ADD 36"x36" SLAB SUPPORT PAD TYPICAL

20"x10" CONC FTG WITH (2) #4 BARS CONT 18'-0"

8"x3-0" CONC FDTN WALLS WITH #4 BARS AT 24" OC EACH WAY ON 16"x8" CONC FTG WITH (2) #4 BARS CONT

SLAB ON GRADE BY OTHERS

8"x3-0" CONC FDTN WALLS WITH #4 BARS AT 24" OC EACH WAY ON **24"x12"** CONC FTG WITH (3) #4 BARS CONT

DROP SLAB 4" AT ZERO ENTRY SHOWER

12"x3-0" CONC FDTN WALLS WITH #4 BARS AT 24" OC EACH WAY ON **24"x12"** CONC FTG WITH (3) #4 BARS CONT

20"x10" CONC GRADE BEAM WITH (2) #4 BARS CONT

78"x78"x16" CONC PAD WITH (12) #4 BARS EACH WAY

72"x72"x16" CONC PAD WITH (11) #4 BARS EACH WAY

12"x10-0" CONC FDTN WALLS WITH #4 BARS AT 12" OC VERTICAL AND 24" HORIZONTAL ON **24"x12"** CONC FTG WITH (3) #4 BARS CONT

BEAM POCKET - TYP.

DROP SLAB 8" FOR ELEVATOR PIT

ELEVATOR PIT PER MANUFACTURER SPECS

PROVIDE 2" BEARING FOR PORCH SLAB - DASHED LINE IS FACE OF SHEATHING

10"x10-0" CONC FDTN WALLS WITH #4 BARS AT 12" OC VERTICAL AND 24" HORIZONTAL ON 20"X10" CONC FTG WITH (2) #4 BARS CONT

12" DEEP MASS FOOTING WITH #4 BARS AT 8" OC EACH WAY. EXTEND PAD 6" PAST FACE OF STUD WALLS ABOVE ON ALL SIDES

PROVIDE 2" BEARING FOR PORCH SLAB - DASHED LINE IS FACE OF SHEATHING

12"x10-0" CONC FDTN WALLS WITH #4 BARS AT 12" OC VERTICAL AND 24" HORIZONTAL ON 20"X10" CONC FTG WITH (2) #4 BARS CONT

6"x6" BLOCK OUT FOR STONE BEARING

10"x10-0" CONC FDTN WALLS WITH #4 BARS AT 12" OC VERTICAL AND 24" HORIZONTAL ON 20"X10" CONC FTG WITH (2) #4 BARS CONT

6" CONC SLAB WITH #4 BARS AT 12" OC EACH WAY

12"x10-0" CONC FDTN WALLS WITH #4 BARS AT 12" OC VERTICAL AND 24" HORIZONTAL ON 24"x12" CONC FTG WITH (3) #4 BARS CONT

(2) #4x4'-0" DIAGONAL BARS AT RE-ENTRANT CORNERS, TYP

REF FOR STRUCTURAL SLAB DETAILS, TYP

PFH SINGLE SIDE

PFH SINGLE SIDE

REQ'D BY GRADE

BASEMENT SLAB SUPPORT LAYOUT
NOT TO SCALE

Basement Slab:
- Add (10) 36"x36" slab support pads located per the layout. The pads shall extend down to original clay with a minimum bearing capacity of 2000 psf.
- Place 6" concrete slab w/ #4 bars at 12" o.c. each-way on 1-1/2" chairs.
- Add (6) 10'-0" long #4 bars each-way over the column pads. Place with 1" to 1-1/2" slab top cover (3" chairs). See details 2 and 3 on sheet 2 of 2.
- The perimeter of the slab shall bear on the foundation.

Notes:
- 3000 psi concrete
- Grade 40 reinforcing steel
- Lap splices min. 24"

Slab Notes:
- Highlighted pads shall be increased in size by 6" in each direction. Pads shall extend down to original clay with a minimum bearing capacity of 2000 psf.
- The full width of the continuous footings shall be excavated down to original clay with a minimum bearing capacity of 2000 psf.

APEX ENGINEERS

STRUCTURAL DESIGN REVIEW

KANSAS ENGINEERING LICENSE: 992

MISSOURI ENGINEERING LICENSE: 2003004673

PROJECT:
1229 SW Corinthian Ln
Lot 7 Lumbermans Row
Lee's Summit Permit #PRRES20252330

CLIENT:
Freeman Custom Homes

PROJECT #

XXXX
DRAWING NAME

SLAB LAYOUT

DATE: | COMMENTS:

DRAWN BY: APEX
CHECKED BY: ----

SHEET #

1 OF 2

Structural Slab Calculation

INPUT:

Case Type:	1	
f'c =	3500	psi
weight of concrete =	150	pcf
fy =	40000	psi
live load =	40	psf
$l_{a(short)}$ =	15	feet
$lb_{(long)}$ =	15	feet
$m = l_a/l_b$	1.000	
φ =	0.9	
cover =	1.5	in
beam width =	12	in
min thickness =	4.00	in
design thickness =	5	in
dead load =	62.5	psf
factored live load =	68	psf
factored dead load =	87.5	psf
total design load =	155.5	psf
bar no. =	4	
bar diameter =	0.5	in
bar area =	0.20	in²

COEFFICIENTS (p. 408-410)

$C_{a, neg}$ (Table 12.3) =	0.045
$C_{b, neg}$ =	0.045
$C_{a,posdl}$ (Table 12.4) =	0.018
$c_{b,posdl}$ =	0.018
$C_{a,posll}$ (Table 12.5) =	0.027
$C_{b,posll}$ =	0.027
$C_{a,neg}$ =	0.33
$C_{b,neg}$ =	0.33

Neg. Moments at Cont. Edges:

$M_{a,neg}$ =	18893	in-lbs
$M_{b,neg}$ =	18893	in-lbs

Pos. Moments:

M_{aposdl} =	4253	in-lbs
M_{aposll} =	4957	in-lbs
$M_{apostot}$ =	9210	in-lbs
M_{bposdl} =	4253	in-lbs
M_{bposll} =	4957	in-lbs
$M_{bpostot}$ =	9210	in-lbs

Neg. Moments at disc. Edges:

M_{aneg} =	3070	in-lbs
M_{bneg} =	3070	in-lbs

Short Direction: R (look at graph if above 150)

midspan	70 psi	0.0042	As =	0.18	13 in o.c.
cont. edge	143 psi	0.0042	As =	0.18	13 in o.c.
disc. Edge	18 psi		As =	0.06	12 in o.c.

Long Direction:

midspan	70 psi	0.0042	As =	0.15	12 in o.c.
cont. edge	143 psi	0.0042	As =	0.18	13 in o.c.
disc. Edge	23 psi		As =	0.05	12 in o.c.

USE NUMBER 4 BARS @ 12 INCH CENTERS EACH-WAY
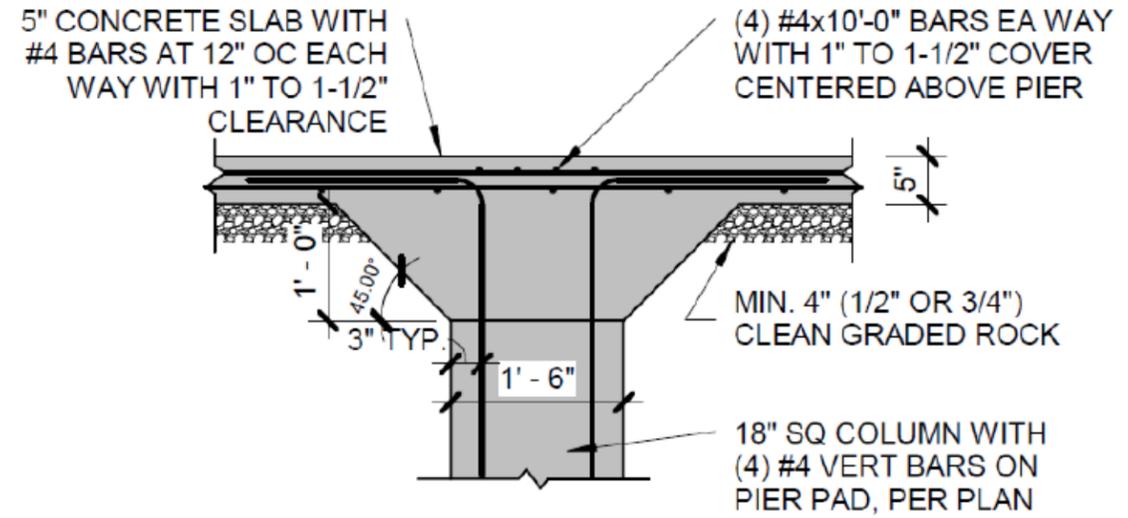
2 | STRUCTURAL GARAGE SLAB PIER PAD DETAIL

5" CONCRETE SLAB WITH #4 BARS AT 12" OC EACH WAY WITH 1" TO 1-1/2" CLEARANCE

(4) #4x10'-0" BARS EA WAY WITH 1" TO 1-1/2" COVER CENTERED ABOVE PIER

1' - 0"
45.00°
3" TYP.
1' - 6"
5"

MIN. 4" (1/2" OR 3/4") CLEAN GRADED ROCK

18" SQ COLUMN WITH (4) #4 VERT BARS ON PIER PAD, PER PLAN
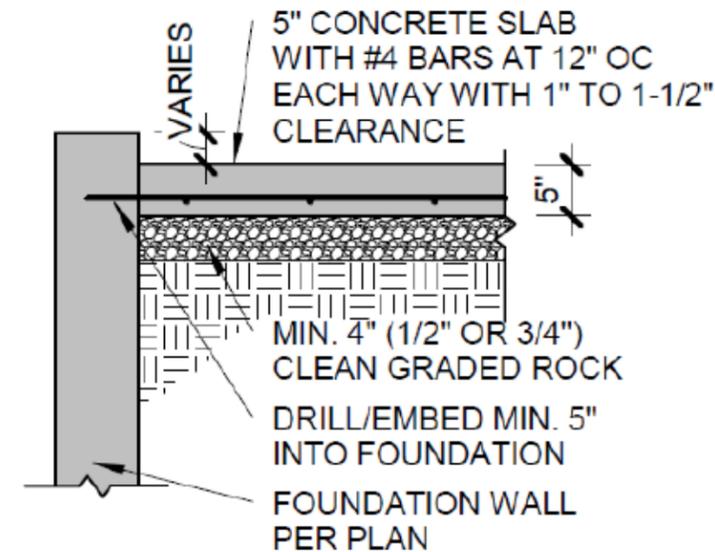
3 | STRUCTURAL GARAGE SLAB/WALL SECTION

VARIES

5" CONCRETE SLAB WITH #4 BARS AT 12" OC EACH WAY WITH 1" TO 1-1/2" CLEARANCE

5"

MIN. 4" (1/2" OR 3/4") CLEAN GRADED ROCK

DRILL/EMBED MIN. 5" INTO FOUNDATION

FOUNDATION WALL PER PLAN

STRUCTURAL DESIGN REVIEW
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PROJECT #

DRAWING NAME
DETAILS AND CALCULATIONS

DATE: | COMMENTS:

DRAWN BY: APEX
CHECKED BY: ----