2027 RESIDENCE
NEW SINGLE FAMILY
2027 NE 18 ST, CAPE CORAL, FLORIDA

DRAWING INDEX		DESIGN CRITERIA
ARCHITECTURAL		A.- APPLICABLE BUILDING CODES FLORIDA BUILDING CODE 7TH EDITION (2020) - BUILDING FLORIDA BUILDING CODE 7TH EDITION (2020) - RESIDENTIAL FLORIDA FIRE PREVENTION CODE 2020 7TH EDITION NFPA 101-2018 NATIONAL ELECTRICAL CODE EDITION / NEC 2017
A-1	SITE PLAN & NOTES	B.- CONSTRUCTION TYPE: VB
A-2	FLOOR PLAN & NOTES	C.- ASCE 7-16 BASIC WIND SPEED: 160 MPH EXPOSURE C IMPORTANCE FACTOR : 1.0 CATEGORY II
A-3	ROOF PLAN & NOTES	
A-4	ELEVATIONS	
A-5	SECTIONS	
A-6	DETAILS	
ELECTRICAL		**LEGAL DESCRIPTION**
E-1	ELECTRICAL PLAN, NOTES & DIAGRAMS	
MECHANICAL		PARCEL STRAP # 324324C3021960580
M-1	MECHANICAL PLAN, NOTES & DIAGRAMS	ID: 10142946
PLUMBING		OWNER NAME : CASAS & LOTES LLC.
P-1	PLUMBING PLAN & NOTES	PROPERTY ADDRESS : 2027 NE 18 ST, CAPE CORAL, FL 33909
STRUCTURAL		LOTS 58 AND 59, BLOCK 2196, UNIT 33, CAPE CORAL SUBDIVISION, ACCORDING TO THE PLAT THEREOF AS RECORDED IN PLAT BOOK 16, PAGES 40 THROUGH 61, INCLUSIVE OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA.
S-0.0	STRUCTURAL NOTES 1	
S-0.1	STRUCTURAL NOTES 2	
S-0.2	STRUCTURAL NOTES 3	
S-1.0	FOUNDATION PLAN	
S-1.1	ROOF PLAN	
S-2.0	SECTIONS A, B, C	
S-2.1	SECTIONS D, E	
S-3.0	STRUCTURAL DETAILS	

REVIEWED
FOR CODE COMPLIANCE
CAPE CORAL BUILDING DIVISION
BY: ELB
DATE: 05/30/2023
ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE 2020 FLORIDA BUILDING CODE AND ALL OTHER CODES. THE GRANTING OF PERMIT DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO COMPLY WITH ALL CODES AND ORDINANCES

105.4.1Permit void.
A permit issued shall be construed to be a license to proceed with the work and not as authority to violate, cancel, alter or set aside any of the provisions of the technical codes, nor shall issuance of a permit prevent the building official from thereafter requiring a correction of errors in plans or violations of this code. Every permit issued shall become invalid unless the work authorized by such permit is commenced within 6 months after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 6 months after the time of commencement.

NOTE: CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION & SITE CONDITIONS

VINAYAGAR M. BALAKRISHNAN V. LICENSE No. 63107 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Balakrishnan Vinayagar
Date: 2023.05.12 14:56:48 -04'00'

VINAYAGAR M. BALAKRISHNAN V.
P.E. No. 63107 FLORIDA
6175 NW 167 ST, SUITE G-20
MIAMI, FL 33015
PH: 305-2445424

PROJECT NAME

2027 RESIDENCE

NEW SINGLE FAMILY

PROJECT ADDRESS

2027 NE 18 ST, CAPE CORAL, FL 33909

REVISION

Project No:	2022 - 254
Scale:	AS NOTED
Date:	01-06-22
Drawn:	Y.L.
Checked:	J.V. / R.H. / V.M.B.
CADD File:	2027 NE 18 ST, CAPE CORAL 09-27-22.dwg

DRAWN

JOSE VALERO
DRAFTING SERVICES
305-9144347
www.JVE.pro

DRAWING TITLE

COVER SHEET

SHEET NO.

A-0

GENERAL NOTES

* NOT ALL REQUIREMENTS & NOTES MAY APPLY TO THIS PROJECT.

1. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE FLORIDA BUILDING CODE 7TH EDITION 2020 AND ALL OTHER GOVERNMENTAL AND OR REGULATORY AUTHORITIES. CONSTRUCTION DOCUMENTS PREPARED TO COMPLY WITH FLORIDA BUILDING CODE 7TH EDITION 2020 INCLUDING THE FLORIDA EXISTING BUILDING CODE.
2. GENERAL CONTRACTOR & ALL SUB-CONTRACTORS TO VERIFY ALL EXISTING DIMENSIONS AND ALL EXISTING CONDITIONS IN THE FIELD. ANY DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT OR OWNER PRIOR TO BID. DO NOT SCALE PLANS.
3. THE CONTRACTORS SHALL BE RESPONSIBLE FOR FAMILIARIZING THEM-SELVES WITH THE INTENT OF THE DRAWINGS. FINAL INTERPRETATION OF THE SCOPE OF WORK SHALL BE THAT OF THE OWNER AND ARCHITECT.
4. CONTRACTOR TO PROVIDE ALL BARRICADES, SCAFFOLDING, AND OTHER MEANS OF PROTECTION AS REQUIRED TO COMPLY WITH ALL STATE LAWS AND LOCAL MUNICIPAL ORDINANCES TO SAFEGUARD PROPERTY AND PERSONS. OBSTRUCTIONS SHALL BE PLACED SO AS NOT TO DIMINISH THE LIFE SAFETY REQUIREMENTS.
5. THE OWNER AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PHASING OF THE WORK.
6. GENERAL CONTRACTOR TO PATCH, REPAIR, AND/OR REPLACE ALL ADJACENT CONSTRUCTION WHICH HAS BEEN DAMAGED DURING DEMOLITION AND/OR NEW CONSTRUCTION.
7. EXISTING CONCRETE SLAB TO BE SMOOTH AND FREE OF ANY GAPING OPENINGS IN THE SLAB, FOR A SOLID SUBSTRATE OF NEW FINISHES.
8. ALL EXISTING FINISHES TO BE STRIPPED FREE FROM EXISTING WALLS, WHICH ARE TO REMAIN. STRIPPED WALLS ARE TO BE READY FOR APPLICATION OF NEW FINISHES PER MFG'S. SPECIFICATIONS.
9. THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR ANY DEVIATION FROM THESE DRAWINGS AS DATED ON THESE SHEETS.
10. IT SHALL BE THE RESPONSIBILITY OF ALL SUBCONTRACTORS TO HAVE EXAMINED AND REVIEWED THE COMPLETE SET OF WORKING DRAWINGS AND/OR SPECIFICATIONS TO PROVIDE ALL LABOR AND MATERIALS FOR THEIR RESPECTIVE AREA OF WORK. FOR THE COMPLETE AND FINISHED INSTALLATION IN COMPLIANCE WITH THE INTENT OF THE DRAWINGS AND/OR SPECIFICATIONS WHETHER IT IS INDICATED OR NOT. ALL WORK, WHETHER INDICATED OR NOT, SHALL BE IN COMPLIANCE WITH ALL BUILDING CODES AND ORDINANCES WHICH ARE APPLICABLE TO THE PROJECT.
11. SUBCONTRACTORS SHALL COOPERATE WITH EACH OTHER AND WITH THE GENERAL CONTRACTOR TO PROVIDE MATERIALS AND LABOR THAT ARE NECESSARY IN OTHERS WORK AT THE APPROPRIATE TIME SO THAT THE CONSTRUCTION SCHEDULE IS NOT AFFECTED. THIS INTERFACING SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS WHOSE WORK IS AFFECTED AS SUCH.
12. ALL WORK SHALL BE PERFORMED BY QUALIFIED CONTRACTORS IN STRICT ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS.
13. THIS DRAWING PACKAGE IS BASED ON DOCUMENTS, SPECIFICATIONS AND RELATED INFORMATION PROVIDED BY THE OWNER AND/OR OWNER'S AGENT.
14. THE DESIGN INFORMATION INDICATED ON THE PLANS ARE INDICATED TO BE A COMPLETE AND WORKABLE SYSTEM IN ACCORDANCE WITH ALL PRODUCT MANUFACTURER'S SPECIFICATIONS. EXISTING AND/OR PROPOSED BUILDING DESIGN, FIELD CONDITIONS, ETC. ALL MISCELLANEOUS MATERIALS, PARTS, DESIGN DIMENSIONS, WHETHER INDICATED ON THE PLANS OR NOT, SHALL BE INCLUDED AS PART OF THIS DRAWING PACKAGE.
15. THE GENERAL CONTRACTOR OR SUBCONTRACTORS SHALL BE HELD RESPONSIBLE FOR THE REMOVAL AND THE DISPOSAL OF MATERIALS AND ITEMS REFERRED TO AS "DEBRIS" OR DETERMINED BY THE ARCHITECT OR OWNER TO BE REFUSED.
16. THE GENERAL CONTRACTOR SHALL HAVE MADE ALL REQUIRED PROVISIONS FOR THE REMOVAL OF THE DEBRIS ON SITE, HAVING CHARGES, DUMPING FEES, ETC., IN HIS ORIGINAL BID SUBMISSION.
17. PROVIDE ALL CUTTING AND PATCHING IN EXISTING FLOORS, WALLS, AND CEILINGS AS REQUIRED FOR ALL TRADES, EXCLUDING REMOVAL AND RELOCATED ITEMS AS SHOWN.
18. REMOVE ALL SPECIFIC ITEMS INDICATED ON DRAWINGS, ALSO REMOVE ANY OTHER ITEM OR CONSTRUCTION AS REQUIRED TO ACCOMPLISH ALL NEW WORK AND/OR REVISION WORK TO EXISTING AREAS AS SHOWN OR DESCRIBED ELSEWHERE IN THE CONTRACT DOCUMENTS.
19. THE GENERAL CONTRACTOR SHALL PROVIDE AND INSTALL SIGNS, BARRICADES, FENCES, LIGHTING ETC., AS REQUIRED FOR THE PREVENTION OF THE PERSONAL INJURIES TO THE OWNERS, ITS EMPLOYEES, REPRESENTATIVES, CLIENTELE, OR OTHERS WITHIN THE AREAS OF CONSTRUCTION.
20. THE GENERAL CONTRACTOR SHALL TAKE ORDINARY PRECAUTIONS TO PREVENT THE DISRUPTION OF PROTECTIVE DEVICES DURING THE COURSE WORK.
21. GENERAL CONTRACTOR SHALL TAKE ORDINARY PRECAUTIONS TO SECURE AND PROTECT MATERIALS. MATERIALS ARE TO BE RELOCATED OR WAREHOUSED AS DETERMINED BY THE OWNER.
22. THE CONTRACTOR SHALL SUBMIT A CONSTRUCTION SCHEDULE PRIOR TO COMMENCEMENT OF WORK FOR THE OWNER'S APPROVAL.
23. THE CONTRACTOR IS TO SUBMIT SHOP DWGS. AND SAMPLES OF ALL SHOP FABRICATED ITEMS, AND AS NOTED ON PLANS, PRIOR TO INSTALLATION.

AERIAL VIEW

ZONING LEGEND

1. ZONING CLASSIFICATION: R-1 (SINGLE FAMILY)

SETBACKS	REQUIRED	PROPOSED
FRONT	25.00'	25.00'
REAR	20.00'	35.20'
LEFT SIDE	7.50'	12.75'
RIGHT SIDE	7.50'	12.50'

2. LOT AREA: 10,000 SF.
   IMPERVIOUS SURFACES (60% MAX.) 6,000 SF.
3. HOUSE AREAS:

LIVING AREA	2,120 SF.
TOTAL AREA UNDER A/C	2,120 SF.
GARAGE	474 SF.
COVERED TERRACE	183 SF.
TOTAL AREA NOT UNDER A/C	657 SF.
TOTAL HOUSE AREA (LOT COVERAGE)	2,777 SF. (28 %)

4. FLOOD ZONE: (X)

SCOPE OF WORK

- NEW SINGLE FAMILY RESIDENCE, AS SHOWN ON PLANS.

ELECTRICAL

- ELECTRICAL FIXTURES, APPLIANCES, OUTLETS, RECEPTACLES & LIGHTS, AS SHOWN ON PLANS.

MECHANICAL

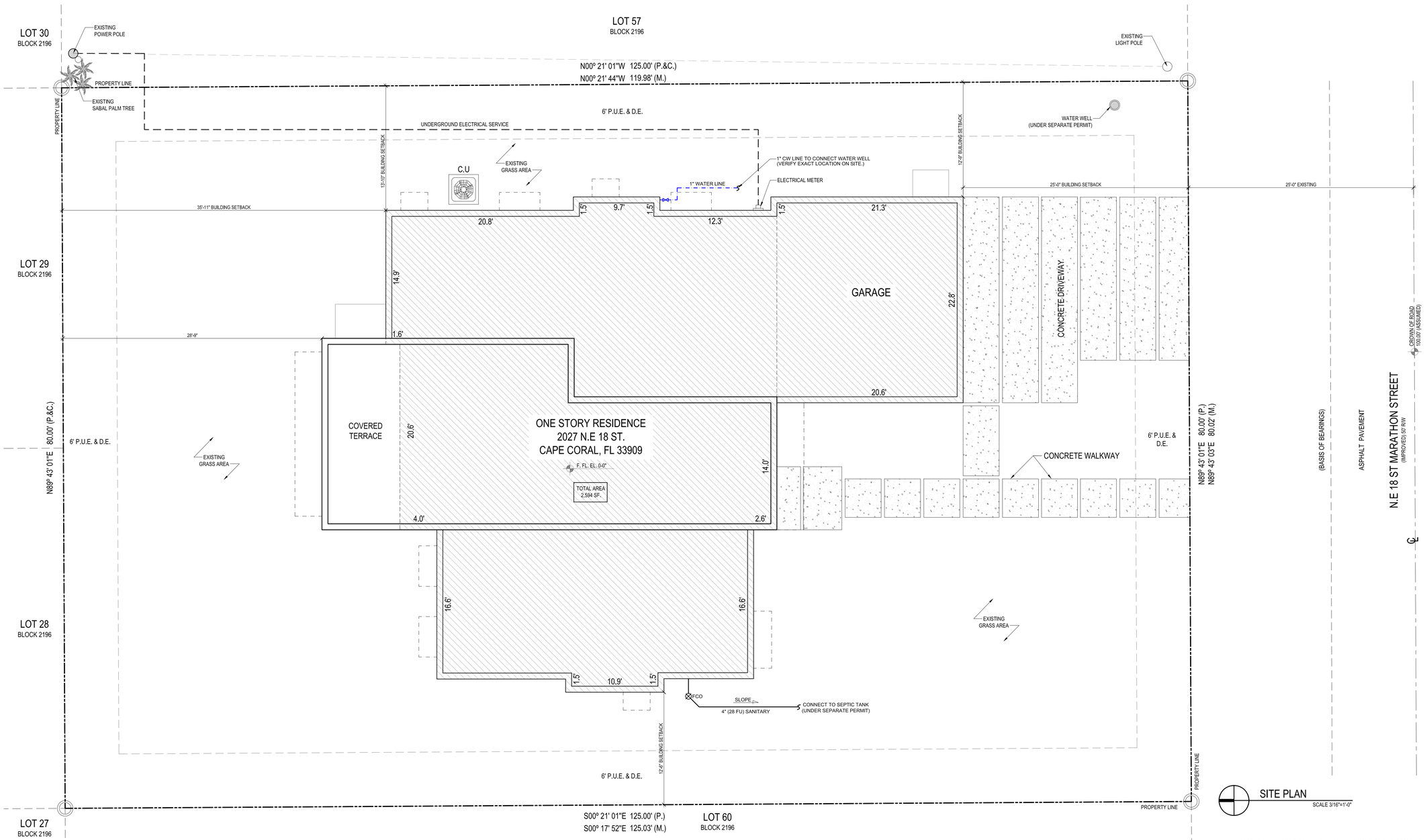
- IS LIMITED TO INSTALL A NEW UNIT, AS SHOWN ON PLANS.
- IS LIMITED TO INSTALL A/C DUCT WORK AND VENTILATION SYSTEMS, AS SHOWN ON PLANS.

PLUMBING

- PLUMBING FIXTURES, WATER LINES AND SANITARY LINES, AS SHOWN ON PLANS.

STRUCTURAL

- STRUCTURAL SYSTEM, AS SHOWN ON PLANS.



SITE PLAN
SCALE 3/16"=1'-0"

NOTE: CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION & SITE CONDITIONS

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DRAWING TITLE

SITE PLAN & NOTES

SHEET NO.

A-1

CONSTRUCTION NOTES

* NOT ALL REQUIREMENTS & NOTES MAY APPLY TO THIS PROJECT.

BATHROOM FLOORS AND BASE TO BE OF IMPERVIOUS MATERIAL AS PER R307.2 F.B.C.

IN AN OUTSIDE WINDOW OR DOOR OPERABLE FROM THE INSIDE, THE MODE OF OPERATION SHALL NOT REQUIRE THE USE OF A KEY, TOOL, SPECIAL KNOWLEDGE OR EFFORT. SUCH CLEAR OPENING SHALL BE NOT LESS THAN 20" IN WIDTH, AND 24" IN HEIGHT, 5.7 SQ. FT. IN AREA THE BOTTOM OF THE OPENING SHALL NOT BE MORE THAN 44" ABOVE THE FINISHED FLOOR AND NO PART OF THE OPERATING MECHANISM SHALL BE PLACED HIGHER THAN 54" ABOVE FINISHED FLOOR.

REFER TO STRUCTURAL DRAWINGS FOR CONCRETE FILLED BLOCK CELL LOCATION, SIZE AND REINFORCING.

EVERY CLOSET DOOR LATCH SHALL BE SUCH THAT CHILDREN CAN OPEN THE DOOR FROM INSIDE THE CLOSET.

EVERY BATHROOM DOOR LOCK SHALL BE DESIGNED TO PERMIT THE OPENING OF THE LOCKED DOOR FROM THE OUTSIDE IN AN EMERGENCY

R307.2 BATHTUB AND SHOWER SPACES, BATHTUB AND SHOWER FLOORS AND WALLS ABOVE BATHTUBS WITH INSTALLED SHOWER HEADS AND IN SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NONABSORBENT SURFACE. SUCH WALL SURFACES SHALL EXTEND TO A HEIGHT OF NOT LESS THAN 6 FEET (1829 MM) ABOVE THE FLOOR.

WINDOWS NOTE REMOVED

GLAZING IN SLIDING & SWING DOORS SHALL BE SAFETY GLAZING CAT. I IF LESS THAN 9 S.F. PER R4410.2,3.1,3.1 OR CAT II IF GREATER THAN 9 S.F. PER R4410.2,3.1,3.2

GLAZING IN BATH & SHOWER ENCLOSURES SHALL BE SAFETY GLAZING CAT. II PER R4410.2,6.2

ALL NEW CONSTRUCTION AND FINISH MATERIALS BELOW BASE FLOOD ELEVATION SHALL BE FLOOD-DAMAGE-RESISTANT MATERIAL (ASCE 24-05 CH. 5.0)

STRUCTURE FOR FLOOD RESISTANT DESIGN AND CONSTRUCTION CATEGORY II (ASCE 24-05 CH. 5.0)

FBC, SEC 1816.1.7 TERMITE PROTECTION. PRIOR TO THE BUILDING FINAL INSPECTION A CERTIFICATE OF COMPLIANCE SHALL BE ISSUE TO THE BUILDING DEPARTMENT BY THE LICENSED PEST CONTROL COMPANY THAT CONTAINS THE FOLLOWING STATEMENTS. "THE BUILDING HAS RECEIVED A COMPLETE TREATMENT FOR THE PREVENTION OF SUBTERRANEAN TERMITES. TREATMENT IS IN ACCORDANCE WITH RULES AND LOWS ESTABLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES".

ALL DOORS AND WINDOWS DIRECT ACCESS TO THE POOL THOROUGH THAT WALL SHALL BE EQUIPPED WITH AN ALARM WHICH PRODUCES AN AUDIBLE WARNING WHEN THE DOOR AND ITS SCREEN ARE OPENED, THE ALARM SHALL SOUND CONTINUOUSLY FOR A MINIMUM OF 30 SECONDS IMMEDIATELY AFTER THE DOOR IS OPENED AND BE CAPABLE OF BEING HEARD THROUGHOUT THE HOUSE DURING NORMAL HOUSEHOLD ACTIVITIES. THE ALARM SHALL AUTOMATICALLY RESET UNDER ALL CONDITIONS. THE ALARM SHALL BE EQUIPPED WITH A MANUAL MEANS TO TEMPORALITY DEACTIVATE THE ALARM FOR A SINGLE OPENING ,SUCH DEACTIVATION SHALL LAST NO MORE THE 15 SECONDS. THE DEACTIVATION SWITCH SHALL BE LOCATED AT LEAST 54 INCHES ABOVE THE THRESHOLD OF THE DOOR.

THE POOL IS PROTECTED BY A POOL PERIMETER CHILD SAFETY BARRIER.

PRODUCT CONTROL APPROVAL AND SHOP DRAWING NOTES

ALL APPROVED SHOP DRAWINGS SHALL BE REVIEWED BY THE A/E OF RECORD AND SUBMITTED AND PROCESSED AT THE BUILDING DEPARTMENT.

SEPARATE SUB-PERMITS REQUIRED: AS INDICATE ON DE DRAWINGS FOR: WINDOW, DOORS, ROOFING, WATERPROFING, RAILINGS, FENCES POOLS / WATER - FEATURES, PREFABRICATE STAIRS AND ELEVATORS.

SYMBOL LEGEND

- C.M.U. WALL
- INTERIOR PARTITION WALL
- FIRE RATED PARTITION WALL
- SOFFIT
- NEW CONCRETE COLUMN (REFER TO STRUCTURAL DWG'S)
- (1) DOOR TYPE -(REFER TO DOOR SCHEDULE)
- (A) WINDOW TYPE -(REFER TO DOOR SCHEDULE)
- 1 KEY NOTE ON FLOOR PLAN
- (1) WALL TYPE - REFER TO PARTITION ASSEMBLY LEGEND
- 1'-1/2" STEP DOWN
- A / A1 SECTION # / SHEET #
- BEDROOM ROOM NAME
- CLG. HGT. 8'-0" CEILING HEIGHT
- 1 REVISION REFERENCE
- F.F.E.0'-0" / NGVD 0.00' FINISH FLOOR ELEVATION

DOORS SCHEDULE

No.	SIZE W	SIZE H	SIZE THK.	MATERIAL	FRAME	CONF.	REMARKS
(1)	2'-6"	6'-8"	1-3/8"	WOOD	WOOD	-	SWING
(2)	2'-6"	6'-8"	1-3/8"	WOOD	WOOD	-	SWING, 1HR. FARE RATED
(3)	2'-6"	6'-8"	1-3/8"	WOOD	WOOD	-	POCKET
(4)	2'-6"	6'-8"	1-3/8"	WOOD	WOOD	-	Bi-FOLD, FULLY LOUVERED DOOR
(5)	3'-0"	6'-8"	1-3/8"	WOOD	WOOD	-	Bi-FOLD
(6)	4'-0"	6'-8"	1-3/8"	WOOD	WOOD	-	DOUBLE Bi-FOLD
(7)	3'-0"	8'-0"	1-3/8"	WOOD	WOOD	-	SWING DOOR, SAFETY GLASS CAT. II NOA: 21-1208.01
(8)	3'-0"	8'-0"	1-3/8"	GLASS	ALUM.	-	SWING DOOR, SAFETY GLASS CAT. II NOA: 21-1208.01
(9)	3'-6"	8'-0"	1-3/8"	GLASS	ALUM.	-	SWING DOOR, SAFETY GLASS CAT. II NOA: 21-1208.01
(10)	12'-0"	8'-0"	1-3/8"	GLASS	ALUM.	X-O-X	SLIDING DOOR, SAFETY GLASS CAT. II NOA: 21-0114.10
(11)	16'-0"	8'-5"	1-3/8"	ALUM.	ALUM.	-	GARAGE DOOR, SAFETY GLASS CAT. II NOA: 22-0105.02

WINDOWS SCHEDULE

No.	SIZE W	SIZE H	SIZE THK.	MATERIAL	REMARKS
(A) HR	36"	48"		AL/GLASS	ALL IMPACT RESISTANT, SAFETY GLASS CAT. II NOA: 20-1007.06
(B) HR	54"	90"		AL/GLASS	ALL IMPACT RESISTANT, SAFETY GLASS CAT. II NOA: 21-0114.10
(C) FIXED	78"	48"		AL/GLASS	ALL IMPACT RESISTANT, SAFETY GLASS CAT. II NOA: 20-0519.11
(D) FIXED	76"	90"		AL/GLASS	ALL IMPACT RESISTANT, SAFETY GLASS CAT. II NOA: 20-0519.11
(E) FIXED	103"	90"		AL/GLASS	ALL IMPACT RESISTANT, SAFETY GLASS CAT. II NOA: 20-0519.11
MULLION	1" X 3"			ALUM.	ALL IMPACT RESISTANT NOA: 21-0122.04

WINDOWS NOTES:

1. ALL GLASS SHALL BE CLEAR WITH THE OPTION OF A LOW-E COATING AND SHALL HAVE A U=0.66 & SHGC=0.32 VALUES

FINISH SCHEDULE

SPACE	FLOOR	BASE	WALLS	CEILING		REMARKS
BEDROOMS	CER. TILE	WOOD	CMU - D/W	D/W - PTD		
LIVING ROOM	CER. TILE	WOOD	CMU - D/W	D/W - PTD		
DINING ROOM	CER. TILE	WOOD	CMU - D/W	D/W - PTD		
BATHROOMS	CER. TILE	CER. TILE	CMU - D/W	D/W - PTD		CERAMIC TILE FULL HT @ BATHTUB WALLS
KITCHEN	CER. TILE	WOOD	CMU - D/W	D/W - PTD		

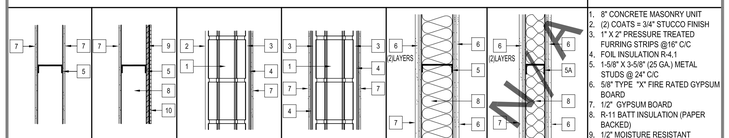
R702.4.2 CEMENT, FIBER-CEMENT AND GLASS MAT GYPSUM BACKERS. CEMENT, FIBER-CEMENT OR GLASS MAT GYPSUM BACKERS IN COMPLIANCE WITH ASTM C 1288, C 1325 OR C 1178 AND INSTALLED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS SHALL BE USED AS BACKERS FOR WALL TILE IN TUB AND SHOWER AREAS AND WALL PANELS IN SHOWER AREAS.

ALL INSULATION MATERIALS SHALL HAVE A FLAME SPREAD INDEX NOT TO EXCEED 25 WITH AN ACCOMPANYING SMOKE-DEVELOPED INDEX NOT TO EXCEED 450

ALL WALL & CEILING FINISHES SHALL HAVE A FLAME SPREAD INDEX OF NOT GREATER THAN 200 & AN SMOKE - DEVELOPED INDEX OF NOT GREATER THAN 450

"ALL NEW FINISHES (WALL, CEILING, FLOOR, TRIM, DECOR) ARE TO COMPLY WITH FBCB CHAPTER 8, FOR FLAME SPREAD AND SMOKE DEVELOPMENT CLASSIFICATION".

PARTITION ASSEMBLY LEGEND



DRYWALL PARTITION	(1)	BATH PARTITION	(2)	8" CMU & DW WALL	(3)	8" CMU WALL	(4)	D/W (1 HR) FIRE RATED U.L.425	(5)	D/W (1 HR) FIRE RATED U.L.419	(6)

LEGEND

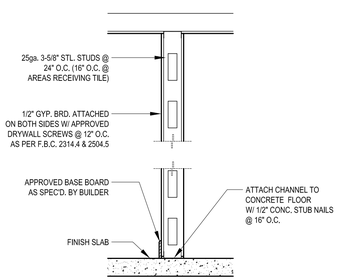
1. 8" CONCRETE MASONRY UNIT
2. (2) COATS = 3/4" STUCCO FINISH
3. 1" X 2" PRESSURE TREATED FURRING STRIPS @16" C/C
4. FOIL INSULATION R-4.1
5. 1-5/8" X 3-5/8" (25 GA.) METAL STUDS @ 24" C/C
6. 5/8" TYPE "X" FIRE RATED GYPSUM BOARD
7. 1/2" GYPSUM BOARD
8. R-11 BATT INSULATION (PAPER BACKED)
9. 1/2" MOISTURE RESISTANT (CEMENT) GYP BOARD OR " DUROCK" BOARD
10. CERAMIC TILE

KEY NOTES

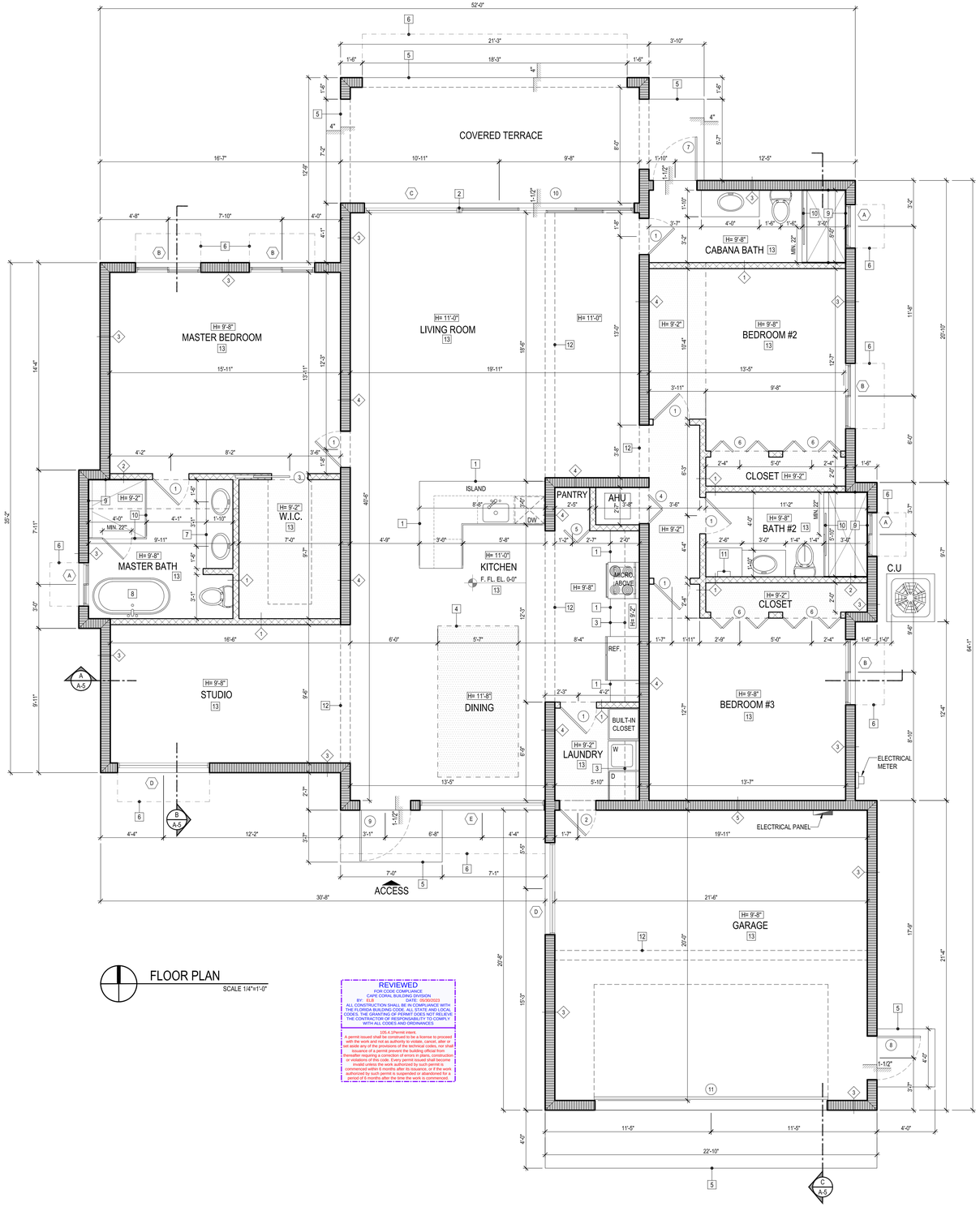
1. 36" HIGH COUNTERTOP
2. MULLION
3. CABINETS BY OWNER
4. SOFFIT
5. CONCRETE LANDING AND/OR STEPS
6. CONCRETE HORIZONTAL SUNSHADE
7. VANITY (SINK, COUNTERTOP & CABINETS)
8. FREE STANDING TUB
9. "DUROCK" BOARD AT ALL WET AREAS
10. ENCLOSURE TEMPERED GLASS CAT. II
11. TANKLESS WATER HEATER (REFER PLUMBING PLAN)
12. CONCRETE TIE BEAM (SEE STRUCTURAL DWG'S)
13. TILE FLOOR FINISH

INTERIOR NON-BRG. WALL SECTION

N.T.S



NOTE: SHALL COMPLY WITH ASTM C 754



FLOOR PLAN

SCALE 1/4"=1'-0"

REVIEWED
FOR CODE COMPLIANCE
CAPE CORAL BUILDING DIVISION
BY: ELB DATE: 05/30/2023
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105.4.1Permit intent
A permit issued shall be construed to be a license to proceed with the work and not as authority to violate, cancel, alter or set aside any of the provisions of the technical codes, nor shall issuance of a permit prevent the building official from thereafter requiring a correction of errors in plans, construction or violations of this code. Permits presuming to give authority to violate orders the work authorized by such permit is commenced within 6 months after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 6 months after the time the work is commenced.

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DRAWN

JOSE VALERO
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305.814.4347
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DRAWING TITLE

FLOOR PLAN & NOTES

SHEET NO.

A-2

GENERAL ROOFING NOTES

THE ROOFING PLAN IS GENERAL IN NATURE AND INDICATES APPROXIMATE CONDITIONS AT THE PROJECT SITE AT THE TIME THE ROOFING IS READY TO BE INSTALLED. THE CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORK.

NOTE:
FOR COMPLETE ROOF PLAN DETAILS REFER TO STRUCTURAL DRAWINGS.

WATERPROOF NOTES

PROVIDE WATERPROOFING MEMBRANE SYSTEM AT FLOOR IN ENTIRE OPEN TERRACES AND ROOF. ALL NEW WATERPROOF MEMBRANE SHALL BE JAMO WATERPROOF COATING (OR SIMILAR BY ROOFING CONTRACTOR) TO COMPLY WITH FBC 2020.

PRODUCT	TEST SPECIFICATION	PRODUCT DESCRIPTION
JAMO WATERPROOF COATING NOA. 18-0521.02	ASTM D 6083	READY-TO-USE ELASTOMERIC, WATERPROOFING AND CRACK PREVENTION MEMBRANE

MAX ROOF AREA/ DRAIN = 557 SQ. FT.
MAX DRAIN AREA PER SCUPPER = 557 SQ. FT.

FBCP TABLE 1106.7
SIZING SCUPPERS FOR A-5 INCH PER HOUR RATE OF RAINFALL

HEAD IN INCHES	HORIZONTALLY PROJECTED ROOF AREA (SQUARE FEET)						
	LENGTH OF WEIR IN INCHES						
	4	6	8	12	16	20	24
1	230	346	461	692	923	1153	1384
2	641	961	1282	1923	2564	3205	3846
3	1153	1730	2307	3461	4615	5769	6923
4	1794	2692	3589	5384	7179	8974	10,769

NOTE:

8" W X 4" HT. THRU WALL PRE CAST CONCRETE EMERGENCY OVERFLOW SCUPPERS. SHALL BE LOCATED 2" ABOVE ROOF SURFACE, BUT NOT MORE THAN 4" ABOVE DRAIN INTAKE. MAXIMUM SEPARATION TO DRAIN SHALL BE 16'-0" SO THAT @ 1/4" PER FOOT SLOPE THERE IS NO MORE THAT 4" OF WATER ACCUMULATION. SEE DETAILS.

NOTE:

SCUPPER IT SHALL BE PLACED LEVEL WITH THE ROOF SURFACE IN A WALL OR PARAPET, AS PER FBCR 903.4 & SHALL BE CONSTRUCTED OF METAL OR APPROVED PLASTIC FOR OUTDOOR EXPOSURE WITH LAPPED, SOLDERED OR CAULKED & SHALL BE SECURELY FASTENED TO THE BUILDING WITH A CORROSION RESISTANT FASTENING DEVICE OF SIMILAR OR COMPATIBLE MATERIAL TO THE GUTTERS AND DOWNSPOUTS. AS PER FBCR 903.4.2.

NOTE:

COMPLIES WITH FBCR 806.5 FOR UNVENTED ATTIC AND UNVENTED ENCLOSED RAFTER ASSEMBLIES WITH THE FOLLOWING:

- THE UNVENTED ATTIC SPACE IS COMPLETELY WITHIN THE BUILDING THERMAL ENVELOPE.
- NO INTERIOR CLASS I VAPOR RETARDERS ARE INSTALLED ON THE CEILING SIDE (ATTIC FLOOR) OF THE UNVENTED ATTIC ASSEMBLY OR ON THE CEILING SIDE OF THE UNVENTED ENCLOSED ROOF FRAMING ASSEMBLY.
- INSULATION SHALL BE APPLIED IN DIRECT CONTACT WITH THE UNDERSIDE OF THE STRUCTURAL ROOF SHEATHING.

MAX. ROOF AREA/ DRAIN = 557 SQ. FT.
MAX. ROOF AREA/ VERT. STACK = 557 SQ. FT.

FBC TABLE 1106.3
SIZE OF HORIZONTAL STORM DRAINAGE PIPING

SIZE OF HORIZONTAL PIPING (inches)	HORIZONTALLY PROJECTED ROOF AREA (square feet)					
	Rainfall rate (Inches per hour)					
	1	2	3	4	5	6
1/8 unit vertical in 12 units horizontal (1-percent slope)						
3	3,288	1,644	1,096	822	657	548
4	7,520	3,760	2,506	1,800	1,504	1,253
5	13,360	6,680	4,453	3,340	2,672	2,227
6	21,400	10,700	7,133	5,350	4,280	3,566
8	46,000	23,000	15,330	11,500	9,200	7,600
10	82,800	41,400	27,600	20,700	16,580	13,800
12	133,200	66,600	44,400	33,300	26,650	22,200
15	218,000	109,000	72,800	59,500	47,600	39,650

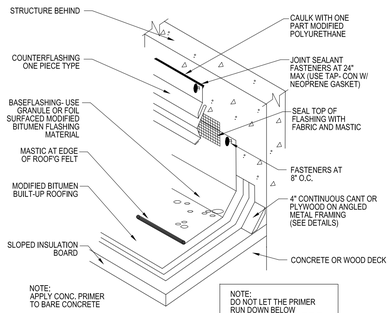
NOTE:

SCUPPER IT SHALL BE PLACED LEVEL WITH THE ROOF SURFACE IN A WALL OR PARAPET, AS PER FBC SECTION 15.14.

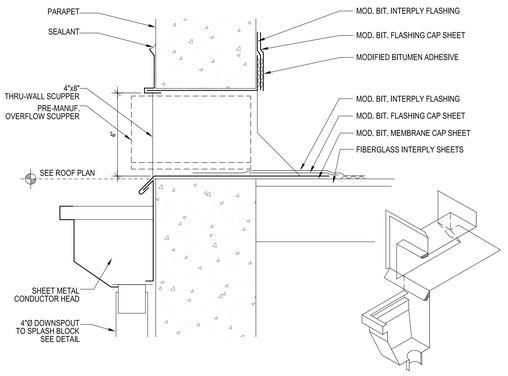
STUCCO/FLASHING DETAIL
N. T. S.

FLASHINGS MUST BE INSTALLED IN ACCORDANCE WITH THE WATERPROOFING MANUFACTURER'S PUBLISHED SPECIFICATIONS AND IN COMPLIANCE WITH THE MATERIAL AND ATTACHMENT STANDARDS OF RAS 111, F.B.C. 1519,16.5

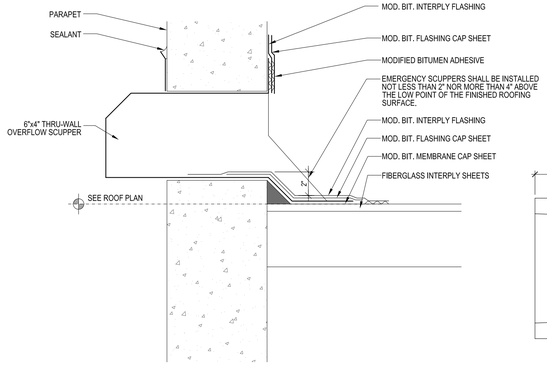
ALL ROOF FLASHING AND TERMINATIONS SHALL BE DESIGNED AND INSTALLED TO RESIST THE WINDLOAD REQUIREMENTS OF CHAPTER 16 (HIGH-VELOCITY HURRICANE ZONES) OF THIS CODE, AND SHALL BE IN COMPLIANCE WITH THE PROVISIONS SET FORTH IN RAS 111, FBC 1514.2



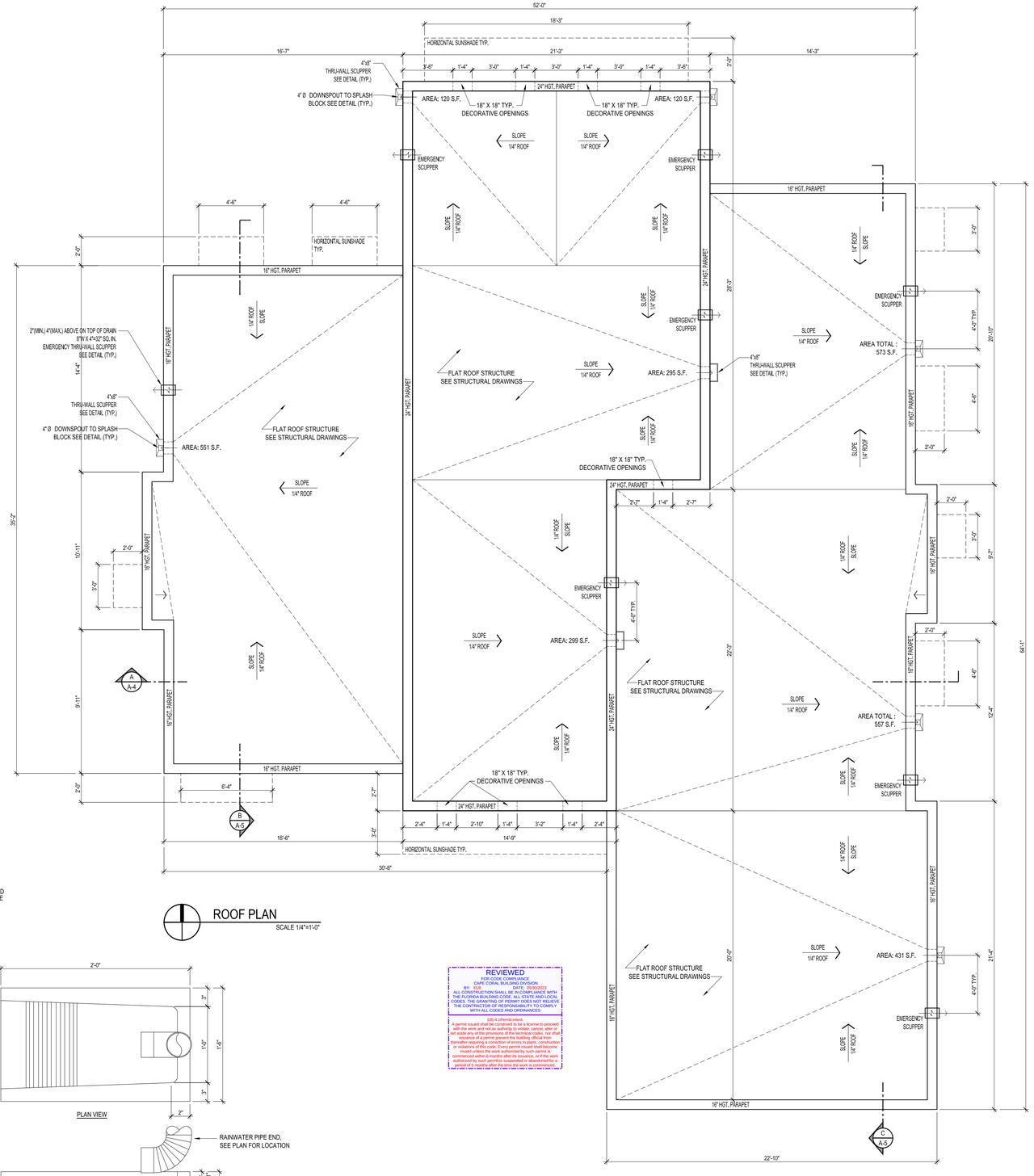
FLASHING DETAIL
N. T. S.



SCUPPER & DOWNSPOUT DETAIL
N.T.S.



EMERGENCY OVERFLOW SCUPPER DETAIL
N.T.S.



ROOF PLAN
SCALE 1/4"=1'-0"

SPLASH BLOCK DETAIL
N.T.S.

REVIEWED
FOR CODE COMPLIANCE
CAPE CORAL BUILDING DIVISION
BY: ELB DATE: 05/30/2023
ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE FLORIDA BUILDING CODE, ALL STATE AND LOCAL CODES. THE GRANTING OF PERMIT DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO COMPLY WITH ALL CODES AND ORDINANCES.
105.4.1Permit intent.
A permit issued shall be construed to be a license to proceed with the work and not as authority to violate, cancel, alter or set aside any of the provisions of the technical codes, nor shall issuance of a permit prevent the building official from thereafter requiring a correction of errors in plans, construction or violations of this code. Every permit issued shall become invalid unless the work authorized by such permit is commenced within 6 months after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 6 months after the time of the work is commenced.

NOTE: CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION & SITE CONDITIONS

VINAYAGAR M. BALAKRISHNAN V. LICENSE No. 63107 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Balakrishnan Vinayagar
Date: 2023.05.12 14:57:30 -04'00'

VINAYAGAR M. BALAKRISHNAN V.
P.E. No. 63107 FLORIDA
6175 NW 167 ST, SUITE G-20
MIAMI, FL 33015
PH: 305-2445424

PROJECT NAME

2027 RESIDENCE

NEW SINGLE FAMILY

PROJECT ADDRESS

2027 NE 18 ST, CAPE CORAL, FL 33909

REVISION

Project No:	2022 - 254
Scale:	AS NOTED
Date:	01-08-22
Drawn:	Y.L.
Checked:	J.V. / R.H. / V.M.B.
CADD File:	2027 NE 18 ST, CAPE CORAL 09-27-22.dwg

DRAWN

JOSE VALERO
DRAFTING SERVICES
305-614-4347
www.jvdd.pro

DRAWING TITLE

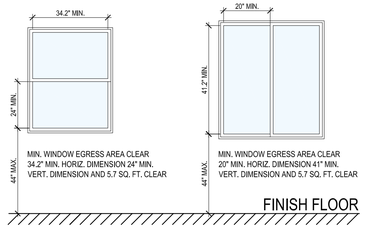
ROOF PLAN & NOTES

SHEET NO.

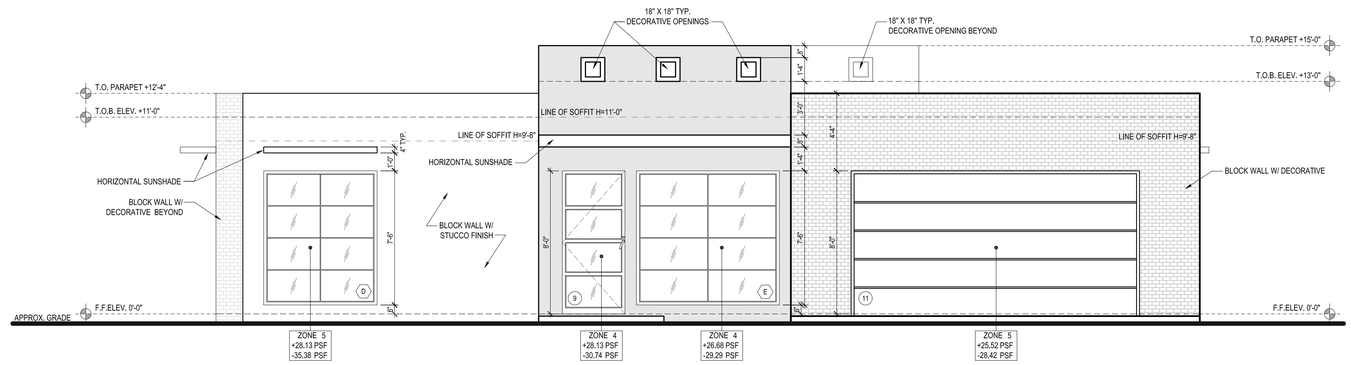
A-3

REQUIREMENTS FOR MEANS OF SCAPE

N.T.S

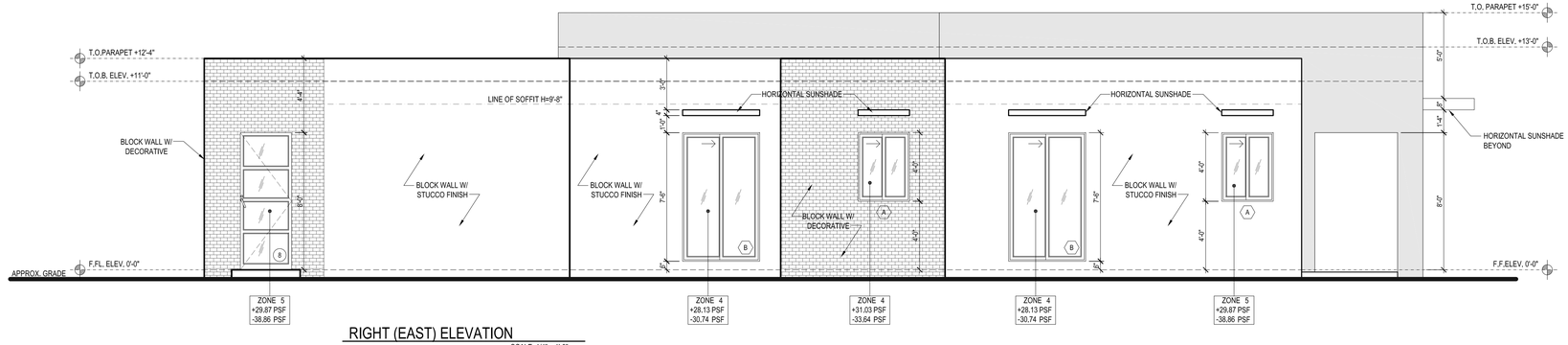


NFPA 101,CHAPTER 24, SECTION 24.2, 24.2.2.3 SECONDARY MEAN OF EGRESS AN OUTSIDE WINDOW OR DOOR OPERABLE FROM THE INSIDE WITHOUT THE USE OF TOOLS AND PROVIDING A CLEAR OPENING OF NOT LESS THAN 20" IN WIDTH, 24" IN HEIGHT AND 5.7 SQ FT IN AREA. THE BOTTOM OF THE OPENING SHALL NOT BE MORE THAN 44" OFF THE FLOOR.



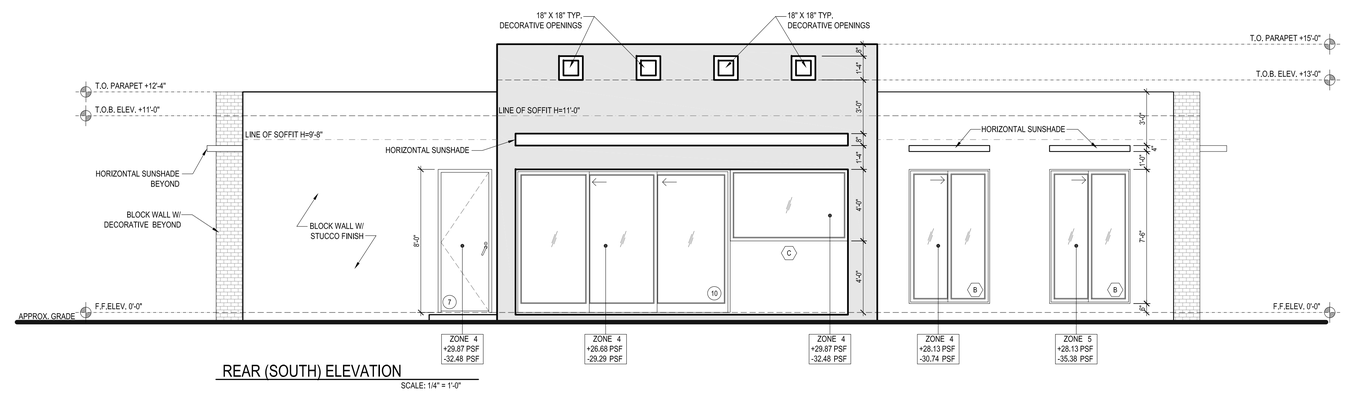
FRONT (NORTH) ELEVATION

SCALE: 1/4" = 1'-0"



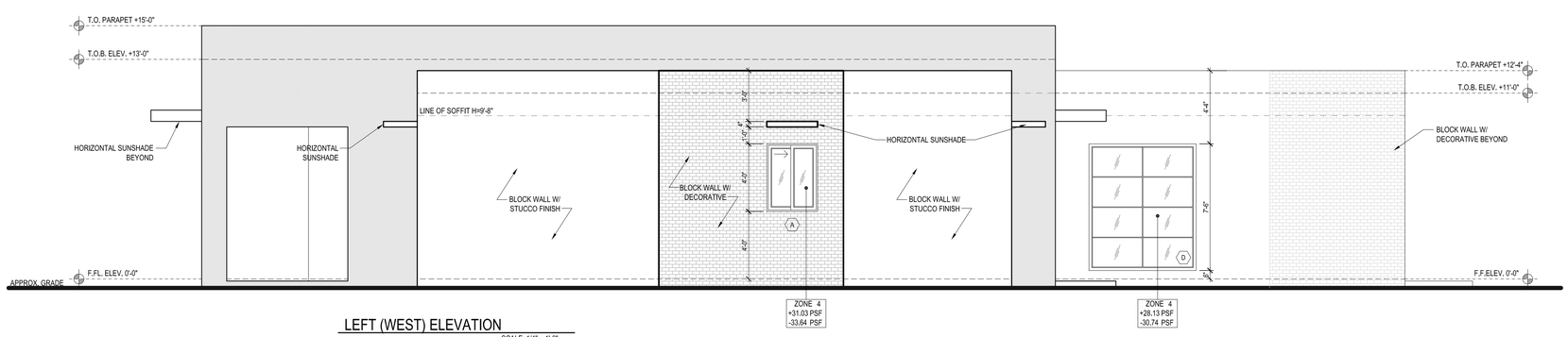
RIGHT (EAST) ELEVATION

SCALE: 1/4" = 1'-0"



REAR (SOUTH) ELEVATION

SCALE: 1/4" = 1'-0"



LEFT (WEST) ELEVATION

SCALE: 1/4" = 1'-0"

NOTE: CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION & SITE CONDITIONS

REVIEWED
FOR CODE COMPLIANCE
CAPE CORAL BUILDING DIVISION
BY: Cape Coral Building Division 2023
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105.4.1 Permit intent.
A permit issued shall be construed to be a license to proceed with the work and not as authority to violate, cancel, alter or set aside any of the provisions of the technical codes. The issuance of a permit prevent the building official from thereafter requiring a correction of errors in plans, construction or violations of this code. Every permit issued shall become invalid unless the work authorized by such permit is commenced within 6 months after issuance of the permit or the authorized work is suspended or abandoned for a period of 6 months after the time the work is commenced.

VINAYAGAR M. BALAKRISHNAN V. LICENSE No. 63107 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Balakrishnan Vinayagar
Date: 2023.05.12 14:57:44 -04'00'

VINAYAGAR M. BALAKRISHNAN V.
P.E. No. 63107 FLORIDA
6175 NW 167 ST, SUITE G-20
MIAMI, FL 33015
PH: 305-2445424

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REVISION

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Drawn:	Y.L.
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CADD File:	2027 NE 18 ST, CAPE CORAL 09-27-22.dwg

DRAWN

JOSE VALERO
DRAFTING SERVICES
305-343-5431
www.jvdz.pro

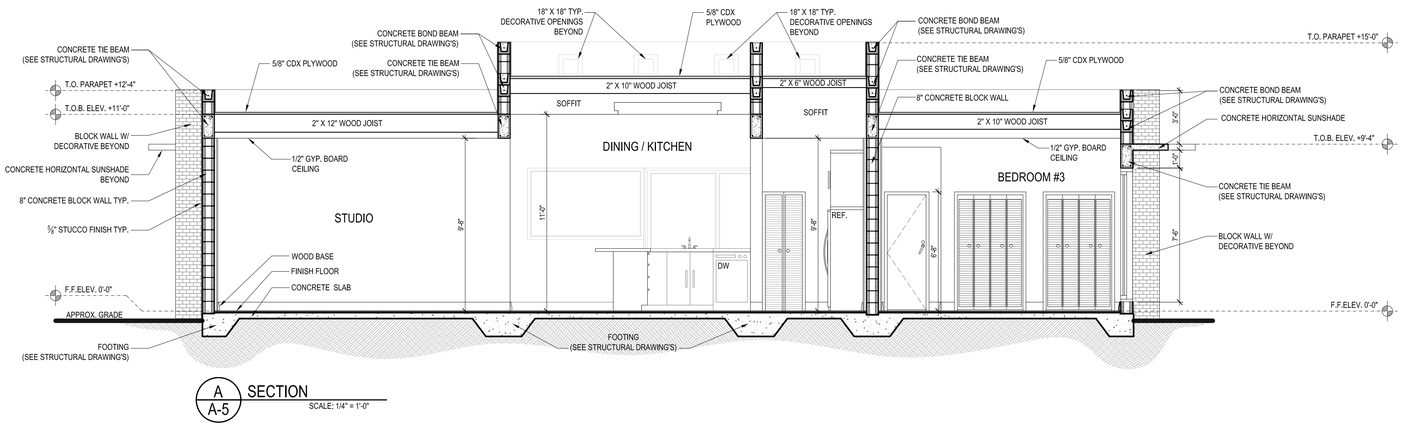
DRAWING TITLE

ELEVATIONS

SHEET NO.

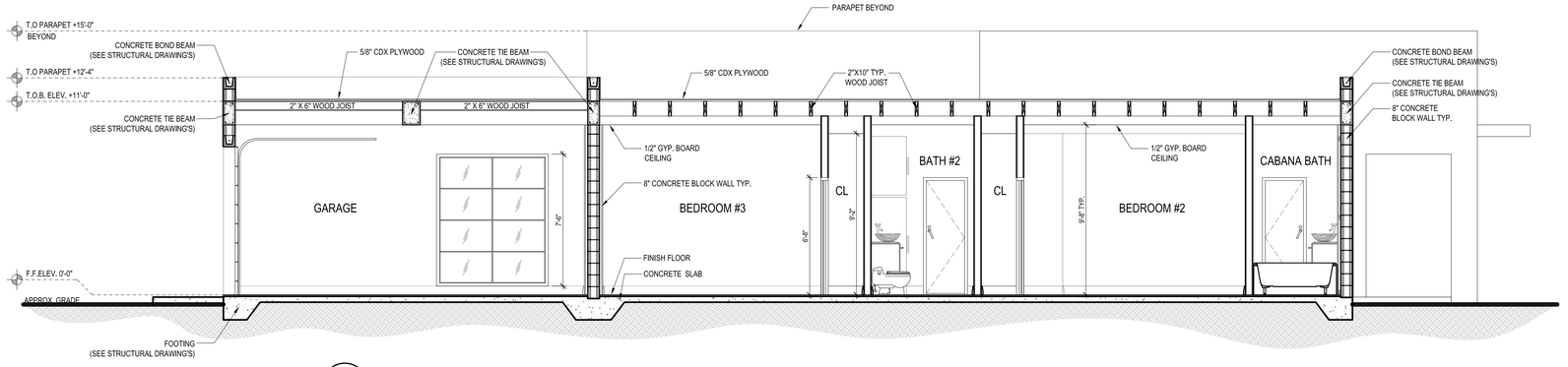
A-4

NOTE:
FOR COMPLETE DETAILS
REFER TO STRUCTURAL DRAWINGS.



A / A-5 SECTION
SCALE: 1/4" = 1'-0"

B / A-5 SECTION
SCALE: 1/4" = 1'-0"



C / A-5 SECTION
SCALE: 1/4" = 1'-0"

VINAYAGAR M. BALAKRISHNAN V.
LICENSE
No. 63107
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Digitally signed by Balakrishnan Vinayagar
Date: 2023.05.12 14:57:59 -04'00'

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DRAWN

JOSE VALERO
DRAFTING SERVICES
305.414.4347
www.JVD.pro

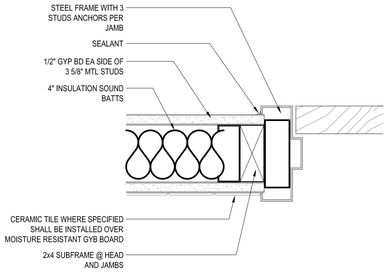
DRAWING TITLE

SECTIONS

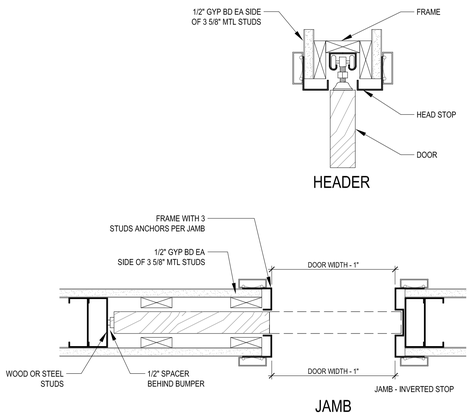
SHEET NO.

A-5

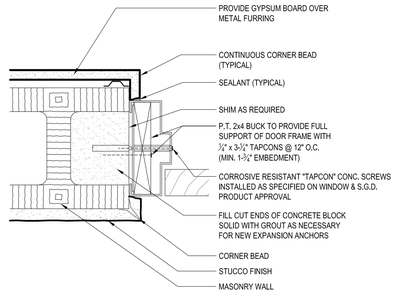
NOTE: CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION & SITE CONDITIONS



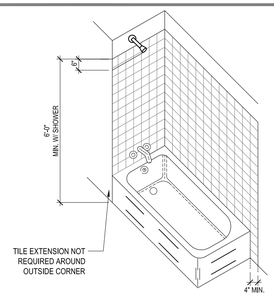
1 DOOR JAMB DETAIL
N.T.S



2 POCKET DOOR TRIM
N.T.S



3 EXT. DOOR JAMB DETAIL
N.T.S



INTERIOR AND EXTERIOR APPLICATIONS AND FINISHING OF GYPSUM BOARD, OTHER THAN GYPSUM VENEER BASE AND PLASTER, SHALL BE DONE IN ACCORDANCE WITH 701.5, 2506 OR GA 216

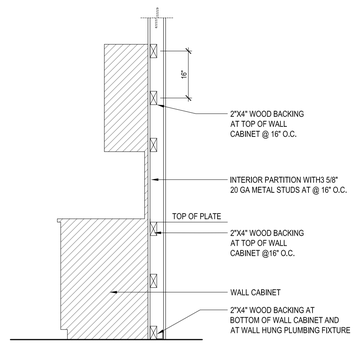
A.1.2.2 - CUT EDGES AND OPENINGS AROUND PIPES AND FIXTURES SHALL BE CAULKED FLUSH WITH WATERPROOF, FLEXIBLE SEALANT OR ADHESIVE COMPLYING WITH THE ANSI A 136.1, AMERICAN NATIONAL STANDARDS FOR ORGANIC ADHESIVES FOR INSTALLATION OF CERAMIC TILE, TYPE I OR TYPE II. THE TILE, WALL PANEL, OR OTHER SURFACING MATERIAL MANUFACTURER'S SPECIFICATIONS SHALL BE FOLLOWED.

A.1.2.3 - TILE OR WALL PANELS SHALL BE APPLIED ON MOISTURE RESISTANT PANEL "DUROCK" CEMENT BOARD, OR EQUAL, DIRECTLY BEHIND TUB TILES OR SHOWER AREAS DOWN TO THE TOP SURFACE, OR EDGE, OF THE FINISHED SHOWER FLOOR, RETURN, OR TUB, AND SHALL OVERLAP THE TOP LIP O THE RECEPTOR, SUB-PAN, OR TUB, AND SHALL COMPLETELY COVER THE AREAS SPECIFIED IN SECTION A.1.2.3(A) THROUGH A.1.2.3(E) - (SEE FIGURE 13)

A. TUBS WITHOUT SHOWERHEADS - SURFACING MATERIAL SHALL EXTEND NOT LESS THAN 6" INCHES (150 MM) ABOVE THE RIM OF THE TUB.

B. SURFACING MATERIAL SHALL BE APPLIED TO THE FULL SPECIFIED HEIGHT FOR A DISTANCE OF NOT LESS THAN 4" INCHES (100 MM) BEYOND THE OUTSIDE OF THE RECEPTOR, AREAS BEYOND AN OUTSIDE CORNER ARE EXCLUDED.

4 BATHTUB STALL DETAIL
N.T.S



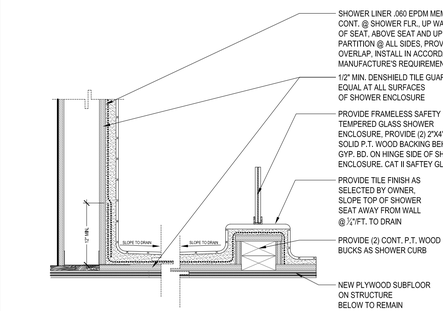
SECTION VIEW

(2.) A MINIMUM 2" X 4" HORIZONTAL WOOD MEMBER, SECURELY FASTENED TO NOT LESS THAN 2 SUCH STUDS, SHALL BE INSTALLED FOR THE ATTACHMENT OF EACH WALL HUNG PLUMBING FIXTURE AND WALL CABINET.

STEEL STUDS SUPPORTING WALL HUNG PLUMBING FIXTURES SHALL BE DOUBLE OR NOT LESS THAN20 GA @ 16" O.C.

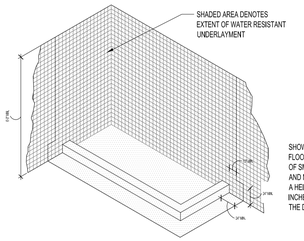
FBC 2020 R4409.5.1.15

5 WALL HUNG FIXTURE DETAIIL
N.T.S



SHOWER/ WALL NOTE:
ALL NEW & WALL PENETRATIONS SHALL BE SEALED
NOTES:
1.. ANTI-SCALD VALVES FOR TUB/SHOWER REQUIRED

6 SHOWER SECTION (TYPICAL)
N.T.S



SHOWER COMPARTMENTS SHALL HAVE FLOORS AND WALLS CONSTRUCTED OF SMOOTH, CORROSION RESISTANT AND NON ABSORBENT MATERIALS TO A HEIGHT OF NOT LESS THAN 72" INCHES ABOVE THE COMPARTMENT OF THE DRAIN

INTERIOR AND EXTERIOR APPLICATIONS AND FINISHING OF GYPSUM BOARD, OTHER THAN GYPSUM VENEER BASE AND PLASTER, SHALL BE DONE IN ACCORDANCE WITH 701.5, 2506 OR GA 216

A.1.2.2 - CUT EDGES AND OPENINGS AROUND PIPES AND FIXTURES SHALL BE CAULKED FLUSH WITH WATERPROOF, FLEXIBLE SEALANT OR ADHESIVE COMPLYING WITH THE ANSI A 136.1, AMERICAN NATIONAL STANDARDS FOR ORGANIC ADHESIVES FOR INSTALLATION OF CERAMIC TILE, TYPE I OR TYPE II, THE TILE, WALL PANEL, OR OTHER SURFACING MATERIAL MANUFACTURER'S SPECIFICATIONS SHALL BE FOLLOWED.

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B. SURFACING MATERIAL SHALL BE APPLIED TO THE FULL SPECIFIED HEIGHT FOR A DISTANCE OF NOT LESS THAN 4" INCHES (100 MM) BEYOND THE OUTSIDE OF THE RECEPTOR, AREAS BEYOND AN OUTSIDE CORNER ARE EXCLUDED.

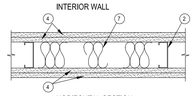
7 SHOWER STALL DETAIL
N.T.S

732 FIRE RESISTANCE DIRECTORY (BXRH)

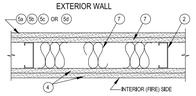
FIRE RESISTANCE RATINGS - ANSI / UL 263 (BXUV) - CONTINUED

DESIGN NO U425

(FOR EXTERIOR WALL, RATING APPLICABLE FOR EXPOSURE TO FIRE ON INTERIOR FACE ONLY, (SEE ITEM 4 AND 5)
BEARING WALL RATING - 45 MIN, 1, 1-1/2 OR 2 HR (SEE ITEM 2 AND 4)



HORIZONTAL SECTION



HORIZONTAL SECTION

1. STEEL FLOOR AND CEILING TRACKS - (NOT SHOWN) - TOP AND BOTTOM TRACKS OF WALL ASSEMBLIES SHALL CONSIST OF STEEL MEMBERS, MIN NO, 20 MSG (0.0329 IN., MIN BARE METAL THICKNESS) STEEL OR MIN NO. 20 GSG (0.036 IN. THICK) GALV STEEL OF NO. 20 MSG (0.033 IN. THICK) PRIMED STEEL, THAT PROVIDE A SOUND STRUCTURAL CONNECTION BETWEEN STEEL STUDS, AND TO ADJACENT ASSEMBLIES SUCH AS A FLOOR, CEILING AND/OR OTHER WALLS. ATTACHED TO FLOOR AND CEILING ASSEMBLIES WITH STEEL FASTENERS SPACED NOT GREATER THAN 24 IN. O.C.
2. STEEL STUDS - CORROSION PROTECTED STEEL STUDS, MIN NO 20 MSG (0.0329 IN., MIN BARE METAL THICKNESS) STEEL OR MIN 3-1/2 IN. WIDE, MIN NO. 20 GSG (0.033 IN. THICK) GALV STEEL OR NO. 20 MSG (0.033 IN. THICK) PRIMED STEEL, COLD FORMED, SHALL BE DESIGNED IN ACCORDANCE WITH THE CURRENT EDITION OF THE SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS BY THE AMERICAN IRON AND STEEL INSTITUTE. ALL DESIGN DETAILS ENHANCING THE STRUCTURAL INTEGRITY OF THE WALL ASSEMBLY, INCLUDING THE AXIAL DESIGN LOAD OF THE STUDS, SHALL BE AS SPECIFIED BY THE STEEL STUD DESIGNER AND/OR PRODUCER, AND SHALL MEET THE REQUIREMENTS OF ALL APPLICABLE LOCAL CODE AGENCIES. THE MAX STUD SPACING OF WALL ASSEMBLIES SHALL NOT EXCEED 24 IN. O/C (OR 16 IN. OC - SEE ITEM 5C), STUDS ATTACHED TO FLOOR AND CEILING TRACKS WITH 1/2 IN. LONG TYPE S-12 STEEL SCREWS ON BOTH SIDE OF STUDS OR BY WELDED OR BOLTED CONNECTIONS DESIGNED IN ACCORDANCE WITH THE AISI SPECIFICATIONS.
3. LATERAL SUPPORT MEMBERS - (NOT SHOWN) - WHERE REQUITED FOR LATERAL SUPPORT OF STUDS, SUPPORT MAY BE PROVIDED BY MEANS OF STEEL STRAPS, CHANNELS OR OTHER SIMILAR MEANS AS SPECIFIED IN THE DESIGN OF A PARTICULAR STEEL STUD WALL SYSTEM.
4. WALLBOARD, GYPSUM* - GYPSUM WALLBOARD BEARING THE UU CLASSIFICATION MARKING AS TO FIRE RESISTANCE, APPLIED VERTICALLY WITH JOINTS BETWEEN LAYERS STAGGERED, OUTER LAYER OF 3 LAYER CONSTRUCTION MAY BE OF DESIGN LOAD FOR THE 45 MIN, 1 HR, 1-1/2 HR AND 2 HR RATINGS ARE AS FOLLOWS:

INTERIOR WALLS

RATING	WALLBOARD PROTECTION BOTH SIDE OF WALL - NO. OF LAYERS Y THINS OF BOARD IN EACH LAYERS	% OF DESIGN LOAD
45 MIN	*1 LAYER, 1/2 IN. THICK	100
1 HR	*1 LAYER, 5/8 IN. THICK	100
1-1/2 HR	*2 LAYERS, 1/2 IN. THICK	100
2 HR	*2 LAYERS, 5/8 IN. THICK OR	80
	*3 LAYERS, 1/2 IN. THICK	100
	*3 LAYERS, 3/4 IN. THICK	100

* RATINGS APPLICABLE TO ASSEMBLIES SERVING AS EXTERIOR WALLS WHERE CLASSIFIED FIRE RESISTIVE GYPSUM SHEATHING TYPE WALLBOARD IS SUBSTITUTED ON THE EXTERIOR FACE

EXTERIOR WALLS

RATING	WALLBOARD PROTECTION ON INTERIOR SIDE OF WALL - NO. OF LAYERS Y THINS OF BOARD IN EACH LAYERS	% OF DESIGN LOAD
45 MIN	1 LAYER, 5/8 IN. THICK	100
1 HR	2 LAYERS, 1/2 IN. THICK	100
1-1/2 HR	2 LAYERS, 5/8 IN. THICK	100
2 HR	3 LAYERS, 1/2 IN. THICK	100
	2 LAYERS, 3/4 IN. THICK	100

ANY 1/2 IN. THICK UL CLASSIFIED GYPSUM BOARD THAT IS ELIGIBLE FOR USE IN DESIGN NO.,X515. ANY 5/8 IN. THICK UL CLASSIFIED GYPSUM BOARD THAT IS ELIGIBLE FOR USE IN DESIGN NOS, L501, G512 OR U305.

SEE GYPSUM BOARD (CKNX) CATEGORY - FOR NAMES OF CLASSIFIED COMPANIES OF 1/2 IN. OR 5/8 IN. THICK WALLBOARD, SEE BELOW FOR CLASSIFIED COMPANIES OF 3/4 IN. THICK WALLBOARD.

4A, GYPSUM BOARD - NOM,. 3/4 IN. GYPSUM BOARD BEARING THE UL CLASSIFICATION MARKING AS TO FIRE RESISTANCE, APPLIED VERTICALLY WITH JOINTS BETWEEN LAYERS STAGGERED, THE THICKNESS AND NUMBER OF LAYER AND PERCENT OF DESIGN LOAD FOR THE 2 HR RATINGS ARE SHOWN IN THE TABLE ABOVE.

ACADIA DRYWALL SUPPLIES LTD - TYPE X

CGC INC - TYPES AR, IP-AR, IP-XO, OR ULTRACODE

UNITED STATES GYPSUM CO - TYPES AR, IP-AR, IP-XO, OR ULTRACODE

USG MEXICO S A DE C V - TYPES AR, IP-AR, IP-XO, OR ULTRACODE

4B GYPSUM BOARD* - AS AN ALTERNATE TO ITEM 4 - NOM. 5/8 IN. THICK GYPSUM PANELS, WITH SQUARE EDGES, APPLIED HORIZONTALLY, GYPSUM PANELS FASTENED TO FRAMING WITH 1 IN. LONG BUGLE HEAD STEEL SCREWS SPACED A MAX 8 IN. OC, WITH LAST 2 SCREWS 3/4 IN. AND 4 IN. AND 4 IN. FROM EACH EDGE OF BOARD, HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS ON INTERIOR WALLS (MULTILAYER SYSTEMS) STAGGERED A MIN OF 12 IN.

TEMPLE-INLAND - GREENGLASS TYPE X

NATIONAL GYPSUM CO - TYPE FSW - 6

4C GYPSUM BOARD* - (AS AN ALTERNATE TO ITEMS 4 AND 4A) - 5/8 IN. THICK, 4 FT. WIDE, PAPER SURFACED APPLIED VERTICALLY ONLY AND AS DESCRIBED IN ITEM 5.

CERTAINTEED GYPSUM INC - TYPE SILENTFX

NATIONAL GYPSUM CO - SOUNDBREAK XP TYPE X GYPSUM BOARD

TEMPLE-INLAND - TYPE X COMFORTGUARD SOUND DEADENING GYPSUM BOARD

4D, WALL AND PARTITION FACINGS AND ACCESSORIES* - (AS AN ALTERNATE TO ITEMS 4 THROUGH 4B) ANOM 5/8 IN. THICK, 4 FT WIDE PANELS, APPLIED VERTICALLY AND SECURED AS DESCRIBED IN ITEM 4 SERIOUS ENERGY INC - TYPE QUIETROCK ES, QUIETROCK 527.

5, GYPSUM SHEATHING - FOR EXTERIOR WALLS, 1/2 OR 5/8 IN. THICK CLASSIFIED OR UNCLASSIFIED EXTERIOR GYPSUM SHEATHING APPLIED VERTICALLY AND ATTACHED TO STUDS AND TUNNER TRACKS WITH 1 IN. LONG TYPE S-12 BUGLE HEAD SCREWS SPACED 12 IN. OC, ALONG AND TRACKS. ONE OF THE FOLLOWING EXTERIOR FACINGS ARE TO BE APPLIED OVER THE GYPSUM SHEATHING.

A. SIDING BRICK, OR STUCCO - ALUMINUM SIDING, STEEL SIDING, BRICK VENEER, OR STUCCO ATTACHED TO STUDS OVER GYPSUM SHEATHING AND MEETING THE REQUIREMENTS OF LOCAL CODE AGENCIES. WHEN A MIN 3-3/4 IN. THICK BRICK VENEER FACING IS USED, THE EXTERIOR WALL RATING IS APPLICABLE WITH EXPOSURE ON EITHER FACE. BRICK VENEER WALL ATTACHED TO STUDS WITH CORRUGATED METAL WALL TIES ATTACHED TO EACH STUD WITH STEEL SCREWS, NOT MORE THAN EACH SIXTH COURSE OF BRICK, WHEN A MIN 3-3/4 IN. THICK BRICK VENEER FACING IS USED. FOAMED PLASTIC ITEM 10 MAY BE USED.

B. CEMENTITIOUS BACKER UNITS* - 1/2 OR 5/8 IN. THICK, SQUARE EDGE BOARD, ATTACHED TO STEEL STUDS OVER GYPSUM SHEATHING WITH 1-5/8 IN. LONG, TYPE S-12, CORROSION RESISTANT, WAFER HEAD STEEL SCREWS, SPACED 8 IN. OC, STUDS SPACED A MAX OF 16 IN. OC. JOINTS COVERED WITH GLASS FIBER MESH TAPE.

UNITED STATES GYPSUM CO - DUROCK EXTERIOR CEMENT BOARD OR DUROCK BRAND CEMENT BOARD.

C, FIBER - CEMENT SIDING - FIBER-CEMENTE EXTERIOR SIDINGS INCLUDING SMOOTH AND PATTERNED PANEL OR LAP SIDING.

D. MODEL PLASTIC* - SOLID VINYL SIDING MECHANICALLY SECURED TO FRAMING MEMBERS IN ACCORDANCE WITH MANUFACTURER 'S RECOMMENDED INSTALLATION DETAILS.

ALSIDE, DIV OF ASSOCIATED MATERIALS INC

NEBRASKA PLASTICS INC

E. WOOD STRUCTURAL PANEL OR LAP SIDING - APA RATED SIDING, EXTERIOR, PLYWOOD, OSB OR COMPOSITE PANELS WITH VENEER FACES AND STRUCTURAL WOOD CORE. PER PS 1 OR APA STANDARD PRP-108, INCLUDING TEXTURED, ROUGH SAWN, MEDIUM DENSITY OVERLAY, BRUSHED, GROOVED AND LAP SIDING,

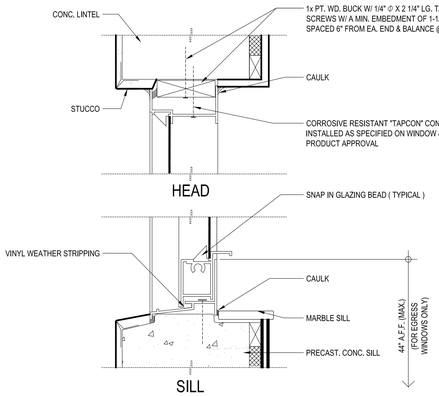
F, BUILDING UNITS* - (NOT SHOWN) - 3 IN. THICK 18 X 24 IN. CELLULAR GLASS BLOCKS, APPLIED TO THE GYPSUM SHEATHING ITEM 5) WITH PC 88 ADHESIVE OR FASTENED WITH F ANCHORS SPACED A MAXIMUM 24 IN. OC, F ANCHORS FASTENED TO FRAMING MEMBERS WITH 1-1/4 IN. LONG #8 DRIVALL

PITTSBURGH CORNING CORP - TYPE FOAMGLAS

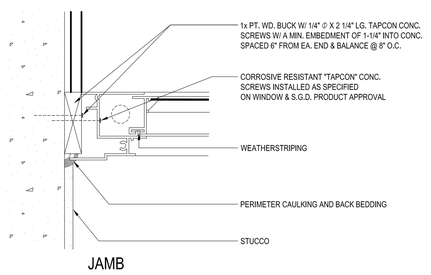
G, FASTENERS - (NOT SHOWN) - SCREWS USED TO ATTACH WALLBOARD TO STUD; SELF-TAPPING BUGLE HEAD SHEET STEEL TYPE, SPACED 12 IN, O.C., FIRST LAYER TYPE S-12 BY 1 LONG FOR 1/2 AND 5/8 IN. THICK WALLBOARDS AND 1-1/4 IN. LONG FOR 3/4 IN. THICK WALLBOARD, SECOND LAYER TYPE S-12 BY 1-5/8 IN. LONG FOR 1/2 AND 5/8 IN. THICK WALLBOARDS AND 2-1/4 IN. LONG FOR 3/4 IN. THICK WALLBOARD, THIRD LAYER TYPE S-12 BY 1-7/8 IN. LONG.

H. BATTS AND BLANKETS* - PLACED IN STUD CAVITIES OF ALL EXTERIOR WALLS, MAY OR MAY NOT BE USED IN INTERIOR WALLS. ANY GLASS FIBER OR MINERAL WOOL BATT MATERIAL BEARING THE UL CLASSIFICATION MARKING AS TO FIRE RESISTANCE, OF A THICKNESS TO COMPLETELY FILL STUD CAVITY.

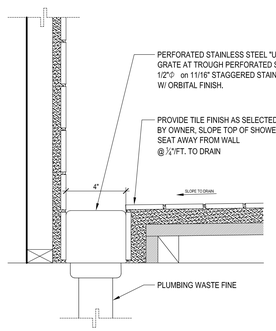
SEE BATTS AND BLANKETS* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED COMPANIES.



9 CBS WINDOW DETAILS
N.T.S



10 SHOWER / LINEAL DRAIN DETAIL
N.T.S



11 FIRE RATED DESIGN UL-425
N.T.S

NOTE: CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION & SITE CONDITIONS

VINAYAGAR M. BALAKRISHNAN V.
LICENSE
No. 63107
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
Digitally signed by Balakrishnan Vinayagar
Date: 2023.05.12 14:58:14 -04'00'

VINAYAGAR M. BALAKRISHNAN V.
P.E. No. 63107 FLORIDA
6175 NW 167 ST, SUITE G-20
MIAMI, FL 33015
PH: 305-2445424

PROJECT NAME

2027 RESIDENCE

NEW SINGLE FAMILY

PROJECT ADDRESS

2027 NE 18 ST, CAPE CORAL, FL 33909

REVISION

Project No:	2022 - 254
Scale:	AS NOTED
Date:	01-08-22
Drawn:	Y.L
Checked:	J.V. / R.H. / V.M.B.
CADD File:	2027 NE 18 ST, CAPE CORAL 09-27-22.dwg

DRAWN

JOSE VALERO
DRAFTING SERVICES
305-491-4347
www.jvdd.pro

DRAWING TITLE

DETAILS

SHEET NO.

A-6

GENERAL STRUCTURAL NOTES

CODES AND STANDARDS

1. WIND LOADS AS PER:
   A. FLORIDA BUILDING CODE 2020 7TH EDITION AND ASCE 7–16 FOR A 160 MPH 3–SECOND ULTIMATE GUST VELOCITY, EXPOSURE "C", RISK CATEGORY II.

2. THE PROJECT WAS DESIGNED IN ACCORDANCE WITH THE:
   A. FLORIDA BUILDING CODE 2020 7TH EDITION AND ASCE 7–16.
   B. BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318 LATEST EDITION).
   C. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315 LATEST EDITION).
   D. MANUAL OF STANDARD PRACTICE FOR WELDING REINFORCING STEEL, INSERTS & CONNECTIONS IN REINFORCED CONCRETE CONSTRUCTION. AWS. D1.4 LATEST EDITION.
   E. SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS, ACI 301 LATEST EDITION.
   F. BUILDING CODE REQUIREMENTS AND SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530 LATEST EDITION).
   G. SPECIFICATION FOR THE DESIGN, FABRICATION & ERECTION OF STRUCTURAL STEEL FOR BUILDINGS. (AMERICAN INSTITUTE OF STEEL CONSTRUCTION) AISC ASD/ 9TH EDITION.

3. ARCHITECTURAL AND MECHANICAL DRAWINGS:
   A. THE STRUCTURAL DRAWINGS ARE PART OF THE CONTRACT DOCUMENTS AND DO NOT BY THEMSELVES PROVIDE ALL THE INFORMATION REQUIRED TO PROPERLY COMPLETE THE PROJECT STRUCTURE. THE GENERAL CONTRACTOR SHALL CONSULT THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND COORDINATE THE INFORMATION CONTAINED IN THESE DRAWINGS WITH THE STRUCTURAL DRAWINGS TO PROPERLY CONSTRUCT THE PROJECT.
   B. REFER TO ARCHITECTURAL, MECHANICAL OR ELECTRICAL DRAWINGS FOR ADDITIONAL OPENINGS, DEPRESSIONS, FINISHES, INSERTS, BOLTS SETTINGS, DRAINS, REGLETS, ETC.
   C. BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK, THE CONTRACTOR SHALL VERIFY ALL MEASUREMENTS TO PROPERLY SIZE OR FIT THE WORK. NO EXTRA CHARGE OR COMPENSATION WILL BE ALLOWED BY THE OWNER RESULTING FROM THE CONTRACTOR'S FAILURE TO COMPLY WITH THIS REQUIREMENT.
   D. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH AFFECTED WORK.

4. SECTIONS AND DETAILS:
   ALL DETAILS, SECTIONS AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS ELSEWHERE UNLESS OTHERWISE SHOWN.

SAFETY OSHA AND LABOR LAWS.

-THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING ETC. THAT MAY BE NECESSARY. SUCH MATERIAL SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE PROJECT.

-THE STRUCTURAL ENGINEER OF RECORD DOES NOT POSSES, NOR PRESUMES TO POSSES ANY KNOWLEDGE OR EXPERTISE IN MATTERS TO JOB SITE EMPLOYEE SAFETY, OSHA OR LABOR LAW REQUIREMENTS FOR A CONSTRUCTION PROJECT. SAFETY AND COMPLIANCE WITH OSHA AND LABOR LAWS ARE THE ABSOLUTE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND THOSE CONSULTANTS HE HIRES TO ADDRESS THESE MATTERS. THE STRUCTURAL ENGINEER OF RECORD SPECIALIZES IN STRUCTURAL DESIGN ONLY, AND THE BOARD OF PROFESSIONAL REGULATION FORBIDS HIM FROM ASSUMING RESPONSIBILITY OUTSIDE HIS AREA OF EXPERTISE

EXISTING CONDITIONS:

-EXTREME CARE MUST BE USED DURING ALL NEW EXCAVATION, FOUNDATION AND DEMOLITION WORK SO AS NOT TO UNDERMINE ANY OF THE EXISTING FOUNDATION THAT MUST REMAIN.
-ALL REQUIRED STRUCTURAL DEMOLITION OF UPPER LEVELS MUST BE COMPLETED PRIOR TO PERFORMING ANY NEW FOUNDATION WORK.

SPECIALTY ENGINEERED PRODUCTS

THE GENERAL CONTRACTOR IS RESPONSIBLE TO COORDINATE THE PROPER SUBMISSION OF SPECIALTY ENGINEERED SHOP DRAWINGS WHICH SHALL BE SIGNED AND SEALED BY AN ENGINEER REGISTERED IN THE STATE OF FLORIDA. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO ASSURE THAT THE SPECIALTY ENGINEERED SHOP DRAWINGS ARE SUBMITTED IN A TIMELY MANNER SO AS TO ALLOW REVIEWS AND RESUBMISSIONS AS REQUIRED. ALL SPECIALTY ENGINEERED PRODUCTS SHALL BE DESIGNED FOR THE APPROPRIATE GRAVITY LOADS AND PROJECT WIND LOADS.

FOUNDATION

1. ALL SITE PREPARATION AND EXCAVATION WORK IS TO BE PERFORMED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE SOILS AND FOUNDATIONS INVESTIGATION PREPARED BY THE OWNER'S TESTING LABORATORY PRIOR TO FOUNDATION WORK.
2. A SOILS REPORT IS NOT CURRENTLY AVAILABLE TO THE STRUCTURAL ENGINEER. A BEARING CAPACITY OF 2000 PSF HAS BEEN ASSUMED FOR THE DESIGN OF THE FOUNDATION, AT THE TIME OF CONSTUCTION, A FLORIDA REGISTERED SOILS ENGINEER SHALL BE HIRED BY THE CONTRACTOR TO VERIFY THE ASSUMED BEARING CAPACITY BY MEANS OF A SIGNED AND SEALED REPORT BASED ON A SOILS BORING TEST. SHOULD A DIFFERENT CONDITION BE OBSERVED THAT PREVENTS THE ASSUMED BEARING CAPACITY, THE ENGINEER OF RECORD SHALL BE INFORMED IN WRITING SO THAT THE FOOTINGS CAN BE ANALYZED AGAIN FOR THE SITE CONDITIONS.
3. FOUNDATIONS HAVE BEEN DESIGNED AS SHALLOW FOUNDATIONS FOR A MAXIMUM ALLOWABLE SOIL BEARING CAPACITY OF 2000 POUNDS PER SQUARE FOOT. SOIL SHALL BE PROPERLY COMPACTED AS STATED IN GEOTECHNICAL REPORT.
4. SOILS SUPPORTING ALL FOOTINGS MUST BE INSPECTED AND APPROVED BY A REGISTERED SOILS ENGINEER BEFORE COMMENCING WORK. APPROVAL IN WRITING MUST INDICATE THE SOIL IS ADEQUATE TO SAFELY SUSTAIN SOIL BEARING PRESSURE OF 2000 PSF.
5. EXCAVATION & BACKFILL:
   A. ALL EXCAVATION SHALL BE COMPACTED DRY. EXCAVATE TO DEPTHS AND DIMENSIONS INDICATED. TAKE EVERY PRECAUTION TO GUARD AGAINST ANY MOVEMENT OR SETTLEMENT OF ADJACENT STRUCTURES, UTILITIES, PIPING, ETC.
   B. PROVIDE ANY BRACING OR SHORING NECESSARY TO AVOID SETTLEMENT OR DISPLACEMENT OF EXISTING FOUNDATION OR STRUCTURES.
6. DIMENSIONS: ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE STRUCTURAL DRAWINGS MUST BE VERIFIED AND COORDINATED WITH THE ARCHITECTURAL DRAWINGS BY THE CONTRACTOR BEFORE PROCEEDING WITH THE CONSTRUCTION. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IN WRITING BEFORE PROCEEDING WITH ANY WORK.

CONCRETE

1. CONCRETE ELEMENTS TO HAVE THE FOLLOWING STRENGTHS:

A.	FOOTINGS	3000 PSI
B.	GROUND FLOOR SLAB	3000 PSI
C.	COLUMNS AND TIE COLUMNS	3000 PSI
D.	TIE BEAMS & BOND BEAMS	3000 PSI
E.	MASONRY GROUT	3000 PSI

   ALL OTHER CONCRETE TO BE 3000 PSI UNLESS NOTED OTHERWISE.
2. ALL CONCRETE SHALL BE READY MIX, HAVE A MINIMUM COMPRESSIVE STRENGTH OF:
   A. 3000 PSI @ 28 DAYS AND HAVE A MINIMUM OF 517 LBS. OF CEMENT PER CUBIC YARD.
   B. 4000 PSI @ 28 DAYS AND HAVE A MINIMUM OF 587 LBS. OF CEMENT PER CUBIC YARD.
3. ALL CONCRETE WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE ACI BUILDING CODE (ACI 318) AND THE SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301).
4. SUBMIT ALL REINFORCING STEEL SHOP DRAWINGS FOR APPROVAL PRIOR TO ANY FABRICATION.
5. CONCRETE COVER FOR REINFORCING STEEL SHALL BE AS REQUIRED BY THE ACI SPECIFICATIONS (SEE NOTE 10 BELOW).
6. WELDED WIRE FABRIC SHALL COMPLY WITH ASTM A 185, UNLESS OTHERWISE SPECIFIED. PLACE FABRIC 2" CLEAR FROM TOP OF THE SLAB IN SLAB ON GRADE EACH WAY.
7. REQUIREMENTS:
   A. ALL REINFORCING STEEL SHALL BE MANUFACTURED FROM HIGH STRENGTH BILLET STEEL CONFORMING TO ASTM DESIGNATION A 615 GRADE 60.
   B. WWF SHALL COMPLY WITH ASTM A 185.
8. LAP ALL BARS MINIMUM 36 DIAMETERS UNLESS OTHERWISE NOTED ON DRAWINGS. LAP ALL WWF A MINIMUM OF 6 INCHES (UNLESS OTHERWISE NOTED).
9. REINFORCING BARS:
   A. AT CORNERS OF CONCRETE WALLS, TIE BEAMS AND CONTINUOUS WALL FOOTINGS, PROVIDE 1–#5 X 2'–0" X 2'–0" BENT BAR FOR EACH HORIZONTAL BAR SCHEDULED AT EACH FACE.
   B. WHERE COLUMNS ARE AN INTEGRAL PART OF CONCRETE WALLS, WALL REINFORCEMENT SHALL BE CONTINOUS THRU THE COLUMNS.
   C. ALL HOOKS SHOWN IN REINFORCEMENT SHALL BE CRSI RECOMMENDED HOOKS UNLESS OTHERWISE NOTED.
   D. CONTRACTOR SHALL INCLUDE IN HIS BASE BID THE COST OF 10,000 LBS. OF ADDITIONAL REINFORCING STEEL, INCLUDING FABRICATION, BENDING, FURNISHING AND PLACING. THIS EXTRA STOCK SHALL BE FURNISHED AND USED FOR SPECIAL CONDITIONS AS DIRECTED BY THE ARCHITECT, THE ARCHITECT'S AGENT OR BY THE OWNER'S CONSTRUCTION SUPERVISOR. THE PRICE OF THE UNUSED EXTRA STOCK SHALL BE CREDITED TO THE OWNER'S ACCOUNT.
10. MINIMUM CONCRETE COVERAGE FOR REINFORCING BARS:

STRUCTURAL ELEMENT	MIN. CLEAR COVER (inches)
FOOTINGS, (CAST AGAINST & PERMENTLY EXPOSED TO THE EARTH)	3
FOOTINGS AND WALLS (CAST–IN–FORMS PERMENTLY EXPOSED TO THE EARTH)	2
SLABS ON GRADE	2
BEAMS (TO STIRRUPS)	1 1/2
PEDESTALS (TO TIES)	2
COLUMNS (TO TIES) ABOVE GRADE	1 1/2
SLABS ABOVE GRADE	3/4
SLABS EXPOSED TO WEATHER	1 1/2

11. CONCRETE LINTELS:
   A. PROVIDE PRE–CAST CONCRETE LINTELS BY CAST–CRETE (OR EQUAL) AT ALL WINDOWS AND DOORS LOCATED WITHIN MASONRY OPENINGS (U.N.O).
   B. LINTELS TO HAVE 8" MINIMUM BEARING AT EACH END.

REINFORCED MASONRY

1. MASONRY UNITS SHALL BE ASTM C 90 GRADE N ALL CMU SHALL BE LAID IN A FULL BED OF MORTAR IN RUNNING BOND (U.N.O.).
2. FOLLOWING ARE THE BLOCK STRENGTHS REQUIRED:
   A. ASTM C 90 – 2,000 PSI ON NET AREA OF INDIVIDUAL UNITS
3. ALL MORTAR SHALL BE TYPE S (OR TYPE M) IN ACCORDANCE WITH ASTM SPECIFICATION C270 WITH A MINIMUM COMPRESSIVE STRENGTH OF 1,800 PSI AT 28 DAYS, (2500 WITH TYPE M) FROM FIELD OBTAINED TEST CUBES. (MIN.OF TWO)
4. GROUT SHALL BE A HIGH SLUMP MIX HAVING A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI FROM FIELD OBTAINED TEST CUBES. (MIN. OF TWO)
5. ALL CONCRETE MASONRY BEARING AND SHEAR WALLS SHALL BE INSPECTED BY A QUALIFIED ENGINEER AND CONSTRUCTED IN ACCORDANCE WITH THE "BUILDING CODE REQUIREMENT FOR MASONRY STRUCTURES" (ACI 530) AND "SPECIFICATIONS FOR MASONRY STRUCTURES" (ACI 530.1).
6. PROVIDE HOT DIPPED GALVANIZED LADDER TYPE HORIZONTAL JOINT REINFORCEMENT (9 GA.) AT EVERY OTHER COURSE IN ALL MASONRY WALLS. PROVIDE DOVE TAIL SLOT ANCHORS AT CONCRETE COLUMNS.

PRECAST CONCRETE

1. PRECAST CONCRETE JOISTS SHALL BE DESIGNED TO SUPPORT SLAB WEIGHT PLUS UNIFORM DEAD AND LIVE LOADS SHOWN IN GENERAL NOTES PLUS CMU WALL WEIGHTS WHERE APPLICABLE, AT THE SPACINGS DESCRIBED ON PLANS.
2. ALL PRECAST ELEMENTS SHALL HAVE PROPORTIONS AND REINFORCING COVER CONSISTENT WITH A 3–HOUR FIRE RATING FOR A RESTRAINED SYSTEM.
3. PRECAST JOISTS SHALL BE DESIGNED TO LIMIT LIVE LOAD DEFLECTIONS TO NO MORE THAN SPAN/360 EXCEPT FOR JOISTS SUPPORTING CMU WALLS, WHICH SHALL LIMIT LIVE LOAD DEFLECTION TO SPAN/480.
4. LONG–TERM DEFLECTIONS SHALL BE DETERMINED IN ACCORDANCE WITH ACI 318–99, SECTIONS 9.5 AND 9.5.4. LIMIT LONG–TERM DEFLECTIONS TO SPAN/480.
5. ALL PRECAST MEMBERS SHALL HAVE POSITIVE CAMBER AT ERECTIONS, AND SHALL BE DESIGNED TO HAVE NO MORE THAT SPAN/1000 NEGATIVE CAMBER AFTER SLAB PLACEMENT.
6. MINIMUM 28–DAY CONCRETE STRENGTH FOR PRECAST SHALL BE 5000 PSI.
7. COORDINATED ATTACHMENT OF ANY ITEM TO PRECAST JOISTS OR SOFFITS. DO NOT USE EXPANSION ANCHORS OR ANY OTHER FASTENER THAT PENETRATES THE CONCRETE SURFACE WITHOUT WRITTEN AUTHORIZATION FROM BOTH THE PRECAST SUPPLIER AND THE ENGINEER–OF–RECORD.

SLAB ON FILL (PLACED ACCORDING TO ACI 302):

–JOINTS:
–ISOLATION JOINTS MUST BE USED AT JUNCTIONS WITH WALLS AND COLUMNS. USE 1/2" THICK PREMOLDED JOINTS FULL DEPTH OF SLAB. CONTROL JOINTS PLACED AT CENTERLINE OF COLUMN LINES PROVIDE INTERMEDIATE JOINTS IF COLUMN SPACING IS GREATER THAN 30'. IN SIDEWALKS PROVIDE TOOLED JOINTS SPACED AT INTERVALS EQUAL TO THE WIDTH OF THE SLAB.

4" & 5" SLABS _____ 1" DEEP TOOLED

–JOINTS MUST BE SAWED BEFORE 24 HOURS AFTER CONCRETING CONSTRUCTION. JOINTS MUST BE PLACED IN THE SLAB WHERE BUILDING EXPANSION JOINTS ARE SHOW AND WHERE CONTROL JOINTS ARE SHOW OR AS PER FOLLOWING.

4" THICK_____12 FT	8" THICK_____20 FT
5" THICK_____13 FT	9" THICK_____23 FT
6" THICK_____15 FT	10" THICK_____25 FT
7" THICK_____18 FT	

WHEN CONCRETING AND OPERATING ARE CONCLUDED FOR THE DAY, CONSTRUCTION JOINTS SHALL BE FORMED WITH BURKE KEYED COLD METAL JOINT FORM OR APPROVED EQUAL.

–VAPOR BARRERS:

WATERPROOF MEMBRANES NOT LESS THAN 6–MIL POLYVINYL CHLORIDE (OVERLAPPED 6" AT JOINTS) WITH A PERMEANCE OF LESS THAN 0.3% PERMS IN ACCORDANCE WITH ASTM E–96 SHALL BE PROVIDED UNDER INTERIOR SLAB WHERE NO VAPOR BARRIER IS USED. THE SUBGRADE MUST BE DAMPENED WITH WATER IN ADVANCE OF CONCRETING, NO FREE WATER STANDING ON THE SUBGRADE NOR ANY MUDDY OR SOFT SPOT IS PERMITTED.

–ANY STRUCTURAL MEMBER PENETRATING SLAB ON FILL IS TO BE 1/2" PRE–MOLDED JOINT FILLER COMPLYING WITH ASTM D–1752 TYPE I.

–FINISHING:
NO PREMATURE FINISHING SHALL BE ALLOWED. IMMEDIATE FOLLOWING FLOATING TROWELING WITH STEEL TROWELS SHOULD BE COMMENCED IF REQUIRED BROOMING SHALL BE AFTER THE STEEL TROWELING OPERATION.

–SLAB FINISHES (UNLESS OTHERWISE NOTED BY THE ARCHITECT)

BUILDING_____STEEL TROWELED.
OUTSIDE SLAB_____BROOMED.

BUILDING PAD PREPARATION

-REMOVE ALL VEGETATION, SOILS AND ORGANIC MATERIALS WITHIN THE BUILDING AREAS PLUS TWO (2) FEET OUTSIDE THE BUILDING FOOTPRINT, DOWN TO THE LIMESTONE STRATUM. THE AREA UNDER FOUNDATIONS AND CONCRETE SLABS ON GRADE SHALL HAVE ALL VEGETATION, SLUMPS, ROOTS AND FOREIGN MATERIALS REMOVED PRIOR TO PLACEMENT OF FILL.

-IF ANY FILL MATERIAL IS TO BE PLACED BELOW WATER LEVEL, BULK PLACE FILL CAREFULLY TO AVOID MATERIAL SEGREGATION TO APPROXIMATELY ONE FOOT ABOVE THE GROUND WATER LEVEL. COMPACT TO A MINIMUM OF 98 PERCENT OF THE DRY SOIL DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST ASTM D-1557.

-EACH LIFT OF FILL MATERIAL AND EXCAVATED FOOTINGS SHALL BE COMPACTED UNTIL A DENSITY EQUIVALENT TO AT LEAST 98 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY TEST (ASTM D-1557) IS ACHIEVEDTO A DEPTH OF AT LEAST 12 INCHES BELOW THE COMPACTED SURFACE AND PRIOR TO PLACEMENT OF ANY ADDITIONAL FILL REQUIRED. PRIOR TO COMPACTION, THE MOISTURE CONTENT OF FILL MATERIAL SHALL BE ADJUSTED TO WITHIN PLUS/MINUS 2 PERCENT OF THE OPTIMUM MOISTURE AS DETERMINED BY THE MODIFIED PROCTOR TEST (ASTM D-1557).

-COMPACTION OF BUILDING SITE SHALL BE VERIFIED BY MEANS OF ONE FIELD DENSITY TEST FOR EACH 2000 SQUARE FEET OR FRACTION THEREOF FOR EACH LIFT OF COMPACTED SOIL FOR BUILDING PAD OR SLAB AREA. ONE FIELD DENSITY TEST WILL ALSO BE REQUIRED FOR EVERY 50 LINEAR FEET OF EXCAVATED SPREAD FOOTINGS, AND EVERY ISOLATED FOOTING EXCAVATION FIELD DENSITY TESTS SHALL BE PERFORMED AS PER ASTM D-2922.

-ALL GEOTECHNICAL WORK MUST BE PERFORMED UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER.

TERMITE PROTECTION STATEMENT

-TERMITE PROTECTION SHALL BE PROVIDED BY REGISTERED TERMITICEDES, INCLUDING SOIL APPLIED PESTICIDES, BAITING SYSTEMS, AND PESTICIDES APPLIED TO WOOD, OR OTHER APPROVED METHODS OF TERMITE PROTECTION LABELED FOR USE AS A PREVENTATIVE TREATMENT TO NEW CONSTRUCTION. UPON COMPLETION OF THE APPLICATION OF THE TERMITE PROTECTIVE TREATMENT, A CERTIFICATE OF COMPLIANCE SHALL BE ISSUED TO THE BUILDING DEPARTMENT BY THE LICENSED PEST CONTROL COMPANY THAT CONTAINS THE FOLLOWING STATEMENT, "THE BUILDING HAS RECEIVED A COMPLETE TREATMENT FOR THE PREVENTION OF SUBTERRANEAN TERMITES. TREATMENT IS IN ACCORDANCE WITH RULES AND LAWS ESTABLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES" IN COMPLIANCE WITH FBC 2017 R318.

WOOD

-ALL WOOD PRODUCTS SHALL BE STAMPED WITH AN APPROPRIATE GRADE DESIGNATION. NO STAMPED MEMBER SHALL BE USED IF MEMBER HAS BECOME DEFECTIVE.

-ALL JOISTS AND RAFTERS SHALL HAVE A MIN. STRESS GRADE OF Fb = 1350 PSI, E=1,800,000 PSI (SOUTHERN YELLOW PINE No1 DENSE)

-TRUSS MANUFACTURER TO SUBMIT SIGNED AND SEALED SHOP DRAWINGS AND CALCULATIONS FOR APPROVAL INDICATING ALL REACTIONS TO THE SUPPORTING STRUCTURE.

-ALL SOUTHERN PINE WOOD OR PLYWOOD EXPOSED TO THE EXTERIOR TO BE PRESSURE TREATED.
-ALL BOLTS SHALL BE USED WITH A CORRESPONDING NUT AND WASHER.

–ALL WOOD STRAPS SHALL BE SECURED TO THE BEARING PARTITIONS OR THE BEAMS WITH HURRICANE STRAPS.

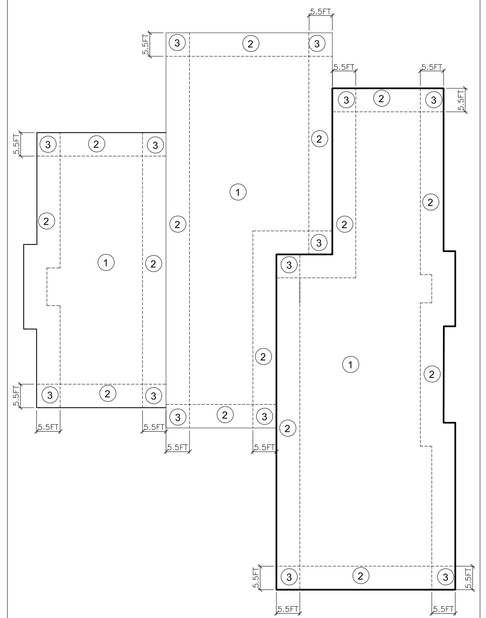
–PROVIDE AN 18 GAGE METAL STRAP TO TIE DOWN ALL WOOD TO THE MAIN.

–ALL JOISTS AND RAFTERS DESIGNATED AS "GLT" INDICATES 24F–1.7E (V4) SOUTHERN PINE GLUED LAMINATED TIMBER.

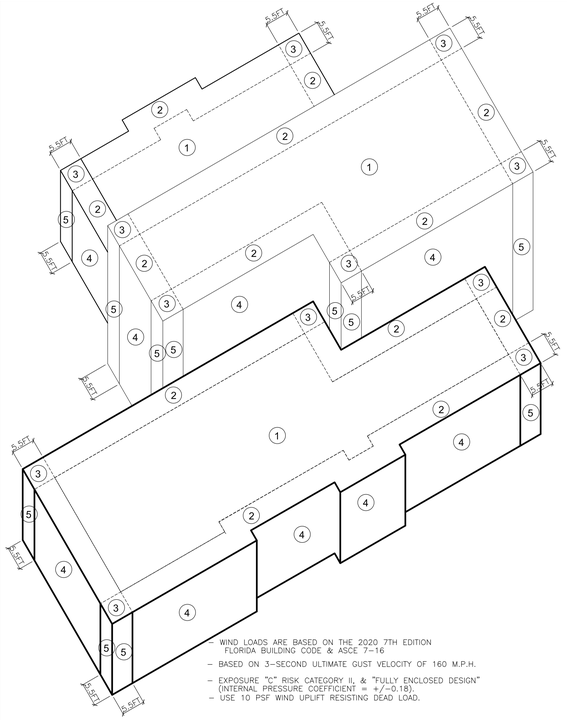
SHORING, RE–SHORING, AND TEMPORARY BRACING

-ALL SHORING, RE–SHORING AND TEMPORARY BRACING REQUIRED IN THIS PROJECT IS TO BE DESIGNED BY FLORIDA PROFESSIONAL ENGINEER WHO SPECIALIZES IN FORM WORK/TEMPORARY BRACING DESIGN AND WHO HAS BEEN HIRED BY THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR IS THE ULTIMATE RESPONSIBLE PARTY FOR SHORING, RE–SHORING, AND TEMPORARY BRACING REQUIRED ON THIS PROJECT AND MUST SATISFY HIMSELF WITH THE ADEQUACY OF THE INSTALLATION OF THESE ITEMS AT ALL TIMES. IN THE SPECIFIC CASE OF POURED SLABS IT IS HIGHLY RECOMMENDED THAT THE GENERAL CONTRACTOR SEQUIRE FROM THE SHORING DESIGNER A CERTIFICATION OF THE INSTALLED SHORING PRIOR TO THE PLACEMENT OF CONCRETE.

WIND ZONES ROOF



WIND ZONES WALLS



– WIND LOADS ARE BASED ON THE 2020 7TH EDITION FLORIDA BUILDING CODE & ASCE 7–16
– BASED ON 3–SECOND ULTIMATE GUST VELOCITY OF 160 M.P.H.
– EXPOSURE "C" RISK CATEGORY II, & "FULLY ENCLOSED DESIGN" (INTERNAL PRESSURE COEFFICIENT = +/– 0.18).
– USE 10 PSF WIND UPLIFT RESISTING DEAD LOAD.

WINDZONE DIAGRAM

SCALE = N.T.S.

- ALL COMPONENTS AND CLADDING DESIGNED FOR A 3–SECOND ULTIMATE GUST VELOCITY OF 160 M.P.H. USING ASCE 7–16 WIND LOAD DERIVATIVES.

COMPONENTS AND CLADDING WIND LOAD SCHEDULE

COMPONENTS & CLADDING	ROOF WIND LOADS														
	ROOF AREA (TRIBUTARY)														
	1					2					3				
	10 S.F.	20 S.F.	50 S.F.	≥ 100 S.F.		10 S.F.	20 S.F.	50 S.F.	≥ 100 S.F.		10 S.F.	20 S.F.	50 S.F.	≥ 100 S.F.	
PRESSURE (PSF)	13.92	13.05	11.89	11.02		13.92	13.05	11.89	11.02		13.92	13.05	11.89	11.02	
SUCTION (PSF)	–34.22	–33.35	–32.19	–31.32		–56.55	–51.33	–43.21	–37.12		–84.39	–71.63	–51.91	–37.12	

COMPONENTS AND CLADDING WIND LOAD SCHEDULE

COMPONENTS & CLADDING	WALL WIND LOADS									
	WALL AREA (TRIBUTARY)									
	4					5				
	10 S.F.	20 S.F.	50 S.F.	100 S.F.	≥ 500 S.F.	10 S.F.	20 S.F.	50 S.F.	100 S.F.	≥ 500 S.F.
PRESSURE (PSF)	31.03	29.87	28.13	26.68	25.52	31.03	29.87	28.13	26.68	25.52
SUCTION (PSF)	–33.64	–32.48	–30.74	–29.29	–28.42	–41.47	–38.86	–35.38	–32.48	–28.42

DESIGN CRITERIA:

(SUPERIMPOSED LOADS)
-LIVE LOAD: _____ 20 PSF (ROOF)
-DEAD LOAD: _____ 20 PSF (ROOF)
-WIND LOAD: _____ PER A.S.C.E. 7–16
RISK CATEGORY: II
EXPOSURE - "C"
WIND VELOCITY: 160 MPH

INDEX OF DRAWINGS

ABBREVIATIONS:

ADD'L, ADD – ADDITIONAL
L – ANGLE
AB, ABOLT – ANCHOR BOLT
LG – LONG
ARCH. – ARCHITECTURAL
@ – AT
BLDG. – BUILDING
BLK – BLOCK
BM – BEAM
BOTT, B – BOTTOM. BOTTOM BAR
BRN'G – BEARING
CJ – CONTROL JOINT
CL. – CLEAR
COL. – COLUMN
CONC. – CONCRETE
CONN. – CONNECTION
C.M.U. – CONCRETE MASONRY UNIT
CONST. – CONSTRUCTION
CONT. – CONTINUOUS
CONTR – CONTRACTOR
D – DEEP
DB – DROP BEAM
DSN. – DESIGN
DET, DTL – DETAIL
DIA, ø – DIAMETER
DIAG. – DIAGRAM
DIM. – DIMENSION
DWG. – BRACING (BEYOND)
DWL. – DOWEL
EA. – EACH
EF – EACH FACE
EW. – EACH WAY
ELEV, EL – ELEVATION
E.T.F. – ELEVATION TOP OF FOOTING
ETC. – ETCETERA
EQ – EQUAL
EXIST, EXT'G – EXISTING
EXP. – EXPANSION
EXP. JT., EJ – EXPANSION JOINT
EXT. – EXTERIOR
F/ – FACE OF
FB – FLUSH BEAM
FIN, FL – FINISH FLOOR
FFE – FINISH FLOOR ELEVATION
FL, FLR – FLOOR
FTG. – FOOTING
FT. – FEET /. FOOT
FLG. – FLANGE
GA. – GAGE
GALV. – GALVANIZED
H – HEAD
HK – HOOK
HLT. HIGH LEG TRACK
HR. – HOUR
HORIZ – HORIZONTAL
INFO. – INFORMATION
INT. – INTERIOR
JST. – JOIST
JT. – JOINT
K–FT KIP – FEET
K/FT – KIPS PER FOOT
K – KIPS
LLO. – LONG LEG OUT
LLV. – LONG LEG VERTICAL
LLH. – LONG LEG HORIZONTAL
LOC'N – LOCATION
M – MOMENT
MFG., MFGR – MANUFACTURER
MECH – MECHANICAL
MPH – MILE PER HOUR
MATL – MATERIAL
MAX. – MAXIMUM
MIN. – MINIMUM
MTL – METAL
MISC. – MISCELLANEOUS
N.I.C. – NOT IN CONTRACT
NO. – NUMBER
N.T.S. – NOT TO SCALE
O/C, O.C. – ON CENTER
OPNG. – OPENING
O.H. – OPPOSITE HAND
P – PAN
P.A.F. – POWDER ACTUATED FASTENER
PL – PLATE
P.T. – POST TENSIONED
PTS – POINTS
PHSE – PENTHOUSE
P.S.F. – POUNDS PER SQUARE FOOT
P.S.I. – POUNDS PER SQUARE INCH
REF. – REFERENCE
REV. – REVISION
REINF. – REINFORCING
REQ'D – REQUIRED
RE–BAR – REINFORCING BAR
SCHD, SCHED. – SCHEDULE
SECT. – SECTION
S.L.V. – SHORT LEG VERTICAL
S.L.H. – SHORT LEG HORIZONTAL
S.L.O. – SHORT LEG OUT
SIM. – SIMILAR
S.O.G. – SLAB ON GRADE
SPECS – SPECIFICATIONS
STD – STANDARD
STIRR – STIRRUPS
STL, ST'L – STEEL
STRUCT. – STRUCTURAL
T – TOP BAR
THK – THICK
THRD – THREADED
THRU – THROUGH
T/S, T/ST'L – TOP OF STEEL
T/B – TOP OF BEAM
T/CONC – TOP OF CONCRETE
T/SLAB – TOP OF SLAB
T/FTG – TOP OF FOOTING
TYP. – TYPICAL
U.N.O. – UNLESS NOTED OTHERWISE
VERT – VERTICAL
GLT – GLUED LAMINATED TIMBER (SEE WOOD NOTE)

NOTE: CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION & SITE CONDITIONS

REVIEWED
FOR CODE COMPLIANCE
CAPE CORAL BUILDING DIVISION
BY: ELKE DATE: 05/30/2023
ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE FLORIDA BUILDING CODE, ALL STATE AND LOCAL CODES. THE GRANTING OF PERMIT DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO COMPLY WITH ALL CODES AND ORDINANCES

105.4.1/PHASE PERMIT.
A permit issued shall be construed to be a license to proceed with the work and not an authority to violate, cancel, alter or set aside any of the provisions of the technical codes, nor shall issuance of a permit prevent the building official from thereafter requiring a correction of errors in plans, construction or violations of this code. Every permit issued shall become invalid unless the work authorized by such permit is commenced within 6 months after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 6 months after the time the work is commenced.

VINAYAGAR M. BALAKRISHNAN V. LICENSE No. 63107 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Balakrishnan Vinayagar
Date: 2023.05.12 14:58:30 -04'00'

VINAYAGAR M. BALAKRISHNAN V.
P.E. No. 63107 FLORIDA
6175 NW 167 ST, SUITE G-20
MIAMI, FL 33015
PH: 305-2445424

PROJECT NAME

2027 RESIDENCE

NEW SINGLE FAMILY

PROJECT ADDRESS

2027 NE 18 ST, CAPE CORAL, FL 33909

REVISION

Project No:	2022 • 254
Scale:	AS NOTED
Date:	01-08-22
Drawn:	Y.L.
Checked:	J.V. / R.H. / V.M.B.
CADD File:	2027 NE 18 ST, CAPE CORAL 09-27-22.dwg

DRAWN

JOSE VALERO
DRAFTING SERVICES
305-491-4347
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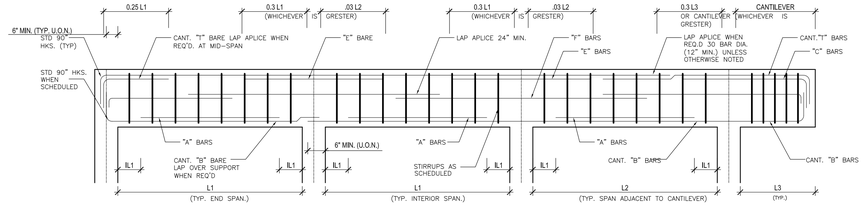
DRAWING TITLE

STRUCTURAL NOTES 1

SHEET NO.

S-0.0



BAR PLACEMENT NOTES:

1. BEAMS SHOWN IN PLAN ARE READ FROM LEFT TO RIGHT.
2. THE MINIMUM CLEAR DISTANCE BETWEEN PARALLEL BARS IN A LAYER SHALL BE EQUAL TO THE NOMINAL DIAMETER OF THE BARS, IN NO CASE SHALL THE CLEAR DISTANCE BETWEEN BARS BE LESS THAN ONE INCH, NOR LESS THAN ONE AND ONE-HALF TIMES THE MAXIMUM SIZE OF THE COARSE AGGREGATE.
3. WHEN REINFORCEMENT IS PLACED IN TWO OR MORE LAYERS, THE CLEAR DISTANCE BETWEEN LAYERS SHALL NOT BE LESS THAN ONE INCH NOR LESS THAN THE DIAMETER OF THE BARS, AND THE BARS IN THE UPPER LAYERS SHALL BE PLACED DIRECTLY ABOVE THOSE IN THE BOTTON LAYER.
4. "B" BARS ARE BOTTON BARS. "B" BARS SHALL EXTEND OVER SUPPORTS 6" MIN. UNLESS OTHERWISE NOTED. "B" BARS MAY BE CONTINUOUS.
5. "A" BARS ARE BOTTON BARS "A" BARS DO NOT EXTEND OVER SUPPORTS. "A" BARS SHALL BE PLACED IN THE SAME LAYER AS "B" BARS (U.O.N.)
6. "T" BARS ARE CONTINUOUS TOP BARS. "T" BARS SHALL BE LAP SPLICED WHEN REQUIRED AT MID-SPAN 30 BAR DIAMETERS (12" MINIMUM) (U.O.N.)

TYPICAL BEAM DIAGRAM

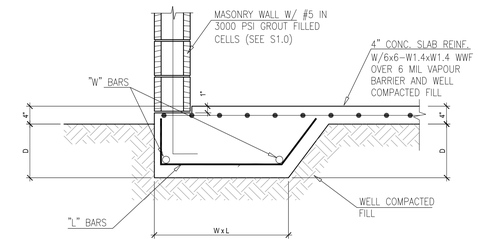
7. "C" BARS ARE TOP BARS AT THE DISCONTINUOUS END OF END SPANS. "C" BARS SHALL BE PLACED IN THE SAME LAYER AS "T" BARS UNLESS OTHERWISE NOTED.
8. "E" BARS ARE TOP BARS OVER INTERIOR SUPPORTS. "E" BARS SHALL BE PLACED IN THE SAME LAYER AS "T" BARS UNLESS OTHERWISE NOTED.
9. "T" BARS SHALL BE EQUALLY SPACED BETWEEN "B" AND "T" BARS, HALF ON EACH VERTICAL FACE. "T" BARS MAY BE CONTINUOUS. SEE BEAM INTERMEDIATE REINFORCEMENT TABLE UNLESS SCHEDULE NOTE.
10. STIRRUPS SPACING IS FROM FACE OF SUPPORT. STIRRUPS SHALL HAVE "B" OR "T" BARS TIED IN EACH CORNER.
11. ALL REINFORCING BARS TO HAVE A MINIMUM OF 1 1/2" CLEAR COVER (U.O.N.). MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE PROVIDED IN ACCORDANCE WITH ACI 318-95, SECTION 7.7.1.
12. STIRRUPS IN THE BEAMS SHALL BE # 3 TIES, 4 AT 12" c/c EACH END, BAL. AT 48" c/c U.N.O.
13. PROVIDE 2-#5 CORNER BARS (EXTEND 30" IN EACH DIRECTION FROM CORNER).
14. WHERE CONC. LINTELS NOT USED DROP TIE-BEAM ABOVE OPENING, ADD 2#5 BOTT AND #3 STIRRUPS @ 8"

BEAM SCHEDULE

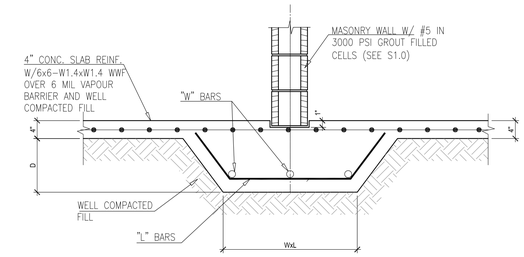
MARK	TOP OF BEAM ELEV.	SIZE (in) W x D	LONGITUDINAL REINFORCEMENT B	A	T	C	E	F	STIRRUPS No	TYPE	SPACING EA. END	REMARKS
TB-1	+13'-0"	8"x16"	2#5+1#4		2#5				#3	▯	@ 12"	
TB-2	+13'-0"	8"x24"	3#5		2#5				#3	▯	@ 8"	
TB-3	VARIES	8"x16"	2#5		2#5				#3	▯	@ 12"	
TB-4	+11'-0"	12"x16"	2#6+1#5		2#5				#3	▯	@ 12"	
TB-5	+10'-0"	8"x24"	2#5		2#5				#3	▯	@ 12"	

FOOTING SCHEDULE

MARK	TYPE	SIZE WxLxD	SOIL COVERAGE	REINFORCEMENT TRANS. ("L" BARS)	REINFORCEMENT LONG. ("W" BARS)
F.1	①	16"xCONT. x 12"	12"	#4 @ 8"	2#5
F.2	②	24"xCONT. x 12"	12"	#4 @ 8"	3#5
F.3	③	24"xCONT. x 12"	12"	#4 @ 8"	3#5 (TOP BARS) 3#5 (BOTTOM BARS)



FOOTING TYPE ①



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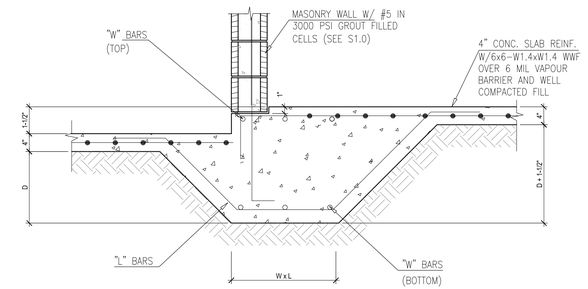

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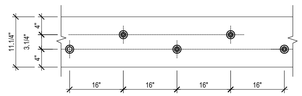
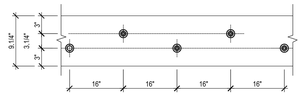
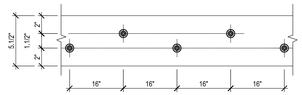


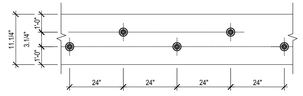
2-2"x12" P.T. WOOD LEDGER W/3/4" ø EXP. BOLTS @ 16" O.C. & 5" MIN. EMBEDMENT STAGGERED AS SHOWN.



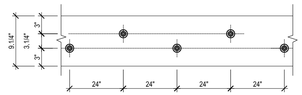
2-2"x10" P.T. WOOD LEDGER W/3/4" ø EXP. BOLTS @ 16" O.C. & 5" MIN. EMBEDMENT STAGGERED AS SHOWN.



2-2"x6" P.T. WOOD LEDGER W/5/8" ø EXP. BOLTS @ 16" O.C. & 5" MIN. EMBEDMENT STAGGERED AS SHOWN.



2"x12" P.T. WOOD LEDGER W/5/8" ø EXP. BOLTS @ 24" O.C. & 5" MIN. EMBEDMENT STAGGERED AS SHOWN.



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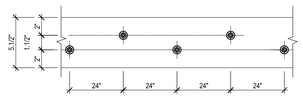


2"x6" P.T. WOOD LEDGER W/5/8" ø EXP. BOLTS @ 24" O.C. & 5" MIN. EMBEDMENT STAGGERED AS SHOWN.

LEDGER TYPICAL DETAIL

REVIEWED
FOR CODE COMPLIANCE
CAPE CORAL BUILDING DIVISION
BY: ELE DATE: 09/29/2023
ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE FLORIDA BUILDING CODE, ALL STATE AND LOCAL CODES. THE GRANTING OF PERMIT DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO COMPLY WITH ALL CODES AND ORDINANCES.
105.4.1Permit intent.
A permit issued shall be construed to be a license to proceed with the work and not as authority to violate, cancel, alter or set aside any of the provisions of the technical codes, nor shall issuance of a permit prevent the building official from thereafter requiring a correction of errors in plans, construction or violations of this code. Every permit issued shall become invalid unless the work authorized by such permit is commenced within 6 months after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 6 months after the time the work is commenced.

NOTE: CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION & SITE CONDITIONS

VINAYAGAR M. BALAKRISHNAN V. LICENSE No. 63107 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Balakrishnan Vinayagar
Date: 2023.05.12 14:58:46 -04'00'

VINAYAGAR M. BALAKRISHNAN V.
P.E. No. 63107 FLORIDA
6175 NW 167 ST, SUITE G-20
MIAMI, FL 33015
PH: 305-2445424

PROJECT NAME

2027 RESIDENCE

NEW SINGLE FAMILY

PROJECT ADDRESS

2027 NE 18 ST, CAPE CORAL, FL 33909

REVISION

Project No:	2022 - 254
Scale:	AS NOTED
Date:	01-08-22
Drawn:	Y.L.
Checked:	J.V. / R.H. / V.M.B.
CADD File:	2027 NE 18 ST, CAPE CORAL 09-27-22.dwg

DRAWN

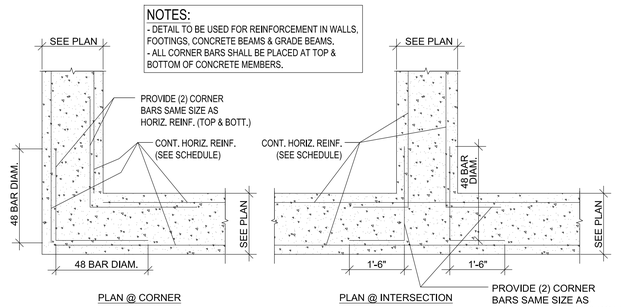
JOSE VALERO
DRAFTING SERVICES
305-914-3417
www.jvdd.pro

DRAWING TITLE

STRUCTURAL NOTES 2

SHEET NO.

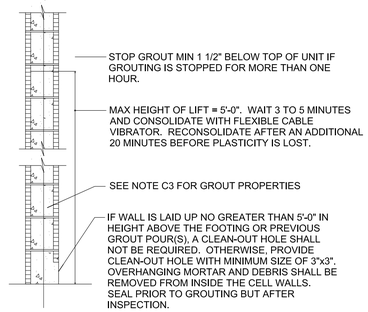
S-0.1



TYPICAL WALL FOOTING DETAIL

SCALE: 3/4"=1'-0"

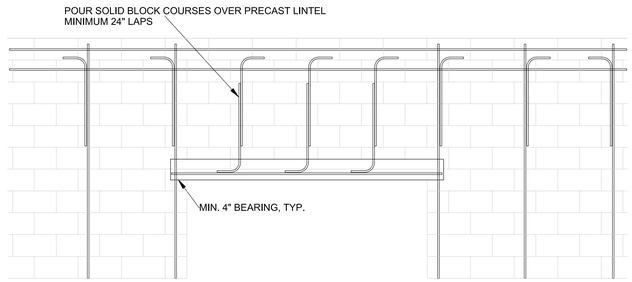
GROUT FOR FILLED CELLS SHALL BE PLACED AS INDICATED BELOW:



NOTES:

1. DO NOT GROUT UNTIL MORTAR HAS SET SUFFICIENTLY TO WITHSTAND THE PRESSURE OF THE GROUT. WAIT NOT LESS THAN 24 HOURS.
2. WAIT A MINIMUM OF 40 MINUTES BEFORE PLACING NEW GROUT ON A PREVIOUS LIFT.
3. MAXIMUM WALL HEIGHT FROM TOP OF FOOTING OR PREVIOUS GROUT POURS LAID UP AT ONE TIME SHALL BE 12'-0".
4. THE MINIMUM CONTINUOUS UNOBSTRUCTED CLEAR AREA IN CELL TO RECEIVE GROUT MUST BE NOT LESS THAN 3"x3". MORTAR FINS MUST BE REMOVED AS BLOCK PLACEMENT PROCEEDS. MORTAR DROPPINGS MUST BE KEPT OUT OF CELLS WHICH ARE TO BE GROUTED.

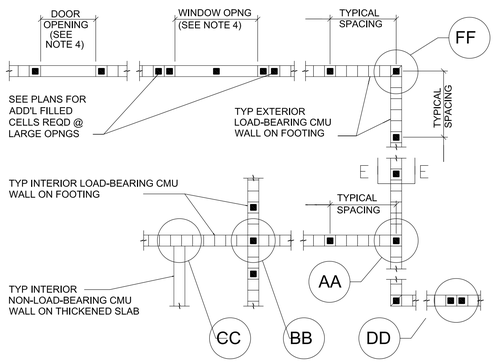
GROUTING DETAIL



TYPICAL - PRECAST LINTEL OVER OPENINGS

SCALE: N.T.S.

TYPICAL MASONRY DETAILS:

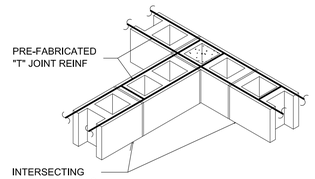


NOTES:

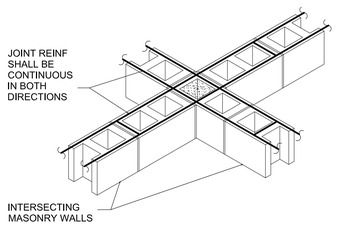
1. SEE DETAIL "DD" FOR LOCATING MASONRY CONTROL JOINTS. CONTRACTOR SHALL SUBMIT MCJ PLAN TO ARCHITECT FOR APPROVAL.
2. SEE ARCHITECTURAL DRAWINGS FOR OPENING SIZES AND LOCATIONS.
3. SEE FDN PLAN NOTES FOR REINFORCED FILLED CELL SIZE & SPACING.
4. IF MASONRY OPENING IS GREATER THAN 4'-0", MULTIPLE FILLED CELLS MAY BE REQUIRED AT JAMBS. OPENINGS AND ADDITIONAL BARS WILL BE SHOWN ON PLAN(S).
5. SEE MASONRY NOTES ON GENERAL NOTE SHEETS FOR HORIZONTAL JOINT REINFORCING AND OTHER ADDITIONAL INFORMATION.

ILLUSTRATIVE PLAN OF VARIOUS CMU WALL CONDITIONS

NTS

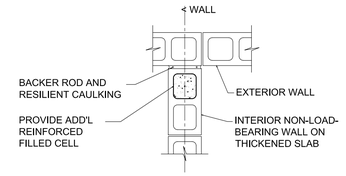


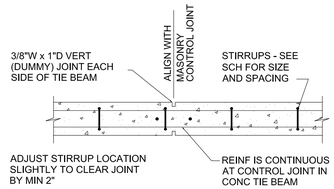
AA WALL INTERSECTION



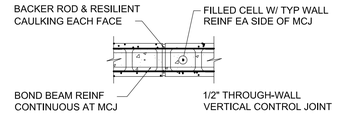
BB WALL INTERSECTION

CC INTERSECTION OF LOAD BRG & NON-LOAD BRG WALLS

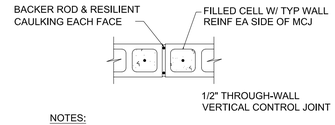




MCJ @ TIE BEAM



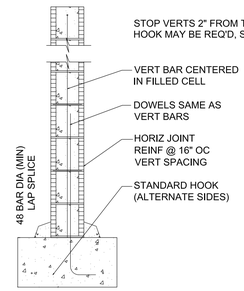
MCJ @ BOND BEAM



NOTES:

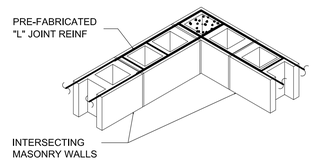
1. THROUGH-WALL JOINT SHALL BE CONTINUOUS WITHOUT INTERRUPTION FROM FOUNDATION TO TOP OF WALL.
2. TERMINATE TYPICAL HORIZONTAL JOINT REINFORCING 2" FROM JOINT.
3. MAXIMUM SPACING OF CONTROL JOINTS SHALL BE 3 x (WALL HEIGHT) OR 50'-0", WHICHEVER IS LESS.

DD MAS CONTROL JOINT (MCJ)



TYPICAL FILLED CELL DETAILS

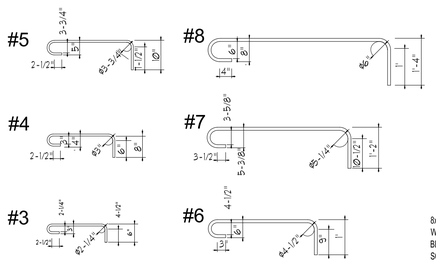
EE



FF CORNER INTERSECTION

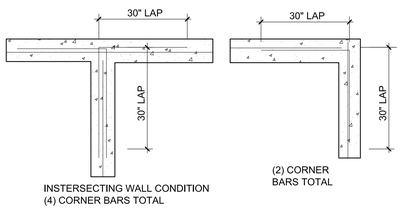
TYPICAL FOOTING CORNER DETAIL

SCALE: N.T.S.



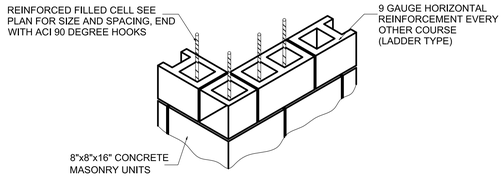
ACI STANDARD HOOKS

SCALE: N.T.S.



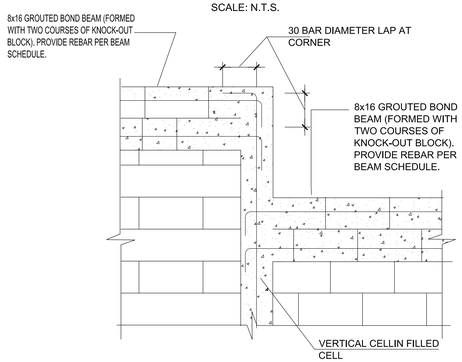
BOND BEAM CORNER BARS

SCALE: N.T.S.



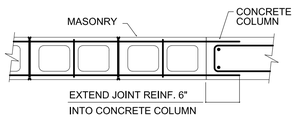
CMU TYPICAL REINFORCEMENT DETAIL

SCALE: N.T.S.



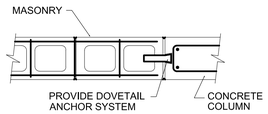
TYPICAL - CHANGE IN BOND BEAM HEIGHT

SCALE: N.T.S.



PLAN VIEW

(MASONRY LAID BEFORE COLUMN)



PLAN VIEW

(MASONRY LAID AFTER COLUMN)

NOTE: CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION & SITE CONDITIONS

REVIEWED
FOR CODE COMPLIANCE
CITY OF CORAL BUILDING DIVISION
BY: EJE DATE: 05/30/2023
ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE FLORIDA BUILDING CODE, ALL STATE AND LOCAL CODES. THE GRANTING OF PERMIT DOES NOT RELIEVE THE OWNER OR CONTRACTOR FROM THE DUTY TO COMPLY WITH ALL CODES AND ORDINANCES.

105.4.1Permit intent.
A permit issued shall be construed to be a license to proceed with the work and not as authority to violate, cancel or set aside any of the provisions of the technical codes, nor shall issuance of a permit prevent the building official from thereafter requiring a correction of errors in plans, construction or violations of this code. Every permit issued shall become invalid unless the work authorized by such permit is commenced within 6 months after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 6 months after the time the work is commenced.

VINAYAGAR M. BALAKRISHNAN V. LICENSE No. 63107 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Balakrishnan Vinayagar
Date: 2023.05.12 14:59:03 -04'00'

VINAYAGAR M. BALAKRISHNAN V.
P.E. No. 63107 FLORIDA
6175 NW 167 ST, SUITE G-20
MIAMI, FL 33015
PH: 305-2445424

PROJECT NAME

2027 RESIDENCE

NEW SINGLE FAMILY

PROJECT ADDRESS

2027 NE 18 ST, CAPE CORAL, FL 33909

REVISION

Project No:	2022 - 254
Scale:	AS NOTED
Date:	01-08-22
Drawn:	Y.L.
Checked:	J.V. / R.H. / V.M.B.
CADD File:	2027 NE 18 ST, CAPE CORAL 09-27-22.dwg

DRAWN

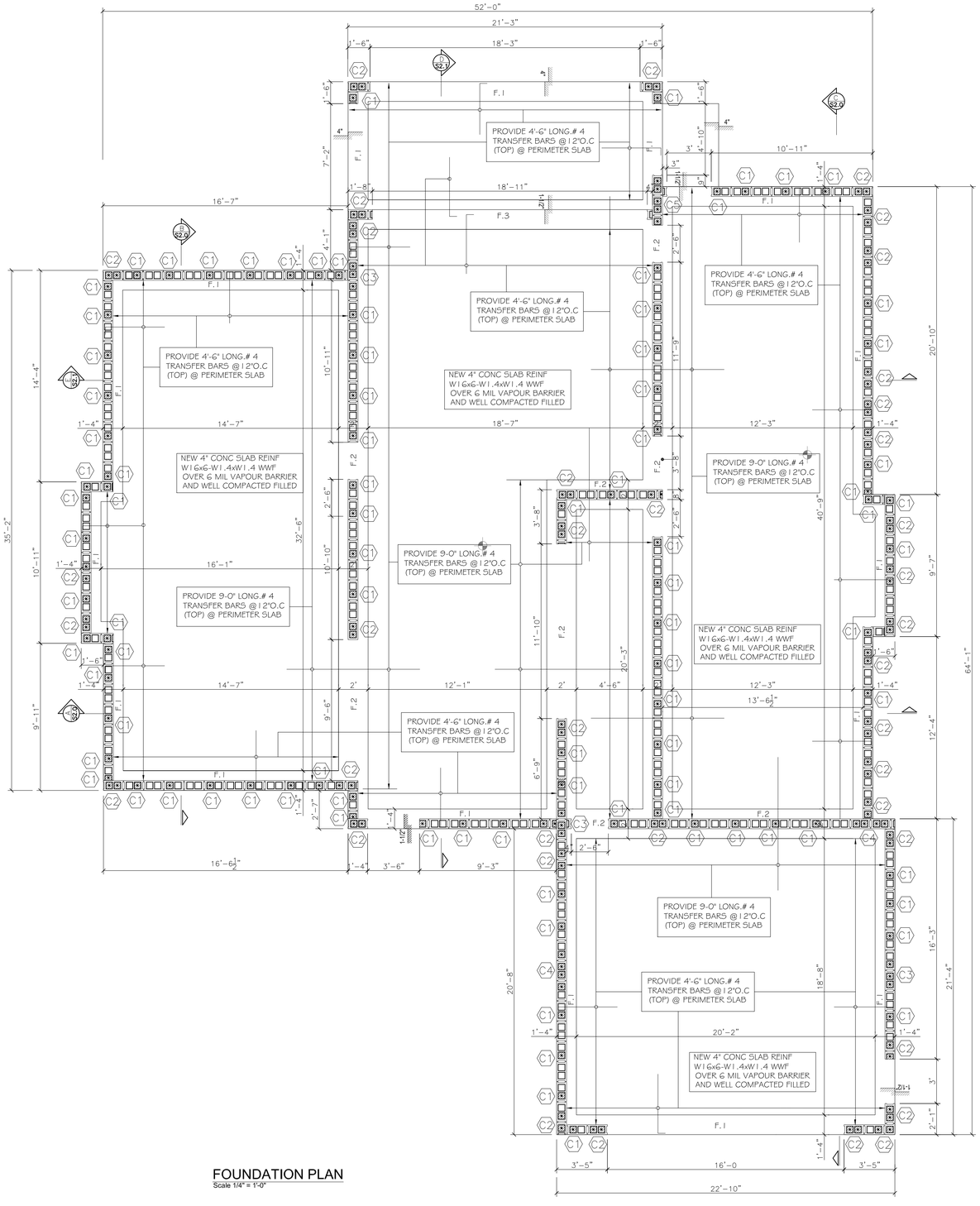
JOSE VALERO
DRAFTING SERVICES
305-914-3417
www.jvstd.pro

DRAWING TITLE

STRUCTURAL NOTES 3

SHEET NO.

S-0.2



FOUNDATION PLAN
Scale 1/4" = 1'-0"

FOUNDATION PLAN NOTES:

1. THIS DRAWING SHOULD BE USED IN CONJUCTION WITH APPROVED ARCHITECTURAL STRUCTURAL AND MECHANICAL PLANS
2. THE CONTRACTOR AND/OR THE OWNER IS RESPONSIBLE FOR VERIFYING THAT ALL DIMENSIONS AND CONDITIONS SHOWNE ON THESE DRAWINGS CORRESPOND WITH THOSE IN THE FIELD. THE STRUCTURAL ENGINEER AND THE ARCHITECT OF RECORD WILL BE ADVISED OF ANY VARIATIONS BEFORE FABRICATION.
3. COORDINATE ALL FLOOR SLOPES AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS.
4. FOR EXACT LOCATION OF ANY OPENING AND/OR EQUIPMENT, COORDINATE WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
5. FOR GENERAL NOTES, REFER TO SHEET S0.0
6. FOR FOOTING SCHEDULE REFER TO SHEET S0.1
7. FOR TYPICAL DETAILS, REFER TO SHEET S0.1 AND S0.2
8. FOR SECTIONS REFER TO SHEET S2.0 AND S2.1
9. ROUGH OPENING:
   CONTRACTOR SHALL SELECT WINDOW & DOOR SIZES AS NEAR AS POSSIBLE TO THOSE SPECIFIED AND SHALL ADJUST ROUGH OPENINGS AS NECESSARY TO ACCOMMODATE WINDOWS & DOORS SELECTED. DIFFERENCES IN WINDOW/DOOR DIMENSIONS GREATER THAN 8" IN ANY DIRECTION SHALL BE REPORTED TO ENGINEER PRIOR TO ORDERING.
10. TERMITE PROTECTION:
    ALL SOIL AND FILL UNDER NEW FLOORS AND/OR UNDER BUILDINGS SHALL HAVE PRE- CONSTRUCTION SOIL TREATMENT FOR PROTECTION AGAINST SUBTERRANEAN TERMITES, AS PER "FLORIDA BUILDING CODE 2020 7TH EDITION". A "CERTIFICATE OF COMPLIANCE" SHALL BE ISSUED TO THE BUILDING DEPARTMENT BY THE LICENSED PEST CONTROL COMPANY THAT CONTAINS THE FOLLOWING STATEMENT:

    "THE BUILDING HAS RECEIVED A COMPLETE TREATMENT FOR THE PREVENTION OF SUBTERRANEAN TERMITES. tREATMENT IS IN ACCORDANCE WITH THE RULES AND LAWS ESTABLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND SONSUMER SERVICES".
11. CONTRACTOR TO VERIFY THAT THE SOIL CONDITION IS ADEQUATE TO SUPPORT A DESIGN LOAD OF 2000 P.S.F. - IF ANY OTHER CONDITION IS FOUND AT SITE, NOTIFY ENGINEER PRIOR TO PROCEEDING WITH WORK.
12. SLAB NOTES:
    - 4" CONCRETE SLAB-ON-GRADE REINFORCED W1.6"x6" W1.4xW1.4 WELDED WIRE MESH OVER 6 MIL VQAPOUR BARRIER AND WELL COMPACTED FILLED.
13. PROVIDE 30" WIDE DOUBLE LAYER OF WELDED WIRE MESH - TYPICAL ALL AROUND ENTIRE PERIMETER OF CONCRETE SLAB.
14. PROVIDE #4 x 3'-0" LONG CRACK CONTROL REINFORCEMENT @ MID OF SLAB (TYP.) (ALL FLOOR CORNERS)

CONCRETE MASONRY UNITS SCHEDULE

MARK	TYPE	SIZE (LxWxH)	RENFORCEMENT	# 3 TIES	REMARFS
C1	GROUT-FILLED CELL	(1x) 8"x8"	(1)-#5REBAR VERT,	-	SINGLE FILLED CELL
C2	GROUT-FILLED CELL	(2x) 8"x8"	(2)-#5REBAR VERT,	-	DOUBLE FILLED CELL
C3	GROUT-FILLED CELL	(3x) 8"x8"	(3)-#5REBAR VERT,	-	TRIPLE FILLED CELL
C4	GROUT-FILLED CELL	(4x) 8"x8"	(4)-#5REBAR VERT,	-	FOUR FILLED CELL
C5	GROUT-FILLED CELL	(5x) 8"x8"	(5)-#5REBAR VERT,	-	FIVE FILLED CELL

NOTE: CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION & SITE CONDITIONS

VINAYAGAR M. BALAKRISHNAN V.
LICENSE No. 63107 STATE OF FLORIDA PROFESSIONAL ENGINEER
Digitally signed by Balakrishnan Vinayagar
Date: 2023.05.12 14:59:19 -04'00'
VINAYAGAR M. BALAKRISHNAN V.
P.E. No. 63107 FLORIDA
6175 NW 167 ST, SUITE G-20
MIAMI, FL 33015
PH: 305-2445424

PROJECT NAME

2027 RESIDENCE

NEW SINGLE FAMILY

PROJECT ADDRESS

2027 NE 18 ST, CAPE CORAL, FL 33909

REVISION

Project No:	2022 - 254
Scale:	AS NOTED
Date:	01-08-22
Drawn:	Y.L.
Checked:	J.V. / R.H. / V.M.B.
CADD File:	2027 NE 18 ST, CAPE CORAL 09-27-22.dwg

DRAWN

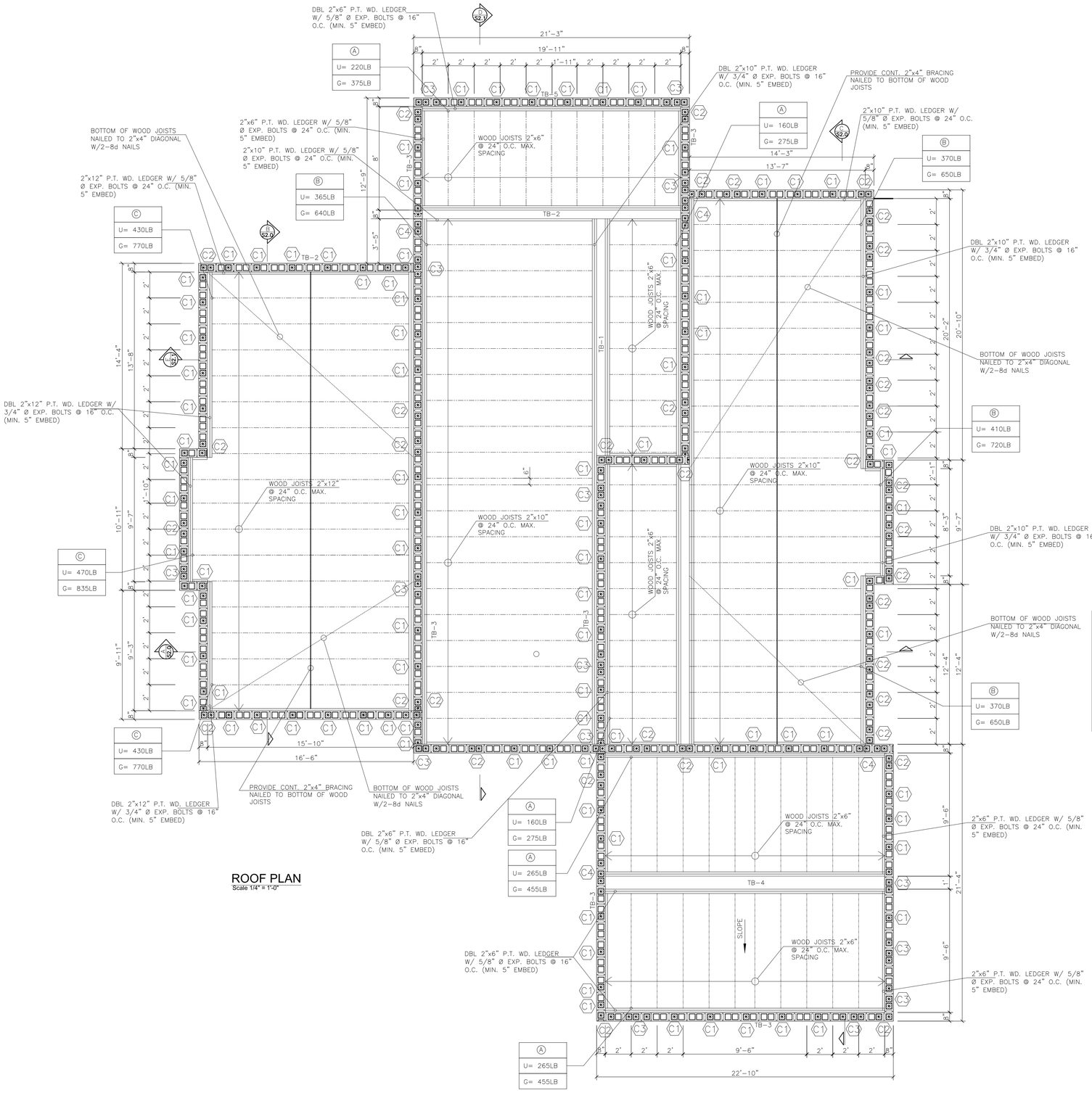
JOSE VALERO
DRAFTING SERVICES
3054154347
www.jvdz.pro

DRAWING TITLE

FOUNDATION PLAN

SHEET NO.

S-1.0



ROOF PLAN
Scale 1/4" = 1'-0"

ELB
DATE: 05/30/2023

105.4.1 Permit intent.
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ROOF PLAN NOTES:

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3. COORDINATE ALL FLOOR SLOPES AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS.
4. FOR EXACT LOCATION OF ANY OPENING AND/OR EQUIPMENT, COORDINATE WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
5. FOR GENERAL NOTES, REFER TO SHEET S0.0
6. FOR CONCRETE BEAM SCHEDULE REFER TO SHEET S0.1
7. FOR TYPICAL DETAILS, REFER TO SHEET S0.1 AND S0.2
8. FOR SECTIONS REFER TO SHEET S2.0 AND 2.1
9. ALL PRODUCTS ARE TO BE INSTALLED PER MANUFACTURERS SPECIFICATIONS.
10. VERIFY IN FIELD ALL DIMENSIONS & CONDITIONS PRIOR TO ORDERING JOISTS.
11. ALL JOISTS UPLIFT (U) AND GRAVITY (G) PROVIDED ARE SERVICE LOADS.
12. SUPERIMPOSED LOADS:

ROOF LIVE LOAD= 20 PSF
ROOF DEAD LOAD= 10 PSF

13. ALL METAL CONNECTORS AND FASTENERS IN CONTACT WITH PRESSURE TREATED LUMBER MUST BE CORROSION RESISTANT. VERIFY MANUFACTURER'S PRODUCT DATA PRIOR TO SELECTION OF CONNECTORS.

CONCRETE MASONRY UNITS SCHEDULE

MARK	TYPE	SIZE (LxWxH)	RENFORCEMENT	# 3 TIES	REMARKS
C1	GROUT-FILLED CELL	(1x) 8"x8"	(1)-#5REBAR VERT.	-	SINGLE FILLED CELL
C2	GROUT-FILLED CELL	(2x) 8"x8"	(2)-#5REBAR VERT.	-	DOUBLE FILLED CELL
C3	GROUT-FILLED CELL	(3x) 8"x8"	(3)-#5REBAR VERT.	-	TRIPLE FILLED CELL
C4	GROUT-FILLED CELL	(4x) 8"x8"	(4)-#5REBAR VERT.	-	FOUR FILLED CELL
C5	GROUT-FILLED CELL	(5x) 8"x8"	(5)-#5REBAR VERT.	-	FIVE FILLED CELL

ANCHORAGE SCHEDULE

MARK	TYPE	QUANTITY	FASTENERS (N)		ALLOWABLE LOAD
			HEADER	JOIST	
Ⓐ	SIMPSON "LU26"	1	(6) Ø.162x3 1/2	(4) Ø.148x1 1/2	U= 540 LB G=1Ø3Ø LB
Ⓑ	SIMPSON "LU28"	1	(8) Ø.162x3 1/2	(6) Ø.148x1 1/2	U= 85Ø LB G=16Ø LB
Ⓒ	SIMPSON "LU210"	1	(10) Ø.162x3 1/2	(6) Ø.148x1 1/2	U= 85Ø LB G=16Ø LB

NOTE: CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION & SITE CONDITIONS

VINAYAGAR M. BALAKRISHNAN V. LICENSE No. 63107 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Balakrishnan Vinayagar
Date: 2023.05.12 14:59:37 -04'00'

VINAYAGAR M. BALAKRISHNAN V.
P.E. No. 63107 FLORIDA
6175 NW 167 ST, SUITE G-20
MIAMI, FL 33015
PH: 305-2445424

PROJECT NAME

2027 RESIDENCE

NEW SINGLE FAMILY

PROJECT ADDRESS

2027 NE 18 ST, CAPE CORAL, FL 33909

REVISION

Project No:	2022 - 254
Scale:	AS NOTED
Date:	01-08-22
Drawn:	Y.L.
Checked:	J.V. / R.H. / V.M.B.
CADD File:	2027 NE 18 ST, CAPE CORAL 09-27-22.dwg

DRAWN

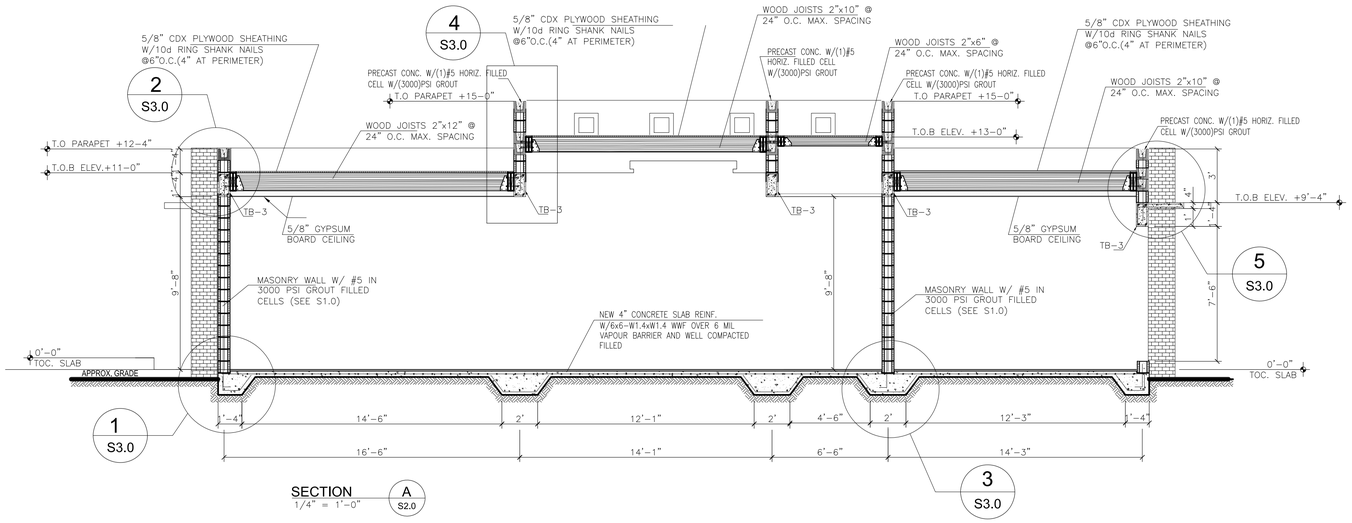
JOSE VALERO DRAFTING SERVICES 3054144347 www.JVE.pro

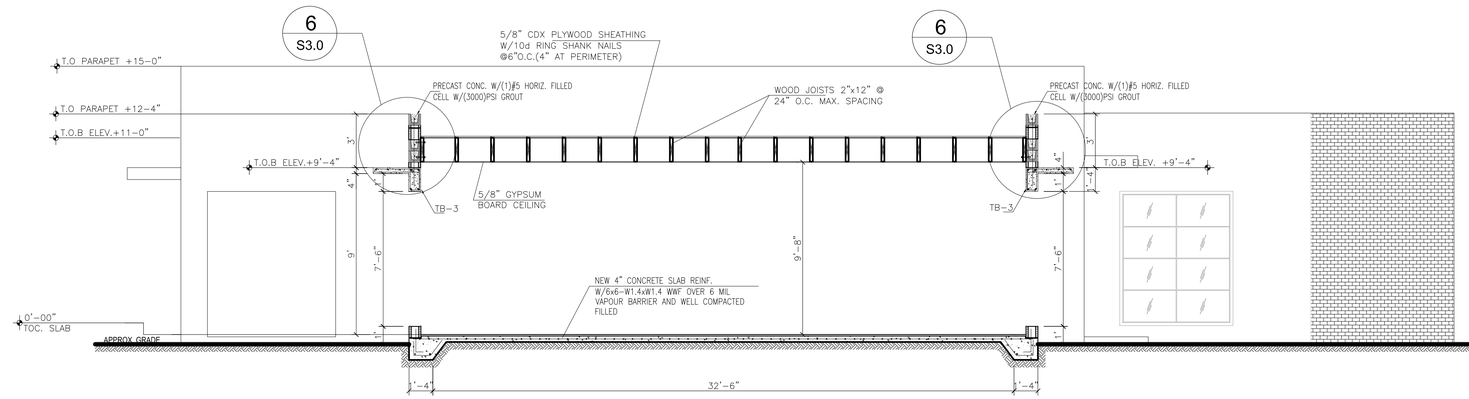
DRAWING TITLE

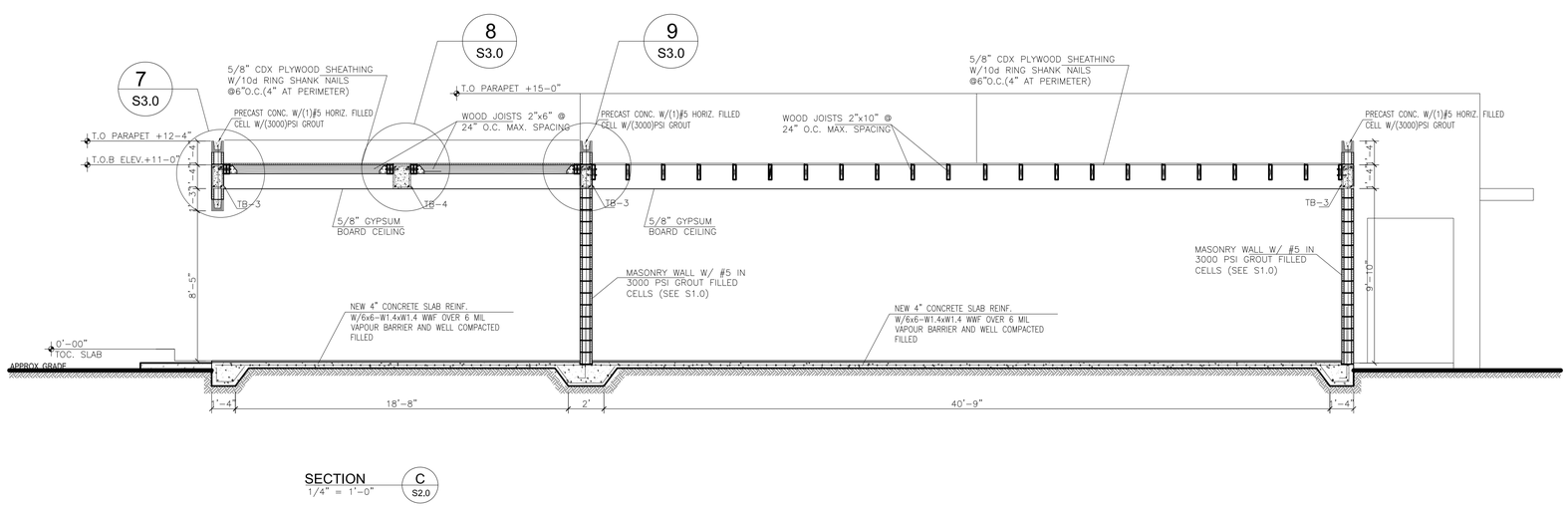
ROOF PLAN

SHEET NO.

S-1.1







REVIEWED
FOR CODE COMPLIANCE
CAPE CORAL BUILDING DIVISION
BY: ELB DATE: 05/30/2023
ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE FLORIDA BUILDING CODE, ALL STATE AND LOCAL LAWS AND ORDINANCES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR OF RESPONSIBILITY TO COMPLY WITH ALL CODES AND ORDINANCES

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VINAYAGAR M. BALAKRISHNAN V.
LICENSE
No. 63107
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Digitally signed by Balakrishnan Vinayagar
Date: 2023.05.12 14:59:58 -04'00'

VINAYAGAR M. BALAKRISHNAN V.
P.E. No. 63107 FLORIDA
6175 NW 167 ST, SUITE G-20
MIAMI, FL 33015
PH: 305-2445424

PROJECT NAME

2027 RESIDENCE

NEW SINGLE FAMILY

PROJECT ADDRESS

2027 NE 18 ST, CAPE CORAL, FL 33909

REVISION

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CADD File:	2027 NE 18 ST, CAPE CORAL 09-27-22.dwg

DRAWN

JOSE VALERO
DRAFTING SERVICES
305-814-3437
www.jvdd.pro

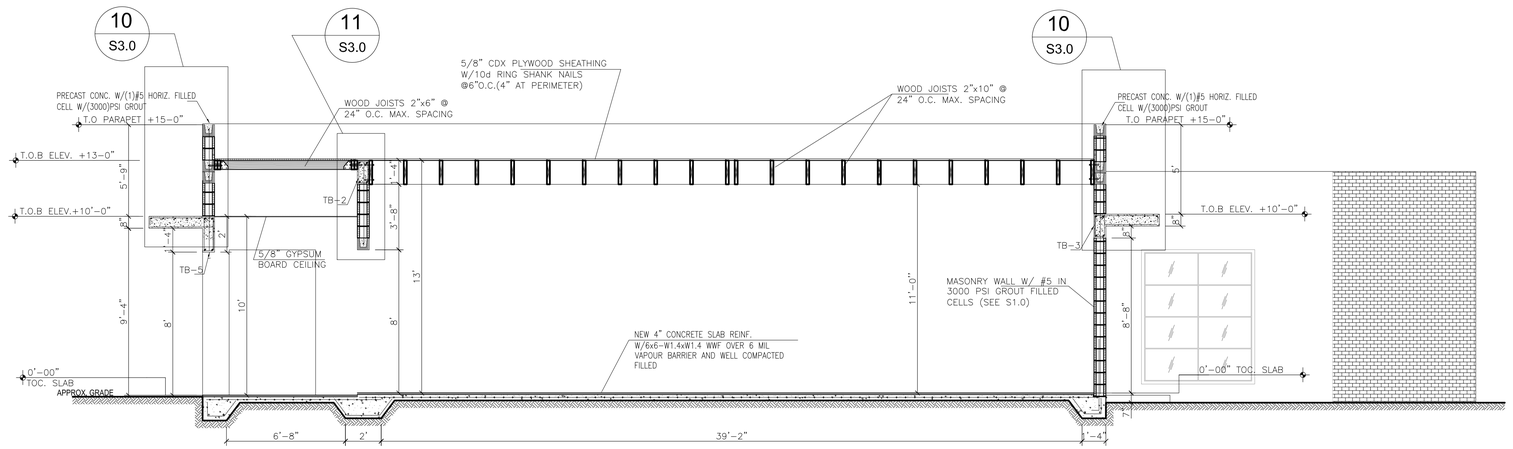
DRAWING TITLE

SECTIONS A, B, C

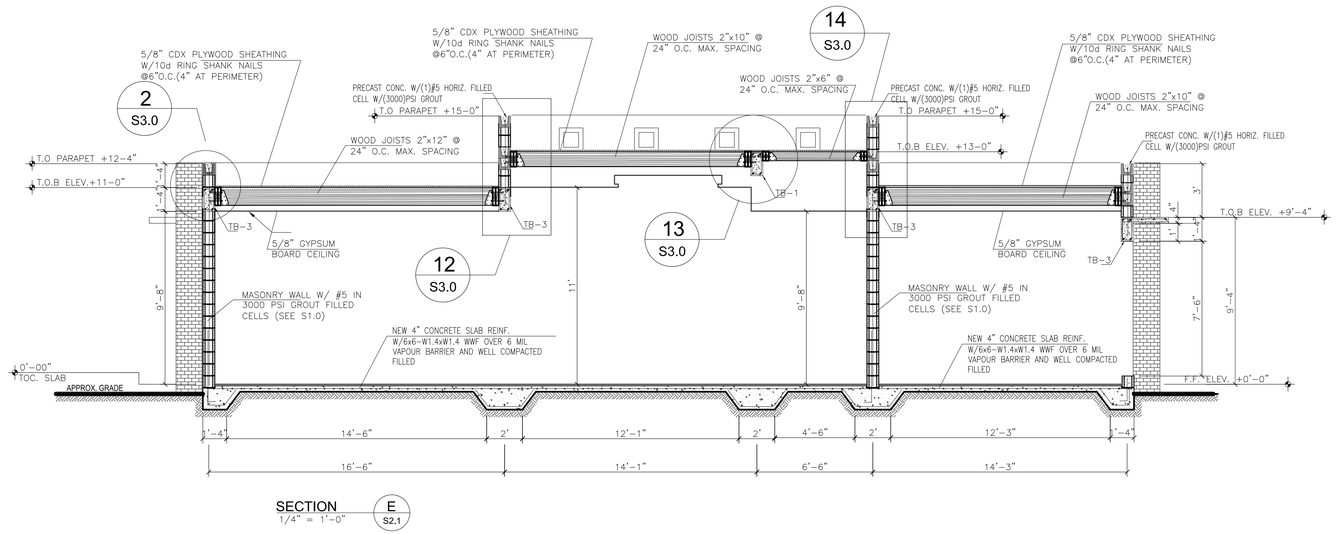
SHEET NO.

S-2.0

NOTE: CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION & SITE CONDITIONS



SECTION D
1/4" = 1'-0"
S2.1



SECTION E
1/4" = 1'-0"
S2.1

REVIEWED
FOR CODE COMPLIANCE
CAPE CORAL BUILDING DIVISION
BY: ELR DATE: 05/30/2023
ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE FLORIDA BUILDING CODE, ALL STATE AND LOCAL CODES. THE GRANTING OF PERMIT DOES NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY TO COMPLY WITH ALL CODES AND ORDINANCES.

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NOTE: CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION & SITE CONDITIONS

VINAYAGAR M. BALAKRISHNAN V.
LICENSE
No. 63107
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Digitally signed by Balakrishnan Vinayagar
Date: 2023.05.12 15:00:18 -04'00'

VINAYAGAR M. BALAKRISHNAN V.
P.E. No. 63107 FLORIDA
6175 NW 167 ST, SUITE G-20
MIAMI, FL 33015
PH: 305-2445424

PROJECT NAME

2027 RESIDENCE

NEW SINGLE FAMILY

PROJECT ADDRESS

2027 NE 18 ST, CAPE CORAL, FL 33909

REVISION

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CADD File:	2027 NE 18 ST, CAPE CORAL 09-27-22.dwg

DRAWN

JOSE VALERO
DRAFTING SERVICES
305-414-3417
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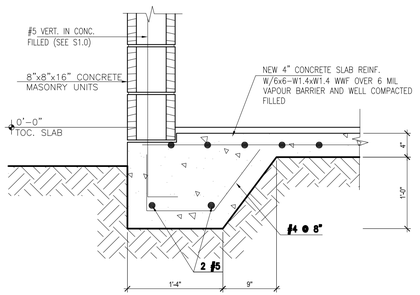
DRAWING TITLE

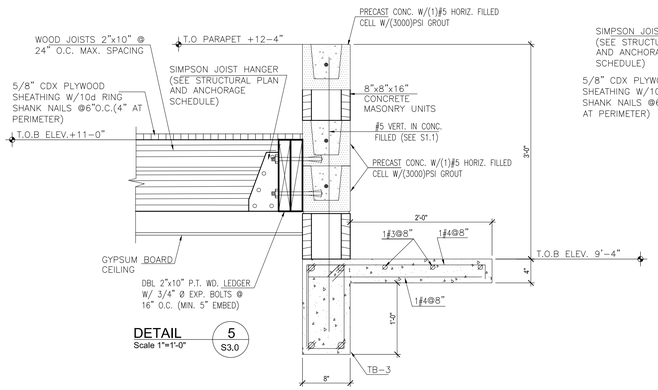
SECTIONS D, E

SHEET NO.

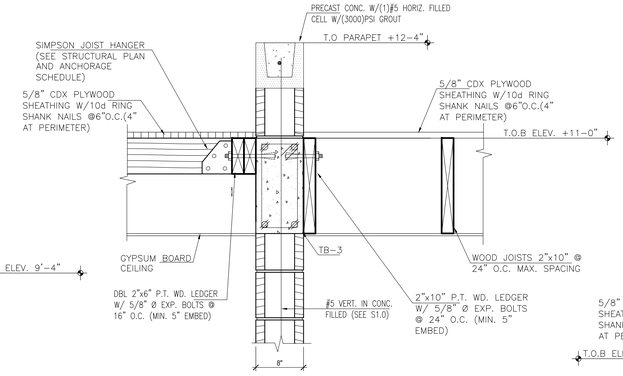
S-2.1



DETAIL 1 S3.0
Scale 1"=1'-0"



DETAIL 5 S3.0
Scale 1"=1'-0"



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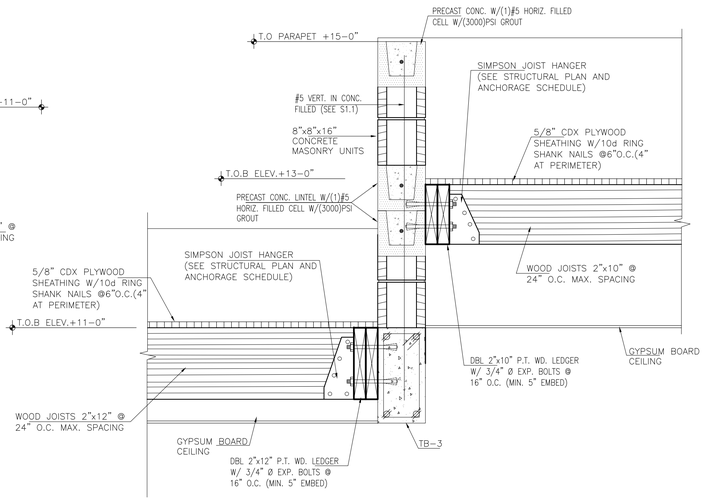
Scale 1"=1'-0"



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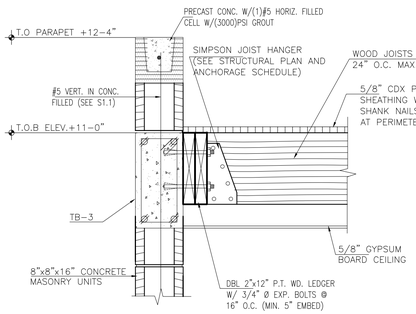

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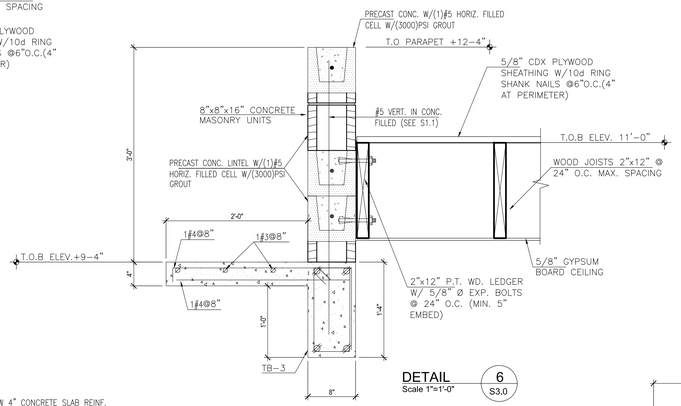

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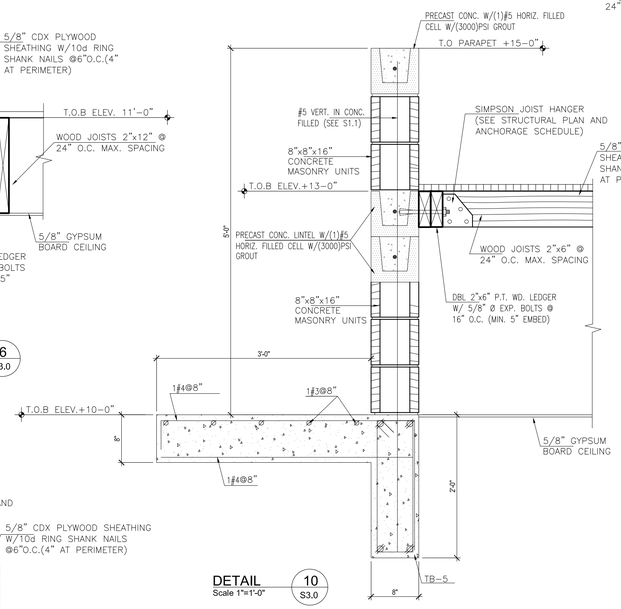

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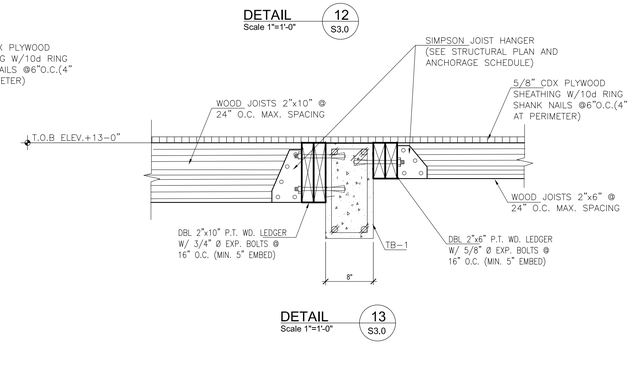
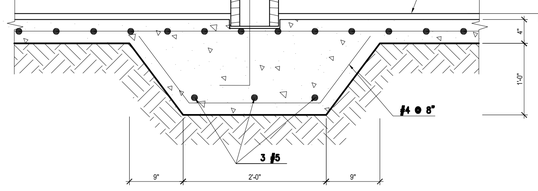
Scale 1"=1'-0"



DETAIL 11 S3.0
Scale 1"=1'-0"

DETAIL 13 S3.0
Scale 1"=1'-0"



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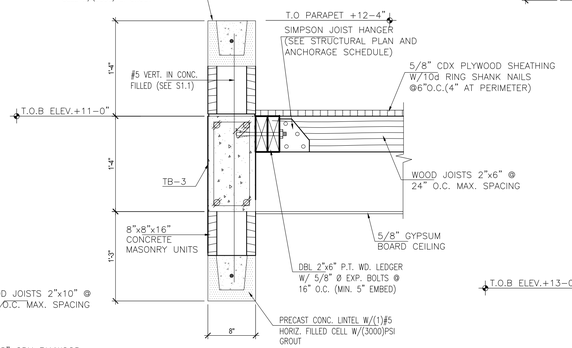
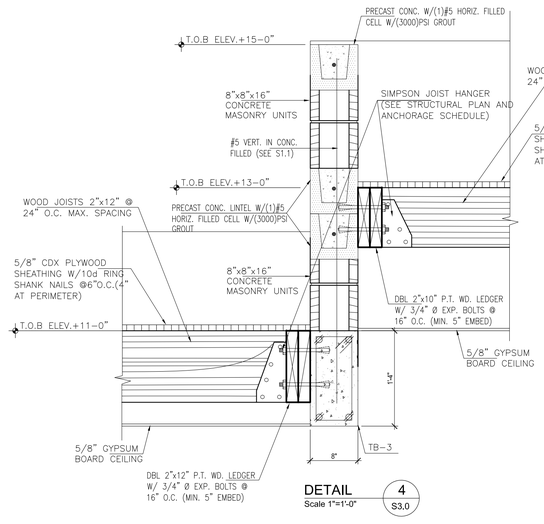
Scale 1"=1'-0"



DETAIL 7 S3.0
Scale 1"=1'-0"



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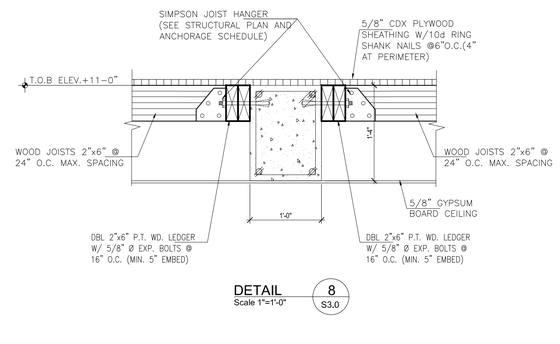
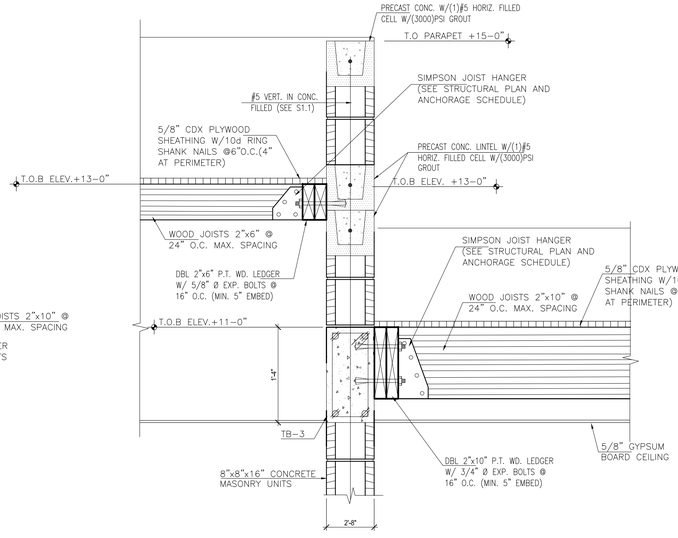


DETAIL 8 S3.0
Scale 1"=1'-0"



DETAIL 14 S3.0
Scale 1"=1'-0"

NOTE: CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION & SITE CONDITIONS

REVIEWED
FOR CODE COMPLIANCE
CAPE CORAL BUILDING DIVISION
BY: ELS DATE: 05/30/2023
ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE FLORIDA BUILDING CODE AND ALL APPLICABLE CODES. THE GRANTING OF PERMIT DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO COMPLY WITH ALL CODES AND ORDINANCES
105.4.3Permit expire.
A permit issued shall be construed to be a license to proceed with the work and not as authority to violate, cancel, alter or set aside any of the provisions of the technical codes, nor shall issuance of a permit prevent the building official from thereafter requiring a correction of errors in plans, construction or violations of this code. Every permit issued shall become invalid unless the work authorized by such permit is commenced within 6 months after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 6 months after the time of commencement.

VINAYAGAR M. BALAKRISHNAN V. LICENSE No. 63107 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Balakrishnan Vinayagar
Date: 2023.05.12 15:00:38 -04'00'

VINAYAGAR M. BALAKRISHNAN V.
P.E. No. 63107 FLORIDA
6175 NW 167 ST, SUITE G-20
MIAMI, FL 33015
PH: 305-2445424

PROJECT NAME

2027 RESIDENCE

NEW SINGLE FAMILY

PROJECT ADDRESS

2027 NE 18 ST, CAPE CORAL, FL 33909

REVISION

Project No:	2022 - 254
Scale:	AS NOTED
Date:	01-08-22
Drawn:	Y.L.
Checked:	J.V. / R.H. / V.M.B.
CADD File:	2027 NE 18 ST, CAPE CORAL 09-27-22.dwg

DRAWN

JOSE VALERO
DRAFTING SERVICES
305-9144347
www.jvdt.pro

DRAWING TITLE

STRUCTURAL DETAILS

SHEET NO.

S-3.0

2027 RESIDENCE - NEW SINGLE FAMILY RESIDENCE

STRUCTURAL DESIGN REPORT

Digitally signed by Balakrishnan Vinayagar
Date: 2023.05.12 15:05:11 -04'00'

September, 2022

INDEX

1. GENERAL

The scope of this document includes the structural design of "2027 Residence – Project New Single Family" to be built of concrete masonry wall and elements of reinforced concrete. In this document the criteria and design calculations of the structural elements of the structure and foundations of the new single family residence are contemplated. Located in 2027 NE 18 ST, Cape Coral, FL 33909.

2. CODES, STANDARDS AND ESPECIFICATIONS

The following codes, standards and specifications were used for the structural design.

- "Florida Building Code" (2020, 7th edition).
- "Specifications for Structural Concrete for Buildings". ACI 301.
- "Building Code Requirements for Structural Concrete". ACI 318.
- "Building Code Requirements for Masonry Structures". ACI 530.
- "Specification for Structural Steel Buildings". ANSI/AISC 360.
- "Minimum Design Loads for Buildings and Other Structures". ASCE/SEI 7-16.
- "Uniform Building Code". UBC

3. MATERIAL PROPERTIES

- Concrete (Footings, Columns, Slabs and Beams):
  f'c = 3 ksi
- Reinforcing Steel:
  fy = 60 ksi
- Concrete Masonry Units:
  f'm = 2000 psi
  Grout Filled Cells: 3 ksi

4. SITE CONDITIONS

- Soil Parameters:

Soil bearing capacity: a soils report is not currently available to the structural engineer, a bearing capacity of 2000 pounds per square foot has been assumed for the design of the foundation.

- Wind Parameters:

Windspeed: 160 mph.
Exposure Type: C.

5. DESIGN LOADS

5.1. Dead Load

Dead Loads include the weight of elements that are part of structure (floor systems, beams, columns, finishes and others).

Dead loads used are the following:

- Specific Weight of Reinforcing Concrete: 150 lb/ft^3.
- Specific Gravity of Wood: 0.55 lb/ft^3 (Southern Pine).
- Wood Joists: 4 psf.
- 5/8'' Plywood: 2 psf.
- 5/8'' Gypsum board: 2.75 psf.
- Ceiling: 10 psf.
- Ductwork: 4 psf.
- Insulations: 1.5 psf.

Therefore, the superimposed dead load considered in roof area of the building is 20 psf

5.2. Live Load

The live load considered according to ASCE-7, Table 4.3-1, in roof area of the building is 20 psf.

5.3. Wind Load

The wind action on the building was considered according to ASCE-7, using the directional procedure (Table 27.2-1, ASCE-7) for the structure and Table 30.3-1 for components and cladding.

5.3.1. Wind Parameters

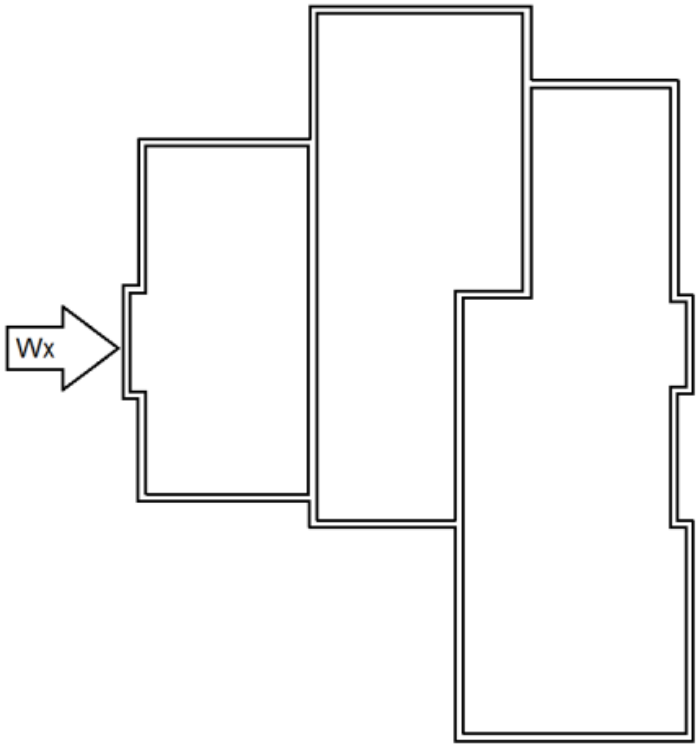
- Risk Category: II
- Basic Wind Speed (V): 160 mph
- Directionality Factor (K_d): 0.85
- Exposure Category: C
- Topographic Factor (K_{zt}): 1
- Ground Elevation Factor (K_e): 1.0
- Gust Effect (G): 0.85
- Internal Pressure Coefficient (GC_{pi}): ± 0.18 (Enclosed Building)

5.3.2. Wind Load for Structure

MWFRS – Main Wind Force Resisting System (Directional Procedure)

All pressures shown are based upon ASD Design, with a Load Factor of 0.6

5.3.2.1. Wind Load in X Direction

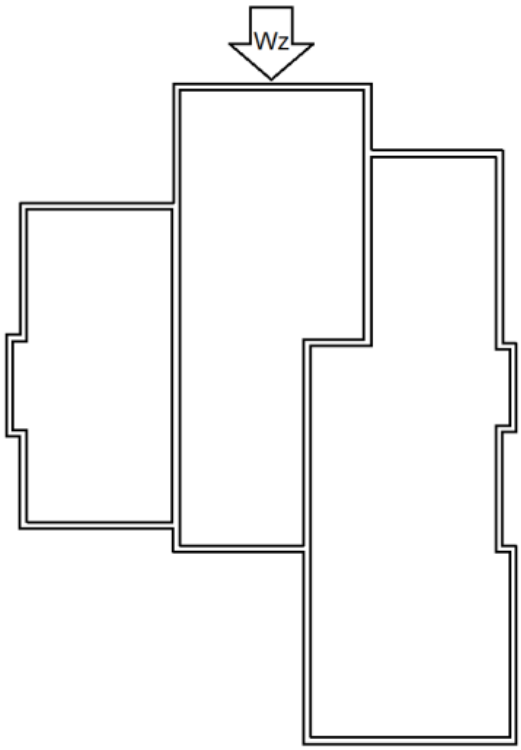


Wall	Cp	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.50	-17.21	-6.97
Side Walls	-0.70	-22.04	-11.80

Wall	Elev (ft)	Kz	Kzt	Cp	qz (psf)	Press +GCpi (psf)	Press -GCpi (psf)
Windward	0 - 15	0.850	1.00	0.80	28.44	14.22	24.46

Roof – Dist from Winward Edge	Cp	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Roof: 0.0ft - 7.5ft	-0.90 -0.18	-26.88 -9.47	-16.64 0.77
Roof: 7.5ft - 15.0ft	-0.90 -0.18	-26.88 -9.47	-16.64 0.77
Roof: 15.0ft - 30.0ft	-0.50 -0.18	-17.21 -9.47	-6.97 0.77
Roof: 30.0ft - 55.0ft	-0.30 -0.18	-12.37 -9.47	-2.13 0.77

5.3.2.2. Wind Load in Z Direction



Wall	Cp	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.44	-15.79	-5.55
Side Walls	-0.70	-22.04	-11.80

Wall	Elev (ft)	Kz	Kzt	Cp	qz (psf)	Press +GCpi (psf)	Press -GCpi (psf)
Windward	0 - 15	0.850	1.00	0.80	28.44	14.22	24.46

Roof – Dist from Winward Edge	Cp	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Roof: 0.0ft - 7.5ft	-0.90 -0.18	-26.88 -9.47	-16.64 0.77
Roof: 7.5ft - 15.0ft	-0.90 -0.18	-26.88 -9.47	-16.64 0.77
Roof: 15.0ft - 30.0ft	-0.50 -0.18	-17.21 -9.47	-6.97 0.77
Roof: 30.0ft -71.2ft	-0.30 -0.18	-12.37 -9.47	-2.13 0.77

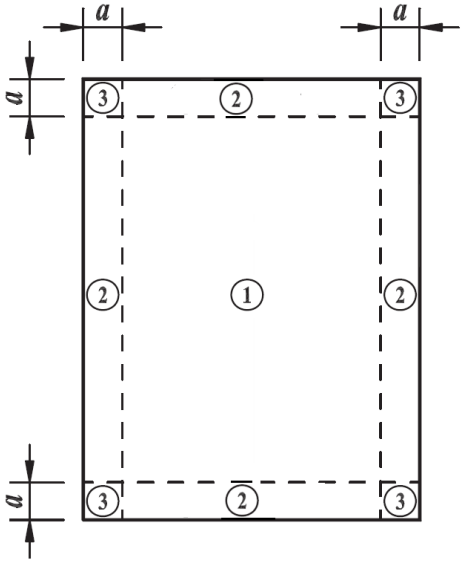
5.3.3. Wind Load for Components and Cladding

EXTERNAL PRESSURE COEFFICIENTS, GC_p – ROOF AREA

AREA (TRIBUTARY)	1		2		3	
10 PSF	0.30	-1.00	0.30	-1.77	0.30	-2.73
20 PSF	0.27	-0.97	0.27	-1.59	0.27	-2.29
50 PSF	0.23	-0.93	0.23	-1.31	0.23	-1.61
≥ 100 PSF	0.20	-0.90	0.20	-1.10	0.20	-1.10

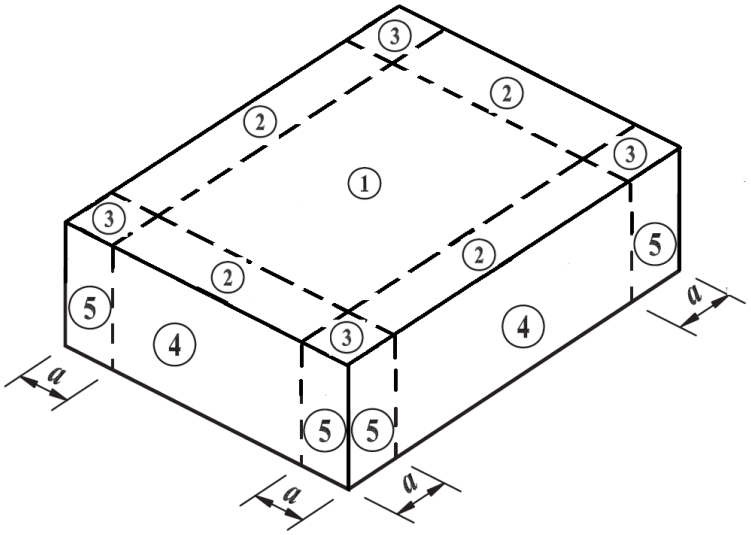
EXTERNAL PRESSURE COEFFICIENTS, GC_p – WALL AREA

AREA (TRIBUTARY)	4		5	
10 PSF	0.89	-0.98	0.89	-1.25
20 PSF	0.85	-0.94	0.85	-1.16
50 PSF	0.79	-0.88	0.79	-1.04
100 PSF	0.74	-0.83	0.74	-0.94
≥ 500 PSF	0.70	-0.80	0.70	-0.80



COMPONETS AND CLADDING	ROOF WIND LOADS, p = qh (GCp – GCpi)											
	ROOF AREAS (TRIBUTARY)											
	1				2				3			
q_h = 29 psf	10 S.F.	20 S.F.	50 S.F.	≥ 100 S.F.	10 S.F.	20 S.F.	50 S.F.	≥ 100 S.F.	10 S.F.	20 S.F.	50 S.F.	≥ 100 S.F.
PRESSURE (PSF)	13.92	13.05	11.89	11.02	13.92	13.05	11.89	11.02	13.92	13.05	11.89	11.02
SUCTION (PSF)	-34.22	-33.35	-32.19	-31.32	-56.55	-51.33	-43.21	-37.12	-84.39	-71.63	-51.91	-37.12

Corner Distance, a = 5.50 ft



COMPONETS AND CLADDING	WALL WIND LOADS, p = qh (GCp – GCpi)									
	WALL AREAS (TRIBUTARY)									
	4					5				
q_h = 29 psf	10 S.F.	20 S.F.	50 S.F.	100 S.F.	≥ 500 S.F.	10 S.F.	20 S.F.	50 S.F.	100 S.F.	≥ 500 S.F.
PRESSURE (PSF)	31.03	29.87	28.13	26.68	25.52	31.03	29.87	28.13	26.68	25.52
SUCTION (PSF)	-33.64	-32.48	-30.74	-29.29	-28.42	-41.47	-38.86	-35.38	-32.48	-28.42

Corner Distance, a = 5.50 ft

6. LOAD COMBINATIONS

6.1. Combining Factored Loads Using Strength Design

Structures, components and foundations were designed so that their design strength equals or exceeds the effects of the factored loads in the following combinations:

- 1.4D
- 1.2D + 0.5Lr
- 1.2D + 1.6Lr
- 1.2D + 0.5W
- 1.2D + 1.6Lr + 0.5W
- 1.2D + W
- 1.2D + W + 0.5Lr
- 0.9D + W

6.2. Combining Nominal Loads Using Allowable Stress Design

Service combinations were used for deflection check and drift, considering the following combinations; whichever produces the most unfavorable effect in the building, foundation or structural member being considered.

- D
- D + Lr
- D + 0.75Lr
- D + 0.6W
- D + 0.45W
- D + 0.45W + 0.75Lr
- 0.6D + 0.6W

Where:
D: Dead Load.
Lr: Roof Live Load.
W: Factored Wind Load.

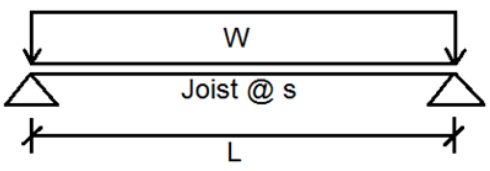
7. STRUCTURAL DESIGN

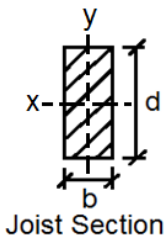
7.1. Wood Joists Design

Wood Joist 2"x12"

DATA

Dead load, D =	20	psf
Live load, L =	20	psf
Wind load, +W =	5	psf
Wind load, -W =	27	psf
Span, L =	208	in
Joist spacing, s =	24	in
Joist width (nominal), b =	2.00	in
Joist height (nominal), d =	12.00	in
Number of joists, N =	1	
Joist species	Southern yellow pine No.1 dense	
Actual surface:	Dry	(m.c. ≤ 19%)
Moisture content, m.c. =	19.00	%
Specific gravity, G =	0.55	lb/ft^3 (NDS table 8A)





Joist Section

1. Tabulated design values by using NDS-S

Bending, F_b =	1350	psi
Shear parellel to grain, F_v =	90	psi
Compression perpendicular to grain, $F_{c\perp}$ =	660	psi
Modulus of elasticity, E =	1800000	psi
Joist width design (minimum dressed), b =	1.5000	in
Joist height design (minimum dressed), d =	11.2500	in
Area, A = N b d =	16.88	in^2
Moment of inertia, I_x = N b d^3 / 12 =	177.98	in^4
Section modulus, S_x = 2 I_x / d = N b d^2 / 6 =	31.64	in^3
Density,γ=62.4(G/(1+0.009 G m.c.))(1+m.c./100)=	37.4	lb/ft^3
Selfweight, W_{SW} = γ b d =	6.23	plf

2. Joist property adjustments and adjusted design values

Load duration factor, C_D =	1.00	
Repetitive member factor, C_r =	1.15	
Size factor, C_F =	1.00	
Horizontal shear factor, C_H =	2.00	
Beam stability factor, C_L =	1.00	
Bearing area factor, C_b =	1.00	
Wet condition:	⩽ 19%	
Wet service factor, $C_{M\text{-}Fb}$ =	1.00	
Wet service factor, $C_{M\text{-}Fv}$ =	1.00	
Wet service factor, $C_{M\text{-}Fc\perp}$ =	1.00	
Wet service factor, $C_{M\text{-}E}$ =	1.00	
$F_b' = F_b C_r C_F C_D C_L C_{M\text{-}Fb}$ =	1552.50	psi
$F_v' = F_v C_H C_D C_{M\text{-}Fv}$ =	180.00	psi
$F_{c\perp}' = F_{c\perp} C_b C_{M\text{-}Fc\perp}$ =	660.00	psi
$E' = E C_{M\text{-}E}$ =	1800000	psi

3. Applied load

$W_D = s D + W_{SW}$ =	46.23	plf
	40.00	plf
$W_{+W} = s (+W)$ =	10.00	plf
$W_{-W} = s (-W)$ =	54.00	plf
$LC_1 = D$ =	46.23	plf
$LC_2 = D + L$ =	86.23	plf
$LC_3 = D + W$ =	56.23	plf
$LC_4 = D - W$ =	7.77	plf
$LC_5 = D + 0.75L + 0.75W$ =	83.73	plf
$LC_6 = D + 0.75L - 0.75W$ =	35.73	plf
$LC_7 = 0.6D + W$ =	37.74	plf
$LC_8 = 0.6D - W$ =	26.26	plf
Therefore, $W = \max(LC_i)$ =	86.23	plf

4. Bending capacity

$M = W L^2 / 8 =$		3238.54	lb-ft	
$f_b = M / S_x =$		1228.25	psi	
$f_b \leq F_b' \rightarrow$	1228.25	<	1552.50	
Ratio = $f_b/F_b' =$	0.7911	<	1.0000	**OK**

5. Horizontal shear capacity

$V = W L / 2 =$		747.36	lb	
$fv = (3 V) / (2 A) =$		66.43	psi	
$f_v \leq F_v' \rightarrow$	66.43	<	180.00	
Ratio = $f_v/F_v' =$	0.3691	<	1.0000	**OK**

6. Vertical deflection check

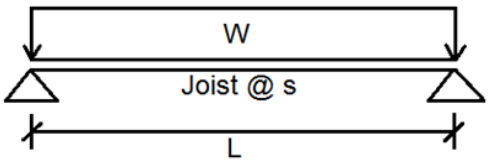
$\Delta_D = (5 W_D L^4) / (384 E' I_x) =$		0.2931	in	
$\Delta_L = (5 W_L L^4) / (384 E' I_x) =$		0.2536	in	
$\Delta_W = (5 W_W L^4) / (384 E' I_x) =$		0.3423	in	
$\Delta_{D+L} = \Delta_D + \Delta_L =$		0.5467	in	

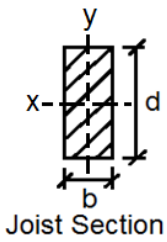
$\Delta_L \leq$	L/240 →	0.2536 (L/820)	< <	0.8667 (L/240)	**OK**
$\Delta_{D+L} \leq$	L/180 →	0.5467 (L/380)	< <	1.1556 (L/180)	**OK**
$\Delta_W \leq$	L/240 →	0.3423 (L/608)	< <	0.8667 (L/240)	**OK**

Wood Joist 2"x10"

DATA

Dead load, D =	20	psf
Live load, L =	20	psf
Wind load, +W =	5	psf
Wind load, -W =	27	psf
Span, L =	181	in
Joist spacing, s =	24	in
Joist width (nominal), b =	2.00	in
Joist height (nominal), d =	10.00	in
Number of joists, N =	1	
Joist species	Southern yellow pine No.1 dense	
Actual surface:	Dry	(m.c. ≤ 19%)
Moisture content, m.c. =	19.00	%
Specific gravity, G =	0.55	lb/ft^3 (NDS table 8A)





Joist Section

1. Tabulated design values by using NDS-S

Bending, F_b =	1450	psi
Shear parellel to grain, F_v =	90	psi
Compression perpendicular to grain, $F_{c\perp}$ =	660	psi
Modulus of elasticity, E =	1800000	psi
Joist width design (minimum dressed), b =	1.5000	in
Joist height design (minimum dressed), d =	9.2500	in
Area, A = N b d =	13.88	in^2
Moment of inertia, I_x = N b d^3 / 12 =	98.93	in^4
Section modulus, S_x = 2 I_x / d = N b d^2 / 6 =	21.39	in^3
Density,γ=62.4(G/(1+0.009 G m.c.))(1+m.c./100)=	37.4	lb/ft^3
Selfweight, W_{SW} = γ b d =	5.19	plf

2. Joist property adjustments and adjusted design values

Load duration factor, C_D =	1.00
Repetitive member factor, C_r =	1.15
Size factor, C_F =	1.00
Horizontal shear factor, C_H =	2.00

Beam stability factor, C_L =	1.00	
Bearing area factor, C_b =	1.00	
Wet condition:	⩽ 19%	
Wet service factor, $C_{M\text{-}Fb}$ =	1.00	
Wet service factor, $C_{M\text{-}Fv}$ =	1.00	
Wet service factor, $C_{M\text{-}Fc\perp}$ =	1.00	
Wet service factor, $C_{M\text{-}E}$ =	1.00	
$F_b' = F_b C_r C_F C_D C_L C_{M\text{-}Fb}$ =	1667.50	psi
$F_v' = F_v C_H C_D C_{M\text{-}Fv}$ =	180.00	psi
$F_{c\perp}' = F_{c\perp} C_b C_{M\text{-}Fc\perp}$ =	660.00	psi
$E' = E C_{M\text{-}E}$ =	1800000	psi

3. Applied load

$W_D = s D + W_{SW}$ =	45.19	plf
	40.00	plf
$W_{+W} = s (+W)$ =	10.00	plf
$W_{-W} = s (-W)$ =	54.00	plf
$LC_1 = D$ =	45.19	plf
$LC_2 = D + L$ =	85.19	plf
$LC_3 = D + W$ =	55.19	plf
$LC_4 = D - W$ =	8.81	plf
$LC_5 = D + 0.75L + 0.75W$ =	82.69	plf
$LC_6 = D + 0.75L - 0.75W$ =	34.69	plf
$LC_7 = 0.6D + W$ =	37.12	plf
$LC_8 = 0.6D - W$ =	26.88	plf
Therefore, $W = \max(LC_i)$ =	85.19	plf

4. Bending capacity

$M = W L^2 / 8$ =		2422.79	lb-ft	
$f_b = M / S_x$ =		1359.17	psi	
$f_b \leqslant F_b' \rightarrow$	1359.17	<	1667.50	
Ratio = f_b/F_b' =	0.8151	<	1.0000	**OK**

5. Horizontal shear capacity

$V = W L / 2 =$			642.51	lb	
$fv = (3 V) / (2 A) =$			69.46	psi	
$f_v \leq F_v' \rightarrow$	69.46	<	180.00		
Ratio = $f_v/F_v' =$	0.3859	<	1.0000		**OK**

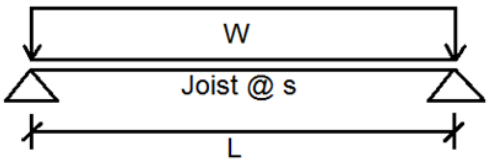
6. Vertical deflection check

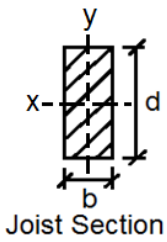
$\Delta_D = (5 W_D L^4) / (384 E' I_x) =$			0.2956	in	
$\Delta_L = (5 W_L L^4) / (384 E' I_x) =$			0.2616	in	
$\Delta_W = (5 W_W L^4) / (384 E' I_x) =$			0.3531	in	
$\Delta_{D+L} = \Delta_D + \Delta_L =$			0.5572	in	
$\Delta_L \leq$	L/240 →	0.2616 (L/692)	< <	0.7542 (L/240)	**OK**
$\Delta_{D+L} \leq$	L/180 →	0.5572 (L/325)	< <	1.0056 (L/180)	**OK**
$\Delta_W \leq$	L/240 →	0.3531 (L/513)	< <	0.7542 (L/240)	**OK**

Wood Joist 2"x6"

DATA

Dead load, D =	20	psf
Live load, L =	20	psf
Wind load, +W =	5	psf
Wind load, -W =	27	psf
Span, L =	116	in
Joist spacing, s =	24	in
Joist width (nominal), b =	2.00	in
Joist height (nominal), d =	6.00	in
Number of joists, N =	1	
Joist species	Southern yellow pine No.1 dense	
Actual surface:	Dry	(m.c. ⩽ 19%)
Moisture content, m.c. =	19.00	%
Specific gravity, G =	0.55	lb/ft^3 (NDS table 8A)





Joist Section

1. Tabulated design values by using NDS-S

Bending, F_b =	1750	psi
Shear parellel to grain, F_v =	90	psi
Compression perpendicular to grain, $F_{c\perp}$ =	660	psi
Modulus of elasticity, E =	1800000	psi
Joist width design (minimum dressed), b =	1.5000	in
Joist height design (minimum dressed), d =	5.5000	in
Area, A = N b d =	8.25	in^2
Moment of inertia, I_x = N b d^3 / 12 =	20.80	in^4
Section modulus, S_x = 2 I_x / d = N b d^2 / 6 =	7.56	in^3
Density,γ=62.4(G/(1+0.009 G m.c.))(1+m.c./100)=	37.4	lb/ft^3
Selfweight, W_{SW} = γ b d =	3.12	plf

2. Joist property adjustments and adjusted design values

Load duration factor, C_D =	1.00
Repetitive member factor, C_r =	1.15
Size factor, C_F =	1.00
Horizontal shear factor, C_H =	2.00

Beam stability factor, C_L =	1.00
Bearing area factor, C_b =	1.00
Wet condition:	⩽ 19%
Wet service factor, $C_{M\text{-}Fb}$ =	1.00
Wet service factor, $C_{M\text{-}Fv}$ =	1.00
Wet service factor, $C_{M\text{-}Fc\perp}$ =	1.00
Wet service factor, $C_{M\text{-}E}$ =	1.00
$F_b' = F_b C_r C_F C_D C_L C_{M\text{-}Fb}$ =	2012.50 psi
$F_v' = F_v C_H C_D C_{M\text{-}Fv}$ =	180.00 psi
$F_{c\perp}' = F_{c\perp} C_b C_{M\text{-}Fc\perp}$ =	660.00 psi
$E' = E C_{M\text{-}E}$ =	1800000 psi

3. Applied load

$W_D = s D + W_{SW}$ =	43.12	plf
	40.00	plf
$W_{+W} = s (+W)$ =	10.00	plf
$W_{-W} = s (-W)$ =	54.00	plf
$LC_1 = D$ =	43.12	plf
$LC_2 = D + L$ =	83.12	plf
$LC_3 = D + W$ =	53.12	plf
$LC_4 = D - W$ =	10.88	plf
$LC_5 = D + 0.75L + 0.75W$ =	80.62	plf
$LC_6 = D + 0.75L - 0.75W$ =	32.62	plf
$LC_7 = 0.6D + W$ =	35.87	plf
$LC_8 = 0.6D - W$ =	28.13	plf
Therefore, $W = \max(LC_i)$ =	83.12	plf

4. Bending capacity

$M = W L^2 / 8$ =		970.85	lb-ft	
$f_b = M / S_x$ =		1540.52	psi	
$f_b \leqslant F_b' \rightarrow$	1540.52	<	2012.50	
Ratio = f_b/F_b' =	0.7655	<	1.0000	**OK**

5. Horizontal shear capacity

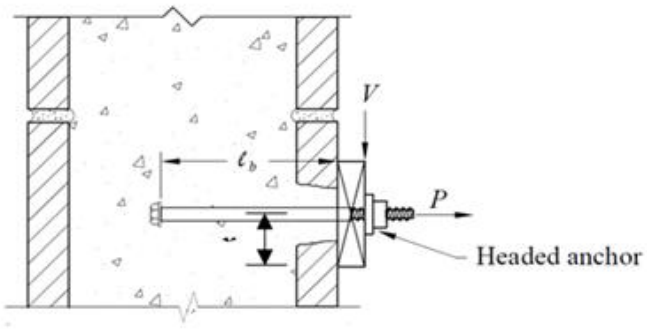
$V = W L / 2 =$			401.73	lb	
$fv = (3 V) / (2 A) =$			73.04	psi	
$f_v \leq F_v' \rightarrow$	73.04	<	180.00		
Ratio = $f_v/F_v' =$	0.4058	<	1.0000		**OK**

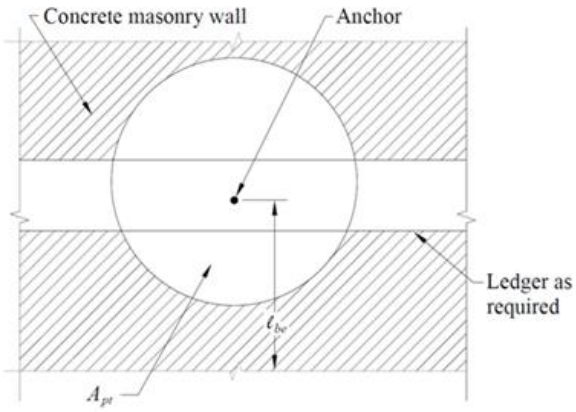
6. Vertical deflection check

$\Delta_D = (5 W_D L^4) / (384 E' I_x) =$			0.2263	in	
$\Delta_L = (5 W_L L^4) / (384 E' I_x) =$			0.2099	in	
$\Delta_W = (5 W_W L^4) / (384 E' I_x) =$			0.2834	in	
$\Delta_{D+L} = \Delta_D + \Delta_L =$			0.4362	in	
$\Delta_L \leq$ L/240 $\rightarrow$	0.2099 (L/553)	< <	0.4833 (L/240)		**OK**
$\Delta_{D+L} \leq$ L/180 $\rightarrow$	0.4362 (L/266)	< <	0.6444 (L/180)		**OK**
$\Delta_W \leq$ L/240 $\rightarrow$	0.2834 (L/409)	< <	0.4833 (L/240)		**OK**

7.2. Expansion Bolts Design

Dbl. 2"x12" P.T. WD. Ledger W/ 3/4" Φ Exp. Bolts @ 16" O.C. (Min. 5" Embed)





Propeties and Geometry

Weather or Soil Exposure	YES	
Top or Face Mount	Face	

***Assumed adequate distance from top/bottom of wall and spacing from adjacent anchors to develop breakout cone*

Anchor Type =	headed	
Anchor Yield Strength =	60000	psi
Anchor Diameter, d_b =	3/4	in
Anchor Hook Length, e_b =	0.00	in

***For headed anchor set hook length equal to 0*

f'_m =	2000	psi
Wall thickness, t =	7.625	in
Edge Distance, l_{be} =	3.25	in
Net Anchor Area, A_b =	0.334	in^2
Effective Embed. Length, l_b =	5.00	in

Loading

Shear Force, V_{total} =	560	lbs
Offset distance, e =	4.00	in
Dist. From C.L. of Bolt To Edge of Ledger, x =	6.00	in
Direct Tension Force, P_{total} =	0	lbs

Detailed Analysis

Check minimum embed.

[TMS 402-13 §1.17.6] l_b = 5.00 in > $l_{b\_min} = \min(4d_b, 2\text{ in})$ = 3.00 in <Satisfactory>

Check minimum cover

[TMS 402-13 §1.16.4.1] $cover_{min}$ = 2.00 in

$cover_{actual}$ = (for top mounted) $t - l_b$ = 2.63 in

(for face mounted) $t - l_b$ = <Satisfactory>

Total Tension Force Considering Ecc., b_{ar}

$$b_{af} = P_u + \frac{V_u e}{(\frac{5}{6})d} =$$ 448 lbs ***assuming that moment arm is (5/6) of 'd'

Determine Tensile Capacity

h_1 = 0.00 in s_1 = 0.00 in A_1 = 0.00 in^2

h_2 = 0.00 in s_2 = 0.00 in A_2 = 0.00 in^2

$$A_{pt} = \pi l_b^{\,2} =$$ 78.54 in^2

[TMS 402-13 Eqn. 8-1]	Masonry Tensile Breakout	$B_{ab} = 1.25A_{pt}\sqrt{f'_m} =$	4391 lbs	
[TMS 402-13 Eqn. 8-2]	Steel Tensile Yield	$B_{as} = 0.6A_b f_y =$	12024 lbs	
[TMS 402-13 Eqn. 8-4]	Anchor Pullout	$B_{ap} = (0.6f'_m e_b d_b + 120\pi(l_b + e_b + d_b)d_b) =$	N/A lbs	
	Design Axial Strength	$B_a =$	4391 lbs	> b_{ar} <Satisfactory>
	Governing Failure Mode:	**Breakout**		

Determine Shear Capacity

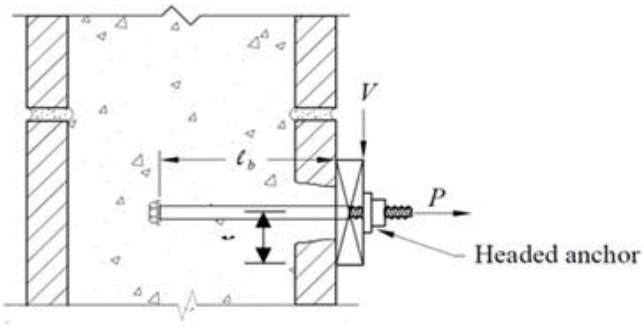
$$A_{pv} = \frac{\pi l_{be}^{\,2}}{2} =$$ 16.59 in^2

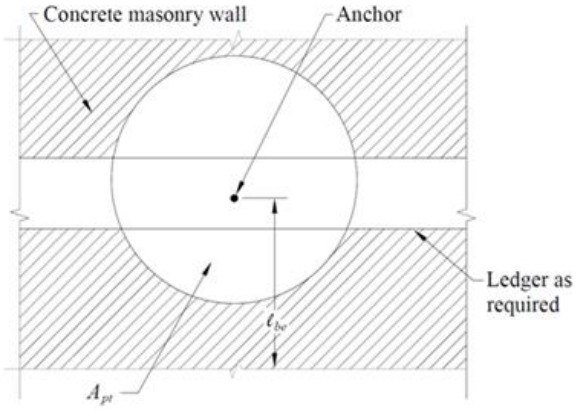
[TMS 402-13 Eqn. 8-6]	Masonry Shear Breakout	$B_{vb} = 1.25A_{pv}\sqrt{f'_m} =$	927 lbs	
[TMS 402-13 Eqn. 8-7]	Masonry Crushing	$B_{vc} = 350\sqrt[4]{f'_m}A_b =$	1779 lbs	
[TMS 402-13 Eqn. 8-8]	Anchor Shear Pryout	$B_{vpry} = 2.0B_{ab} = 2.5A_{pt}\sqrt{f'_m} =$	8781 lbs	
[TMS 402-13 Eqn. 8-9]	Steel Shear Yielding	$B_{vs} = 0.36A_b f_y =$	4329 lbs	
	Design Shear Strength	$B_v =$	927 lbs	> b_{vr} <Satisfactory>
	Governing Failure Mode:	**Breakout**		

Check Combined Tension and Shear Interaction

[TMS 402-13 Eqn. 8-10] $\frac{b_a}{B_a} + \frac{b_v}{B_v} =$ 0.706 < 1.000 <Satisfactory>

Dbl. 2"x10" P.T. WD. Ledger W/ 3/4" Φ Exp. Bolts @ 16" O.C. (Min. 5" Embed)





Propeties and Geometry

Weather or Soil Exposure	YES	
Top or Face Mount	Face	

***Assumed adequate distance from top/bottom of wall and spacing from adjacent anchors to develop breakout cone*

Anchor Type =	headed	
Anchor Yield Strength =	60000	psi
Anchor Diameter, d_b =	3/4	in
Anchor Hook Length, e_b =	0.00	in

***For headed anchor set hook length equal to 0*

f'_m =	2000	psi
Wall thickness, t =	7.625	in
Edge Distance, l_{be} =	3.25	in
Net Anchor Area, A_b =	0.334	in^2
Effective Embed. Length, l_b =	5.00	in

Loading

Shear Force, V_{total} =	480	lbs
Offset distance, e =	4.00	in
Dist. From C.L. of Bolt To Edge of Ledger, x =	5.00	in
Direct Tension Force, P_{total} =	0	lbs

Detailed Analysis

Check minimum embed.

[TMS 402-13 §1.17.6] l_b = 5.00 in > $l_{b\_min} = \min(4d_b, 2\text{ in})$ = 3.00 in <Satisfactory>

Check minimum cover

[TMS 402-13 §1.16.4.1] $cover_{min}$ = 2.00 in

$cover_{actual}$ = (for top mounted) $t - l_b$ = 2.63 in

(for face mounted) $t - l_b$ = <Satisfactory>

Total Tension Force Considering Ecc., b_{ar}

$b_{af} = P_u + \frac{V_u e}{(\frac{5}{6})d}$ = 460.8 lbs ***assuming that moment arm is (5/6) of 'd'

Determine Tensile Capacity

h_1 = 0.00 in s_1 = 0.00 in A_t = 0.00 in^2

h_2 = 0.00 in s_2 = 0.00 in A_s = 0.00 in^2

$A_{pt} = \pi l_b^2$ = 78.54 in^2

[TMS 402-13 Eqn. 8-1]	Masonry Tensile Breakout	$B_{ab} = 1.25A_{pt}\sqrt{f'_m}$ =	4391 lbs	
[TMS 402-13 Eqn. 8-2]	Steel Tensile Yield	$B_{as} = 0.6A_b f_y$ =	12024 lbs	
[TMS 402-13 Eqn. 8-4]	Anchor Pullout	$B_{ap} = (0.6f'_m e_b d_b + 120\pi(l_b + e_b + d_b)d_b)$ =	N/A lbs	
	Design Axial Strength	B_a =	4391 lbs > b_{ar}	<Satisfactory>
	Governing Failure Mode:	*Breakout*		

Determine Shear Capacity

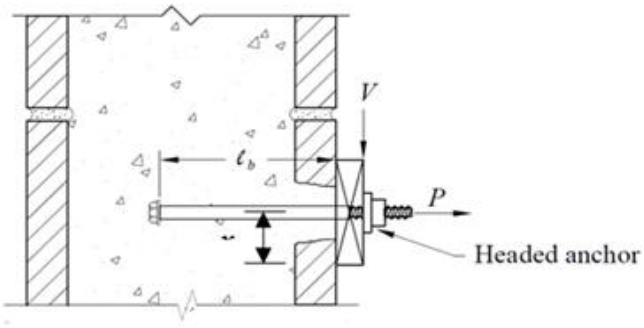
$A_{pv} = \frac{\pi l_{be}^2}{2}$ = 16.59 in^2

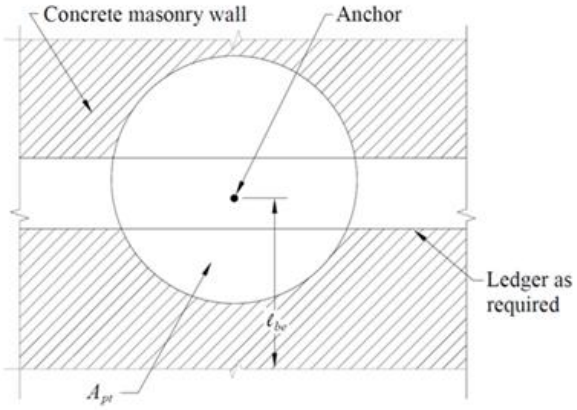
[TMS 402-13 Eqn. 8-6]	Masonry Shear Breakout	$B_{vb} = 1.25A_{pv}\sqrt{f'_m}$ =	927 lbs	
[TMS 402-13 Eqn. 8-7]	Masonry Crushing	$B_{vc} = 350\sqrt[4]{f'_m}A_b$ =	1779 lbs	
[TMS 402-13 Eqn. 8-8]	Anchor Shear Pryout	$B_{vpry} = 2.0B_{ab} = 2.5A_{pt}\sqrt{f'_m}$ =	8781 lbs	
[TMS 402-13 Eqn. 8-9]	Steel Shear Yielding	$B_{vs} = 0.36A_b f_y$ =	4329 lbs	
	Design Shear Strength	B_v =	927 lbs > b_{vr}	<Satisfactory>
	Governing Failure Mode:	*Breakout*		

Check Combined Tension and Shear Interaction

[TMS 402-13 Eqn. 8-10] $\frac{b_a}{B_a} + \frac{b_v}{B_v}$ = 0.622 < 1.000 <Satisfactory>

Dbl. 2"x6" P.T. WD. Ledger W/ 5/8" Φ Exp. Bolts @ 16" O.C. (Min. 5" Embed)





Propeties and Geometry

Weather or Soil Exposure	YES	
Top or Face Mount	Face	

***Assumed adequate distance from top/bottom of wall and spacing from adjacent anchors to develop breakout cone*

Anchor Type =	headed	
Anchor Yield Strength =	60000	psi
Anchor Diameter, d_b =	5/8	in
Anchor Hook Length, e_b =	0.00	in

***For headed anchor set hook length equal to 0*

f'_m =	2000	psi
Wall thickness, t =	7.625	in
Edge Distance, l_{be} =	3.25	in
Net Anchor Area, A_b =	0.226	in^2
Effective Embed. Length, l_b =	5.00	in

Loading

Shear Force, V_{total} =	305	lbs
Offset distance, e =	4.00	in
Dist. From C.L. of Bolt To Edge of Ledger, x =	3.00	in
Direct Tension Force, P_{total} =	0	lbs

Detailed Analysis

Check minimum embed.

[TMS 402-13 §1.17.6] l_e = 5.00 in > $l_{e\_min} = \min(4d_b, 2\text{ in})$ = 2.50 in <Satisfactory>

Check minimum cover

[TMS 402-13 §1.16.4.1] $cover_{min}$ = 1.50 in

$cover_{actual}$ = (for top mounted) $t - l_{se}$ = 2.63 in <Satisfactory>

(for face mounted) $t - l_e$ =

Total Tension Force Considering Ecc., b_{ar}

$$b_{nf} = P_u + \frac{V_u e}{(\frac{3}{6})d} =$$ 488 lbs ***assuming that moment arm is (5/6) of 'd'

Determine Tensile Capacity

h_1 = 0.00 in s_1 = 0.00 in A_1 = 0.00 in^2

h_2 = 0.00 in s_2 = 0.00 in A_2 = 0.00 in^2

$$A_{pt} = \pi l_b^{\,2} =$$ 78.54 in^2

[TMS 402-13 Eqn. 8-1]	Masonry Tensile Breakout	$B_{ab} = 1.25A_{pt}\sqrt{f'_m} =$	4391 lbs	
[TMS 402-13 Eqn. 8-2]	Steel Tensile Yield	$B_{as} = 0.6A_b f_y =$	8136 lbs	
[TMS 402-13 Eqn. 8-4]	Anchor Pullout	$B_{ap} = (0.6f'_m e_b d_b + 120\pi(l_b + e_b + d_b)d_b) =$	N/A lbs	
	Design Axial Strength	$B_a =$	4391 lbs > b_{ar}	<Satisfactory>
	Governing Failure Mode:	**Breakout**		

Determine Shear Capacity

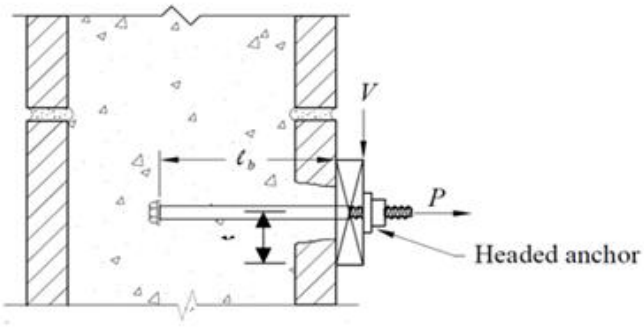
$$A_{pv} = \frac{\pi l_{be}^{\,2}}{2} =$$ 16.59 in^2

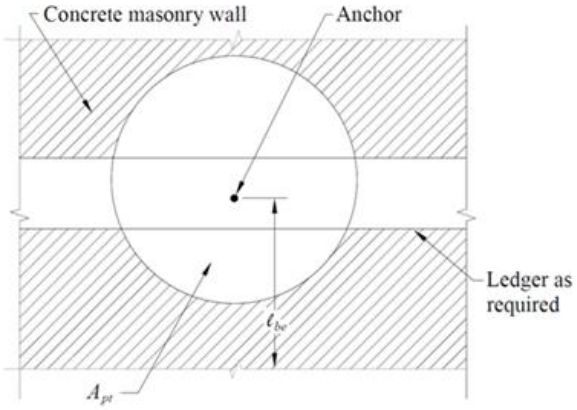
[TMS 402-13 Eqn. 8-6]	Masonry Shear Breakout	$B_{vb} = 1.25A_{pv}\sqrt{f'_m} =$	927 lbs	
[TMS 402-13 Eqn. 8-7]	Masonry Crushing	$B_{vc} = 350\sqrt[4]{f'_m}A_b =$	1614 lbs	
[TMS 402-13 Eqn. 8-8]	Anchor Shear Pryout	$B_{vpry} = 2.0B_{ab} = 2.5A_{pt}\sqrt{f'_m} =$	8781 lbs	
[TMS 402-13 Eqn. 8-9]	Steel Shear Yielding	$B_{vs} = 0.36A_b f_y =$	2929 lbs	
	Design Shear Strength	$B_v =$	927 lbs > b_{vr}	<Satisfactory>
	Governing Failure Mode:	**Breakout**		

Check Combined Tension and Shear Interaction

[TMS 402-13 Eqn. 8-10] $$\frac{b_a}{B_a} + \frac{b_v}{B_v} =$$ 0.44 < 1.000 <Satisfactory>

2"x12" P.T. WD. Ledger W/ 5/8" Φ Exp. Bolts @ 24" O.C. (Min. 5" Embed)





Propeties and Geometry

Weather or Soil Exposure	YES	
Top or Face Mount	Face	

***Assumed adequate distance from top/bottom of wall and spacing from adjacent anchors to develop breakout cone*

Anchor Type =	headed	
Anchor Yield Strength =	60000	psi
Anchor Diameter, d_b =	5/8	in
Anchor Hook Length, e_b =	0.00	in

***For headed anchor set hook length equal to 0*

f'_m =	2000	psi
Wall thickness, t =	7.625	in
Edge Distance, l_{be} =	3.25	in
Net Anchor Area, A_b =	0.226	in^2
Effective Embed. Length, l_b =	5.00	in

Loading

Shear Force, V_{total} =	90	lbs
Offset distance, e =	2.00	in
Dist. From C.L. of Bolt To Edge of Ledger, x =	6.00	in
Direct Tension Force, P_{total} =	0	lbs

Detailed Analysis

Check minimum embed.

[TMS 402-13 §1.17.6] l_b = 5.00 in > $l_{b\_min} = \min(4d_b, 2\text{ in})$ = 2.50 in <Satisfactory>

Check minimum cover

[TMS 402-13 §1.16.4.1] $cover_{min}$ = 1.50 in

$cover_{actual}$ = (for top mounted) $t - l_b$ = 2.63 in <Satisfactory>

(for face mounted) $t - l_b$ =

Total Tension Force Considering Ecc., b_{ar}

$b_{af} = P_u + \frac{V_u e}{(\frac{5}{6})d}$ = 36 lbs ***assuming that moment arm is (5/6) of 'd'

Determine Tensile Capacity

h_1 = 0.00 in s_1 = 0.00 in A_1 = 0.00 in^2

h_2 = 0.00 in s_2 = 0.00 in A_2 = 0.00 in^2

$A_{pt} = \pi l_b^2$ = 78.54 in^2

[TMS 402-13 Eqn. 8-1]	Masonry Tensile Breakout	$B_{ab} = 1.25A_{pt}\sqrt{f'_m}$ =	4391 lbs	
[TMS 402-13 Eqn. 8-2]	Steel Tensile Yield	$B_{as} = 0.6A_b f_y$ =	8136 lbs	
[TMS 402-13 Eqn. 8-4]	Anchor Pullout	$B_{ap} = (0.6f'_m e_b d_b + 120\pi(l_b + e_b + d_b)d_b)$ =	N/A lbs	
	Design Axial Strength	B_a =	4391 lbs	> b_{ar} <Satisfactory>
	Governing Failure Mode:	**Breakout**		

Determine Shear Capacity

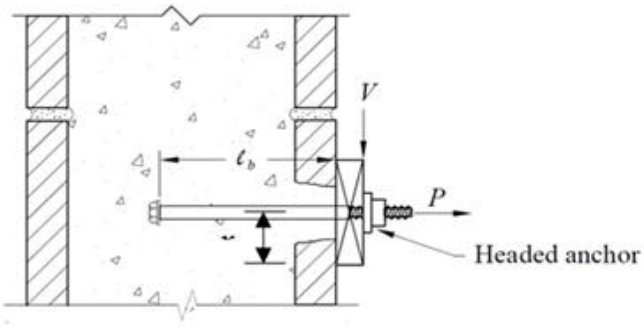
$A_{pv} = \frac{\pi l_{be}^2}{2}$ = 16.59 in^2

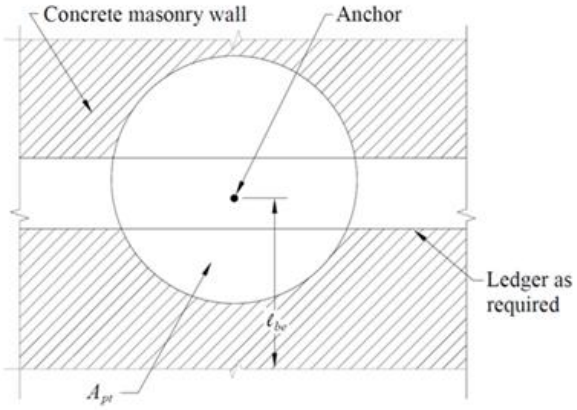
[TMS 402-13 Eqn. 8-6]	Masonry Shear Breakout	$B_{vb} = 1.25A_{pv}\sqrt{f'_m}$ =	927 lbs	
[TMS 402-13 Eqn. 8-7]	Masonry Crushing	$B_{vc} = 350\sqrt[4]{f'_m}A_b$ =	1614 lbs	
[TMS 402-13 Eqn. 8-8]	Anchor Shear Pryout	$B_{vpry} = 2.0B_{ab} = 2.5A_{pt}\sqrt{f'_m}$ =	8781 lbs	
[TMS 402-13 Eqn. 8-9]	Steel Shear Yielding	$B_{vs} = 0.36A_b f_y$ =	2929 lbs	
	Design Shear Strength	B_v =	927 lbs	> b_{vr} <Satisfactory>
	Governing Failure Mode:	**Breakout**		

Check Combined Tension and Shear Interaction

[TMS 402-13 Eqn. 8-10] $\frac{b_a}{B_a} + \frac{b_v}{B_v}$ = 0.105 < 1.000 <Satisfactory>

2"x10" P.T. WD. Ledger W/ 5/8" Φ Exp. Bolts @ 24" O.C. (Min. 5" Embed)





Propeties and Geometry

Weather or Soil Exposure	YES	
Top or Face Mount	Face	

***Assumed adequate distance from top/bottom of wall and spacing from adjacent anchors to develop breakout cone*

Anchor Type =	headed	
Anchor Yield Strength =	60000	psi
Anchor Diameter, d_b =	5/8	in
Anchor Hook Length, e_b =	0.00	in

***For headed anchor set hook length equal to 0*

f'_m =	2000	psi
Wall thickness, t =	7.625	in
Edge Distance, l_{be} =	3.25	in
Net Anchor Area, A_b =	0.226	in^2
Effective Embed. Length, l_b =	5.00	in

Loading

Shear Force, V_{total} =	90	lbs
Offset distance, e =	2.00	in
Dist. From C.L. of Bolt To Edge of Ledger, x =	5.00	in
Direct Tension Force, P_{total} =	0	lbs

Detailed Analysis

Check minimum embed.

[TMS 402-13 §1.17.6] l_b = 5.00 in > $l_{b\_min} = \min(4d_b, 2\text{ in})$ = 2.50 in <Satisfactory>

Check minimum cover

[TMS 402-13 §1.16.4.1] $cover_{min}$ = 1.50 in

$cover_{actual}$ = (for top mounted) $t - l_b$ = 2.63 in <Satisfactory>

(for face mounted) $t - l_b$ =

Total Tension Force Considering Ecc., b_{ar}

$$b_{af} = P_u + \frac{V_u e}{(\frac{5}{6})d} =$$ 43.2 lbs ***assuming that moment arm is (5/6) of 'd'

Determine Tensile Capacity

h_1 = 0.00 in s_1 = 0.00 in A_1 = 0.00 in^2

h_2 = 0.00 in s_2 = 0.00 in A_2 = 0.00 in^2

$$A_{pt} = \pi l_b^2 =$$ 78.54 in^2

[TMS 402-13 Eqn. 8-1]	Masonry Tensile Breakout	$B_{ab} = 1.25A_{pt}\sqrt{f'_m} =$	4391 lbs	
[TMS 402-13 Eqn. 8-2]	Steel Tensile Yield	$B_{as} = 0.6A_b f_y =$	8136 lbs	
[TMS 402-13 Eqn. 8-4]	Anchor Pullout	$B_{ap} = (0.6f'_m e_b d_b + 120\pi(l_b + e_b + d_b)d_b) =$	N/A lbs	
	Design Axial Strength	$B_a =$	4391 lbs	> b_{ar} <Satisfactory>
	Governing Failure Mode:	**Breakout**		

Determine Shear Capacity

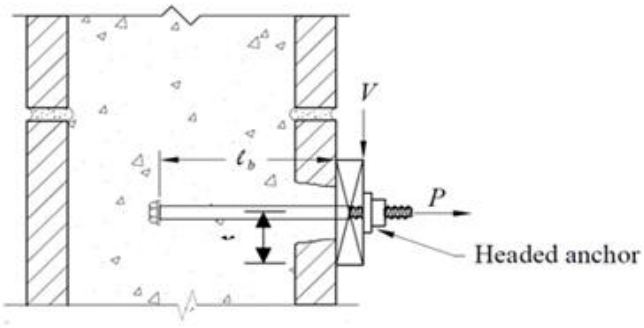
$$A_{pv} = \frac{\pi l_{be}^2}{2} =$$ 16.59 in^2

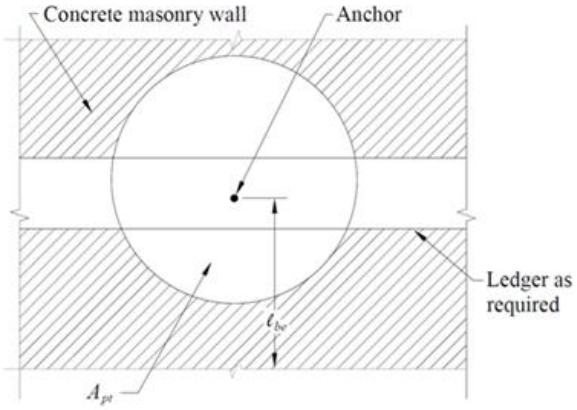
[TMS 402-13 Eqn. 8-6]	Masonry Shear Breakout	$B_{vb} = 1.25A_{pv}\sqrt{f'_m} =$	927 lbs	
[TMS 402-13 Eqn. 8-7]	Masonry Crushing	$B_{vc} = 350\sqrt[4]{f'_m}A_b =$	1614 lbs	
[TMS 402-13 Eqn. 8-8]	Anchor Shear Pryout	$B_{vpry} = 2.0B_{ab} = 2.5A_{pt}\sqrt{f'_m} =$	8781 lbs	
[TMS 402-13 Eqn. 8-9]	Steel Shear Yielding	$B_{vs} = 0.36A_b f_y =$	2929 lbs	
	Design Shear Strength	$B_v =$	927 lbs	> b_{vr} <Satisfactory>
	Governing Failure Mode:	**Breakout**		

Check Combined Tension and Shear Interaction

[TMS 402-13 Eqn. 8-10] $\frac{b_a}{B_a} + \frac{b_v}{B_v} =$ 0.107 < 1.000 <Satisfactory>

2"x6" P.T. WD. Ledger W/ 5/8" Φ Exp. Bolts @ 24" O.C. (Min. 5" Embed)





Propeties and Geometry

Weather or Soil Exposure	YES	
Top or Face Mount	Face	

***Assumed adequate distance from top/bottom of wall and spacing from adjacent anchors to develop breakout cone*

Anchor Type =	headed	
Anchor Yield Strength =	60000	psi
Anchor Diameter, d_b =	5/8	in
Anchor Hook Length, e_b =	0.00	in

***For headed anchor set hook length equal to 0*

f'_m =	2000	psi
Wall thickness, t =	7.625	in
Edge Distance, l_{be} =	3.25	in
Net Anchor Area, A_b =	0.226	in^2
Effective Embed. Length, l_b =	5.00	in

Loading

Shear Force, V_{total} =	90	lbs
Offset distance, e =	2.00	in
Dist. From C.L. of Bolt To Edge of Ledger, x =	3.00	in
Direct Tension Force, P_{total} =	0	lbs

Detailed Analysis

Check minimum embed.

[TMS 402-13 §1.17.6] l_b = 5.00 in > $l_{b\_min} = \min(4d_b, 2\text{ in})$ = 2.50 in <Satisfactory>

Check minimum cover

[TMS 402-13 §1.16.4.1] $cover_{min}$ = 1.50 in

$cover_{actual}$ = (for top mounted) $t - l_b$ = 2.63 in

(for face mounted) $t - l_b$ = <Satisfactory>

Total Tension Force Considering Ecc., b_{af}

$$b_{af} = P_u + \frac{V_u e}{(\frac{5}{6})d} =$$ 72 lbs ***assuming that moment arm is (5/6) of 'd'

Determine Tensile Capacity

h_1 = 0.00 in s_1 = 0.00 in A_1 = 0.00 in^2

h_2 = 0.00 in s_2 = 0.00 in A_2 = 0.00 in^2

$A_{pt} = \pi l_b^2 =$ 78.54 in^2

[TMS 402-13 Eqn. 8-1]	Masonry Tensile Breakout	$B_{ab} = 1.25A_{pt}\sqrt{f'_m} =$	4391 lbs	
[TMS 402-13 Eqn. 8-2]	Steel Tensile Yield	$B_{as} = 0.6A_b f_y =$	8136 lbs	
[TMS 402-13 Eqn. 8-4]	Anchor Pullout	$B_{ap} = (0.6f'_m e_b d_b + 120\pi(l_b + e_b + d_b)d_b) =$	N/A lbs	
	Design Axial Strength	$B_a =$	4391 lbs	> b_{af} <Satisfactory>
	Governing Failure Mode:	*Breakout*		

Determine Shear Capacity

$$A_{pv} = \frac{\pi l_{be}^2}{2} =$$ 16.59 in^2

[TMS 402-13 Eqn. 8-6]	Masonry Shear Breakout	$B_{vb} = 1.25A_{pv}\sqrt{f'_m} =$	927 lbs	
[TMS 402-13 Eqn. 8-7]	Masonry Crushing	$B_{vc} = 350\sqrt[3]{f'_m A_b} =$	1614 lbs	
[TMS 402-13 Eqn. 8-8]	Anchor Shear Pryout	$B_{vpry} = 2.0B_{ab} = 2.5A_{pt}\sqrt{f'_m} =$	8781 lbs	
[TMS 402-13 Eqn. 8-9]	Steel Shear Yielding	$B_{vs} = 0.36A_b f_y =$	2929 lbs	
	Design Shear Strength	$B_v =$	927 lbs	> b_{vf} <Satisfactory>
	Governing Failure Mode:	*Breakout*		

Check Combined Tension and Shear Interaction

[TMS 402-13 Eqn. 8-10] $\frac{b_a}{B_a} + \frac{b_v}{B_v} =$ 0.113 < 1.000 <Satisfactory>

7.3. Connectors Design

Wood – Wood Connectors

For Catalog Wood Construction Connectors SIMPSON see Attachment 1.

SIMPSON "LU210" Allowable Load: Uplift = 850 lb; Gravity = 1615 lb
Max Wood Joist Reaction: Uplift = 470 lb < 850 lb OK
Gravity = 835 lb < 1615 lb OK

SIMPSON "LU28" Allowable Load: Uplift = 850 lb; Gravity = 1180 lb
Max Wood Joist Reaction: Uplift = 410 lb < 850 lb OK
Gravity = 720 lb < 1180 lb OK

SIMPSON "LU26" Allowable Load: Uplift = 540 lb; Gravity = 1030 lb
Max Wood Joist Reaction: Uplift = 265 lb < 540 lb OK
Gravity = 455 lb < 1030 lb OK

7.4. Structure

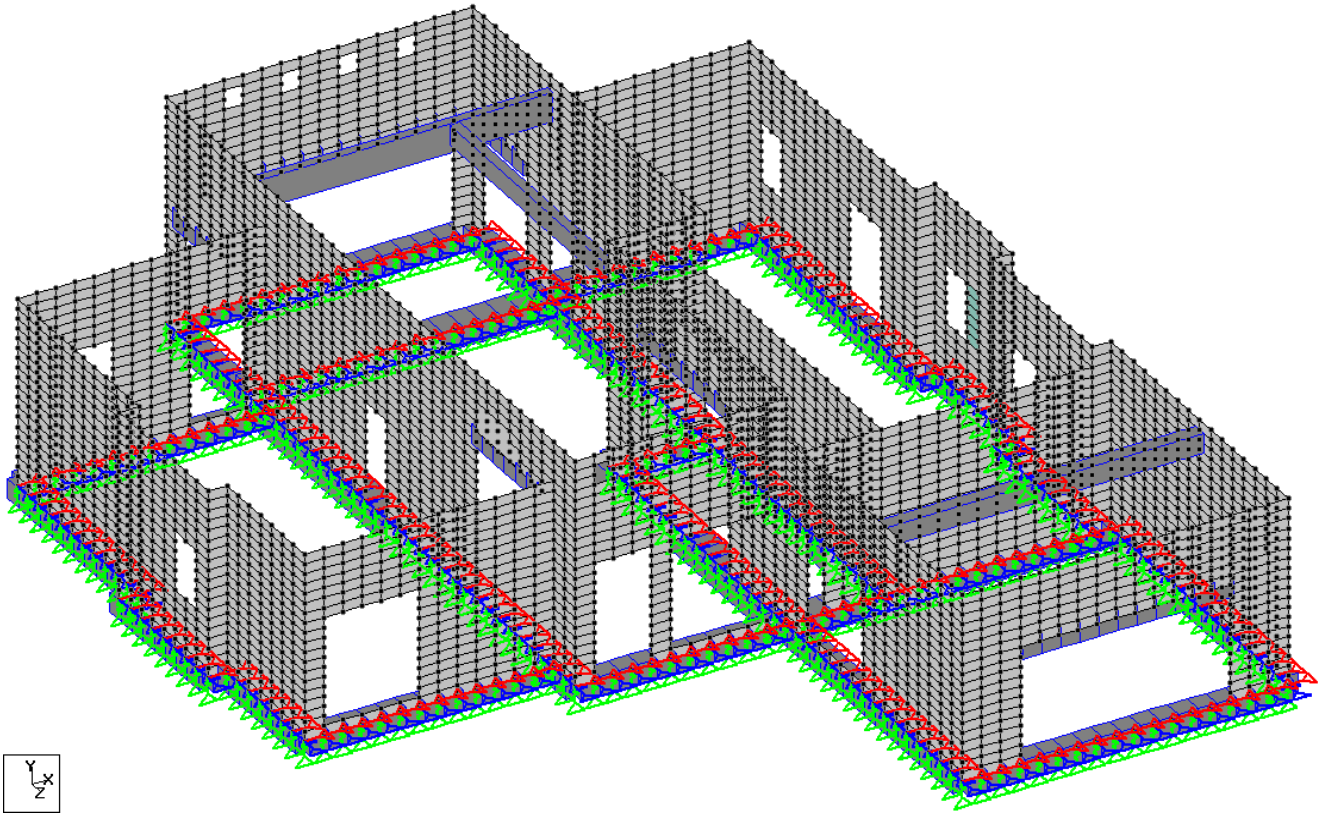
7.4.1. Structural Model

The structure of the residence is made up of structural elements of concrete and concrete masonry wall (units 8''x8''x16'').

The analysis and design of the structure is make by a mathematical model, able to predict the behavior that will have the structure in front of different load combinations.

The structural idealization was made using the software STAAD.Pro, getting load foundations and beams and columns design.

The structural idealization is shown below:



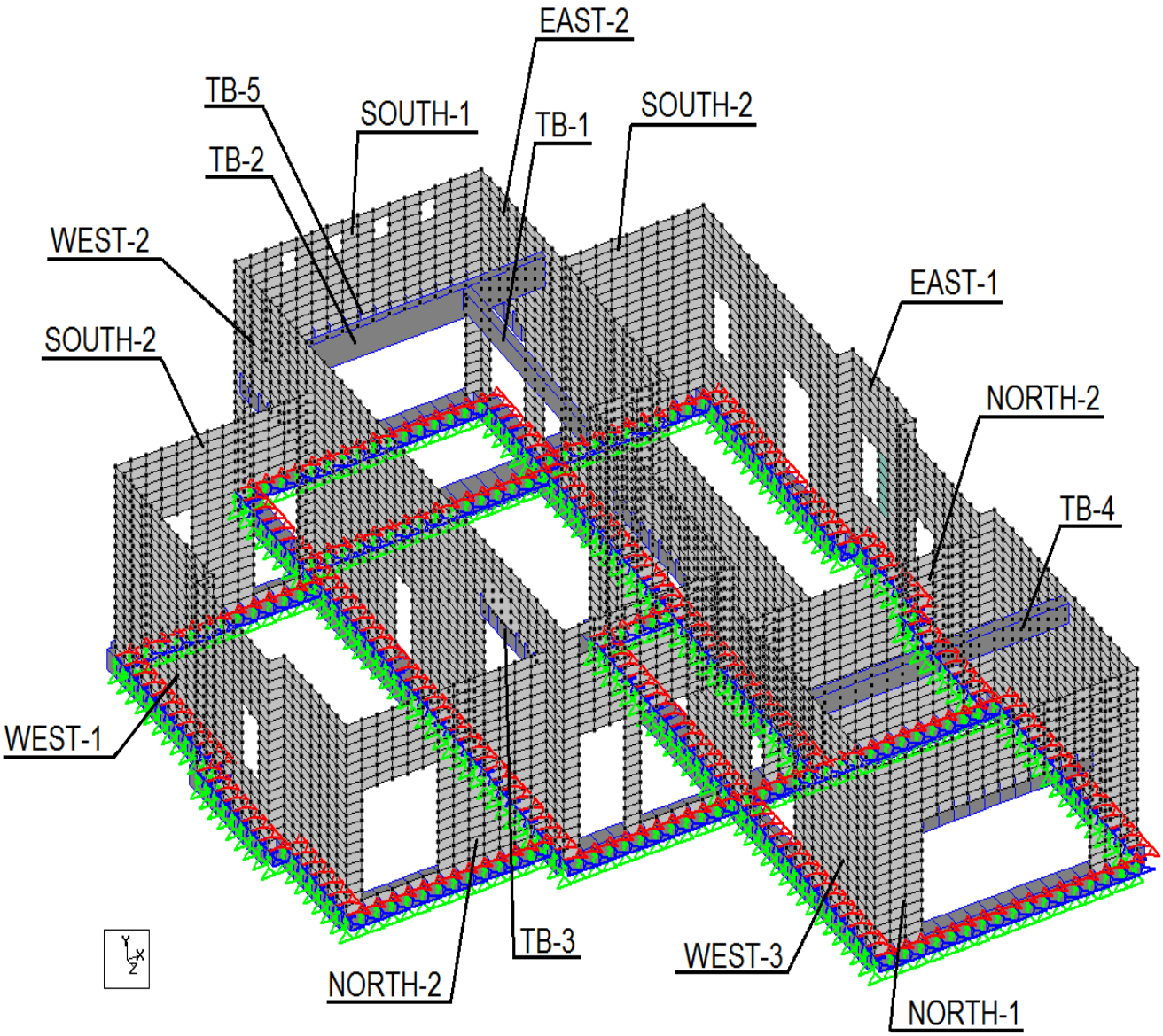
This document presents, in section 7.4.2 to 7.4.4 the results thrown by the software. Showing up next.

All the structural design is supported by the codes, standards and specifications indicated in section 2 of this document, which, the STAAD.Pro software designs each element under these criteria, showing the results of the structural design as follows:

- Concrete Beams: The program shows the results by dividing the beam section into several equal parts, providing the longitudinal reinforcement steel area to be used in each section. (See output in section 7.4.3 of this document).

- Concrete Masonry Walls: They are introduced as a finite element divided into meshes of approximately 8''x16'' (concrete masonry units). The program throwing reinforcing steel area for each meshed element; the result shown in section 7.4.2 of this document, the steel of design for each element with respect to its thickness being indicated.

The elevations and beams of the STAAD.Pro are shown below:



CONCRETE MASONRY WALL – STAAD INDICATED ELEVATIONS AND BEAMS

7.4.2. Concrete Masonry Walls Design

The modeling of the concrete masonry wall was done with the STAAD.Pro software by meshing the area elements (design element 1 To 4566) with the dimensions referring to the concrete blocks to be used (8''x8''x16''). applying the corresponding charges for the design.

The following table indicates the design moment with its steel area corresponding to an interval spacing of 8'' from the # 5 bar.

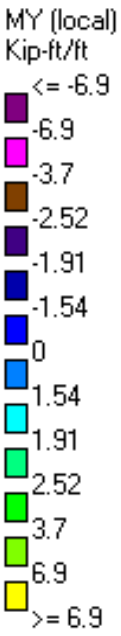
	CMU thk 8"	
B =	12.0000	in
H =	7.6250	in
d =	3.8125	in
f'_c =	3.00	ksi
f_y =	60.00	ksi
A_s =	(12 A_b) / s	in^2
Φ =	0.90	

$q = A_s f_y / (B d f'_c)$

$R = (1 - (1 - q / 0.80)^2) / 2.5$

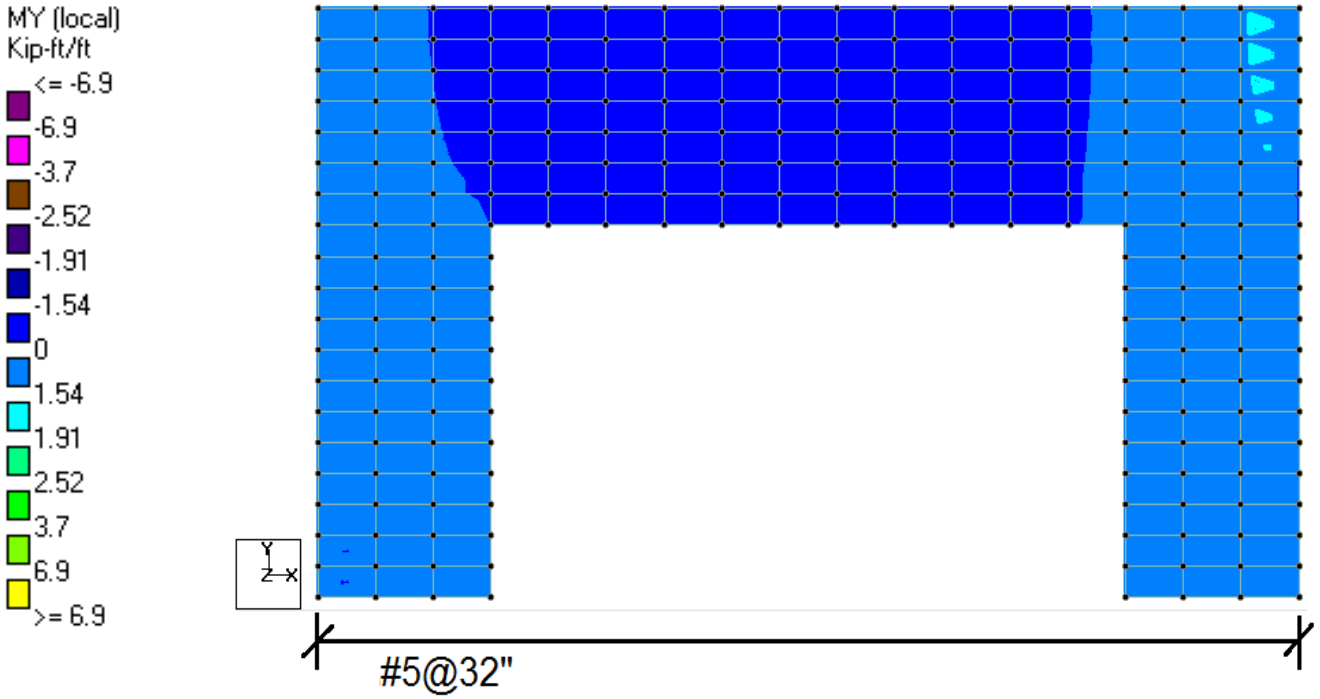
$M_u = R \Phi f'_c B d^2$

Factored Moment (M_u) (kip-ft/ft)	Reinforced Steel
CMU 8''x8''x16''	
<= 1.539	# 5 @ 40''
> 1.539 to 1.912	# 5 @ 32''
> 1.912 to 2.521	# 5 @ 24''
> 2.521 to 3.699	# 5 @ 16''
> 3.699 to 6.902	# 5 @ 8''

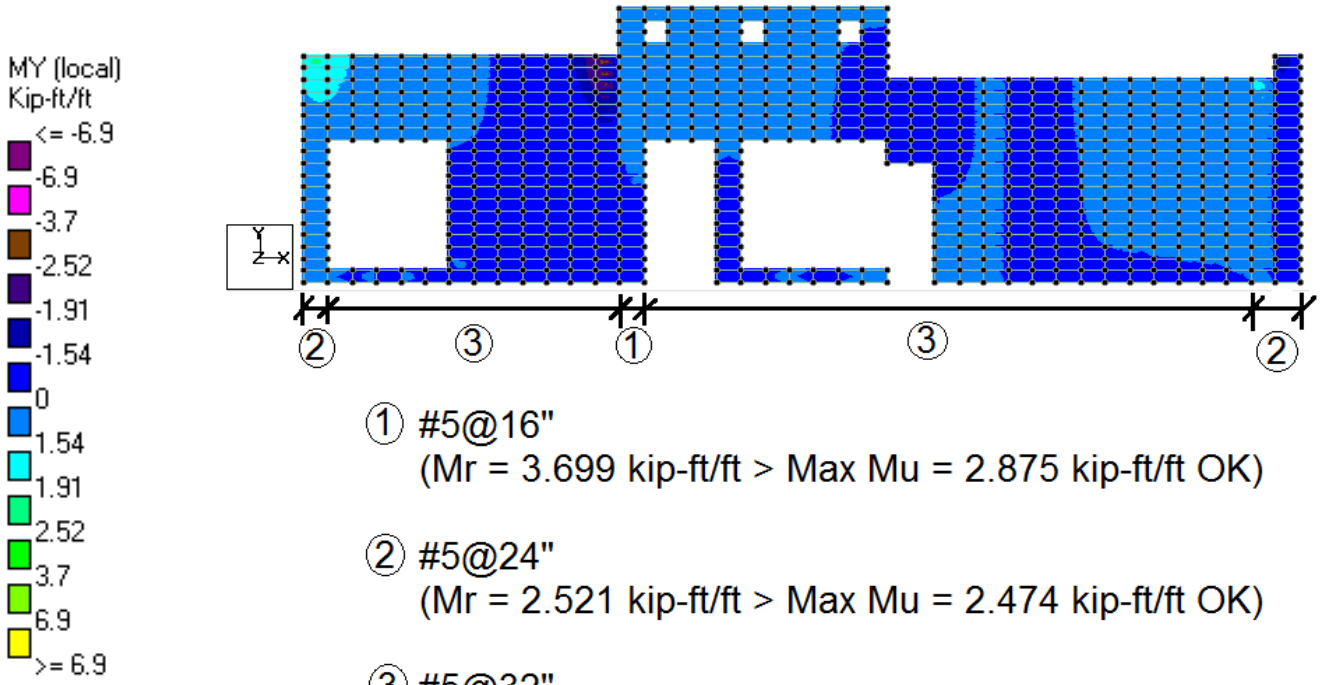


In the previous graphs, the design moment is illustrated in each area of the concrete masonry wall, establishing the intervals according to the separation in multiples of 8'' of the # 5 bar (see table above); showing the color with respect to the related moment interval.

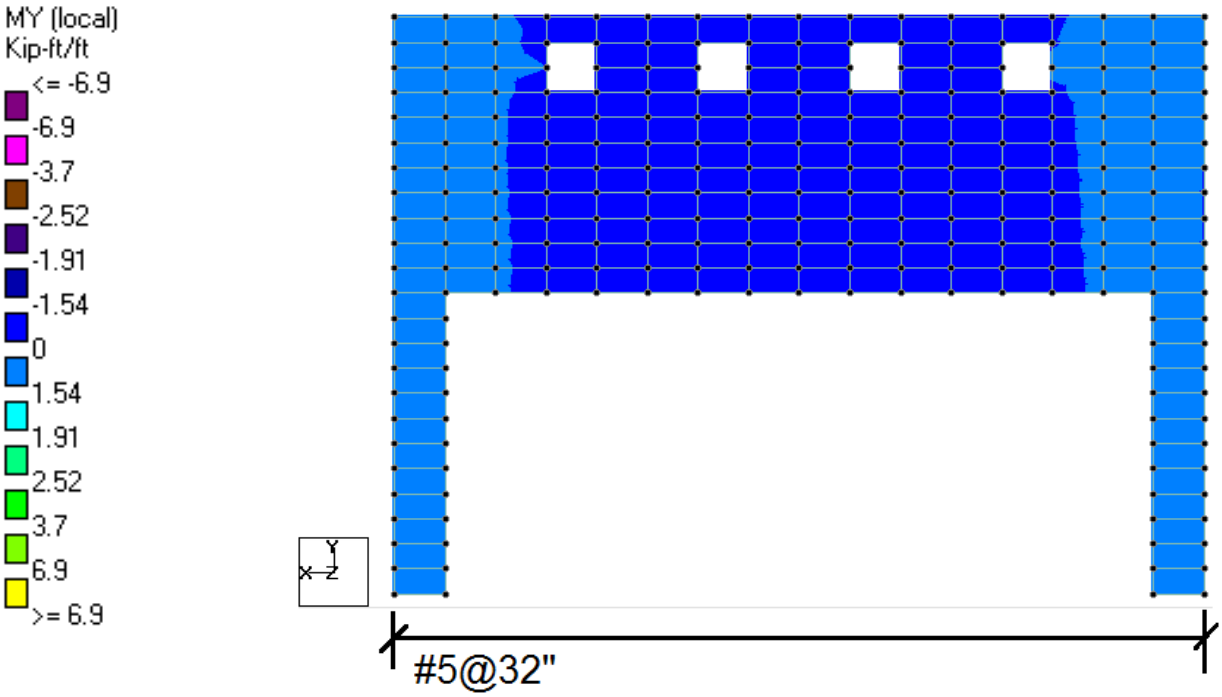
North-1 Elevation (CMU 8''x8''x16''):



North-2 Elevation (CMU 8''x8''x16''):

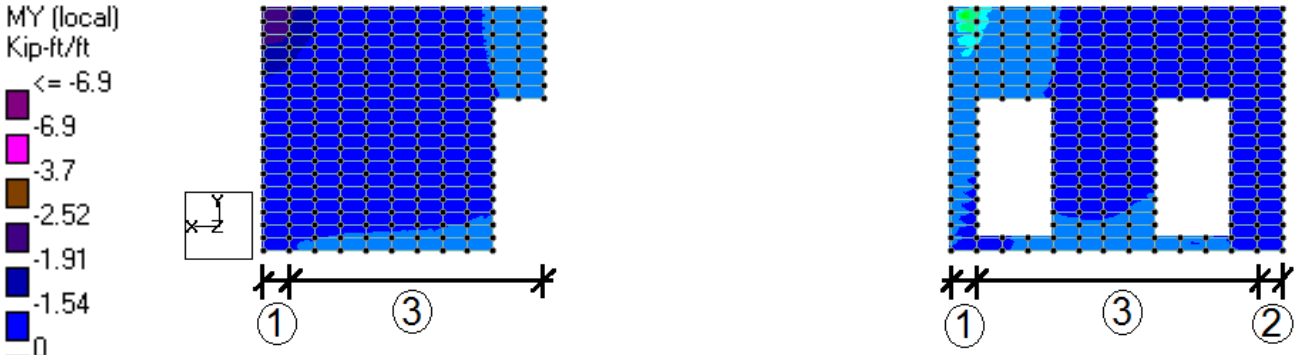


South-1 Elevation (CMU 8''x8''x16''):



(Mr = 1.912 kip-ft/ft > Max Mu = 1.289 kip-ft/ft OK)

South-2 Elevation (CMU 8''x8''x16''):

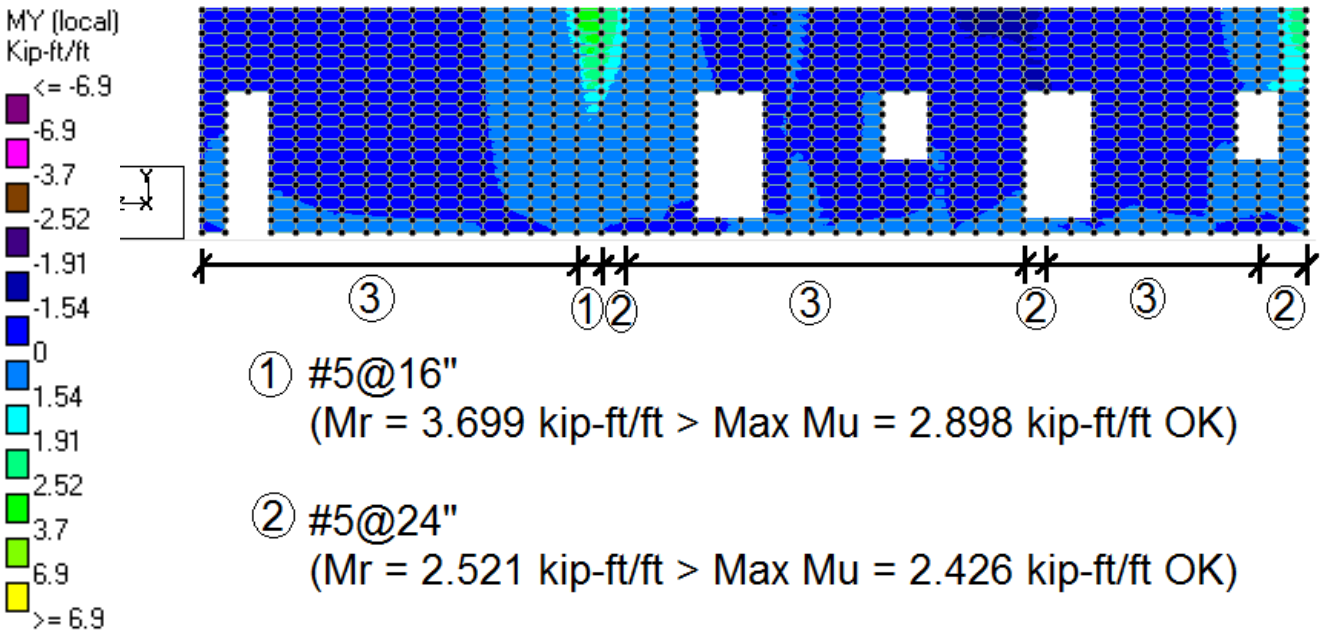


①#5@16"
(Mr = 3.699 kip-ft/ft > Max Mu = 2.742 kip-ft/ft OK)

②#5@24"
(Mr = 2.521 kip-ft/ft > Max Mu = 2.146 kip-ft/ft OK)

③#5@32"
(Mr = 1.912 kip-ft/ft > Max Mu = 1.840 kip-ft/ft OK)

East-1 Elevation (CMU 8''x8''x16''):

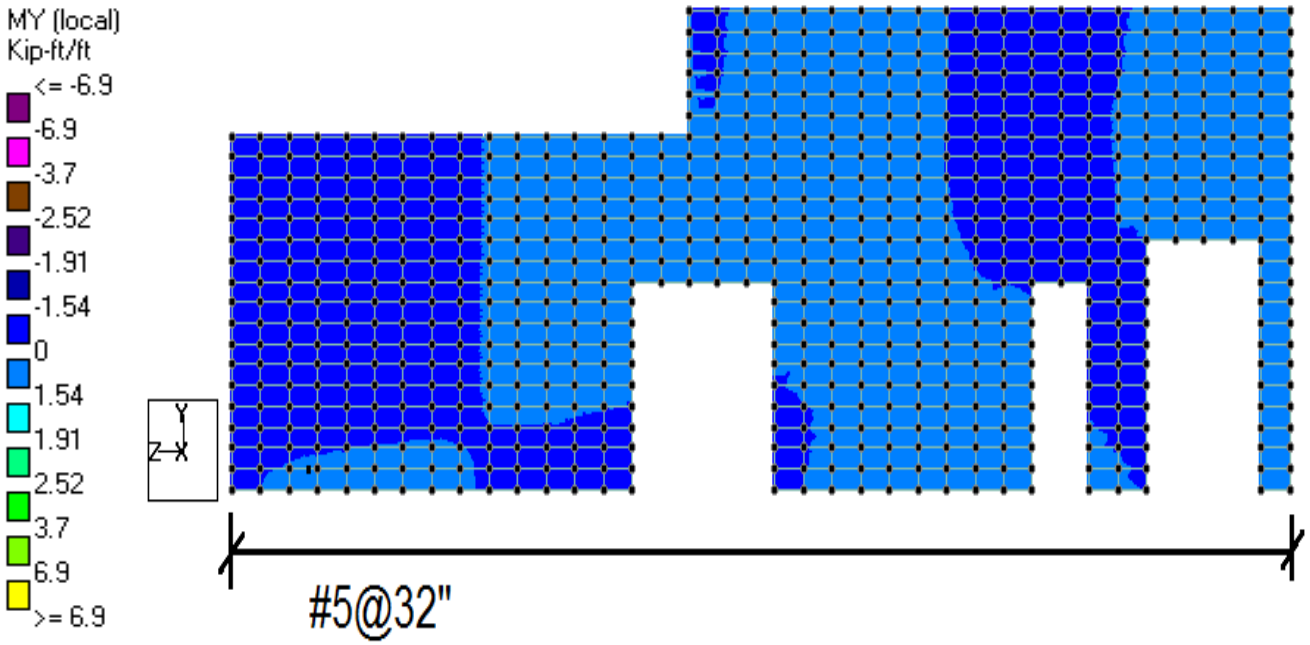


① #5@16"
(Mr = 3.699 kip-ft/ft > Max Mu = 2.898 kip-ft/ft OK)

② #5@24"
(Mr = 2.521 kip-ft/ft > Max Mu = 2.426 kip-ft/ft OK)

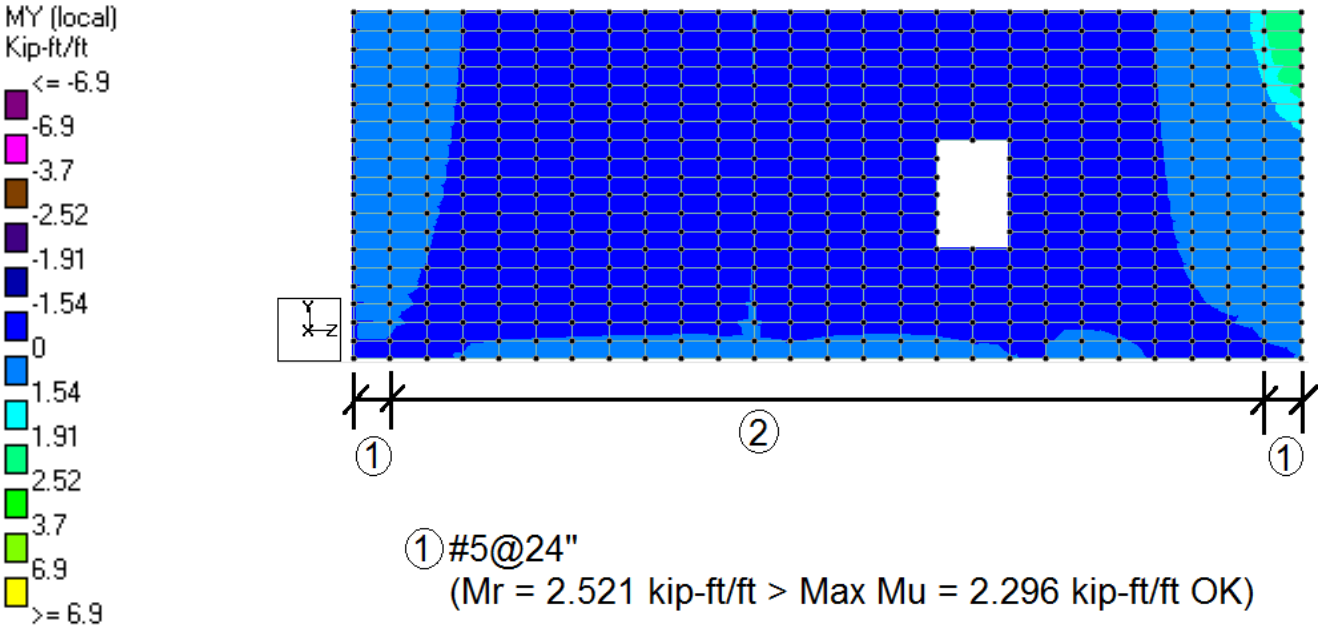
③ #5@32"
(Mr = 1.912 kip-ft/ft > Max Mu = 1.872 kip-ft/ft OK)

East-2 Elevation (CMU 8''x8''x16''):



#5@32"
(Mr = 1.912 kip-ft/ft > Max Mu = 1.339 kip-ft/ft OK)

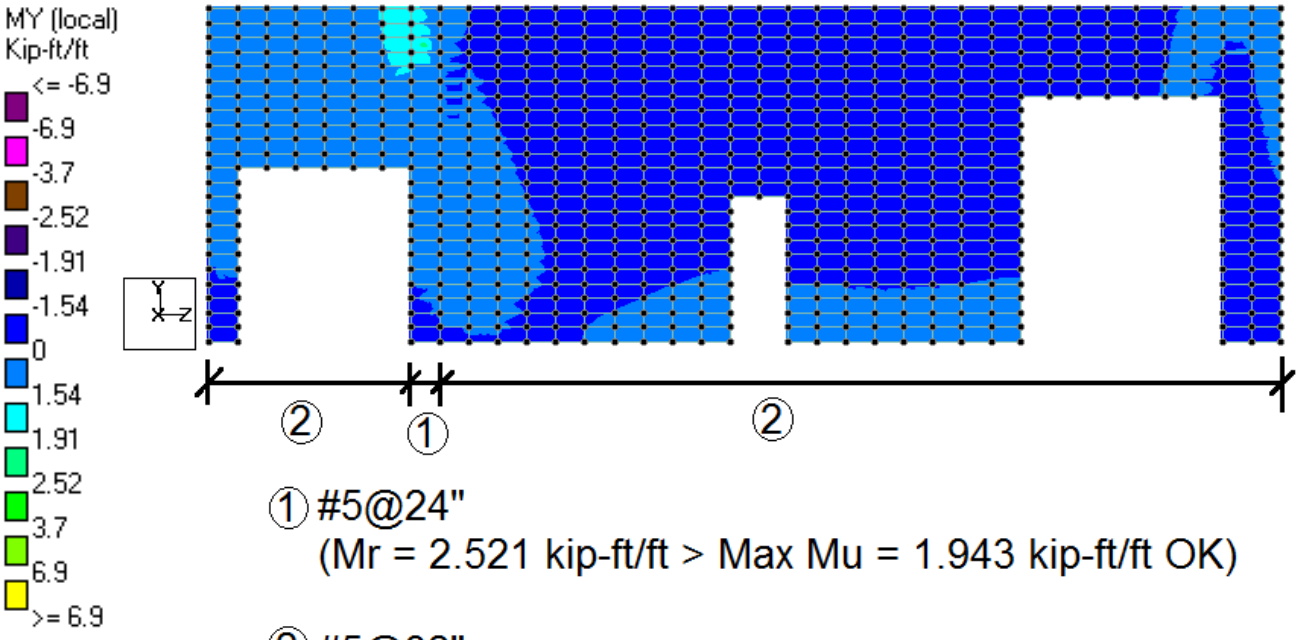
West-1 Elevation (CMU 8''x8''x16''):



① #5@24"
(Mr = 2.521 kip-ft/ft > Max Mu = 2.296 kip-ft/ft OK)

② #5@32"
(Mr = 1.912 kip-ft/ft > Max Mu = 1.633 kip-ft/ft OK)

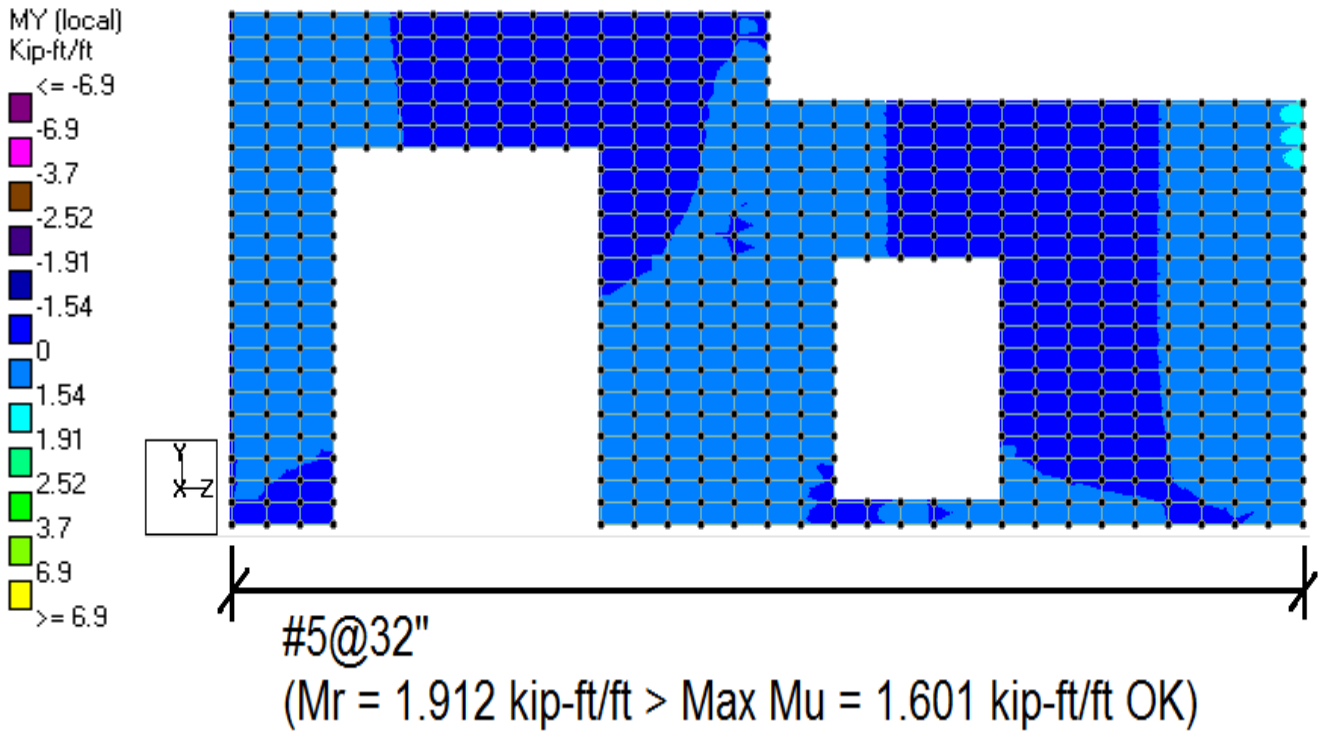
West-2 Elevation (CMU 8''x8''x16''):



① #5@24"
(Mr = 2.521 kip-ft/ft > Max Mu = 1.943 kip-ft/ft OK)

② #5@32"
(Mr = 1.912 kip-ft/ft > Max Mu = 1.906 kip-ft/ft OK)

West-3 Elevation (CMU 8''x8''x16''):



#5@32"

(Mr = 1.912 kip-ft/ft > Max Mu = 1.601 kip-ft/ft OK)

7.4.3. Concrete Beams Design

TB-1

```
=====================================================================
       BEAM  NO.  5278 DESIGN RESULTS - FLEXURE PER CODE ACI 318

LEN -  18.67FT.  FY - 60000.  FC - 3000.  SIZE -  8.00 X 16.00 INCHES
_____________________________________________________________________

|-------------------------------------------------------------------|
|   CRITICAL POS MOMENT=     37.56 KIP-FT  AT  8.71 FT, LOAD  134|
|   REQD STEEL=  0.67 IN2, ROW=0.0061, ROWMX=0.0160 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING= 10.00/ 1.75/ 3.25 INCH           |
|   REQD. DEVELOPMENT LENGTH = 28.45 INCH                        |
|-------------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =     922.61 inch^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
(FEET)         (SQ. INCH)                (KIP-FEET)
  0.00        0.000/    0.000         0.00/      0.00        0/  223
  1.24        0.158/    0.000         9.39/      0.00      134/    0
  2.49        0.298/    0.000        17.44/      0.00      134/    0
  3.73        0.418/    0.000        24.15/      0.00      134/    0
  4.98        0.517/    0.000        29.51/      0.00      134/    0
  6.22        0.593/    0.000        33.53/      0.00      134/    0
  7.47        0.644/    0.000        36.22/      0.00      134/    0
  8.71        0.670/    0.000        37.56/      0.00      134/    0
  9.96        0.670/    0.000        37.56/      0.00      134/    0
 11.20        0.644/    0.000        36.22/      0.00      134/    0
 12.44        0.593/    0.000        33.53/      0.00      134/    0
 13.69        0.517/    0.000        29.51/      0.00      134/    0
 14.93        0.418/    0.000        24.15/      0.00      134/    0
 16.18        0.298/    0.000        17.44/      0.00      134/    0
 17.42        0.158/    0.000         9.39/      0.00      134/    0
 18.67        0.000/    0.000         0.00/      0.00        0/  223


       B E A M  N O.  5278 D E S I G N  R E S U L T S - SHEAR

 AT START SUPPORT - Vu=    4.61 KIP  Vc=   11.89 KIP  Vs=    0.00 KIP
 Tu=    0.84 KIP-FT  Tc=   1.16 KIP-FT  Ts=   0.00 KIP-FT  LOAD   101
 NO STIRRUPS ARE REQUIRED FOR TORSION.
 REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
 PROVIDE NUM. 3 2-LEGGED STIRRUPS AT  12.0 IN

 AT END   SUPPORT - Vu=    4.61 KIP  Vc=   11.89 KIP  Vs=    0.00 KIP
 Tu=    0.84 KIP-FT  Tc=   1.16 KIP-FT  Ts=   0.00 KIP-FT  LOAD   101
 NO STIRRUPS ARE REQUIRED FOR TORSION.
 REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
 PROVIDE NUM. 3 2-LEGGED STIRRUPS AT  12.0 IN.
```

TB-2

```
======================================================================
       BEAM  NO.  5276-5277 DESIGN RESULTS - FLEXURE PER CODE ACI 318

LEN -  21.33FT.  FY - 60000.  FC - 3000.  SIZE -  8.00 X 24.00 INCHES
______________________________________________________________________

|--------------------------------------------------------------|
|   CRITICAL POS MOMENT=     64.31 KIP-FT  AT  14.88 FT, LOAD  134|
|   REQD STEEL=  0.70 IN2, ROW=0.0040, ROWMX=0.0160 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING= 10.00/ 1.75/ 3.25 INCH           |
|   REQD. DEVELOPMENT LENGTH = 28.45 INCH                        |
|--------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =    2566.82 inch^4

REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
(FEET)         (SQ. INCH)               (KIP-FEET)
  0.00        0.000/    0.000         0.00/      0.00        0/  223
  1.96        0.160/    0.000        15.28/      0.00      135/    0
  3.91        0.301/    0.000        28.45/      0.00      135/    0
  5.87        0.422/    0.000        39.52/      0.00      135/    0
  7.82        0.521/    0.000        48.48/      0.00      135/    0
  9.78        0.598/    0.000        55.35/      0.00      135/    0
 11.73        0.652/    0.000        60.11/      0.00      135/    0
 13.69        0.683/    0.000        62.77/      0.00      135/    0
 14.88        0.700/    0.000        64.31/      0.00      134/    0
 15.55        0.619/    0.000        57.15/      0.00      134/    0
 16.44        0.533/    0.000        49.55/      0.00      134/    0
 17.33        0.444/    0.000        41.52/      0.00      134/    0
 18.22        0.351/    0.000        33.06/      0.00      134/    0
 19.11        0.255/    0.000        24.15/      0.00      134/    0
 20.00        0.155/    0.000        14.82/      0.00      134/    0
 20.89        0.053/    0.000         5.05/      0.00      134/    0
 21.33        0.000/    0.000         0.00/      0.00        0/  223

       B E A M  N O.  5276 D E S I G N  R E S U L T S - SHEAR

 AT START SUPPORT - Vu=    7.07 KIP  Vc=   18.22 KIP  Vs=    0.00 KIP
 Tu=    0.02 KIP-FT  Tc=   1.88 KIP-FT  Ts=   0.00 KIP-FT  LOAD   103
 NO STIRRUPS ARE REQUIRED FOR TORSION.
 REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
 PROVIDE NUM. 3 2-LEGGED STIRRUPS AT 8.0 IN. C/C

 AT MID SUPPORT - Vu=    8.40 KIP  Vc=   18.22 KIP  Vs=    0.00 KIP
 Tu=    0.02 KIP-FT  Tc=   1.88 KIP-FT  Ts=   0.00 KIP-FT  LOAD   103
 NO STIRRUPS ARE REQUIRED FOR TORSION.
 REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
 PROVIDE NUM. 3 2-LEGGED STIRRUPS AT 8.0 IN. C/C

 AT END   SUPPORT - Vu=    7.58 KIP  Vc=   18.01 KIP  Vs=    0.00 KIP
 Tu=    0.03 KIP-FT  Tc=   1.86 KIP-FT  Ts=   0.00 KIP-FT  LOAD   101
 NO STIRRUPS ARE REQUIRED FOR TORSION.
 REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
 PROVIDE NUM. 3 2-LEGGED STIRRUPS AT 8.0 IN. C/C
```

TB-3

```
=====================================================================
       BEAM  NO.  5267 DESIGN RESULTS - FLEXURE PER CODE ACI 318

LEN -   1.33FT.  FY - 60000.  FC - 3000.  SIZE -  8.00 X 16.00 INCHES
_____________________________________________________________________

|-------------------------------------------------------------------|
|   CRITICAL POS MOMENT=      0.73 KIP-FT  AT  0.00 FT, LOAD  134|
|   REQD STEEL=  0.02 IN2, ROW=0.0001, ROWMX=0.0160 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING= 10.00/ 1.50/ 3.50 INCH           |
|   REQD. DEVELOPMENT LENGTH = 13.15 INCH                        |
|-------------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =     500.78 inch^4

  2    1 + 1-1/2    2-NUM.4      0 + 0-0/0      1 + 4-0/0    YES  YES
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      1.35 KIP-FT  AT  1.33 FT, LOAD  143|
|   REQD STEEL=  0.03 IN2, ROW=0.0003, ROWMX=0.0160 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING= 10.00/ 1.50/ 3.50 INCH           |
|   REQD. DEVELOPMENT LENGTH = 13.15 INCH                        |
|-------------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =     500.78 inch^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
(FEET)         (SQ. INCH)               (KIP-FEET)
  0.00        0.012/    0.002         0.73/      0.13      134/  209
  0.09        0.010/    0.002         0.61/      0.12      134/  209
  0.18        0.008/    0.002         0.49/      0.12      134/  209
  0.27        0.006/    0.002         0.37/      0.11      134/  209
  0.36        0.005/    0.002         0.28/      0.11      182/  209
  0.44        0.003/    0.002         0.21/      0.11      176/  215
  0.53        0.003/    0.003         0.21/      0.20      200/  191
  0.62        0.004/    0.005         0.22/      0.30      200/  191
  0.71        0.004/    0.007         0.24/      0.41      200/  191
  0.80        0.004/    0.009         0.25/      0.53      200/  143
  0.89        0.004/    0.011         0.26/      0.67      200/  143
  0.98        0.005/    0.013         0.28/      0.80      200/  143
  1.07        0.005/    0.016         0.29/      0.94      200/  143
  1.16        0.005/    0.018         0.30/      1.08      200/  143
  1.24        0.005/    0.020         0.31/      1.21      200/  143
  1.33        0.005/    0.022         0.31/      1.35      200/  143

       B E A M  N O.  5267 D E S I G N  R E S U L T S - SHEAR

** LOCATION FOR DESIGN FOR SHEAR AT START OF MEMBER  5267 IS BEYOND
   THE MIDPOINT OF MEMBER. DESIGN FOR SHEAR AND TORSION NOT PERFORMED.

** LOCATION FOR DESIGN FOR SHEAR AT END OF MEMBER  5267 IS BEYOND
   THE MIDPOINT OF MEMBER. DESIGN FOR SHEAR AND TORSION NOT PERFORMED.
```

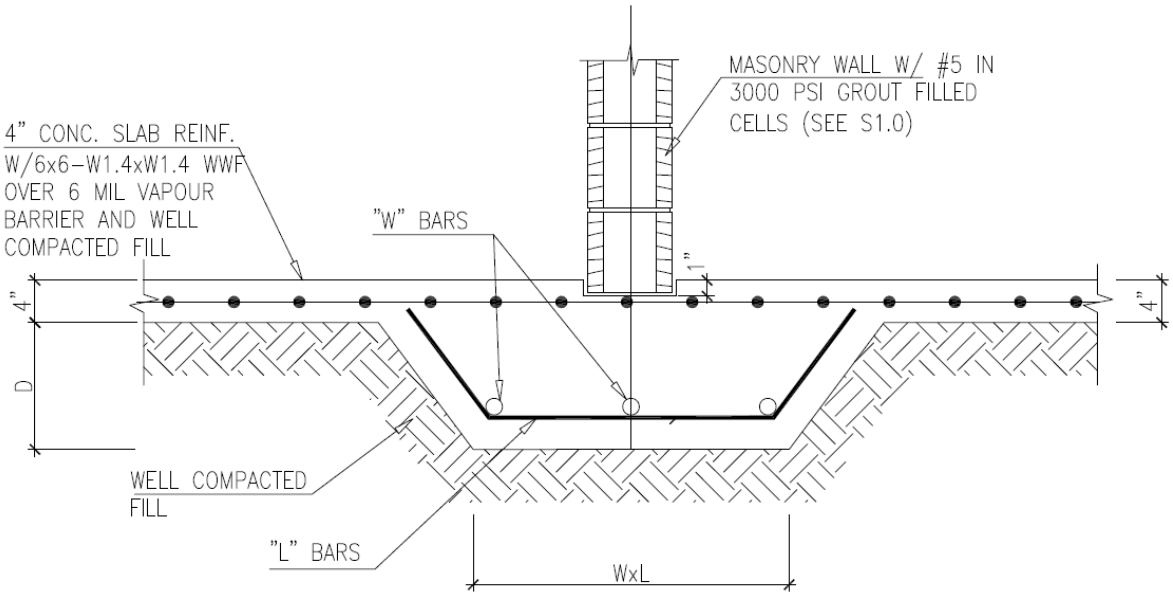
TB-4

```
=====================================================================
       BEAM  NO.  5260 DESIGN RESULTS - FLEXURE PER CODE ACI 318

LEN -  22.67FT.  FY - 60000.  FC - 3000.  SIZE - 12.00 X 16.00 INCHES
_____________________________________________________________________

|-------------------------------------------------------------|
|   CRITICAL POS MOMENT=     60.50 KIP-FT  AT 12.09 FT, LOAD  134|
|   REQD STEEL=  1.09 IN2, ROW=0.0066, ROWMX=0.0160 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING= 10.00/ 1.88/ 7.12 INCH           |
|   REQD. DEVELOPMENT LENGTH = 28.76 INCH                        |
|-------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =    1273.31 inch^4

  2    1 + 1-1/2    2-NUM.4      0 + 0-0/0     22 + 8-0/0    YES  YES
|-------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      3.89 KIP-FT  AT 12.09 FT, LOAD  209|
|   REQD STEEL=  0.08 IN2, ROW=0.0005, ROWMX=0.0160 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING= 10.00/ 1.50/ 7.50 INCH           |
|   REQD. DEVELOPMENT LENGTH = 13.15 INCH                        |
|-------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =     532.18 inch^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
(FEET)         (SQ. INCH)               (KIP-FEET)
  0.00        0.000/    0.000         0.00/      0.00        0/  223
  1.51        0.255/    0.016        15.12/      0.97      134/  209
  3.02        0.481/    0.030        28.09/      1.80      134/  209
  4.53        0.677/    0.041        38.89/      2.50      134/  209
  6.04        0.837/    0.051        47.53/      3.05      134/  209
  7.56        0.961/    0.058        54.01/      3.47      134/  209
  9.07        1.044/    0.062        58.33/      3.75      134/  209
 10.58        1.087/    0.065        60.50/      3.89      134/  209
 12.09        1.087/    0.065        60.50/      3.89      134/  209
 13.60        1.044/    0.062        58.33/      3.75      134/  209
 15.11        0.961/    0.058        54.01/      3.47      134/  209
 16.62        0.837/    0.051        47.53/      3.05      134/  209
 18.13        0.677/    0.041        38.89/      2.50      134/  209
 19.64        0.481/    0.030        28.09/      1.80      134/  209
 21.16        0.255/    0.016        15.12/      0.97      134/  209
 22.67        0.000/    0.000         0.00/      0.00        0/  223


       B E A M  N O.  5260 D E S I G N  R E S U L T S - SHEAR

 AT START/END SUPPORT - Vu=    6.82 KIP  Vc=   17.82 KIP  Vs=    0.00 KIP
 Tu=    0.04 KIP-FT  Tc=   2.25 KIP-FT  Ts=   0.00 KIP-FT  LOAD   102
 NO STIRRUPS ARE REQUIRED FOR TORSION.
 REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
 PROVIDE NUM. 3 2-LEGGED STIRRUPS AT  12.0 IN. C/C
```

TB-5

```
=====================================================================
       BEAM  NO.  5231 DESIGN RESULTS - FLEXURE PER CODE ACI 318

LEN -   1.33FT.  FY - 60000.  FC - 3000.  SIZE -  8.00 X 24.00 INCHES
_____________________________________________________________________

|-------------------------------------------------------------------|
|   CRITICAL POS MOMENT=      1.58 KIP-FT  AT  0.71 FT, LOAD  101|
|   REQD STEEL=  0.02 IN2, ROW=0.0001, ROWMX=0.0160 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING= 10.00/ 1.50/ 3.50 INCH           |
|   REQD. DEVELOPMENT LENGTH = 13.15 INCH                        |
|-------------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =    1341.17 inch^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)      MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
(FEET)         (SQ. INCH)                (KIP-FEET)

  0.00        0.016/    0.000         1.52/      0.00      134/    0
  0.09        0.016/    0.000         1.54/      0.00      134/    0
  0.18        0.016/    0.000         1.55/      0.00      143/    0
  0.27        0.016/    0.000         1.56/      0.00      101/    0
  0.36        0.016/    0.000         1.57/      0.00      101/    0
  0.44        0.016/    0.000         1.57/      0.00      101/    0
  0.53        0.016/    0.000         1.58/      0.00      101/    0
  0.62        0.016/    0.000         1.58/      0.00      101/    0
  0.71        0.016/    0.000         1.58/      0.00      101/    0
  0.80        0.016/    0.000         1.58/      0.00      101/    0
  0.89        0.016/    0.000         1.58/      0.00      101/    0
  0.98        0.016/    0.000         1.57/      0.00      101/    0
  1.07        0.016/    0.000         1.56/      0.00      101/    0
  1.16        0.016/    0.000         1.55/      0.00      143/    0
  1.24        0.016/    0.000         1.54/      0.00      143/    0
  1.33        0.016/    0.000         1.53/      0.00      143/    0


       B E A M  N O.  5231 D E S I G N  R E S U L T S - SHEAR

** LOCATION FOR DESIGN FOR SHEAR AT START OF MEMBER  5231 IS BEYOND
   THE MIDPOINT OF MEMBER. DESIGN FOR SHEAR AND TORSION NOT PERFORMED.

** LOCATION FOR DESIGN FOR SHEAR AT END OF MEMBER  5231 IS BEYOND
   THE MIDPOINT OF MEMBER. DESIGN FOR SHEAR AND TORSION NOT PERFORMED.
```

7.4.4. Footing Design



SOIL BEARING CAPACITY				
Foundation Type	**Footing Dimentions W x L x D**	**Acting Effort (lb/ft)**	**Permissible Effort (lb/ft)**	**Check $\sigma_{perm} > \sigma_a$**
F.1	16'' x CONT. x 12''	2032	2666	OK
F.2	24'' x CONT. x 12''	2784	4000	OK

REINFORCEMENT STEEL										
Foundation Type	**Factored Moment (kip.ft)**		**Steel Area (in^2)**		**Steel Area by Temperature (in^2)**		**Design Steel Area (in^2)**		**Reinforced Steel**	
	W	**L**	**W**	**L**	**W**	**L**	**W**	**L**	**W**	**L**
F.1	22.08	1.74	0.42	0.04	0.36	0.27	0.42	0.27	2 # 5 (0.61 in^2)	# 4 @ 8" (0.29 in^2)
F.2	37.21	2.40	0.72	0.05	0.53	0.27	0.72	0.27	3 # 5 (0.92 in^2)	# 4 @ 8" (0.29 in^2)

ATTACHMENT 1

SIMPSON CATALOG - WOOD CONSTRUCTION CONNECTORS

Standard Face-Mount Joist Hangers

LUCZ — Concealed-flange hanger available for 2x6, 2x8, 2x10 and 2x12 lumber. Ideal for end of ledger/header or post conditions, the LUCZ also provides cleaner lines for exposed conditions such as overhead decks.

LU — Value engineered for strength and economy. Precision-formed — engineered for installation ease and design value.

U — The standard U hanger provides flexibility of joist to header installation. Versatile fastener selection with tested allowable loads.

HU/HUC — Most models have triangle and round holes. To achieve maximum loads, fill both round and triangle holes with common nails. These heavy-duty connectors are designed for additional strength, longevity and safety factors.

Material: See tables on pp. 104–113

Finish: Galvanized. Some products available in ZMAX® coating.

Installation:

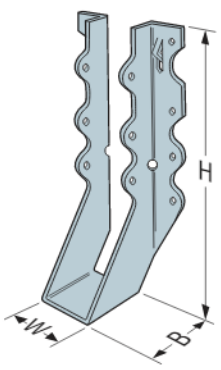
- Use all specified fasteners; see General Notes.
- HU/HUC — Can be installed filling round holes only, or filling round and triangle holes for maximum values.
- Joists sloped up to ¼:12 achieve table loads.
- For installations to masonry or concrete see pp. 237–239.
- HU/HUC hangers can be welded to a steel member. Allowable loads are the lesser of the values in the hanger tables on pp. 104–113 or the weld capacity — refer to technical bulletin T-C-HUHUC-W at **strongtie.com**.
- When nailing into carrying member's end grain, the allowable load is adjusted by a factor of 0.67.

Allowable Loads:

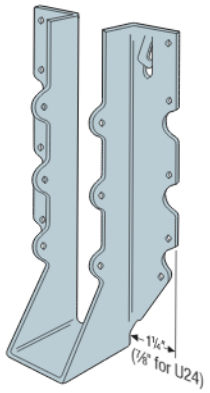
- See table on pp. 104–113 for loads.

Options:

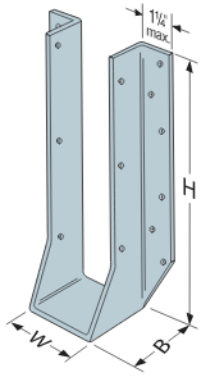
- For both flanges concealed, order HUC.
- When the HUC is skewed, the header flange opposite the skew direction is not concealed. See p. 101.
- The HU is available with the A flanges straight at table loads listed.
- For low-cost, code approved 45° skewed hangers, see SUR/SUL.
- For field-adjustable hangers, see LSSJ, LRUZ and LSSR on pp. 114–117.
- See modifications table for available options and associated load capacities for U and HU hangers.
- For ease of ordering, refer to technical bulletin T-U-HU-WS at **strongtie.com**.
- LU/LUC cannot be modified.



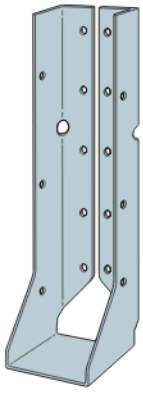
LU28
(except LU roughs)



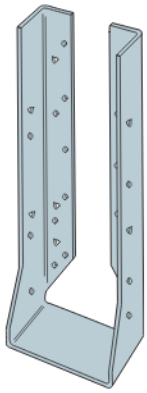
U210



HU214
Projection seat on most models for maximum bearing and section economy.

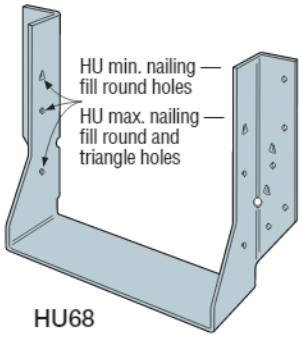


LUC210Z
(LUC26Z similar)

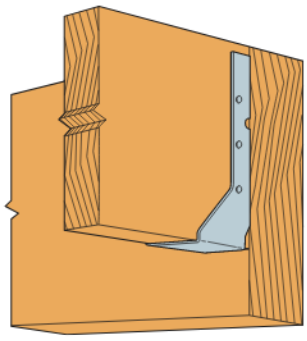


HUC412
Concealed flanges

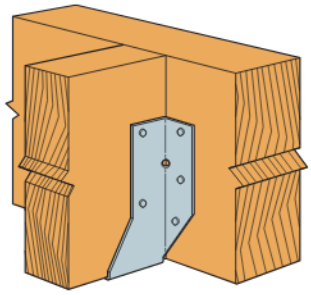
Model configurations may differ from those shown. Some HU models do not have triangle holes. Contact Simpson Strong-Tie.



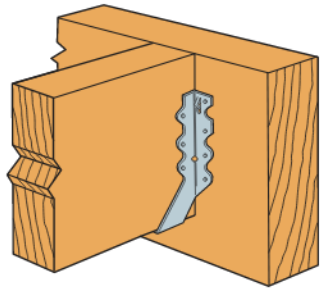
HU68



Typical LUCZ Installation



Typical HU Installation



Typical LU28 Installation

Standard Face-Mount Joist Hangers (cont.)

U/HU/HUC Series Modifications and Associated Load Reduction Factors

Seat			Flange	Fastener Substitutions	
Seat Sloped Up or Down 45° Max.	Seat Skewed 67½° Max.[3] for W ≤ 6 45° Max. for W > 6	Seat Sloped and Skewed	One or Both HU Flanges Concealed[2]	0.162" x 3½" Stainless-Steel Nails	Other Fastener Substitutions
1.00	W ≤ 3⁹⁄₁₆ use 1.00 W > 3⁹⁄₁₆ use 0.80	0.80	1.00 (normal) 0.80 (when sloped and skewed)	Ring shank (all conditions) 1.00 Smooth shank (normal seat) 1.00 Smooth shank (modified seat)[1] 0.50	0.162" x 3½" → 0.162" x 2½" 1.00 0.162" x 3½" → 0.148" x 3" 0.84 0.162" x 3½" → 0.148 x 1½" 0.64

1. Modified seat is sloped, skewed, or both. If sloped only or skewed only, use a smooth-shank stainless-steel reduction of 0.65.
2. For hanger applications with both flanges concealed, W must be at least 2⁹⁄₁₆". To order, ask for HUCXXX. For skewed HUC, only flange on acute side is concealed.
3. Skews over 50° require a square-cut joist.

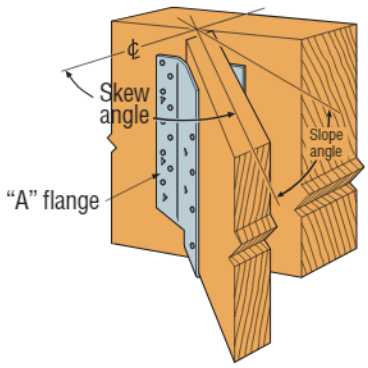
Reduction Factor Instructions

Allowable Download = Seat x Flange x Stainless Steel Nails x Other Fastener Substitutions x (Table Load)

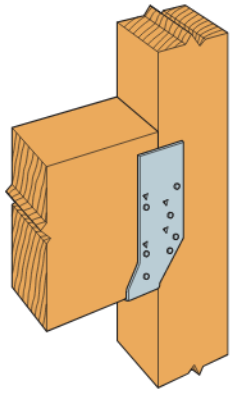
Allowable Uplift = 0.75 x Face Fastener Type x (Table Load) for skewed or sloped
1.00 x Face Fastener Type x (Table Load) for non-skewed or non-sloped

Maximum Skew Degree for Skewed HUC Hangers

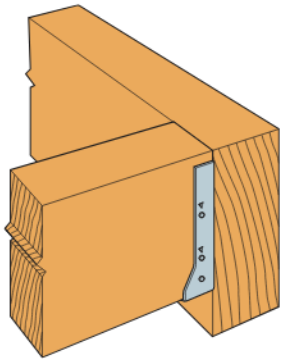
Hanger Width (in.)	Maximum Skew (degree)
2⁹⁄₁₆	31
2⅜	31
2⁹⁄₁₆	34
2¾	37
3⅛	41
3¼	42
> 3¼	45



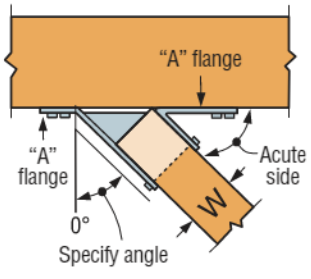
Typical HU Sloped Down, Skewed Right Installation



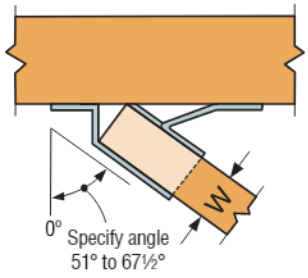
Typical HU Installation Manufactured with Flanges Straight



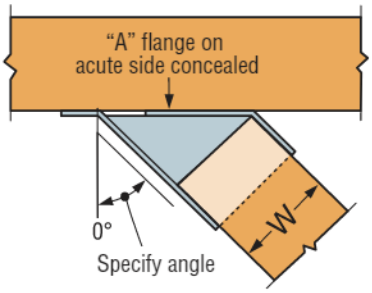
Typical HUC Installed on a Beam



Top View U Hanger Skewed Right < 51°
(square cut)



Top View U Hanger Skewed Right ≥ 51°
(square cut)



Top View HUC Concealed Hanger Skewed Right
(square cut)

LUS/HUS/HHUS/HGUS

Double-Shear Face-Mount Joist Hangers

This product is preferable to similar connectors because of (a) easier installation, (b) higher loads, (c) lower installed cost, or a combination of these features.

All hangers in this series have double-shear nailing. This innovation distributes the load through two points on each joist nail for greater strength. It also allows the use of fewer nails, faster installation and the use of standard nails for all connections. (Do not bend or remove tabs.)

Material: See tables, pp. 104–113

Finish: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, pp. 13–15.

Installation:

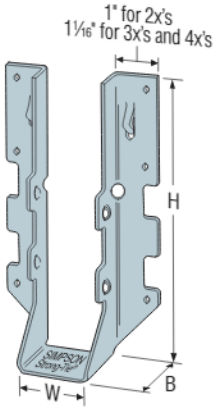
- Use all specified fasteners; see General Notes.
- Nails must be driven at an angle through the joist or truss into the header to achieve the table loads.
- Not designed for welded or nailer applications.
- 0.148" x 3¼" nails may be used where 0.148" x 3" nails are specified with no reduction in load. Where 0.162" x 3½" nails are specified, 0.148" x 3" or 0.148" x 3¼" nails may be used at 0.85 of the table load.
- With 3x carrying members, use 0.162" x 2½" nails into the header and 0.162" x 3½" nails into the joist with no load reduction.
- With 2x carrying members, use 0.148" x 1½" nails into the header and 0.148" x 3" nails into the joist, reduce the load to 0.64 of the table value.

Allowable Loads:

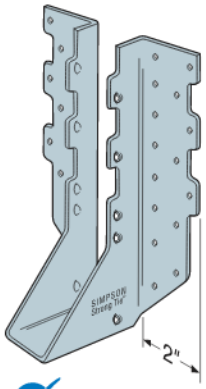
- See table on pp. 104–113 for loads.

Options:

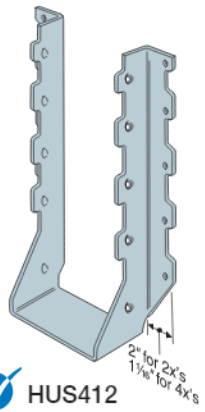
- LUS/HUS hangers cannot be modified.
- See next page for HHUS/HGUS modifications.



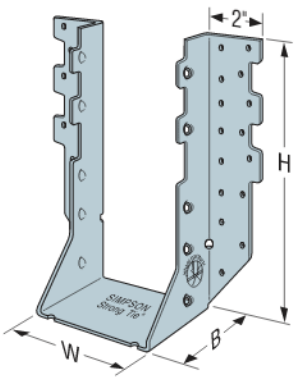
LUS28



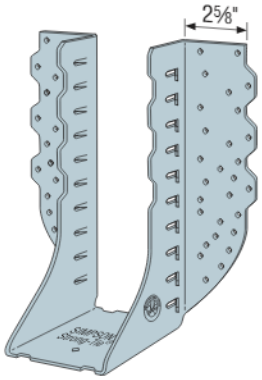
HUS210
(HUS26 and HUS28 similar)



HUS412



HHUS410



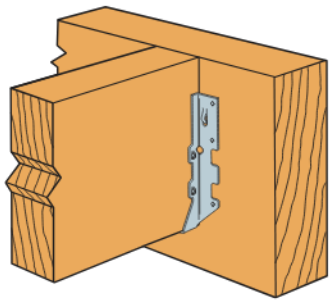
HGUS3.25/12

Double-Shear Nailing

Double-Shear Nailing Top View

Double-Shear Nailing Side View — Do not bend tab

Dome Double-Shear Nailing Side View *(Available on some models)*



Typical LUS28 Installation
use 0.148" x 3" nail or
0.148" x 3¼" nail

Double-Shear Face-Mount Joist Hangers (cont.)

HHUS/HGUS

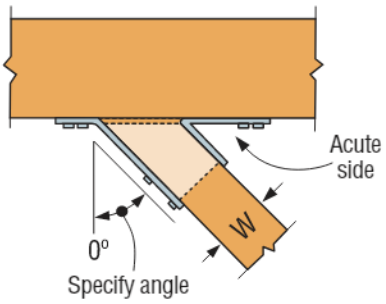
HHUS — Sloped and/or Skewed Seat

- HHUS hangers can be skewed to a maximum of 45° and/or sloped to a maximum of 45°
- For skew only, maximum allowable download is 0.85 of the table load
- For sloped only or sloped and skewed hangers, the maximum allowable download is 0.65 of the table load
- Uplift loads for sloped/skewed conditions are 0.72 of the table load, not to exceed 2,475 lb.
- The joist must be bevel-cut to allow for double-shear nailing

HGUS — Skewed Seat

- HGUS hangers can be skewed only to a maximum of 45°. Allowable loads are:

HGUS Seat Width	Joist	Download	Uplift
W < 2"	Square cut	0.62 of table load	0.46 of table load
W < 2"	Bevel cut	0.72 of table load	0.46 of table load
2" < W < 6"	Bevel cut	0.85 of table load	0.41 of table load
2" < W < 6"	Square cut	0.46 of table load	0.41 of table load
W > 6"	Bevel cut	0.85 of table load	0.41 of table load



Top View HHUS Hanger Skewed Right
(joist must be bevel cut)
All joist nails installed on the outside angle *(non-acute side)*.

HUCQ

Heavy-Duty Face-Mount Joist Hanger

The HUCQ series are heavy-duty joist hangers that incorporate Strong-Drive® SDS Heavy-Duty Connector screws. Designed and tested for installation at the end of a beam or on a post, they provide a strong connection with fewer fasteners than nailed hangers. See pp. 144–150 for structural composite lumber hangers.

Material: 14 gauge

Finish: Galvanized. Most models available in stainless steel or ZMAX® coating.

Installation:

- Use all specified fasteners; see General Notes.
- Install ¼" x 2½" Strong-Drive SDS Heavy-Duty Connector screws, which are provided, in all round holes. (Lag screws will not achieve the same load.)
- HUCQ hangers can be welded to a steel member. Allowable loads are the lesser of the values in the hanger tables on pp. 104–113 or the weld capacity — refer to technical bulletin T-C-HUHUC-W at **strongtie.com**.

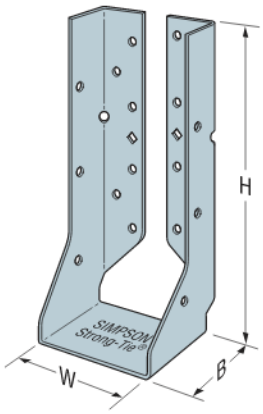
Allowable Loads:

- See table on pp. 104–113 for loads.

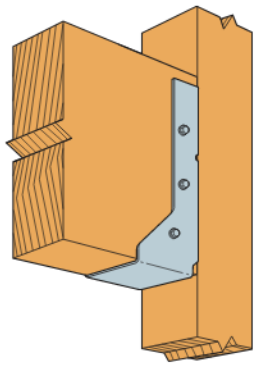
Options:

- These hangers cannot be modified.

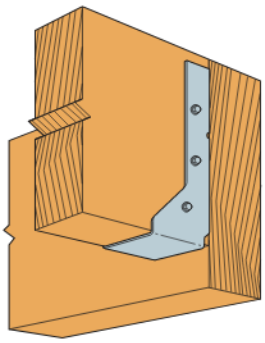
Codes: See p. 12 for Code Reference Key Chart



HUCQ410



Typical HUCQ Installation on a Post



Typical HUCQ Installation on a Beam

Face-Mount Hangers – Solid Sawn Lumber (DF/SP)

The Joist Hanger Selector software enables you the most optimum product for your project.
The software takes into consideration all the characteristics seen in this catalog. Visit **strongtie.com/jhs**.

These products are available with additional corrosion protection. For more information, see p. 15.

SS For stainless-steel fasteners, see p. 21.

SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 335–337 for more information.

Joist Size	Model No.	Ga.	Dimensions (in.) W	H	B	Min./ Max.	Fasteners (in.) Header	Joist	DF/SP Allowable Loads Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Installed Cost Index (ICI)	Code Ref.
Sawn Lumber Sizes														
2X4	LU24	20	1 9/16	3 1/8	1 1/2	—	(4) 0.162 x 3 1/2	(2) 0.148 x 1 1/2	240	555	630	655	Lowest	
	LUS24	18	1 9/16	3 1/8	1 3/4	—	(4) 0.148 x 3	(2) 0.148 x 3	435	670	765	820	3%	
	U24	16	1 9/16	3 1/8	1 1/2	—	(4) 0.162 x 3 1/2	(2) 0.148 x 1 1/2	240	575	650	705	67%	
	HU26	14	1 9/16	3 1/16	2 1/4	—	(4) 0.162 x 3 1/2	(2) 0.148 x 1 1/2	305	595	670	720	295%	
DBL 2X4	LUS24-2	18	3 1/8	3 1/8	2	—	(4) 0.162 x 3 1/2	(2) 0.162 x 3 1/2	410	800	905	980	Lowest	
	U24-2	16	3 1/8	3	2	—	(4) 0.162 x 3 1/2	(2) 0.148 x 3	240	575	650	705	33%	
	HU24-2 / HUC24-2	14	3 1/8	3 1/16	2 1/2	—	(4) 0.162 x 3 1/2	(2) 0.148 x 3	380	595	670	720	240%	
2x6	LUS26	18	1 9/16	4 3/4	1 3/4	—	(4) 0.148 x 3	(4) 0.148 x 3	1,165	865	990	1,060	Lowest	IBC, FL, LA
	LU26	20	1 9/16	4 3/4	1 1/2	—	(6) 0.162 x 3 1/2	(4) 0.148 x 1 1/2	540	835	950	1,030	6%	
	U26	16	1 9/16	4 3/4	2	—	(6) 0.162 x 3 1/2	(4) 0.148 x 1 1/2	535	865	980	1,055	43%	
	LUC26Z	18	1 9/16	4 3/4	1 3/4	—	(6) 0.162 x 3 1/2	(4) 0.148 x 1 1/2	730	845	965	1,040	160%	
	HU26	14	1 9/16	3 1/16	2 1/4	—	(4) 0.162 x 3 1/2	(2) 0.148 x 1 1/2	305	595	670	720	179%	
	HUS26	16	1 5/8	5 3/8	3	—	(14) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,320	2,735	3,095	3,235	276%	
DBL 2X6	LUS26-2	18	3 1/8	4 7/8	2	—	(4) 0.162 x 3 1/2	(4) 0.162 x 3 1/2	1,060	1,030	1,170	1,265	Lowest	
	U26-2	16	3 1/8	5	2	—	(8) 0.162 x 3 1/2	(4) 0.148 x 3	535	1,150	1,305	1,410	65%	
	HUS26-2	14	3 1/8	5 3/16	2	—	(4) 0.162 x 3 1/2	(4) 0.162 x 3 1/2	1,165	1,055	1,195	1,290	172%	
	HU26-2 / HUC26-2	14	3 1/8	4 15/16	2 1/2	Min.	(8) 0.162 x 3 1/2	(4) 0.148 x 3	755	1,190	1,345	1,440	233%	
		14	3 1/8	4 15/16	2 1/2	Max.	(12) 0.162 x 3 1/2	(6) 0.148 x 3	1,135	1,785	2,015	2,165	254%	
TPL 2x6	LUS26-3	18	4 5/8	4 1/8	2		(4) 0.162 x 3 1/2	(4) 0.162 x 3 1/2	1,060	1,030	1,170	1,265	*	IBC, FL
	U26-3	16	4 5/8	4 1/4	2		(8) 0.162 x 3 1/2	(4) 0.148 x 3	535	1,150	1,305	1,410	*	
	HU26-3 / HUC26-3	14	4 11/16	4 19/32	2 1/2	Min.	(8) 0.162 x 3 1/2	(4) 0.148 x 3	755	1,190	1,345	1,440	*	
		14	4 11/16	4 19/32	2 1/2	Max.	(12) 0.162 x 3 1/2	(6) 0.148 x 3	1,135	1,785	2,015	2,165	*	
2x8	LUS26	18	1 9/16	4 3/4	1 3/4	—	(4) 0.148 x 3	(4) 0.148 x 3	1,165	865	990	1,060	Lowest	IBC, FL, LA
	LU26	20	1 9/16	4 3/4	1 1/2	—	(6) 0.162 x 3 1/2	(4) 0.148 x 1 1/2	540	835	950	1,030	6%	
	LUS28	18	1 9/16	6 5/8	1 3/4	—	(6) 0.148 x 3	(4) 0.148 x 3	1,165	1,100	1,260	1,350	23%	
	LU28	20	1 9/16	6 5/8	1 1/2	—	(8) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	850	1,110	1,180	1,180	39%	
	U26	16	1 9/16	4 3/4	2	—	(6) 0.162 x 3 1/2	(4) 0.148 x 1 1/2	535	865	980	1,055	43%	
	LUC26Z	18	1 9/16	4 3/4	1 3/4	—	(6) 0.162 x 3 1/2	(4) 0.148 x 1 1/2	730	845	965	1,040	160%	
	HU28	14	1 9/16	5 1/4	2 1/4	—	(6) 0.162 x 3 1/2	(4) 0.148 x 1 1/2	605	895	1,010	1,080	251%	
	HUS26	16	1 5/8	5 3/8	3	—	(14) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,320	2,735	2,845	2,845	276%	
	HUS28	16	1 5/8	7	3	—	(22) 0.162 x 3 1/2	(8) 0.162 x 3 1/2	1,760	4,095	4,095	4,095	409%	
DBL 2x8	LUS26-2	18	3 1/8	4 7/8	2	—	(4) 0.162 x 3 1/2	(4) 0.162 x 3 1/2	1,060	1,030	1,170	1,265	Lowest	
	LUS28-2	18	3 1/8	7	2	—	(6) 0.162 x 3 1/2	(4) 0.162 x 3 1/2	1,060	1,315	1,490	1,610	8%	
	U26-2	16	3 1/8	5	2	—	(8) 0.162 x 3 1/2	(4) 0.148 x 3	535	1,150	1,305	1,410	65%	
	HUS28-2	14	3 1/8	7 3/16	2	—	(6) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,320	1,580	1,790	1,930	188%	
	HU28-2 / HUC28-2	14	3 1/8	6 5/16	2 1/2	Min.	(10) 0.162 x 3 1/2	(4) 0.148 x 3	755	1,490	1,680	1,800	397%	
		14	3 1/8	6 5/16	2 1/2	Max.	(14) 0.162 x 3 1/2	(6) 0.148 x 3	1,135	2,085	2,350	2,530	418%	
TPL 2X8	LUS28-3	18	4 5/8	6 1/4	2	—	(6) 0.162 x 3 1/2	(4) 0.162 x 3 1/2	1,060	1,315	1,490	1,610	*	IBC, FL
	U26-3	16	4 5/8	4 1/4	2	—	(8) 0.162 x 3 1/2	(4) 0.148 x 3	535	1,150	1,305	1,410	*	
	HU26-3 / HUC26-3	14	4 11/16	4 5/8	2 1/2	Min.	(8) 0.162 x 3 1/2	(4) 0.148 x 3	755	1,190	1,345	1,440	*	
		14	4 11/16	4 5/8	2 1/2	Max.	(12) 0.162 x 3 1/2	(6) 0.148 x 3	1,135	1,785	2,015	2,165	*	
QUAD 2X8	HU28-4 / HUC28-4	14	6 1/8	7	2 1/2	Min.	(10) 0.162 x 3 1/2	(4) 0.162 x 3 1/2	755	1,490	1,680	1,800	*	—
		14	6 1/8	7	2 1/2	Max.	(14) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,135	2,085	2,350	2,530	*	—

See footnotes on p. 108.

Codes: See p. 12 for Code Reference Key Chart

Face-Mount Hangers – Solid Sawn Lumber (DF/SP)

These products are available with additional corrosion protection. For more information, see p. 15.

SS For stainless-steel fasteners, see p. 21.

SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 335–337 for more information.

Joist Size	Model No.	Ga.	Dimensions (in.) W	H	B	Min./ Max.	Fasteners (in.) Header	Joist	DF/SP Allowable Loads Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Installed Cost Index (ICI)	Code Ref.
							Sawn Lumber Sizes							
SS	LUS28	18	1 9/16	6 5/8	1 3/4	—	(6) 0.148 x 3	(4) 0.148 x 3	1,165	1,100	1,260	1,350	Lowest	
	LU28	20	1 9/16	6 3/8	1 1/2	—	(8) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	850	1,110	1,180	1,180	13%	
SS	LUS210	18	1 9/16	7 13/16	1 3/4	—	(8) 0.148 x 3	(4) 0.148 x 3	1,165	1,335	1,530	1,640	15%	
	LU210	20	1 9/16	7 13/16	1 1/2	—	(10) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	850	1,390	1,580	1,615	28%	
2x10	U210	16	1 9/16	7 13/16	2	—	(10) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	990	1,440	1,565	1,565	76%	
SS	LUC210Z	18	1 9/16	7 3/4	1 3/4	—	(10) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	985	1,410	1,605	1,735	180%	
	HU210	14	1 9/16	7 1/8	2 1/4	—	(8) 0.162 x 3 1/2	(4) 0.148 x 1 1/2	605	1,190	1,345	1,440	225%	
	HUS210	16	1 5/8	9	3	—	(30) 0.162 x 3 1/2	(10) 0.162 x 3 1/2	2,635	5,450	5,795	5,830	450%	IBC, FL, LA
	HGUS210	12	1 5/8	9 1/8	5	—	(46) 0.162 x 3 1/2	(16) 0.162 x 3 1/2	2,090	9,100	9,100	9,100	*	
	LUS28-2	18	3 1/8	7	2	—	(6) 0.162 x 3 1/2	(4) 0.162 x 3 1/2	1,060	1,315	1,490	1,610	Lowest	
	LUS210-2	18	3 1/8	9	2	—	(8) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,445	1,830	2,075	2,245	34%	
	U210-2	16	3 1/8	8 1/2	2	—	(14) 0.162 x 3 1/2	(6) 0.148 x 3	990	2,015	2,280	2,465	88%	
	HUS210-2	14	3 1/8	9 3/16	2	—	(8) 0.162 x 3 1/2	(8) 0.162 x 3 1/2	3,270	2,110	2,385	2,575	217%	
DBL 2X10	HU210-2 / HUC210-2	14	3 1/8	8 19/32	2 1/2	Min.	(14) 0.162 x 3 1/2	(6) 0.148 x 3	1,135	2,085	2,350	2,520	441%	
		14	3 1/8	8 19/32	2 1/2	Max.	(18) 0.162 x 3 1/2	(10) 0.148 x 3	1,895	2,680	3,020	3,250	467%	
SS	HUCQ210-2-SDS	14	3 1/4	9	3	—	(12) 1/4 x 2 1/2 SDS	(6) 1/4 x 2 1/2 SDS	2,345	4,315	4,315	4,315	*	FL
	HHUS210-2	14	3 5/16	9 5/32	3	—	(30) 0.162 x 3 1/2	(10) 0.162 x 3 1/2	3,550	5,705	6,435	6,485	*	IBC, FL, LA
	LUS28-3	18	4 5/8	6 1/4	2	—	(6) 0.162 x 3 1/2	(4) 0.162 x 3 1/2	1,060	1,315	1,490	1,610	*	IBC, FL
	LUS210-3	18	4 5/8	8 3/16	2	—	(8) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,445	1,830	2,075	2,245	*	
	U210-3	16	4 5/8	7 3/4	2	—	(14) 0.162 x 3 1/2	(6) 0.148 x 3	990	2,015	2,280	2,465	*	
TPL 2X10	HU210-3 / HUC210-3	14	4 11/16	8 1/32	2 1/2	Min.	(14) 0.162 x 3 1/2	(6) 0.148 x 3	1,135	2,085	2,350	2,520	*	IBC, FL, LA
		14	4 11/16	8 1/32	2 1/2	Max.	(18) 0.162 x 3 1/2	(10) 0.148 x 3	1,895	2,680	3,020	3,250	*	
	HHUS210-3	14	4 11/16	8 7/8	3	—	(30) 0.162 x 3 1/2	(10) 0.162 x 3 1/2	3,405	5,630	6,375	6,485	*	FL
	HGUS210-3	12	4 15/16	9 1/8	4	—	(46) 0.162 x 3 1/2	(16) 0.162 x 3 1/2	4,095	9,100	9,100	9,100	*	IBC, FL
	HUCQ210-3-SDS	14	4 5/8	9	3	—	(12) 1/4 x 2 1/2 SDS	(6) 1/4 x 2 1/2 SDS	2,345	4,315	4,315	4,315	*	FL
	HU210-4 / HUC210-4	14	6 1/8	8 3/8	2 1/2	Min.	(14) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,345	2,085	2,350	2,520	*	IBC, FL
QUAD 2x10		14	6 1/8	8 3/8	2 1/2	Max.	(18) 0.162 x 3 1/2	(8) 0.162 x 3 1/2	1,795	2,680	3,020	3,250	*	IBC, FL
	HHUS210-4	14	6 1/8	8 7/8	3	—	(30) 0.162 x 3 1/2	(10) 0.162 x 3 1/2	3,405	5,630	6,375	6,485	*	FL
	HGUS210-4	12	6 9/16	9 1/8	4	—	(46) 0.162 x 3 1/2	(16) 0.162 x 3 1/2	4,095	9,100	9,100	9,100	*	IBC, FL
	LUS210	18	1 9/16	7 13/16	1 3/4	—	(8) 0.148 x 3	(4) 0.148 x 3	1,165	1,335	1,530	1,640	Lowest	
	LU210	20	1 9/16	7 13/16	1 1/2	—	(10) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	850	1,390	1,580	1,615	11%	
	U210	16	1 9/16	7 13/16	2	—	(10) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	990	1,440	1,565	1,565	53%	
SS	LUC210Z	18	1 9/16	7 3/4	1 3/4	—	(10) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	985	1,410	1,605	1,735	180%	
	HU212	14	1 9/16	9	2 1/4	—	(10) 0.162 x 3 1/2	(6) 0.148 x 1 1/2	1,135	1,490	1,680	1,800	347%	
	HUS210	16	1 5/8	9	3	—	(30) 0.162 x 3 1/2	(10) 0.162 x 3 1/2	2,635	5,450	5,795	5,830	378%	
SS	LUS210-2	18	3 1/8	9	2	—	(8) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,445	1,830	2,075	2,245	Lowest	IBC, FL, LA
	U210-2	16	3 1/8	8 1/2	2	—	(14) 0.162 x 3 1/2	(6) 0.148 x 3	990	2,015	2,280	2,465	40%	
	LUS214-2	18	3 1/8	10 15/16	2	—	(10) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,445	2,110	2,395	2,590	56%	
DBL 2x12	HUS210-2	14	3 1/8	9 3/16	2	—	(8) 0.162 x 3 1/2	(8) 0.162 x 3 1/2	3,270	2,110	2,385	2,575	*	
	HUS212-2	14	3 1/8	10 3/4	2	—	(10) 0.162 x 3 1/2	(10) 0.162 x 3 1/2	3,435	2,635	2,985	3,220	*	
	HU212-2 / HUC212-2	14	3 1/8	10 9/16	2 1/2	Min.	(16) 0.162 x 3 1/2	(6) 0.148 x 3	1,135	2,385	2,690	2,880	*	
		14	3 1/8	10 9/16	2 1/2	Max.	(22) 0.162 x 3 1/2	(10) 0.148 x 3	1,895	3,275	3,695	3,970	411%	
SS	HUCQ210-2-SDS	14	3 1/4	9	3	—	(12) 1/4 x 2 1/2 SDS	(6) 1/4 x 2 1/2 SDS	2,345	4,315	4,315	4,315	*	FL
	LUS210-3	18	4 5/8	8 3/16	2	—	(8) 0.162 x 3 1/2	(6) 0.162 x 3 1/2	1,445	1,830	2,075	2,245	*	IBC, FL
	HU212-3 / HUC212-3	14	4 11/16	9 25/32	2 1/2	Min.	(16) 0.162 x 3 1/2	(6) 0.148 x 3	1,135	2,385	2,690	2,880	*	
TPL 2x12		14	4 11/16	9 25/32	2 1/2	Max.	(22) 0.162 x 3 1/2	(10) 0.148 x 3	1,895	3,275	3,695	3,970	*	IBC, FL, LA
	U210-3	16	4 5/8	7 3/4	2	—	(14) 0.162 x 3 1/2	(6) 0.148 x 3	990	2,015	2,280	2,465	*	
SS	HUCQ210-3-SDS	14	4 5/8	9	3	—	(12) 1/4 x 2 1/2 SDS	(6) 1/4 x 2 1/2 SDS	2,345	4,315	4,315	4,315	*	FL

See footnotes on p. 108.

Codes: See p. 12 for Code Reference Key Chart