

CITY OF MILPITAS

Building & Safety Department
455 E. Calaveras Blvd.
Milpitas, CA 95035
408-586-3240
www.ci.milpitas.ca.gov



RESIDENTIAL CONCRETE FOUNDATION

All new foundations for additions shall be of the same type of foundation system as the existing structure if a soil report is not provided. EXCEPTION: A soil report is required for both new residences and additions to residences in Hillside Areas.

Additions to R3 occupancies without an available soil report and where the existing foundation system is a standard "T" type or a pier and grade beam type, may be constructed as follows at the option of the property owner (MMC Section II-3.5-2.04 & II-3-2.13).

Footings shall be designed in accordance with the structural provisions in Sections 1808.1.1 through 1808.1.2 of MMC Section II-3.2.13 and Policy No. BDP-BLG06 for "T" type footing and pier and grade beam type foundation (see attached sample sketches).

"T" TYPE FOUNDATION: Foundations shall be built on undisturbed soil. The top and bottom surface of footings shall be level. The maximum allowable foundation pressure shall not exceed 1500 psf. The minimum depth of exterior footings shall be 18-inches below the undisturbed ground surface and minimum depth of interior footings shall be 12-inches below ground surface. The maximum allowable lateral bearing shall not exceed 100 psf/ft (Policy no. BDP-BLG06). Where a specific design is not provided for concrete footings supporting light-frame construction, the minimum foundation design as shown on the attached sketches shall be provided.

PIER AND GRADE BEAM TYPE FOUNDATION

CONCRETE PIERS: Unless a licensed Architect or a registered Civil or Structural Engineer has designed the new foundation, the building addition no more than one story in height may be constructed on a pier and grade beam type foundation. The concrete piers shall be at least 12-inches in diameter, extend at least 6-feet below pad grade, and have a horizontal center-to-center spacing of no greater than 6-feet.

Interior floor supports for a building addition constructed with a raised floor (4-inch by 4-inch post on a nailer plate or equal) shall be supported on concrete piers extended at least 8-inches above pad grade. The piers can be extended using a short section of a Sonotube.

Pier reinforcement shall consist of at least three #4 vertical bars with #3 ties at 4-inches o.c. for upper 18-inches of pier and 8-inches o.c. for remaining pier depth vertical bar. This reinforcement shall extend to within 6-inches of the bottom of the pier holes, shall have a minimum 3-inch cover of the concrete between each bar and the sides of the pier hole, and shall be aligned with the centerline of the connecting beam. The vertical bar(s) of each pier shall extend into the grade beam and have a minimum 12-inch standard hook with the top bar of the connecting footing.

GRADE BEAMS: The connecting grade beams for a building addition constructed with either a raised floor or a concrete slab-on-grade shall be at least 10-inches wide by 16-inches deep. A 1-½ inch void space shall be created at the bottom of the beam between pier locations.

The minimum reinforcement for grade beams shall be two #4 bars at top and two #4 bars at bottom, with #4 ties at 18-inch centers or #3 ties at 12-inch centers. All bars shall have a minimum 3-inch clear cover of concrete. Splices in reinforcement shall be as follows:

1. Top steel shall be spliced at mid span between piers.
2. Bottom steel shall be spliced over the pier centerline.
3. All splices shall have a minimum length of 40 bar diameters and shall be staggered.

INTERIOR SLAB ON GRADE

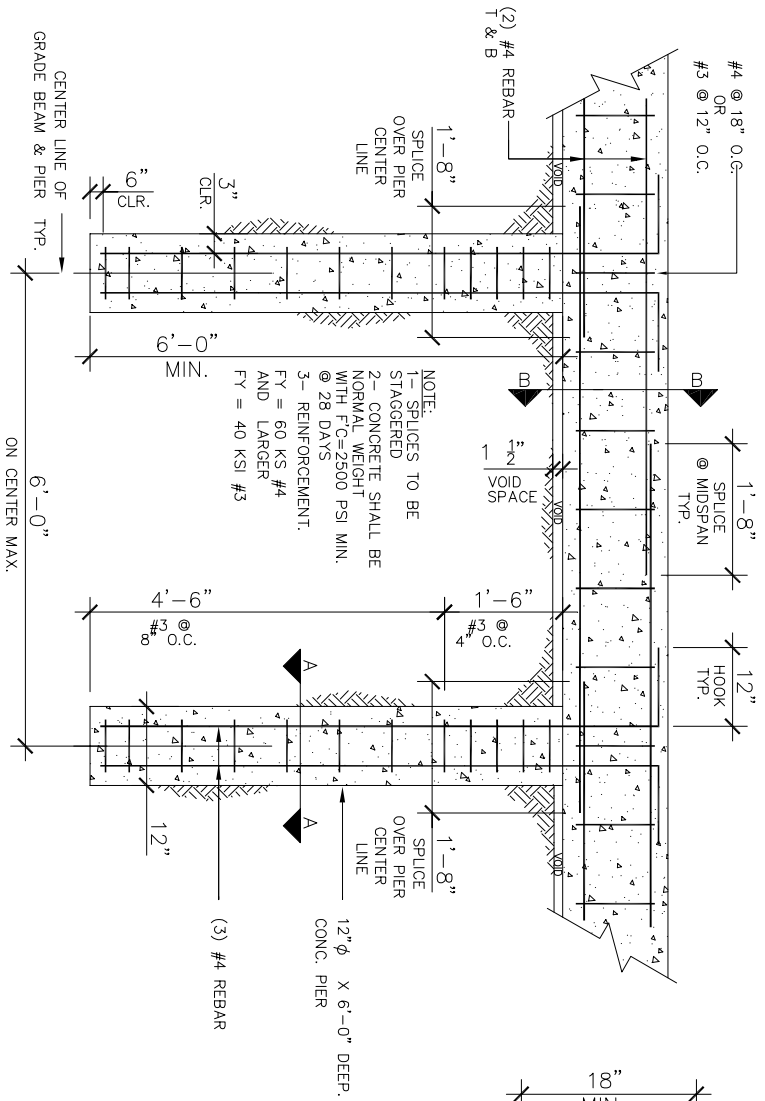
Interior concrete slab-on-grade shall be at least 4-inches thick and be constructed on a capillary break that has been placed on a stabilized subgrade and is capped with a vapor retarder that shall be used to retard vapor transmission through the floor slab. The capillary break should be at least 4 inches thick and consist of a free-draining material, such as 3/8" pea gravel or a permeable aggregate complying with CALTRANS Standard Specifications Section 68, Class 1, Type A or Type B. The membrane vapor retarder should be a high quality membrane such as 6 mil polyethylene with joints lapped not less than 6" or other approved equivalent methods or materials. A minimum 2-inch thick protective cushion of sand or capillary break material should be placed over the membrane.

Where interior stud wall loads are to be carried by the floor slab, the slab section shall be thickened to 12-inches and founded directly on the undisturbed sub-grade.

The soil sub-grade should be brought to moisture equilibrium by covering it with an impervious membrane for a minimum period of two weeks before placement of the concrete floor slab. The covering should be equivalent to at least a 6 mil polyethylene. Rock to be used as capillary break may be used to keep the basal membrane in place.

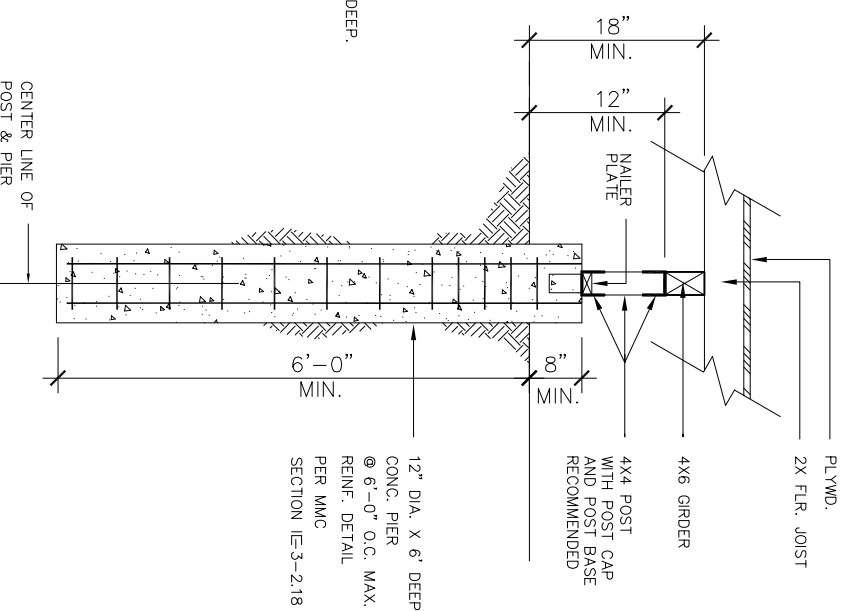
Reinforcement is required in concrete floor slabs constructed on grade. The slab shall be reinforced with not less than 6x6x10-gauge wire mesh or an approved alternate installed at mid height of the slab.

CONCRETE: Concrete shall be normal weight with minimum compressive strength of $f'c = 2,500$ psi at 28 days.

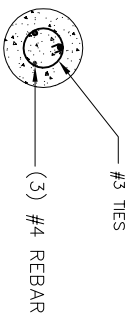


DETAIL OF PIER & GRADE BEAM FOUNDATION

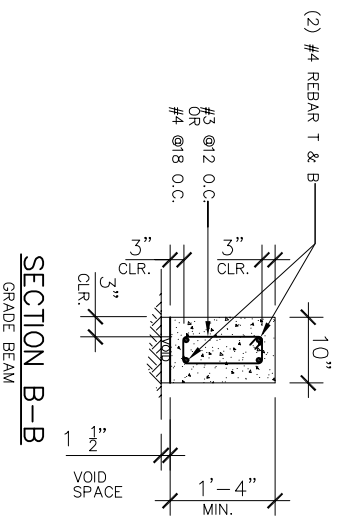
PER MMC SECTION IIE3-2.18



DETAIL OF INTERIOR FLOOR SUPPORT



SECTION A-A
 CONCRETE PIER

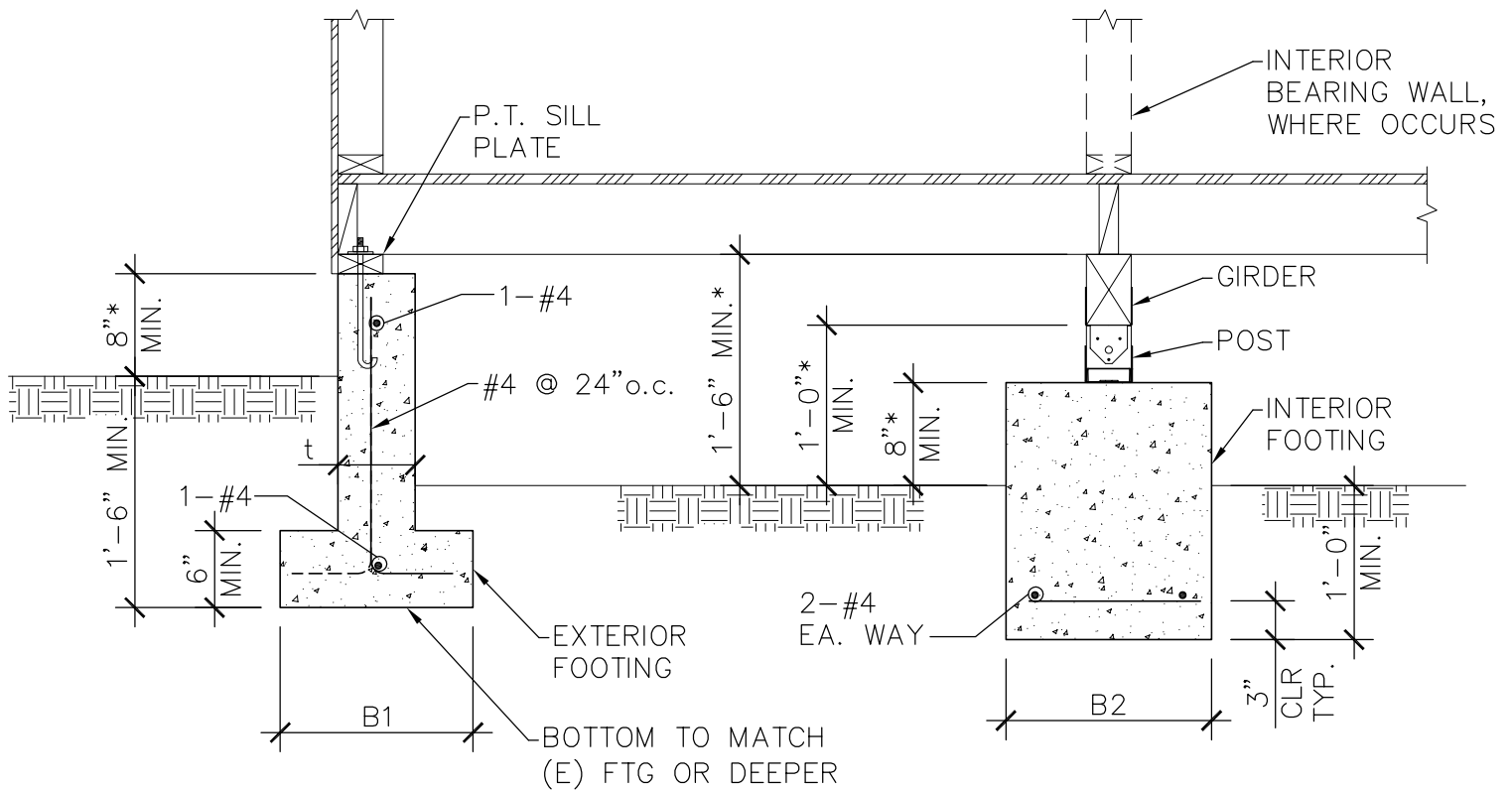


SECTION B-B
 GRADE BEAM

REV.	DATE	BY:	SCALE:
			N.T.S.

DATE:	SCALE:
DEC. 2006	
DRAWN BY:	
BK	
REVIEWED BY:	
LS	

City of Milpitas
 Building & Safety Department
MINIMUM PIER AND GRADE BEAM FOUNDATION DESIGN



* WOOD MEMBERS SHALL BE NATURALLY DURABLE OR PRESERVATIVE-TREATED IF MIN. DISTANCE IS NOT MAINTAINED

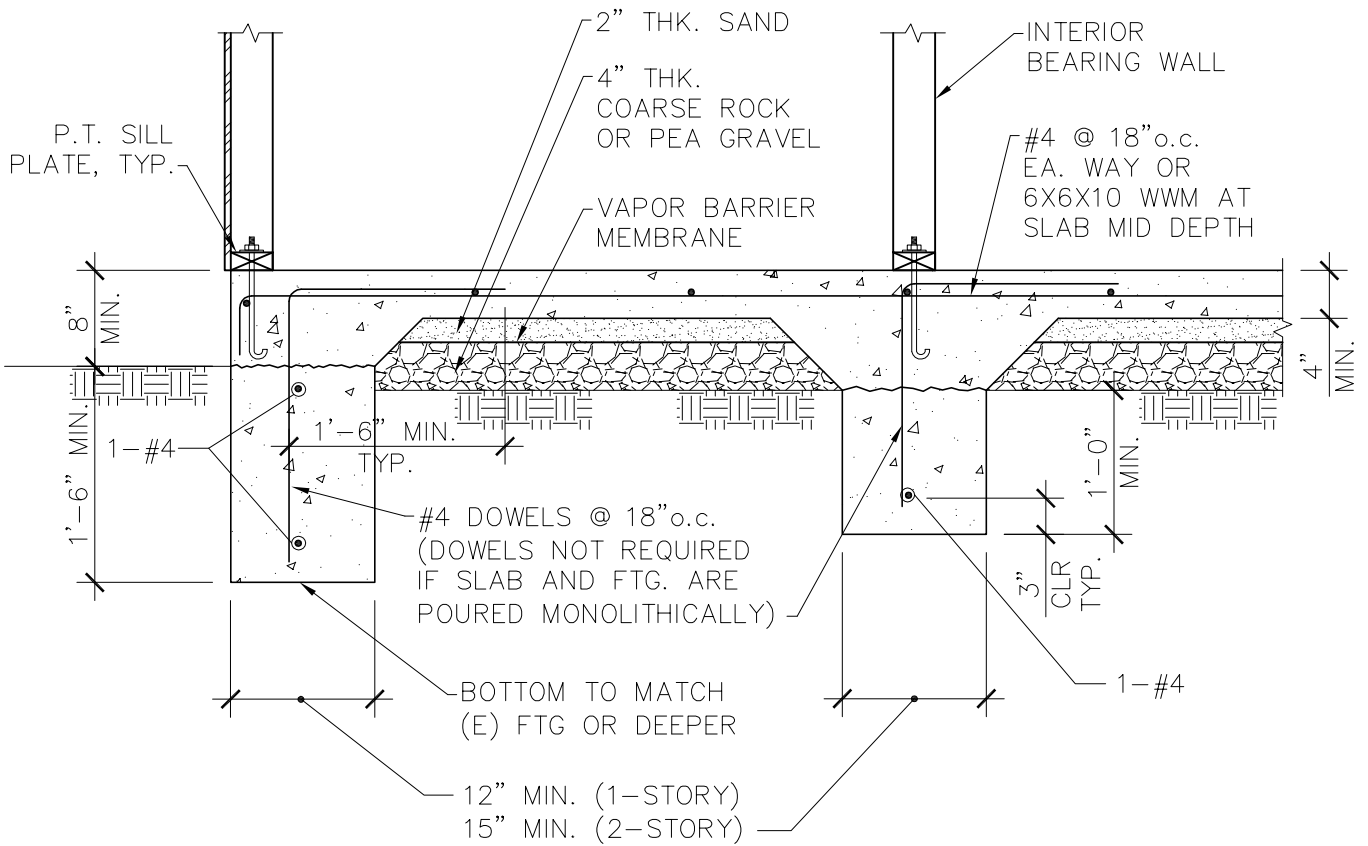
NO. OF STORIES SUPPORTED BY FTG.	STEM WALL THK. (t)	EXTERIOR FTG. WIDTH (B1)	INTERIOR FTG. WIDTH (B2)	INTERIOR FTG. MAX. SPACING
1 FLOOR ONLY	6"	12"	16" SQ.	6'-0"
1 FLOOR + 1 ROOF	6"	12"	24" SQ.	6'-0"
2 FLOORS + 1 ROOF	8"	15"	30" SQ.	6'-0"

NOTE: THIS TABLE IS BASED ON MAX. 8 FT FLOOR JOIST SPAN AND MAX. 20 FT ROOF RAFTER SPAN.

REV.	DATE	BY:	SCALE: 3/4"=1'-0"
			DATE: JULY 2009
			DRAWN BY: BYC
			REVIEWED BY: KI/LS/OC

City of Milpitas
 Building & Safety Department
MINIMUM FOUNDATION DESIGN
WITH RAISED WOOD FLOOR

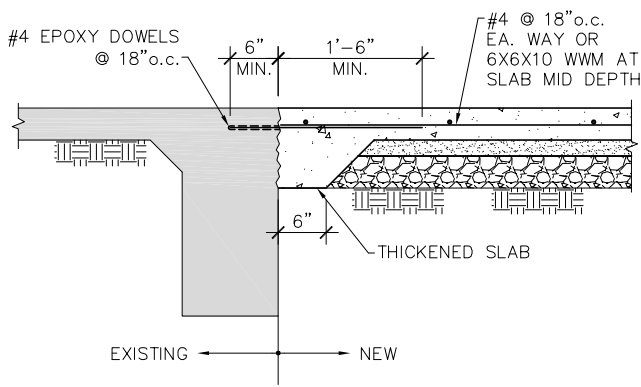
SHEET
4
 OF 6 SHEETS



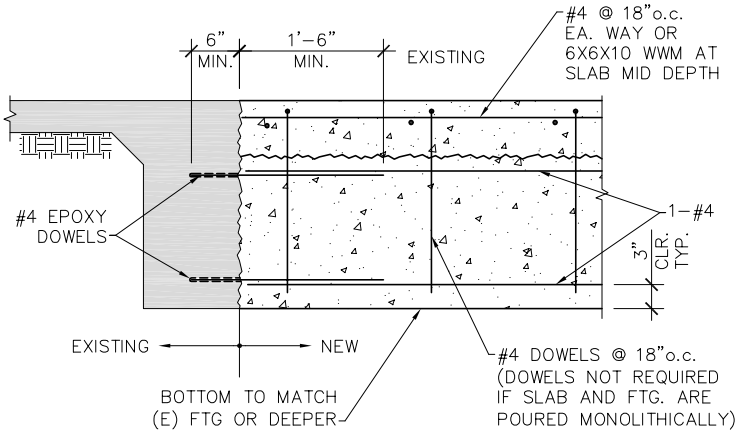
REV.	DATE	BY:	SCALE: 3/4"=1'-0"
			DATE: JULY 2009
			DRAWN BY: BYC
			REVIEWED BY: KI/LS/OC

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MINIMUM FOUNDATION DESIGN
WITH SLAB ON GRADE

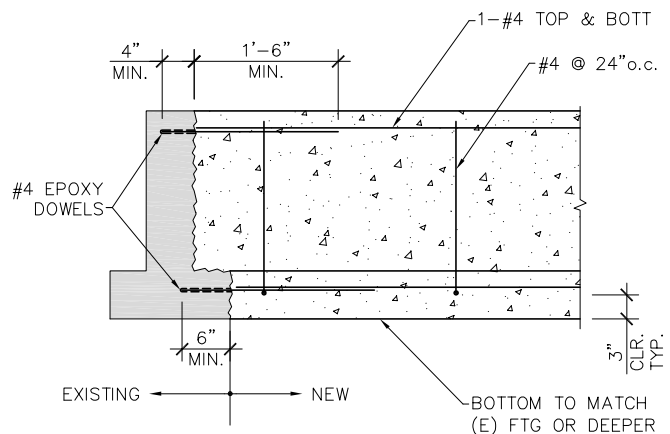
SHEET
5
 OF 6 SHEETS



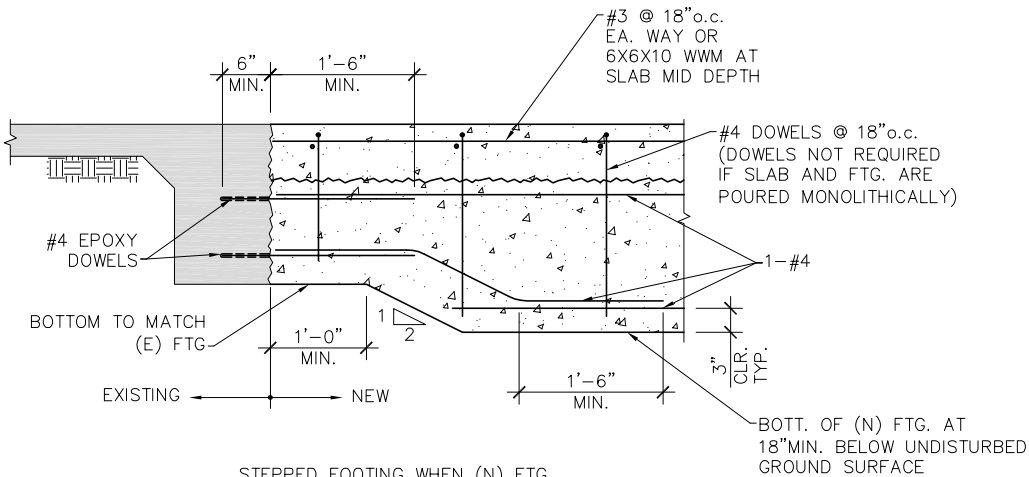
EXISTING FTG TO NEW CONCRETE SLAB



EXISTING TO NEW CONCRETE FOOTING (AT SLAB ON GRADE)



EXISTING TO NEW CONCRETE FOOTING (AT RAISED WOOD FLOOR)



STEPPED FOOTING WHEN (N) FTG IS DEEPER THAN (E) FTG

REV.	DATE	BY:	SCALE: N.T.S.
			DATE: JULY 2009
			DRAWN BY: BYC
			REVIEWED BY: KI/LS/OC

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 EXISTING TO NEW CONCRETE FOOTING