May 31, 2011

Mayor Dawn Zimmer
94 Washington Street
Hoboken, NJ 07030

Re: Sovereign at Shipyard – Response to Boswell Underwater Engineering Draft Report
Hoboken, NJ

Dear Mayor Zimmer,

We are writing this letter in response to the draft report written by Boswell Underwater Engineering (Boswell) on the underwater survey they performed of the Hoboken Privately-Owned Waterfront Structures (dated March 2011). Specifically, we are responding to the comments made regarding The Sovereign at Shipyard building (reference section 6 of the report).

Section 6.2 "Inspection Findings"
This section states that no apparent bulkhead to retain the inland fill was visible and that the tidal waters have allowed fill to escape and settle below the structural slab of the Sovereign building.

No bulkhead wall was encountered at the north-east corner of the building during the inspection because it is located on the land side of the wood platform supporting the existing sea wall. A new bulkhead wall was installed in the form of corrugated steel sheet piles which were driven inland of the existing wood platform to retain the soil beneath the remainder of the building (reference plans on S-100 and S-300 and details 6, 7A, and 7B on drawing S-100, attached).

Pictures 6.11 through 6.15 in Boswell's report depict settlement of the fill above the existing platform (below the building structural slab) as well as rigid insulation delaminating from the underside of the slab. The condition revealed in these photographs does not, however, raise any structural concerns. The ground floor slab of the Sovereign building is a reinforced concrete slab which was designed to span between pile caps (reference drawings S-101 and S-301, attached). The insulation served simply as formwork to support the wet concrete when the slab was poured. Structurally this slab behaves just as the upper floor slabs do in as much as the formwork is only required until the concrete has cured sufficiently to reach adequate strength to span between permanent supports.

Section 6.3 "Steel Pipe Piles"
This section states that some loss of protective coating and minor to moderate corrosion was found at the steel pipe piles within the tidal zone. Based on testing conducted, the writer estimates an average section loss of the pile cross section of approximately 14%.

The building structure was designed to be supported on 100 ton piles. The piles supporting the portion of the building over the river were reinforced so as not to require the steel casing (pipe) in order to carry the building loads (reference Foundation Notes on drawing S-001 and section 13 on

drawing S-002, attached). The piles in this area (north-east corner of the building) were designed in anticipation of the section of the pipe above the river mud line corroding away over time, which is consistent with the conditions depicted in photographs 6.11 and 6.12 of Boswell's report. The concrete filled pipes were reinforced with epoxy coated reinforcing steel so as to be maintenance free in the long term.

Section 6.4 "Concrete Pile Caps, Beams and Deck Planks"
This section states that the condition of the pre-cast beams and deck planks visible were in good condition with no deterioration noted.

Section 6.5 "Recommendations"
This section includes two recommendations regarding actions and repairs.

The writer recommends that an investigation and engineering analysis be performed for the area inland of the high-level platform to determine the impact of the fill loss from beneath the building slab and if repairs are required. As we explained above (see the response to Section 6.2), the fill is not structural and therefore its loss does not pose any structural issues. Additionally, no structural repairs are required.

The writer also recommends that a routine procedure be established where the steel pipe piles are cleaned and a protective coating is applied to the sections of the piles within the tidal zone to prevent further corrosion. As we explained above (see the response to Section 6.3), the steel casing of these piles above the mud line are nonstructural and therefore the corrosion noted, as well as potential further corrosion, does not diminish the load carrying capacity of the piles in any way.

In summary, the conditions of and surrounding the structural elements below the Sovereign building slab as stated in the Boswell report signify no cause for concern and no remedial actions need be taken. Periodic inspection as part of routine building maintenance is always advisable.

We trust that this letter serves to alleviate any concern of conditions exposed in Boswell's report, however, please feel free to contact us should you have any additional questions.

Sincerely,
GACE Consulting Engineers PC

Alyson Sikorski, PE
Associate

John Whelan, PE
Principal

CC: D. Barry (TAC)
M. Barry (TAC)
J. Wuestneck (TAC)

GENERAL NOTES:

1. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS.
2. THE LATEST EDITIONS OF THE FOLLOWING CODES SHALL APPLY:
   - A. THE INTERNATIONAL BUILDING CODE 2000.
   - B. BUILDING REQUIREMENTS FOR REINFORCED CONCRETE - ACI 318.
   - C. BUILDING REQUIREMENTS FOR CONCRETE MASONRY - ACI 531.
   - D. AISC-SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.

IN CASE OF CONFLICT, THE MOST STRINGENT REQUIREMENTS SHALL APPLY.

3. THE DESIGN OF STRUCTURAL MEMBERS ARE LIMITED TO THE FOLLOWING DEFLECTION CRITERIA:
   - A. THE MINIMUM THICKNESS OF SLABS FOR CONTROL OF DEFLECTION AND THE MAXIMUM PERMISSIBLE COMPUTED DEFLECTON OF CONCRETE ELEMENTS SHALL BE LIMITED BY SEC. 9.5.2 AND SEC. 9.5.3 OF ACI 318-95
   - B. THE LIVE LOAD DEFLECTON OF BEAMS AND GIRDERS SHALL NOT EXCEED 1/360 OF SPAN LENGTH.
   - C. THE WIND LOAD DEFLECTION OF TOTAL BUILDING SHALL NOT EXCEED 1/500 OF BUILDING HEIGHT WITH A UNIFORM LATERAL WIND LOAD OF 20 PSF.
   - D. THE STORY DRIFT DUE TO EARTHQUAKE FORCES SHALL NOT EXCEED 0.015 hi, WHERE hi = STORY HEIGHT BELOW LEVEL I.
   - E. MAXIMUM LIVE LOAD + CURTAIN WALL WEIGHT + SUPERIMPOSED DEAD LOAD DEFLECTION OF ANY SPANDREL SHALL NOT EXCEED 1/2 INCH.
   - F. ELEVATOR STRUCTURAL SUPPORTS SHALL BE DESIGNED WITHIN LIMITS OF DEFLECTION PRESCRIBED BY ASME A17.1.
4. FIELD MEASUREMENTS SHALL BE TAKEN AT THE SITE BY THE CONTRACTOR TO VERIFY AND SUPPLEMENT ALL DIMENSIONS AND ADDITIONS AFFECTED BY NEW WORK THAT HAS ALREADY BEEN INSTALLED. ANY DISCREPANCIES FROM THE INFORMATION SHOWN ON PLANS SHALL BE REPORTED TO AND COORDINATED WITH THE OWNER'S REPRESENTATIVE.
5. BEFORE COMMENCEMENT OF ANY WORK AND/OR FABRICATION, THE CONTRACTOR SHALL SUBMIT TO THE STRUCTURAL ENGINEER FOR HIS APPROVAL CONCRETE MIX DESIGNS FOR EACH TYPE OF CONCRETE TO BE USED AND SHOP DRAWINGS FOR ALL TRADES.
6. THE CONTRACTOR SHALL ADEQUATELY BRACE, SHORE, AND SUPPORT THE STRUCTURE DURING THE ENTIRE CONSTRUCTION PERIOD.
7. NEW MASONRY BEARING WALL CONSTRUCTION SHALL CONFORM TO THE FOLLOWING:
   - A. CONCRETE MASONRY UNITS - ASTM C-90, COMPRESSIVE STRENGTH 2500 PSI ON NET AREA - LIGHTWEIGHT AGGREGATE CONCRETE.
   - B. MORTAR - ASTM C270 TYPE M. COMPRESSIVE STRENGTH 2500 PSI.
   - C. GROUT IN CONCRETE MASONRY VOIDS -3000 PSI COMPRESSIVE STRENGTH.
8. MEMBERS WITH SIZES INDICATED ON THE DRAWINGS ARE NEW UNLESS OTHERWISE NOTED (UON). FOR BEARING WALL TYPES SEE PLAN.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL ROOF AND FLOOR PENETRATIONS, PATCHING, REPAIRING AND FLASHING AS REQUIRED.
10. SLABS ON GRADE SHALL BE SUPPORTED BY A COMPACTED POROUS FILL AT LEAST 6 INCHES THICK. AT INTERIOR SLABS A VAPOR BARRIER AT LEAST 2 MILS THICK SHALL BE PLACED BETWEEN THE SLAB AND THE POROUS FILL. THE POROUS FILL SHALL, IN TURN, BE SUPPORTED BY EITHER CLEAN, INORGANIC ORIGINAL SOIL OR COMPACTED FILL.

CONCRETE NOTES (U.O.N.):

1. CONCRETE TYPES
   - A. COLUMNS, SLABS AND BEAMS - 4000 PSI STONE CONCRETE.
   - B. SIDEWALKS - 4000 PSI AIR-ENTRAINED STONE CONCRETE
   - C. UNREINFORCED SLABS ON GRADE (OTHER THAN SIDEWALKS) - 3000 PSI STONE CONCRETE.
   - D. NON-STRUCTURAL FILL - 2500 PSI LIGHTWEIGHT CONCRETE.
   - E. ALL OTHER CONCRETE - 4000 PSI STONE CONCRETE
2. BAR REINF. SHALL CONFORM TO ASTM A-615, GRADE 60 .
3. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185 WITH A MINIMUM ULTIMATE TENSILE STRENGTH OF 70,000 PSI.
4. CONCRETE SHALL BE CAST MONOLITHICALLY EXCEPT WHERE OTHERWISE SHOWN.
5. REINFORCEMENT MARKED "CONT." (CONTINUOUS) SHALL BE LAPPED A SPLICE LENGTH AT SPLICES AND CORNERS AND SHALL BE HOOKED OR EXTENDED AN ENBEDMENT LENGTH AT NON-CONTINUOUS ENDS AS PER A.C.I. & C.R.S.I. HORIZONTAL WALL REINFORCING SHALL BE CONTINUOUS.
6. REINFORCEMENT SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS UNLESS OTHERWISE SHOWN ON DRAWINGS. THE CONTRACTOR SHALL LOCATE CONSTRUCTION JOINTS AT POINTS OF MINIMUM SHEAR.
7. REINFORCING BARS SHALL HAVE THE FOLLOWING MINIMUM CONCRETE PROTECTION:

   CONCRETE CAST AGAINST EARTH - 3"
   EXPOSED TO EARTH OR WEATHER - 2"
   SLABS AND WALLS NOT EXPOSED - 3/4"
   BEAMS AND GIRDERS NOT EXPOSED - 1-1/2"
   SLABS IN PARKING AREA - 2" (TOPS BARS ONLY)
8. MAXIMUM LENGTH OF CONCRETE POUR (DISTANCE BETWEEN CONSTRUCTION JOINTS) SHALL BE 50 FEET DURING JUNE, JULY, AUGUST AND SEPTEMBER AND 75 FEET DURING THE REST OF THE YEAR.
9. THE CONTRACTOR SHALL VERIFY DIMENSIONS AND LOCATIONS OF ALL OPENINGS, PIPE SLEEVES, ANCHOR BOLTS, ETC. AS REQUIRED BY TRADES BEFORE CONCRETE IS POURED.
10. THE CONTRACTOR SHALL PROVIDE SLAB BOLSTERS, HIGH CHAIRS AND ALL ACCESSORIES REQUIRED FOR PROPER PLACEMENT OF WIRE MESH AND REINFORCING AS PER A.C.I. & C.R.S.I. STANDARDS, LOCATION OF CONSTRUCTION JOINTS IF REQUIRED SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT.
11. CONCRETE MAY BE CONVEYED BY PUMPING. PUMPING METHODS SHALL COMPLY WITH REQUIREMENTS ESTABLISHED BY A.C.I. COMMITTEE 304, PLACING CONCRETE PUMPING METHODS.
12. PRIOR TO PLACING CONCRETE, ALL REINFORCING SHALL BE FREE OF LOOSE FLAKY RUST, MUD, OIL OR OTHER COATING THAT WILL DESTROY, REDUCE OR HAMPER FULL BOND CAPACITY.

FOUNDATION NOTES:

1. FOUNDATIONS SHALL BE SUPPORTED ON 10" MIN. DIA., (16" MIN. DIA. FOR PILES IN THE WATER). CLOSED-END STEEL PIPE PILES FILLED WITH 4000psi CONC. PILES SHALL BE IMPACT HAMMER DRIVEN TO THE REQUIRED FRICTION RESISTANCE, TO YIELD 100 TONS OF CAPACITY PER PILE. PILES MAY BE SPLICED BY A WELD OR DRIVE-SLEEVE. APPROVAL OF PILES AND CONSTRUCTION PROCEDURES SHALL BE DONE BY A GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF NEW YORK. PILES SHALL BE AS PER SPECIFICATIONS.
2. THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE EXISTING UTILITIES AND FOUNDATIONS PRIOR TO BEGINNING CONSTRUCTION.
3. MAKE NO EXCAVATION TO THE FULL DEPTH INDICATED WHEN FREEZING TEMPERATURES MAY BE EXPECTED UNLESS THE FOOTINGS OR SLABS CAN BE PLACED IMMEDIATELY AFTER THE EXCAVATION HAS BEEN COMPLETED. PROTECT THE BOTTOM OF EXCAVATION FROM FROST IF PLACING OF CONCRETE IS DELAYED. SHOULD PROTECTION FAIL, REMOVE FROZEN MATERIALS AND REPLACE WITH CONCRETE OR GRAVEL FILL.

SHOP DRAWING REVIEW

THE ENGINEER WILL REVIEW CONTRACTOR'S SHOP DRAWINGS AND RELATED SUBMITTALS WITH RESPECT TO CONFORMANCE WITH THE STRUCTURAL DRAWINGS AND THE SPECIFICATIONS.

BEFORE SUBMITTING A SHOP DRAWING OR ANY RELATED MATERIAL TO THE ENGINEER, CONTRACTOR SHALL: REVIEW EACH SUCH SUBMISSION FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION, AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO, INCLUDING REFLECTION OF EXISTING FIELD CONDITIONS, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF CONTRACTOR. THE ENGINEER WILL ASSUME THAT NO SHOP DRAWING OR RELATED SUBMITTAL COMPRISES A VARIATION FROM THE CONTRACT UNLESS CONTRACTOR ADVISES THE ENGINEER OTHERWISE VIA A WRITTEN INSTRUMENT WHICH IS ACKNOWLEDGED BY THE ENGINEER IN WRITING. IN THE EVENT THAT THE ENGINEER WILL REQUIRE MORE THAN TEN (10) WORKING DAYS TO PERFORM REVIEW, THE ENGINEER WILL SO NOTIFY THE CONTRACTOR.

BIDDER'S WARRANTY

BY THE ACT OF SUBMITTING A BID FOR THE PROPOSED CONTRACT, THE BIDDER WARRANTS THAT:

1. THE BIDDER AND ALL SUBCONTRACTORS HE INTENDS TO USE HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS, SPECIFICATIONS AND OTHER CONSTRUCTION CONTRACT DOCUMENTS AND HAVE FOUND THEM COMPLETE AND FREE FROM AMBIGUITIES AND SUFFICIENT FOR THE CONTRACTOR TO BID, FABRICATE, AND INSTALL THE WORK ON TIME, FURTHER THAT,
2. THE BIDDER AND ALL WORKMEN, EMPLOYEES AND SUBCONTRACTORS HE INTENDS TO USE ARE SKILLED AND EXPERIENCED IN THE TYPE OF CONSTRUCTION REPRESENTED BY THE CONSTRUCTION CONTRACT DOCUMENTS BID UPON; FURTHER THAT,
3. NEITHER THE BIDDER NOR ANY OF HIS EMPLOYEES, AGENTS INTENDED SUPPLIERS OR SUBCONTRACTORS HAVE RELIED UPON ANY VERBAL REPRESENTATIONS, ALLEGEDLY AUTHORIZED OR UNAUTHORIZED FROM THE OWNER, HIS EMPLOYEES OR AGENTS INCLUDING ARCHITECTS, ENGINEERS OR CONSULTANTS, IN ASSEMBLING THE BID FIGURE; AND FURTHER THAT,
4. THE BID FIGURE IS BASED SOLELY UPON THE CONSTRUCTION CONTRACT DOCUMENTS AND PROPERLY ISSUED WRITTEN ADDENDA AND NOT UPON ANY OTHER WRITTEN REPRESENTATION.
5. THE BIDDER ALSO WARRANTS THAT HE HAS CAREFULLY EXAMINED THE SITE OF THE WORK AND THAT FROM HIS OWN INVESTIGATIONS HE HAS SATISFIED HIMSELF AS TO THE NATURE AND LOCATION OF THE WORK AND THE CHARACTER, QUALITY, QUANTITIES OF MATERIALS AND DIFFICULTIES TO BE ENCOUNTERED, THE KIND AND EXTENT OF EQUIPMENT AND OTHER FACILITIES NEEDED FOR THE PERFORMANCE OF THE WORK, THE GENERAL AND LOCAL CONDITIONS, AND OTHER ITEMS WHICH MAY, IN ANY WAY, AFFECT THE WORK OR ITS PERFORMANCE.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO ASTM A572, GRADE 50, UNLESS OTHERWISE NOTED (UON).
2. SHOP CONNECTIONS SHALL BE WELDED.
3. FIELD CONNECTIONS SHALL BE BOLTED WITH ASTM A325 BOLTS UNLESS OTHERWISE NOTED (UON). BOLTS SHALL BE 3/4" DIAMETER MINIMUM. CONNECTIONS SHALL BE SLIP CRITICAL CONNECTIONS UON.
4. WELDING SHALL BE PERFORMED BY QUALIFIED WELDERS IN ACCORDANCE WITH AWS SPECIFICATIONS LATEST EDITION AND THE BUILDING CODE.
5. WELDING ELECTRODES SHALL BE ASTM A232 E-70 SERIES.
6. STEEL DETAILS SHALL BE IN ACCORDANCE WITH AISC STANDARDS LATEST EDITION.
7. THE CONNECTIONS OF ALL MEMBERS SHALL BE DESIGNED FOR THE FULL CAPACITY OF THE MEMBERS UNLESS OTHEWISE NOTED.
8. FILLET WELDS SHALL BE 1/4" MIN. UNLESS OTHERWISE SHOWN.

CONTROLLED INSPECTION NOTES:

THE FOLLOWING IS A PARTIAL LIST OF WORK ITEMS REQUIRING CONTROLLED INSPECTION. THE CONTRACTOR IS OBLIGATED TO NOTIFY THE STRUCTURAL ENGINEER AT LEAST 72 HOURS BEFORE INSTALLATION OF SUCH ITEMS SO THAT PROPER INSPECTION CAN BE MADE. IN NO CASE SHALL SUCH ITEMS BE INSTALLED OR CONSTRUCTED WITHOUT COMPLETE APPROVAL OF THE INSPECTOR. UNAPPROVED INSTALLATION IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S SOLE EXPENSE.

1. BUILDING STABILITY
2. STRUCTURAL CONCRETE
3. STRUCTURAL STEEL WELDING AND HIGH-STRENGTH BOLTING
4. REINFORCING STEEL PLACEMENT

FIDUCIARY LIABILITY DECLINED

GOLDSTEIN ASSOCIATES MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, AS TO GOLDSTEIN'S FINDINGS, RECOMMENDATIONS, PLANS, SPECIFICATIONS, OR PROFESSIONAL ADVICE. GOLDSTEIN HAS ENDEAVORED AND WILL ENDEAVOR TO PERFORM ITS SERVICES IN ACCORDANCE WITH GENERALLY ACCEPTED STANDARDS OF PRACTICE IN EFFECT AT THE TIME OF PERFORMANCE. BY UTILIZING THESE DOCUMENTS (OR HAVING OTHERS UTILIZE THEM) FOR ANY PURPOSE WHATSOEVER THE OWNER OR DEVELOPER RECOGNIZES THAT NEITHER GOLDSTEIN NOR ANY OF GOLDSTEIN'S SUBCONSULTANTS OR SUBCONTRACTORS OWES ANY FIDUCIARY RESPONSIBILITY TO THE OWNER OR DEVELOPER.

LOADING SCHEDULE

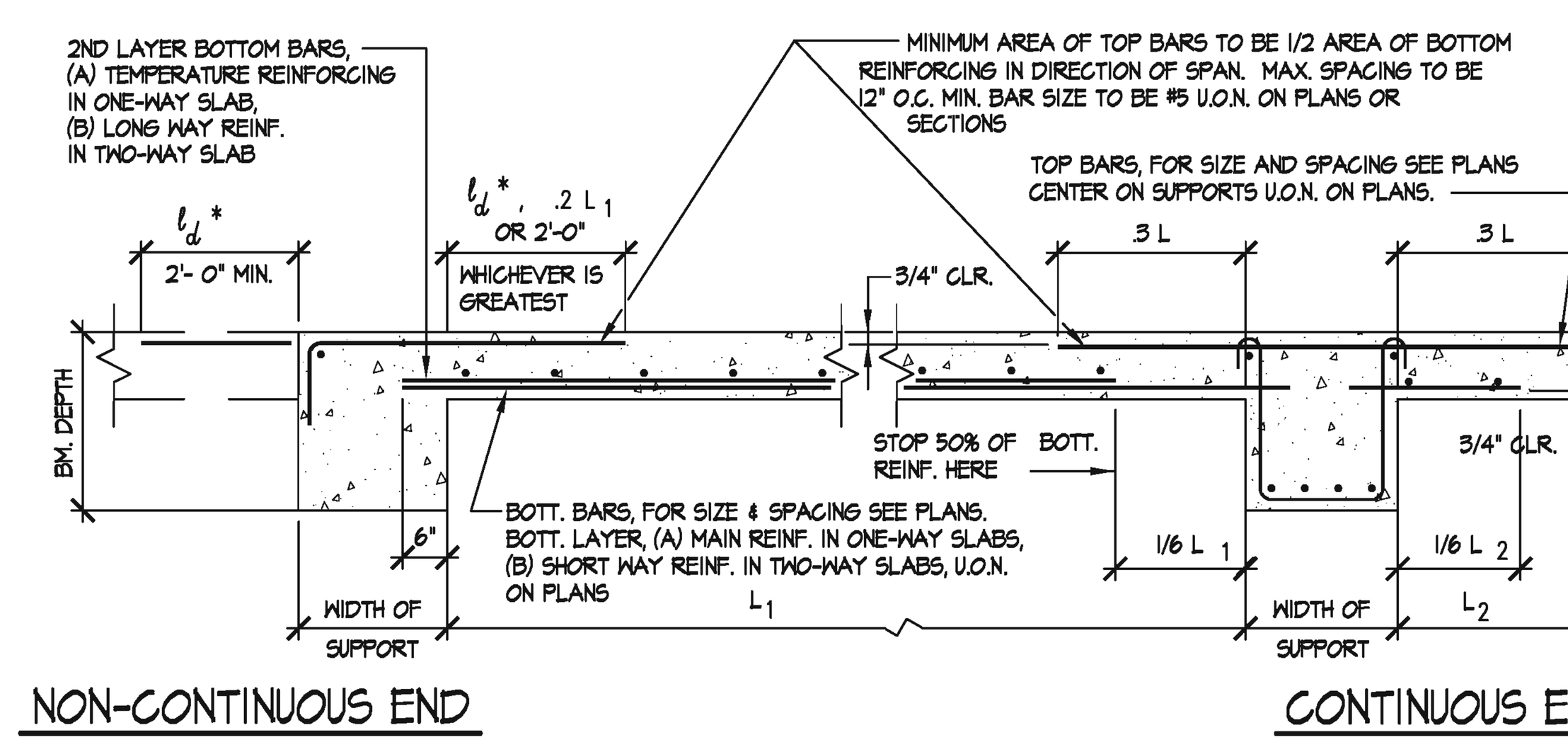
LEVEL	OCCUPANCY	DEAD LOAD (PSF) SLAB	MECH/ CLNG.	FINISH	PART.	ROOFING & INSUL.	TOTAL	LIVE LOAD (PSF)	TOTAL LOAD (PSF)
1st	RETAIL	100	—	5	—	—	105	100	205
	MECHANICAL	100	—	5	—	—	105	150	255
	STORAGE	100	—	—	15	—	115	125	240
	PARKING	125	—	—	—	—	125	50	175
	LOBBY	100	—	10	—	—	110	100	210
	APARTMENT	100	—	5	15	—	120	40	160
2nd 3rd 4th	MECHANICAL	100	5	5	—	—	110	150	260
	PARKING	125	5	—	—	—	130	50	180
	STORAGE	100	5	—	15	—	120	125	245
	BALCONY	100	—	—	—	—	100	60	160
	APARTMENT	100	5	5	15	—	125	40	165
5th	PLAZA	125/150	5	240	—	15	385/410	100	485/510
	TERRACE	100	5	25	—	10	140	60	200
	BALCONY	100	—	—	—	—	100	60	160
	APARTMENT	100	5	5	15	—	125	40	165
6th-12th	BALCONY	100	—	—	—	—	100	60	160
	TERRACE	100	5	25	—	10	140	60	200
	APARTMENT	100	5	5	15	—	125	40	165
ROOF	ROOF	100	5	—	—	15	120	30	150
	TERRACE	100	5	25	—	10	140	60	200
	MECHANICAL	125	5	—	—	—	130	150	280
ELEV. BULKHEAD	ROOF	100	5	—	—	15	120	30	150
	MECHANICAL	125	5	—	—	—	130	225	355

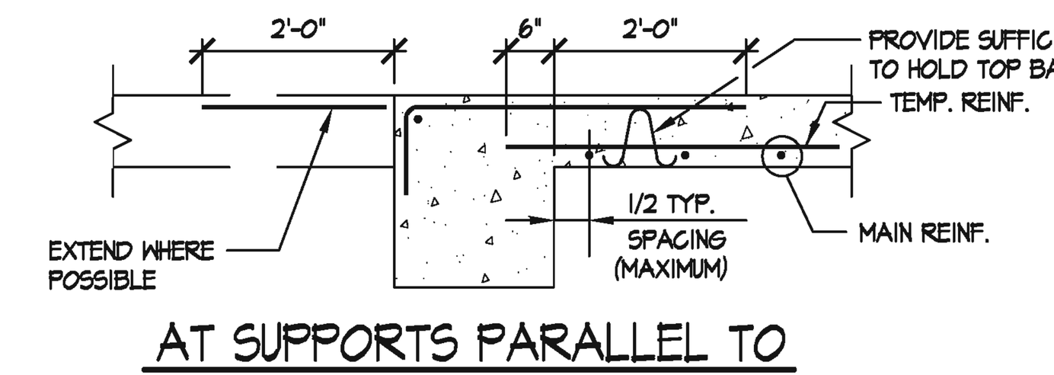
NOTES: (revision 1)

1. EXTERIOR WALLS: 6" LT. WT. CMU* . . . . . . = 30 psf
   4" BRICK . . . . = 40 psf
   *: 8" LT. WT. CMU AT 1st, 2nd, 3rd, 12th FLOORS = 38 psf
2. SEISMIC CRITERIA
   - A. SEISMIC USE GROUP: I
   - B. SPECTRAL RESPONSE COEFFICIENTS: SDS = 0.516g, SD1 = 0.163g
   - C. SITE CLASS E
   - D. DESIGN BASE SHEAR: NORTH TOWER = 897 k, SOUTH TOWER = 845 k, GARAGE = 1355 k, TOWNHOUSE = 295 k
   - E. ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE
   - F. SEISMIC FORCE RESISTING SYSTEM: CONCRETE SHEAR WALLS
   - G. SEISMIC DESIGN CATEGORY D
3. WIND CRITERIA
   - A. BASE WINDSPEED (3-SEC.GUST) = 105mph
   - B. WIND EXPOSURE CATEGORY C
   - C. WIND IMPORTANCE FACTOR (I) = 1.0
   - D. INTERNAL PRESSURE COEFFICENT (GCPI) = ± 0.18
   - E. WIND PRESSURES (WORST CASE)

	POS. PRESSURE	NEG. PRESSURE
MAIN LATERAL SYSTEM	25.55 psf	-14.2 psf

INDEX OF DRAWINGS





AT SUPPORTS PARALLEL TO MAIN REINF. IN ONE-WAY SLABS

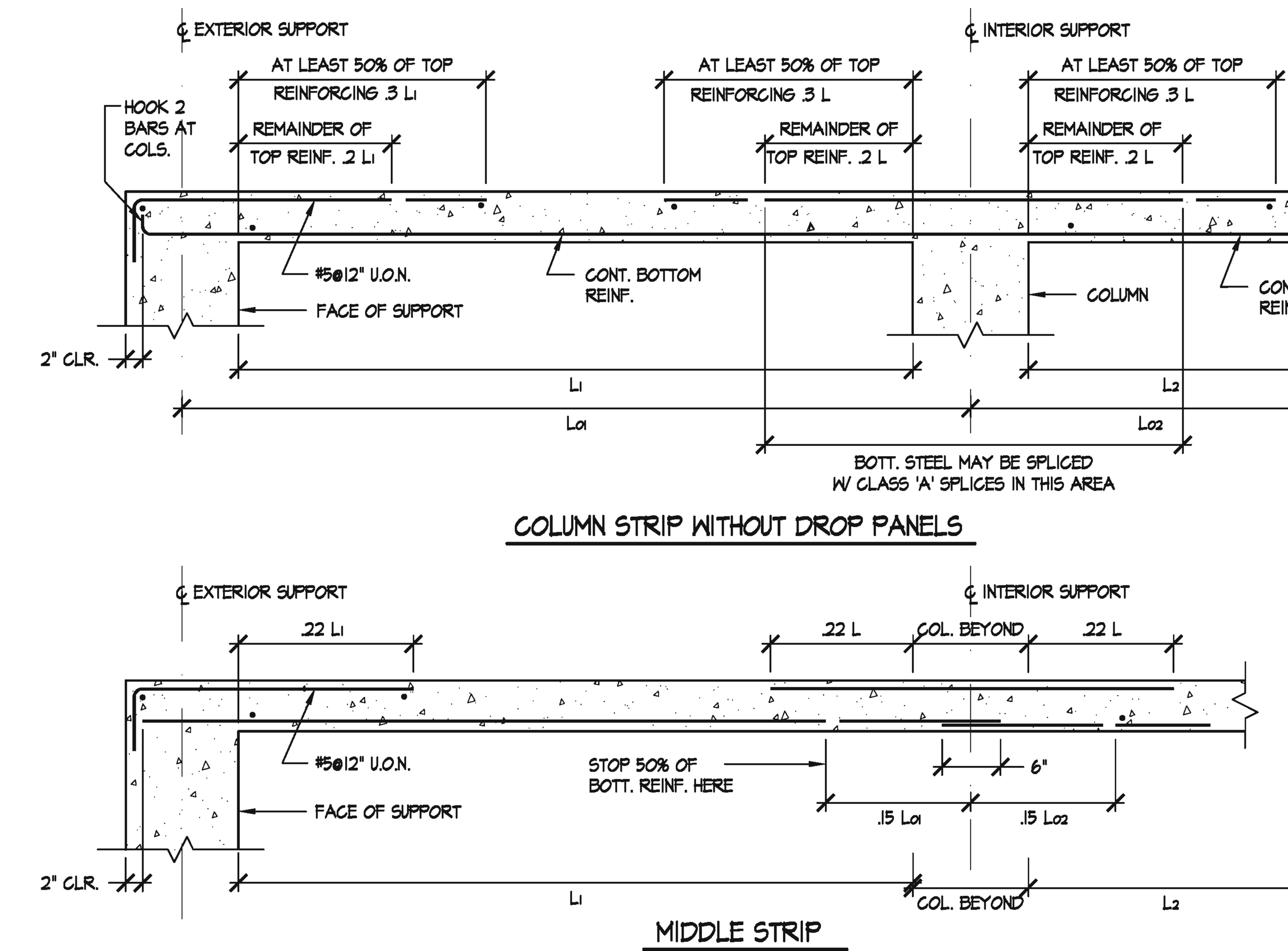
ONE-WAY SLAB TEMP. REINF. SCHEDULE			
SLAB	REINF.	SLAB	REINF.
5"	#4 @ 18"	9"	#4 @ 12"
6"	#4 @ 18"	10"	#5 @ 17"
7"	#4 @ 15"	11"	#5 @ 15"
8"	#4 @ 13"	12"	#5 @ 14"

1 TYPICAL ONE-WAY AND TWO-WAY SLAB DETAILS

1/2" = 1'-0"

NOTES:

1. * FOR DEVELOPMENT LENGTH REFER TO ACI REQUIREMENTS.
2. L = LONGER ADJACENT SPAN L_1 OR L_2.

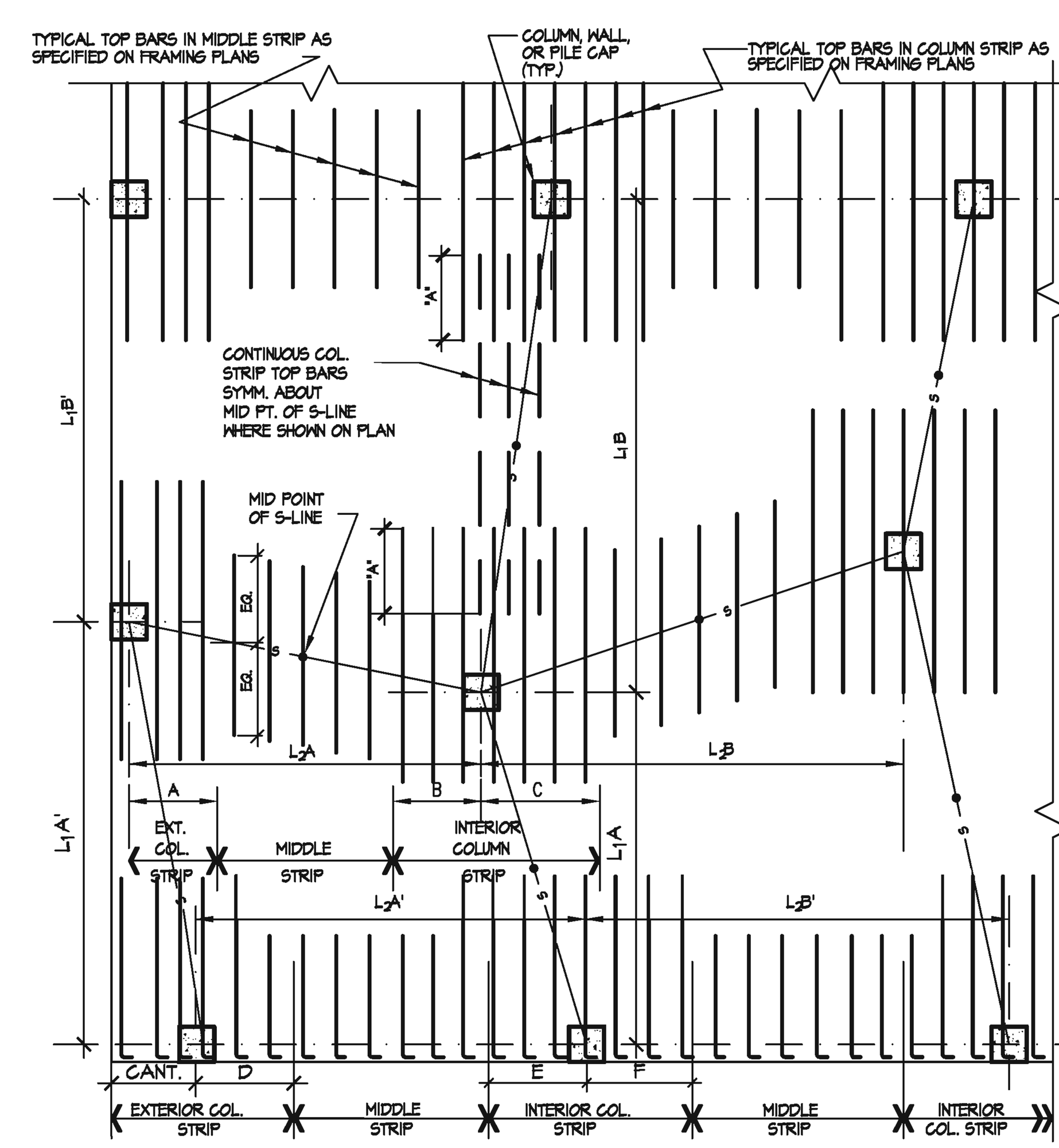


2 TYPICAL FLAT PLATE DETAILS

1/2" = 1'-0"

NOTES:

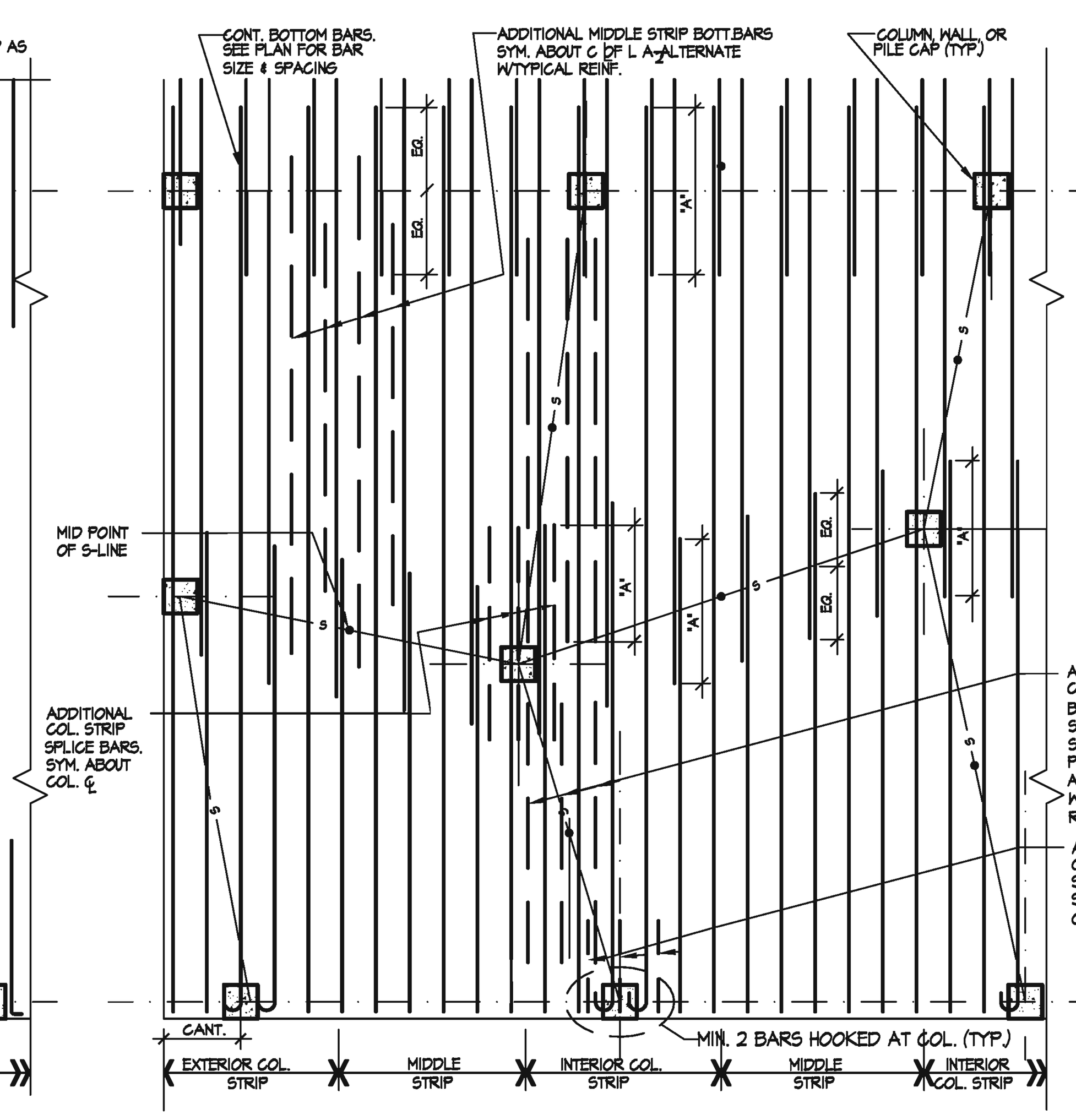
1. L = LONGER ADJACENT SPAN L OR L 2
2. FOR DIRECTIONS OF TOP-MOST & BOTTOM-MOST LAYERS SEE PLANS.



3 TYP. TOP BAR PLACEMENT FOR FLAT PLATE CONST.

NOTES:

1. REINF. SHOWN IS TYPICAL FOR BOTH DIRECTIONS.
2. "A" REFERS TO CLASS 'A' SPLICES AS PER ACI CODE.
3. COLUMN STRIP WIDTH GREATER THAN OR EQUAL TO COLUMN, WALL, OR PILE CAP DIMENSION PERPENDICULAR TO COL. STRIP SPAN.
4. 'A' = THE LESSER OF: L A'/4, L B'/4, OR L A/4 — 'D' = THE LESSER OF: L A'/4 OR L A'/4
   'B' = THE LESSER OF: L A/4, L B/4, OR L A/4 — 'E' = THE LESSER OF: L A/4 OR L A'/4
   'C' = THE LESSER OF: L A/4, L B/4, OR L B/4 — 'F' = THE LESSER OF: L A/4 OR L B'/4

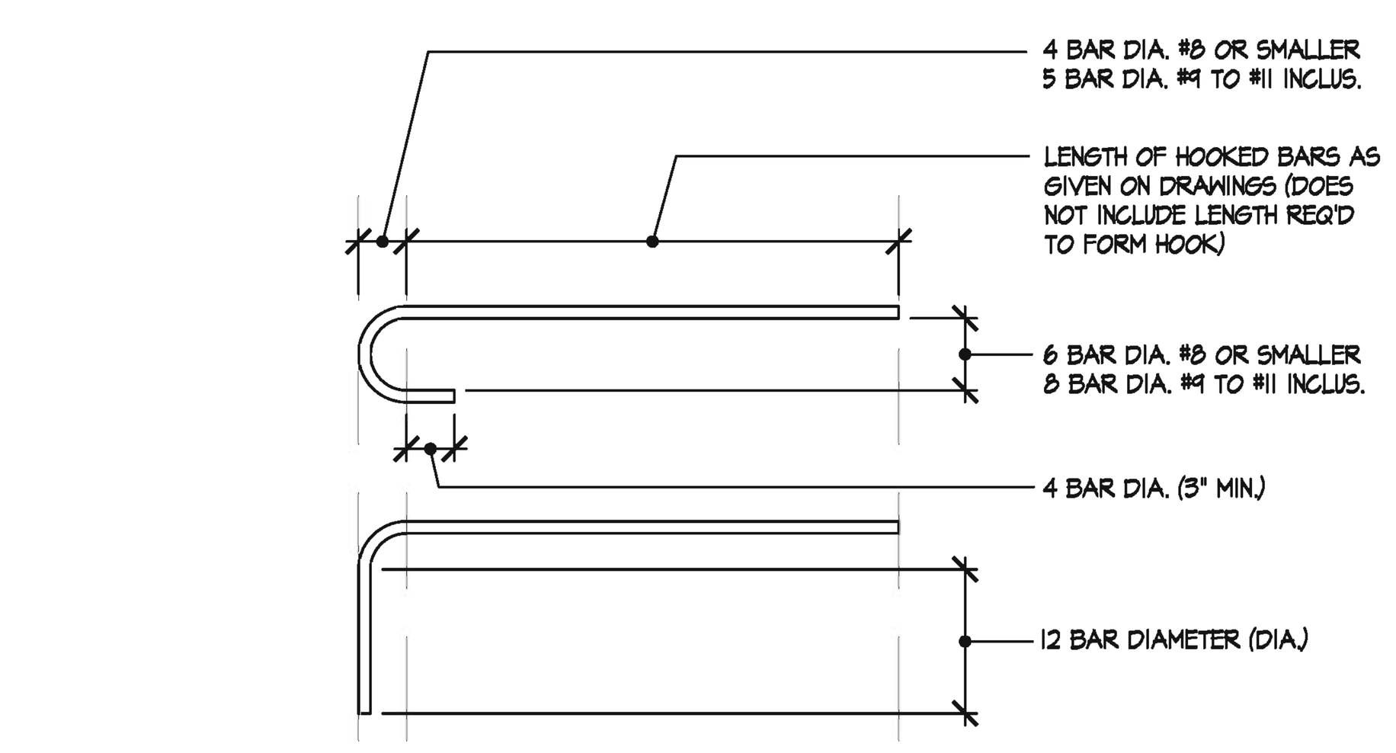


4 TYP. BOTT. BAR PLACEMENT FOR FLAT PLATE CONST.

12"= 1'-0"

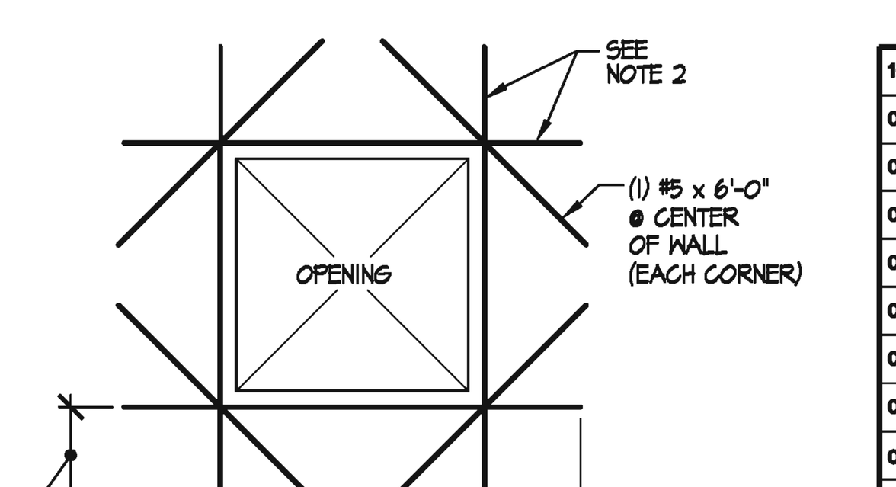
NOTES:

1. REINF. SHOWN IS TYPICAL FOR BOTH DIRECTIONS.
2. "A" REFERS TO CLASS 'A' SPLICES AS PER ACI CODE.
3. FOR COLUMN STRIP AND MIDDLE STRIP MEASUREMENTS SEE "TYP. TOP BAR PLACEMENT FOR FLAT SLAB CONST." DETAIL.
4. COLUMN STRIP WIDTH GREATER THAN OR EQUAL TO COLUMN, WALL, OR PILE CAP DIMENSION PERPENDICULAR TO COL. STRIP SPAN.



5 TYPICAL HOOK DETAILS

3/4" = 1'-0"

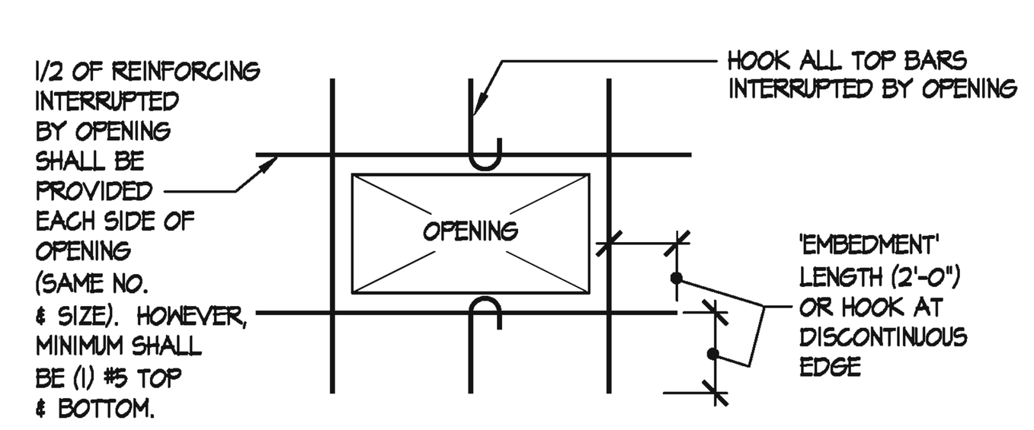


6 TYPICAL OPENING IN CONCRETE WALL

1/2" = 1'-0"

NOTES:

1. HOOK ALL INTERRUPTED CONTINUOUS BARS.
2. PLACE ONE-HALF OF REINFORCING BAR AREA INTERRUPTED BY OPENING IN THE SAME FACE AT BOTH SIDES OF OPENING. TWO #5 EACH SIDE MIN.

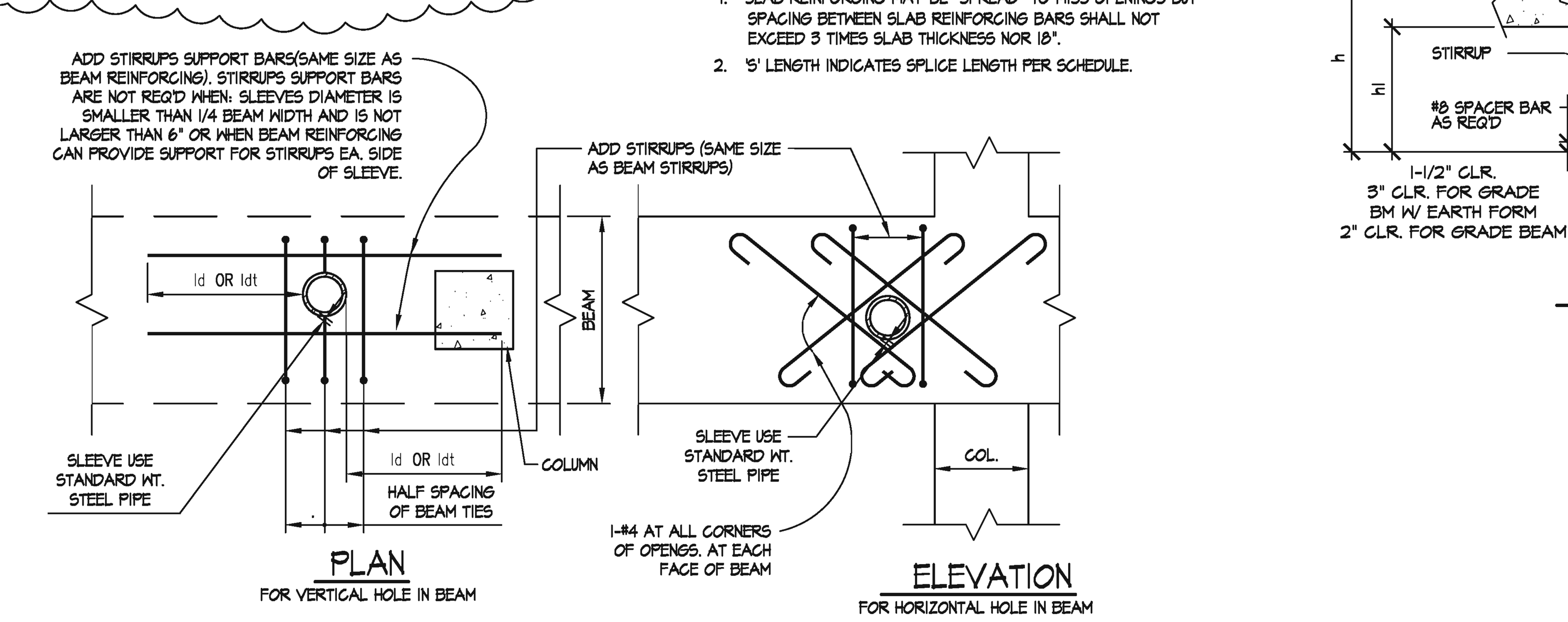


7 TYPICAL DETAIL OF ADDED REINFORCING AT OPENINGS IN CONCRETE SLAB

1/2" = 1'-0"

NOTES:

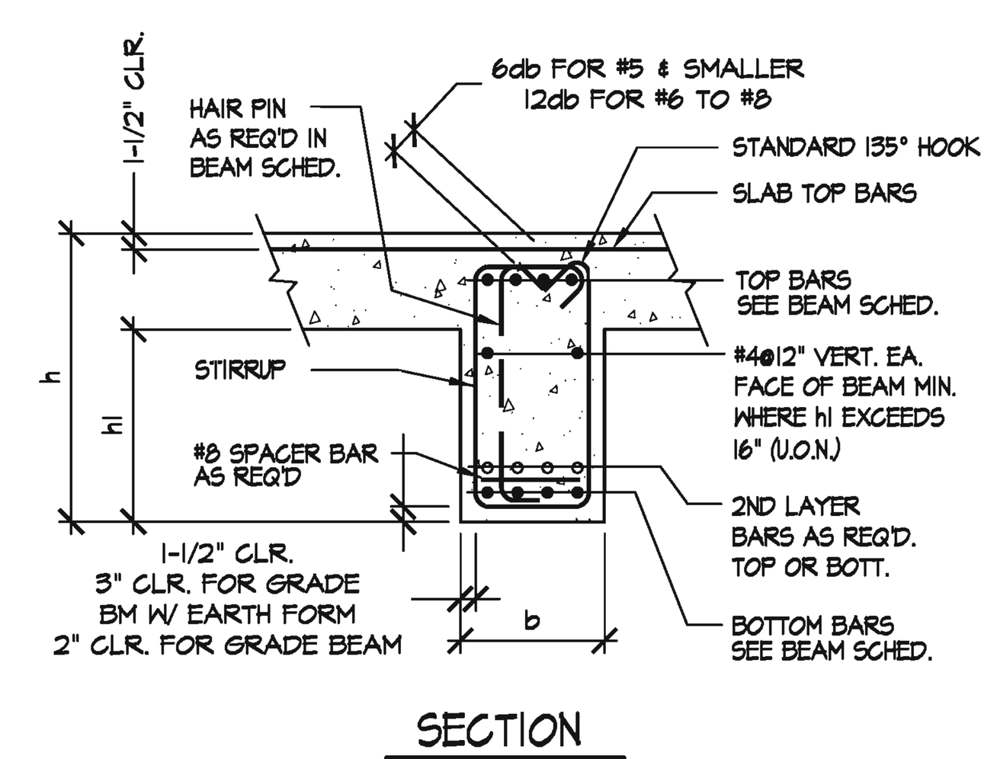
1. SLAB REINFORCING MAY BE "SPREAD" TO MISS OPENINGS BUT SPACING BETWEEN SLAB REINFORCING BARS SHALL NOT EXCEED 3 TIMES SLAB THICKNESS NOR 18".
2. 'S' LENGTH INDICATES SPLICE LENGTH PER SCHEDULE.

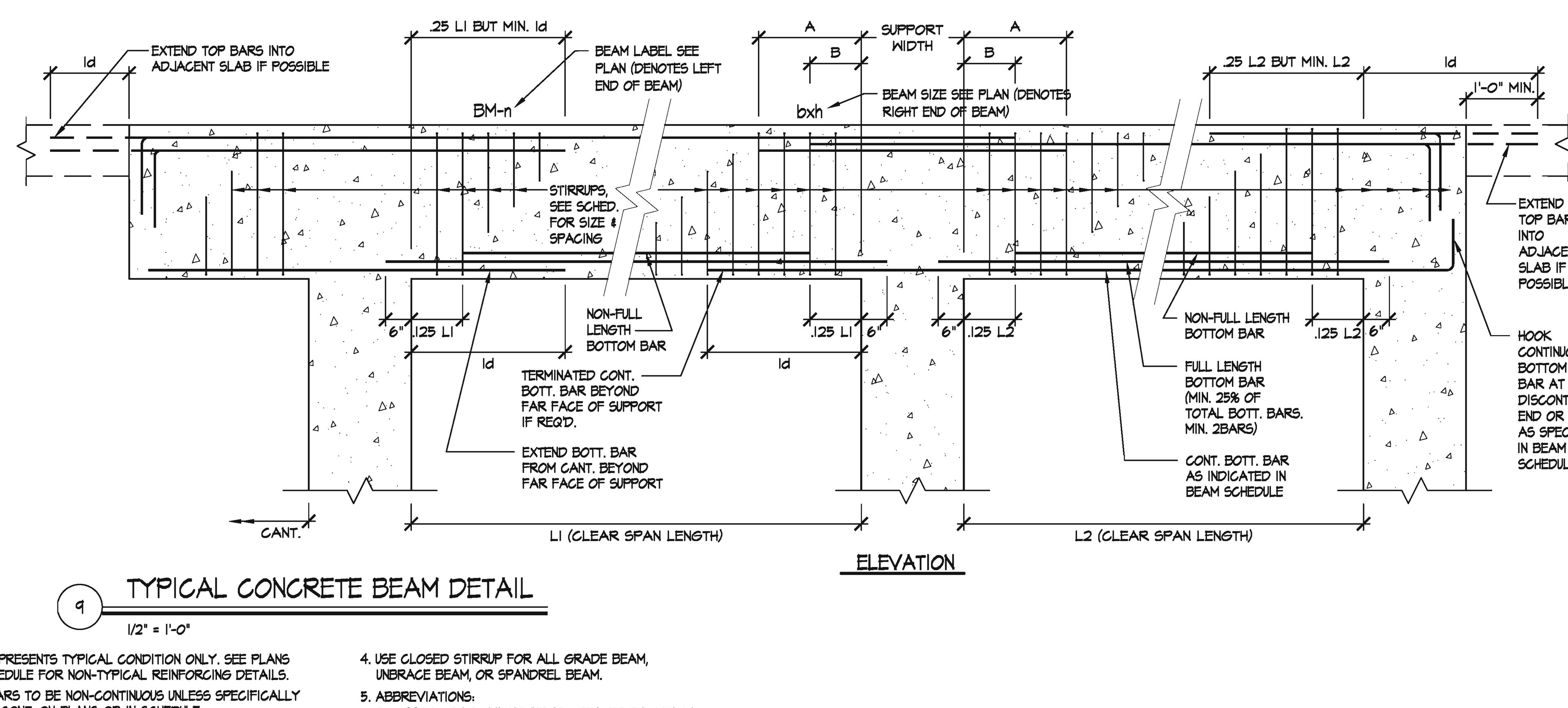


8 TYPICAL DETAILS OF OPENINGS, IN CONCRETE BEAMS

3/4" = 1'-0"

ALL OPENINGS SUBJECT TO APPROVAL OF STRUCTURAL ENGINEER





9 TYPICAL CONCRETE BEAM DETAIL

1/2" = 1'-0"

NOTES:

1. THIS DETAIL REPRESENTS TYPICAL CONDITION ONLY. SEE PLANS AND BEAM SCHEDULE FOR NON-TYPICAL REINFORCING DETAILS.
2. ALL BOTTOM BARS TO BE NON-CONTINUOUS UNLESS SPECIFICALLY DESCRIBED AS CONT. ON PLANS OR IN SCHEDULE.
3. BEAM SIZES ON PLANS AND IN BEAM SCHEDULES ARE DESCRIBED THUS: bxh WHERE b AND h ARE GIVEN IN INCHES.
4. USE CLOSED STIRRUP FOR ALL GRADE BEAM, UNBRACE BEAM, OR SPANDREL BEAM.
5. ABBREVIATIONS:
   A = .33 L1 OR L2 WHICHEVER IS GREATER BUT MIN. ld
   B = .2 L1 OR L2 WHICHEVER IS GREATER BUT MIN. ld
   ld = DEVELOPMENT LENGTH AS PER MOST RECENT ACI CODE

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770 Lexington Avenue 12th Fl
New York, NY 10021
tel 212 317 0088
fax 212 317 0101

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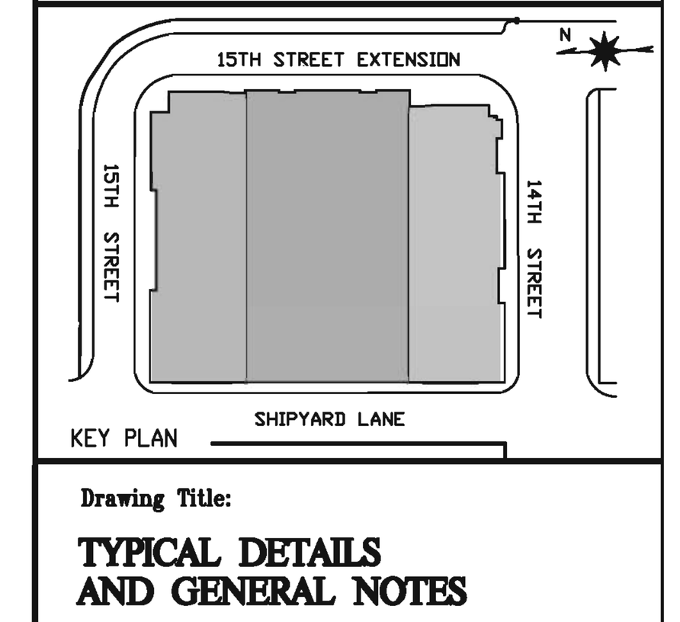
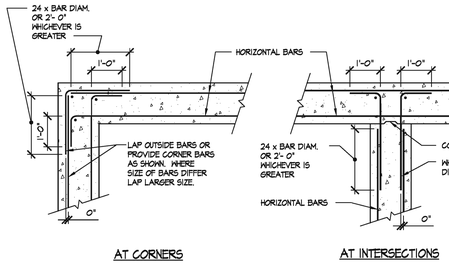
consulting engineers
31 WEST 27TH STREET
NEW YORK NY 10001
TEL 212 545 7878
FAX 212 545 8222



KEY PLAN

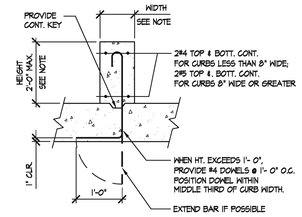
Drawing Title:
TYPICAL DETAILS AND GENERAL NOTES

Scale: AS NOTED
Date: May 07, 2004
H. U. D. Sheet No.
Drawing No. : **S001**



TYPICAL PLAN OF HORIZONTAL REINFORCING FOR CONCRETE WALLS AND GRADE BEAMS

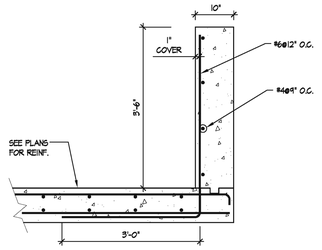
1 — 1/2" = 1'-0"



TYPICAL CONCRETE CURB

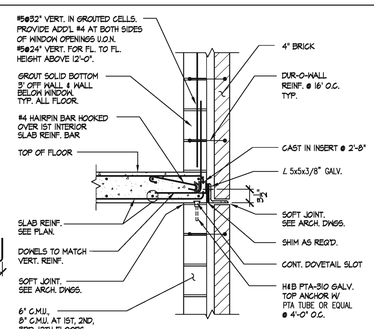
2 — 3/4" = 1'-0"

NOTE: FOR CURB HEIGHT, WIDTH & LOCATIONS SEE ARCH. DWGS.



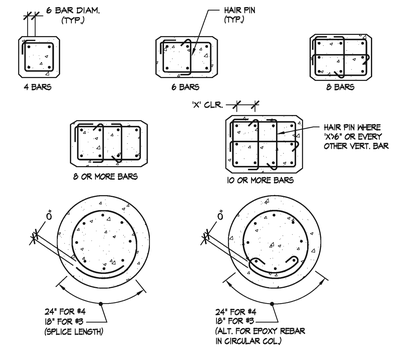
TYPICAL SECTION THRU CRASH BARRIER AT RAMP

3 — 3/4" = 1'-0"



TYPICAL DETAIL AT EDGE OF SLAB

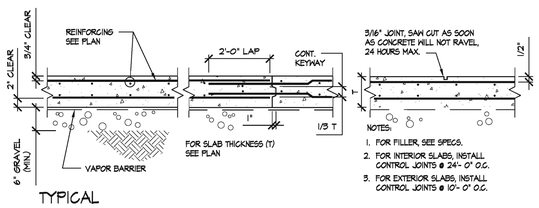
4 — 3/4" = 1'-0"



TYPICAL DETAILS AT TIED COLUMNS

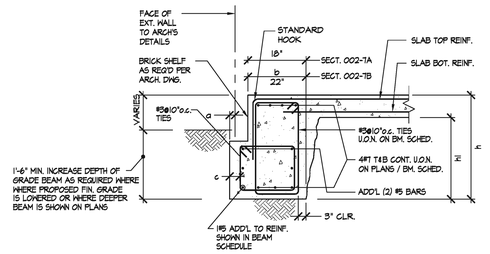
5 — 1/2" = 1'-0"

NOTES:
1. TOTAL NUMBER OF BARS SHOULD BE SPACED AROUND PERIMETER IN SUCH A WAY AS TO ACHIEVE APPROXIMATELY EQUAL SPACING.
2. USE THESE DETAILS AT BUTTRESSES.
3. INCREASE SPLICE LENGTH 50% FOR EPOXY REBAR.



TYPICAL FRAMED SLAB-ON-GRADE DETAILS

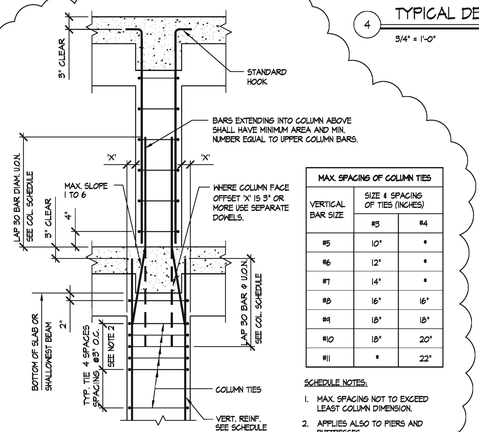
6 — 3/4" = 1'-0"



TYPICAL EXTERIOR GRADE BEAM W/ FRAMED SLAB

7A&B — 1/2" = 1'-0"

NOTES:
1. BEAM SIZES ON PLANS AND IN BEAM SCHEDULES ARE DESCRIBED THUS: bxh WHERE b AND h ARE GIVEN IN INCHES.
2. INCREASE h BY 1-1/2" FROM SCHEDULE FOR GRADE BEAM W/ EARTH FORM.
3. DIMENSION FOR h MAY INCREASE FROM SCHEDULE. IT DEPENDS ON THE FINISHED GRADE ELEVATION STATED IN ARCH. DWGS.
4. a=0" & c=2" CLR. W/FORM WORK. a=1" & c=3" CLR. W/EARTH FORM.
5. FOR BAL. OF INFO. SEE TYP. CONC. BEAM DETAIL S001-9.

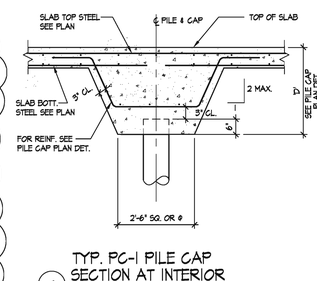


MAX. SPACING OF COLUMN TIES		
VERTICAL BAR SIZE	SIZE & SPACING OF TIES (INCHES)	
	#3	#4
#5	10"	*
#6	12"	*
#7	14"	*
#8	16"	16"
#9	18"	18"
#10	18"	20"
#11	*	22"

SCHEDULE NOTES:
1. MAX. SPACING NOT TO EXCEED LEAST COLUMN DIMENSION.
2. APPLIES ALSO TO PIERS AND BUTTRESSES.
3. * INDICATES "NOT ALLOWED"

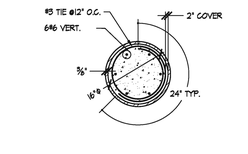
COLUMN SPLICE DETAIL

8 — 3/4" = 1'-0"



TYP. PC-1 PILE CAP SECTION AT INTERIOR

9 — 1/2" = 1'-0"



TYPICAL 16"ø PILE SECTION

13 — 1" = 1'-0"

NOTES:
1. ALL REINF. TO BE EPOXY COATED.
2. EXTEND VERTICAL BARS 1'-0" BELOW MUD LINE.
3. DEVELOP VERTICAL BARS INTO PILE CAP (PROVIDE HOOKS AS REQ'D.)
4. PILES SHALL BE CLOSED-END FRICTION PILES WITH A MINIMUM CAPACITY OF 100 TONS.
5. FOR BALANCE OF INFO SEE DETAILS S002-10 & S002-12.
6. SEE PLANS FOR LOCATIONS.

TYPICAL PILE CAP DETAIL

10 — 1/2" = 1'-0"

NOTE: E = EMBEDMENT LENGTH PER ACI-318.

TYPICAL INTERIOR PILE CAP WITH DEEP GRADE BEAM

11

NOTES:
1. THIS DETAIL APPLIES WHERE GRADE BEAM DEPTH EXCEEDS PILE CAP DEPTH.
2. FOR BALANCE OF INFORMATION SEE DETAIL 002-10.
3. '*' DENOTES FOR BEAM REINF. SEE SCHEDULES.

PILE CAP DETAILS

12 — N.T.S.

NOTES: 1. * INDICATES THAT NO 180 DEGREE HOOKS AT EACH END OF THE BAR ARE REQUIRED.
2. PILES SHALL BE MIN. 10"ø (U.O.N.) CONC. FILLED CLOSED-END PIPE FRICTION PILES WITH A MINIMUM CAPACITY OF 100 TONS.

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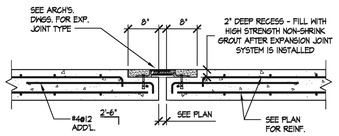
GOLDSTEIN ASSOCIATES PLLC
consulting engineers
31 WEST 27TH STREET
NEW YORK NY 10001
TEL 212 545 7878
FAX 212 545 8222

Drawing Title:
TYPICAL DETAILS

Scale: AS NOTED
Date: May 07, 2004

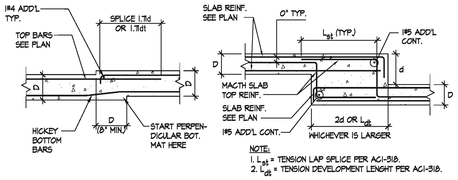
H. U. D. Sheet No.

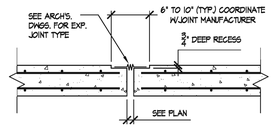
Drawing No. :
S002



1 TYPICAL EXPANSION JOINT

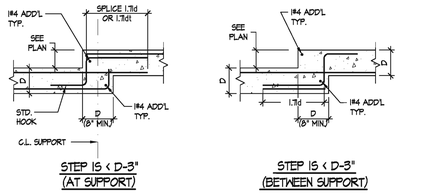
3/4" = 1'-0"





2 TYPICAL EXPANSION JOINT DETAIL AT PARKING LEVEL SLABS

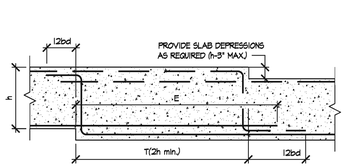
3/4" = 1'-0"



3 TYPICAL DETAILS OF STEP IN SLAB

1/2" = 1'-0"

NOTE:
ALL SPLICE LENGTHS TO BE TENSION SPLICES PER ACI-318.



NOTE: —— —— PROVIDE TOP BAR PER PLAN IF REQUIRED.

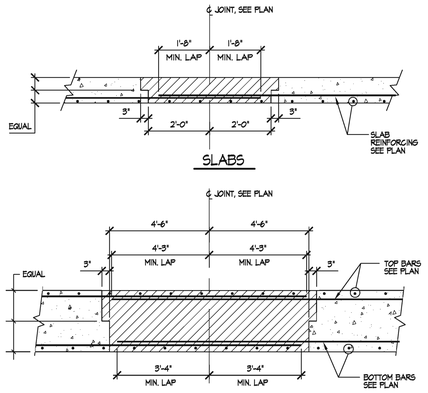
BAR #	T
4	1'-0"
5	1'-3"
6	1'-6"
7	1'-9"
8	2'-0"
9	2'-3"
10	2'-6"
11	2'-6"

4 TYPICAL DETAIL AT DEPRESSED SLAB

3/4" = 1'-0"

E = EMBEDMENT LENGTH, PER ACI-318
bd = BAR DIAMETER

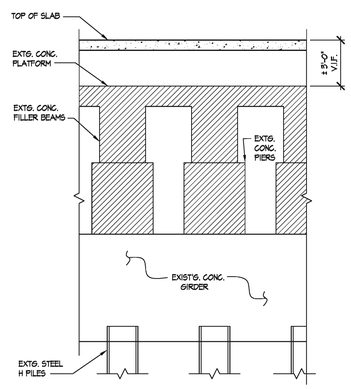
DETAILER NOTE:
PROVIDE FULL ANCHORAGE OF TOP BARS AS SHOWN DASHED WHENEVER EDGE OF DEPRESSION IS LOCATED IN A CANTILEVER OR 1/8" CLEAR SPAN OR LESS FROM A CONTINUOUS END SUPPORT.



5 TYPICAL POUR STRIP DETAILS

N.T.S.

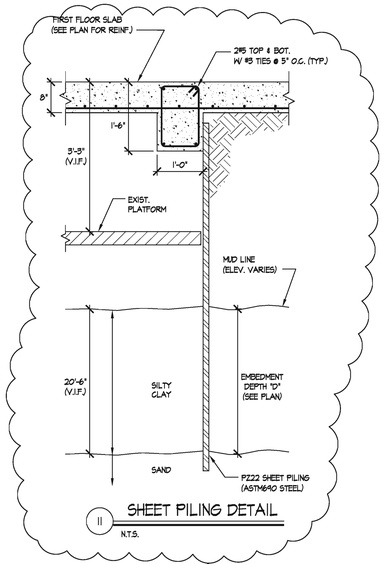
NOTE: HATCHED AREAS INDICATE CONCRETE TO BE CAST 28 DAYS AFTER LAST ADJACENT SECTION HAS BEEN CAST. ADEQUATE SUPPORTS SHALL BE PROVIDED FOR SLABS AND BEAMS ADJACENT TO THE SHRINKAGE JOINT UNTIL THE WHOLE BAY IS CAST AND ATTAINS 75% OF ITS DESIGN STRENGTH.



6 TYPICAL SECTION THRU EXISTING PIER CONSTRUCTION

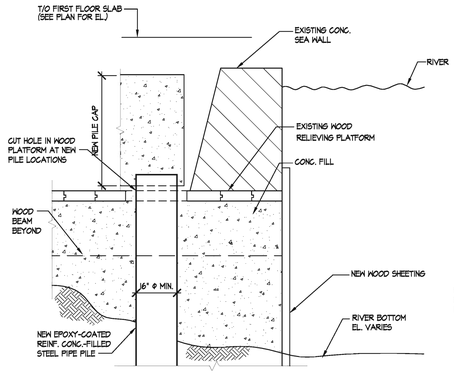
N.T.S.

NOTE:
CONTRACTOR SHOULD ASSUME THAT THE CONCRETE PLATFORM, FILLER BEAMS, PIERS WILL REQUIRE REMOVAL AT ALL NEW PILE CAP & GRADE BEAM LOCATIONS.



11 SHEET PILING DETAIL

N.T.S.

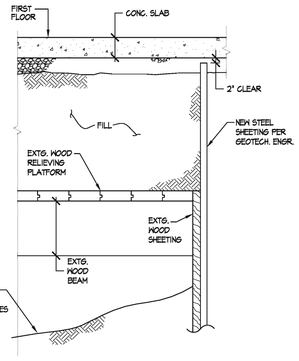


7A SECTION THROUGH RELIEVING PLATFORM AND NEW WOOD SHEETING

N.T.S.

PILE INSTALLATION PROCEDURE:

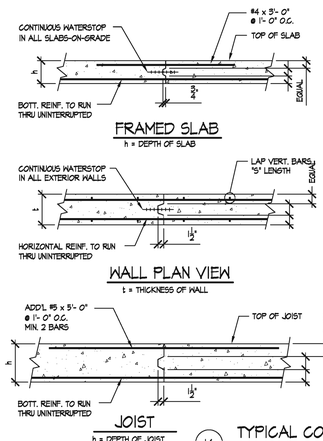
1. INSTALL NEW WOOD SHEETING PER GEOTECHNICAL ENGINEER.
2. EXCAVATE AS REQ'D TO TOP OF WOOD PLATFORM.
3. CUT HOLES IN PLATFORM TO INSTALL NEW PILES.
4. WHEN PILE INSTALLATION IS COMPLETE BACKFILL BELOW PLATFORM WITH CONC. FILL.
5. BACKFILL WITH SOIL UNDER & AROUND NEW PILECAPS.



7B SECTION THROUGH RELIEVING PLATFORM AND NEW STEEL SHEETING

N.T.S.

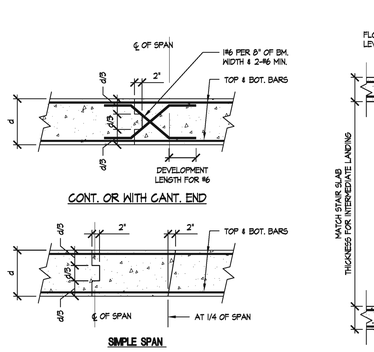
NOTE:
FOR BALANCE OF INFO. SEE DETAIL S011-7A.

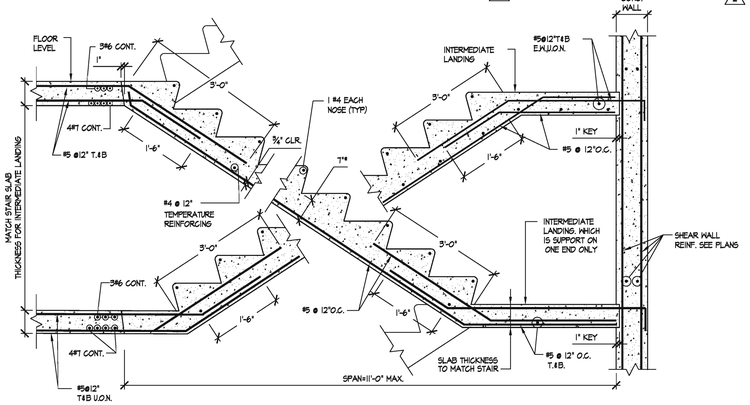


14 TYPICAL CONSTRUCTION JOINT DETAILS

3/4" = 1'-0"

NOTES:
1. CONSTRUCTION JOINTS ARE NOT ALLOWED FOR BEAMS W/ CONCENTRATED LOADS. CONSULT W/ ENGINEER FOR SPECIAL CASES.
2. CONTRACTOR SHALL SUBMIT ALL PROPOSED CONSTRUCTION JOINT FOR APPROVAL.

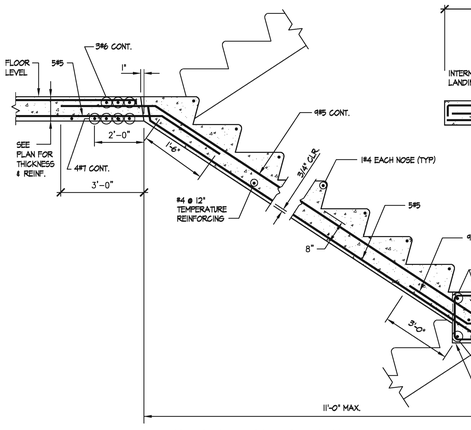




8 TYPICAL CONCRETE STAIR

3/4" = 1'-0"

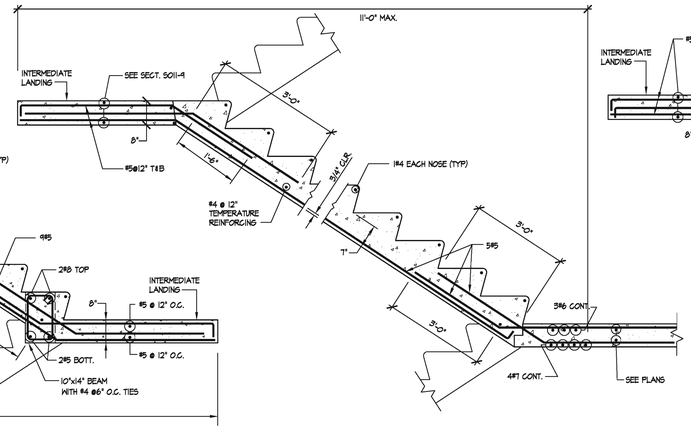
NOTE:
* INDICATES 8" THICK STAIR SLAB WHERE SPAN EXCEEDS 11'-0" (MAX. SPAN=12'-6")



9 CONCRETE STAIR SECTION

3/4" = 1'-0"

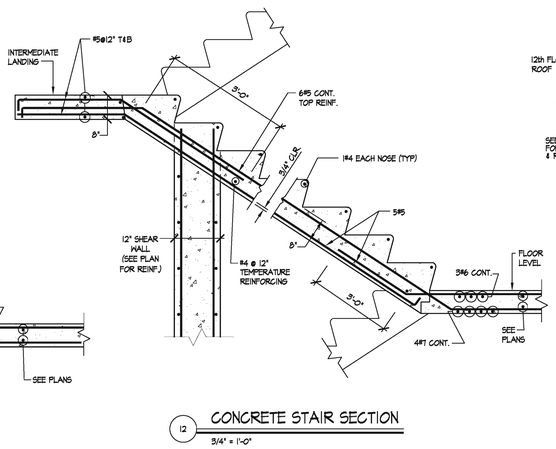
NOTES:
1. SEE PLANS FOR LOCATIONS.
2. FOR BALANCE OF INFO. SEE DETAIL S011-8.



10 CONCRETE STAIR SECTION

3/4" = 1'-0"

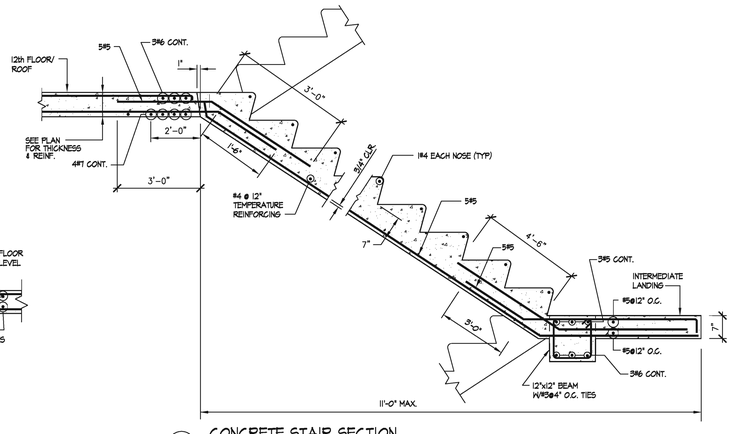
NOTES:
1. SEE PLANS FOR LOCATIONS
2. FOR BALANCE OF INFO. SEE DETAIL S011-8.



12 CONCRETE STAIR SECTION

3/4" = 1'-0"

NOTES:
1. SEE PLANS FOR LOCATIONS.
2. FOR BALANCE OF INFO. SEE DETAIL S011-8.



13 CONCRETE STAIR SECTION

3/4" = 1'-0"

NOTES:
1. SEE PLANS FOR LOCATIONS.
2. FOR BALANCE OF INFO. SEE DETAIL S011-8.

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770 Lexington Avenue 12th Fl
New York, NY 10021
tel 212 317 0088
fax 212 317 0101

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consulting engineers
33 WEST 27TH STREET
NEW YORK, NY 10001
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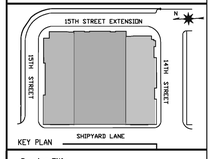
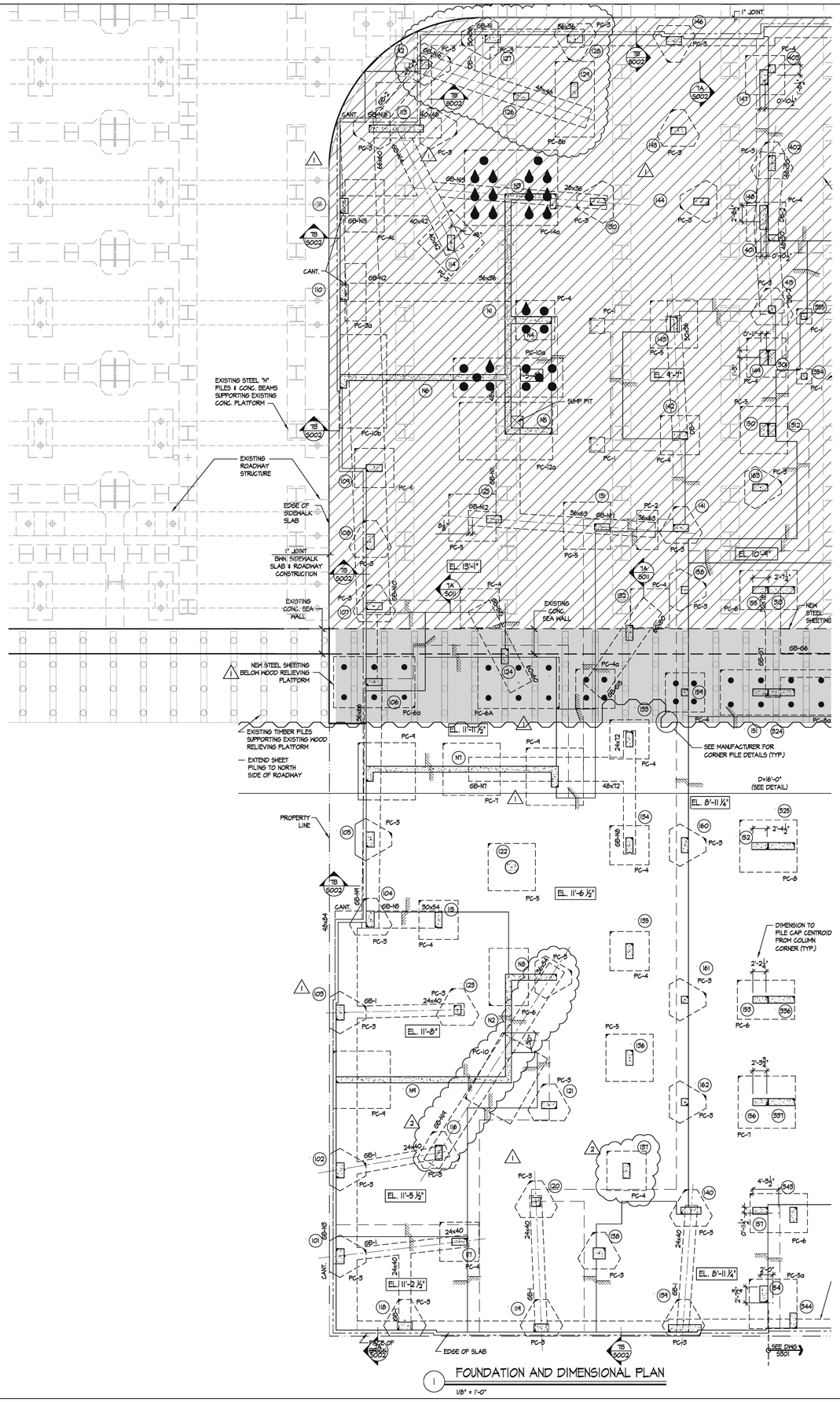


Drawing Title:
DETAILS II

Scale: AS NOTED
Date: May 07, 2004

H. U. D. Sheet No.

Drawing No. :
S011



FOUNDATION AND DIMENSIONAL PLAN

1/8" = 1'-0"

THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCH. & M.E.P. DWGS & SPECS. REFER TO ARCH. DRAWINGS FOR EDGE OF SLAB LOCATIONS.

NOTES:

1. TOP OF INTERIOR PILE CAP ELEVATION TO BE (-2'-0") WITH REFERENCE TO THE FIRST FLOOR SLAB ELEVATION NOTED THUS EL.___ U.O.N. (±___). SEE TYP. PILE CAP DETAILS ON S002.
2. TOP OF PERIMETER PILE CAP ELEVATION TO BE AS PER DETAIL S002-7.
3. FOR PILE CAP SIZE & REINF. SEE DETAIL S002-12.
4. FOR TOP OF PILE CAP ELEVATION WHERE DEEP GRADE BEAMS ARE SUPPORTED SEE DETAIL S002-11.
5. SEE FIRST FLOOR PLANS FOR SLAB REINFORCING.
6. ——— INDICATES CENTER LINE OF PILE CAP OR GRADE BEAM.
7. CENTERLINE OF GRADE BEAM TO ALIGN WITH CENTROID OF PILE CAP & COLUMN (U.O.N).
8. FOR COLUMN SIZES & REINF. SEE COLUMN SCHEDULES ON S003, S004 AND S005.
9. FOR BEAM REINF. SEE GRADE BEAM SCHEDULES ON S006A.
10. ▭ DENOTES AREA BELOW EXTG. WOOD RELIEVING PLATFORM TO BE FILLED WITH CONCRETE FILL AFTER PILES ARE DRIVEN. SEE DETAIL S011-7.
11. ALL NEW PILES ARE 100 TON CONCRETE FILLED STEEL PIPE PILES. ● DENOTES PILES LOCATED IN AREA WITH EXISTING TIMBER PILES. V.I.F. LOCATION OF EXTG. FOUNDATION PRIOR TO DRIVING NEW PILES AS MODIFICATIONS TO NEW PILE LAYOUT (I.E. ROTATE PILE CAP) MAY BE REQUIRED TO AVOID EXISTING FOUNDATION.
12. ▨ DENOTES PILES IN THIS AREA ARE TO BE MIN. 16"ø (INSIDE DIAMETER) EPOXY REINFORCED CONC. FILLED STEEL PIPE PILES. SEE DETAIL S002-13. ALL REINF. IN PILES, PILE CAPS, AND GRADE BEAMS IN THIS AREA MUST BE EPOXY COATED.

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GOLDSTEIN ASSOCIATES PLLC
consulting engineers
31 WEST 27TH STREET
NEW YORK, NY 10001
TEL 212 545 7878
FAX 212 545 8232

KEY PLAN

Drawing Title:

NORTH TOWER FOUNDATION AND DIMENSIONAL PLAN

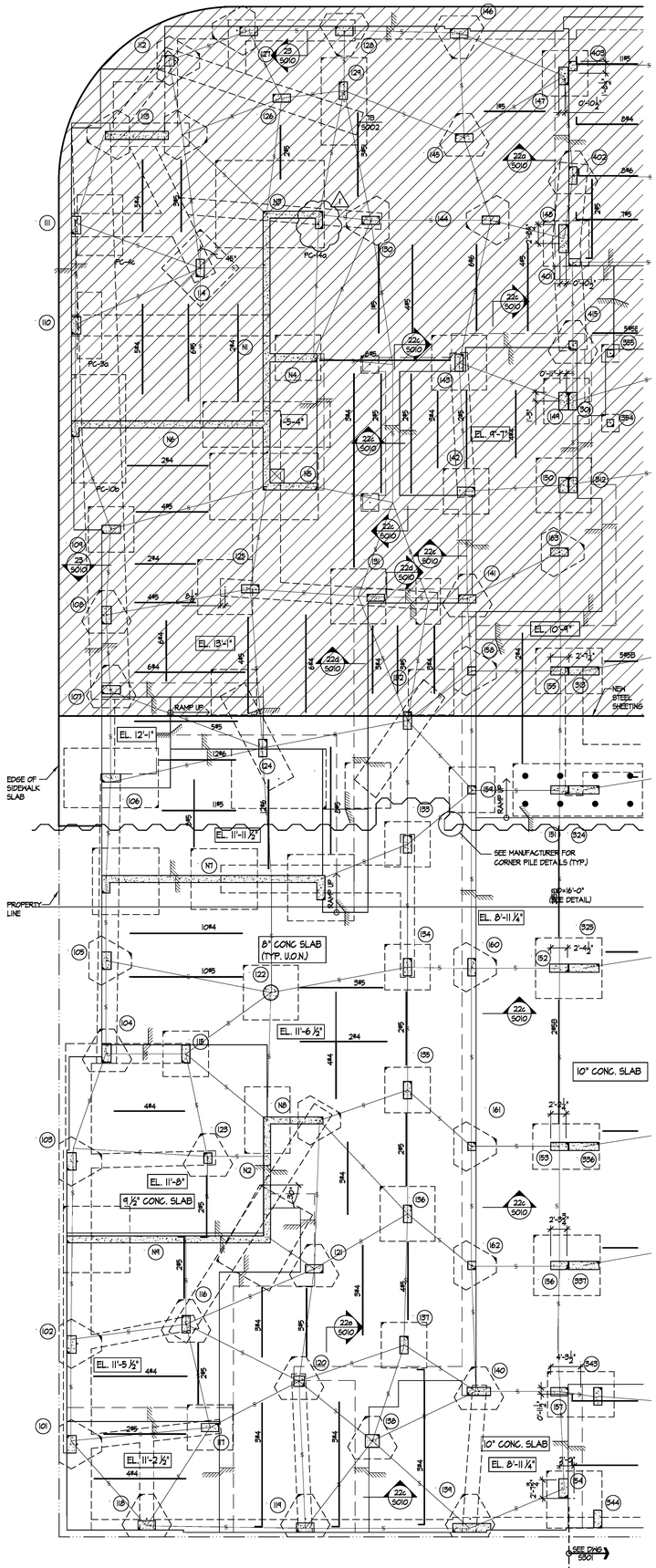
Scale: AS NOTED

Date: May 07, 2004

H. U. D. Sheet No.

Drawing No. :

S100



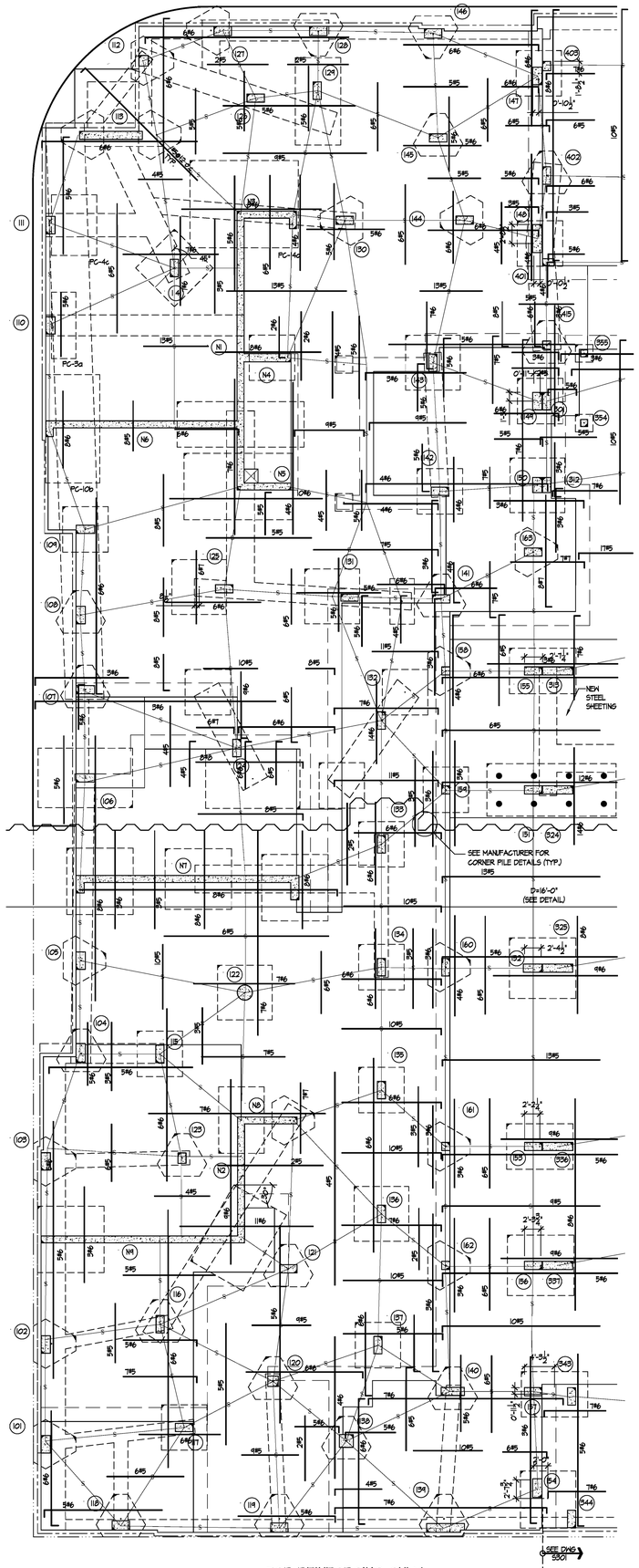
1 ADDITIONAL BOTTOM REINFORCING & DIMENSIONAL PLAN

1/8" = 1'-0"

THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCH. & M.E.P. DWGS & SPECS. REFER TO ARCH. DRAWINGS FOR EDGE OF SLAB LOCATIONS.

NOTES:

1. FOR FOUNDATION & GRADE BEAM INFORMATION SEE FOUNDATION PLANS.
2. TYP. BOTTOM REINFORCING - #4 @ 12" O.C. EACH WAY CONTINUOUS (U.O.N.), #5 @ 12" O.C. EACH WAY CONTINUOUS IN 10" CONC. SLAB. SEE TYP. FLAT SLAB DETAILS ON S001.
3. PLACE NORTH - SOUTH REINFORCING IN THE OUTER - MOST LAYERS.
4. FOR COLUMN & MIDDLE STRIPS SEE TYPICAL FLAT SLAB DETAIL ON S001.
5. FOR COLUMN COORDINATES SEE FOUNDATION PLANS.
6. FOR COLUMN SIZES & REINF. SEE COLUMN SCHEDULES ON S003, S004 AND S005.
7. FOR BEAM REINF. SEE BEAM SCHEDULES ON S006A.
8. TOP OF SLAB ELEVATION SHOWN THUS EL. .
9. ALL REINF. IN BALCONIES, TERRACES & OTHER AREAS OF EXPOSED CONCRETE TO BE EPOXY COATED.
10. ALL TERRACES MUST BE PITCHED TO DRAIN WITH STRUCTURAL CONCRETE. SEE ARCH. DWGS. FOR PITCHES & LOCATIONS OF DRAINS. 8" SLAB MIN. REQUIRED.
11. SEE S011 FOR SLAB STEP DETAILS.
12. SEE TYP. STAIR DETAILS ON S011 FOR ADD'L. REINF. REQ'D. IN SLAB.
13. INDICATES ALL BOTTOM REINF. TO BE EPOXY COATED IN THIS AREA.
14. SEE TYP. DETAIL S011-3 FOR STEP IN SLAB AT TERRAZO FLOOR. SEE ARCH. FOR LOCATIONS.



2 TOP REINFORCING ONLY

1/8" = 1'-0"

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DEWITT TISHMAN ARCHITECTS LLP
770 Lexington Avenue 12th Fl
New York, NY 10021
tel 212 317 0088
fax 212 317 0101

N.J. Cert. 09377

GOLDSTEIN ASSOCIATES PLLC
consulting engineers
31 WEST 27TH STREET
NEW YORK NY 10001
TEL 212 545 7878
FAX 212 545 8222

KEY PLAN

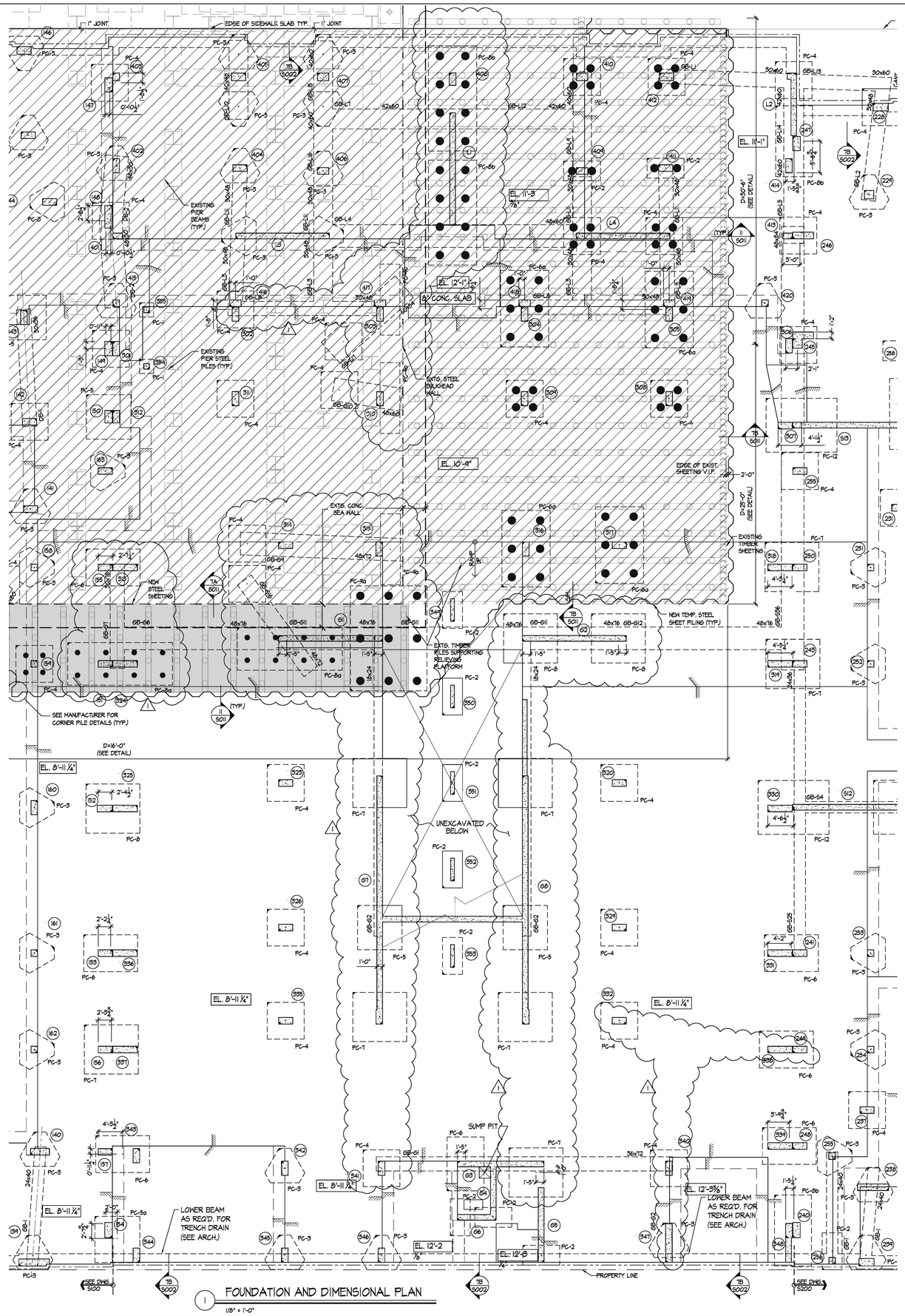
Drawing Title:
NORTH TOWER FIRST FLOOR FRAMING PLANS

Scale: AS NOTED

Date: May 07, 2004

H. U. D. Sheet No.

Drawing No. :
S101



FOUNDATION AND DIMENSIONAL PLAN

1/8" = 1'-0"

THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCH. & M.E.P. DWGS & SPECS. REFER TO ARCH. DRAWINGS FOR EDGE OF SLAB LOCATIONS.

NOTES:

1. TOP OF INTERIOR PILE CAP ELEVATION TO BE (-2'-0") WITH REFERENCE TO THE FIRST FLOOR SLAB ELEVATION NOTED THUS EL. U.O.N. (±___). SEE TYP. PILE CAP DETAIL ON S002.
2. TOP OF PERIMETER PILE CAP ELEVATION TO BE AS PER DETAIL S002-7.
3. FOR PILE CAP SIZE & REINF. SEE DETAIL S002-12.
4. FOR TOP OF PILE CAP ELEVATION WHERE DEEP GRADE BEAMS ARE SUPPORTED SEE DETAIL S002-11.
5. SEE FIRST FLOOR PLANS FOR SLAB REINFORCING.
6. ——— INDICATES CENTER LINE OF PILE CAP OR GRADE BEAM.
7. CENTERLINE OF GRADE BEAM TO ALIGN WITH CENTROID OF PILE CAP & COLUMN (U.O.N).
8. FOR COLUMN SIZES & REINF. SEE COLUMN SCHEDULES ON S003, S004 AND S005.
9. FOR BEAM REINF. SEE GRADE BEAM SCHEDULES ON S006A.
10. ▭ DENOTES AREA BELOW EXTG. HOOD RELIEVING PLATFORM TO BE FILLED WITH CONCRETE FILL AFTER PILES ARE DRIVEN. SEE DETAIL S011-7A. ALL REINF. IN PILES, PILE CAPS, AND GRADE BEAMS IN THIS AREA MUST BE EPOXY COATED.
11. ALL NEW PILES ARE 100 TON CONCRETE FILLED STEEL PIPE PILES. ● INDICATES PILES LOCATED IN AREA WITH EXISTING TIMBER PILES. V.I.F. LOCATION OF EXTG. FOUNDATION PRIOR TO DRIVING NEW PILES AS MODIFICATIONS TO NEW PILE LAYOUT (I.E. ROTATE PILE CAP) MAY BE REQUIRED TO AVOID EXTG. FOUNDATION.
12. ▨ DENOTES PILES IN THIS AREA TO BE MIN. 16'-0" (INSIDE DIAMETER) REINFORCED CONC. FILLED STEEL PIPE PILES. SEE DETAIL S002-13. ALL REINF. IN PILES, PILE CAPS, AND GRADE BEAMS IN THIS AREA MUST BE EPOXY COATED.

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DEWITT TISHMAN ARCHITECTS LLP
770 Lexington Avenue 12th Fl
New York, NY 10021
tel 212 317 0088
fax 212 317 0101

N.J. Cert. 09377

GOLDSTEIN ASSOCIATES PLLC
consulting engineers
31 WEST 27TH STREET
NEW YORK NY 10001
TEL 212 545 7878
FAX 212 545 8222

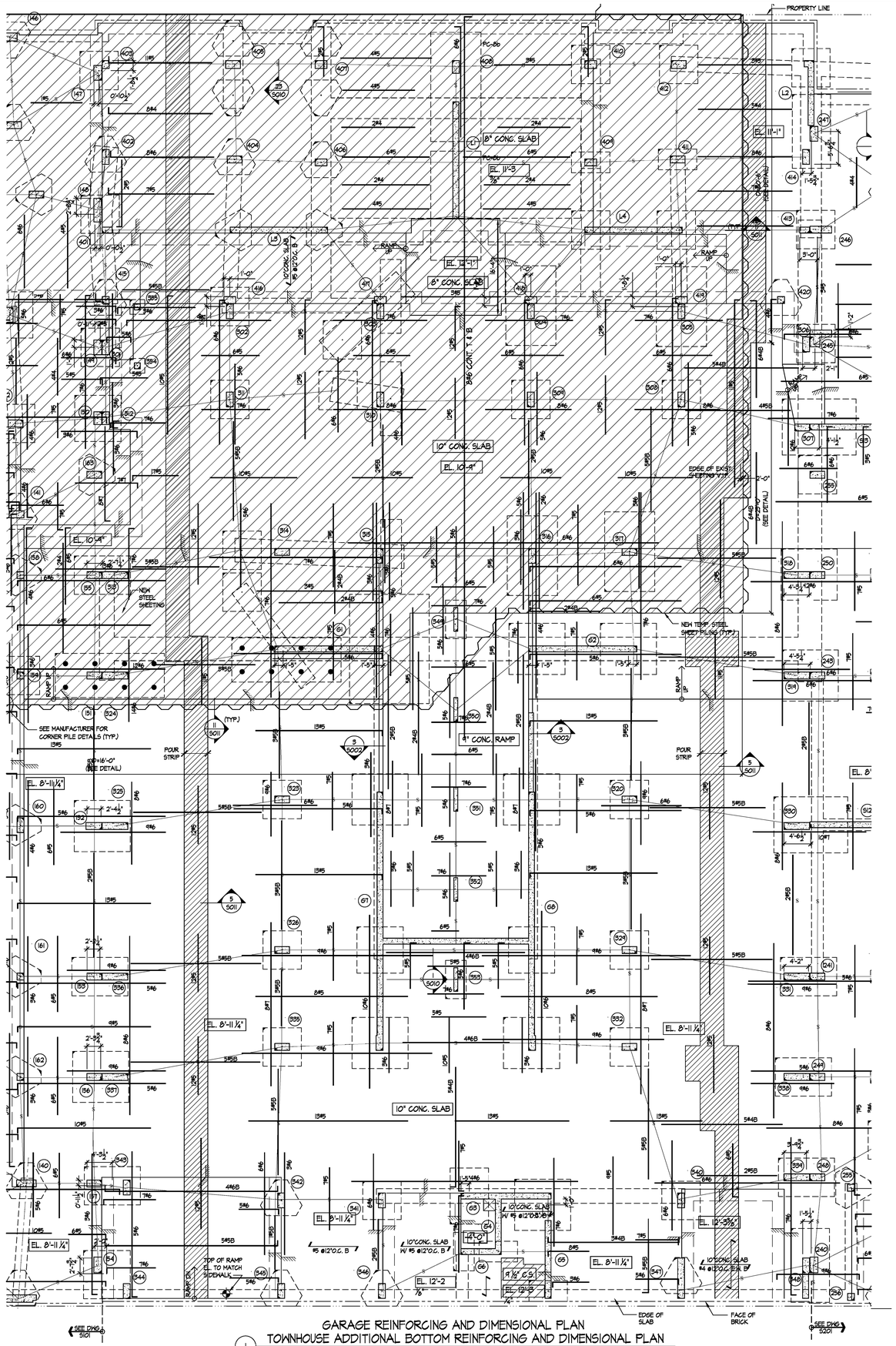
KEY PLAN

Drawing Title:
GARAGE & TOWNHOUSE FOUNDATION AND DIMENSIONAL PLAN

Scale: AS NOTED
Date: May 07, 2004

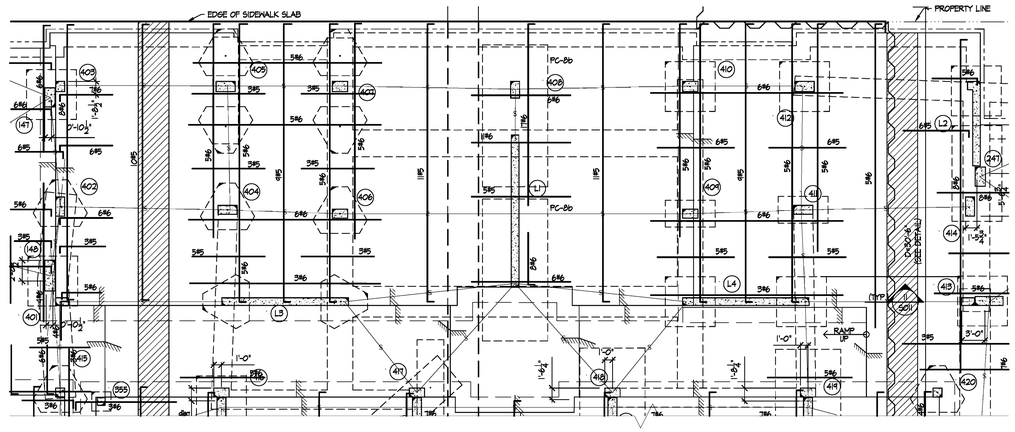
H. U. D. Sheet No.

Drawing No. :
S300



GARAGE REINFORCING AND DIMENSIONAL PLAN
TOWNHOUSE ADDITIONAL BOTTOM REINFORCING AND DIMENSIONAL PLAN

1 — 1/8" = 1'-0"



TOWNHOUSE TOP REINFORCING ONLY

2 — 1/8" = 1'-0"

THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCH. & M.E.P. DWGS & SPECS. REFER TO ARCH. DRAWINGS FOR EDGE OF SLAB LOCATIONS.

NOTES:

1. FOR FOUNDATION & GRADE BEAM INFORMATION SEE FOUNDATION PLANS.
2. TYP. BOTTOM REINFORCING - #5 @ 12" O.C. EACH WAY CONTINUOUS. IN 10" SLAB (U.O.N.)
   - #4 @ 12" O.C. EACH WAY CONTINUOUS. IN 8" & 4" SLAB (U.O.N.)
   SEE TYP. FLAT SLAB DETAILS ON S001.
3. PLACE NORTH - SOUTH REINFORCING IN THE OUTER - MOST LAYER.
4. FOR COLUMN & MIDDLE STRIPS SEE TYPICAL FLAT SLAB DETAIL ON S001.
5. FOR COLUMN COORDINATES SEE FOUNDATION PLANS.
6. FOR COLUMN SIZES & REINF. SEE COLUMN SCHEDULES ON S003, S004 AND S005.
7. FOR BEAM REINF. SEE GRADE BEAM SCHEDULES ON S006A.
8. TOP OF SLAB ELEVATION SHOWN THUS EL. .
9. COORDINATE SLAB PENETRATIONS W/ PLUMBING, MECHANICAL, ELECTRICAL & SPRINKLER DWGS.
10. ⟷ DENOTES ONE-WAY SLAB. SEE DETAIL S001-I.
11. B DENOTES ADDITIONAL BOTTOM REINF. IN GARAGE AREA.
12. REINF. AT BASE OF RAMP TO BE EMBEDED INTO FIRST FLOOR SLAB.
13. SEE TYPICAL STAIR DETAILS ON S011 FOR ADD'L. REINF. REQ'D. IN SLAB.
14. ▨ INDICATES BOTTOM REINF. TO BE EPOXY COATED IN THIS AREA.
15. SEE TYP. DETAIL S011-B FOR STEP IN SLAB AT TERRAZO FLOOR. SEE ARCH. FOR LOCATIONS.

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consulting engineers
31 WEST 27TH STREET
NEW YORK NY 10001
TEL 212 545 7878
FAX 212 545 8222

KEY PLAN

Drawing Title:
GARAGE & TOWNHOUSE FIRST FLOOR FRAMING PLANS

Scale: AS NOTED
Date: May 07, 2004

H. U. D. Sheet No.

Drawing No. :
S301