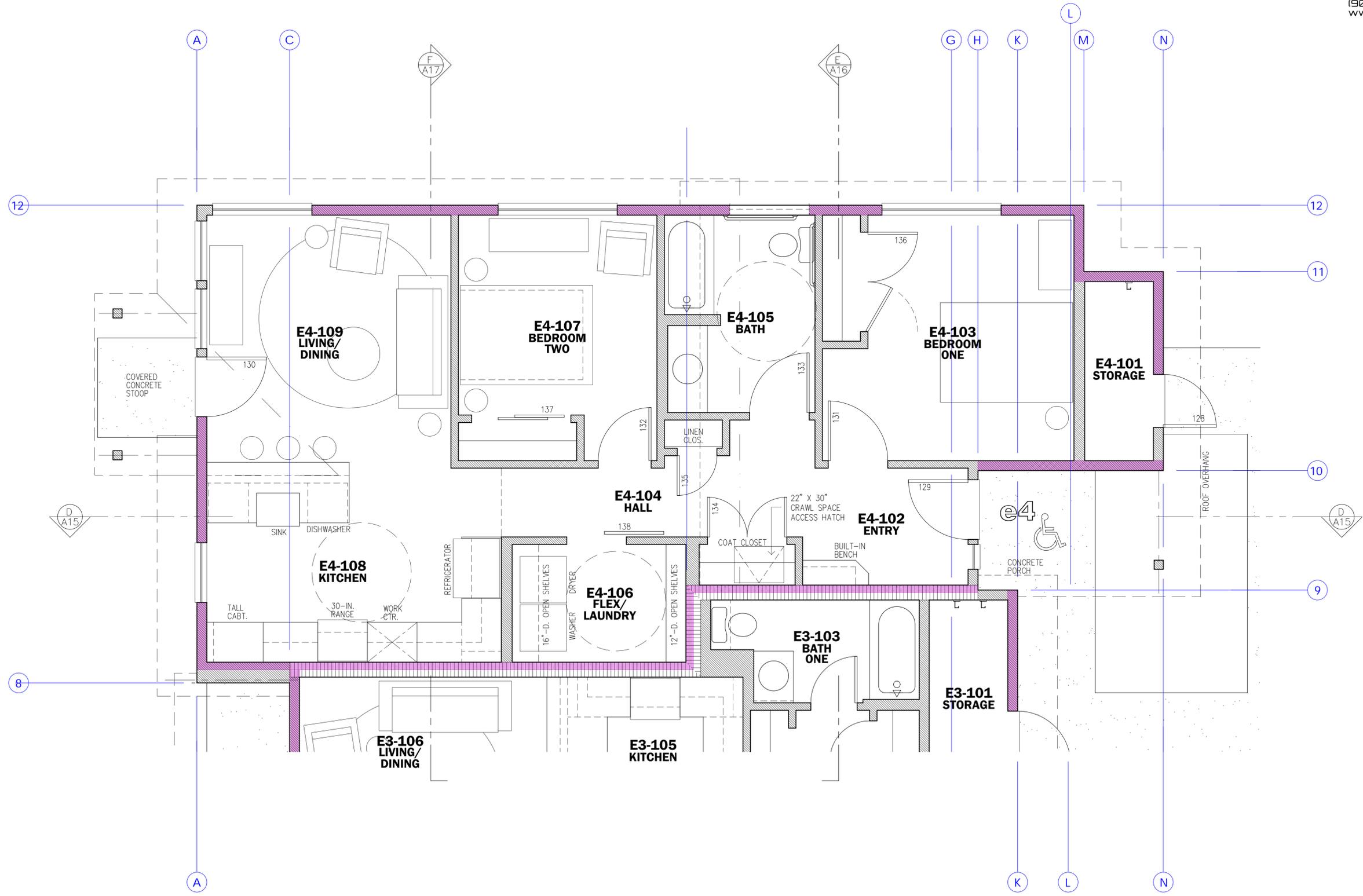


BUILDING E  
Enlarged Partial  
First Floor Plan



COOK INLET HOUSING AUTHORITY  
BAXTER MULTIPLEXES, PHASE II  
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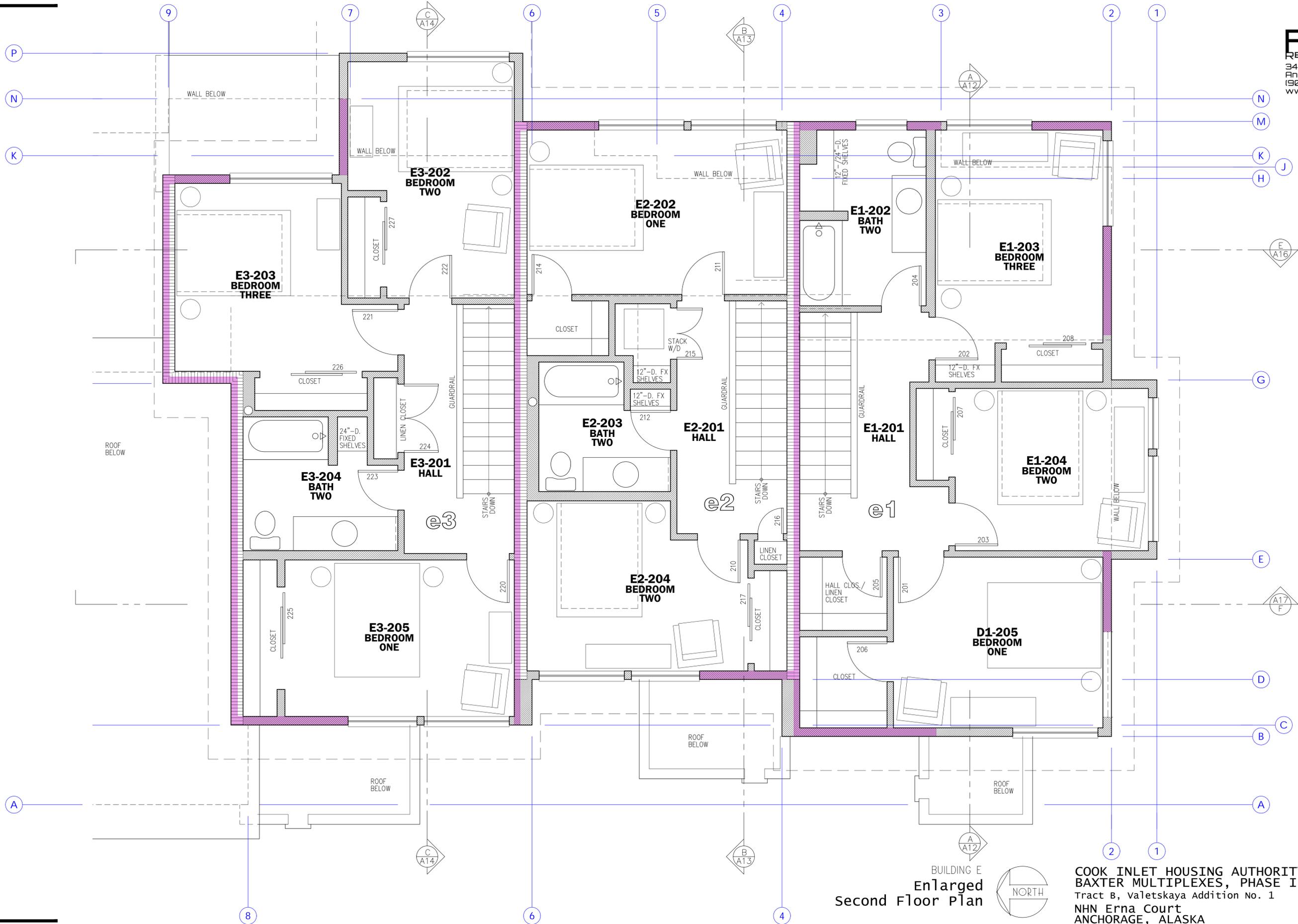


BUILDING E  
Enlarged Partial  
First Floor Plan



COOK INLET HOUSING AUTHORITY  
BAXTER MULTIPLEXES, PHASE II  
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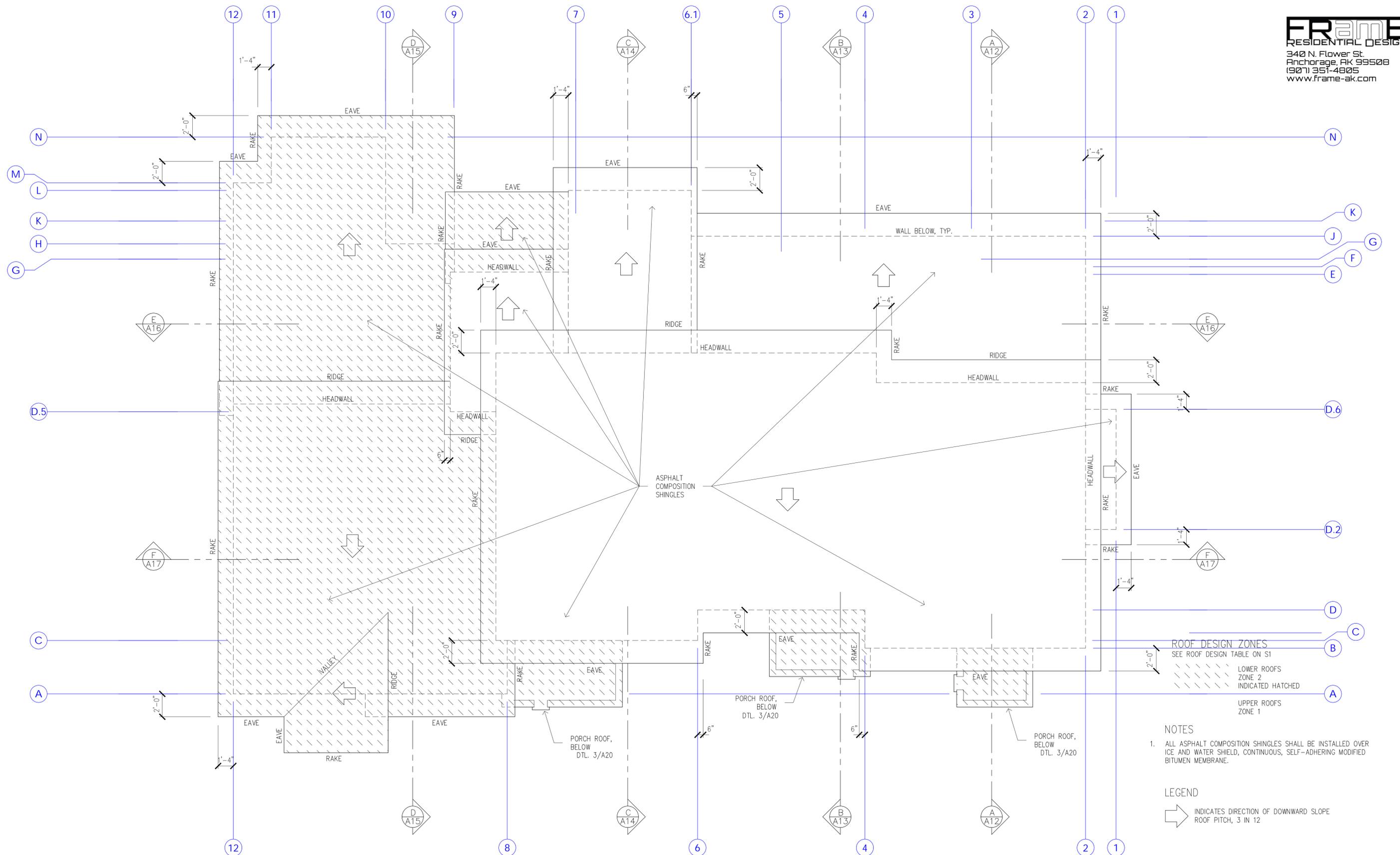


BUILDING E  
**Enlarged  
Second Floor Plan**



**COOK INLET HOUSING AUTHORITY  
BAXTER MULTIPLEXES, PHASE II**  
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**ROOF DESIGN ZONES**  
SEE ROOF DESIGN TABLE ON S1

LOWER ROOFS  
ZONE 2  
INDICATED HATCHED  
 UPPER ROOFS  
ZONE 1

**NOTES**

1. ALL ASPHALT COMPOSITION SHINGLES SHALL BE INSTALLED OVER ICE AND WATER SHIELD, CONTINUOUS, SELF-ADHERING MODIFIED BITUMEN MEMBRANE.

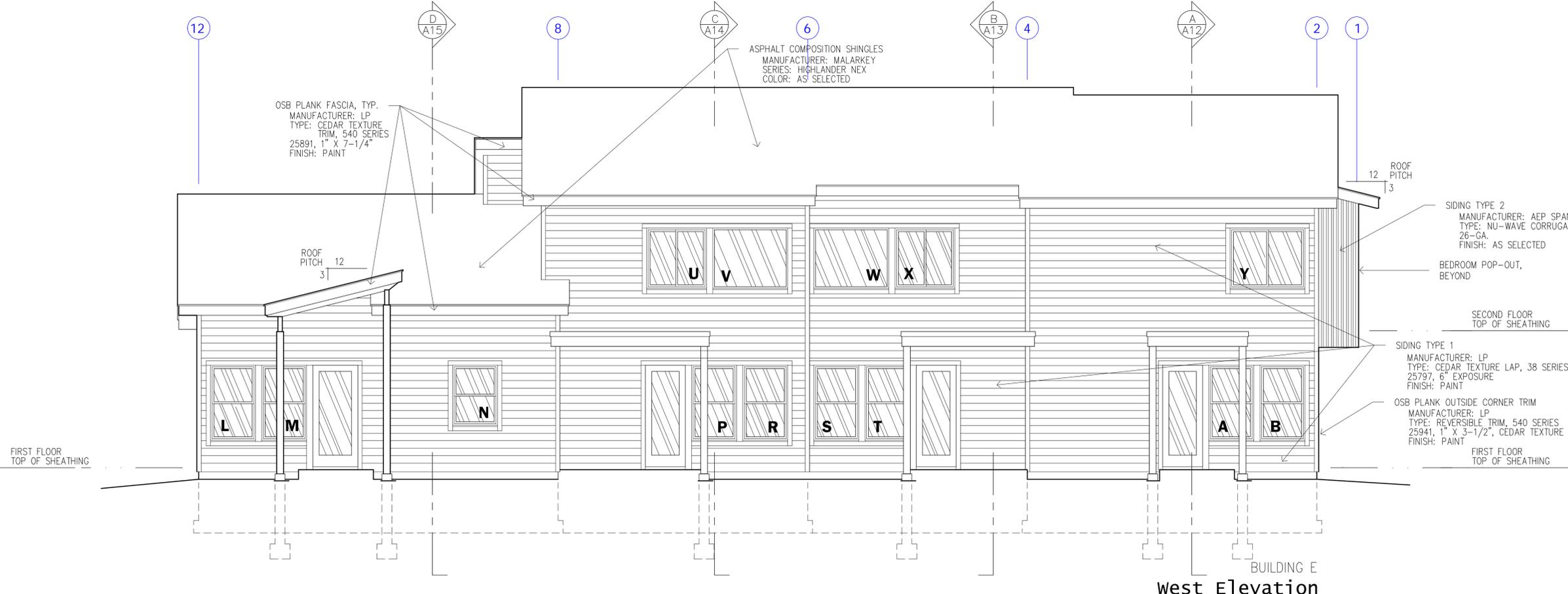
**LEGEND**

INDICATES DIRECTION OF DOWNWARD SLOPE  
ROOF PITCH, 3 IN 12

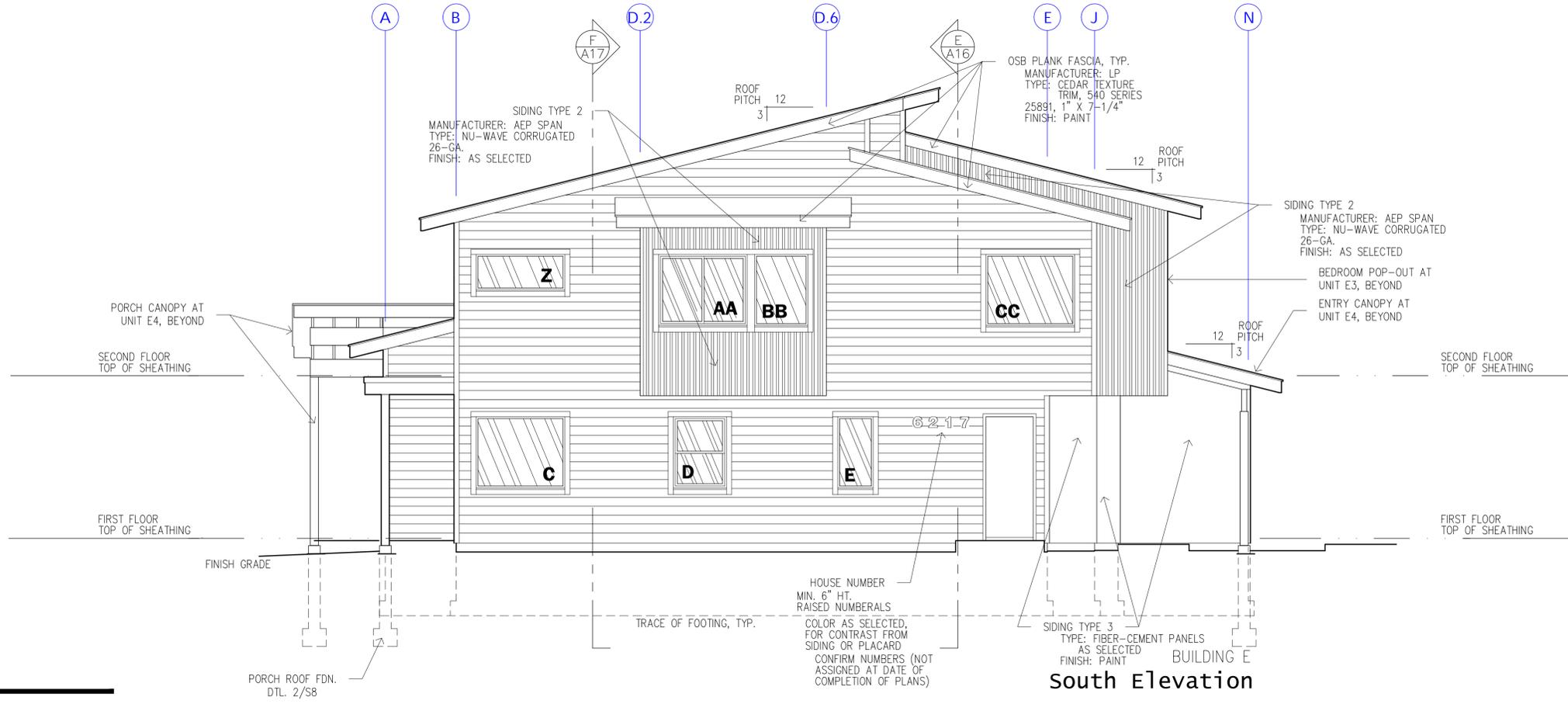
BUILDING E  
**Roof Plan**

**COOK INLET HOUSING AUTHORITY  
BAXTER MULTIPLEXES, PHASE II**  
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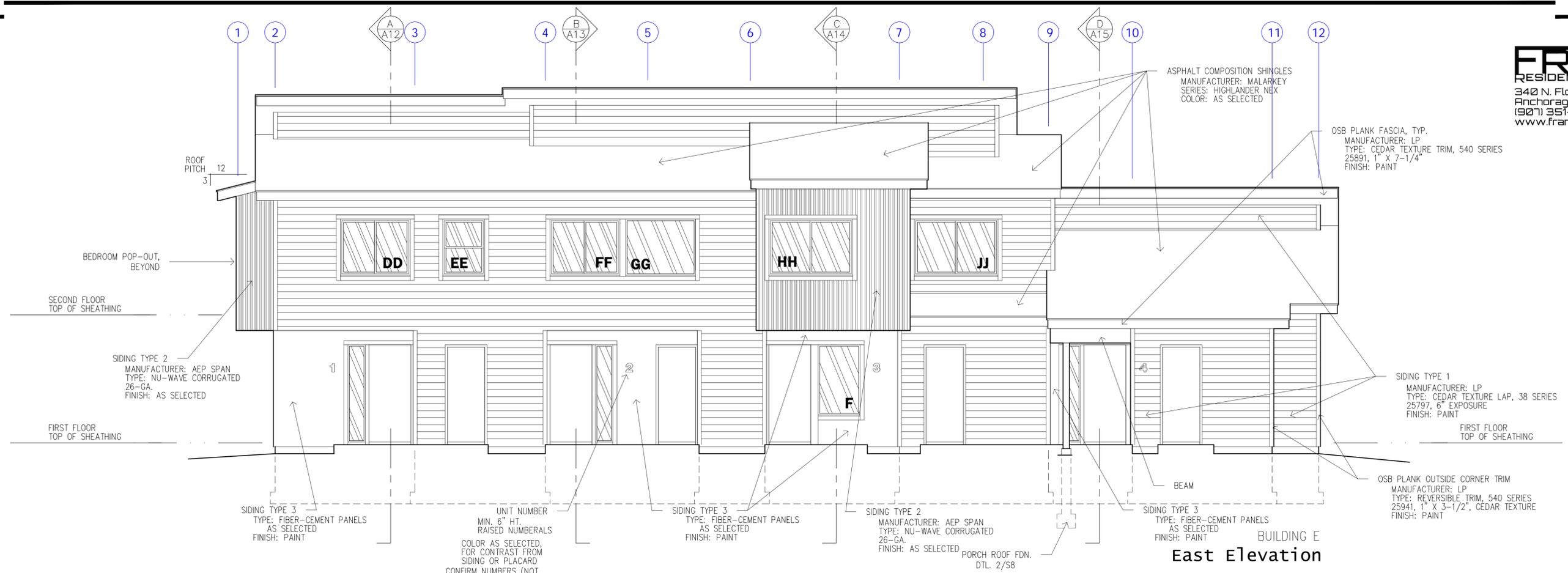
BUILDING E  
West Elevation



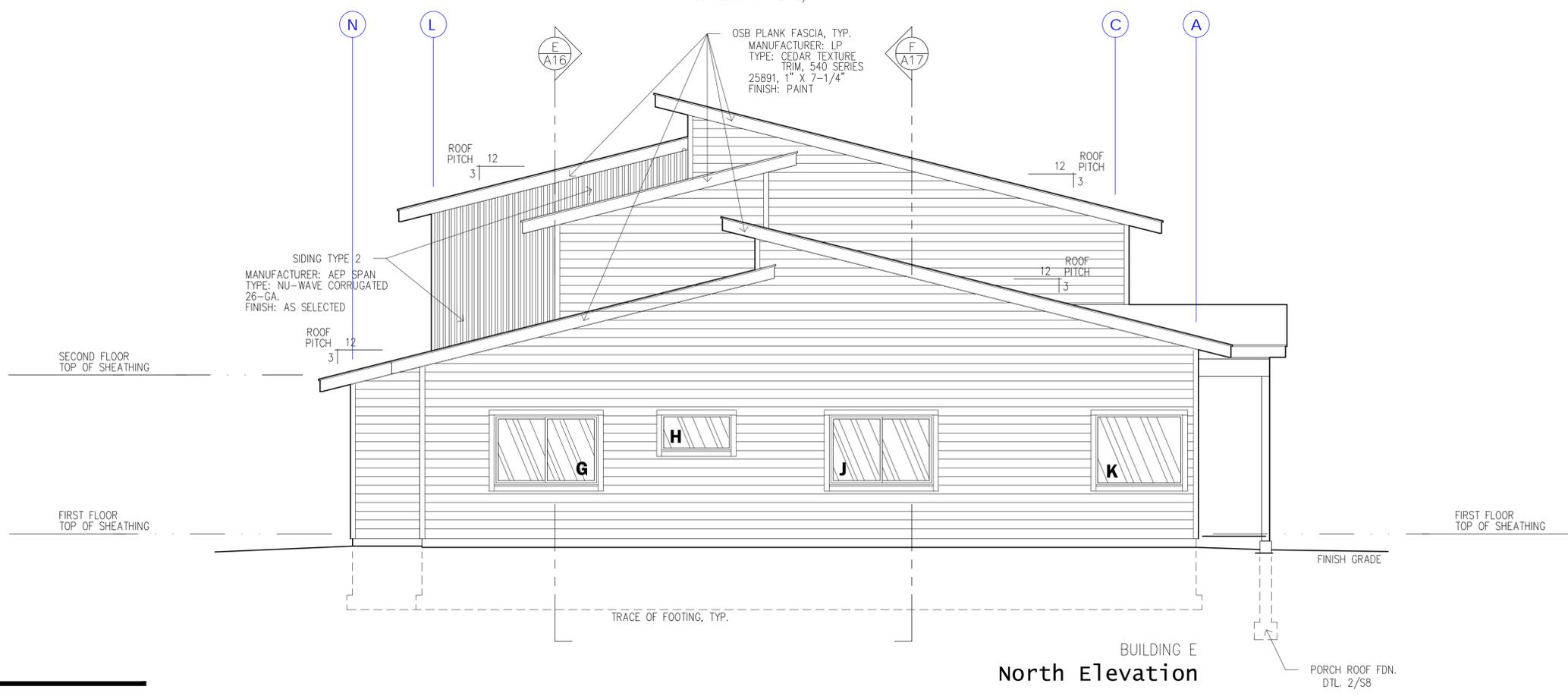
BUILDING E  
South Elevation

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**East Elevation**



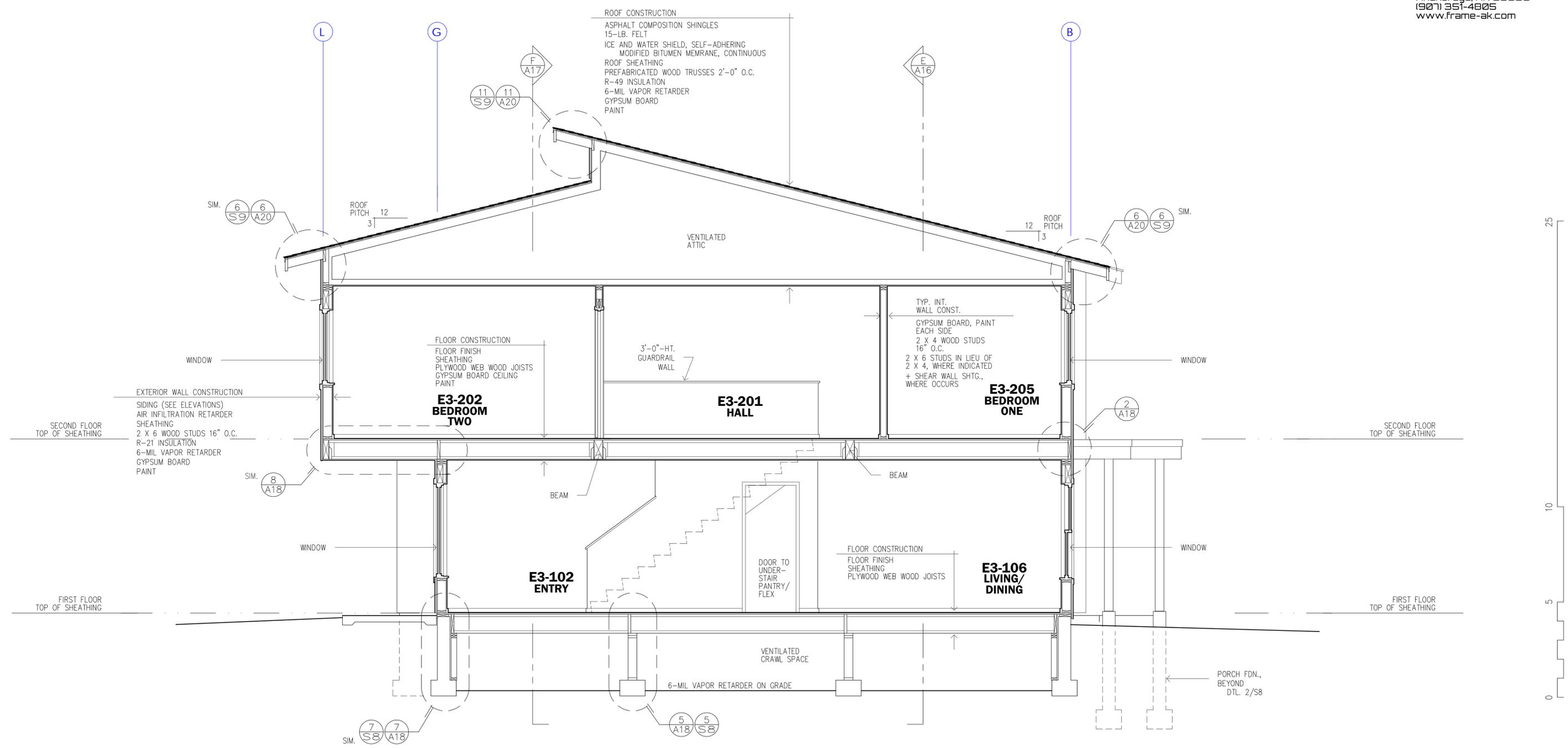
**North Elevation**

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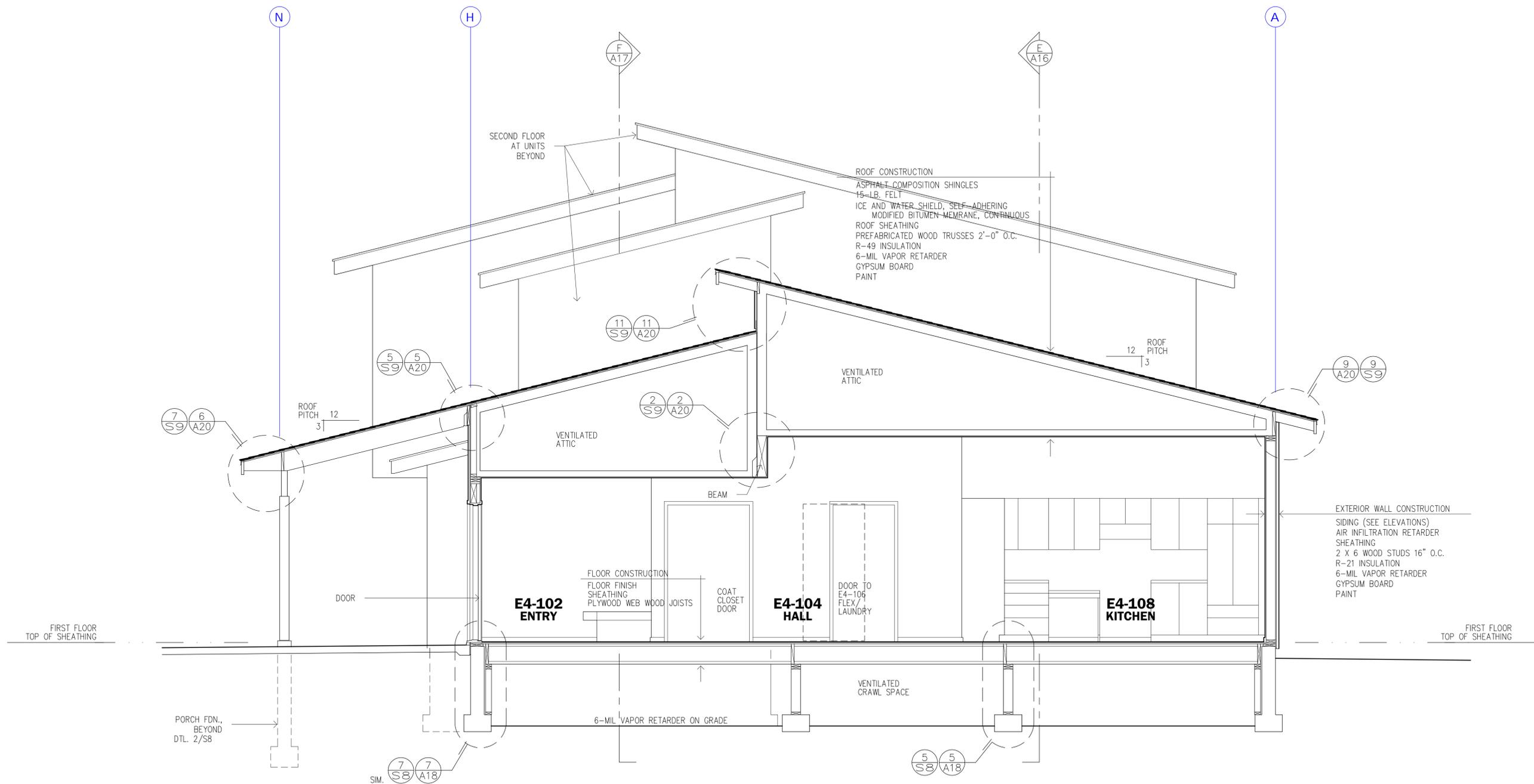
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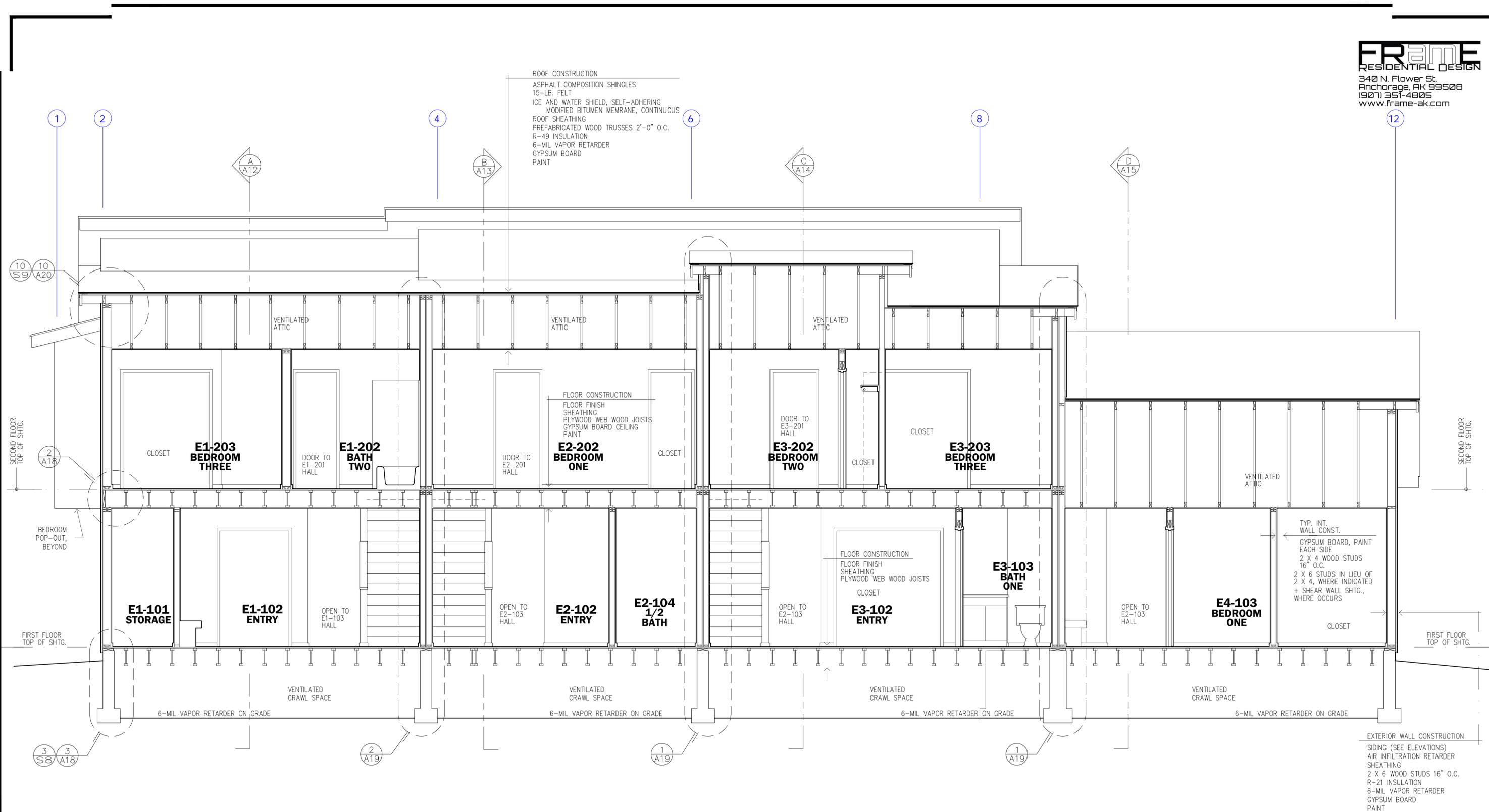




BUILDING E  
Building Section C--C



BUILDING E  
**Building Section D--D**

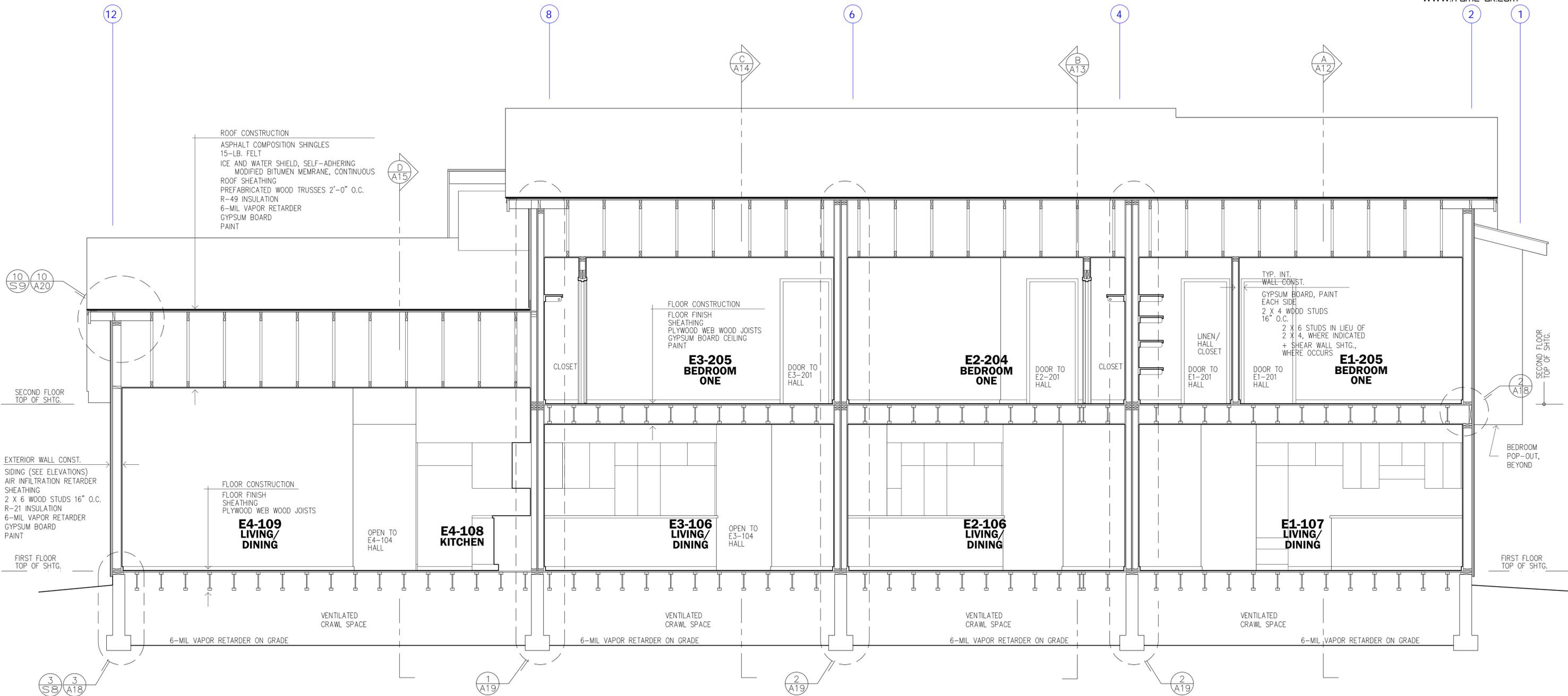


BUILDING E  
**Building Section E--E**

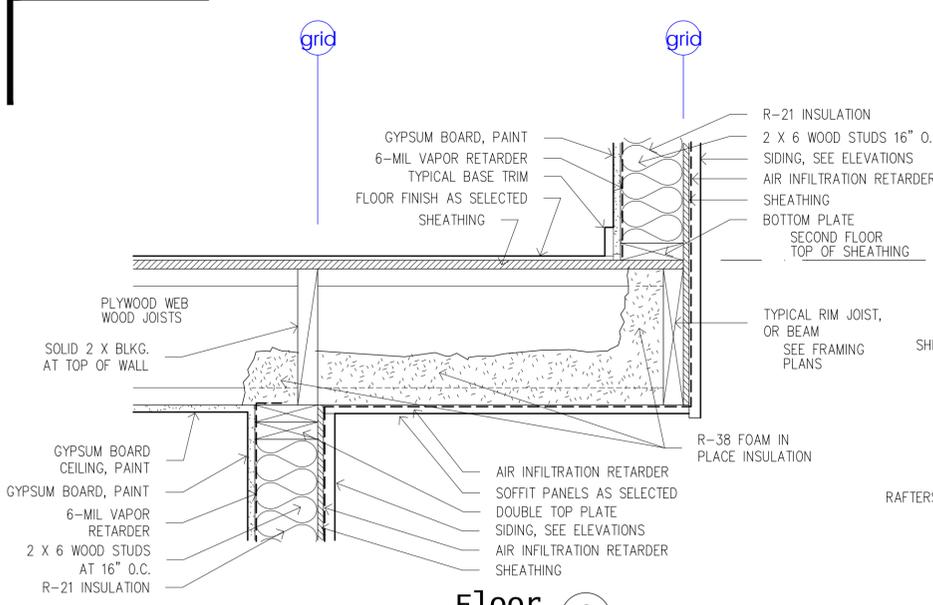
COOK INLET HOUSING AUTHORITY  
BAXTER MULTIPLEXES, PHASE II  
Tract B, valetskaya Addition No. 1  
NHN Erna Court  
ANCHORAGE, ALASKA

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DATE: 23 JAN 26  
**A16**  
16 OF 29

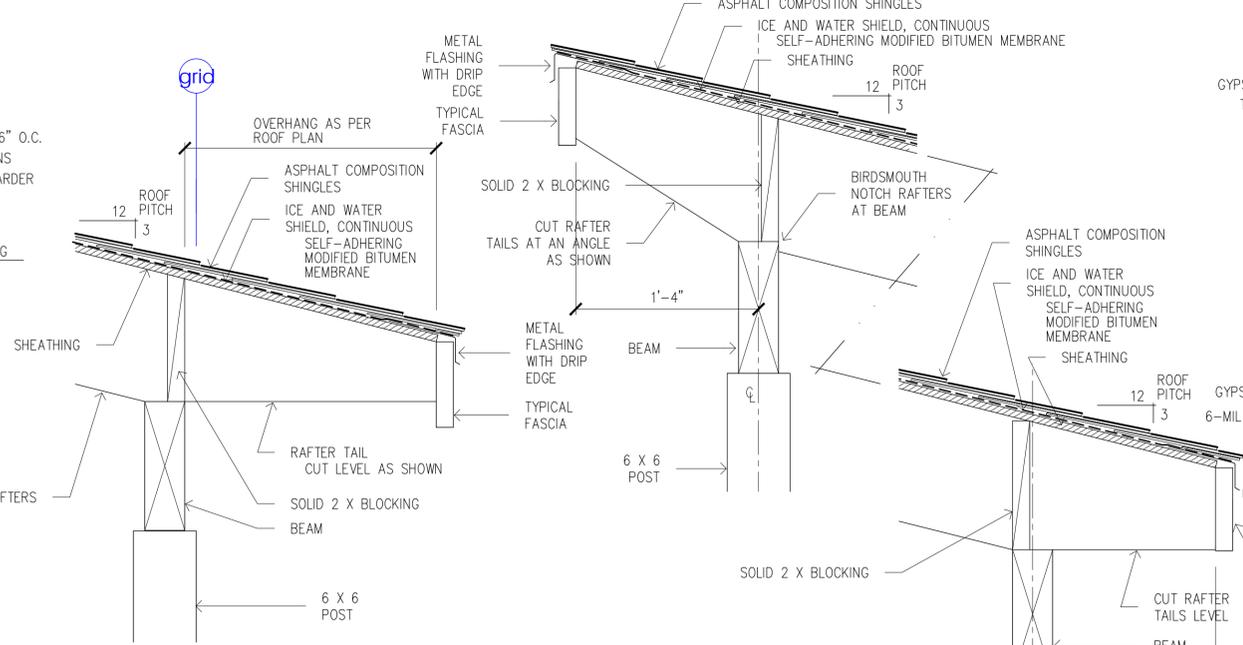




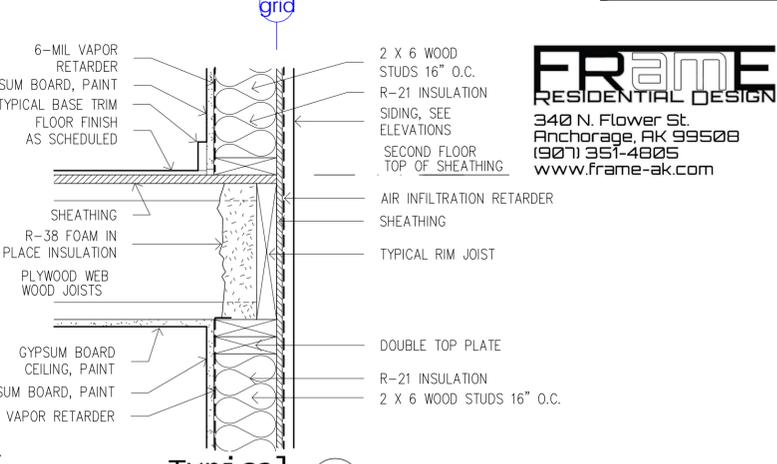
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Building Section F--F



**Floor cantilever** 8

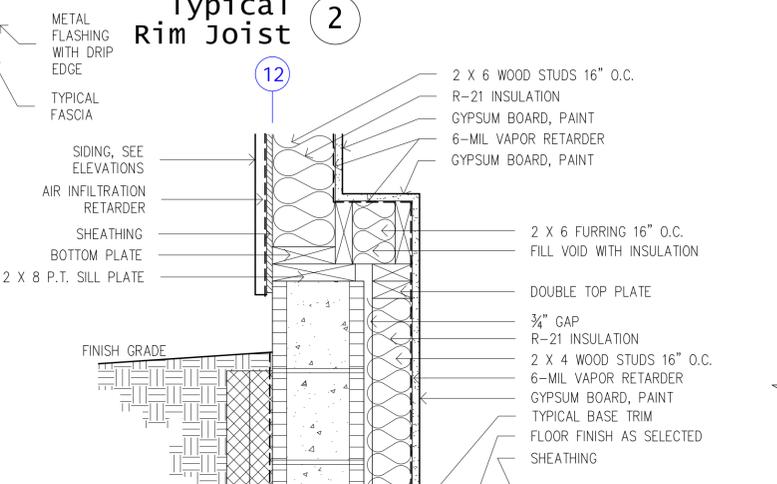


**Eave at Unit #4 Entry Canopy** 6

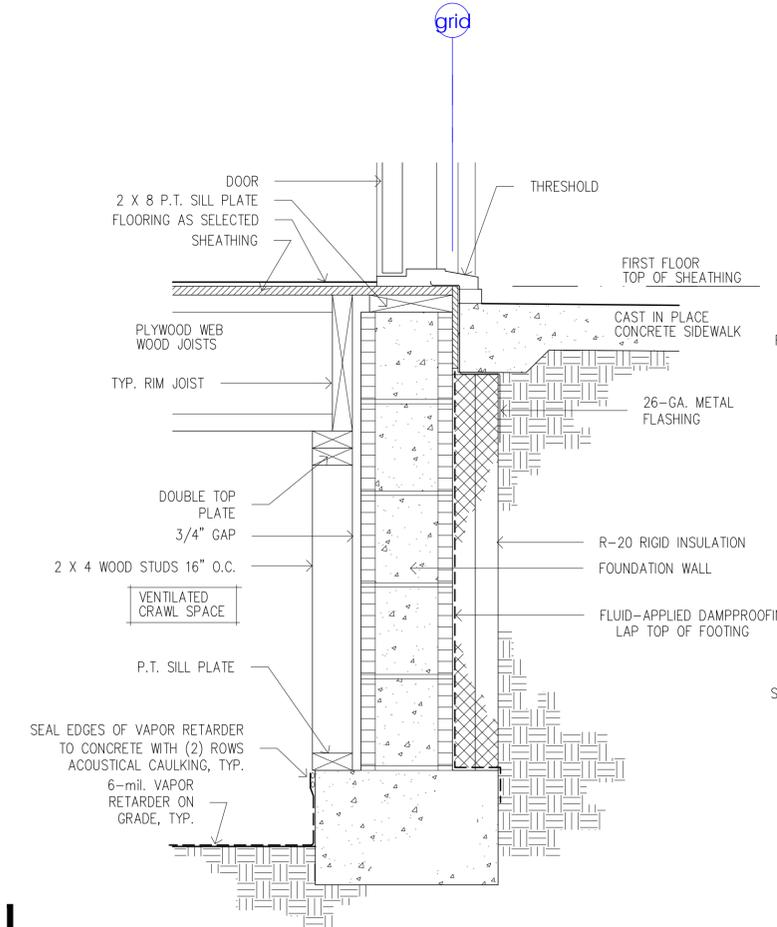


**Typical Rim Joist** 2

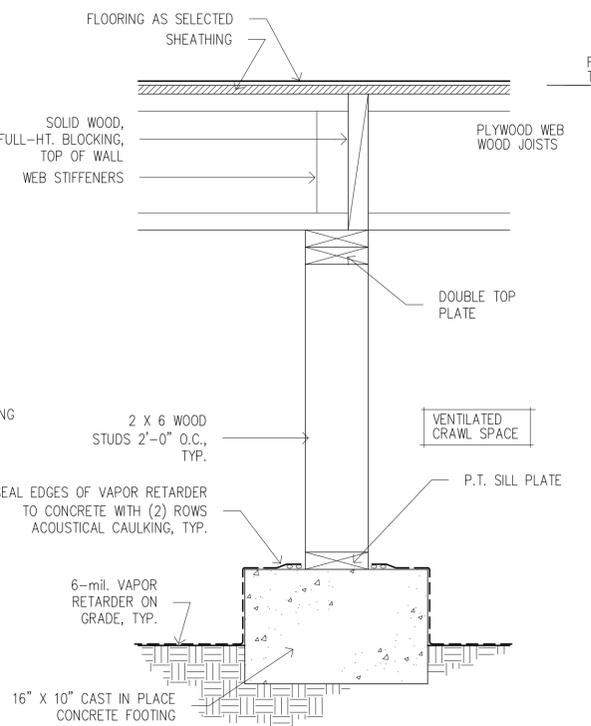
**Back Porch Canopy at Unit #4** 4  
SEE DTL. 4/S9 FOR ADDITIONAL INFORMATION



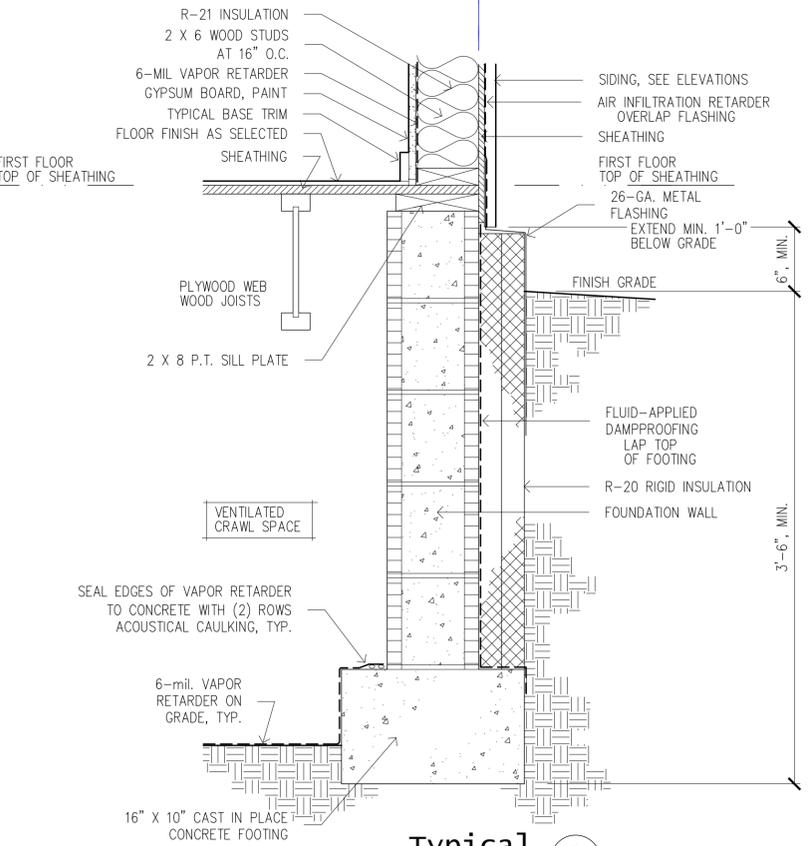
**North wall Foundation** 1  
SEE DTL. 1/S8 FOR ADDITIONAL INFORMATION



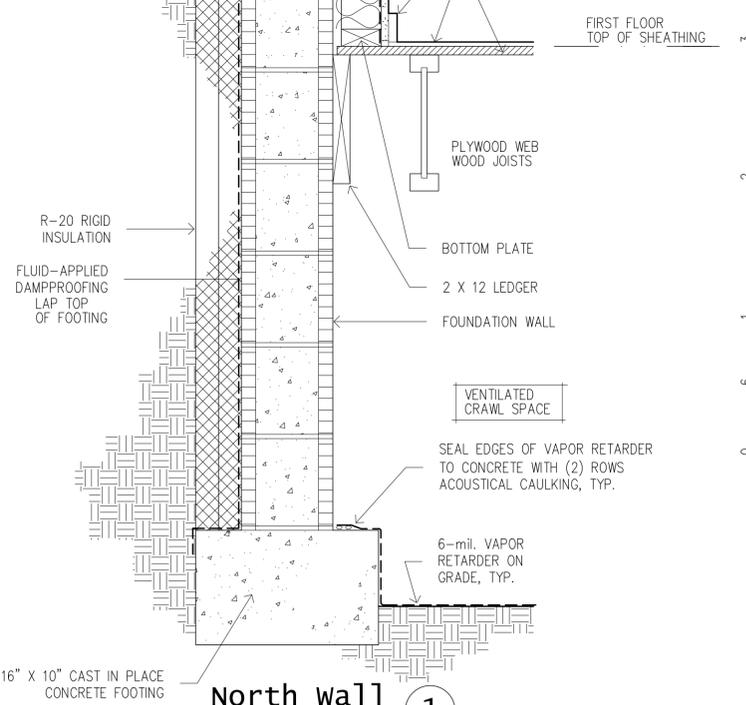
**Typical Foundation wall** 7  
SEE DTL. 7/S8 FOR ADDITIONAL INFORMATION



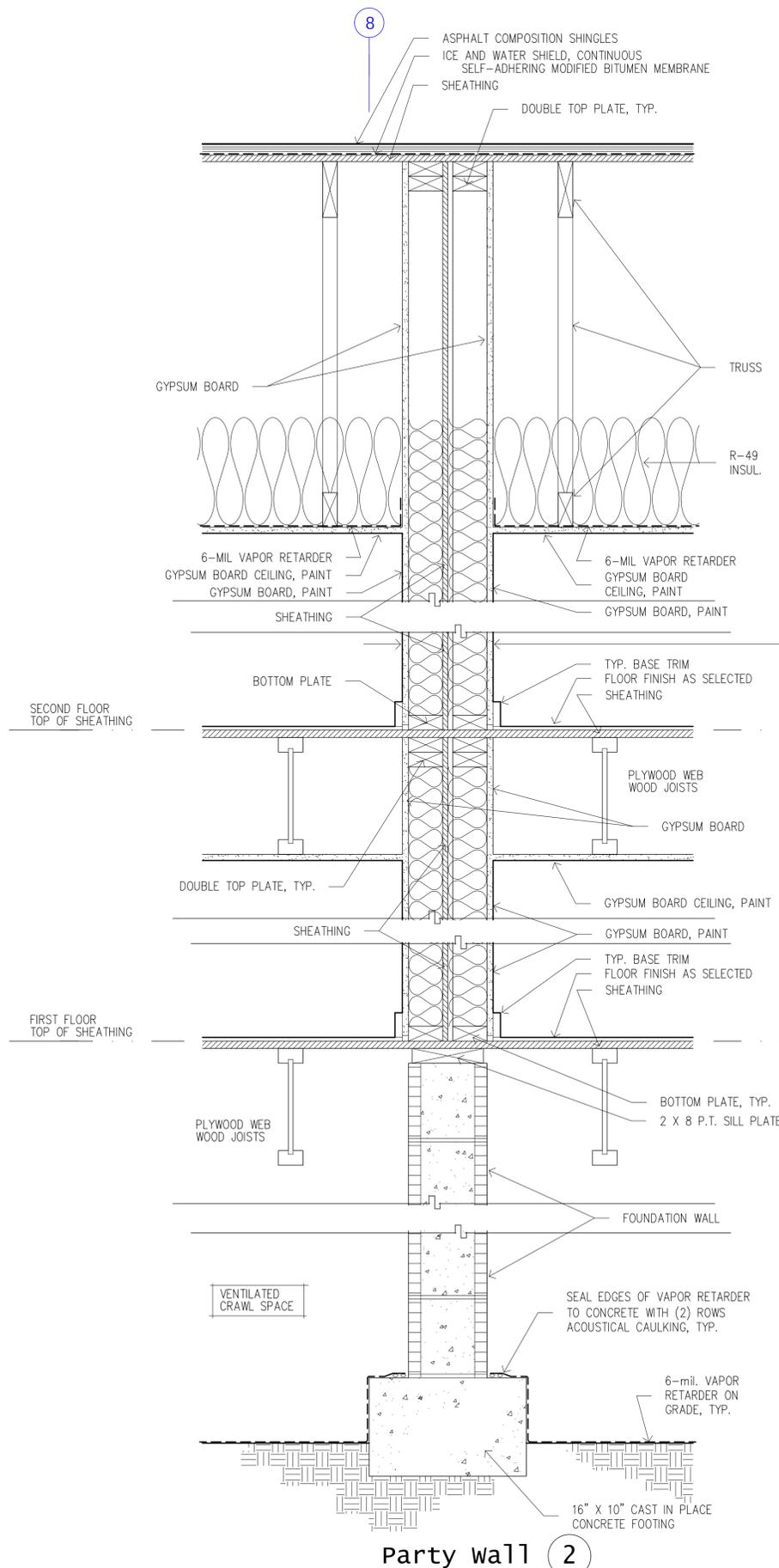
**Typical Pony wall** 5  
SEE DTL. 5/S8 FOR ADDITIONAL INFORMATION



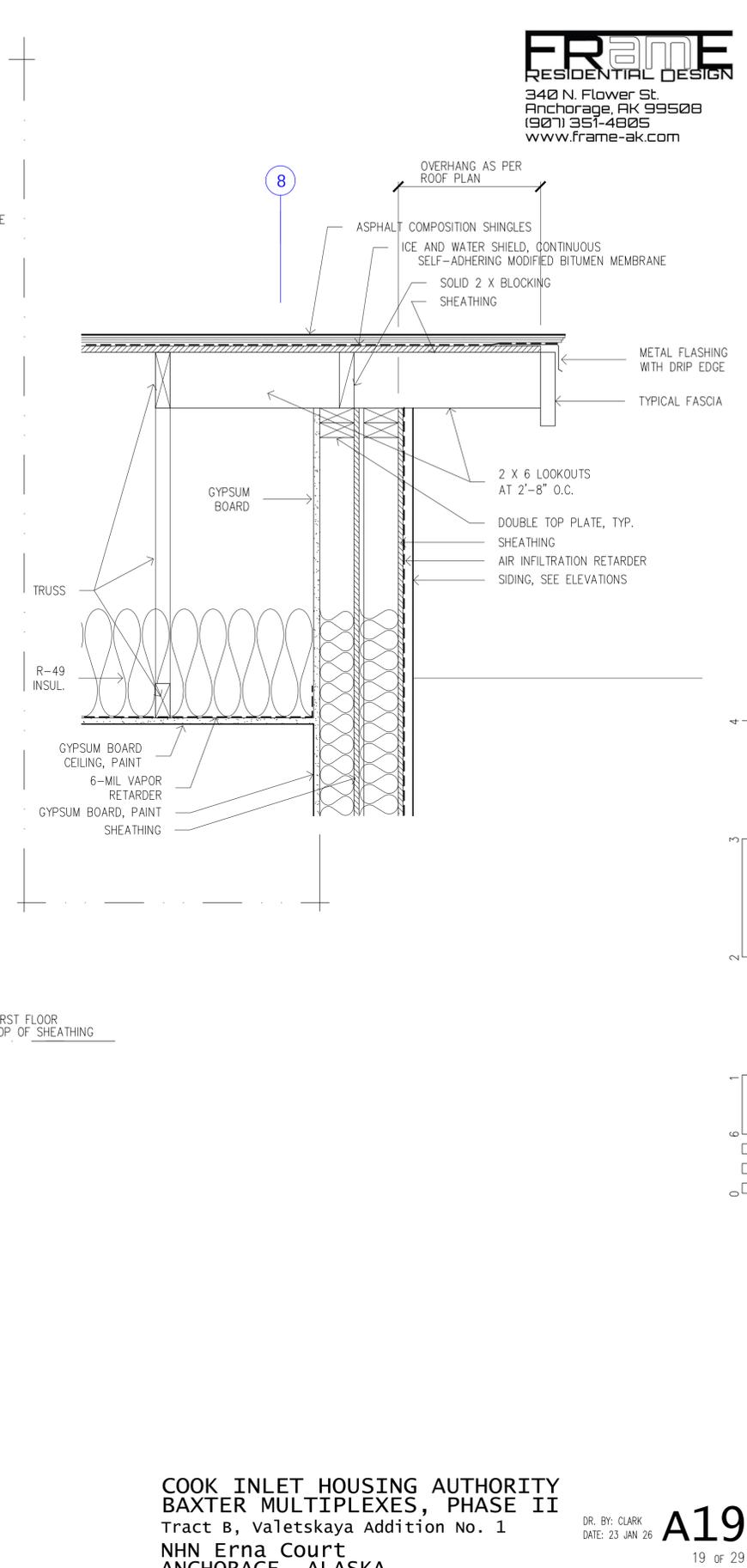
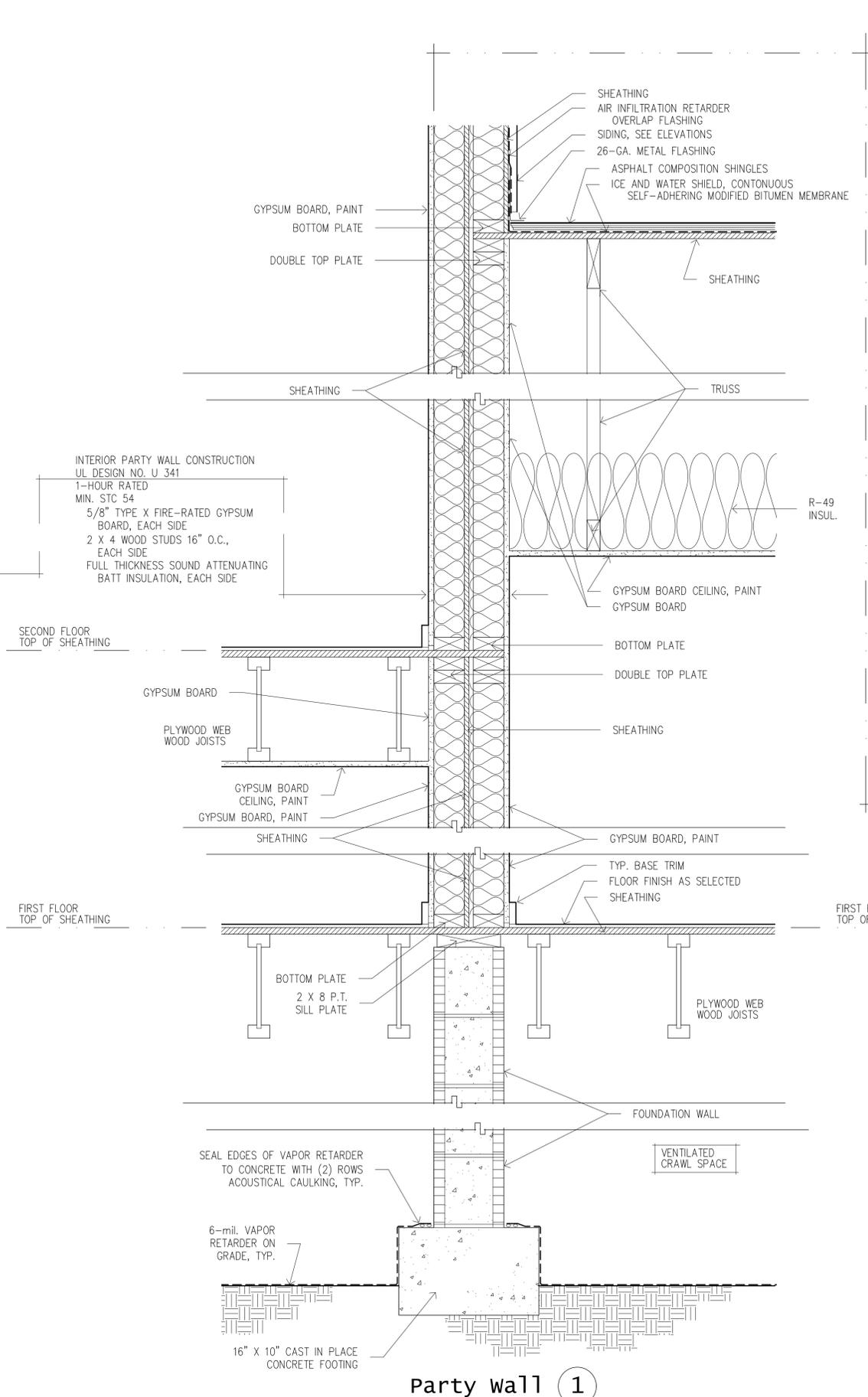
**Typical Foundation wall** 3  
SEE DTL. 3/S8 FOR ADDITIONAL INFORMATION



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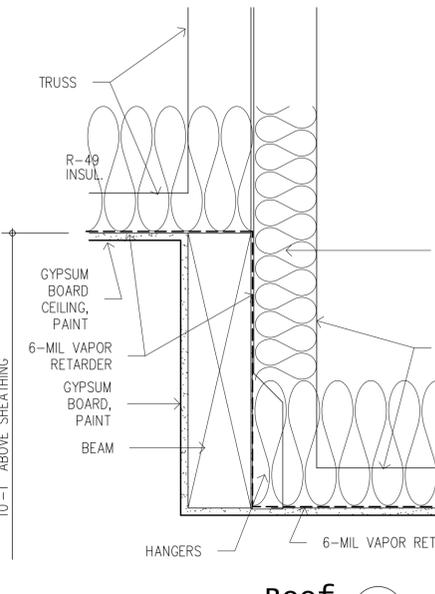
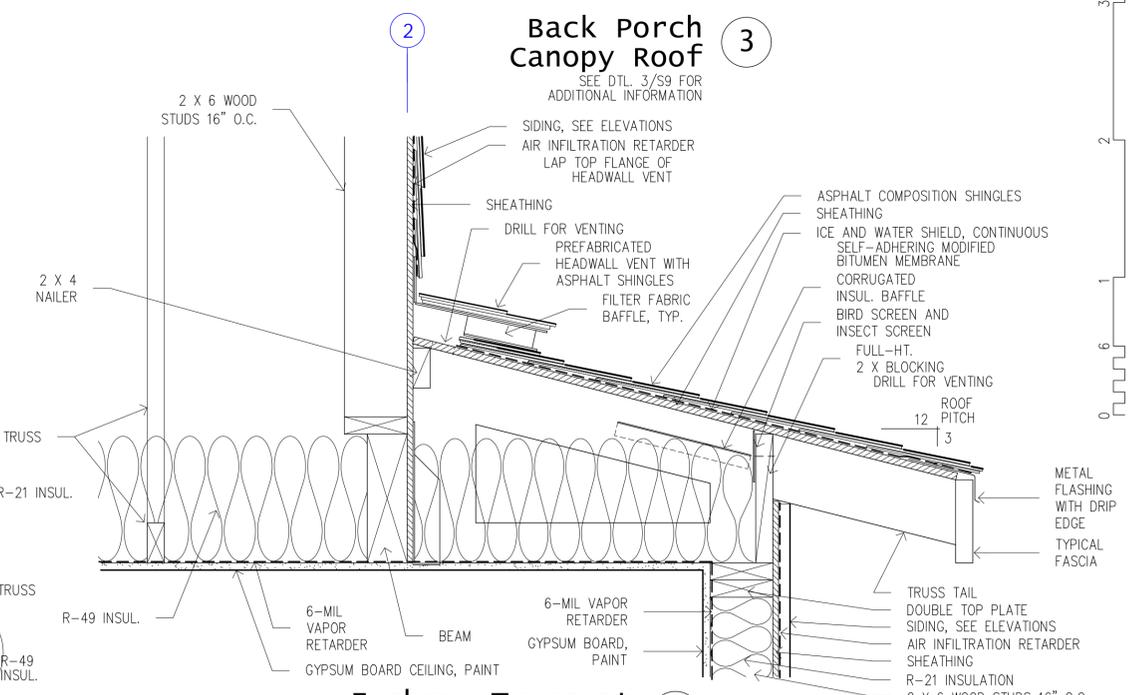
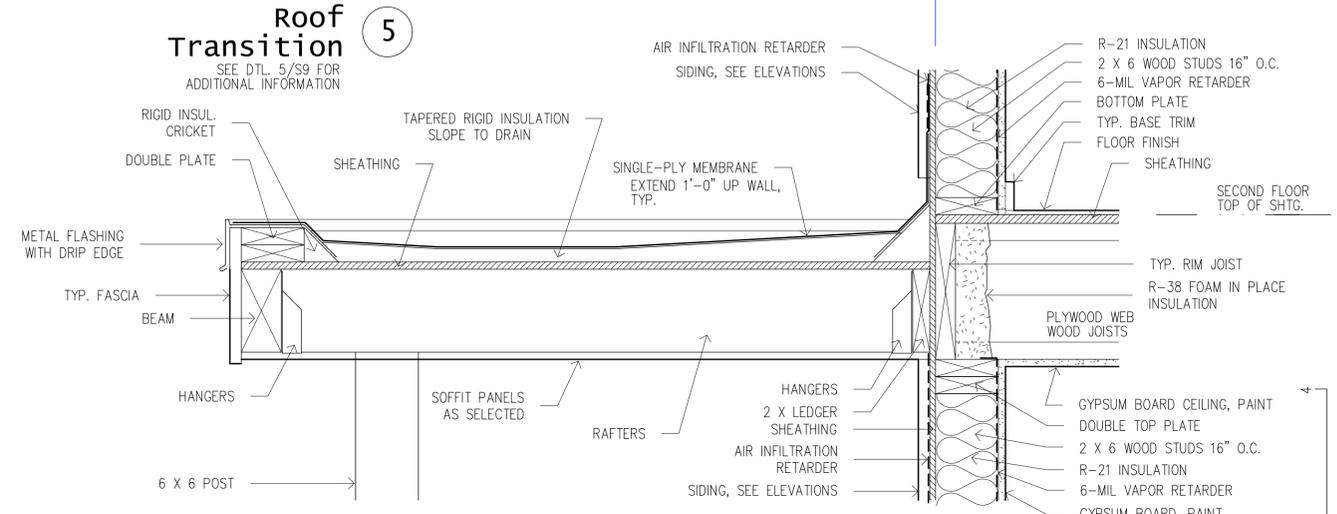
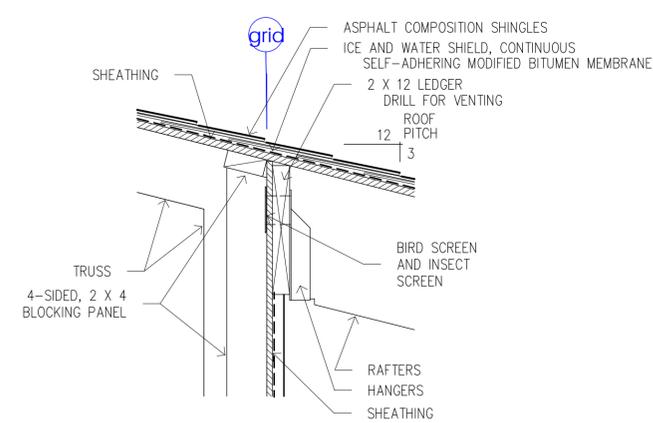
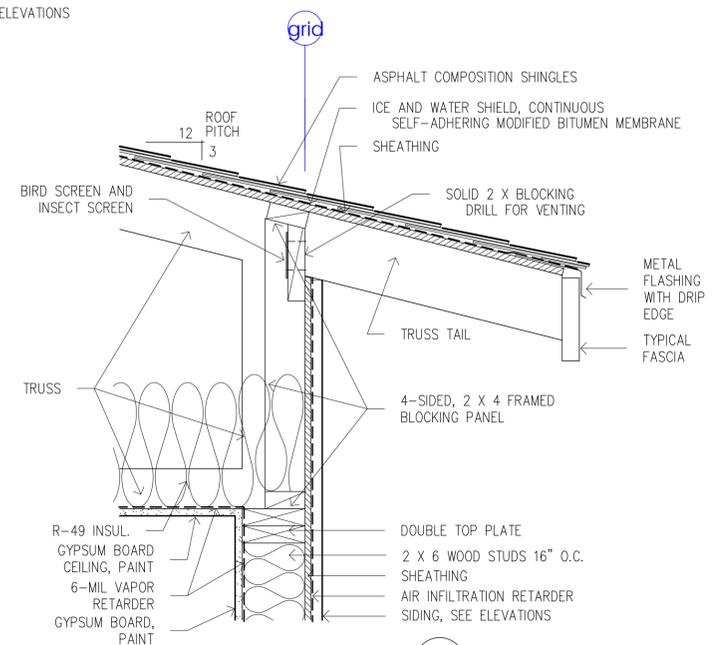
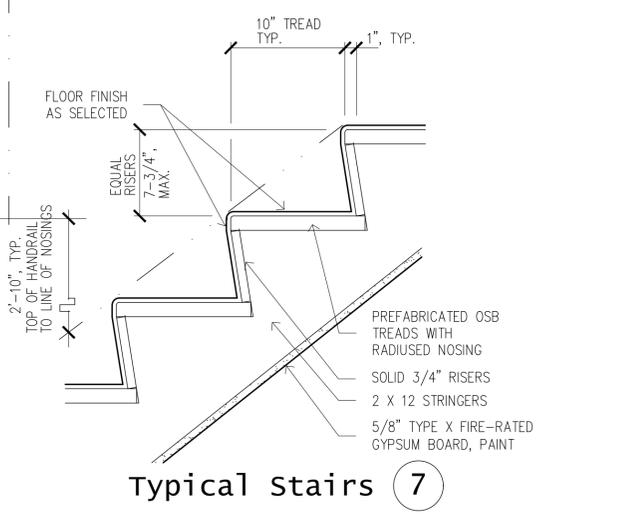
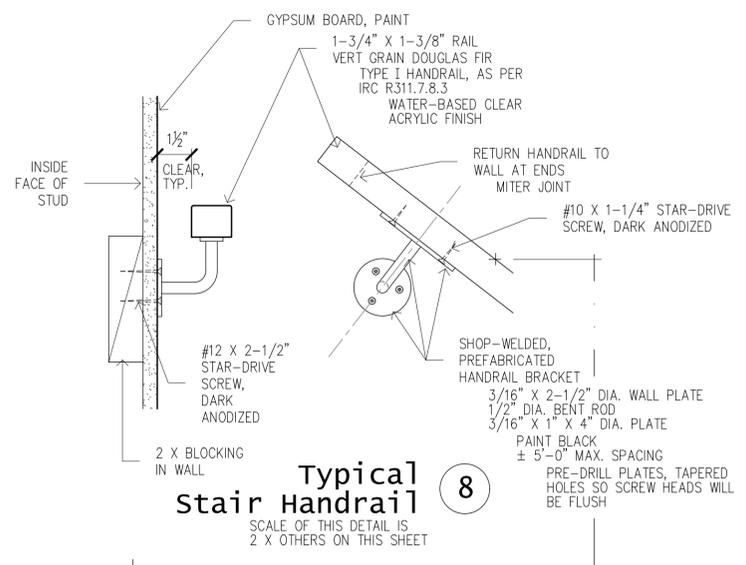
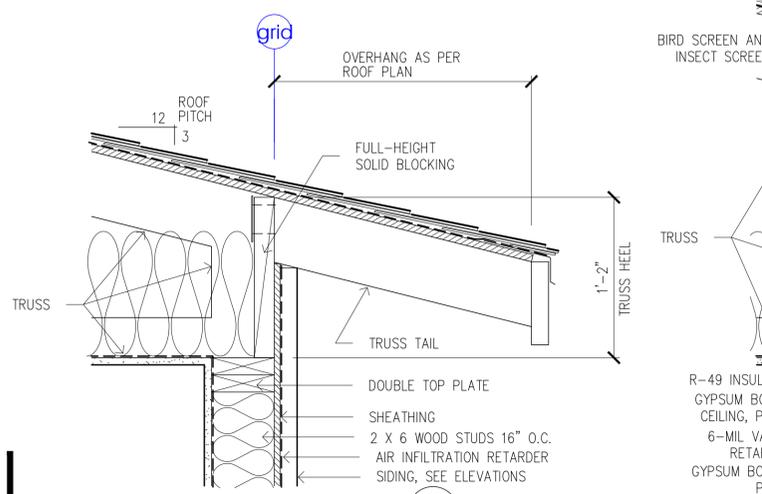
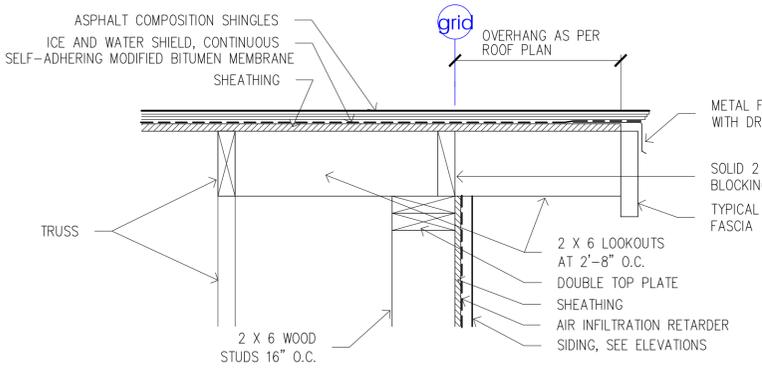
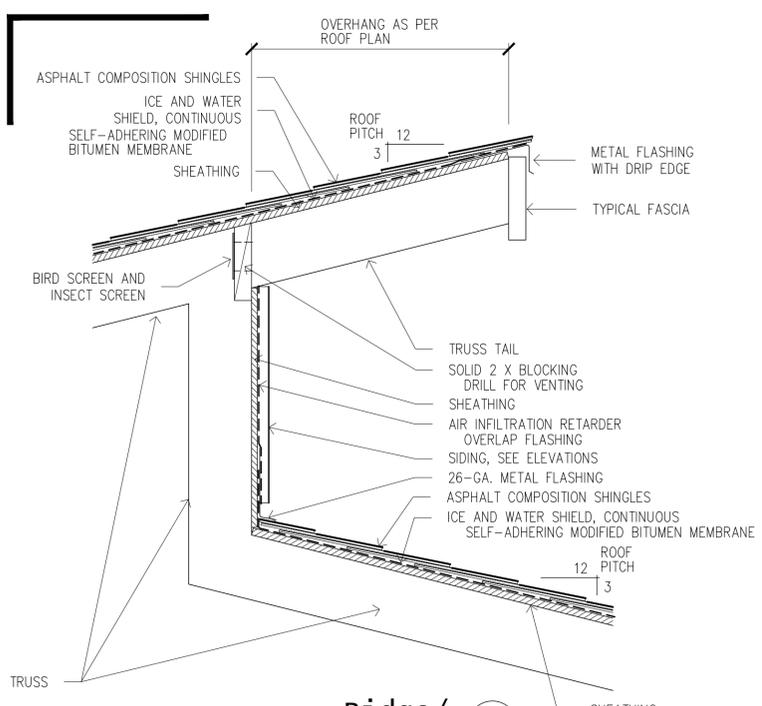


INTERIOR PARTY WALL CONSTRUCTION  
UL DESIGN NO. U 341  
1-HOUR RATED  
MIN. STC 54  
5/8" TYPE X FIRE-RATED GYPSUM BOARD, EACH SIDE  
2 X 4 WOOD STUDS 16" O.C., EACH SIDE  
FULL THICKNESS SOUND ATTENUATING BATT INSULATION, EACH SIDE



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Tract B, valetskaya Addition No. 1  
NHN Erna Court  
ANCHORAGE, ALASKA**

## Design Criteria

IBC 2018

<b>WIND</b>	
Basic Speed (3 sec gust)	145 mph (east side of Baxter Rd.)
Exposure	B
Pressures	ASCE 7-16
Risk Category	III
Int pressure Coeff	.18 (+/-)

Wind Load Analysis MWFRS (ANY HT)

<b>SEISMIC</b>	
Base shear =	.019 * W <sub>s</sub> ASD SDS = 1.200
Risk Category	II SD1 = 0.700
Design Category	D SS = 1.500
Site Class	D assumed S1 = 0.682
R =	6.5 IS = 1.0 Fa = 1.2

Seismic Load Analysis Equivalent lateral force

<b>SNOW</b>	
Roof Snow, P <sub>f</sub>	40 psf ASCE 7-16
Ground Snow, P <sub>g</sub>	50 psf ASCE 7-16
Exposure Factor, C <sub>e</sub>	1.0
Thermal Factor, C <sub>t</sub>	1.1
Importance Factor, I <sub>s</sub>	1.0

<b>LOADS</b>	
Snow	40 psf
Snow Seismic	8 psf
Roof Dead	15 psf
Roof Live	20 psf
Floor Dead	12 psf
Floor Live	40 psf
Exterior Walls	10 psf
Interior Walls	8 psf
CMU Foundation	85 psf
Concrete Foundation	100 psf

**SOILS**  
Soil bearing strength assumed to be 1,500 psf, with 1/3 increase for seismic or wind loads, unless noted otherwise.

**LATERAL LOAD RESISTING SYSTEM**  
Light frame walls with wood shear panels.

### SOILS

- Allowable bearing strength assumed to be 1,500 psf, with 33% increase for seismic or wind loads unless noted otherwise.
- Fill to be compacted to 95% Modified Proctor density.

### CONCRETE

- Portland cement concrete to have minimum 28 day compressive strength, F<sub>c</sub> = 3,000 psi. 5 sack (minimum) design mix. Maximum aggregate size, 3/4".
- Concrete reinforcement to be ASTM A615, grade 60, deformed bars.

### WOOD

- Framing lumber shall be Doug Fir. Bottom plates at concrete shall be Doug Fir, pressure treated. Exterior walls shall be 2x6 studs at 16" o.c. Interior walls shall be 2x4 studs at 16" o.c., or 2x6 at 16" o.c. at plumbing walls and other locations as shown on Floor Plans.
- Truss lumber shall be Doug Fir.
- Blocking not required roof/floor diaphragms unless noted otherwise; boundary nail roofs at 3" o.c., panel edges at 4" o.c. and field at 8" o.c. Boundary nail floors at 4" o.c., panel edges at 4" o.c. and field at 12" o.c.
- Shear wall/roof diaphragm/floor diaphragm stapling/nailing specified refers to panel edge and boundaries; field fasten at 12" o.c., floors and walls. Field fasten roofs at 8" o.c., unless noted otherwise.
- Multiple stud splices -- use two rows 16d com at 6" o.c., min.
- Multiple LVL -- splice with two rows 16d sinkers at 6" o.c., 2" from top and 2" from bottom.
- 3" members required at abutting panel joints and staples/nails shall be staggered where nail spacing is 2" o.c. and where 10d nails penetrating more than 1-1/2" are placed at 3" or less o.c. 3" bottom plates are required where unit shear loads exceed 600 plf.
- Glulam members -- single span, rated 24F-V4, DF/DF; multiple span, rated 24F-V8, DF/DF.
- APA rated sheathing required for shear walls, floors and roof diaphragms. Wall sheathing may be installed horizontally or vertically. If installed horizontally, block all panel edges.
- Where T1-11 siding is used for shear sheathing, minimum thickness shall be 19/32". All nailing must be through full thickness. Block all joints if full-height siding is not used.
- Fastener and diaphragm values per IBC 2018, 2015 NDS SDPWS.
- Plywood may be substituted for OSB, same thickness, same APA rating.
- Use APA rated sheathing as follows, unless noted otherwise:  
Shear walls and roofs, non-drift areas 24/16.  
Roofs, valleys and upper drift areas 32/16.  
Roofs, below upper roofs and where wall causing drift is 6 ft or higher 40/20.
- 8d nails can substitute for 14-ga. staples, unless noted otherwise.
- Anchor bolts per schedule; all else IBC minimum 5/8" x 12" at 4'-0" o.c.
- Hold downs and anchor bolts shown are Simpson, or as approved by MOA.
- Hold down values per Simpson Hem-Fir tables.
- GWB per IBC minimum; not used for shear.
- Hangers, straps, saddles and other hardware are as manufactured by Simpson Strong-Tie. Values are corrected for Hem-Fir as required.
- For typical wood fastening not otherwise specified, comply with provisions of IBC table 2304.10.1.
- All wood in contact with concrete or earth or less than 6" clearance to finish grade shall be pressure-treated. Posts elevated 1" or greater above concrete on standoff base not required to be pressure treated.

### STEEL

- Plate, channel, angle -- ASTM A36; wide flange -- ASTM A992, Gr. 50
- Anchor bolts and machine bolts -- ASTM A307, ASTM A1554
- HSS [round, square, rectangular sections] -- ASTM A500, Gr. B, F 50ksi
- Pipe -- ASTM A53, Gr. B, F<sub>y</sub> = 35 ksi

### CMU

- Masonry units to be ASTM C90, normal weight, fully grouted and reinforced per #3 below.
- All masonry shall be solid grout, Type M or S Mortar and mechanically consolidated.
- Reinforcing to be as shown on drawings. Minimum reinforcement shall be #5 at 32" OC; #5 at 48" OC, and #5 in top course. Vertical reinforcement to have standard hook. Reinforcement to be ASTM A615, grade 60, deformed bars. "Wet" setting reinforcement is prohibited.
- f<sub>m</sub> = 2500 psi

## Shear wall Design Values

(Doug Fir, 2015 NDS SDPWS)

Wall	Val <sup>6</sup>	Sheathing	Studs	Members with abutting panels	Nails		
					Boundary nail	Field nail	Blm. plate attach.
N1	393	7/16" OSB, one side	2x at 16" o.c.	(1) 2x	.131 x 2-1/2" at 4" o.c.	.131 x 2-1/2" at 12" o.c.	.148 x 3" at 4" o.c.
N2	505	7/16" OSB, one side	2x at 16" o.c.	3x or (2) 2x stitch with (2) 16d at 4"	.131 x 2-1/2" at 3" o.c.	.131 x 2-1/2" at 12" o.c.	.148 x 3" at 3" o.c.
N3	655	7/16" OSB, one side	2x at 16" o.c.	3x or (2) 2x stitch with (2) 16d at 4"	.131 x 2-1/2" at 2" o.c.	.131 x 2-1/2" at 12" o.c.	.148 x 3" at 2" o.c.
N4	786	7/16" OSB, two sides	2x at 16" o.c.	3x or (2) 2x stitch with (2) 16d at 4"	.131 x 2-1/2" at 4" o.c.	.131 x 2-1/2" at 12" o.c.	.148 x 3" at 2" o.c.
N5	1010	7/16" OSB, two sides	2x at 16" o.c.	3x or (2) 2x stitch with (2) 16d at 4"	.131 x 2-1/2" at 3" o.c.	.131 x 2-1/2" at 12" o.c.	.161 x 3" at 2" o.c.
N6	1311	7/16" OSB, two sides	2x at 16" o.c.	3x or (2) 2x stitch with (2) 16d at 4"	.131 x 2-1/2" at 2" o.c.	.131 x 2-1/2" at 12" o.c.	Dbl. rim, two rows .148 x 3" at 2-1/2"
N7	1457	15/16" OSB, two sides	2x at 16" o.c.	3x or (2) 2x stitch with (2) 16d at 3"	.131 at 2" o.c.	.131 at 12" o.c.	Dbl. rim, two rows .161 x 3" at 2"
N8	1949	19/32" OSB, two sides	2x at 16" o.c.	3x or (2) 2x stitch with (2) 16d at 3"	.131 x 2-1/2" at 2" o.c.	.131 x 2-1/2" at 12" o.c.	Dbl. rim, two rows SDS1/4 x 3 at 4"

- 3 x (2--2x) members are required at abutting panel edges where spacing is 2" o.c. and where 10d nails penetrating more than 1-1/2" into receiving member are spaced at 3" o.c. or less. Framing members in walls with shears > 350 plf with abutting panels receiving edge nailing shall be 3x (2--2x). 2x sill plates may be used for wall shears > 350 plf and < 600 plf if anchor bolt spacing is one-half that required by the design.
- Offset stagger nails from side to side for double sheathing. Provide two rows nails, staggered where 2" o.c. nailing occurs. Block all sheathing edges. Install sheathing horizontally or substitute 15/32" sheathing for 7/16" sheathing.
- Bottom plate attachment assumes solid members below.
- Where bottom plates rest directly on concrete or masonry, anchor bolt schedule supercedes bottom plate fastening schedule. 5" x 5" x 1/4" washers are required at all sill anchor bolts. 3x (2--2x) sill plates are required where shears > 700 plf. Stitch plates with (2) 16d at 3" o.c. staggered. Where bottom plates of two-sided shear wall rest directly on concrete or masonry, use 3x sill plate, per Municipality of Anchorage amendments.
- Values are DF framing per SDPWS-15, Table 4.3A, adjusted per 4.3.3, ASD, seismic, where V<sub>all</sub> = [V<sub>nom</sub> / 2] \* [1 - (.5-G)].
- Multiple stud splices -- use two rows 16d com at 6" o.c., min.

## Anchor Bolts

Call-out	Anchor bolt	at	Spacing
①	5/8" x 12"	at	48" o.c.
②	5/8" x 12"	at	36" o.c.
③	5/8" x 12"	at	32" o.c.
④	5/8" x 12"	at	24" o.c.
⑤	5/8" x 12"	at	16" o.c.
⑥	5/8" x 12"	at	12" o.c.

## Hold Downs

Call-out	Strap or hold down	Chord	Anchor bolt	Embed. concrete	Embed. concrete	Allowable load (lbs.)
①	(1) MST37	(2) 2x -- DF				5,080
②	(1) MST48	(2) 2x -- DF				5,310
③	(1) MST60	(2) 2x -- DF				6,730
④	(1) MST72	(2) 2x -- DF				6,730
⑤	(2) MST48	(4) 2x -- DF				6,620
⑥	H DU2	(2) 2x -- DF	5/8"	7" into footing u.n.o.	7" into footing u.n.o.	3,075
⑦	H DU4	(2) 2x -- DF	5/8"	7" into footing u.n.o.	7" into footing u.n.o.	4,565
⑧	H DU5	(3) 2x -- DF	5/8"	7" into footing u.n.o.	7" into footing u.n.o.	5,645
⑨	H DU8	(2) 2x -- DF	7/8"	7" into footing u.n.o.	7" into footing u.n.o.	6,765
⑩	H DU8	(3) 2x -- DF	7/8"	7" into footing u.n.o.	7" into footing u.n.o.	6,970
⑪	H DU11	(4) 2x -- DF	1"	7" into footing u.n.o.	7" into footing u.n.o.	9,335
⑫	H DU11	(1) 6x8 -- DF	1"	See dtls.	See dtls.	11,175
⑬	H DU14	(4) 2x -- DF	1"	See dtls.	See dtls.	10,770
⑭	H D12	(3) 2x -- DF	1-1/8"	See dtls.	See dtls.	12,655
⑮	H D12	(1) 6x6 -- DF	1-1/8"	See dtls.	See dtls.	15,510
⑯	FSC	2x -- DF				1,892
⑰	MSTC48B3	2x -- DF				4,072
⑱	MSTC66B3	2x -- DF				4,072

## Roof Design

See Sht. A9 for roof zone locations

Zone	Design Loads	Sheathing Index	Sheathing Nailing
1	TCLL -- 40 psf TCDL -- 15 psf BCDL -- 5 psf	APA 24/16	BN -- 8d at 3" o.c. EN -- 8d at 3" o.c. FN -- 8d at 8" o.c.
2	TCLL -- 65 psf TCDL -- 15 psf BCDL -- 5 psf	APA 32/16	BN -- 8d at 3" o.c. EN -- 8d at 3" o.c. FN -- 8d at 8" o.c.
3	TCLL -- 85 psf TCDL -- 15 psf BCDL -- 5 psf	APA 40/20	BN -- 8d at 3" o.c. EN -- 8d at 3" o.c. FN -- 8d at 8" o.c.
4	TCLL -- 105 psf TCDL -- 15 psf BCDL -- 5 psf	APA 40/20	BN -- 8d at 3" o.c. EN -- 8d at 3" o.c. FN -- 8d at 8" o.c.

BN = boundary nailing  
EN = edge nailing  
FN = field nailing

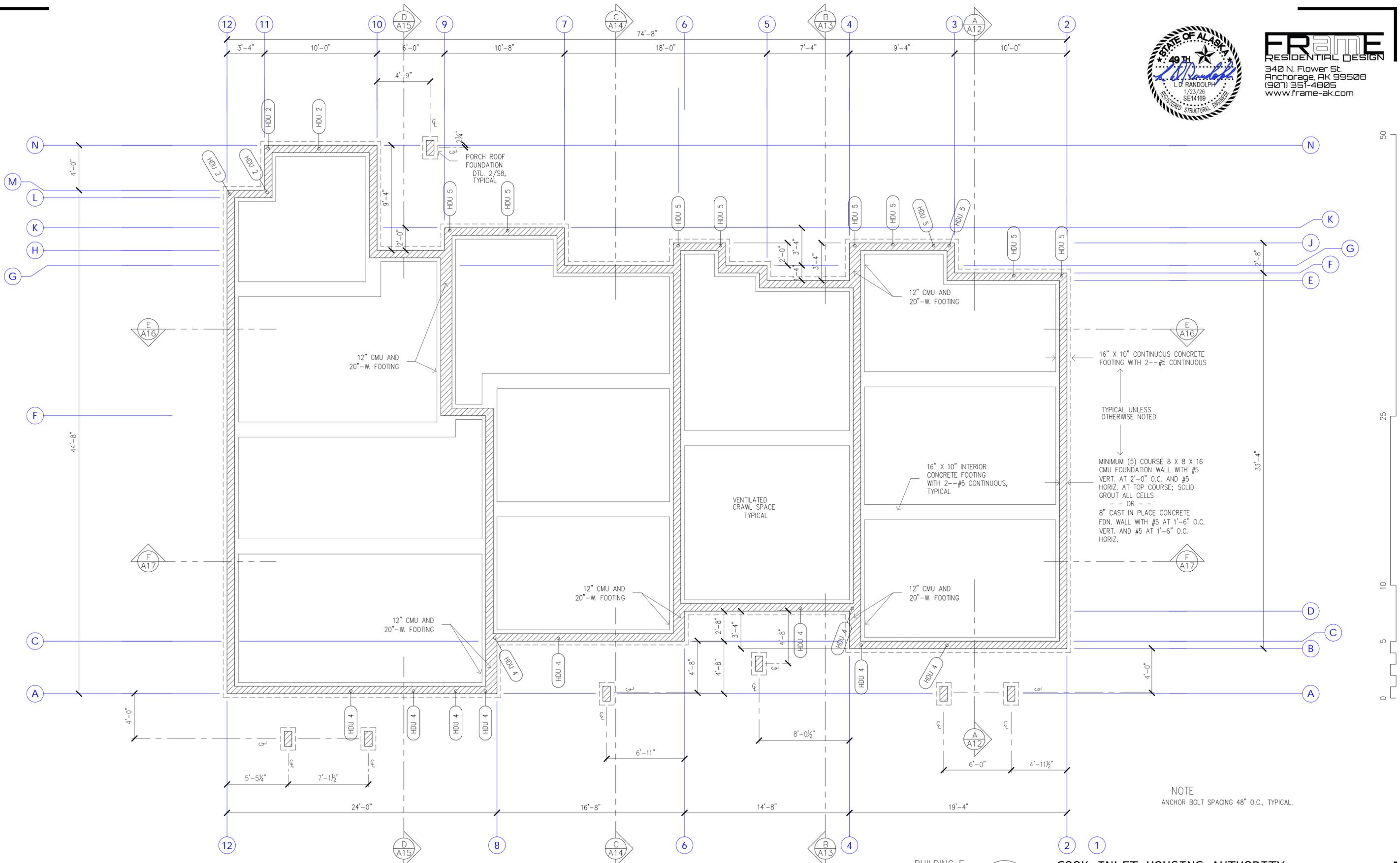
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DATE: 23 JAN 26

**S1**  
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**FRAME**  
RESIDENTIAL DESIGN  
340 N. Flower St.  
Anchorage, AK 99508  
(907) 351-4805  
www.frame-ak.com



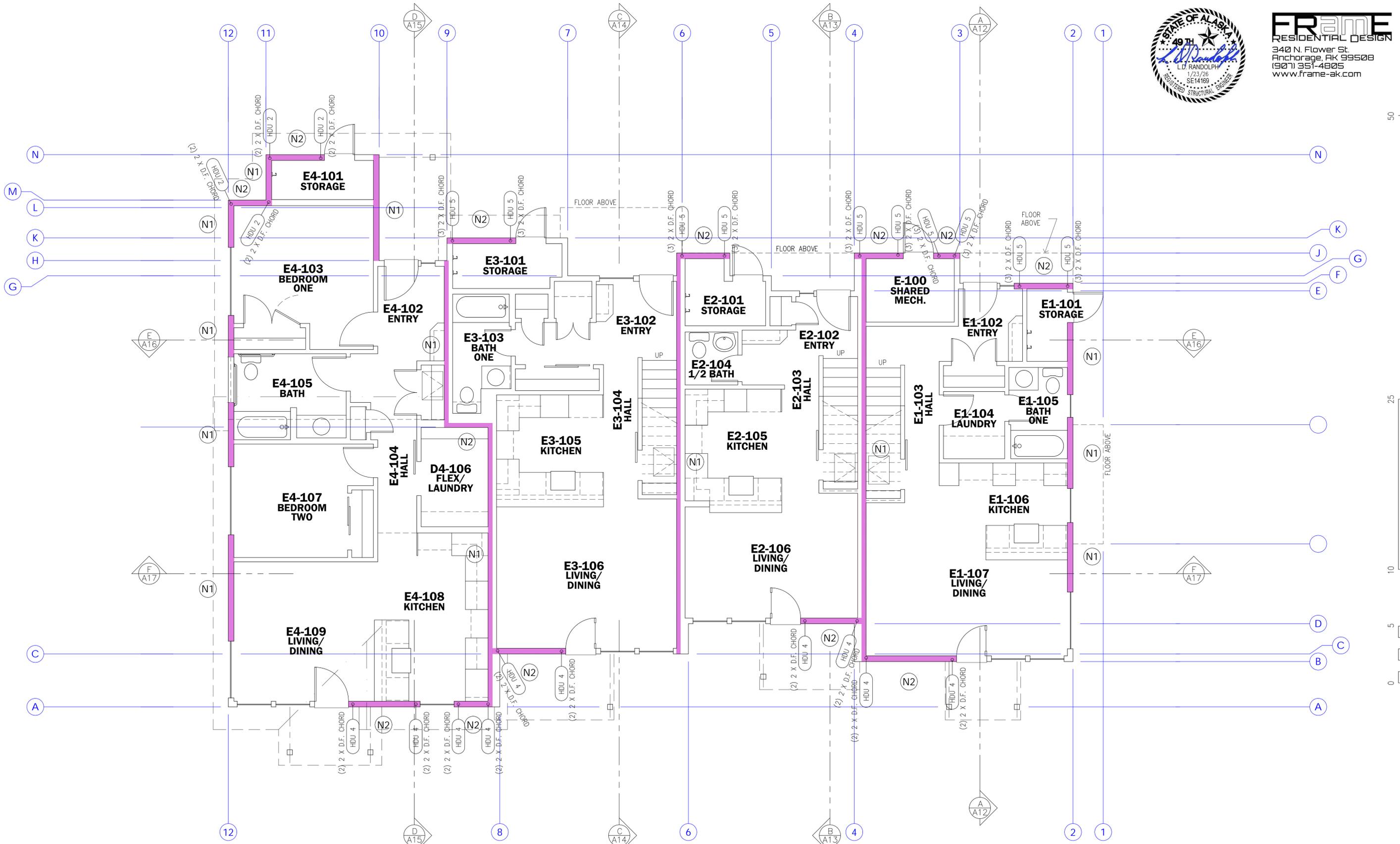


BUILDING E  
Foundation Plan



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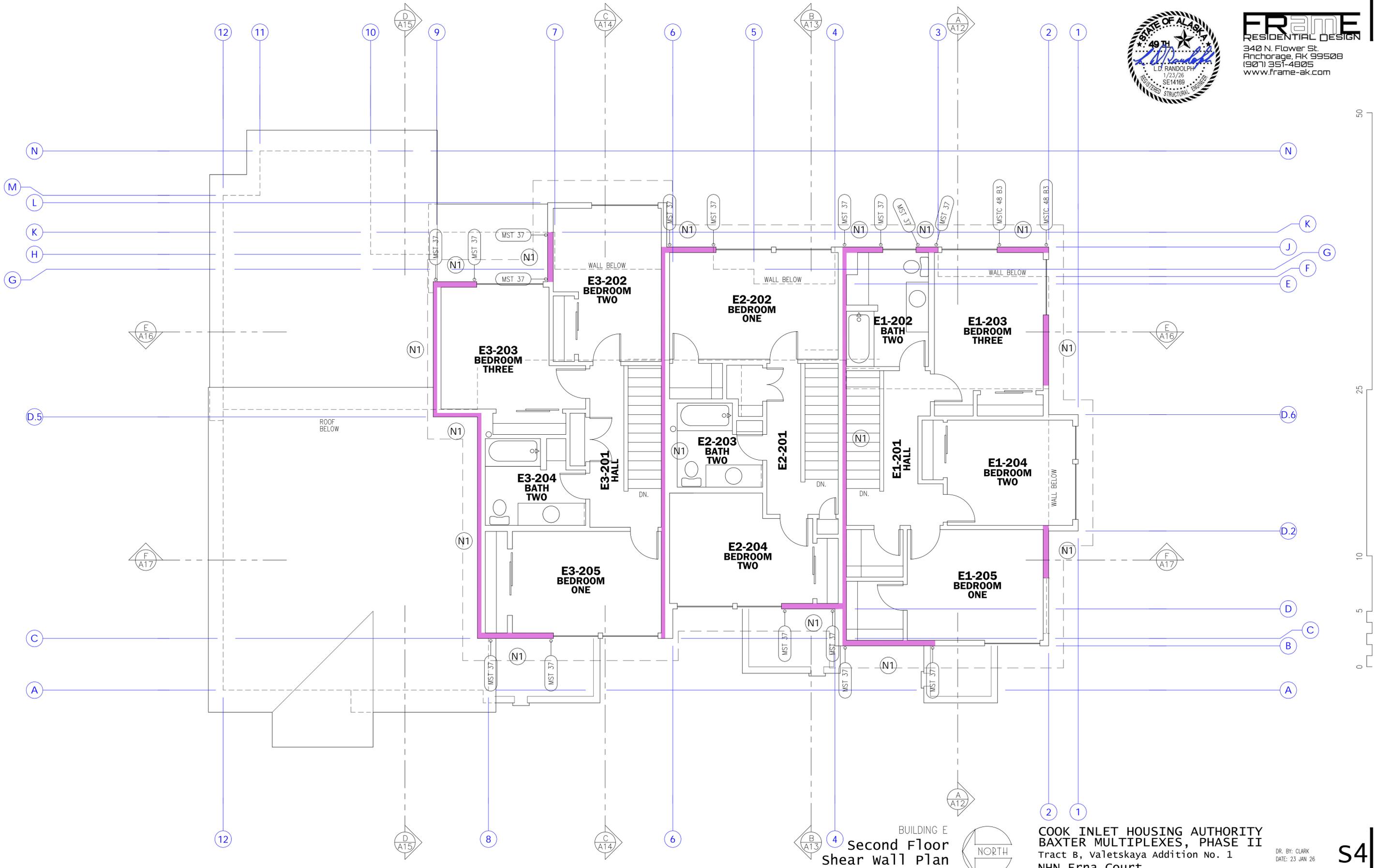


BUILDING E  
**First Floor**  
**Shear wall Plan**  
BUILDINGS D AND F --  
SIMILAR/OPOSITE HAND



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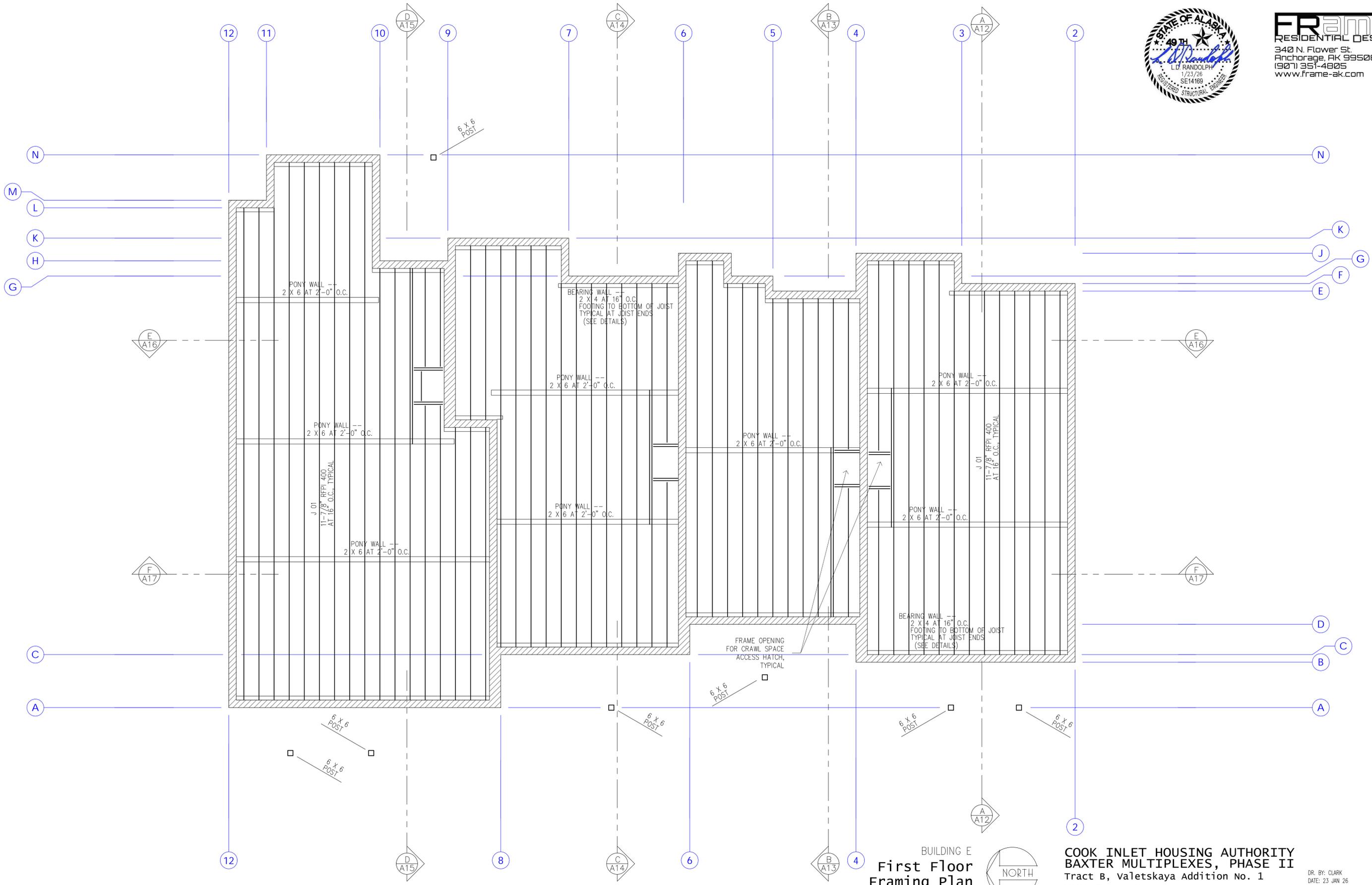
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BUILDING E  
Second Floor  
Shear wall Plan

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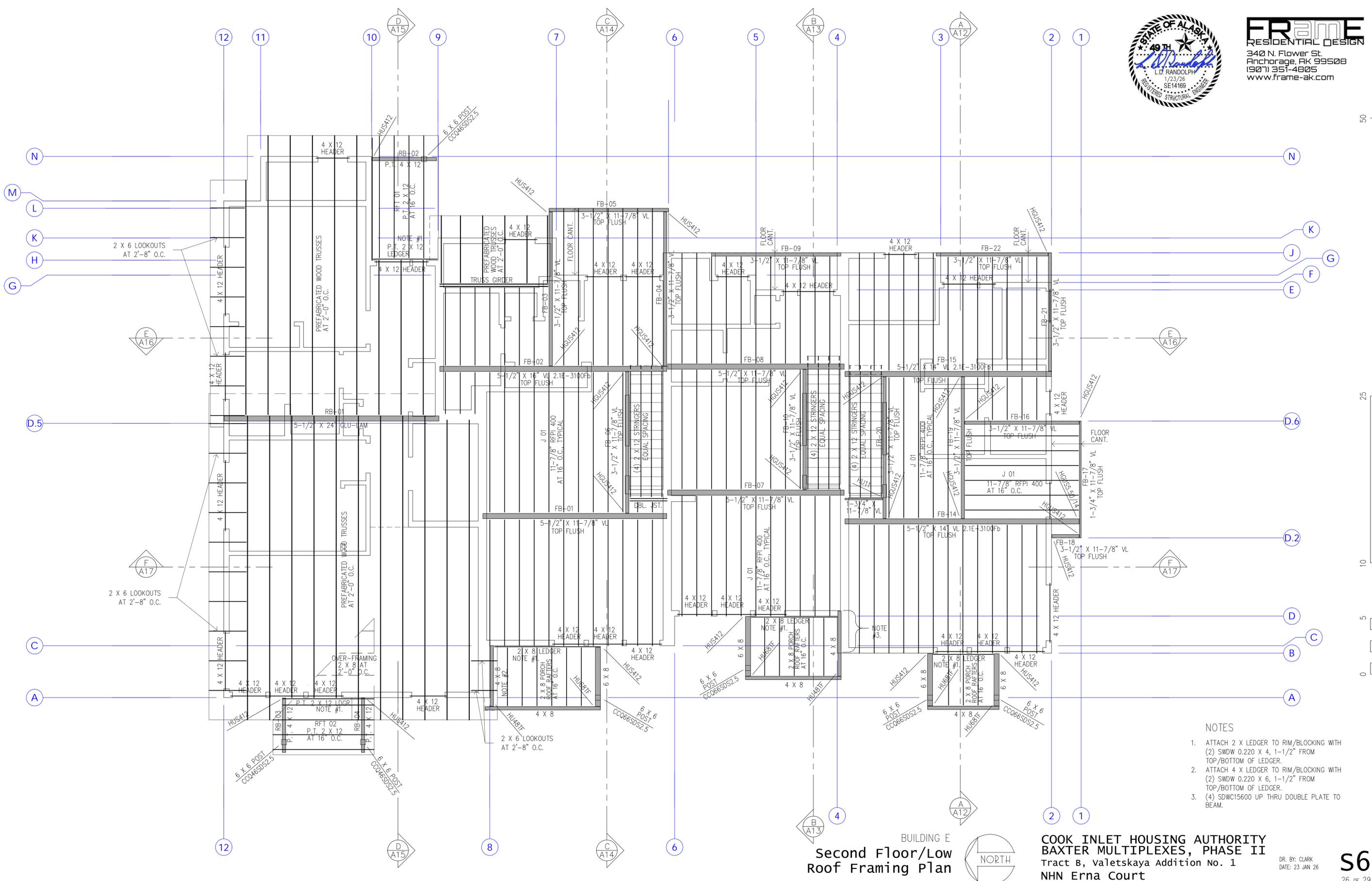


BUILDING E  
**First Floor Framing Plan**



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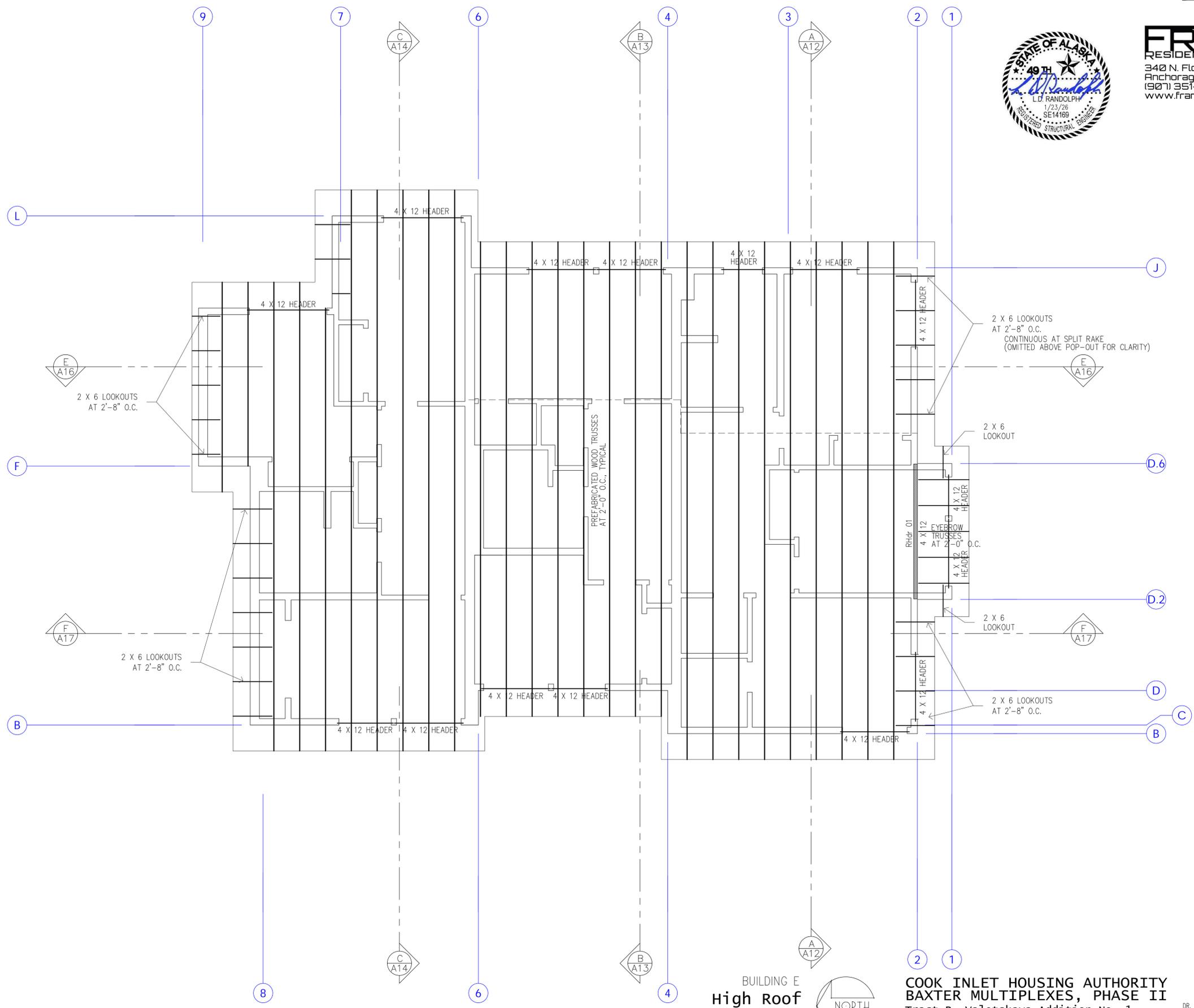


- NOTES**
- ATTACH 2 X LEDGER TO RIM/BLOCKING WITH (2) SDW 0.220 X 4, 1-1/2" FROM TOP/BOTTOM OF LEDGER.
  - ATTACH 4 X LEDGER TO RIM/BLOCKING WITH (2) SDW 0.220 X 6, 1-1/2" FROM TOP/BOTTOM OF LEDGER.
  - (4) SDWC15600 UP THRU DOUBLE PLATE TO BEAM.

BUILDING E  
**Second Floor/Low  
Roof Framing Plan**

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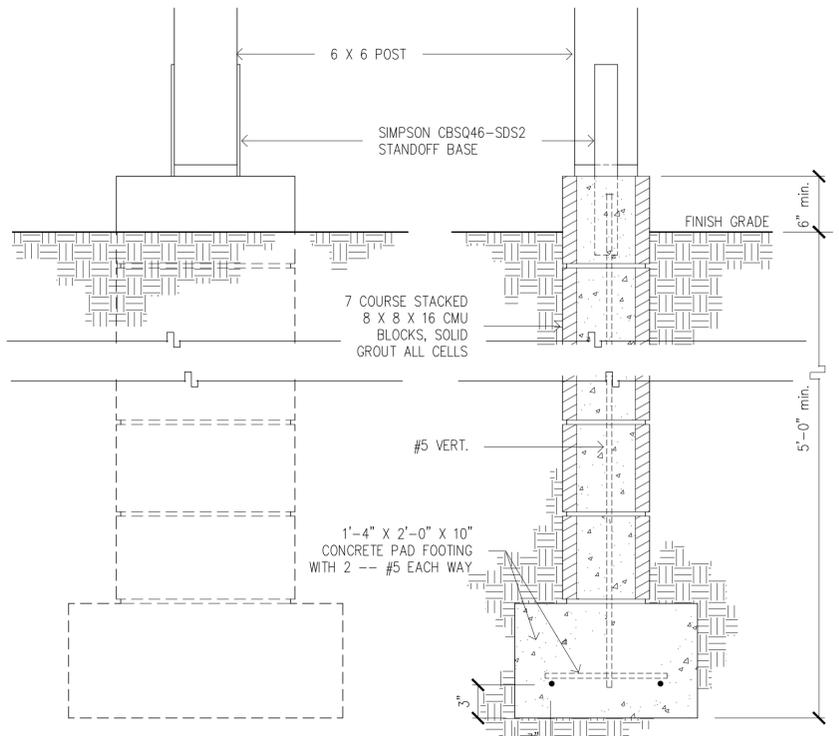
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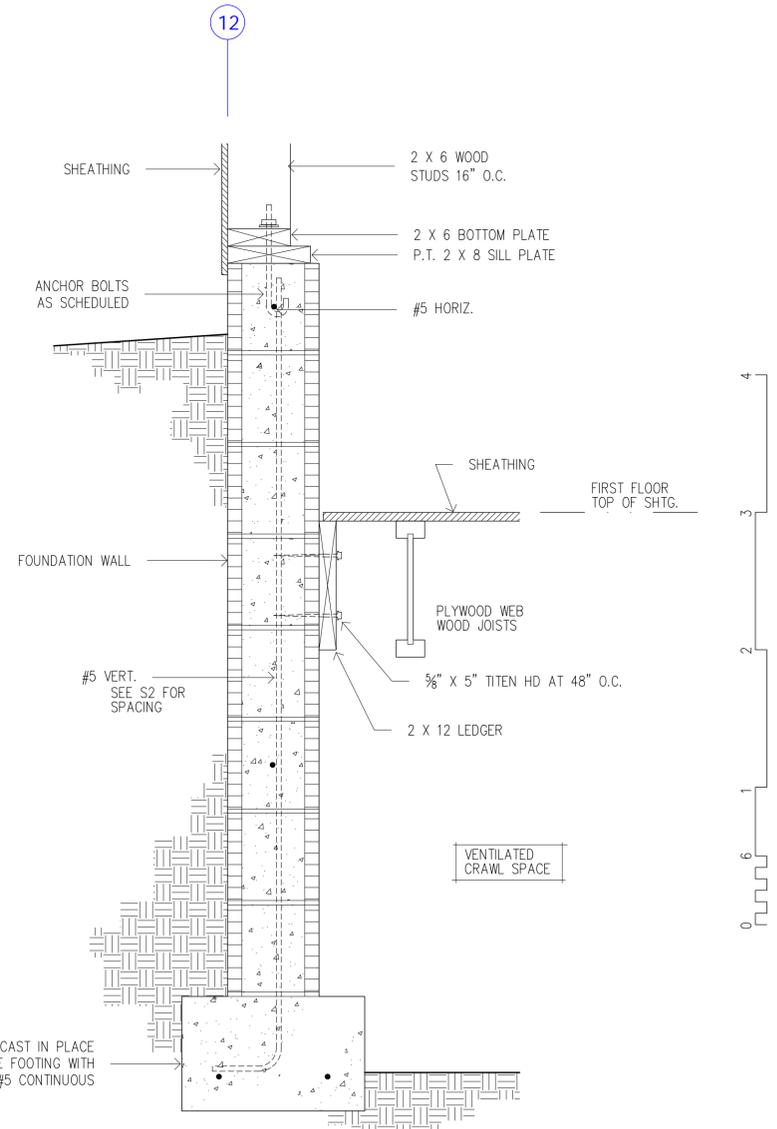
BUILDING E  
**High Roof Framing Plan**

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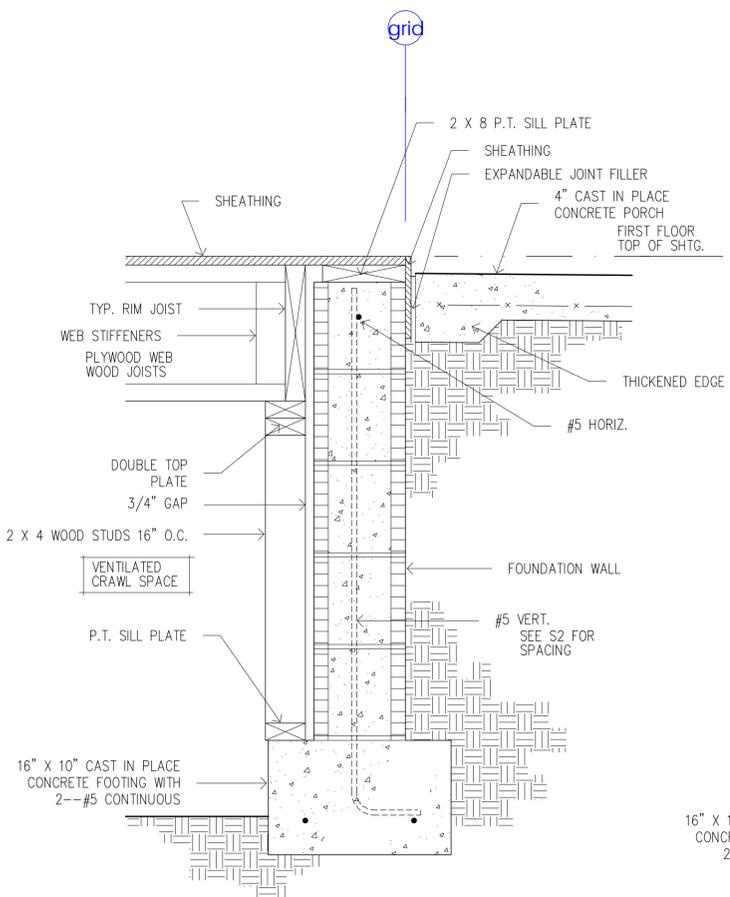
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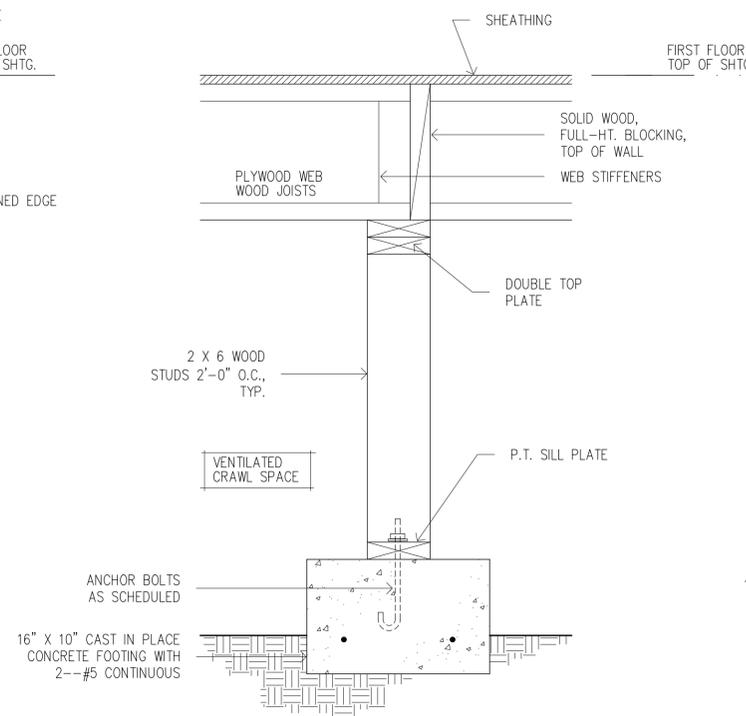
Porch Foundation 2



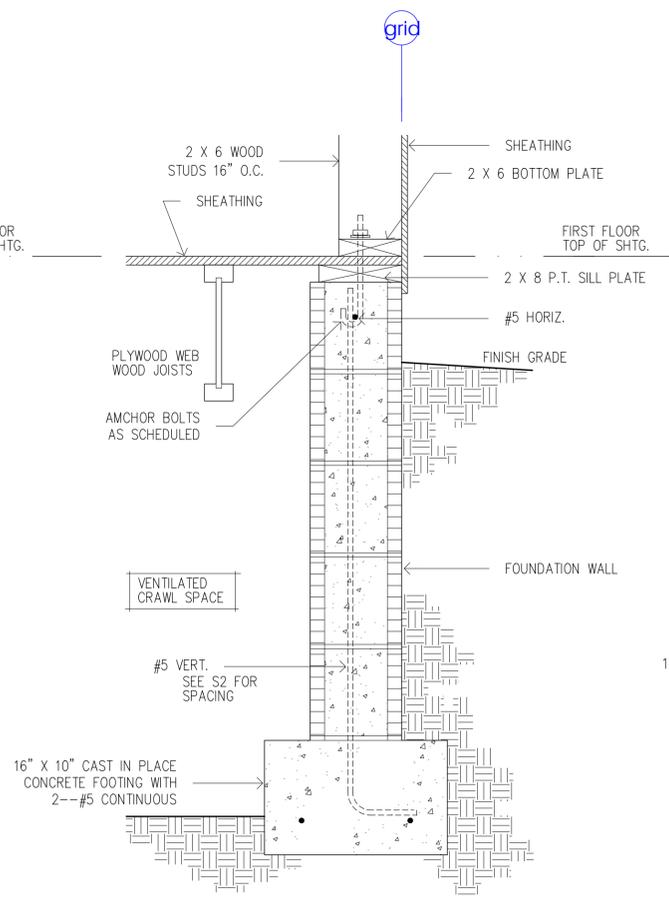
North wall Foundation 1  
SEE DTL. 1/A18 FOR ADDITIONAL INFORMATION



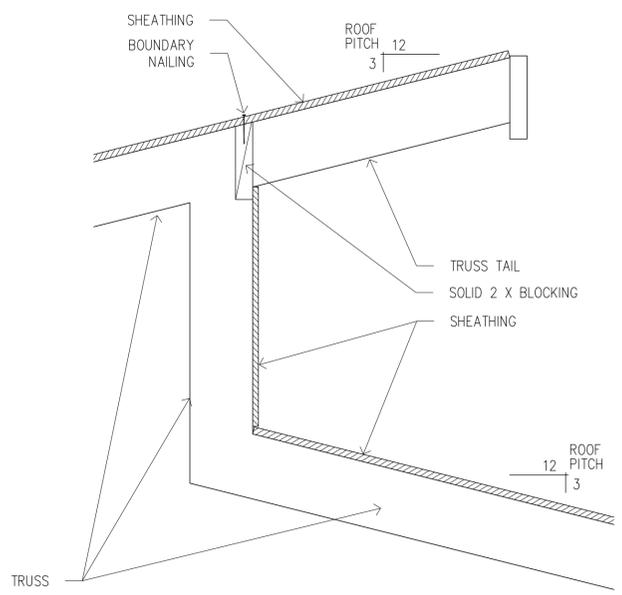
Typical Foundation wall 7  
SEE DTL. 7/A18 FOR ADDITIONAL INFORMATION



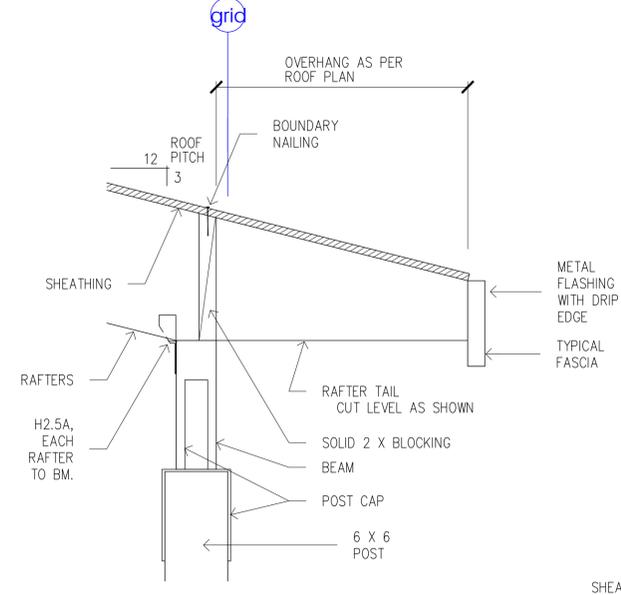
Typical Pony wall 5  
SEE DTL. 5/A18 FOR ADDITIONAL INFORMATION



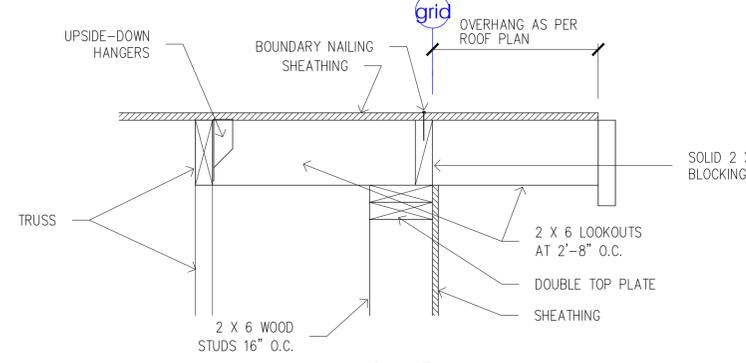
Typical Foundation wall 3  
SEE DTL. 3/A18 FOR ADDITIONAL INFORMATION



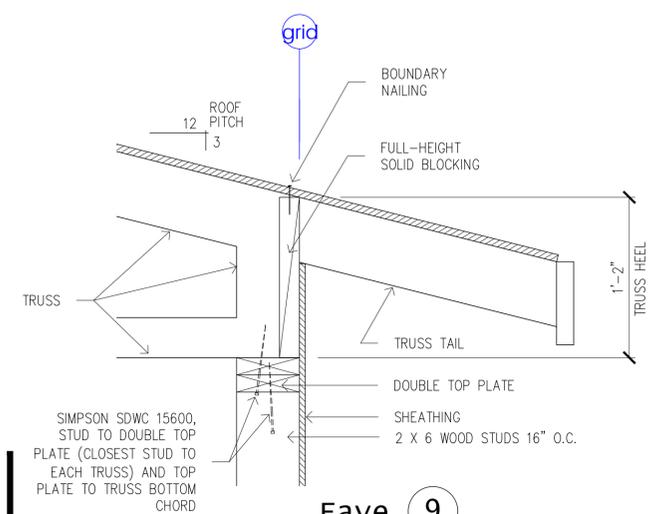
**Ridge/Headwall** 11  
SEE DTL. 11/A20 FOR ADDITIONAL INFORMATION



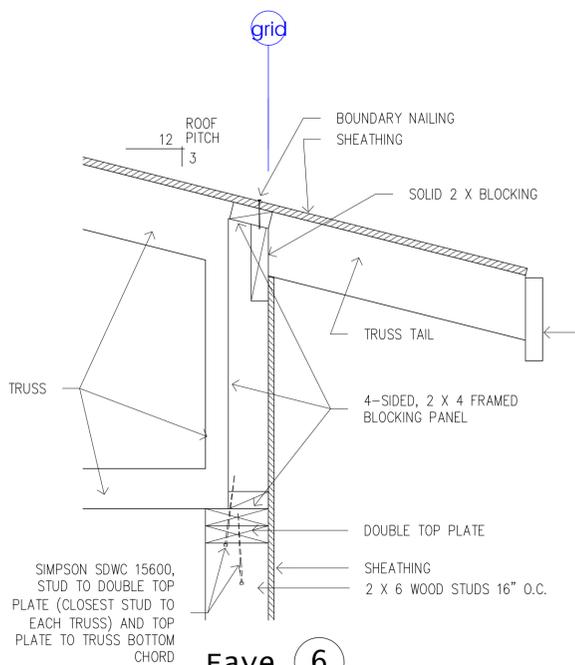
**Eave at Unit #4 Entry Canopy** 7



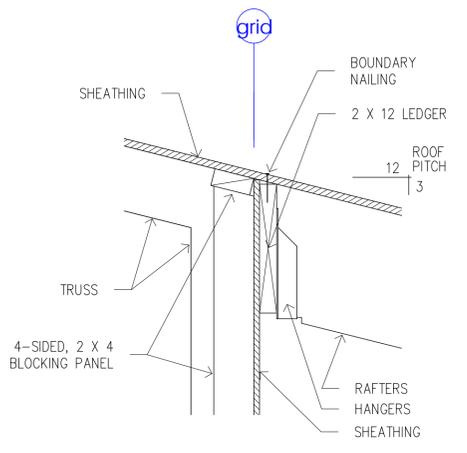
**Typical Rake** 10  
SEE DTL. 10/A20 FOR ADDITIONAL INFORMATION



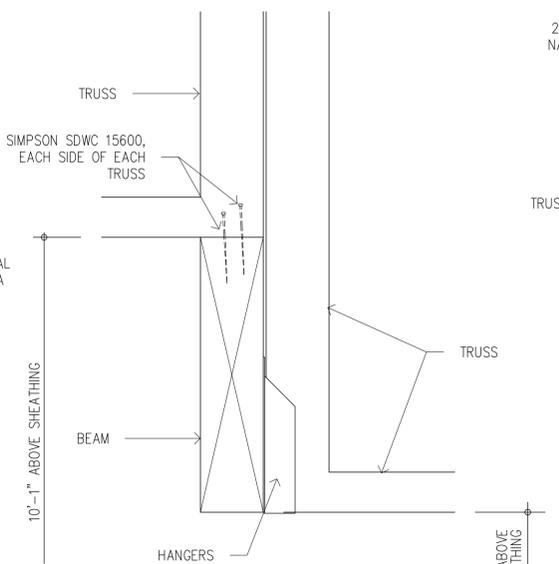
**Eave** 9  
SEE DTL. 9/A20 FOR ADDITIONAL INFORMATION



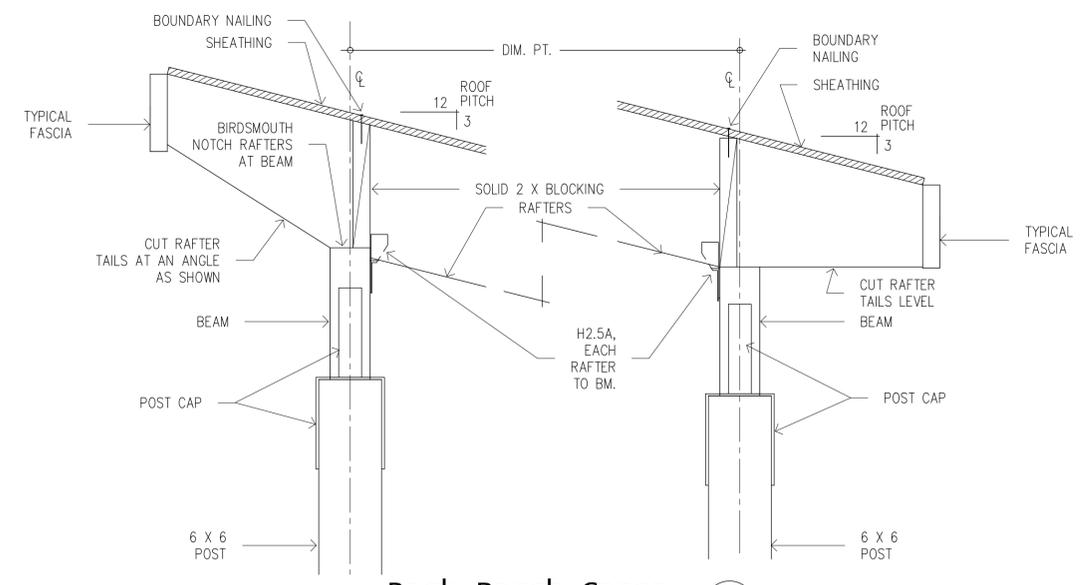
**Eave** 6  
SEE DTL. 6/A20 FOR ADDITIONAL INFORMATION



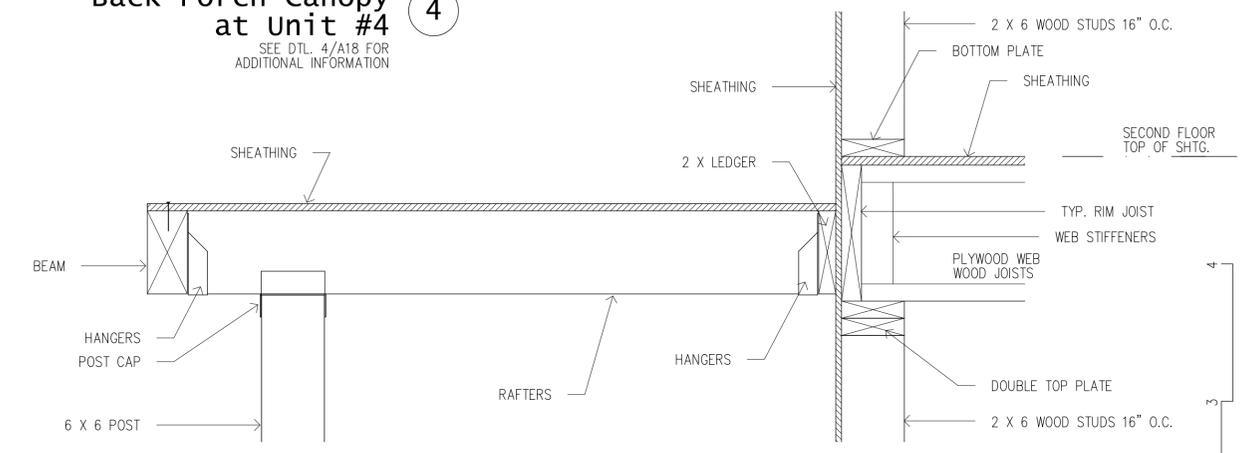
**Roof Transition** 5  
SEE DTL. 5/A20 FOR ADDITIONAL INFORMATION



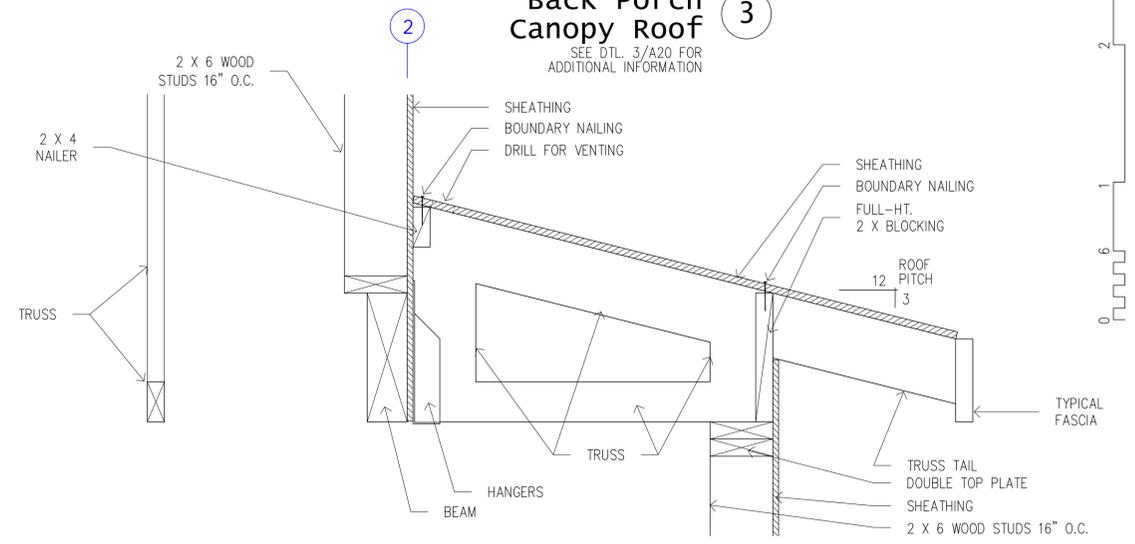
**Roof Transition** 2  
SEE DTL. 2/A20 FOR ADDITIONAL INFORMATION



**Back Porch Canopy at Unit #4** 4  
SEE DTL. 4/A18 FOR ADDITIONAL INFORMATION



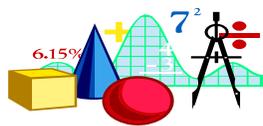
**Back Porch Canopy Roof** 3  
SEE DTL. 3/A20 FOR ADDITIONAL INFORMATION



**Eyebrow Truss at Bedroom Pop-Out** 1  
SEE DTL. 1/A20 FOR ADDITIONAL INFORMATION

**COOK INLET HOUSING AUTHORITY  
BAXTER MULTIPLEXES, PHASE II  
Tract B, valetskaya Addition No. 1  
NHN Erna Court  
ANCHORAGE, ALASKA**

DR. BY: CLARK  
DATE: 23 JAN 26



# **LDR Engineering Services, Inc.**

3705 Arctic, No. 2543

Anchorage, Alaska 99503

Phone 337-3571 Fax 333-6425

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LDR ENGINEERING  
**STRUCTURAL ANALYSIS**  
for  
FRaMe Residential Design  
Baxter Multiplexes



Building E

**DESIGN CRITERIA, IBC 2018**

**WIND**

Basic Speed (3 sec gust)	129	mph	East Side of Baxter Road
Exposure	B		
Pressures	ASCE 7-16		
Risk Category	II		
Int pressue Coeff	.18(±)		

Wind Load Analysis MWFRS (Any Ht)

**SEISMIC**

Base Shear =	0.19	* $W_s$	ASD	$S_{DS} =$	1.200
Risk Category	II			$S_{D1} =$	0.700
Design Category	D			$S_S =$	1.500
Site Class	D	Assumed		$S_1 =$	0.682
R =	6.5			$I_s =$	1.0
				$F_a =$	1.2

Seismic Load Analysis Equivalent lateral force

**SNOW**

Roof Snow, $P_f$	40	psf	ASCE 7-16
Ground Snow, $P_g$	50	psf	ASCE 7-16
Exposure Factor, $C_e$	1.0		
Thermal Factor $C_t$	1.1		
Importance Factor $I_s$	1.0		

**LOADS**

Snow	40	psf
Snow Seismic	8	psf
Roof Dead	15	psf
Roof Live	20	psf
Floor Dead	12	psf
Floor Live	40	psf
Exterior Walls	10	psf
Interior Walls	8	psf
CMU Foundation	85	psf
Concrete Foundation	100	psf

**SOILS**

Soil bearing strength 1500 psf with 1/3 increase for seismic or wind loads, unless noted otherwise.

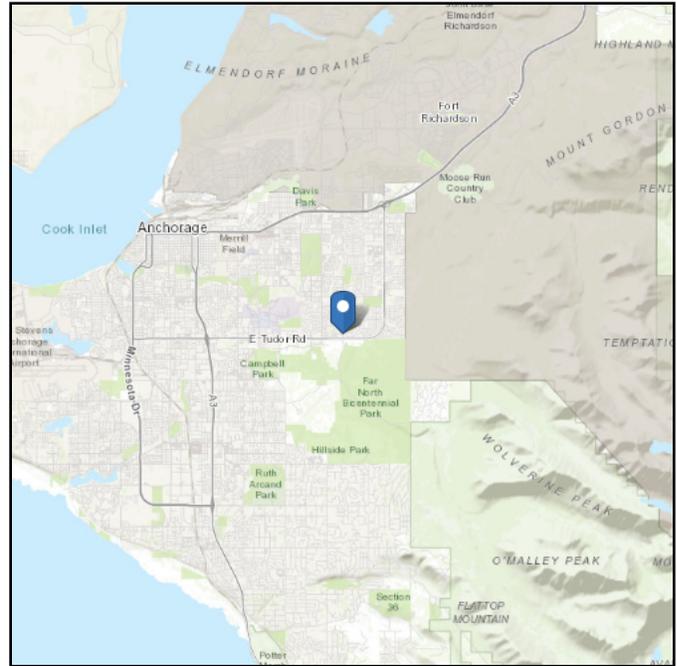
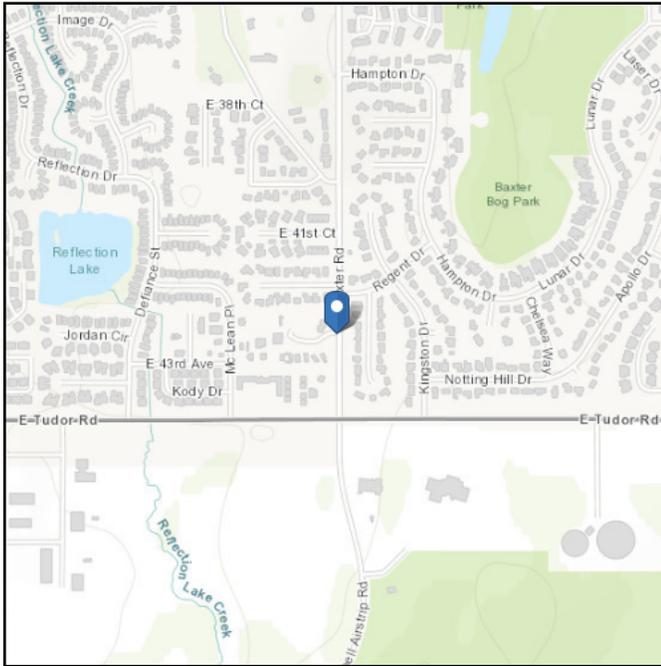
**LATERAL LOAD RESISTING SYSTEM** Light Frame walls with wood shear panels

# ASCE Hazards Report

**Address:**  
4230 Baxter Rd  
Anchorage, Alaska  
99504

**Standard:** ASCE/SEI 7-16  
**Risk Category:** II  
**Soil Class:** D - Stiff Soil

**Latitude:** 61.182242  
**Longitude:** -149.763519  
**Elevation:** 253.54333622690353 ft  
(NAVD 88)



## Wind

### Results:

Wind Speed	129 Vmph
10-year MRI	90 Vmph
25-year MRI	99 Vmph
50-year MRI	105 Vmph
100-year MRI	110 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Thu Aug 28 2025

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

**Site Soil Class:** D - Stiff Soil

**Results:**

$S_s$ :	1.5	$S_{D1}$ :	N/A
$S_1$ :	0.682	$T_L$ :	16
$F_a$ :	1	PGA :	0.5
$F_v$ :	N/A	PGA <sub>M</sub> :	0.55
$S_{MS}$ :	1.5	$F_{PGA}$ :	1.1
$S_{M1}$ :	N/A	$I_e$ :	1
$S_{DS}$ :	1	$C_v$ :	1.4

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

**Data Accessed:** Thu Aug 28 2025

**Date Source:** [USGS Seismic Design Maps](#)

## Snow

---

**Results:**

Ground Snow Load, $p_g$ :	50 lb/ft <sup>2</sup>
Mapped Elevation:	253.5 ft
Data Source:	ASCE/SEI 7-16, Table 7.2-8
Date Accessed:	Thu Aug 28 2025

Values provided are ground snow loads. In areas designated "case study required," extreme local variations in ground snow loads preclude mapping at this scale. Site-specific case studies are required to establish ground snow loads at elevations not covered.

Snow load values are mapped to a 0.5 mile resolution. This resolution can create a mismatch between the mapped elevation and the site-specific elevation in topographically complex areas. Engineers should consult the local authority having jurisdiction in locations where the reported 'elevation' and 'mapped elevation' differ significantly from each other.

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The ASCE Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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### Determination of Gust Effect Factor, G:

Is Building Flexible?   $f \geq 1$  Hz.

#### 1: Simplified Method for Rigid Building

G =

Parameters Used in Both Item #2 and Item #3 Calculations (from Table 26.9-1):

$\alpha^{\wedge}$ =	<input type="text" value="0.143"/>
$b^{\wedge}$ =	<input type="text" value="0.84"/>
$\alpha(\text{bar})$ =	<input type="text" value="0.250"/>
$b(\text{bar})$ =	<input type="text" value="0.45"/>
c =	<input type="text" value="0.30"/>
l =	<input type="text" value="320"/> ft.
$\varepsilon(\text{bar})$ =	<input type="text" value="0.333"/>
z(min) =	<input type="text" value="30"/> ft.

Calculated Parameters Used in Both Rigid and/or Flexible Building Calculations:

z(bar) =	<input type="text" value="30.00"/>	= 0.6*h , but not < z(min) , ft. Table 26.9-1
lz(bar) =	<input type="text" value="0.305"/>	= c*(33/z(bar))^(1/6) , Eq. 26.9-7
Lz(bar) =	<input type="text" value="310.00"/>	= l*(z(bar)/33)^( $\varepsilon(\text{bar})$ ) , Eq. 26.9-9
gq =	<input type="text" value="3.4"/>	(3.4, per Sect. 26.9.4)
gv =	<input type="text" value="3.4"/>	(3.4, per Sect. 26.9.4)
gr =	<input type="text" value="4.425"/>	= (2*(LN(3600*f)))^(1/2)+0.577/(2*LN(3600*f))^(1/2) , Eq. 26.9-11
Q =	<input type="text" value="0.876"/>	= (1/(1+0.63*((B+h)/Lz(bar))^0.63))^(1/2) , Eq. 26.9-8

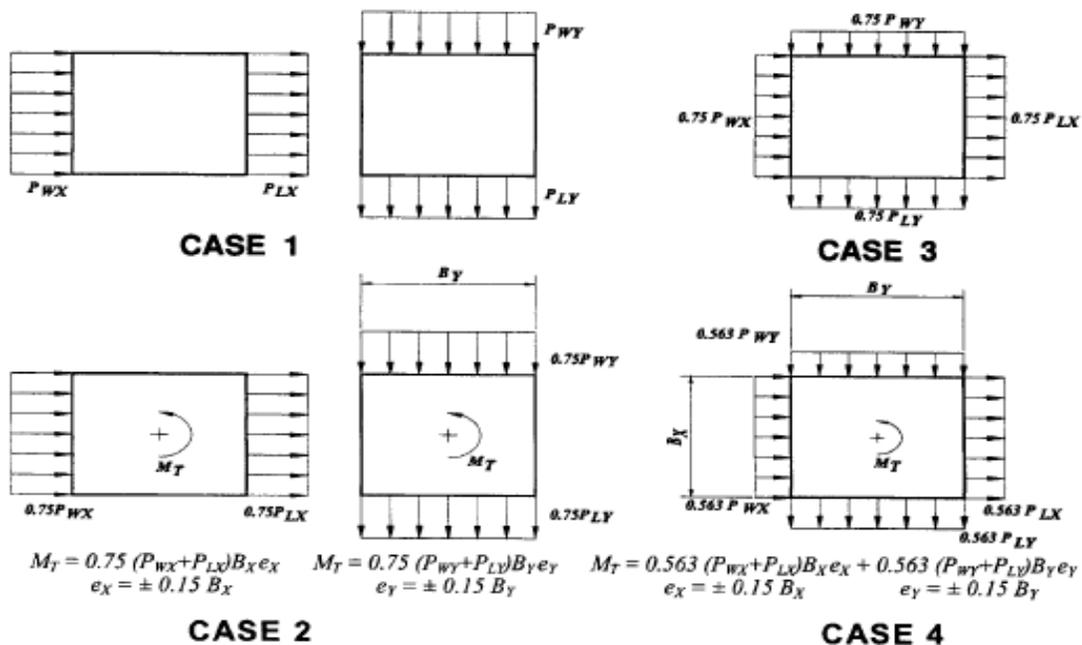
#### 2: Calculation of G for Rigid Building

G =  = 0.925\*((1+1.7\*gq\*Iz(bar)\*Q)/(1+1.7\*gv\*Iz(bar))) , Eq. 26.9-6

#### 3: Calculation of Gf for Flexible Building

$\beta$ =	<input type="text" value="0.050"/>	Damping Ratio
Ct =	<input type="text" value="0.035"/>	Period Coefficient
T =	<input type="text" value="0.362"/>	= Ct*h^(3/4) , sec. (Approximate fundamental period)
f =	<input type="text" value="2.762"/>	= 1/T , Hz. (Natural Frequency)
V(fps) =	<input type="text" value="N.A."/>	= V(mph)*(88/60) , ft./sec.
V(bar,zbar) =	<input type="text" value="N.A."/>	= b(bar)*(z(bar)/33)^( $\alpha(\text{bar})$ )*V*(88/60) , ft./sec. , Eq. 26.9-16
N1 =	<input type="text" value="N.A."/>	= f*Lz(bar)/(V(bar,zbar)) , Eq. 26.9-14
Rn =	<input type="text" value="N.A."/>	= 7.47*N1/(1+10.3*N1)^(5/3) , Eq. 26.9-13
$\eta h$ =	<input type="text" value="N.A."/>	= 4.6*f*h/(V(bar,zbar))
Rh =	<input type="text" value="N.A."/>	= (1/ $\eta h$ )-1/(2* $\eta h^2$ )*(1-e^(-2* $\eta h$ )) for $\eta h > 0$ , or = 1 for $\eta h = 0$ ,Eq. 26.9-15a, b
$\eta b$ =	<input type="text" value="N.A."/>	= 4.6*f*B/(V(bar,zbar))
RB =	<input type="text" value="N.A."/>	= (1/ $\eta b$ )-1/(2* $\eta b^2$ )*(1-e^(-2* $\eta b$ )) for $\eta b > 0$ , or = 1 for $\eta b = 0$ ,Eq. 26.9-15a, b
$\eta d$ =	<input type="text" value="N.A."/>	= 15.4*f*L/(V(bar,zbar))
RL =	<input type="text" value="N.A."/>	= (1/ $\eta d$ )-1/(2* $\eta d^2$ )*(1-e^(-2* $\eta d$ )) for $\eta d > 0$ , or = 1 for $\eta d = 0$ ,Eq. 26.9-15a, b
R =	<input type="text" value="N.A."/>	= ((1/ $\beta$ )*Rn*Rh*RB*(0.53+0.47*RL))^(1/2) , Eq. 26.9-12
Gf =	<input type="text" value="N.A."/>	= 0.925*(1+1.7*Iz(bar)*(gq^2*Q^2+gr^2*R^2)^(1/2))/(1+1.7*gv*Iz(bar)) ,
Use: G =	<input type="text" value="0.850"/>	Eq. 26.9-10

**Figure 6-9 - Design Wind Load Cases of MWFRS for Buildings of All Heights**

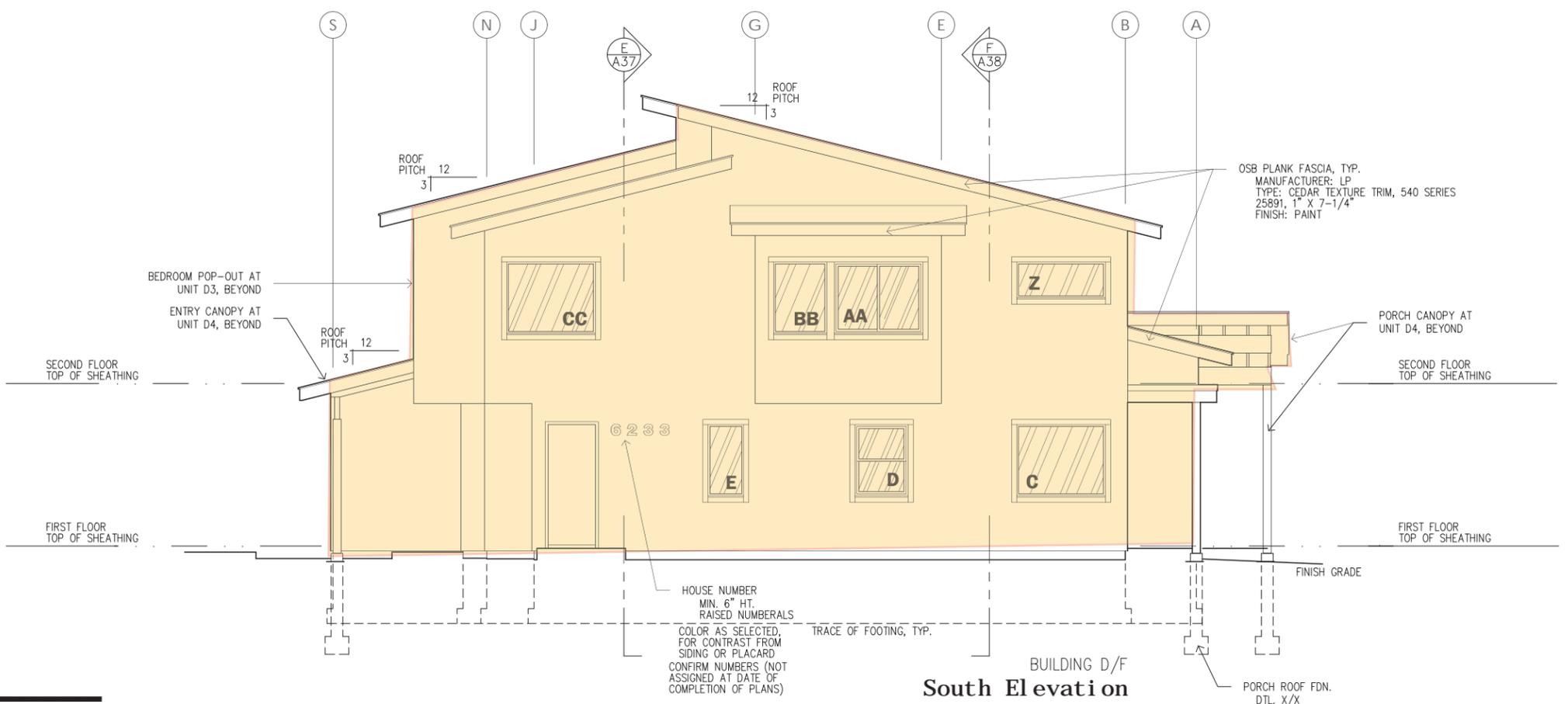
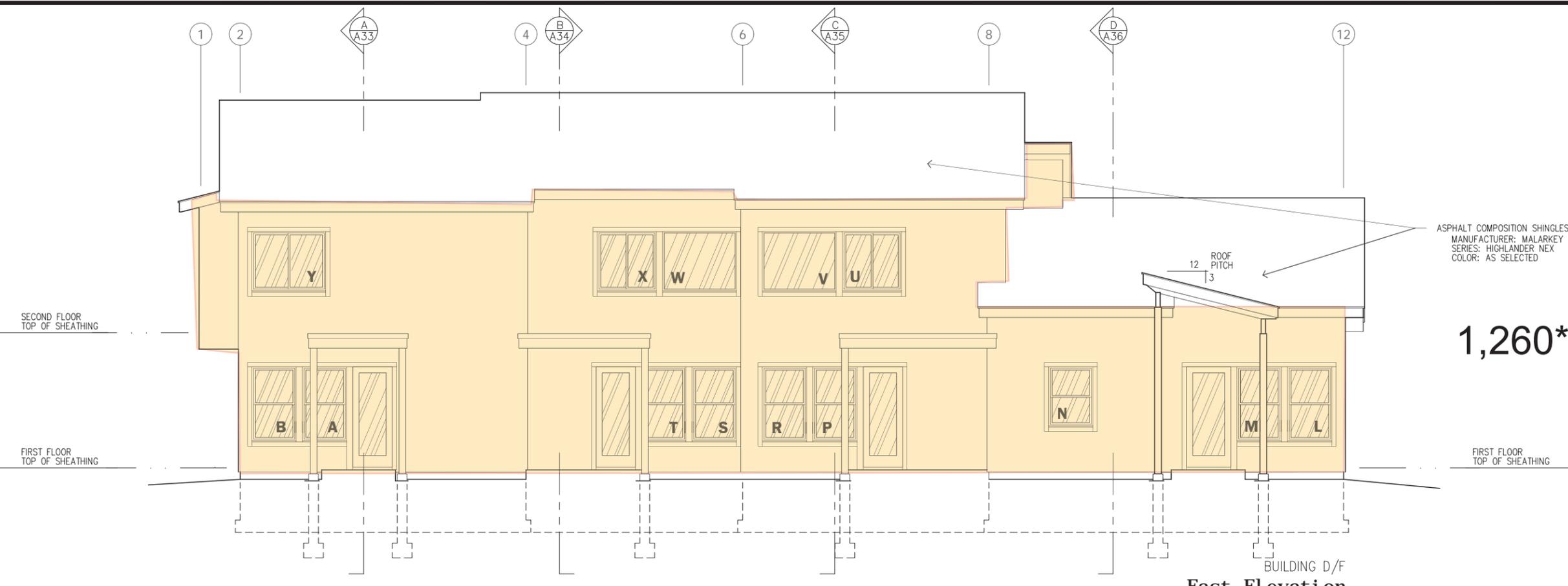


- Case 1:** Full design wind pressure acting on the projected area perpendicular to each principal axis of the structure, considered separately along each principal axis.
- Case 2:** Three quarters of the design wind pressure acting on the projected area perpendicular to each principal axis of the structure in conjunction with a torsional moment as shown, considered separately for each principal axis.
- Case 3:** Wind pressure as defined in Case 1, but considered to act simultaneously at 75% of the specified value.
- Case 4:** Wind pressure as defined in Case 2, but considered to act simultaneously at 75% of the specified value.

- Notes:**
- Design wind pressures for windward (Pw) and leeward (PL) faces shall be determined in accordance with the provisions of Section 27.4.1 and 27.4.2 as applicable for buildings of all heights.
  - Above diagrams show plan views of building.
  - Notation:
    - $P_{wx}$ ,  $P_{wy}$  = Windward face pressure acting in the X, Y principal axis, respectively.
    - $P_{Lx}$ ,  $P_{Ly}$  = Leeward face pressure acting in the X, Y principal axis, respectively.
    - $e$  ( $e_x$ ,  $e_y$ ) = Eccentricity for the X, Y principal axis of the structure, respectively.
    - MT = Torsional moment per unit height acting about a vertical axis of the building.

ASPHALT COMPOSITION SHINGLES  
MANUFACTURER: MALARKEY  
SERIES: HIGHLANDER NEX  
COLOR: AS SELECTED

1,260\*4.4=5,544



990\*19.7=19,503

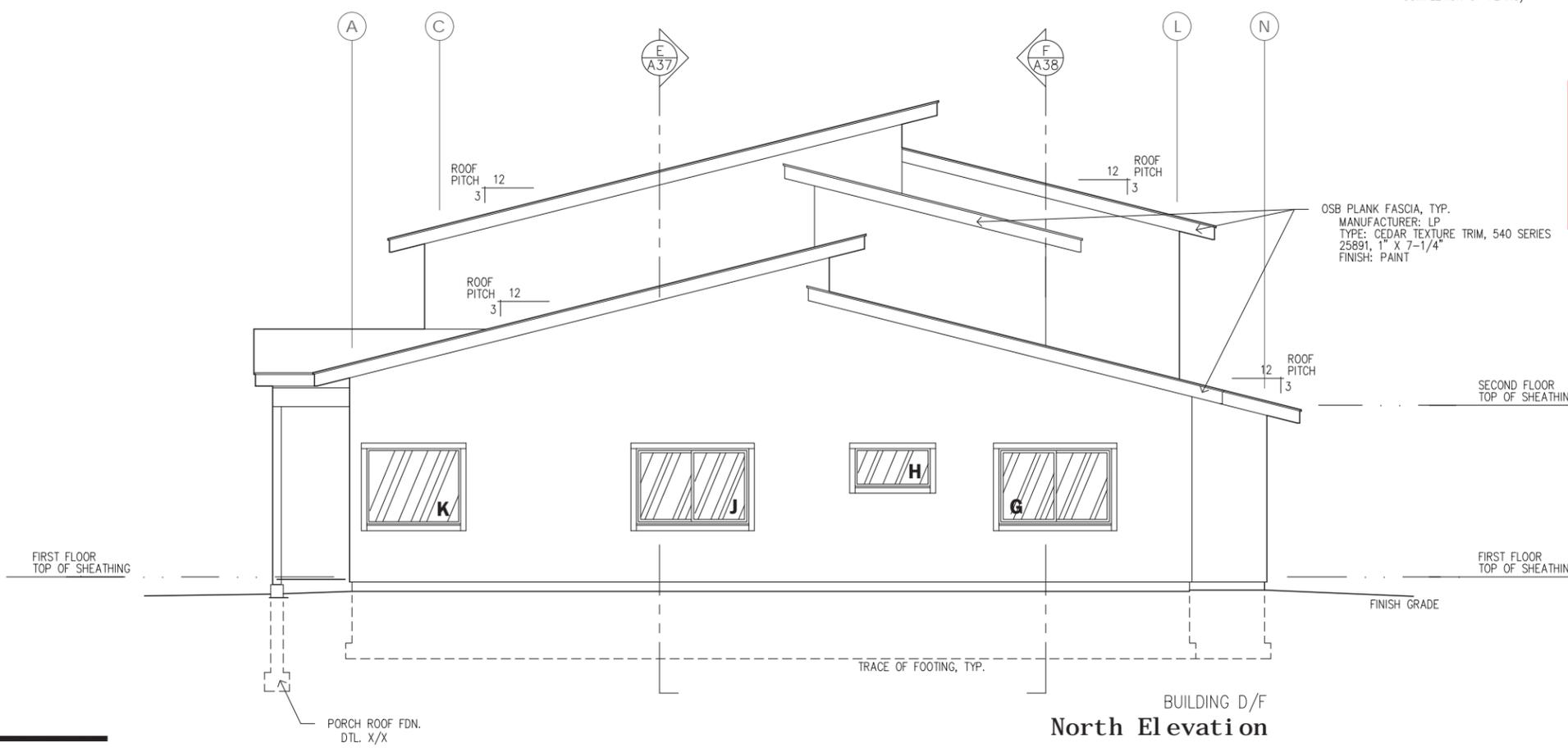
D/F

**COOK INLET HOUSING AUTHORITY**  
**BAXTER MULTIPLEXES, PHASE II**  
Tract B, Valetskaya Addition No. 1  
NHN Erna Court  
ANCHORAGE, ALASKA



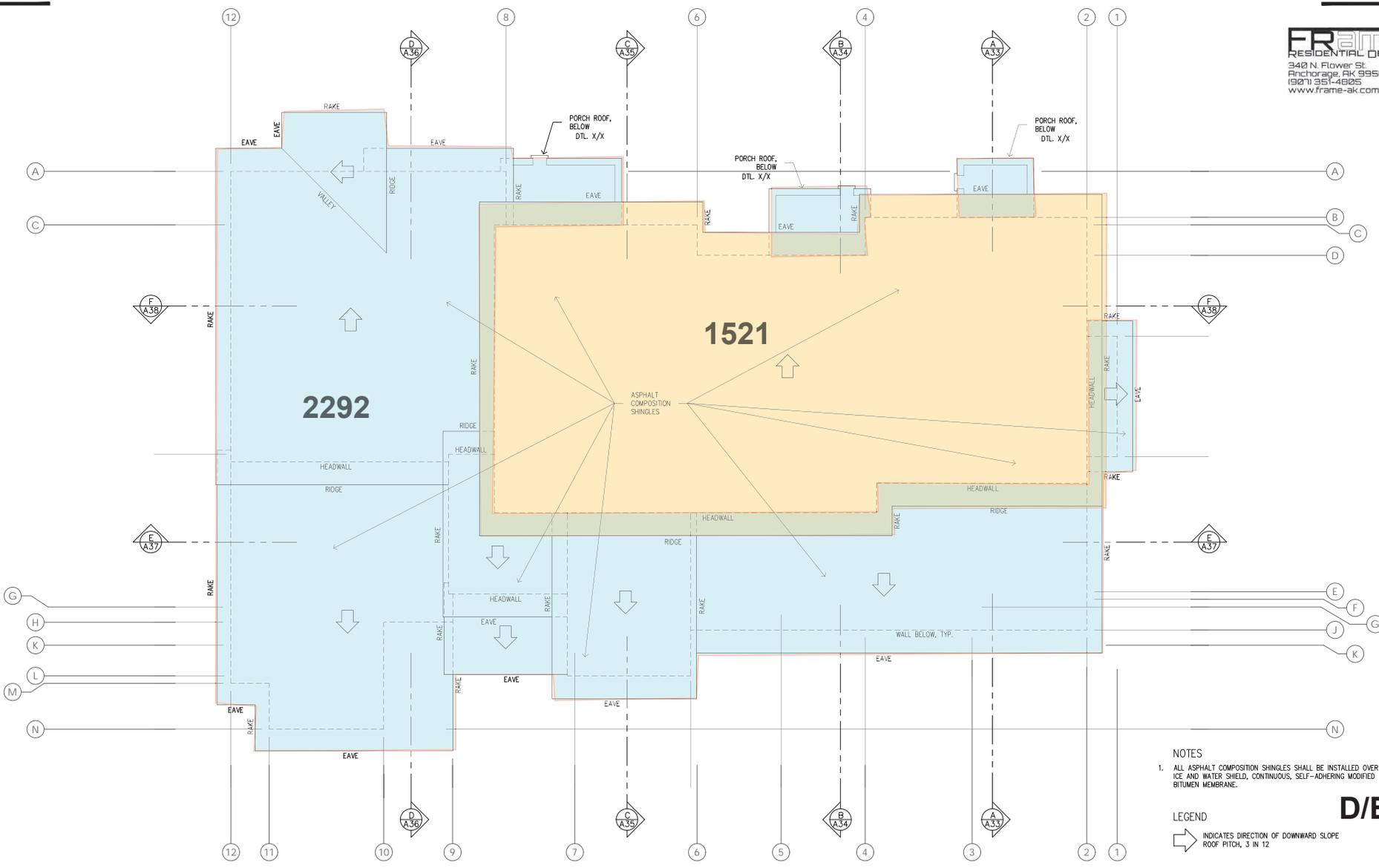
1820-204-144=1,472  
1,472\*15.3=22,522  
BEDROOM POP-OUT, BEYOND

**WIND FORCES E/W= 28,065**  
**WIND FORCES N/S= 19,503**



**D/F**

**COOK INLET HOUSING AUTHORITY**  
**BAXTER MULTIPLEXES, PHASE II**  
Tract B, Valetskaya Addition No. 1  
NHN Erna Court  
ANCHORAGE, ALASKA



50  
25  
10  
5  
0

**NOTES**  
1. ALL ASPHALT COMPOSITION SHINGLES SHALL BE INSTALLED OVER ICE AND WATER SHIELD, CONTINUOUS, SELF-ADHERING MODIFIED BITUMEN MEMBRANE.

**LEGEND**  
↑ INDICATES DIRECTION OF DOWNWARD SLOPE ROOF PITCH, 3 IN 12

**D/E/F**

BUILDING D/F  
**Roof Plan**



**COOK INLET HOUSING AUTHORITY  
BAXTER MULTIPLEXES, PHASE II**  
Tract B, Valetskaya Addition No. 1  
NHN Erna Court  
ANCHORAGE, ALASKA

DR. BY: CLARK  
DATE: 05 SEP 25

**A24**  
24 of 77



**SEISMIC LOADING**

**STORY LOADS:**

**ROOF LEVEL**

$H_{avg} =$  [ ]

	L	H	Area	Unit Wt	Weight
Roof	1,521	1	1521	15 psf =	22,815
Snow	1,521	1	1521	8 psf =	12,168
1/2 exterior walls below	180	4	720	10 psf =	7,200
1/2 interior walls below	290	4	1160	8 psf =	9,280

$W_R = 51,463$

**SECOND LEVEL**

	L	H	Area	Unit Wt	Weight
1/2 exterior walls above	180	4	720	10 psf =	7,200
1/2 interior walls above	290	4	1160	8 psf =	9,280
Roof	2,292	1	2292	15 psf =	34,380
Snow	2,292	1	2292	8 psf =	18,336
Floor	1,910	1	1910	12 psf =	22,920
Deck		1		10 psf =	
Deck Snow		1		8 psf =	
1/2 exterior walls below	264	4	1056	10 psf =	10,560
1/2 interior walls below	415	4	1660	8 psf =	13,280

$W_2 = 115,956$

**FIRST LEVEL**

$H_{avg} =$  [ ]

	L	H	Area	Unit Wt	Weight
1/2 exterior walls above	264	4	1056	10 psf =	10,560
1/2 interior walls above	415	4	1660	8 psf =	13,280
Floor	3,000	1	3000	12 psf =	36,000
Floor		1		55 psf =	
1/2 exterior walls below		1	0	10 psf =	0
1/2 interior walls below				8 psf =	

$W_1 = 59,840$

$\Sigma = W_s = 227,259$



**SEISMIC FORCES 2018 IBC (Simplified Method)**

**BASE SHEAR (ASCE 12.14.8.1)**

Number of Stories 2  $\rho = 1.3$  Default  
 Plan irregularity no  $PI_{Adj} = 1.00$   
 BASE SHEAR =  $V = [FS_{DS}/R]\rho W = 42,207$  Lbs

$V = 0.19 W_s$   
 Factored x .7  
 $V = 0.27 W_s$   
 Strength Level

Where:  $W_s = 227,259$  Lbs  $F = 1.1$   
 $R = 6.5$   $F_a = 1.2$   
 $I_s = 1.0$   $F_v = 1.5$   
 $S_{DS} = 2/3[S_{MS}] = 1.206$   $S_{D1} = 2/3[S_{M1}] = 0.7$   
 $S_{MS} = F_a S_s = 1.8$   $S_{M1} = F_v S_1 = 1.0$   
 $S_s = 1.500$   $S_1 = 0.682$

Zip Code 99504

**VERTICAL DISTRIBUTION (ASCE12.14.8.2)**  $F_x = (w_x/W)V$

**SEISMIC FORCES TO DIAPHRAGMS**

LEVEL	$W_s$	$H_{avg}$	FORCE
Roof	51,463	0	9,558 Lbs
2nd	115,956	0	21,536 Lbs
1st	59,840	0	11,114 Lbs
$W_s = 227,259$ Lbs			42,208 Lbs

**DIAPHRAGM FORCES**

	DIAPHRAGM	LENGTH	FORCE	SHEAR	
North/South	Roof	36.0	7,006	195 plf	
	2nd	49.0	21,536	440 plf	
	1st	49.0	11,114	227 plf	
East/West	Roof	56.0	9,558	171 plf	<u>Load Combinations</u> Wind .6D + W E'quake (.6-.14 $S_{DS}$ )D+.7 $\rho Q_E$
	2nd	76.0	21,536	283 plf	
	1st	76.0	11,114	146 plf	
Wind Base Shear	North/South		19,503	<	42,207 seismic controls
Wind Base Shear	East/West		28,065	<	42,207 seismic controls

LDR ENGINEERING, INC.

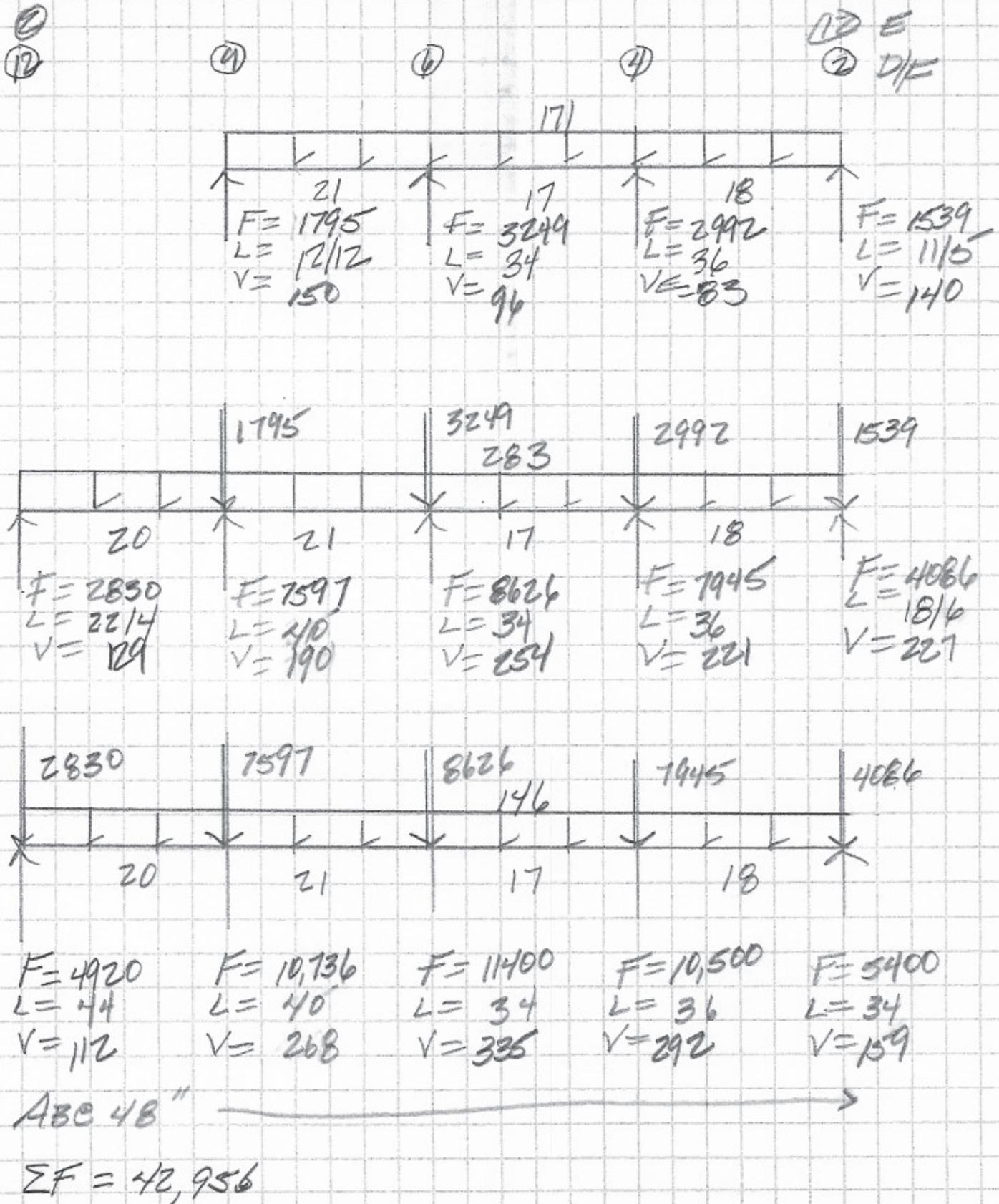
3705 Arctic Blvd., #2543  
Anchorage, Alaska 99503  
Phone (907) 337-3571  
(907) 333-6425

JOB CIHA-BAXTER - D/E/F

SUBJECT \_\_\_\_\_

BY \_\_\_\_\_ DATE 9/8/25

SHEET# \_\_\_\_\_ OF \_\_\_\_\_ SCALE \_\_\_\_\_





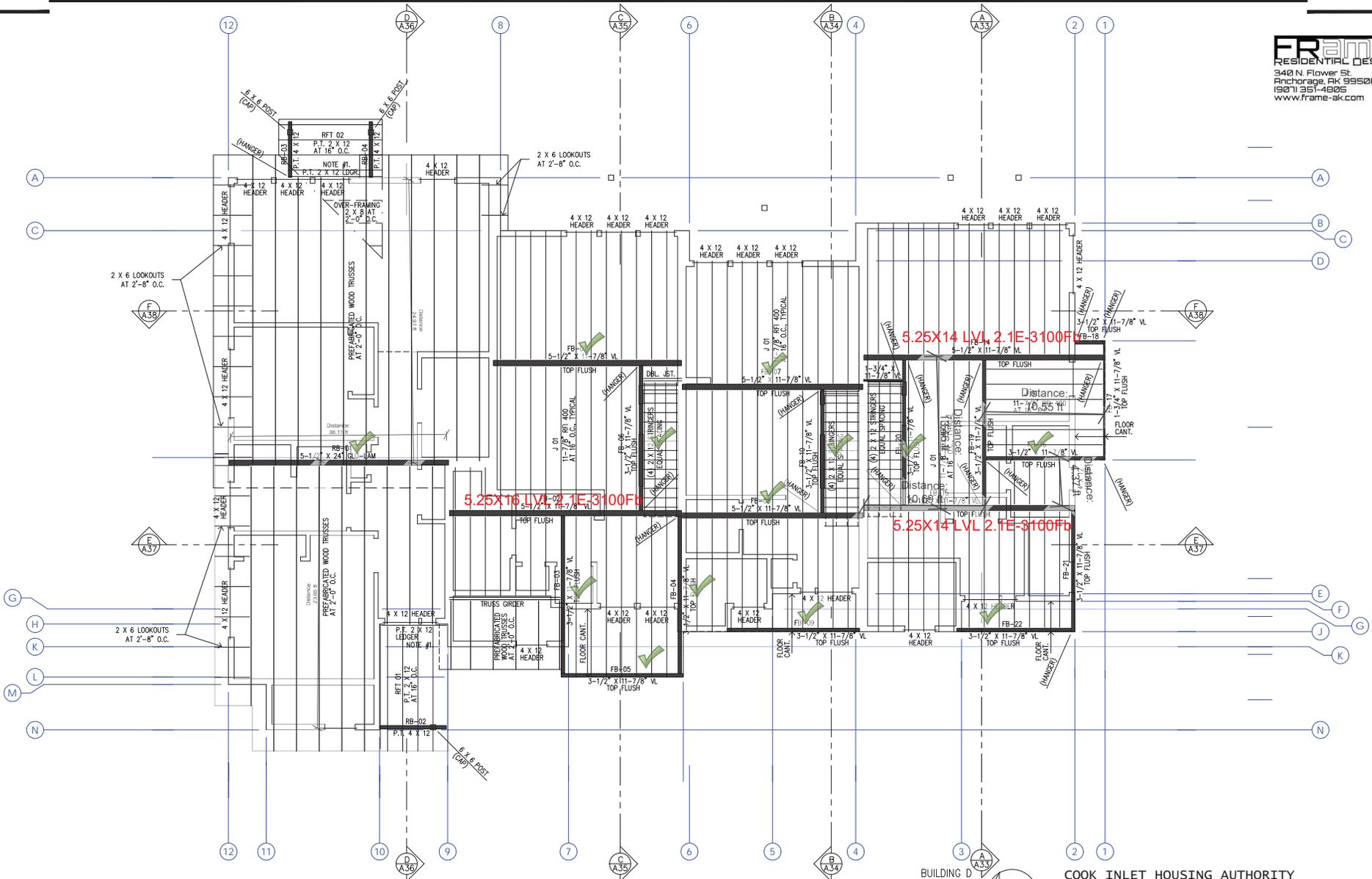


**HOLDOWNS**

WALL	LEVEL	T	STRAP or HOLDOWN	CHORD	A. BOLT	Embed, Concrete	Embed, Masonry	T <sub>all</sub>
2	2	1,034	N/A					
4	2	45	N/A					
6	2	183	N/A					
9	2	994	N/A					
C/D	2	1,216	(1) - MST 37	(2) - 2x-DF				5,080
E/J	2	2,083	(1) - MST 37	(2) - 2x-DF				5,080
2	1	1,571	HDU2	(2) - 2x-DF	5/8"	7" into ft'g,	7" into ft'g,	3,075
4	1	297	N/A					
6	1	643	N/A					
9	1	907	N/A					
12	1	869	N/A					
A	1	3,308	HDU4	(2) - 2x-DF	5/8"	7" into ft'g,	7" into ft'g,	4,565
C/D	1	2,084	HDU2	(2) - 2x-DF	5/8"	7" into ft'g,	7" into ft'g,	3,075
E/J/K	1	2,760	HDU2	(2) - 2x-DF	5/8"	7" into ft'g,	7" into ft'g,	3,075
L	1	3,308	HDU4	(2) - 2x-DF	5/8"	7" into ft'g,	7" into ft'g,	4,565
N	1	2,866	HDU2	(2) - 2x-DF	5/8"	7" into ft'g,	7" into ft'g,	3,075
<b>COMBINED</b>								
2	1	2,605	HDU2	(2) - 2x-DF	5/8"	7" into ft'g,	7" into ft'g,	3,075
C/D		3,300	HDU4	(2) - 2x-DF	5/8"	7" into ft'g,	7" into ft'g,	4,565
E/J/K		4843	HDU5	(3) - 2x-DF	5/8"	7" into ft'g,	7" into ft'g,	5,645

EMBEDMENT DEPTHS SHOWN ARE FOR ANCHOR BOLTS IN UNINSPECTED CONCRETE MASONRY; FULL GROUTING OF ALL CELLS IN ENTIRE STEM WALL IS REQUIRED. CONCRETE EMBEDMENT DEPTHS ASSUME  $f'_c = 3000$  PSI CONCRETE;  $f'_m = 2500$  psi.



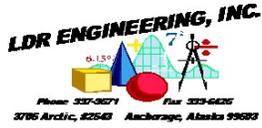


BUILDING D  
**Second Floor/Low  
Roof Framing Plan**  
BUILDING F -- SIMILAR  
BUILDING E -- SIMILAR/OPPOSITE HAND

**COOK INLET HOUSING AUTHORITY  
BAXTER MULTIPLEXES, PHASE II**  
Tract B, Valetskaya Addition No. 1  
NHN Erna Court  
ANCHORAGE, ALASKA

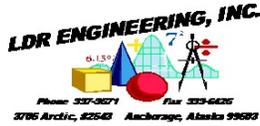
DR. BY: CLARK  
DATE: 05 SEP 25

50  
25  
10  
Distance: 0.000 B  
Distance: 0.000 B



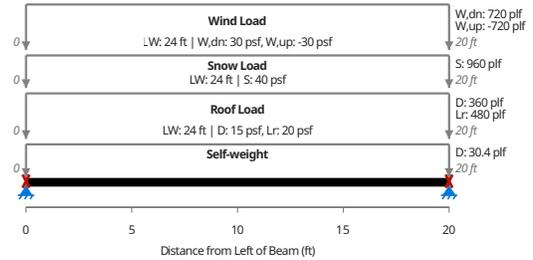
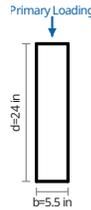
<b>Client:</b>	<b>Author:</b> LD Randolph	<b>Date:</b> Sep 8, 2025
<b>Project:</b> CIHA-BAXTER ROAD D/E/F		<b>Job #:</b>
<b>Address:</b> Baxter Road, Anchorage, AK, USA		<b>Subject:</b> Member Schedule

	Calculation	Member	Quantity	Comments
73%	RB-01	5-1/2x24 24F-V4 DF	20 ft	
82%	FB-02	5-1/4x16 PW LVL 2.0E-3100Fb	20 ft	
65%	FB-08	5-1/4x11-7/8 Versa-Lam LVL 2.1E-3100Fb	15 ft	
79%	FB-15	5-1/4x14 Versa-Lam LVL 2.1E-3100Fb	18 ft	
9%	FB-20	5-1/4x11-7/8 Versa-Lam LVL 2.1E-3100Fb	13.5 ft	
22%	FB-19	5-1/4x11-7/8 Versa-Lam LVL 2.1E-3100Fb	13.5 ft	
94%	FB-01	5-1/4x11-7/8 Versa-Lam LVL 2.1E-3100Fb	16 ft	



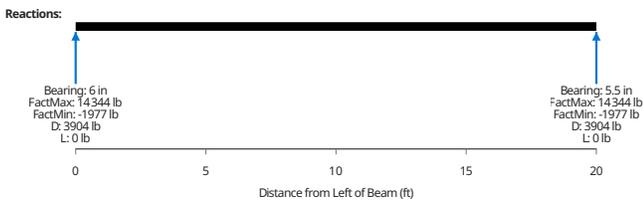
<b>Client:</b>	<b>Author:</b> LD Randolph	<b>Date:</b> Sep 8, 2025
<b>Project:</b> CIHA-BAXTER ROAD D/E/F	<b>Job #:</b>	
<b>Address:</b> Baxter Road, Anchorage, AK, USA	<b>Subject:</b> RB-01	<b>PASS</b>
<b>References:</b> NDS 2018 (ASD)		

Summary



Member 5-1/2x24 24F-V4 DF

60%	Moment Utilization	$M/M' = 67\,520\text{ lbft} / 113\,106\text{ lbft}$
50%	Shear Utilization	$V/V' = 13\,504\text{ lb} / 26\,818\text{ lb}$
73%	Bearing Utilization	$R/R' = 14\,344\text{ lb} / 19\,662\text{ lb}$
	Minimum Bearing Length (End Supports)	$\ell_{b,min,end} = 4.01\text{ in}$
30%	Governing Live / Short-Term Deflection	$\delta_{ST} = -0.303\text{ in (L/792)}$
21%	Governing Long-Term Deflection	$\delta_{LT} = -0.213\text{ in (L/1126)}$
	Governing Long-Term Deflection	$\delta_{LT} = -0.213\text{ in}$



Key Properties

Beam Plan Length	$L_X = 20\text{ ft}$
Continuous Bracing for Lateral Torsional Buckling	Top Braced

Loads

Design Conditions

International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 132\text{ in}^2$
Strong Axis Moment of Inertia	$I_{xx} = 6336\text{ in}^4$
Section Modulus	$S = 528\text{ in}^3$
Base Allowable Bending Stress	$F_b = 2400\text{ psi}$
Base Allowable Shear Stress	$F_v = 265\text{ psi}$
Base Perpendicular Compression Allowable Stress	$F_{c,\perp} = 650\text{ psi}$
True Modulus of Elasticity	$E_{true} = 1.90 \times 10^6\text{ psi}$
Apparent Modulus of Elasticity	$E_{app} = 1.80 \times 10^6\text{ psi}$
Modulus of Elasticity for Deflections	$E = 1.80 \times 10^6\text{ psi}$

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity  $E' = 1.80 \times 10^6\text{ psi}$

Section Bending (NDS 2018 2.3)

Volume Factor  $C_V = 0.931$

Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending  $C_{D,b}^+ = 1.15$

Governing Beam Stability Factor - Positive Bending  $C_L^+ = 1$

Adjusted Bending Strength - Positive Bending  $F_b^{'+} = 2571\text{ psi}$

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending  $C_{D,b}^- = 1.6$

Governing Beam Stability Factor - Negative Bending  $C_L^- = 0.817$

Adjusted Bending Strength - Negative Bending  $F_b'^- = 2417\text{ psi}$

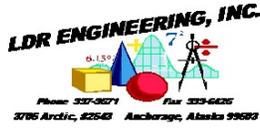
Shear Design (NDS 2018 3.4)

Governing Duration Factor  $C_D = 1.15$

Adjusted Shear Strength  $F_v' = 305\text{ psi}$

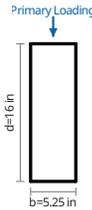
Base Bearing Strength

$$F'_{c\perp}/C_b = 650 \text{ psi}$$

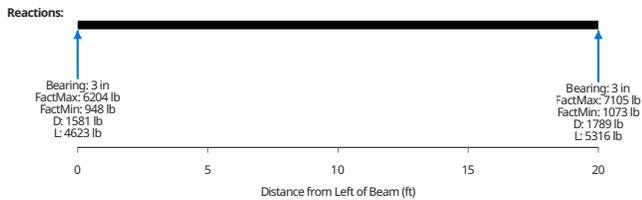


<b>Client:</b>	<b>Author:</b> LD Randolph	<b>Date:</b> Sep 8, 2025
<b>Project:</b> CIHA-BAXTER ROAD D/E/F	<b>Job #:</b>	
<b>Address:</b> Baxter Road, Anchorage, AK, USA	<b>Subject:</b> FB-02	<b>PASS</b>
<b>References:</b> NDS 2018 (ASD)		

Summary



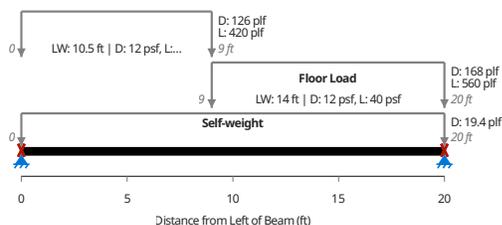
Member	5-1/4x16 PW LVL 2.0E-3100Fb
<b>62%</b> Moment Utilization	$M/M' = 33773 \text{ lbft} / 54631 \text{ lbft}$
<b>45%</b> Shear Utilization	$V/V' = 7105 \text{ lb} / 15960 \text{ lb}$
<b>53%</b> Bearing Utilization	$R/R' = 7105 \text{ lb} / 13387 \text{ lb}$
Minimum Bearing Length (End Supports)	$\ell_{b,min,end} = 1.59 \text{ in}$
<b>82%</b> Governing Live / Short-Term Deflection	$\delta_{ST} = -0.544 \text{ in (L/441)}$
<b>63%</b> Governing Long-Term Deflection	$\delta_{LT} = -0.629 \text{ in (L/381)}$
Governing Long-Term Deflection	$\delta_{LT} = -0.629 \text{ in}$



Key Properties

Beam Plan Length	$L_X = 20 \text{ ft}$
Continuous Bracing for Lateral Torsional Buckling	Top Braced

Loads



Design Conditions

International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 84 \text{ in}^2$
Strong Axis Moment of Inertia	$I_{xx} = 1792 \text{ in}^4$
Section Modulus	$S = 224 \text{ in}^3$
Base Allowable Bending Stress	$F_b = 3100 \text{ psi}$
Base Allowable Shear Stress	$F_v = 285 \text{ psi}$
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 850 \text{ psi}$
True Modulus of Elasticity	$E_{true} = 2.00 \times 10^6 \text{ psi}$
Apparent Modulus of Elasticity	$E_{app} = NaN \text{ psi}$
Modulus of Elasticity for Deflections	$E = 2.00 \times 10^6 \text{ psi}$

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 2.00 \times 10^6 \text{ psi}$
Adjusted Shear Modulus	$G' = 125000 \text{ psi}$

Section Bending (NDS 2018 2.3)

Volume Factor	$C_V = 0.944$
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Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C_{D,b}^+ = 1$
Governing Beam Stability Factor - Positive Bending	$C_L^+ = 1$
Adjusted Bending Strength - Positive Bending	$F_b^{'+} = 2927 \text{ psi}$

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C_{D,b}^- = 0.9$
Governing Beam Stability Factor - Negative Bending	$C_L^- = 0.942$
Adjusted Bending Strength - Negative Bending	$F_b'^- = 2628 \text{ psi}$

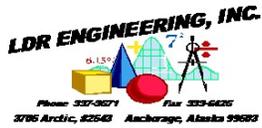
Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D = 1$
Adjusted Shear Strength	$F_v' = 285 \text{ psi}$

Bearing (NDS 2018 3.10)

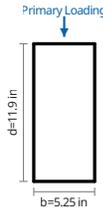
Base Bearing Strength	$F'_{c\perp}/C_b = 850 \text{ psi}$
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Comments

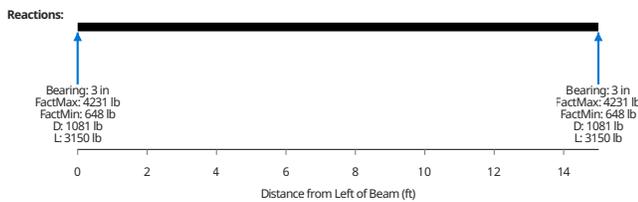


<b>Client:</b>	<b>Author:</b> LD Randolph	<b>Date:</b> Sep 8, 2025
<b>Project:</b> CIHA-BAXTER ROAD D/E/F	<b>Job #:</b>	
<b>Address:</b> Baxter Road, Anchorage, AK, USA	<b>Subject:</b> FB-08	<b>PASS</b>
<b>References:</b> NDS 2018 (ASD)		

Summary



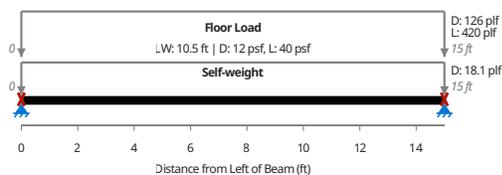
Member	5-1/4x11-7/8 Versa-Lam LVL 2.1E-3100Fb
<b>50%</b> Moment Utilization	$M/M' = 15\,865\text{ lbft} / 31\,913\text{ lbft}$
<b>36%</b> Shear Utilization	$V/V' = 4231\text{ lb} / 11\,845\text{ lb}$
<b>36%</b> Bearing Utilization	$R/R' = 4231\text{ lb} / 11\,812\text{ lb}$
Minimum Bearing Length (End Supports)	$\ell_{b,min,end} = 1.07\text{ in}$
<b>65%</b> Governing Live / Short-Term Deflection	$\delta_{ST} = -0.326\text{ in (L/551)}$
<b>51%</b> Governing Long-Term Deflection	$\delta_{LT} = -0.382\text{ in (L/471)}$
Governing Long-Term Deflection	$\delta_{LT} = -0.382\text{ in}$



Key Properties

Beam Plan Length	$L_X = 15\text{ ft}$
Continuous Bracing for Lateral Torsional Buckling	Top Braced

Loads



Design Conditions

International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 62.3\text{ in}^2$
Strong Axis Moment of Inertia	$I_{xx} = 733\text{ in}^4$
Section Modulus	$S = 123\text{ in}^3$
Base Allowable Bending Stress	$F_b = 3100\text{ psi}$
Base Allowable Shear Stress	$F_v = 285\text{ psi}$
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 750\text{ psi}$
True Modulus of Elasticity	$E_{true} = 2.10 \times 10^6\text{ psi}$
Apparent Modulus of Elasticity	$E_{app} = 2.00 \times 10^6\text{ psi}$
Modulus of Elasticity for Deflections	$E = 2.00 \times 10^6\text{ psi}$

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 2.00 \times 10^6\text{ psi}$
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Section Bending (NDS 2018 2.3)

Volume Factor	$C_V = 1$
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Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C_{D,b}^+ = 1$
Governing Beam Stability Factor - Positive Bending	$C_L^+ = 1$
Adjusted Bending Strength - Positive Bending	$F_b^+ = 3104\text{ psi}$

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C_{D,b}^- = 0.9$
Governing Beam Stability Factor - Negative Bending	$C_L^- = 0.979$
Adjusted Bending Strength - Negative Bending	$F_b^- = 2734\text{ psi}$

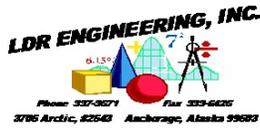
Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D = 1$
Adjusted Shear Strength	$F_v' = 285\text{ psi}$

Bearing (NDS 2018 3.10)

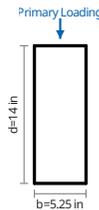
Base Bearing Strength	$F_{c\perp}'/C_b = 750\text{ psi}$
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Comments

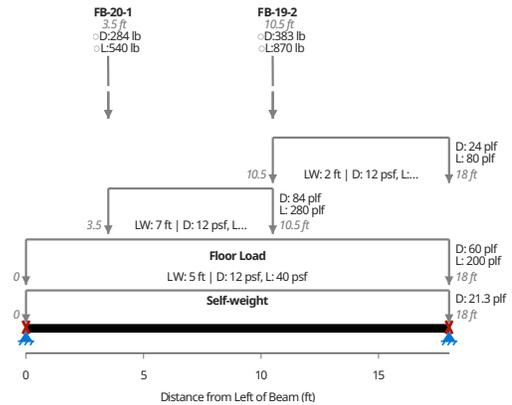
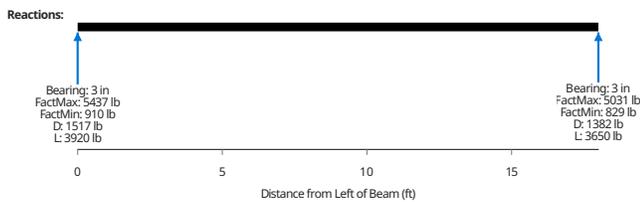


<b>Client:</b>	<b>Author:</b> LD Randolph	<b>Date:</b> Sep 8, 2025
<b>Project:</b> CIHA-BAXTER ROAD D/E/F	<b>Job #:</b>	
<b>Address:</b> Baxter Road, Anchorage, AK, USA	<b>Subject:</b> FB-15	<b>PASS</b>
<b>References:</b> NDS 2018 (ASD)		

Summary



Member	5-1/4x14 Versa-Lam LVL 2.1E-3100Fb
<b>63%</b> Moment Utilization	$M/M' = 27\,510 \text{ lbft} / 43\,552 \text{ lbft}$
<b>39%</b> Shear Utilization	$V/V' = 5437 \text{ lb} / 13\,965 \text{ lb}$
<b>46%</b> Bearing Utilization	$R/R' = 5437 \text{ lb} / 11\,812 \text{ lb}$
Minimum Bearing Length (End Supports)	$\ell_{b,min,end} = 1.38 \text{ in}$
<b>79%</b> Governing Live / Short-Term Deflection	$\delta_{ST} = -0.475 \text{ in (L/455)}$
<b>63%</b> Governing Long-Term Deflection	$\delta_{LT} = -0.564 \text{ in (L/383)}$
Governing Long-Term Deflection	$\delta_{LT} = -0.564 \text{ in}$



Design Conditions

International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 73.5 \text{ in}^2$
Strong Axis Moment of Inertia	$I_{xx} = 1200 \text{ in}^4$
Section Modulus	$S = 171 \text{ in}^3$
Base Allowable Bending Stress	$F_b = 3100 \text{ psi}$
Base Allowable Shear Stress	$F_v = 285 \text{ psi}$
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 750 \text{ psi}$
True Modulus of Elasticity	$E_{true} = 2.10 \times 10^6 \text{ psi}$
Apparent Modulus of Elasticity	$E_{app} = 2.00 \times 10^6 \text{ psi}$
Modulus of Elasticity for Deflections	$E = 2.00 \times 10^6 \text{ psi}$

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 2.00 \times 10^6 \text{ psi}$
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Section Bending (NDS 2018 2.3)

Volume Factor	$C_V = 0.983$
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Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C_{D,b}^+ = 1$
Governing Beam Stability Factor - Positive Bending	$C_L^+ = 1$
Adjusted Bending Strength - Positive Bending	$F_b^{'+} = 3047 \text{ psi}$

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C_{D,b}^- = 0.9$
Governing Beam Stability Factor - Negative Bending	$C_L^- = 0.966$
Adjusted Bending Strength - Negative Bending	$F_b'^- = 2695 \text{ psi}$

Key Properties

Beam Plan Length	$L_X = 18 \text{ ft}$
Continuous Bracing for Lateral Torsional Buckling	Top Braced

Loads

Shear Design (NDS 2018 3.4)

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Governing Duration Factor  $C_D = 1$   
Adjusted Shear Strength  $F'_v = 285$  psi

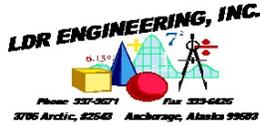
Bearing (NDS 2018 3.10)

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Base Bearing Strength  $F'_{c\perp}/C_b = 750$  psi

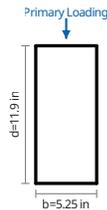
Comments

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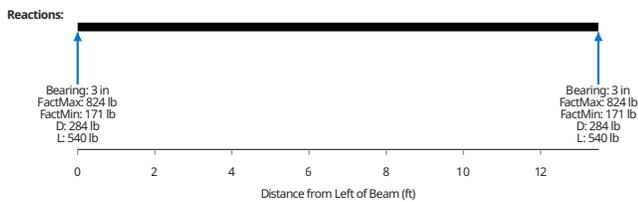


<b>Client:</b>	<b>Author:</b> LD Randolph	<b>Date:</b> Sep 8, 2025
<b>Project:</b> CIHA-BAXTER ROAD D/E/F	<b>Job #:</b>	
<b>Address:</b> Baxter Road, Anchorage, AK, USA	<b>Subject:</b> FB-20	<b>PASS</b>
<b>References:</b> NDS 2018 (ASD)		

## Summary



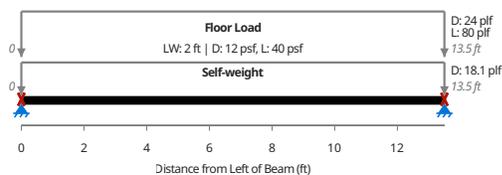
Member	5-1/4x11-7/8 Versa-Lam LVL 2.1E-3100F8
<b>9%</b> Moment Utilization	$M/M' = 2782 \text{ lbft} / 31913 \text{ lbft}$
<b>7%</b> Shear Utilization	$V/V' = 824 \text{ lb} / 11845 \text{ lb}$
<b>7%</b> Bearing Utilization	$R/R' = 824 \text{ lb} / 11812 \text{ lb}$
Minimum Bearing Length (End Supports)	$\ell_{b,min,end} = 0.209 \text{ in}$
<b>9%</b> Governing Live / Short-Term Deflection	$\delta_{ST} = -0.0408 \text{ in} (L/3971)$
<b>8%</b> Governing Long-Term Deflection	$\delta_{LT} = -0.0515 \text{ in} (L/3143)$
Governing Long-Term Deflection	$\delta_{LT} = -0.0515 \text{ in}$



## Key Properties

Beam Plan Length	$L_X = 13.5 \text{ ft}$
Continuous Bracing for Lateral Torsional Buckling	Top Braced

## Loads



## Design Conditions

International Building Code (IBC) 2018

## Member Properties

Cross-Sectional Area	$A = 62.3 \text{ in}^2$
Strong Axis Moment of Inertia	$I_{xx} = 733 \text{ in}^4$
Section Modulus	$S = 123 \text{ in}^3$
Base Allowable Bending Stress	$F_b = 3100 \text{ psi}$
Base Allowable Shear Stress	$F_v = 285 \text{ psi}$
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 750 \text{ psi}$
True Modulus of Elasticity	$E_{true} = 2.10 \times 10^6 \text{ psi}$
Apparent Modulus of Elasticity	$E_{app} = 2.00 \times 10^6 \text{ psi}$
Modulus of Elasticity for Deflections	$E = 2.00 \times 10^6 \text{ psi}$

## Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 2.00 \times 10^6 \text{ psi}$
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## Section Bending (NDS 2018 2.3)

Volume Factor	$C_V = 1$
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## Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C_{D,b}^+ = 1$
Governing Beam Stability Factor - Positive Bending	$C_L^+ = 1$
Adjusted Bending Strength - Positive Bending	$F_b^+ = 3104 \text{ psi}$

## Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C_{D,b}^- = 0.9$
Governing Beam Stability Factor - Negative Bending	$C_L^- = 0.981$
Adjusted Bending Strength - Negative Bending	$F_b^- = 2741 \text{ psi}$

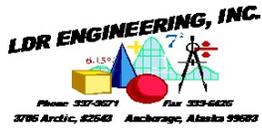
## Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D = 1$
Adjusted Shear Strength	$F_v' = 285 \text{ psi}$

## Bearing (NDS 2018 3.10)

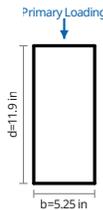
Base Bearing Strength	$F'_{c\perp}/C_b = 750 \text{ psi}$
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## Comments

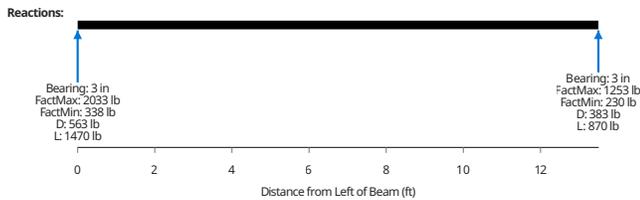


<b>Client:</b>	<b>Author:</b> LD Randolph	<b>Date:</b> Sep 8, 2025
<b>Project:</b> CIHA-BAXTER ROAD D/E/F	<b>Job #:</b>	
<b>Address:</b> Baxter Road, Anchorage, AK, USA	<b>Subject:</b> FB-19	<b>PASS</b>
<b>References:</b> NDS 2018 (ASD)		

Summary



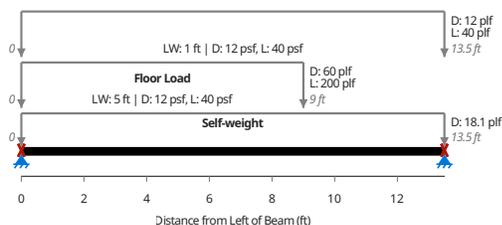
Member	5-1/4x11-7/8 Versa-Lam LVL 2.1E-3100F8
<b>20%</b> Moment Utilization	$M/M' = 6261 \text{ lbft} / 31913 \text{ lbft}$
<b>17%</b> Shear Utilization	$V/V' = 2033 \text{ lb} / 11845 \text{ lb}$
<b>17%</b> Bearing Utilization	$R/R' = 2033 \text{ lb} / 11812 \text{ lb}$
Minimum Bearing Length (End Supports)	$\ell_{b,min,end} = 0.516 \text{ in}$
<b>22%</b> Governing Live / Short-Term Deflection	$\delta_{ST} = -0.0973 \text{ in (L/1665)}$
<b>17%</b> Governing Long-Term Deflection	$\delta_{LT} = -0.117 \text{ in (L/1390)}$
Governing Long-Term Deflection	$\delta_{LT} = -0.117 \text{ in}$



Key Properties

Beam Plan Length	$L_X = 13.5 \text{ ft}$
Continuous Bracing for Lateral Torsional Buckling	Top Braced

Loads



Design Conditions

International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 62.3 \text{ in}^2$
Strong Axis Moment of Inertia	$I_{xx} = 733 \text{ in}^4$
Section Modulus	$S = 123 \text{ in}^3$
Base Allowable Bending Stress	$F_b = 3100 \text{ psi}$
Base Allowable Shear Stress	$F_v = 285 \text{ psi}$
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 750 \text{ psi}$
True Modulus of Elasticity	$E_{true} = 2.10 \times 10^6 \text{ psi}$
Apparent Modulus of Elasticity	$E_{app} = 2.00 \times 10^6 \text{ psi}$
Modulus of Elasticity for Deflections	$E = 2.00 \times 10^6 \text{ psi}$

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 2.00 \times 10^6 \text{ psi}$
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Section Bending (NDS 2018 2.3)

Volume Factor	$C_V = 1$
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Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C_{D,b}^+ = 1$
Governing Beam Stability Factor - Positive Bending	$C_L^+ = 1$
Adjusted Bending Strength - Positive Bending	$F_b^+ = 3104 \text{ psi}$

Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C_{D,b}^- = 0.9$
Governing Beam Stability Factor - Negative Bending	$C_L^- = 0.982$
Adjusted Bending Strength - Negative Bending	$F_b^- = 2742 \text{ psi}$

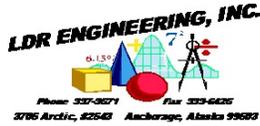
Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D = 1$
Adjusted Shear Strength	$F_v' = 285 \text{ psi}$

Bearing (NDS 2018 3.10)

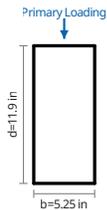
Base Bearing Strength	$F'_{c\perp}/C_b = 750 \text{ psi}$
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Comments

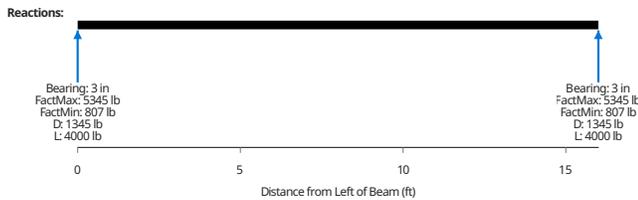


<b>Client:</b>	<b>Author:</b> LD Randolph	<b>Date:</b> Sep 8, 2025
<b>Project:</b> CIHA-BAXTER ROAD D/E/F	<b>Job #:</b>	
<b>Address:</b> Baxter Road, Anchorage, AK, USA	<b>Subject:</b> FB-01	<b>PASS</b>
<b>References:</b> NDS 2018 (ASD)		

## Summary



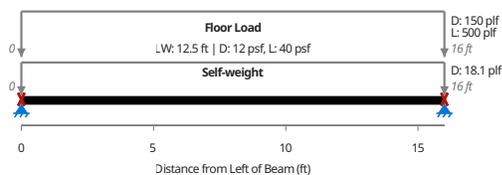
Member	5-1/4x11-7/8 Versa-Lam LVL 2.1E-3100Fb
<b>67%</b> Moment Utilization	$M/M' = 21\,379 \text{ lbft} / 31\,913 \text{ lbft}$
<b>45%</b> Shear Utilization	$V/V' = 5345 \text{ lb} / 11\,845 \text{ lb}$
<b>45%</b> Bearing Utilization	$R/R' = 5345 \text{ lb} / 11\,812 \text{ lb}$
Minimum Bearing Length (End Supports)	$\ell_{b,min,end} = 1.36 \text{ in}$
<b>94%</b> Governing Live / Short-Term Deflection	$\delta_{ST} = -0.503 \text{ in (L/382)}$
<b>73%</b> Governing Long-Term Deflection	$\delta_{LT} = -0.588 \text{ in (L/327)}$
Governing Long-Term Deflection	$\delta_{LT} = -0.588 \text{ in}$



## Key Properties

Beam Plan Length	$L_X = 16 \text{ ft}$
Continuous Bracing for Lateral Torsional Buckling	Top Braced

## Loads



## Design Conditions

International Building Code (IBC) 2018

## Member Properties

Cross-Sectional Area	$A = 62.3 \text{ in}^2$
Strong Axis Moment of Inertia	$I_{xx} = 733 \text{ in}^4$
Section Modulus	$S = 123 \text{ in}^3$
Base Allowable Bending Stress	$F_b = 3100 \text{ psi}$
Base Allowable Shear Stress	$F_v = 285 \text{ psi}$
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 750 \text{ psi}$
True Modulus of Elasticity	$E_{true} = 2.10 \times 10^6 \text{ psi}$
Apparent Modulus of Elasticity	$E_{app} = 2.00 \times 10^6 \text{ psi}$
Modulus of Elasticity for Deflections	$E = 2.00 \times 10^6 \text{ psi}$

## Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 2.00 \times 10^6 \text{ psi}$
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## Section Bending (NDS 2018 2.3)

Volume Factor	$C_V = 1$
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## Positive Bending (NDS 2018 2.3)

Governing Duration Factor - Positive Bending	$C_{D,b}^+ = 1$
Governing Beam Stability Factor - Positive Bending	$C_L^+ = 1$
Adjusted Bending Strength - Positive Bending	$F_b^+ = 3104 \text{ psi}$

## Negative Bending (NDS 2018 2.3)

Governing Duration Factor - Negative Bending	$C_{D,b}^- = 0.9$
Governing Beam Stability Factor - Negative Bending	$C_L^- = 0.977$
Adjusted Bending Strength - Negative Bending	$F_b^- = 2729 \text{ psi}$

## Shear Design (NDS 2018 3.4)

Governing Duration Factor	$C_D = 1$
Adjusted Shear Strength	$F_v' = 285 \text{ psi}$

## Bearing (NDS 2018 3.10)

Base Bearing Strength	$F'_{c\perp}/C_b = 750 \text{ psi}$
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## Comments

**Soils:**

1. Allowable bearing strength assumed to be 1500 psf, with 33% increase for seismic or wind loads

**Concrete:**

1. Portland cement concrete to have minimum 28 day compressive strength,  $f'_c = 3000$  psi. 5 sack (minimum) design mix with type II or type II Portland cement. Maximum aggregate size 3/4".
2. Concrete reinforcement to be ASTM A615, grade 60, deformed bars. Min rebar lap splices 40 bar diameters.

**CMU:**

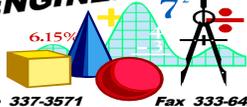
1. Masonry units to be ASTM C90, normal weight, fully grouted and reinforced per #3 below.
2. All masonry shall be solid grout, Type M or S Mortar and mechanically consolidated.
3. Reinforcing to be as shown on drawings. Minimum reinforcement shall be #5 at 32" OC; #5 at 48" OC, and #5 in top course. Vertical reinforcement to have standard hook. Reinforcement to be ASTM A615, grade 60, deformed bars. "Wet" setting reinforcement is prohibited. Lap splices 25 bar diameter, min.
4.  $f'_m = 2500$  psi

**Wood:**

1. Framing lumber DF, #2 or btr; Bottom Plates at concrete tr'd #2 DF
2. Truss lumber Doug-Fir, size and grade selected by designer.
3. Blocking not required roof / floor diaphragms UNO; boundary nail roofs at 3" OC, panel edges at 4" OC, and field at 8" OC. Boundary nail floors at 4" OC, panel edges at 4" OC, and field at 12" OC.
4. Shear wall/roof diaphragm/floor diaphragm nailing specified refers to panel edge and boundaries; field fasten at 12" O.C., floors and walls. Field fasten roofs at 8" OC, UNO.
5. Multiple stud splices- use two rows 16d com @ 6" OC, min.
6. Multiple LVL - splice w/ 2 rows 16d com @ 6" OC, 2" from top and 2" from bottom.
7. 3" members required at abutting panel joints and nails shall be staggered where nail spacing is 2" OC and where 10d nails penetrating more than 1 1/2" are placed at 3" or less OC. 3" bottom plates are required where unit shear loads exceed 600 plf.
8. Glulam members: single span- rated 24F-V4, DF/DF; multiple span - rated 24F-V4, DF/DF UNO.
9. APA rated sheathing required for shear walls, floor and roof diaphragms. Wall sheathing may be installed horizontally or vertically. Block all panel edges.
10. Where T-111 siding is used for shear sheathing, minimum thickness shall be 19/32". All nailing must be through full thickness. Block all joints if full height siding is not used.
11. Fastener & diaphragm values per NDS SDPWS 15, DF #2.
12. Plywood may be substituted for OSB, same APA rating.
13. Use APA rated sheathing as follows, unless noted otherwise:
  - Shear walls and roofs - non drift areas 24/16.
  - Roofs - valleys and upper drift areas 32/16.
  - Roofs, below upper roofs and where wall causing drifts is 6' or higher 40/20.
14. See schedule for nail diameter and length
15. Anchor bolts per schedule; all else IBC minimum 5/8" by 12" at 4'-0" O.C. 7" embedment, min.
16. Holdowns & anchor bolts shown are Simpson or as approved by MOA.
17. Holdown values per Simpson DF tables.
18. GWB per IBC minimum; not used for shear.
19. Hangers, straps, saddles, and other hardware are as manufactured by Simpson Strongtie, DF #2 loading.

**Steel:**

1. Plate, channel, angle - ASTM A36; Wide Flange - ASTM A992, Gr 50
2. Anchor bolts and machine bolts - ASTM A307, ASTM A1554
3. HSS - [round, square, rectangular sections] ASTM A500 grade B  $F_t = 46$ ksi
4. Pipe - ASTM A53 grade B  $F_y = 35$  ksi



**ROOF DESIGN**

Zone	Design Loads	Sheathing Index	Sheathing Nailing
1	TCLL - 40 psf		BN - 8d @ 3" oc
	TCDL - 15 psf	APA 24/16	EN - 8d @ 3" oc
	BCDL - 5 psf		FN - 8d @ 8" oc
2	TCLL - 65 psf		BN - 8d @ 3" oc
	TCDL - 15 psf	APA 32/16	EN - 8d @ 3" oc
	BCDL - 5 psf		FN - 8d @ 8" oc
3	TCLL - 85 psf		BN - 8d @ 3" oc
	TCDL - 15 psf	APA 40/20	EN - 8d @ 3" oc
	BCDL - 5 psf		FN - 8d @ 8" oc
4	TCLL - 105 psf		BN - 8d @ 3" oc
	TCDL - 15 psf	APA 40/20	EN - 8d @ 3" oc
	BCDL - 5 psf		FN - 8d @ 8" oc

BN = Boundary Nail

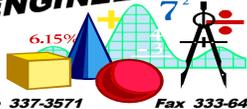
EN = Edge Nail

FN = Field Nail



**HOLDOWNS-#2 DF VALUES**

CALL-OUT	STRAP or HOLDOWN	CHORD	ANCHOR BOLT	EMBED, MASONRY	EMBED, CONCRET	ALLOWABLE LOAD (Lbs)
1	(1) - MST 37	(2) - 2x				2,828
2	(1) - MST48	(2) - 2x				4,073
3	(1) - MST 60	(2) - 2x				5,200
4	(1) - MST 72	(2) - 2x				5,800
5	(2) - MST 48	(4) - 2x				8,146
6	HDU2	(2) - 2x	5/8"	7" into ft'g, UNO	7" into ft'g, UNO	3,075
7	HDU4	(2) - 2x	5/8"	7" into ft'g, UNO	7" into ft'g, UNO	4,565
8	HDU5	(3) - 2x	5/8"	7" into ft'g, UNO	7" into ft'g, UNO	5,645
9	HDU8	(2) - 2x	7/8"	7" into ft'g, UNO	7" into ft'g, UNO	6,765
10	HDU8	(3) - 2x	7/8"	7" into ft'g, UNO	7" into ft'g, UNO	6,970
11	HDU11	(4) - 2x	1"	See Dtl's	See Dtl's	9,335
12	HDU11	(5) - 2x	1"	See Dtl's	See Dtl's	11,175
13	HDU14	(4) - 2x	1"	See Dtl's	See Dtl's	10,770
14	HD12	(3) - 2x	1 1/8"	See Dtl's	See Dtl's	12,665
15	HD12	(4) - 2x	1 1/8"	See Dtl's	See Dtl's	15,510
16	FSC	2x				1,892
17	MSTC48B3	2x				4,072
18	MSTC66B3	2x				4,602

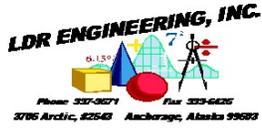


**ANCHOR BOLTS**

	<b>Anchor Bolt</b>	<b>@</b>	<b>Spacing</b>
	5/8" x 12"	@	48" oc
	5/8" x 12"	@	36" oc
	5/8" x 12"	@	32" oc
	5/8" x 12"	@	24"oc
	5/8" x 12"	@	16" oc
	5/8" x 12"	@	12" oc
	3/4" x 12"	@	12" oc

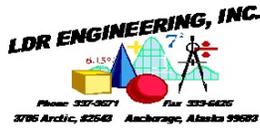
# CANOPY FRAMING MEMBERS - ADDED POST STRUCTURAL DESIGN COMPLETION

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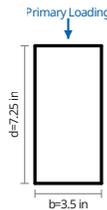
<b>Client:</b>	<b>Author:</b> LD Randolph	<b>Date:</b> Sep 8, 2025
<b>Project:</b> CIHA-BAXTER ROAD D/E/F		<b>Job #:</b>
<b>Address:</b> Baxter Road, Anchorage, AK, USA		<b>Subject:</b> Member Schedule

	Calculation	Member	Quantity	Comments
68%	RB-05	4x8 D.Fir-L No. 2	9 ft	
74%	RB-06	4x8 D.Fir-L No. 2	6 ft	

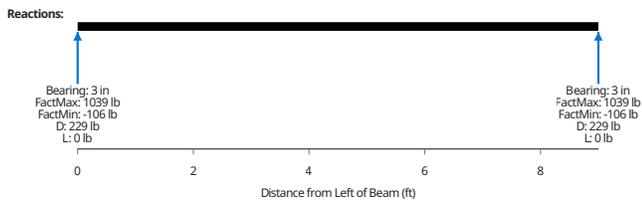


<b>Client:</b>	<b>Author:</b> LD Randolph	<b>Date:</b> Sep 8, 2025
<b>Project:</b> CIHA-BAXTER ROAD D/E/F	<b>Job #:</b>	
<b>Address:</b> Baxter Road, Anchorage, AK, USA	<b>Subject:</b> RB-05	<b>PASS</b>
<b>References:</b> NDS 2018 (ASD)		

Summary



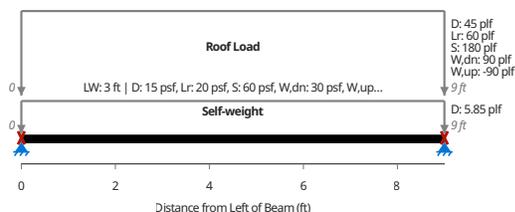
Member	4x8 D.Fir-L No. 2
<b>68%</b> Moment Utilization	$M/M' = 2337 \text{ lbft} / 3438 \text{ lbft}$
<b>30%</b> Shear Utilization	$V/V' = 1039 \text{ lb} / 3502 \text{ lb}$
<b>16%</b> Bearing Utilization	$R/R' = 1039 \text{ lb} / 6562 \text{ lb}$
Minimum Bearing Length (End Supports)	$\ell_{b,min,end} = 0.475 \text{ in}$
<b>33%</b> Governing Live / Short-Term Deflection	$\delta_{ST} = -0.149 \text{ in} (L/723)$
<b>12%</b> Governing Long-Term Deflection	$\delta_{LT} = -0.0709 \text{ in} (L/1523)$
Governing Long-Term Deflection	$\delta_{LT} = -0.0709 \text{ in}$



Key Properties

Beam Plan Length	$L_X = 9 \text{ ft}$
Continuous Bracing for Lateral Torsional Buckling	Top Braced

Loads



Design Conditions

International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 25.4 \text{ in}^2$
Strong Axis Moment of Inertia	$I_{xx} = 111 \text{ in}^4$
Section Modulus	$S = 30.7 \text{ in}^3$
Base Allowable Bending Stress	$F_b = 900 \text{ psi}$
Base Allowable Shear Stress	$F_v = 180 \text{ psi}$
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 625 \text{ psi}$
True Modulus of Elasticity	$E_{true} = 1.60 \times 10^6 \text{ psi}$
Apparent Modulus of Elasticity	$E_{app} = 1.60 \times 10^6 \text{ psi}$
Modulus of Elasticity for Deflections	$E = 1.60 \times 10^6 \text{ psi}$

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity	$E' = 1.60 \times 10^6 \text{ psi}$
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Section Bending (NDS 2018 2.3)

Size Factor	$C_{F,b} = 1.3$
Incising Factor	$C_{i,b} = 1$

Positive Bending (NDS 2018 2.3)

Adjusted Bending Strength - Positive Bending	$F_b^+ = 1345 \text{ psi}$
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Negative Bending (NDS 2018 2.3)

Adjusted Bending Strength - Negative Bending	$F_b^- = 1830 \text{ psi}$
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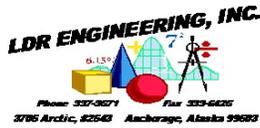
Shear Design (NDS 2018 3.4)

Adjusted Shear Strength	$F_v' = 207 \text{ psi}$
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Bearing (NDS 2018 3.10)

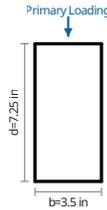
Base Bearing Strength	$F'_{c\perp} / C_b = 625 \text{ psi}$
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Comments

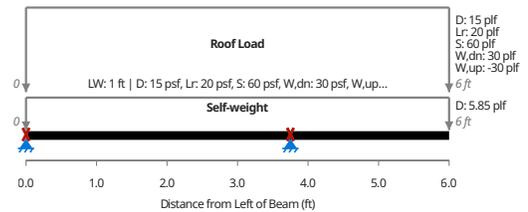


<b>Client:</b>	<b>Author:</b> LD Randolph	<b>Date:</b> Sep 8, 2025
<b>Project:</b> CIHA-BAXTER ROAD D/E/F	<b>Job #:</b>	
<b>Address:</b> Baxter Road, Anchorage, AK, USA	<b>Subject:</b> RB-06	<b>PASS</b>
<b>References:</b> NDS 2018 (ASD)		

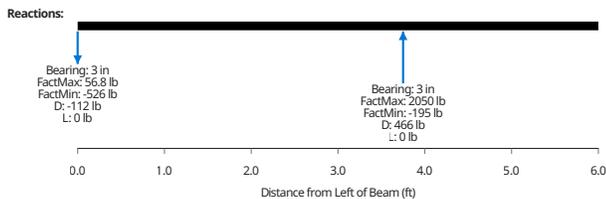
Summary



**RB-05-2**  
6 ft  
○D:229 lb  
○Lr:270 lb  
○S:810 lb  
○W,dn:405 lb  
○W,up:405 lb



Member	4x8 D.Fir-L No. 2
<b>74%</b> Moment Utilization	$M/M' = -2542 \text{ lbft} / 3423 \text{ lbft}$
<b>35%</b> Shear Utilization	$V/V' = 1221 \text{ lb} / 3502 \text{ lb}$
<b>28%</b> Bearing Utilization	$R/R' = 2050 \text{ lb} / 7383 \text{ lb}$
Minimum Bearing Length (End Supports)	$\ell_{b,min,end} = 0.241 \text{ in}$
Minimum Bearing Length (Int Supports)	$\ell_{b,min,int} = 0.833 \text{ in}$
<b>37%</b> Governing Live / Short-Term Deflection	$\delta_{ST} = -0.0828 \text{ in} (L/326)$
<b>13%</b> Governing Long-Term Deflection	$\delta_{LT} = -0.0394 \text{ in} (L/685)$
Governing Long-Term Deflection	$\delta_{LT} = -0.0394 \text{ in}$



Design Conditions

International Building Code (IBC) 2018

Member Properties

Cross-Sectional Area	$A = 25.4 \text{ in}^2$
Strong Axis Moment of Inertia	$I_{xx} = 111 \text{ in}^4$
Section Modulus	$S = 30.7 \text{ in}^3$
Base Allowable Bending Stress	$F_b = 900 \text{ psi}$
Base Allowable Shear Stress	$F_v = 180 \text{ psi}$
Base Perpendicular Compression Allowable Stress	$F_{c\perp} = 625 \text{ psi}$
True Modulus of Elasticity	$E_{true} = 1.60 \times 10^6 \text{ psi}$
Apparent Modulus of Elasticity	$E_{app} = 1.60 \times 10^6 \text{ psi}$
Modulus of Elasticity for Deflections	$E = 1.60 \times 10^6 \text{ psi}$

Elastic Modulus (NDS 2018 2.3)

Adjusted Modulus of Elasticity  $E' = 1.60 \times 10^6 \text{ psi}$

Section Bending (NDS 2018 2.3)

Size Factor	$C_{F,b} = 1.3$
Incising Factor	$C_{i,b} = 1$

Positive Bending (NDS 2018 2.3)

Adjusted Bending Strength - Positive Bending  $F_b^+ = 1872 \text{ psi}$

Negative Bending (NDS 2018 2.3)

Adjusted Bending Strength - Negative Bending  $F_b^- = 1340 \text{ psi}$

Shear Design (NDS 2018 3.4)

Adjusted Shear Strength  $F_v' = 207 \text{ psi}$

Bearing (NDS 2018 3.10)

Base Bearing Strength  $F_{c\perp}'/C_b = 625 \text{ psi}$

Comments

Key Properties

Beam Plan Length	$L_X = 6 \text{ ft}$
Continuous Bracing for Lateral Torsional Buckling	Top Braced

Top and bottom flange bracing corresponds to positive and negative bending respectively, but cantilever spans typically require a brace on the top flange despite being in negative bending.

Loads