PROJECT SUBMITTAL · PERMIT DRAWINGS

Restaurant Patio Cover 24x24 (freestanding)

Construction of a new 24'×24' freestanding wood-framed patio cover (pergola) on the existing concrete patio at the south side of the Von Ebert Brewing taproom. Structure consists of 16 pressure-treated DF-L #2 posts in a 4×4 grid bearing on cast-in-place concrete pier footings, with 4×10 beams, 2×8 rafters at 24 in o.c., and corrugated translucent polycarbonate panels on a 1:12 slope. Project includes four overhead 6 kW electric infrared heaters served by a new dedicated 240 V circuit from the existing building subpanel, plus a gutter / downspout system at the low-side eave. No new impervious surface — entire footprint is existing concrete patio.

PROPERTY DETAILS

ADDRESS	825 N Cook St, Portl 97227
PARCEL / TAX LOT	1N1E27BA 3600
PROPERTY RECORD	R176600050
ZONING	EX (Central Employm
NEIGHBORHOOD	Boise
JURISDICTION	Portland, OR · Multn
WATERSHED	Willamette River
SUBWATERSHED	Lower Willamette
ELEVATION	51 ft (approx)
LOT AREA	28,856 sf
EXISTING BUILDING FOOTPRINT	4,500 sf
PROPOSED PERGOLA FOOTPRINT	576 sf
NEW IMPERVIOUS SURFACE	0 sf
PERGOLA SIZE	24' × 24' freestandir
PERGOLA USE CATEGORY	commercial assembl
LOAD PROFILE	commercial_patio_c
FRAMING SPECIES	Douglas Fir-Larch (N
ROOF	polycarbonate · 1.0:1

PROJECT TEAM

OWNER	**FOTEFF, JAMES A** 10846 SE 93rd Ct, Happy Valley, OR 97086
CONTRACTOR	**Boss PDX LLC** CCB# 232383 · info@bosspdx.com · 844-BOSS-PDX
APPLICANT	**Boss PDX LLC** lucas@bosspdx.com · (503) 244-5566

DEFERRED SUBMITTALS

- Electrical trade permit — heater branch

ABBREVIATIONS

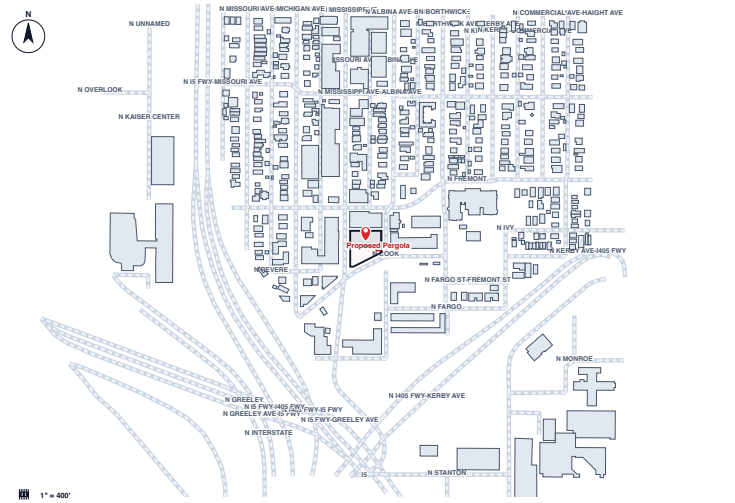
A	Area
AB	Anchor Bolt
AC	Air Conditioning
ADA	Americans with Disabilities Act
AFF	Above Finished Floor
ALT	Alternate
ARCH	Architect / Architectural
ASCE	American Society of Civil Engineers
BLDG	Building
BLKG	Blocking
BM	Beam
BOT	Bottom
BSMT	Basement
CFM	Cubic Feet per Minute
CIP	Cast-in-Place
CLR	Clear
CMU	Concrete Masonry Unit
CONC	Concrete
CONT	Continuous
CW	Cold Water
DBL	Double
DCR	Demand / Capacity Ratio
DET	Detail
DIA	Diameter
DIM	Dimension
DN	Down
DO	Door Opening
DTL	Detail
DWG	Drawing
EA	Each
EGC	Equipment Grounding Conductor
ELEC	Electrical
ELEV	Elevation
EOR	Engineer of Record
EPDM	Ethylene Propylene Diene Monomer (gasket)
EQ	Equal
EXIST	Existing
EXT	Exterior
FBO	Furnished By Others
FF	Finished Floor

Full abbreviation list continues on G-004 Legends sheet.

DIMENSIONS

1. Dimensions are indicated in the documents. The drawings shall govern over general notes to the extent shown. Do not scale the drawings; noted dimensions shall govern.
2. In many instances, the actual dimensions may be less important than if elements are to be EQUAL. In these cases, the notation 'EQ' is used.
3. Details shall govern all dimensions not shown on plans. Reference detail dimension points.
4. Concrete and masonry walls are dimensioned to face of brick / face of masonry.
5. Exterior grid lines correspond to exterior face of framing veneer or face of concrete unless noted otherwise.
6. Wood-framed walls are dimensioned to face of stud (FOS) unless noted otherwise.

VICINITY MAP



DRAWING SET INDEX

SHEET	DISCIPLINE	TITLE
G-001	GENERAL	Cover Sheet
G-002	GENERAL	Drawing Set Index
G-003	GENERAL	Code Schedule & General Notes
G-005	GENERAL	Egress & Life Safety
G-006	GENERAL	Accessibility
A-501	ARCHITECTURAL	Connection & Assembly Details
S-001	STRUCTURAL	Structural Summary
S-101	STRUCTURAL	Design Loads
S-102	STRUCTURAL	Member Checks
S-103	STRUCTURAL	Footings
S-104	STRUCTURAL	Foundation Plan
S-105	STRUCTURAL	Framing Plan
S-201	STRUCTURAL	Wind Loads
S-301	STRUCTURAL	Hardware Demands & Schedule
S-401	STRUCTURAL	Material Takeoff
S-501	STRUCTURAL	Conservative Alternate
E-101	ELECTRICAL	Electrical Plan
E-201	ELECTRICAL	Outlets & Switches
M-101	MECHANICAL/ELEC	Overhead Heater Schedule
P-101	PLUMBING	Drainage
G-901	GENERAL	Design Notes
G-902	GENERAL	Assumptions & Limits

CODE SCHEDULE & GENERAL NOTES

APPLICABLE CODES

BUILDING CODE	OSSC_2022 (concurrent with IBC 2021)
STRUCTURAL WOOD	NDS 2018 (AWC) + NDS Supplement
WIND / SNOW / LOADS	ASCE 7-22
ELECTRICAL	NEC 2023 (NFPA 70) + state amendments
MECHANICAL	IMC / OMSC / state amendments as adopted
ROOF MFR	Polycarb install per mfr (≥ 1:12 slope, EPDM gaskets)
STORMWATER	Jurisdiction storm-drainage standard

PROJECT DESIGN SCHEDULE

USE CATEGORY (IBC §302)	commercial_assembly · 50 occupants
RISK CATEGORY	II (ASCE 7 Table 1.5-1)
LOAD PROFILE	commercial_patio_cover_polycarb
DEAD LOAD	16.0 psf
ROOF LIVE	20.0 psf (IBC Table 1607.1)
GROUND SNOW PG	20.0 psf
WIND V	97 mph · Exp B · obstructed
LATERAL / ATTACHMENT	knee_brace · freestanding

PROJECT-SPECIFIC NOTES

1. Lumber to be Douglas Fir-Larch #2 or better, S4S, wet-service factor C_M applied where exposed.
2. Connections via Simpson Strong-Tie (or approved equivalent) per S-301. Demand values are nominal; EOR to select listed hardware with adequate capacity.
3. Footings bear on undisturbed native soil; min bearing pressure 2000 psf presumptive; verify on site before pour.
4. Polycarbonate roof: mfr-supplied closures, foam fillers, EPDM-bonded fasteners at every rib over a purlin. Min 1:12 slope.
5. Drainage: 5"+ K-style aluminum gutter at low-side eave with downspout(s) to splash pad at grade. Confirm with civil/site grading.
6. Electrical: All MEP per NEC. Heater branch circuits sized at 125% of nameplate continuous load (NEC 424.3(B)); dedicated weather-proof J-box at each drop with bonded EGC.
7. Design presented on prescriptive path under engineer-of-record concurrence assumption.

GENERAL CONTRACTOR NOTES

1. These construction documents set minimum standards. The drawings shall govern over general notes to the extent shown. Do not scale the drawings; noted dimensions shall govern.
2. All work performed, including materials furnished, workmanship means and methods of construction shall conform to the applicable and latest requirements of statutes, as well as local building codes, all laws and regulations, ordinances of local authorities having jurisdiction, utility company requirements and general conditions of applicable owner / contractor agreement.
3. Before commencing work, the Contractor shall file all required certificates of insurance with the Owner and the Building Department, obtain all required permits, and pay all fees required by the governmental agencies. Failure to do this may be a cause for termination for cause. Also, notify the Owner and the Architect and their agents 48 hours in advance.
4. Drawings indicate location, dimensions, reference and typical details for construction. Information shown shall apply even where details are not repeated. For other details not shown, but of work specified, the necessity for proper construction of any part of the work shall be included as if they were indicated in the drawings. For conditions not illustrated, notify Architect for clarification and / or submit details.
5. Contractor shall be responsible to insure number of schedules contained herein coordinate with requirements of the work. Verify that all items are properly furnished and referenced in the necessary sections and notes needed to complete the work.
6. These drawings are divided into sections for convenience only. Do not scale from drawings. Do not order fabrication materials or do work from scale dimensions. Dimensions shown for walls shall refer to the face of studs or concrete masonry work required except where otherwise indicated.
7. Contractor shall be responsible to verify the work of all trades and suppliers who shall be responsible to report to the Owner or the Architect prior to submission of their shop drawings and prior to their work if the conditions encountered are not correct to permit the proper work to be completed when required. Verify conditions with Owner or Architect for dimensions for items.
8. Contractor shall provide structural backing / looking for all wall mounted equipment, fixtures, and other equipment, and for all hanging fixtures (heaters, fans, lights).
9. Contractor shall install all materials and equipment as per

DIMENSIONING CONVENTIONS

1. Dimensions are indicated in the documents. The drawings shall govern over general notes to the extent shown. Do not scale the drawings; noted dimensions shall govern.
2. In many instances, the actual dimensions may be less important than if elements are to be EQUAL. In these cases, the notation 'EQ' is used.
3. Details shall govern all dimensions not shown on plans. Reference detail dimension points.
4. Concrete and masonry walls are dimensioned to face of brick / face of masonry.
5. Exterior grid lines correspond to exterior face of framing veneer or face of concrete unless noted otherwise.
6. Wood-framed walls are dimensioned to face of stud (FOS) unless noted otherwise.
7. Members which are equally spaced are dimensioned to centerline (CL).
8. Posts are dimensioned to centerline. Footings are dimensioned to face of concrete (FOC).

PLAN SYMBOLS

●	Corner post
●	Edge post
●	Interior post (max tributary)
—	Beam line
···	Rafter spacing

SECTION SYMBOLS

—	Heater glow strip
▱	Polycarbonate panel
▦	Gutter / downspout
▩	Concrete (footing / splash pad)
↘	Roof slope direction

Full abbreviations list on G-001 cover sheet.

EGRESS & LIFE SAFETY

This sheet documents that the proposed pergola does **not** change the occupancy classification, occupant load, exit count, or travel distances of the existing facility.

OCCUPANCY & OCCUPANT LOAD

EXISTING OCCUPANCY CLASSIFICATION	A-2 Assembly (restaurant / drinking establishment)
EXISTING OCCUPANT LOAD	50 (declared)
NEW SEATS ADDED BY THIS SCOPE	**0**
PROPOSED OCCUPANT LOAD	50 (no change)
OCCUPANCY THRESHOLD CROSSED?	No — already > 50 occupants under existing operation
CHANGE-OF-OCCUPANCY PERMIT?	Not required

OSSC Table 1004.5 — Maximum Floor Area Allowance per Occupant. A-2 assembly unconcentrated dining tables and chairs: 15 sf/person net. The pergola covers existing outdoor patio dining at 576 sf, with no new seating added.

EXITS & TRAVEL DISTANCE

EXISTING EXIT COUNT	Per existing taproom plan (no change)
MAXIMUM TRAVEL DISTANCE (A-2, SPRINKLERED)	≤ 250 ft per OSSC Table 1017.2
TRAVEL DISTANCE FROM FARTHEST PERGOLA SEAT TO NEAREST EXIT	Within existing exit path; ≤ 100 ft estimated (verify on existing taproom plan)
COMMON PATH OF EGRESS TRAVEL	Unchanged from existing
NEW EXITS REQUIRED BY THIS SCOPE	None

OSSC Table 1006.3.3 — Number of Exits. For an A-2 occupant load of 50–500: 2 exits required. Already satisfied by the existing taproom configuration.

SUMMARY STATEMENT

The pergola is a roof + heater installation above an **existing** outdoor patio dining surface. It does not add seats, does not change the food/drink service area boundaries, does not modify any required exit path, and does not change the occupancy classification of the facility. The existing egress strategy of the commercial assembly occupancy remains in place unaltered. No exit signs, emergency lighting, or egress hardware modifications are required by this scope.

ACCESSIBILITY

This sheet documents that the proposed pergola does **not** alter the existing accessible route, accessible seating count, or any other ADA / ICC A117.1 features of the facility.

ACCESSIBLE ROUTE TO PATIO

PUBLIC WAY ACCESS	From N Cook St + N Mississippi Ave (existing sidewalks)
ROUTE TO EXISTING PATIO DINING	Existing — no change by this scope
ROUTE RUNNING SLOPE	Existing concrete patio is level; verify ≤ 1:20 (5%)
ROUTE CROSS SLOPE	Verify ≤ 1:48 (2%) per ICC A117.1 §403
CLEAR WIDTH	≥ 36" maintained between pergola posts (8' bay spacing >> minimum)
SURFACE	Existing concrete: firm, stable, slip-resistant per ICC A117.1 §302
DOOR/THRESHOLD TRANSITIONS	None added; existing taproom doors unchanged

ACCESSIBLE SEATING

TOTAL DINING SEATS (EXISTING)	per existing taproom seating plan
REQUIRED ACCESSIBLE SEATS	5% of fixed dining seats, minimum 1 per OSSC 1108.2.9
NEW SEATS ADDED BY PERGOLA SCOPE	0
ACCESSIBLE SEATING PROVIDED	Existing — distributed within the dining area; no change required
APPROACH + MANEUVERING CLEARANCE	30" × 48" min at each accessible space — verify against existing layout

OSSC 1108.2.9 — Dining Surfaces. At least 5% of dining surfaces, including at least one of each type, shall be accessible. Existing layout already complies.

ICC A117.1 §302 — Floor and Ground Surfaces. Existing concrete patio surface complies (firm, stable, slip-resistant).

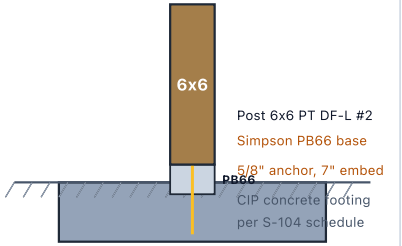
BARRIER REMOVAL (OSSC CH. 11)

Project valuation is approximately $26,661. Per OSSC Ch. 11 priority order, 25% of accessibility-related project cost may be applied to barrier removal if existing facility is non-compliant. **Existing facility is already operating as a licensed A-2 assembly and is presumed compliant with the prior occupancy of record**; field-verify accessible route from public way before construction. If any segment is found non-compliant, allocate ~$6,650 budget priority to barrier removal (parking → entry → routes → other).

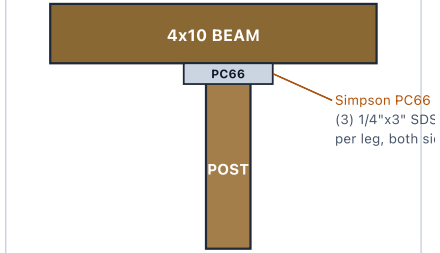
CONNECTION & ASSEMBLY DETAILS

Typical structural connections (top row) and layered assembly cutaways (bottom row) — not to scale. Simpson Strong-Tie hardware specified throughout; approved equivalents acceptable subject to engineer-of-record review. Capacities to satisfy demands listed on S-301 Hardware Demands.

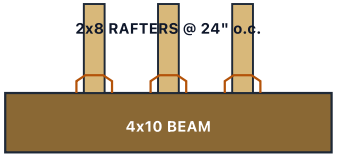
D-1 POST → FOOTING



D-2 BEAM → POST

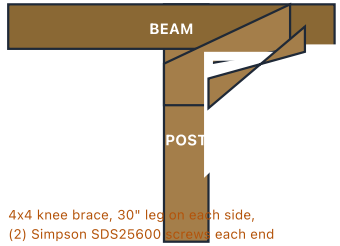


D-3 RAFTER → BEAM



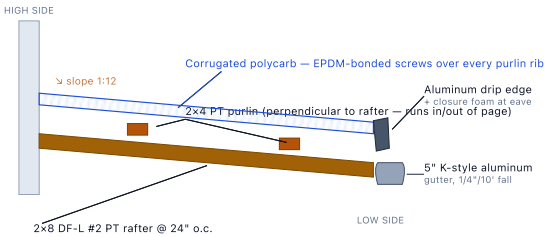
Simpson H1 hurricane clip at every rafter-to-beam intersection (typ.)

D-4 KNEE BRACE (LATERAL)



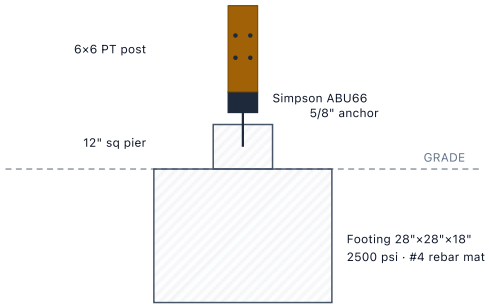
4x4 knee brace, 30" leg on each side,
(2) Simpson SDS25600 screws each end
Provides lateral stability for freestanding pergola

A-1 ROOF ASSEMBLY



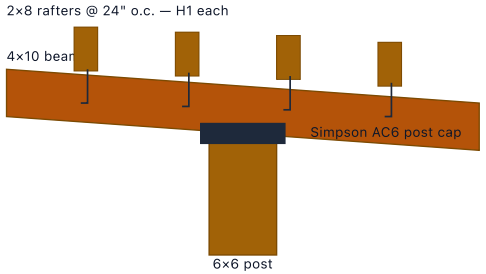
- Corrugated polycarbonate panel ≥ 1:12 slope, EPDM-bonded screws over every rib
- 2×4 PT purlin between rafters at panel laps
- 2×8 DF-L #2 PT rafter @ 24" o.c.
- Drip edge + closure foam at eave; 5" gutter at low side

A-2 POST BASE ASSEMBLY



- 6×6 DF-L PT post (UC4B ground-contact)
- Simpson ABU66 post base, hot-dip galv.
- (2) 5/8" thru-bolts post → ABU saddle
- 1× 5/8" L-anchor bolt, 7" embed into pier
- Pier: 12" sq × 30" tall, 28"×28"×18" pad, 2500 psi conc.

A-3 BEAM-RAFTER ASSEMBLY



- 4×10 DF-L #2 PT beam continuous over interior post lines
- Simpson AC6 post cap w/ (8) ¼" SDS screws
- H1 hurricane tie at each rafter bearing

STRUCTURAL SUMMARY

DESIGN OK (prescriptive path) — engineer of record to concur on this sizing.

Warnings

- Prescriptive limits exceeded — sizing carried on the prescriptive path under engineer-concurrence assumption. Engineer of record must confirm the design for these overages.

- **Layout:** 4×4 post grid — 16 posts, 3×3 bays at 8.0×8.0 ft
- **Rafters:** 2x8 Douglas Fir-Larch @ 24" o.c. spanning 8.0 ft between beam lines
- **Beams:** 4x10 Douglas Fir-Larch — segment span 8.0 ft (3 segments per beam line)
- **Posts:** 6x6 Douglas Fir-Larch, 9.0 ft tall (sized for interior post — worst case)
- **Footings:** 16" square × 8" thick, bottom at 12" below grade

DESIGN LOADS

GRAVITY

LOAD	VALUE	SOURCE
Dead	16.0 psf	Profile `commercial_patio_cover_polycarb`
Roof Live	20.0 psf	IBC Table 1607.1 (ordinary roofs)
Snow (Pg)	20.0 psf	Project override
Total design pressure	**56.0 psf**	D + L_r + S (envelope)

IBC 1607.1 — Roof live loads. Ordinary roofs (not used for assembly) = 20 psf. Reduces with tributary per IBC 1607.13.1; not applied here (conservative).

OSSC 2022 / ASCE 7-22 ground snow — Portland metro. Pg default = 20 psf per OSSC jurisdiction table.

LATERAL

BASIC WIND SPEED V	97 mph
EXPOSURE / FLOW	B / obstructed
RISK CATEGORY	II
IMPORTANCE I	1.0
LATERAL SYSTEM	knee_brace

ASCE 7-22 Figure 26.5-1B — Basic Wind Speed. Portland metro = 97 mph for Risk Category II.

NDS Table 2.3.2 — Load Duration Factor CD. Snow: CD = 1.15 (≤ 2 mo). Wind/seismic: CD = 1.6. Dead-only: 0.9. Selected per governing load combination.

MEMBER CHECKS

REFERENCE DESIGN VALUES · NDS SUPPLEMENT TABLE 4A

SPECIES	GRADE	FB	FV	FC⊥	FC	FT	E	EMIN
Douglas Fir-Larch	No. 2	900 psi	180 psi	625 psi	1350 psi	575 psi	1,600,000 psi	580,000 psi

NDS Supplement Table 4A — Reference Design Values (visually graded dimension lumber). Values are reference (Tabular); adjust per applicable NDS factors below.

SECTION PROPERTIES · NDS SUPPLEMENT (SECTIONS USED)

SECTION	B	D	A (IN²)	SX (IN³)	IX (IN⁴)
2x8	1.50 in	7.25 in	10.88	13.14	47.63
4x10	3.50 in	9.25 in	32.38	49.91	230.84
6x6	5.50 in	5.50 in	30.25	27.73	76.25

NDS Supplement — Section Properties of Standard Dressed (S4S) Lumber. b = thickness, d = depth, A = area, Sx = section modulus, Ix = moment of inertia.

ADJUSTMENT FACTORS APPLIED (GOVERNING LOAD CASE)

FACTOR	DESCRIPTION	VALUE USED
CD	Load duration (NDS 2.3.2)	1.15
CM	Wet service (NDS 4A footnote)	1.00 · Fb / 0.97 · Fv
CF	Size factor (NDS 4A) on Fb	1.20
Cr	Repetitive member (NDS 4.3.9)	1.15
CL	Beam stability (NDS 3.3.3)	1.00 (assumes adequate lateral bracing)

FINAL MEMBER SELECTIONS (GOVERNING CHECK)

MEMBER	SECTION	SPECIES	SPAN	SPACING	W (PLF)	M DCR	V DCR	Δ LIVE/TOTAL	GOVERNING	STATUS
Rafter	2x8	DF-L	8.00 ft	24" oc	112.0 plf	0.57	0.31	0.40 / 0.38	bending	PASS · DCR 0.57
Beam	4x10	DF-L	8.00 ft	—	448.0 plf	0.83	0.41	0.33 / 0.31	bending	PASS (tight) · DCR 0.83

POST (AXIAL COMPRESSION · NDS CHAPTER 3.7)

SECTION	6x6	SPECIES	DF-L	HEIGHT (UNBRACED)	9 ft
SLENDERNESS LE/D	19.6	CP (STABILITY)	0.652	FC'	810 psi
AXIAL LOAD	3584 lb	CAPACITY	24491 lb	DCR / STATUS	0.15 PASS · DCR 0.15

RAFTER — ALL SECTIONS TRIED

SECTION	M DCR	V DCR	ΔLIVE DCR	ΔTOTAL DCR	GOVERNING	STATUS

FOOTING DESIGN

PER-POSITION TRIBUTARY

POSITION	COUNT	TRIBUTARY	AXIAL
corner	4	16.0 sf	896 lb
edge (length)	4	32.0 sf	1792 lb
edge (width)	4	32.0 sf	1792 lb
interior	4	64.0 sf	3584 lb

Footing sized for the worst-case (largest tributary) position. Corner / edge footings may be downsized during detailed design.

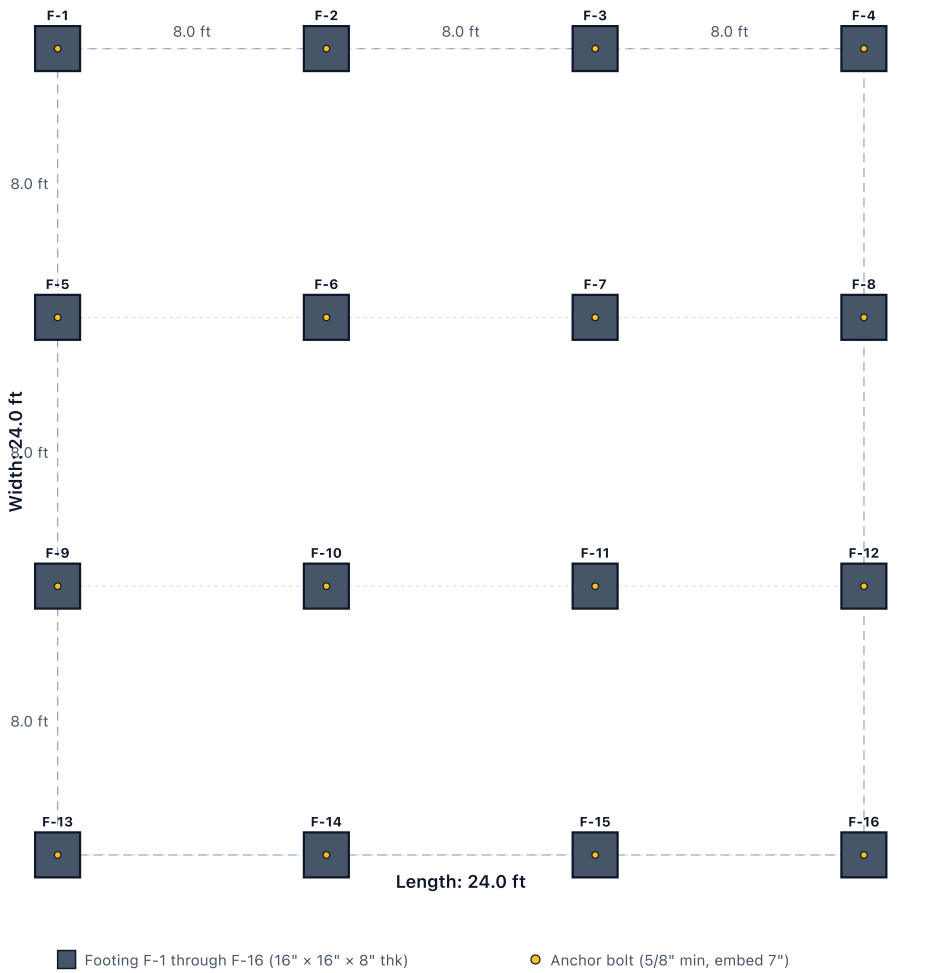
FOOTING SIZING (GOVERNING POST)

AXIAL LOAD PER POST	3584 lb
SOIL BEARING (PRESUMPTIVE)	2000 psf · sand_silt_clay
REQUIRED AREA	1.79 sf
SQUARE FOOTING	16.1" × 16.1"
ROUND FOOTING DIAMETER	18.1"
MINIMUM THICKNESS	8"
MINIMUM DEPTH BELOW GRADE	12" (frost depth)

Presumptive Soil Bearing — IBC Table 1806.2 (sandy silt-clay). Used 2000 psf allowable. Confirm with site classification before pour.

Soil 'sand_silt_clay' @ 2000 psf. Footing must extend ≥12" below grade (frost depth).

FOUNDATION PLAN



FOOTING SCHEDULE

TYPE	F-1 through F-16 (typical)
SIZE	16" × 16" square
THICKNESS	8" min
DEPTH BELOW GRADE	12" (frost depth)
SOIL BEARING	2,000 psf presumptive
CONCRETE	3,000 psi @ 28 days, CIP
REINFORCING	#4 @ 12" o.c. each way, 3" clear bottom

ANCHOR BOLT SCHEDULE

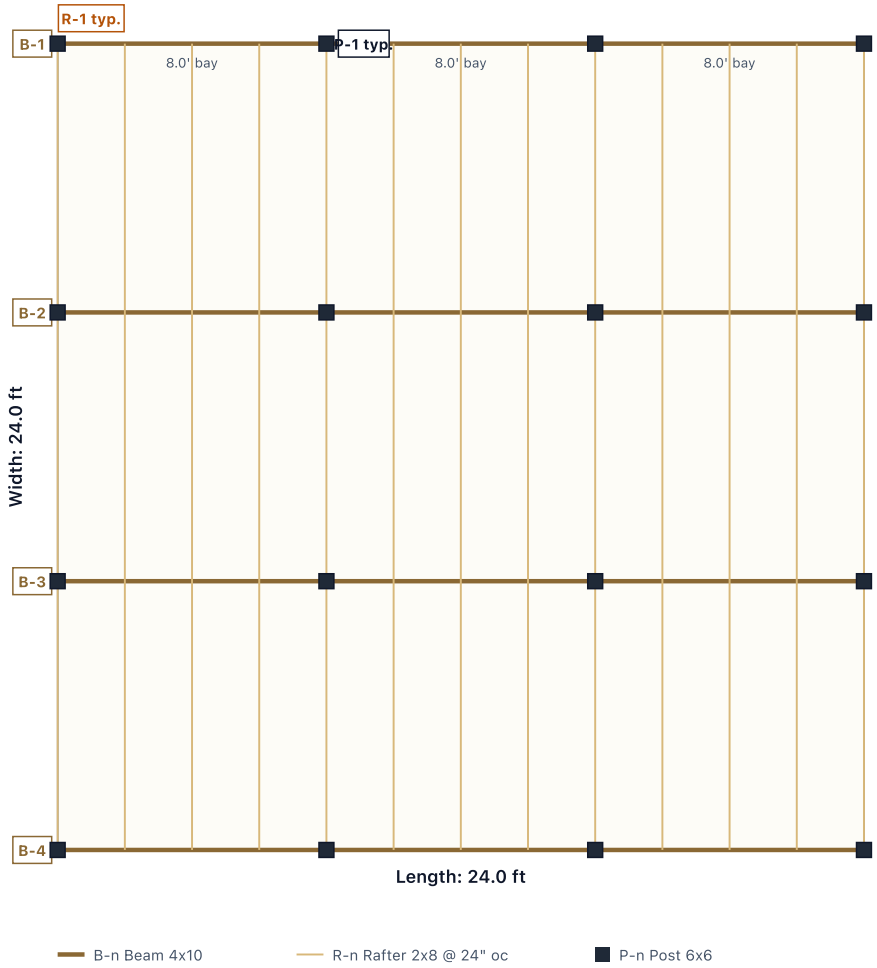
TYPE	5/8" Ø galvanized J-bolt or Simpson Strong-Tie SSTB
EMBED DEPTH	7" minimum
PROJECTION	2.5" above top of footing
QUANTITY	1 per footing (centered, accepts Simpson PB66 post base)

IBC 1806.2 — Presumptive Load-Bearing Values. 2,000 psf for sand_silt_clay. Verify with site classification before pour.

OSSC 1809.5 — Frost Protection. 12" minimum depth below finish grade.

Field-verify soil conditions before pour. If bearing capacity lower than 2,000 psf presumed, upsize footing per soils engineer recommendation.

FRAMING PLAN



MEMBER SCHEDULE

TAG	MEMBER	SECTION	SPECIES/GRADE	SPAN
R-1 (typ.)	Rafter	2x8	Douglas Fir-Larch #2	8.0 ft
B-1..B-4	Beam	4x10	Douglas Fir-Larch #2	8.0 ft (segment)
P-1..P-16	Post	6x6	Douglas Fir-Larch #2 PT	9.0 ft tall

DIAPHRAGM / LATERAL SYSTEM

This is a **freestanding** pergola. No roof diaphragm. Lateral load resistance provided by **4x4 knee braces** at every post-to-beam intersection (see Detail D-4 on A-501). Brace legs: 30" each side, fastened with (2) Simpson SDS25600 screws per end.

CONNECTIONS (KEYED TO A-501)

POST → FOOTING	Detail **D-1** — Simpson PB66 + 5/8" anchor bolt
BEAM → POST	Detail **D-2** — Simpson PC66 post cap, (3) 1/4"×3" SDS each leg
RAFTER → BEAM	Detail **D-3** — Simpson H1 hurricane clip, every rafter
KNEE BRACE	Detail **D-4** — 4x4 brace, (2) SDS25600 each end

All hardware Simpson Strong-Tie or approved equivalent. Verify against ICC-ES report capacities for the applied uplift, lateral, and gravity demands listed on S-301 Hardware Demands.

WIND LOADS (ASCE 7-22 §27.4 — OPEN MONOSLOPE CANOPY)

INPUTS

BASIC WIND SPEED V	97 mph
EXPOSURE	B
WIND FLOW	obstructed
MEAN ROOF HEIGHT H	9.0 ft
KZ (VELOCITY EXPOSURE)	0.57
KZT (TOPO)	1.00
KD (DIRECTIONALITY)	0.85

ASCE 7-22 Eq. 26.10-1 — Velocity Pressure qz. qz = 0.00256 · Kz · Kzt · Kd · V² (psf, V in mph).

RESULTS

QZ	11.7 psf
CN — NET UPLIFT	-1.80
CN — NET DOWNWARD	0.60
NET UPLIFT PRESSURE	-21.0 psf
DESIGN UPLIFT DEMAND	**21.0 psf**

ASCE 7-22 TABLE 27.4-7 — NET PRESSURE COEFFICIENTS CN · OPEN MONOSLOPE (SLOPE ≤ 7.5°)

ROOF ANGLE	WIND FLOW	CN UPLIFT	CN DOWNWARD	USED IN THIS CALC?
0° – 7.5°	Clear	−1.2	+1.2	
0° – 7.5°	Obstructed	−1.8	+0.6	✓ this case

ASCE 7-22 §27.4.3 — Open Building Roof Pressures. CN is net (top + bottom) pressure coefficient. Worst-case zone (corner / edge / interior) governs. Engineer to confirm with full pressure-zone analysis at submittal.

HARDWARE DEMANDS & SCHEDULE

CONNECTION DEMANDS (ENGINEER TO SPEC)

CONNECTION	DEMAND	NOTES
Rafter→beam uplift	168 lb / end	Tension from wind
Rafter→beam gravity	448 lb / end	Shear support
Post-base uplift	1,344 lb	Anchor / PB / ABU. Interior post (max trib).
Post-base gravity	3,584 lb	Bearing onto footing
Ledger bolts	0 lb / lf	N/A — freestanding.

Un-factored nominal demands. Engineer applies LRFD/ASD combinations and picks listed hardware (ICC-ES or manufacturer catalog) with adequate capacity.

AS-SPECIFIED HARDWARE SCHEDULE

MARK	CONNECTION	PRODUCT	FINISH	FASTENERS	QTY
H-1	Post → footing	Simpson ABU66	HDG	(1) 5/8" L-anchor + (2) 5/8" thru-bolts	16
H-2	Post → beam	Simpson AC6 post cap	Galv.	(8) ¼" SDS	16
H-3	Rafter → beam	Simpson H1 hurricane tie	Galv.	(8) 8d×1½" nails	104
H-4	Lateral brace / strap	Simpson HUS / strap (TBD by EOR)	Galv.	per mfr	per EOR

Substitutions allowed only with mfr cut-sheet showing equal or greater capacity than the demand column. Galvanization minimum HDG for ground-contact; G185 (or equivalent) for above-grade.

Doors / Windows: *N/A — open structure, no enclosed space.*

MATERIAL TAKEOFF (ROUGH)

ITEM	COUNT	QUANTITY
Rafters (2x8)	13	312 lf
Beams (4x10)	12 segments	96 lf
Posts (6x6)	16	144 lf
Footings	16	≈ 7.45 cy concrete
Ledger	0	0 lf

Quantities are nominal pre-waste. Add 10–15% for cuts, end laps, and hardware allowance.

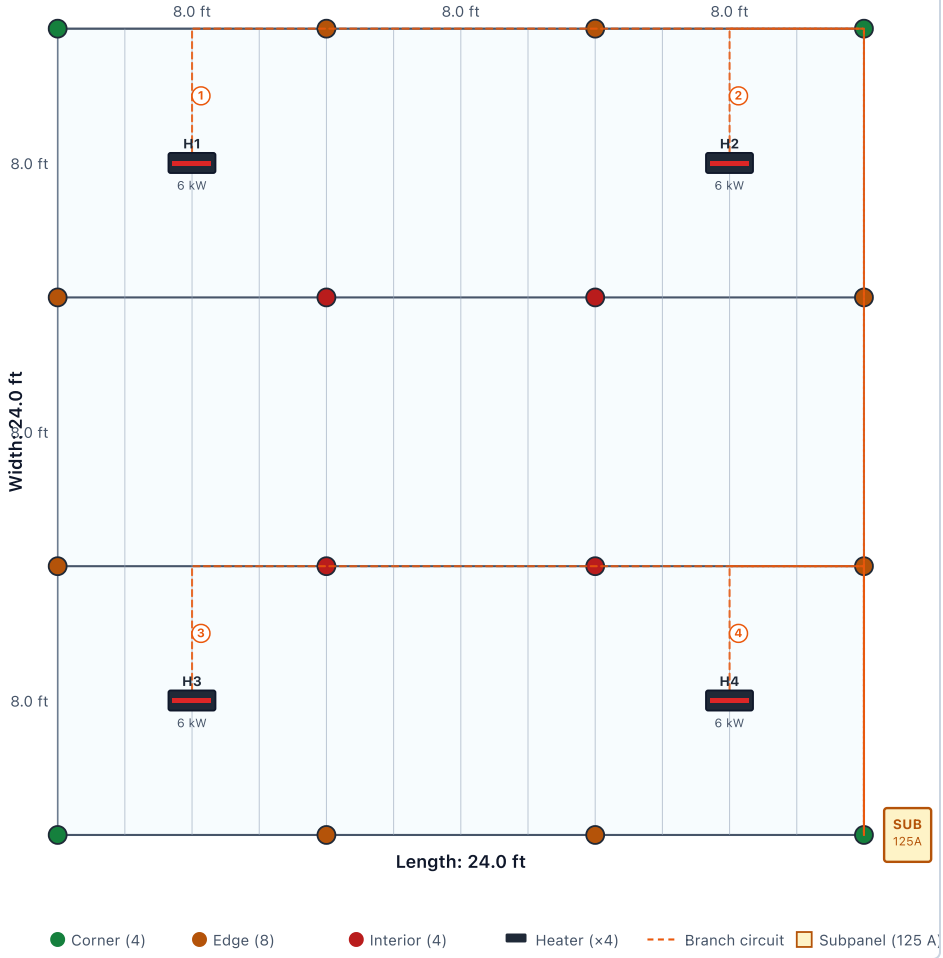
CONSERVATIVE ALTERNATE — BUMPED ONE NOMINAL SIZE

If you want to over-engineer this design (e.g. operator preference, anticipated future loads, gut-check belt-and-suspenders): each member bumped to the next standard nominal size, re-run through the same capacity checks. DCR is the governing demand/capacity ratio (lower = more headroom). Margin = 1 – DCR.

MEMBER	ORIGINAL	BUMPED	DCR (ORIG → NEW)	MARGIN	NOTES
Rafter	2x8	→ 2x10	0.57 → **0.38**	+43% → **+62%**	Governs in bending. Adds ≈ 63% section modulus.
Beam	4x10	→ 4x12	0.83 → **0.56**	+17% → **+44%**	Governs in bending. Adds ≈ 48% section modulus.
Post	6x6	→ 6x8	0.15 → **0.11**	+85% → **+89%**	Le/d 19.6, capacity 33,397 lb.
Footing	16" × 16" × 8" thk	→ 20" × 20" × 10" thk	—	+55% bearing area	Bears on +55% bearing area; thicker pad clears 2:1 load spread.

Sizing bump rule. Each member moves up one nominal dimension within its category (e.g. 2x8 → 2x10; 4x10 → 4x12; 6x6 → 6x8). Footing side dimension increases by 2 in, thickness by 2 in.

ELECTRICAL PLAN



SERVICE RECOMMENDATION

SOURCE	Tap from existing taproom main service panel (capacity verified by EOR)
FEEDER TO NEW SUBPANEL	125 A · 240 V 1Ø · 1" EMT · #1 Cu THHN feeder, #6 EGC
SUBPANEL	NEMA 3R outdoor enclosure, 125 A main breaker, mounted on SE corner post per plan
BRANCH CIRCUITS	4 × 35 A 240 V dedicated (one per heater)
DISCONNECT	Heater-rated disconnect within sight of each heater (NEC 422.31(B))
CONTROL	Line-voltage thermostat or 0-10 V dimmer per zone, mounted at host station
BONDING	EGC continuous to subpanel and main service ground
GFCI	Required for all 125 V 15/20 A receptacles in outdoor + wet locations per NEC 210.8(B)
WEATHER RATING	All boxes WR-rated; all receptacles WR + in-use covers

NEC 424.3(B) — Continuous Loads. Branch-circuit conductors and OCPD sized for ≥ 125% of nameplate amps. Applied to each heater branch.

NEC 215.2(A)(1) — Feeder Conductor Ampacity. Feeder sized for sum of branch continuous loads. 125 A rounds up from 125.0 A continuous total.

NEC 422.31(B) — Disconnecting Means for Permanently Connected Appliances. Heater-rated disconnect required within sight, or capable of being locked, for each unit > 300 VA.

FIXTURE SCHEDULE

TAG	DESCRIPTION	WATTAGE	VOLTAGE	AMPS	MOUNTING / NOTES
H1	Overhead electric radiant heater	6,000 W	240 V 1Ø	25.0 A nameplate · 31.2 A continuous	Ceiling/beam mount, GFCI
H2	Overhead electric radiant heater	6,000 W	240 V 1Ø	25.0 A nameplate · 31.2 A continuous	Ceiling/beam mount, GFCI
H3	Overhead electric radiant heater	6,000 W	240 V 1Ø	25.0 A nameplate · 31.2 A continuous	Ceiling/beam mount, GFCI

OUTLETS & SWITCHES

Open-air structure — no interior wall outlets. All electrical visible and accessible. All boxes weather-proof (NEMA 3R or 4X), GFCI-protected per NEC 210.8. Heater branch circuits sized to NEC 424.3(B).

MOUNTING HEIGHTS & PROTECTION

- **Heater feeds:** drop from beam soffit through weatherproof junction box, supplied 240 V × 30 A dedicated branch circuit each. Disconnect within sight per NEC 422.31(B).
- **Convenience outlets (if added):** 18" above slab AFF, GFCI breaker at panel, weather-resistant in-use cover.
- **Switches (if added):** 48" AFF, weather-resistant.
- **Subpanel:** sub-fed from existing building service, mounted on south face of building under 12" cover or NEMA 3R enclosure. Working clearance 30" min.
- **Bonding:** all metal components (gutter, downspout, post bases) bonded per NEC 250 where any energized circuit is within 6 ft.

OUTLET & DEVICE SCHEDULE

MARK	DEVICE	QTY	MOUNT HEIGHT	PROTECTION	NOTES
H1..H4	Overhead infrared heater	4	Soffit-mount under beam	NEMA 3R weatherproof J-box; dedicated 240V/30A branch ckt	Disconnect within sight
SP-1	Pergola subpanel	1	72" AFF on building wall	NEMA 3R enclosure	200 A bus, fed from existing main
R-1	Convenience receptacle (opt.)	1–2	18" AFF	WR, in-use cover, GFCI	Per operator request — coordinate
SW-1	Heater control switch (opt.)	1 per zone	48" AFF	WR cover, in-use	Or relay-controlled by operator at POS

OVERHEAD HEATERS & ELECTRICAL SERVICE

EQUIPMENT SCHEDULE

TYPE	Overhead electric radiant heater (Infratech-style)
QUANTITY	4
WATTAGE (EACH)	6,000 W
TOTAL CONNECTED LOAD	24,000 W
VOLTAGE	240 V single-phase
NAMEPLATE AMPS (EACH)	25.0 A
CONTINUOUS AMPS (EACH ×1.25)	31.2 A
LAYOUT	one over each roof quadrant (centered on each 12 ft × 12 ft tributary)
WEIGHT (EACH)	80 lb hung
TOTAL HUNG DEAD LOAD	320 lb

NEC 424.3(B) — Continuous Loads. Branch-circuit conductors and overcurrent device must be sized for ≥ 125% of nameplate amps. Applied per heater.

ELECTRICAL SERVICE RECOMMENDATION

BRANCH CIRCUITS	4 × 35 A 240 V dedicated (one per heater), ≈ 31.2 A continuous each
FEEDER TO SUBPANEL	125 A 240 V from main service
SUBPANEL	NEMA 3R enclosure post-mounted at exterior, with heater-rated disconnect within sight (NEC 422.31(B))
CONDUIT	EMT or RMC concealed within beam soffit; weatherproof J-box at each drop
CONTROL	Line-voltage thermostat or 0–10V dimmer per zone; engraved pilot light at host station
BONDING	EGC continuous to subpanel and main service ground

NEC 215.2(A)(1) — Feeder Conductor Ampacity. Feeder sized for sum of branch continuous + 25% on largest continuous load. Round up to standard breaker step (next listed ≥ continuous total).

MOUNTING NOTE

Each heater = 80 lb hung from underside of beam/rafter at a designated location. Use manufacturer-supplied mounting bracket lagged into solid blocking. Provide simple span point-load capacity in member design (covered below).

Each heater = 80 lb hung point load at a beam underside. With 2x8 rafters @ 24" o.c., confirm rafter at each location carries the point load on top of uniform demand, or mount the bracket to a beam. Solid blocking required between paired rafters at bracket locations.

DRAINAGE (GUTTER & DOWNSPOUT)

ITEM	VALUE
ROOF AREA	576 sf
DESIGN RAINFALL	1.2 in/hr · Portland 100-yr, 1-hr
PEAK FLOW	7.2 gpm
GUTTER	5" K-style aluminum, low-side eave
DOWNSPOUTS	1 × 3"×4" rectangular
DISCHARGE	concrete splash pad discharging to grade (street/curb)

SMACNA Architectural Sheet Metal Manual — Gutter Sizing. 5" K-style handles ≤ ~ 2,400 sf·in/hr; 6" handles ≤ ~ 7,960. Our 576 sf × 1.2 in/hr = 691 → 5" sufficient.

SMACNA — Downspout Sizing. One 3"×4" outlet handles ≈ 1,200 sf·in/hr. One downspout adequate for this footprint.

Sizing per SMACNA rules of thumb at 1.2 in/hr design intensity (Portland 100-yr, 1-hr). Engineer of record to confirm against jurisdiction stormwater requirements; some sites require infiltration testing before discharge-to-grade is allowed.

DESIGN NOTES

- Wind: V=97 mph, Exp B, flow=obstructed → qz=11.7 psf, design uplift 21.0 psf.
- Use category: commercial_assembly (occupant load: 50). Designed on the prescriptive path — engineer of record to concur on this sizing and stamp the final drawings.
- Prescriptive guardrail overages (engineer of record to concur on each): Footprint: actual 576.0 sf vs limit 200 sf
- Lateral system declared: knee_brace.
- Roof: corrugated polycarbonate (translucent), 1.00:12 slope. Closure strips, foam fillers, and EPDM gaskets at every fastener per panel manufacturer.
- Overhead heaters: 4 × 80 lb hung from beams/rafters (total 320 lb). Electrical: 24,000 W → 100.0 A nameplate at 240 V. Provide a 125 A feeder and 4 × 35 A dedicated branch circuits.
- Drainage: 5" K-style gutter at low side, 1 × 3"×4" downspout → concrete splash pad discharging to grade (street/curb).

ASSUMPTIONS & LIMITS

- Simply-supported members under uniform distributed load. No continuous-span reduction.
- Lateral stability factor CL = 1.0 — assumes adequate lateral bracing (sheathing, blocking, or beam connection).
- Load duration factor CD = 1.15 (based on governing case).
- Repetitive member factor Cr = 1.15 applied to rafters @ ≤ 24" o.c.
- Wet service factors CM per NDS Supplement Table 4A footnote when project is flagged wet_service.
- Deflection limits: L/360 live, L/240 total.
- Post effective-length factor Ke = 1.0 — top assumed braced by beam connection. Free-top geometry would require Ke ≈ 2.0.
- Footing sized from presumptive soil bearing only; no overturning, sliding, or uplift check at footing.
- Wind net uplift checked against connection demands; full pressure-zone analysis (corner / edge / interior) is the engineer-of-record's responsibility.
- Snow drift modeled only when ledger-attached to a taller building.
- MEP point loads (heaters) excluded from distributed dead load; treated as point loads on the supporting beam/rafter.
- Drainage rules-of-thumb (SMACNA) only — not in lieu of jurisdiction stormwater civil review.