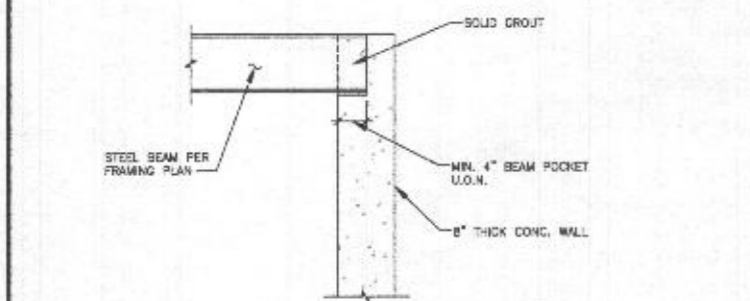
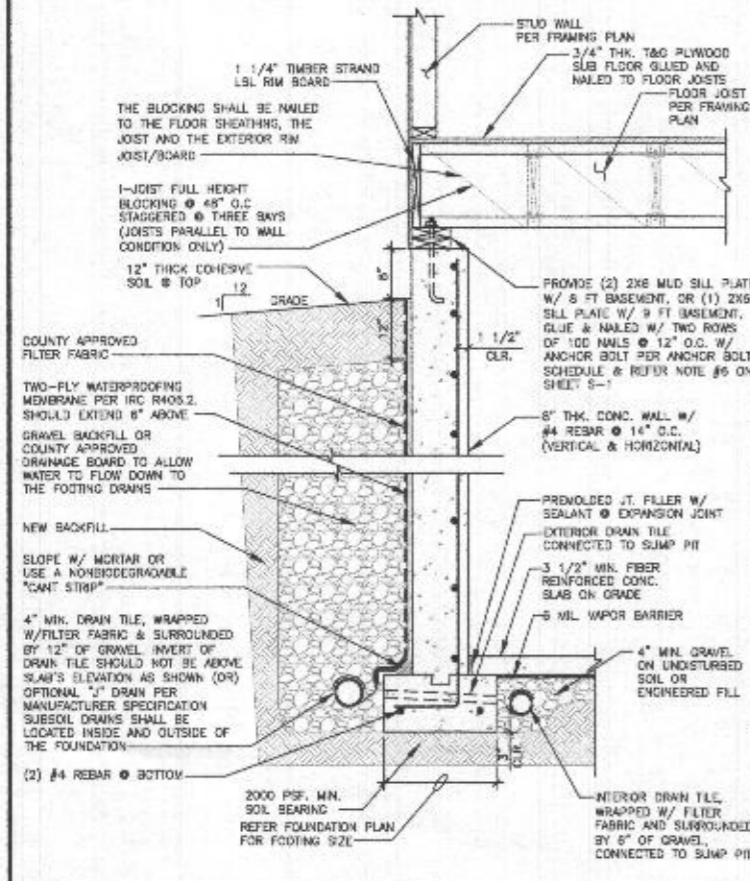


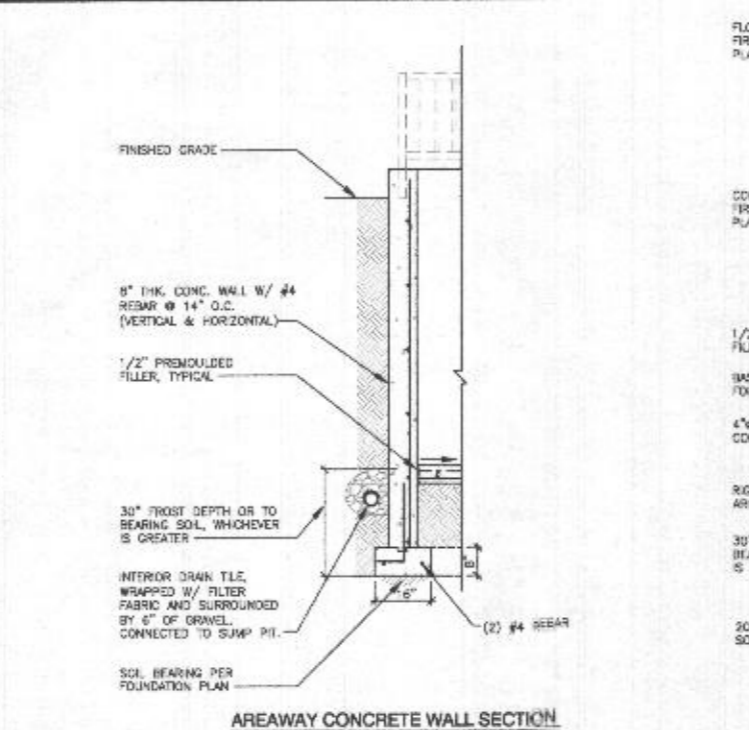
3 DETAIL @ INTERNAL BEARING WALL SCALE: 3/4" = 1'-0"



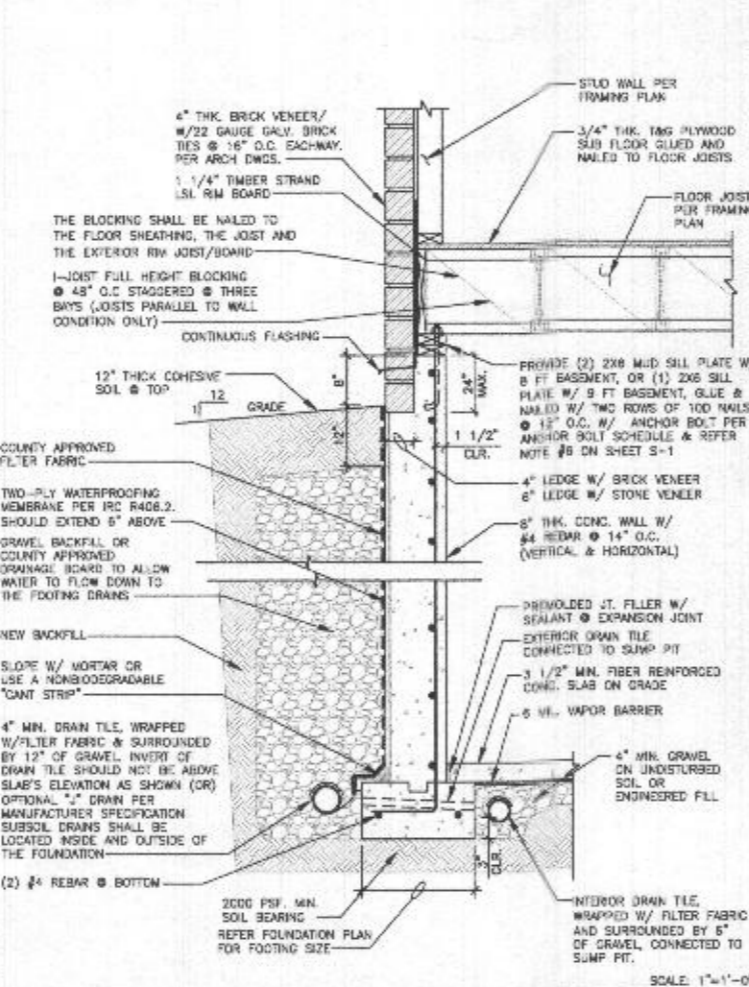
3A DETAIL @ STEEL BEAM POCKET SCALE: 1" = 1'-0"



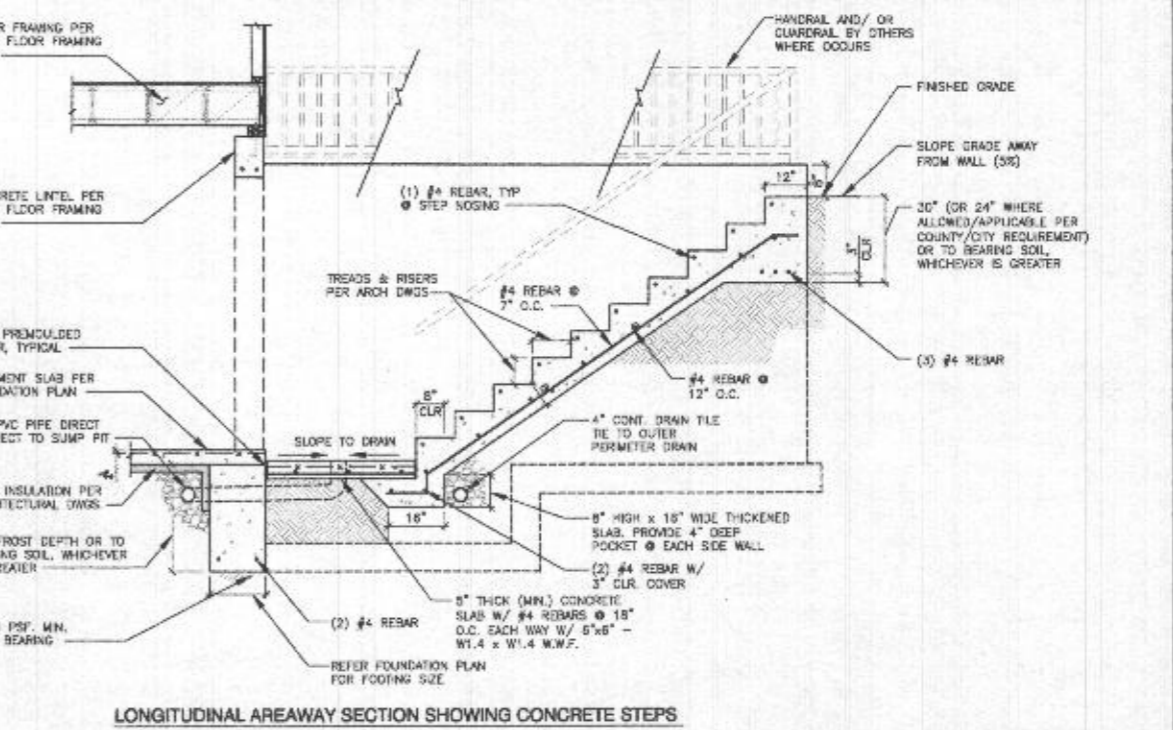
3C TYP. SECTION @ BASEMENT WALL SCALE: 1" = 1'-0"



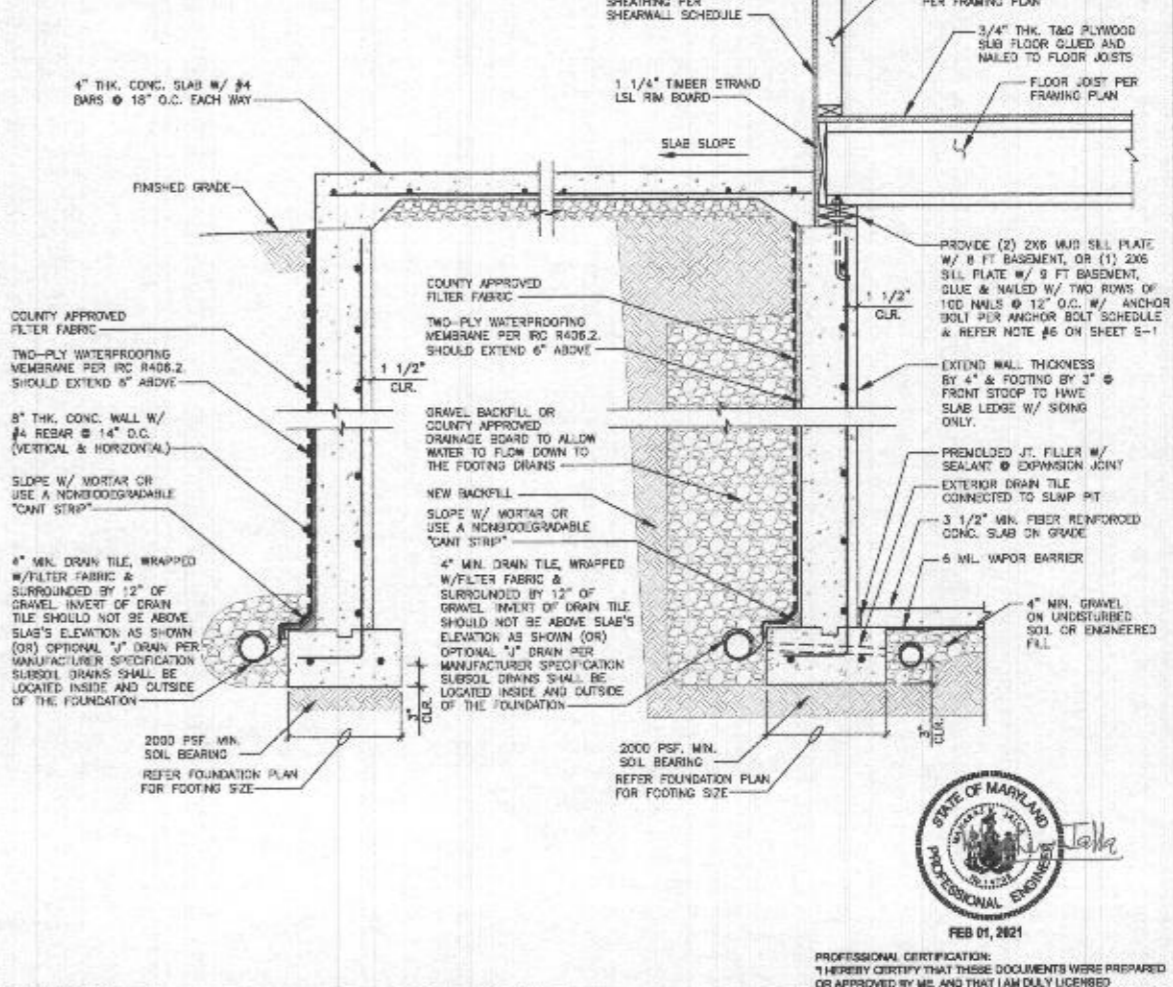
20 DETAIL @ AREA WAY SCALE: 1/2" = 1'-0"



3D TYP. SECTION @ BASEMENT WALL W/ STONE/ BRICK VENEER SCALE: 1" = 1'-0"



3B TYPICAL DETAIL @ PORCH W/ BASEMENT WALL SCALE: 1" = 1'-0"



LONGITUDINAL AREA WAY SECTION SHOWING CONCRETE STEPS SCALE: 1/2" = 1'-0"

REVISIONS	BY
1	CE

PROJECT:	KINGSFORT
CLIENT:	CARUSO HOMES
DATE:	SEPT 11, 2019
SCALE:	AS NOTED
DRAWN:	CS
CHECK:	
DATE:	FEB 01, 2021

CONSULTING ENGINEERS, CORP.
11400 BARNETT ROAD SUITE 1000 RESTON, VA 20190-5000
TEL: (703) 481-5000
FAX: (703) 481-5000

SECTION DETAILS
SD-1



PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14722, EXPIRATION DATE 12/01/21.

# STRUCTURAL DESIGN PACKAGE

(GRAVITY & LATERAL)  
BUILDER :- CARUSO HOMES  
THE KINGSPORT MODEL

MARYLAND/VIRGINIA

## STRUCTURAL NOTES

### GENERAL STRUCTURAL:

#### BUILDING CODES:

INTERNATIONAL RESIDENTIAL CODE (IRC)-2018 EDITION STATE AND/OR LOCAL COUNTY CODE AMENDMENTS AND/OR ORDINANCES.

ANY REVISION INITIATED BY THE OWNER, GENERAL CONTRACTOR AND/OR THE SUBCONTRACTOR THAT DIRECTLY INFLUENCES OR CHANGES STRUCTURAL ELEMENTS INCLUDING, BUT NOT LIMITED TO FLOOR JOIST, BEAM OR HEADER SPANS, WALL HEIGHTS, BEAM OR HEADER SIZES, RELOCATION OF BEARING WALLS, FOOTING SIZES, ETC. AS INDICATED ON THESE DRAWINGS, CONSULTING ENGINEERS, CORP. (CEC) SHALL BE NOTIFIED IN WRITING INDICATING THE PROPOSED CHANGES FOR CEC'S REVIEW. ANY REQUIRED REVIEW, CALCULATION, AND/OR DRAWING MODIFICATION NECESSARY TO ACCURATELY REPRESENT THE PROPOSED CHANGES SHALL BE CHARGED AS AN ADDITIONAL SERVICE. THESE DRAWINGS ARE NOT TO BE SCALED FOR CONSTRUCTION PURPOSES. DIMENSIONS NOTED TAKE PRECEDENCE OVER SCALE.

NO INSPECTION(S) WILL BE MADE BY CONSULTING ENGINEERS, CORP. (CEC) UNLESS A COUNTY APPROVED SET OF PLANS IS PRESENT AT THE JOB SITE WHERE REQUIRED BY LOCAL AUTHORITIES.

ALL DIMENSIONS SHOWN ARE TO FACE OF STUD (F.O.S.), UNLESS OTHERWISE NOTED. DIMENSIONAL ADJUSTMENTS MAY INCLUDE, BUT ARE NOT LIMITED TO CENTER LINE (C.L.), FACE OF CONCRETE (F.O.C.) AND FACE OF MASONRY (F.O.M.).

COMMENCEMENT OF WORK BY THE CONTRACTOR AND/OR ANY SUBCONTRACTOR SHALL INDICATE A KNOWLEDGE AND ACCEPTANCE OF ALL CONDITIONS DESCRIBED IN THESE CONSTRUCTION DOCUMENTS WHICH COULD AFFECT THEIR WORK.

#### DESIGN LOADS

##### GRAVITY LOAD

GROUND SNOW LOAD = 40 PSF  
ROOF LIVE LOAD = 30.5 PSF (DESIGN SNOW LOAD PER ASCE 7-16, CHAPTER 7)  
ROOF DEAD LOAD = 17 PSF  
FLOOR DEAD LOAD = 12 PSF (UP TO 14" DEEP JOISTS)  
FLOOR LIVE LOAD = 40 PSF

##### ALLOWABLE DEFLECTION FACTOR FOR FLOORS & DECKS:

LIVE LOAD = 1/360  
TOTAL LOAD = 1/240

##### ROOF

LIVE LOAD = 1/360  
TOTAL LOAD = 1/240

##### BEAM

BEAM SUPPORTING BRICK/MASONRY = 1/600 OR 5/16" WHICHEVER IS LESS

##### WIND LOAD

BASIC WIND SPEED = 115 MPH

##### EXPOSURE

ENCLOSURE CLASSIFICATION = EXPOSED

##### SEISMIC LOAD

SEISMIC DESIGN CATEGORY PER THE PROVISION OF R301.2

### CONCRETE

ALL CONCRETE FOR FOOTINGS, FOUNDATION WALLS, RETAINING WALLS, AND FLOOR SLABS ON GRADE SHALL ATTAIN A MINIMUM 28-DAY ULTIMATE COMPRESSIVE STRENGTH AS FOLLOWS:

BASEMENT/FOUNDATION WALLS : 3,000 PSI; FOOTINGS : 3,000 PSI

BASEMENT SLABS : 3,000 PSI; SLAB EXPOSED TO WEATHER : 3,500 PSI

ALL CONCRETE EXPOSED TO THE WEATHER AND SUBJECT TO FREEZING AND THAWING DURING CONSTRUCTION SHALL BE AIR ENTRAINED. THE TOTAL AIR CONTENT (PERCENT BY VOLUME OF CONCRETE) SHALL NOT BE LESS THAN 5 PERCENT (5%) OR MORE THAN 7 PERCENT (7%).

ALL CONSTRUCTION JOINTS SHALL BE ROUGHENED AND KEYS PROVIDED WHERE REQUIRED OR INDICATED ON THE DRAWINGS. CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON THE DRAWINGS, MAY BE PROPOSED BY THE CONTRACTOR, HOWEVER, THE LOCATIONS ARE SUBJECT TO REVIEW BY THE ARCHITECT AND/OR STRUCTURAL ENGINEER. ALL VERTICAL CONSTRUCTION, CONTROL AND CONTRACTION JOINTS SHALL LIE IN TRUE VERTICAL PLANE.

ALL FORMWORK AND PLACING OF CONCRETE SHALL BE PLUMB, LEVEL, AND SQUARE. THE STRUCTURAL ENGINEER SHALL REVIEW AND APPROVE ANY PROPOSED FORMWORK DESIGN DIFFERENT FROM INDUSTRY STANDARD PRACTICES.

EXTERIOR SLAB AREAS SHALL BE BROOM FINISHED, UNLESS OTHERWISE SPECIFIED BY THE ARCHITECT. THE STROKES SHALL MAINTAIN THE SAME DIRECTION AT ADJACENT SURFACES. NO RIPPLES, BUMPS, OR ANY OTHER IRREGULARITIES WILL BE ACCEPTABLE.

### FOUNDATIONS & FOUNDATION WALLS

STRUCTURAL CONCRETE FOOTINGS (INCLUDING RETAINING WALLS) ARE DESIGNED FOR SPECIFIC ALLOWABLE SOIL BEARING PRESSURES AS INDICATED ON THE DRAWINGS. CONCRETE FOOTINGS SHALL NOT BE POURED UNTIL THE ALLOWABLE SOIL BEARING PRESSURES ARE VERIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER OR BUILDING INSPECTOR.

MINIMUM SOIL BEARING SHALL BE 2000 PSF, OR AS SPECIFIED IN THE GEOTECHNICAL REPORT (IF ANY) WITH A MINIMUM 30" FROST DEPTH OR TO BEARING SOIL WHICHEVER IS GREATER.

PROVIDE A FOUNDATION DRAIN TILE ON THE EXTERIOR SIDE OF FOUNDATION WALL AND DISCHARGE TO DRAINAGE; OR PROVIDE 2" DIAMETER PVC BLEEDER LINES THROUGH THE FOOTINGS AT 8'-0" O.C. AND DISCHARGE TO A SUMP PIT AS INDICATED ON THE ARCHITECTURAL DRAWINGS.

SPREAD FOOTINGS SHALL EXTEND MINIMUM 1'-0" INTO UNDISTURBED SOIL, OR SHALL BE FOUNDED IN GRANULAR FILL. FOOTINGS SHALL EXTEND MINIMUM 30" FROST DEPTH (OR 24" WHERE ALLOWED /APPLICABLE PER COUNTY /CITY REQUIREMENTS) BELOW THE EXTERIOR FINISH GRADE. FINAL FOOTING ELEVATIONS TO BE VERIFIED BY THE GEOTECHNICAL ENGINEER. ELEVATIONS AT THE TOP OF FOOTINGS SHALL NOT BE HIGHER THAN THOSE INDICATED ON THE CIVIL, ARCHITECTURAL OR STRUCTURAL DRAWINGS.

SLAB ON GRADE, (NON-STRUCTURAL) INCLUDING BASEMENT SLABS, SHALL BE MINIMUM 4" THICK CONCRETE SLAB REINFORCED W/ 8"x8" - W1.4xW1.4 WELDED WIRE FABRIC (W.W.F.) OVER 6 MIL VAPOR BARRIER, OVER 4" CRUSHED STONE OR WASHED GRAVEL. CONCRETE SLABS ON EARTH FILL SHALL BE PLACED ONLY ON FILL COMPACTED IN 6" LAYERS TO AT LEAST 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D- 698, STANDARD PROCTOR.

FOUNDATION DRAINS SHALL BE INSTALLED BY THE CONCRETE CONTRACTOR, BUT LOCATED AT THE BUILDER'S DISCRETION ACCORDING TO LOCAL, SITE CONDITIONS DRAIN DISCHARGE TO CONFIRM WITH AN APPROVED SITE PLAN.

PROVIDE BITUMINOUS WATER PROOFING COVERED WITH 6 MIL VULCANIZED WITH POURED INPLACE CONCRETE BASEMENT WALLS OR AS DIRECTED /NOTED ON THE ARCHITECTURAL DRAWINGS.

SUMP PIT AND SUMP PUMP(S) SHALL BE INSTALLED BY THE CONCRETE SUBCONTRACTOR AND LOCATED AT THE BUILDER'S DISCRETION ON THE ARCHITECTURAL DRAWINGS.

### CONCRETE MASONRY UNIT

A. ALL CONCRETE MASONRY SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF IRC 2018 AND ACI 530/530.1-05

B. MASONRY UNIT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI WHEN TESTED IN ACCORDANCE WITH ASTM C-140, METHODS OF SAMPLING AND TESTING CONCRETE MASONRY UNIT (F<sub>m</sub> =1500 PSI)

C. MORTAR FOR MASONRY SHALL BE IN ACCORDANCE WITH ASTM C-270, TYPE "M" OR "S"

D. GROUT FOR MASONRY SHALL BE IN ACCORDANCE WITH ASTM C-478 FOR CONCRETE GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI, MECHANICALLY MIXED GROUT IN VERTICAL SPACES IMMEDIATELY AFTER POURING AND AGAIN ABOUT 5 MINUTES LATER. MAXIMUM GROUT LIFT WITHOUT CLEANOUTS 5'-0". STAY EACH END OF EACH VERTICAL REBAR USING SINGLE WIRE AND LOOP TYPE TIES.

E. REINFORCING STEEL SHALL BE CONFORM TO ASTM A-615 GRADE 60.

F. PROVIDE VERTICAL EXPANSION JOINT IN ALL MASONRY WALLS AT 30'-0" O.C.

G. BRICK VENEER INSTALLATION TO COMPLY W/ BRICK INDUSTRY ASSOCIATION (B.I.A.) LATEST TECHNICAL REPORT

### BRICK VENEER

BRICK VENEER INSTALLATION TO COMPLY WITH BRICK INDUSTRY ASSOCIATION (B.I.A.) LATEST TECHNICAL REPORT

### REINFORCING STEEL

ALL REINFORCING STEEL SHALL BE ASTM A-615, GRADE 60. ALL REINFORCING BAR DIMENSIONS SHOWN ON THE DRAWINGS ARE TO THE CENTER LINE OF BARS, UNLESS OTHERWISE NOTED. ALL CONCRETE AND REINFORCING STEEL SHALL BE TURNED, FABRICATED AND ERECTED IN ACCORDANCE WITH ACI STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE STRUCTURES, (ACI 318-15). REINFORCED STEEL SHALL BE DETAIL IN ACCORDANCE WITH THE ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315).

UNLESS OTHERWISE INDICATED ON THE DRAWINGS, THE CLEAR CONCRETE COVER PROVIDED FOR REINFORCEMENT SHALL BE:

A. CAST AGAINST EARTH AND PERMANENTLY EXPOSED TO EARTH :3"

B. EXPOSED TO EARTH OR WEATHER #6 THROUGH #18 BARS: 2"

#5 BARS AND SMALLER: 1.5"

C. NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND (SLABS AND WALLS): 0.75"

D. BEAMS, COLUMNS, COLUMNS, PRIMARY REINFORCEMENT, TIES, STRUTS, SPIRALS: 1.5"

STEEL REINFORCING REQUIREMENTS IN CONCRETE FLOOR SLABS SHALL BE AS REQUIRED BY CODE AND/OR LOCAL JURISDICTIONS, OR PER SITE CONDITIONS.

CONCRETE PORCH SLABS AND EXTERIOR CONCRETE WORK EXPOSED TO WEATHER SHALL BE MINIMUM 3,500 PSI, AIR ENTRAINED, 4" THICK WITH #4 BARS AT 12" O.C. EACH WAY WITH 6" x 6" - W1.4 x W1.4 WELDED WIRE FABRIC (W.W.F.), UNLESS OTHERWISE NOTED OR DIRECTED BY THE STRUCTURAL ENGINEER BASED ON SITE CONDITIONS.

### STRUCTURAL STEEL

ALL STEEL SHALL BE ASTM, A-441. MINIMUM F<sub>y</sub>=50 KSI UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL CONNECTIONS SHALL BE WELDED OR BOLTED. SHOP AND FIELD FASTENERS SHALL BE ASTM A-325 HSB (HIGH STRENGTH BOLTS). IN FRICTION TYPE CONNECTIONS USE "TURN-OF-NUT" METHOD IN TIGHTENING ALL BOLTS.

HOLDS SHALL NOT BE CUT THROUGH BEAMS UNLESS INDICATED OR APPROVED BY THE STRUCTURAL ENGINEER. PROVIDE STANDARD ANGLE WALL ANCHORS FOR BEAMS RESTING ON MASONRY.

STEEL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST AISC MANUAL, STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:-

WB AND SMALLER BEAMS : A36 (F<sub>y</sub> = 36 KSI)

OTHER BEAM AND COLUMNS : A572-GR50 (F<sub>y</sub> = 50 KSI)

STEEL PLATE, CHANNELS AND ANGLES : A36 (F<sub>y</sub> = 36 KSI)

STRUCTURAL PIPES AND TUBES : A500-GRADE "B" (F<sub>y</sub> = 45 KSI)

ANCHOR BOLTS : A307

HIGH STRENGTH BOLTS : A325

BOLTED CONNECTIONS TO USE A325-TYPE A, HIGH STRENGTH BOLTS IN BEARING TYPE CONNECTIONS TIGHTENED TO A SNUG TIGHT CONDITION IN ACCORDANCE WITH AISC SPECIFICATIONS.

BOLTS IN MOMENT CONNECTIONS AND WIND RESISTING FRAMES SHALL BE ASTM A325-TYPE B2 (SLIP CRITICAL). SLIP CRITICAL CONNECTIONS SHALL HAVE CONTACT SURFACES MEETING CLASS A SURFACE CONDITIONS BOLTS SHALL BE TENSIONED.

SHOP CONNECTIONS TO BE WELDED OR BOLTED. FIELD CONNECTIONS TO BE BOLTED UNLESS OTHERWISE SHOWN. BOLT HOLES TO BE STANDARD ROUND HOLES (d+1/16") UNLESS OTHERWISE NOTED. SHORT SLOTS SHALL BE PERMITTED NORMAL TO THE LOAD DIRECTION IN SLIP CRITICAL AND BEARING TYPE CONNECTIONS AS PER AISC REQUIREMENTS.

ALL WELDING WORK SHALL BE PERFORMED PER SPECIFICATIONS AND GUIDELINES OF AMERICAN WELDING SOCIETY.

### STRUCTURAL LUMBER

STRUCTURAL LUMBER SHALL BE IN ACCORDANCE WITH THE NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION (NDS) 2015 EDITION, PUBLISHED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION. ALL STRUCTURAL FRAME MEMBERS SHALL BE ONE OF THE FOLLOWING MINIMUM VALUES UNLESS OTHERWISE NOTED:

#### HEM-FIR #2

F<sub>b</sub> BENDING : 850 psi

F<sub>t</sub> TENSION (parallel to grain) : 525 psi

F<sub>v</sub> SHEAR (parallel to grain) : 150 psi

F<sub>c</sub> COMPRESSION (perpendicular to grain) : 405 psi

F<sub>c</sub> COMPRESSION (parallel to grain) : 1,300 psi

E MODULUS OF ELASTICITY : 1,300,000 psi

E<sub>min</sub> MODULUS OF ELASTICITY : 470,000 psi

#### SPF #1/#2

F<sub>b</sub> BENDING : 875 psi

F<sub>t</sub> TENSION (parallel to grain) : 450 psi

F<sub>v</sub> SHEAR (parallel to grain) : 135 psi

F<sub>c</sub> COMPRESSION (perpendicular to grain) : 425 psi

F<sub>c</sub> COMPRESSION (parallel to grain) : 1,150 psi

E MODULUS OF ELASTICITY : 1,600,000 psi

E<sub>min</sub> MODULUS OF ELASTICITY : 510,000 psi

#### SPF STUD GRADE

F<sub>b</sub> BENDING : 675 psi

F<sub>t</sub> TENSION (parallel to grain) : 250 psi

F<sub>v</sub> SHEAR (parallel to grain) : 135 psi

F<sub>c</sub> COMPRESSION (perpendicular to grain) : 425 psi

F<sub>c</sub> COMPRESSION (parallel to grain) : 725 psi

E MODULUS OF ELASTICITY : 1,200,000 psi

E<sub>min</sub> MODULUS OF ELASTICITY : 440,000 psi

#### SOUTHERN PINE #2 (SIZE CLASSIFICATIONS 2" TO 4" WIDE)

F<sub>b</sub> BENDING : 1,500 psi

F<sub>t</sub> TENSION (parallel to grain) : 825 psi

F<sub>v</sub> SHEAR (parallel to grain) : 175 psi

F<sub>c</sub> COMPRESSION (perpendicular to grain) : 565 psi

F<sub>c</sub> COMPRESSION (parallel to grain) : 1,650 psi

E MODULUS OF ELASTICITY : 1,800,000 psi

E<sub>min</sub> MODULUS OF ELASTICITY : 590,000 psi

#### SOUTHERN PINE #2 (SIZE CLASSIFICATION 5" TO 6" WIDE)

F<sub>b</sub> BENDING : 1,250 psi

F<sub>t</sub> TENSION (parallel to grain) : 725 psi

F<sub>v</sub> SHEAR (parallel to grain) : 175 psi

F<sub>c</sub> COMPRESSION (perpendicular to grain) : 565 psi

F<sub>c</sub> COMPRESSION (parallel to grain) : 1,600 psi

E MODULUS OF ELASTICITY : 1,900,000 psi

E<sub>min</sub> MODULUS OF ELASTICITY : 590,000 psi

#### DESIGN PROPERTIES FOR MICRO-LAM LVL (BEAM)

GRADE = 1.9E

F<sub>b</sub> BENDING : 2,900 psi

F<sub>v</sub> SHEAR (parallel to grain) : 285 psi

F<sub>c</sub> COMPRESSION (perpendicular to grain) : 290 psi

F<sub>c</sub> COMPRESSION (parallel to grain) : 2510 psi

E MODULUS OF ELASTICITY : 1,900,000 psi

#### PARALLEL PSL (BEAM)

GRADE = 2.0E

F<sub>b</sub> BENDING : 2,900 psi

F<sub>v</sub> SHEAR (parallel to grain) : 290 psi

F<sub>c</sub> COMPRESSION (perpendicular to grain) : 750 psi

F<sub>c</sub> COMPRESSION (parallel to grain) : 2,500 psi

E MODULUS OF ELASTICITY : 2,000,000 psi

WHERE INDICATED ON THE DRAWINGS ENGINEERED FLOOR "I" JOISTS SHALL BE MANUFACTURED BY WEYERHAEUSER TRUSS JOISTS. PRIOR TO ORDERING THE GENERAL CONTRACTOR SHALL ACQUIRE SHOP DRAWINGS FROM THE FLOOR JOIST MANUFACTURER AND SUBMIT THEM TO CONSULTING ENGINEERS, CORP. (CEC) IN A TIMELY MANNER FOR REVIEW PRIOR TO ORDERING.

IN THE EVENT THE GENERAL CONTRACTOR FAILS TO SUBMIT SHOP DRAWINGS TO CEC, THE GENERAL CONTRACTOR AND THE FLOOR JOIST MANUFACTURER SHALL BEAR ALL DESIGN, PERFORMANCE AND LEGAL RESPONSIBILITIES OF THE FLOOR SYSTEM(S) AND HOLD CEC HARMLESS.

PROVIDE 7/8" TONGUE AND GROOVE FLYWOOD (APA RATED STRUD-I-FLOOR) GLED AND NAILLED TO THE FLOOR JOISTS TO MEET THE AMERICAN FLYWOOD ASSOCIATION (APA) APPROVED GLED FLOOR SYSTEM, UNLESS OTHERWISE SPECIFIED.

ROOF TRUSSES INDICATED ON THE ROOF FRAMING PLAN SHALL BE DESIGNED BY THE ROOF TRUSS MANUFACTURER WITH A MAXIMUM SPACING OF 24" O.C., UNLESS OTHERWISE NOTED. THE GENERAL CONTRACTOR SHALL ACQUIRE SHOP DRAWINGS FROM THE ROOF TRUSS MANUFACTURER AND SUBMIT THEM TO CONSULTING ENGINEERS, CORP. (CEC) IN A TIMELY MANNER FOR REVIEW PRIOR TO ORDERING. IN THE EVENT THE GENERAL CONTRACTOR AND THE ROOF TRUSS MANUFACTURER FAILS TO SUBMIT SHOP DRAWINGS TO CEC, THE GENERAL CONTRACTOR AND THE ROOF TRUSS MANUFACTURER SHALL BEAR ALL DESIGN, PERFORMANCE AND LEGAL RESPONSIBILITIES OF THE ROOF SYSTEM(S), AND HOLD CEC HARMLESS.

LUMBER EXPOSED TO THE ELEMENTS, INCLUDING BUT NOT LIMITED TO POSTS, BEAMS, DECKING, DECK, FRAMING LEDGERS, ETC. SHALL BE PRESSURE TREATED PER IRC SECTION R317. ALL FASTENERS SHALL BE PER IRC SECTION R317.3.

REQUIRED POST SIZES FROM POINT LOADS AT GRIER TRUSS BEAM AND/OR HEADER END LOCATIONS SHALL BE CONTINUOUS, BEARING ONTO BEAMS OR CONTINUOUS TO FOOTINGS AS INDICATED. PROVIDE SQUARE BLOCKS BETWEEN FLOOR FRAMING AS NECESSARY OR REQUIRED.

STRUCTURAL CONNECTORS INDICATED ON THESE DOCUMENTS SHALL BE PROVIDED BY SIMPSON STRONG-TIE COMPANY, INC., PROVIDE JOIST HANGERS AT EACH END OF ALL FLOOR JOISTS, ORDER TRUSSES, AND/OR BEAMS FLUSH WITH ADJACENT BEAMS, TRUSSES AND/OR HEADERS. PROVIDE COLUMN CAPS AND POST BASES AT ALL STRUCTURAL LOAD BEARING WOOD BEAMS, INCLUDING EXTERIOR DECKS.

STRUCTURAL MEMBERS INDICATED ARE REQUIRED MINIMUM SIZES AND MAY BE INCREASED TO ALIGN WITH ADJACENT FRAMING MEMBERS AS NECESSARY OR REQUIRED WITHOUT ADDITIONAL STRUCTURAL ENGINEERING AT THE GENERAL CONTRACTOR/OWNER'S DISCRETION.

FLUSH BEAMS INDICATED MAY BE DROPPED AT THE GENERAL CONTRACTOR/OWNER'S DISCRETION. VERIFY AND COORDINATE WITH ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS FOR COMPATIBILITY PRIOR TO INSTALLATION.

THE TRUSS CONFIGURATION INDICATED ON THE ROOF FRAMING PLAN IS SCHEMATIC ONLY AND IS NOT THE ONLY LAYOUT FEASIBLE OR PRACTICAL. HOWEVER, ALL SUBSEQUENT FRAMING HAS BEEN DESIGNED IN ACCORDANCE TO THE CURRENT LAYOUT REPRESENTED ON THESE DRAWINGS. ANY ADDITIONS OR MODIFICATIONS MAY CHANGE THE LOAD PATH AND EFFECT SUBSEQUENT MEMBERS AT LOWER LEVELS. THE GENERAL CONTRACTOR SHALL ACQUIRE AND SUBMIT SHOP DRAWINGS TO CONSULTING ENGINEERS, CORP. (CEC) FOR REVIEW PRIOR TO ORDERING ANY ROOF TRUSSES. FAILURE OF THE GENERAL CONTRACTOR TO PROPERLY SUBMIT SHOP DRAWINGS TO CEC FOR REVIEWS HOLD CEC HARMLESS OF THE ROOF FRAMING, AND BEAR ALL LIABILITY AND RESPONSIBILITY OF THE ROOF TRUSSES AND SUBSEQUENT FRAMING TO THE GENERAL CONTRACTOR.

ROOF TRUSSES MANUFACTURER TO PROVIDE ADEQUATE DIAGONAL TRUSS MEMBERS TO AVOID ATTIC LOAD. PER IRC TABLE R 301.5

LAMINATED VENEER LUMBER (LVL) AND PARALLEL STRAND LUMBER (PSL) LEVEL BY WEYERHAEUSER. IF THE SPECIFIED MATERIAL IS SUBSTITUTED WITH ANOTHER PRODUCT IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE SUBSTITUTED PRODUCT STRUCTURALLY MEETS OR EXCEEDS THE ORIGINALLY SPECIFIED PRODUCT.

NOTCHES IN THE TOP AND BOTTOM OF DIMENSIONAL LUMBER JOISTS SHALL NOT EXCEED 1/6 OF THE DEPTH OF THE JOIST, AND SHALL NOT BE LOCATED IN THE MIDDLE ONE THIRD (1/3) OF THE SPAN. NOTCHES AT THE JOIST ENDS SHALL NOT EXCEED 1/4 OF THE JOIST DEPTH. HOLES THROUGH THE JOISTS SHALL NOT BE WITHIN 2" OF THE TOP AND BOTTOM OF THE JOIST. THE HOLE DIAMETER SHALL NOT EXCEED 1/3 OF THE JOIST DEPTH.

INSTALL CROSS-BRIDGING OR SOLID BLOCKING BETWEEN FLOOR JOISTS @ 8'-0" O.C. MAXIMUM AS REQUIRED BY CODE OR THE FLOOR JOIST MANUFACTURER.

ALL WOOD SHALL BE MINIMUM 8" ABOVE FINISH GRADE, OR SHALL BE PRESSURE TREATED.

### STUD WALL

1. FIRST FLOOR LEVEL:  
ALL EXTERIOR BEARING WALLS ARE 2X6 (SPF STUD GRADE) @ 24" O.C.

SECOND FLOOR LEVEL:  
ALL EXTERIOR BEARING WALL ARE 2X6 (SPF STUD GRADE) @ 24" O.C.

2. ALL INTERIOR BEARING WALL SHALL BE MINIMUM 2x4 (SPF STUD GRADE) @ 24" O.C. U.O.N.

### NAILING SCHEDULE

REFER IRC 2018, TABLE R602.3(1) FOR FASTENER SCHEDULE

### STEEL LINTEL LEGEND

0'-0" TO 8'-0"	8" x 3 1/2" x 5/16" THK. STEEL ANGLE (LLV) (W/ BRICK VENEER)
8'-0" TO 9'-0"	8" x 4" x 5/16" THK. STEEL ANGLE (LLV) (W/ BRICK VENEER)
0'-0" TO 9'-0"	8" x 3" x 5/16" THK. STEEL ANGLE (LLV) (W/ STONE VENEER)
8'-0" TO 9'-0"	8" x 6" x 7/16" THK. STEEL ANGLE (LLV) (W/ STONE VENEER)

NOTE: PROVIDE 8" MIN. BEARING TO SUPPORT STEEL ANGLE @ ENDS

### DRAWING INDEX

SHEET NO.	DESCRIPTION
S-0	STRUCTURAL NOTES & INDEX
S-1 TO S-1C	FOUNDATION PLAN
S-2 TO S-2C	FIRST FLOOR FRAMING PLAN
S-3 TO S-3C	SECOND FLOOR FRAMING PLAN
S-4	ATTIC FLOOR FRAMING PLAN
S-5 TO S-5G	ROOF FRAMING PLAN
SD-1 TO SD-4	SECTION DETAILS
SWS-1	SHEARWALL ELEVATIONS

### DRAWING LEGEND:-

---	WALL ABOVE/BELOW
---	BEARING WALL
---	BRICK/STONE VENEER
---	FOOTING
---	BEAM
---	HEADER
---	SHEARWALL
●	STEEL COLUMN
■	WOODEN POST
└	SIMPSON HANGER

### ABBREVIATIONS:-

PFA	- POST FROM ABOVE
OBL	- DOUBLE
O.T.	- ORDER TRUSS
LLV	- LONG LEG VERTICAL
LH	- LONG LEG HORIZONTAL
CONT.	- CONTINUOUS
CONC.	- CONCRETE
FTS	- FOOTINGS
FDN.	- FOUNDATION



FEB 01, 2021

PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 14612, EXPIRATION DATE: 12/31/21.

REVISIONS	BY
01022020	PS

CONSULTING ENGINEERS, CORP.  
11403 SURREY HILLS ROAD SUITE 100 WEST RESTON, VA 20190-4000  
PHONE: 703.461.8000  
FAX: 703.461.8000

PROJECT: THE KINGSPORT  
MARYLAND/VIRGINIA

SUBMIT: CARUSO HOMES

DATE: SEPT 11, 2019  
SCALE: AS NOTED  
DRAWN: DB  
CHECKED: DB  
SHEET: S-0

STRUCTURAL NOTES & INDEX

REVISIONS	BY
1	PS

PROJECT: **KINGSFORD**  
 CLIENT: **CARUSO HOMES**  
**CONSULTING ENGINEERS, CORP.**  
 11400 BURET HALL ROAD SUITE 1000 BOSTON, MA 02188-6000 PHONE: (781) 861-2300 FAX: (781) 861-8000

DATE: SEPT 11, 2018  
 SCALE: AS NOTED  
 DRAWN: DR  
 JOB:  
 SHEET: **S-1**

PROJECT: **KINGSFORD**  
 CLIENT: **CARUSO HOMES**  
**CONSULTING ENGINEERS, CORP.**  
 11400 BURET HALL ROAD SUITE 1000 BOSTON, MA 02188-6000 PHONE: (781) 861-2300 FAX: (781) 861-8000

DATE: SEPT 11, 2018  
 SCALE: AS NOTED  
 DRAWN: DR  
 JOB:  
 SHEET: **S-1**

- FOUNDATION NOTES:**
- DESIGN BASED ON:-  
 $f'_c$  = 3500 PSI MIN. @ 28 DAYS (AIR ENTRAINED WITH TOTAL AIR CONTENT PERCENT BY VOLUME OF CONC. NOT LESS THAN 5% OR MORE THAN 7%) FOR GARAGE SLAB  
 $f_y$  = 60,000 PSI MIN. (FOR REBAR)
  - REFER ARCH. DWGS. FOR DIMENSIONS.
  - FOOTING SIZE CALCULATED FOR MINIMUM 2000 PSF SOIL BEARING CAPACITY.
  - PROVIDE 30" FROST DEPTH WHERE REQUIRED.
  - PROVIDE 3" MINIMUM CLEAR COVER TO REINFORCEMENT IN FOOTING.
  - PROVIDE 1/2" ANCHOR BOLTS WITH PLATE WASHERS @ 48" O.C. (MAX.) U.N.O WITH MINIMUM BOLT EMBEDMENT OF 7". WITH A MINIMUM OF TWO ANCHOR BOLTS PER SECTION OF SILL PLATE AND SHALL BE PLACED WITHIN 12" FROM END OF EACH SILL PLATE SECTION PER IRC-2018 SECTION 403.1.6
  - PROVIDE PNEUMATIC NAILS @ 16" O.C. TO CONNECT SILL PLATE TO THICKENED SLAB @ INTERIOR NON BEARING WALLS U.G.N.
  - 16" MIN. SPACING LENGTH TO BE PROVIDED FOR REBAR UNLESS OTHERWISE NOTED
  - PROVIDE 8" WIDE CONCRETE LINTEL W/ (3) #4 REBARS @ BOTTOM AT OPENINGS IN CONCRETE WALL (IF REQUIRED) EXTEND REBAR 24" MIN. EACH SIDE FROM OPENING EDGE FOR BEARING

**ANCHOR BOLT SCHEDULE:**

ANCHOR BOLTS	CAPACITY (PLF)
1/2" ANCHOR BOLT @ 48" O.C.	272
1/2" ANCHOR BOLT @ 24" O.C.	544

REFERENCE:-  
 ALLOWABLE DESIGN VALUES ARE BASED ON MDS 2015, TABLE 12E FOR SOUTHERN PINE W/ FOOTNOTE "1"  
 NOTE:  
 ANCHOR BOLT SPACING SHOWN IS BASED ON LATERAL LOADS ONLY.

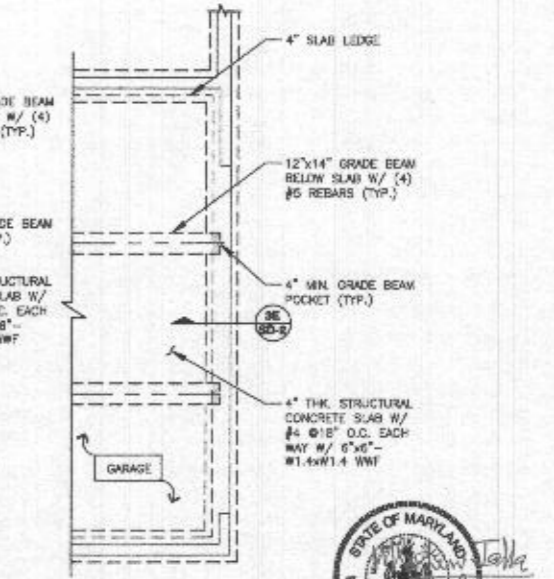
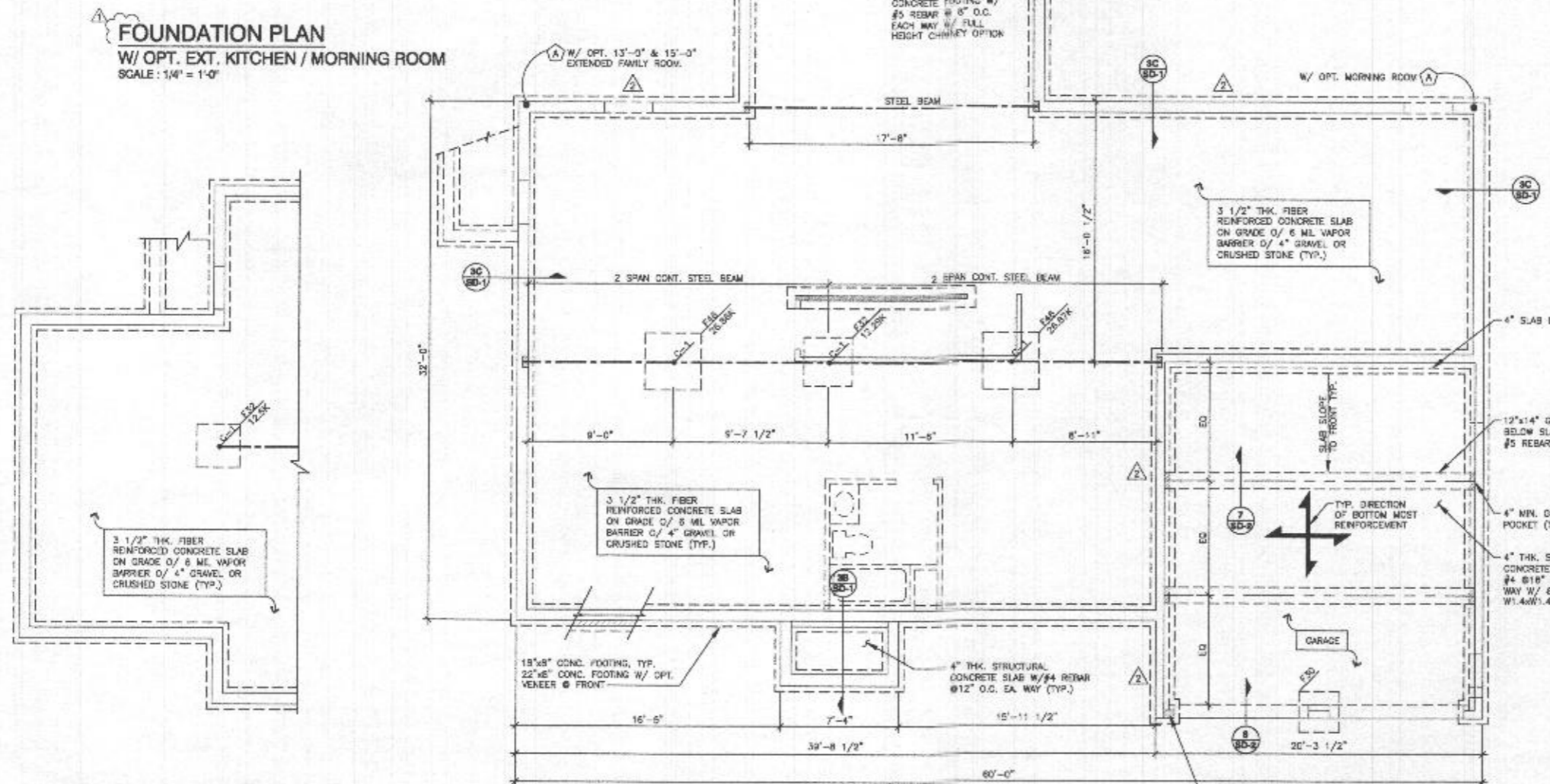
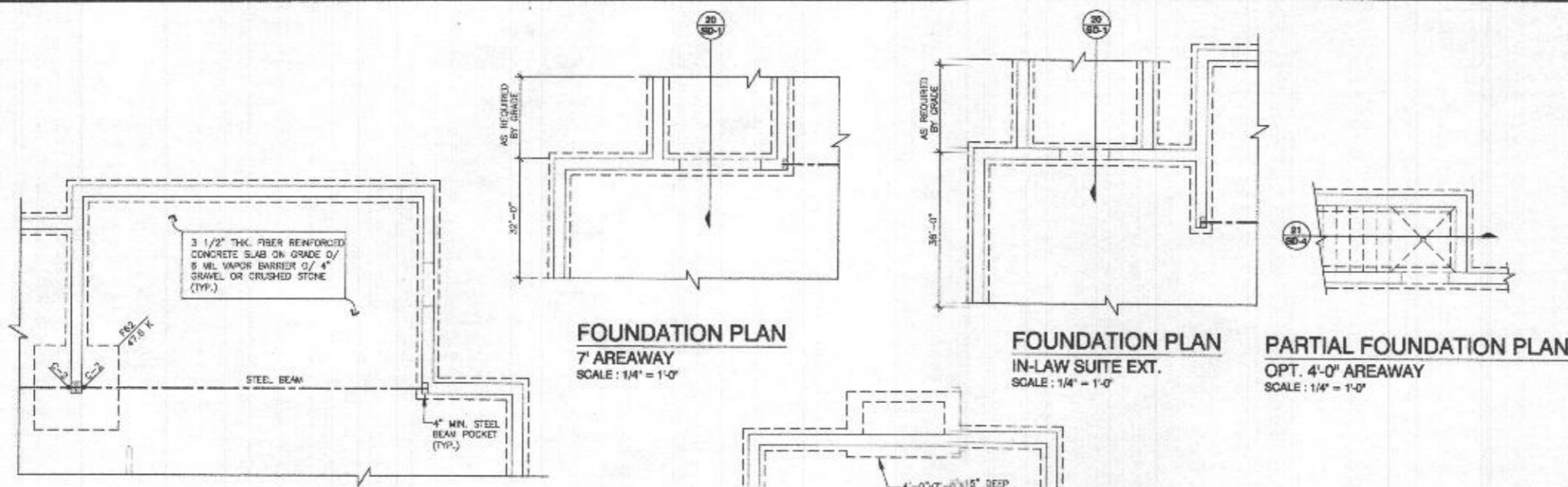
**FOOTING LEGEND:-**

FOOTING SCHEDULE:-	
F30	30"x30"x12" CONCRETE FOOTING W/ (3) #4 REBAR EACH WAY
F32	32"x32"x12" CONCRETE FOOTING W/ (3) #4 REBAR EACH WAY
F36	36"x36"x12" CONCRETE FOOTING W/ (3) #4 REBAR EACH WAY
F48	48"x48"x12" CONCRETE FOOTING W/ (4) #4 REBAR EACH WAY
F52	52"x52"x24" CONCRETE FOOTING W/ (5) #4 REBAR EACH WAY
F62	62"x62"x24" CONCRETE FOOTING W/ (6) #5 REBAR EACH WAY

**HOLDOWN SCHEDULE:-**

LEGEND	SIMPSON HOLDOWN MODEL NO.	NOS. OF STUDS REQUIRED	ANCHOR W/ CONCRETE*
(A)	HDL4-SDS2.5	(2) 2x	5/8" DIA. 7" EMBEDMENT

\* THREADED ROD W/ SIMPSON "SET" ADHESIVE SOLUTIONS.



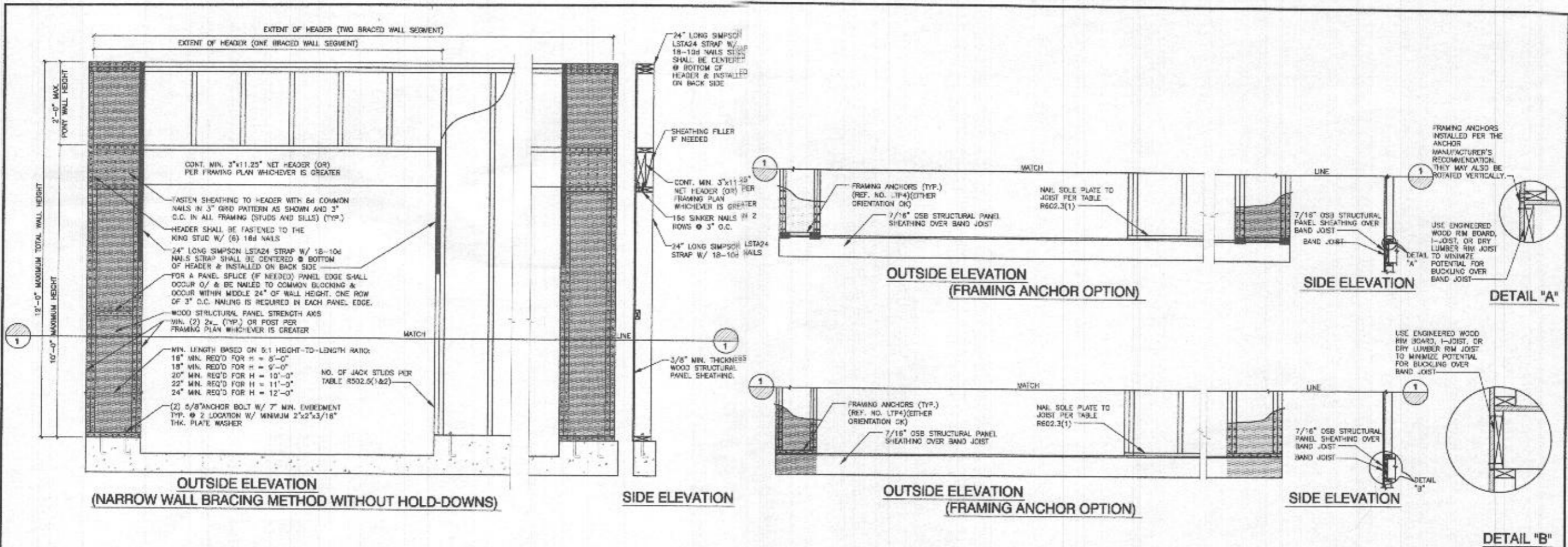
**PROFESSIONAL CERTIFICATION:**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14752, EXPIRATION DATE: 12/31/21





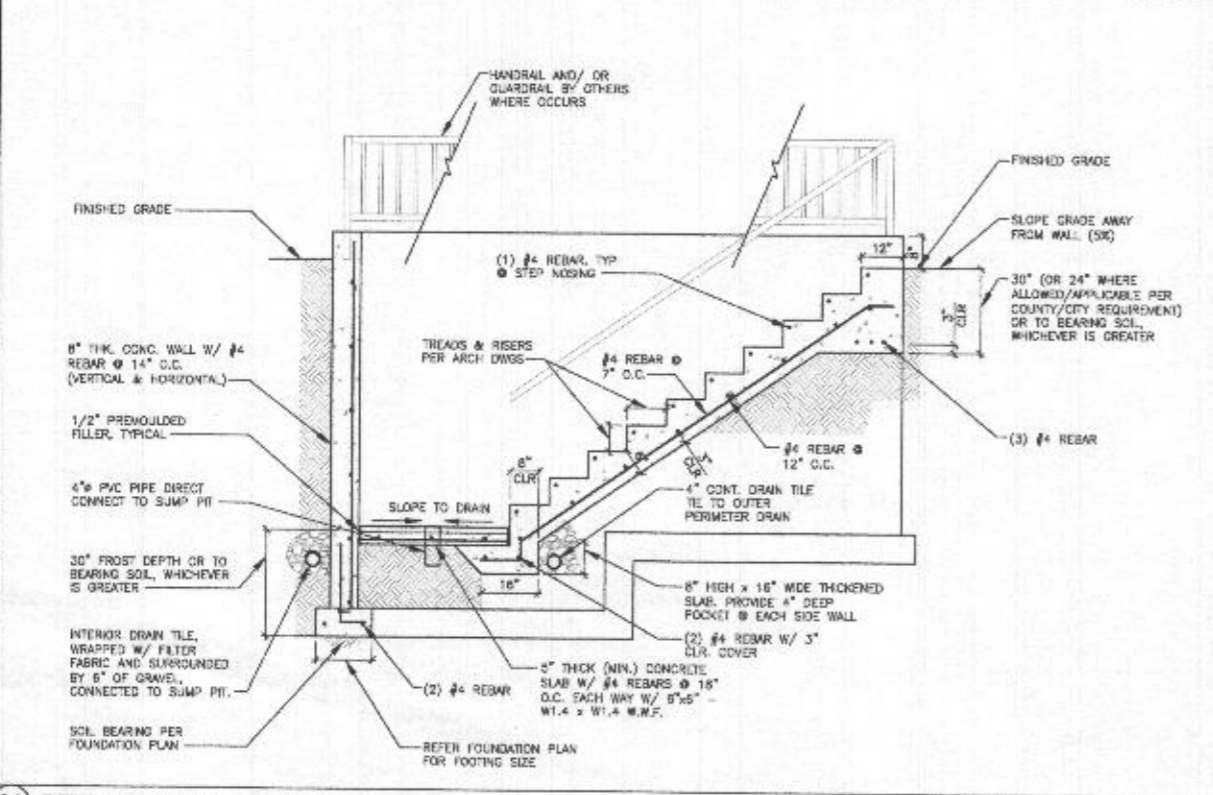




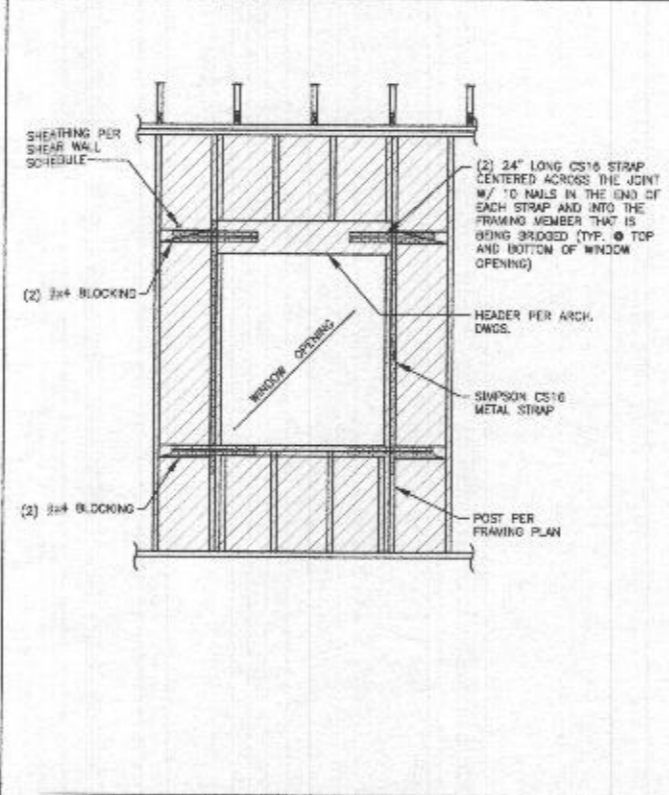


59 CS-PF CONT. PORTAL FRAME BRACED WALL PANEL

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



21) DETAIL @ AREA WAY TYP. B



58) HEARWALL DETAIL @ OPENING

SCALE: 1/2" = 1'-0"



PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14702, EXPIRATION DATE: 12/31/21

REVISIONS	BY
1	2/20/2019
2	2/20/2019
3	2/20/2019
4	2/20/2019
5	2/20/2019
6	2/20/2019
7	2/20/2019
8	2/20/2019
9	2/20/2019
10	2/20/2019

CONSULTING ENGINEERS, CORP.  
1740 SURREY HILLS ROAD SUITE 1001 FORTSON, VA 22059  
PHONE: (703) 845-6100  
FAX: (703) 845-6200

PROJECT: KINGSFORT  
MARYLAND/VIRGINIA

CLIENT: CARUSO HOMES  
SECTION DETAILS

DATE: SEPT 11, 2019  
SCALE: AS NOTED  
DRAWN: DS  
JOB:  
SHEET:

SD-4

- NOTES:**
1. REFER STRUCTURAL SHEETS FOR DETAILED WIND BRACING INFORMATION.
  2. PROVIDE CONTINUOUS OSB SHEATHING @ FIRST FLOOR FRAMING LEVEL INCLUDING RIM JOIST.
  3. EITHER PROVIDE CONTINUOUS OSB SHEATHING @ SECOND FLOOR FRAMING OR FOLLOW SIMPSON CS16 STRAPS SHOWN IN ELEVATION.
  4. PROVIDE HURRICANE CLIPS H2.5A @ EACH TRUSSES/RAFTERS @ NON GABLE END.

REVISIONS	BY
1	PS

**CONSULTING ENGINEERS, CORP.**  
 11485 BARNETT HILLS ROAD SUITE 300 WEST RESTON, VA 20190  
 (703) 441-3100  
 (703) 441-3101  
 FAX: (703) 441-3101

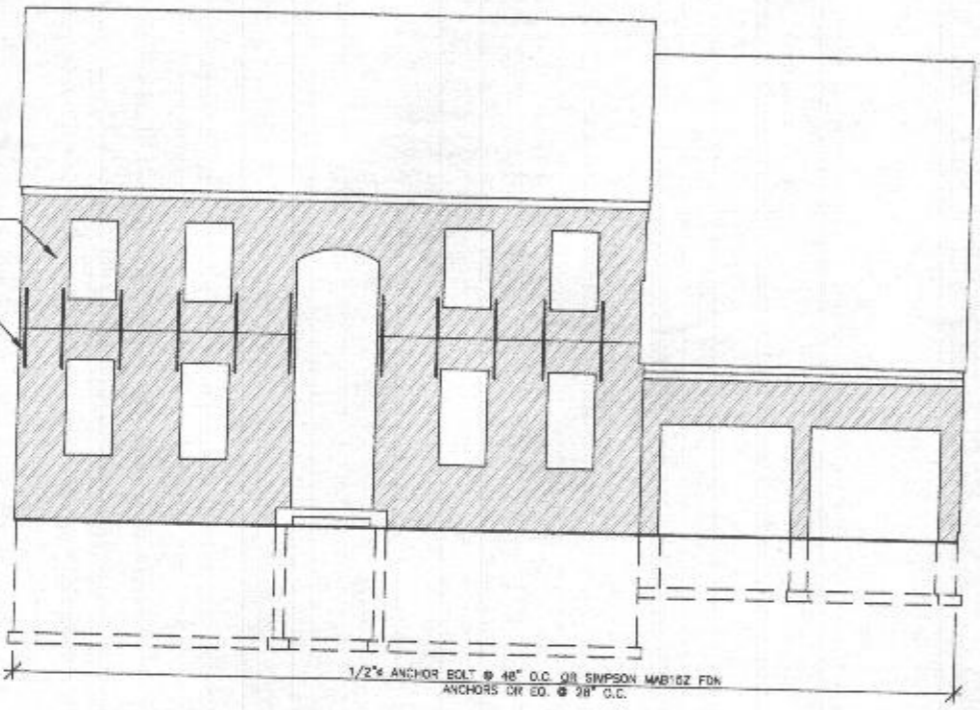
PROJECT: **KINGSPORT**  
 MARTIN, MARYLAND

CLIENT: **CARUSO HOMES**  
**SHEARWALL ELEVATION**

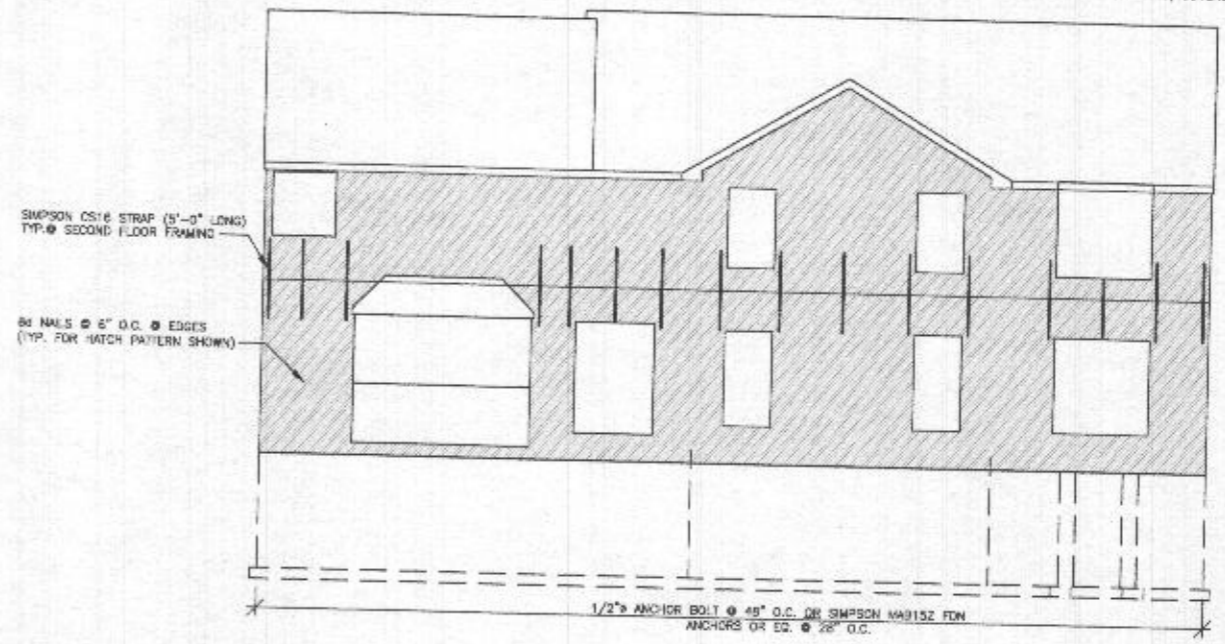
DATE: SEPT 11, 2019  
 SCALE: AS NOTED  
 DRAWN: DS  
 JOB:  
 SHEET: **SWE-1**



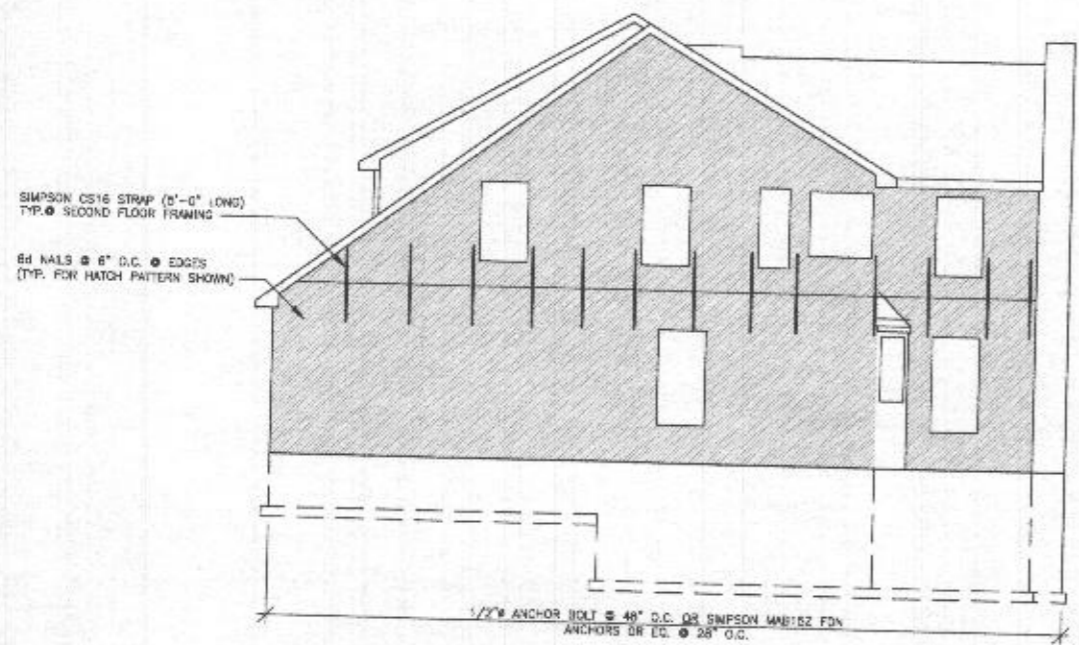
PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 14722, EXPIRATION DATE: 12/31/22.



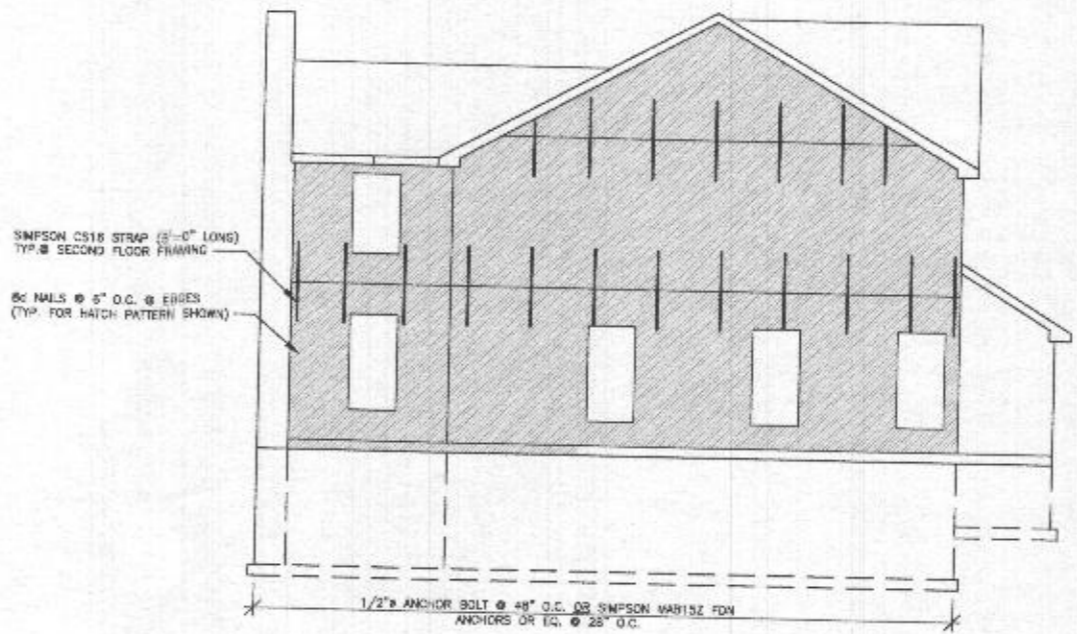
**TYP. FRONT ELEVATION SHOWING NAILING SCHEDULE**



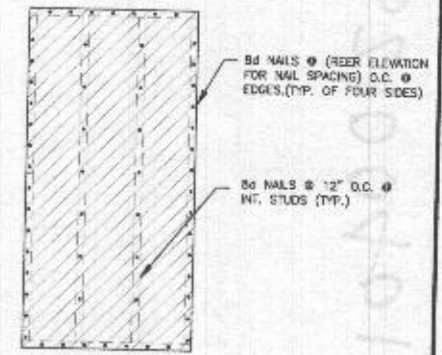
**TYP. REAR ELEVATION SHOWING NAILING SCHEDULE**



**TYP. RIGHT ELEVATION SHOWING NAILING SCHEDULE**



**TYP. LEFT ELEVATION SHOWING NAILING SCHEDULE**



**TYPICAL NAILING PATTERN FOR SHEAR PANEL**

REVISIONS	BY
1	PI

CONSULTING ENGINEERS, CORP.  
 11400 BARBERT HILLS ROAD SUITE 102E RESTON, VA 20190-4009 PHONE: (703) 461-0200  
 FAX: (703) 461-0200

PROJECT: KINGSFORD  
 MARYLAND/VIRGINIA

CLIENT: CARUSO HOMES  
 FIRST FLOOR FRAMING PLAN

DATE: SEPT 11, 2018  
 SCALE: AS NOTED  
 DRAWN: CB  
 JOB:  
 SHEET: 5-1

**FOUNDATION NOTES:**

- DESIGN BASED ON:-  
 $f'_c$  = FOR ALL EXCEPT GARAGE SLAB = 3000 PSI @ 28 DAYS.  
 $f'_c$  = 3,500 PSI MIN. @ 28 DAYS (AIR ENTRAINMENT WITH TOTAL AIR CONTENT PERCENT BY VOLUME OF CONC. NOT LESS THAN 5% OR MORE THAN 7%) FOR GARAGE SLAB  
 $f_y$  = 60,000 PSI MIN. (FOR REBAR)
- REFER ARCH. DWGS. FOR DIMENSIONS.
- FOOTING SIZE CALCULATED FOR MINIMUM 2000 PSF SOIL BEARING CAPACITY.
- PROVIDE 30" FROST DEPTH WHERE REQUIRED.
- PROVIDE 3" MINIMUM CLEAR COVER TO REINFORCEMENT IN FOOTING.
- PROVIDE 1/2" ANCHOR BOLTS WITH PLATE WASHERS @ 48" O.C. (MAX.) U.N.O WITH MINIMUM BOLT EMBEDMENT OF 7", WITH A MINIMUM OF TWO ANCHOR BOLTS PER SECTION OF SILL PLATE AND SHALL BE PLACED WITHIN 12" FROM END OF EACH SILL PLATE SECTION PER IRC-2018 SECTION 403.1.6
- PROVIDE PNEUMATIC NAILS @ 16" O.C. TO CONNECT SILL PLATE TO THICKENED SLAB @ INTERIOR NON BEARING WALLS U.N.O.
- 16" MIN. SPACING LENGTH TO BE PROVIDED FOR REBAR UNLESS OTHERWISE NOTED
- PROVIDE 8" WIDE CONCRETE UNTEL W/ (3) #4 REBAR @ BOTTOM AT OPENINGS IN CONCRETE WALL (IF REQUIRED) EXTEND REBAR 24" MIN. EACH SIDE FROM OPENING EDGE FOR BEARING

**ANCHOR BOLT SCHEDULE:**

	ANCHOR BOLTS	CAPACITY (PLF)
1	1/2" ANCHOR BOLT @ 48" O.C.	272
2	1/2" ANCHOR BOLT @ 24" O.C.	544

REFERENCE:-  
 ALLOWABLE DESIGN VALUES ARE BASED ON NDS 2015, TABLE 12E FOR SOUTHERN PINE W/ FOOTNOTE "1"  
 NOTE:-  
 ANCHOR BOLT SPACING SHOWN IS BASED ON LATERAL LOADS ONLY.

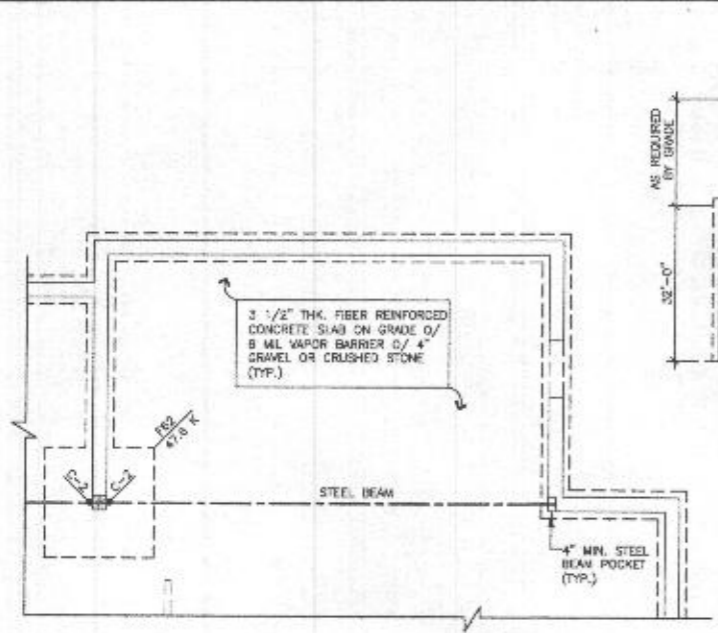
**FOOTING LEGEND:**

	FOOTING SCHEDULE:-
F30	30"x30"x12" CONCRETE FOOTING W/ (3) #4 REBAR EACH WAY
F32	32"x32"x12" CONCRETE FOOTING W/ (3) #4 REBAR EACH WAY
F36	36"x36"x16" CONCRETE FOOTING W/ (3) #4 REBAR EACH WAY
F46	46"x46"x15" CONCRETE FOOTING W/ (4) #4 REBAR EACH WAY
F52	52"x52"x24" CONCRETE FOOTING W/ (5) #4 REBAR EACH WAY
F62	62"x62"x24" CONCRETE FOOTING W/ (6) #5 REBAR EACH WAY

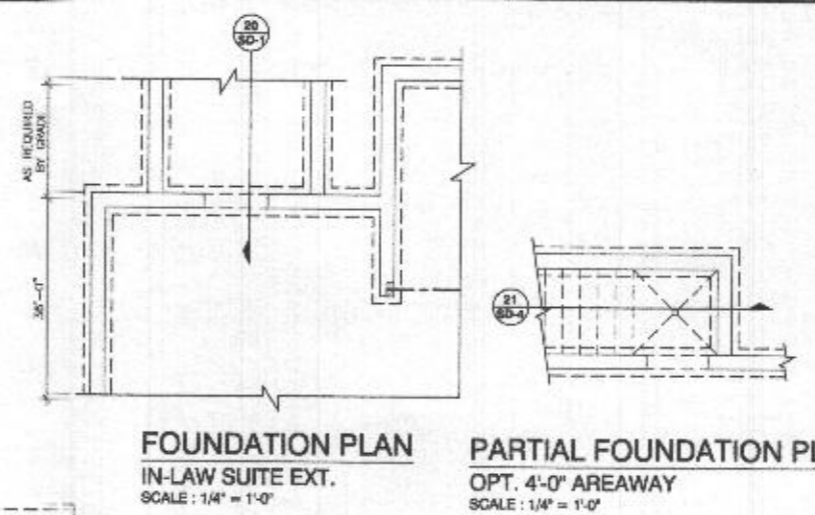
**HOLDOWN SCHEDULE:**

LEGEND	SIMPSON HOLDOWN MODEL NO.	NOS. OF STUDS REQUIRED	ANCHOR W/ CONCRETE* DIA.	EMBEDMENT
(A)	HOU4-SDE2.0	(2) 2x	5/8"	7"

\* THREADED ROD W/ SIMPSON "SET" ADHESIVE SOLUTIONS.



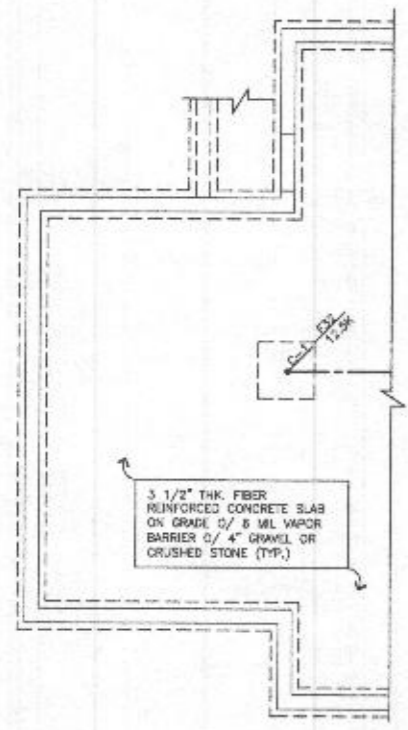
**FOUNDATION PLAN**  
 7' AREAWAY  
 SCALE: 1/4" = 1'-0"



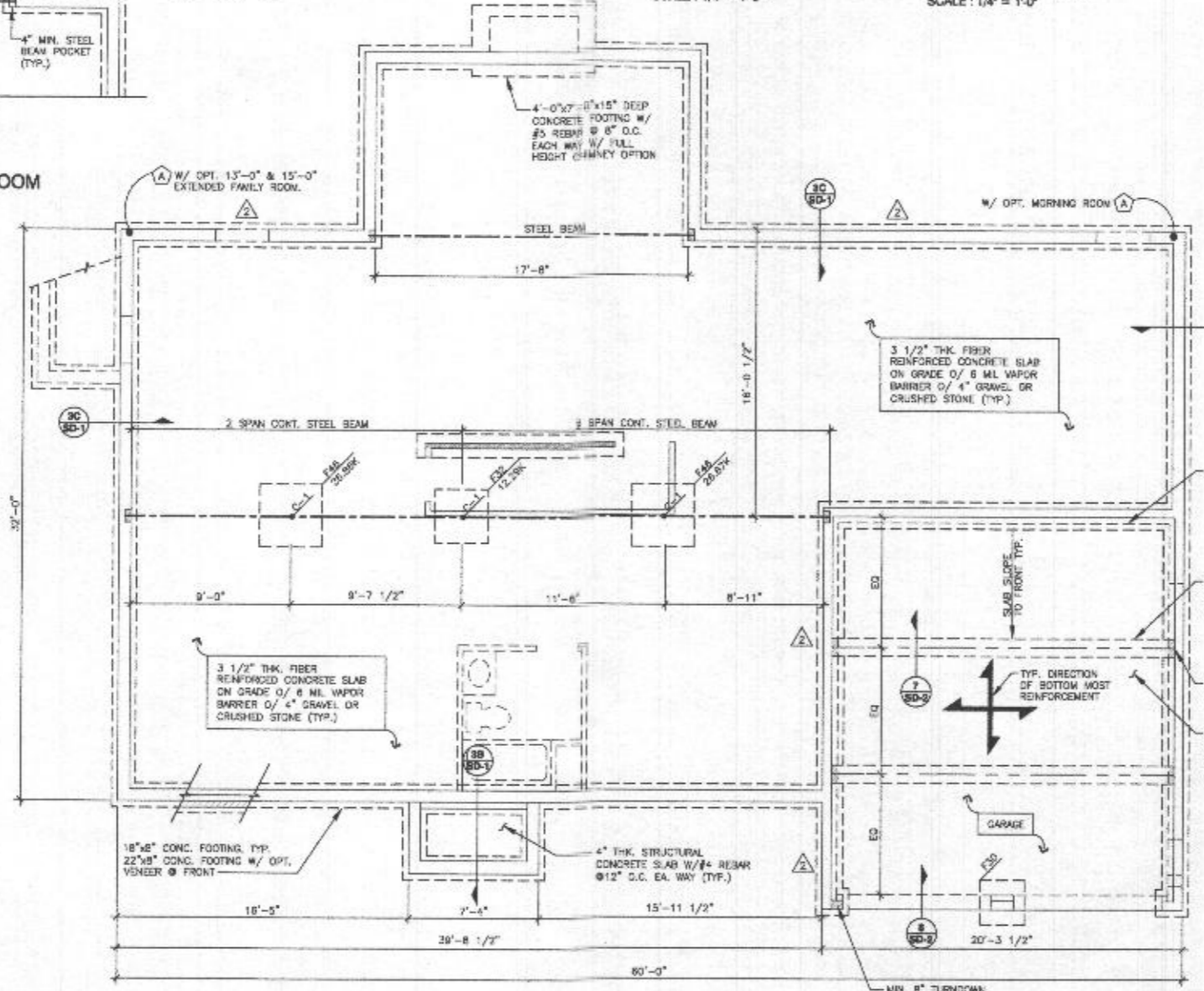
**FOUNDATION PLAN**  
 IN-LAW SUITE EXT.  
 SCALE: 1/4" = 1'-0"

**PARTIAL FOUNDATION PLAN**  
 OPT. 4'-0" AREAWAY  
 SCALE: 1/4" = 1'-0"

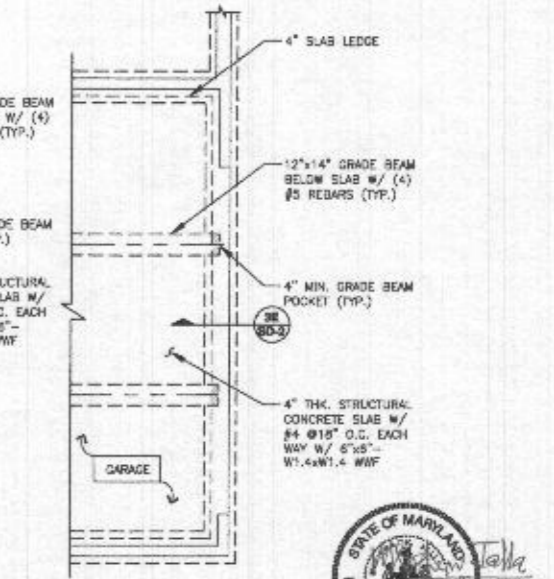
**FOUNDATION PLAN**  
 W/ OPT. EXT. KITCHEN / MORNING ROOM  
 SCALE: 1/4" = 1'-0"



**FOUNDATION PLAN**  
 20x12' SIDE SUNROOM  
 SCALE: 1/4" = 1'-0"



**FOUNDATION PLAN**  
 ELEVATION #1  
 SCALE: 1/4" = 1'-0"



**FOUNDATION PLAN**  
 SIDE LOAD GARAGE  
 SCALE: 1/4" = 1'-0"



PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 44792, EXPIRATION DATE: 12/31/21



