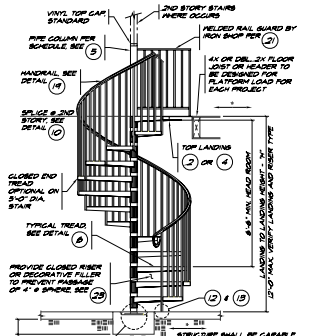
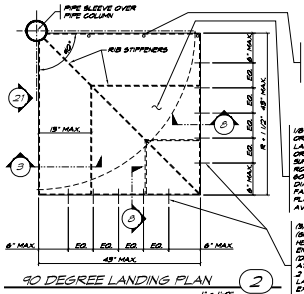
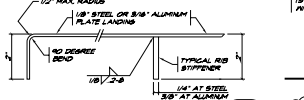
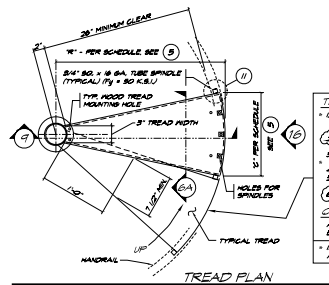






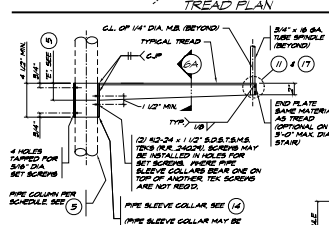


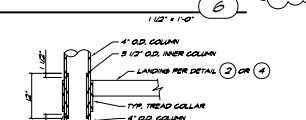
TREAD PLAN 6
1 1/2" = 1'-0"

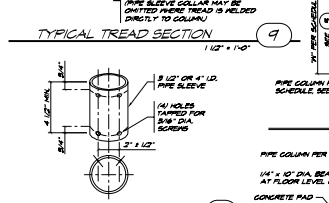
TREAD ALTERNATIVES
* 1. 1/8" OR 10 GA STEEL PLATE OR 3/16" ALUMINUM PLATE. (5/16" STEEL REQUIRED FOR DIAMETERS OVER 6'-6"). OMIT
2. FAN GRATE (INDUSTRIAL) SEE DETAIL OMIT
3. DIAMOND FLOOR PLATE. 1/8" STEEL OR 3/16" ALUMINUM
* 3005-H32 TREAD PLATE (3'-0" MAX. DIA. PV ALUMINUM).
4. HOT-DIPPED GALVANIZED.
2. HOT-DIPPED GALV. DIAMOND FLOOR PLATE.
6. FOR PLASMA CUT TREADS, SEE DETAILS 7 & 7A OMIT

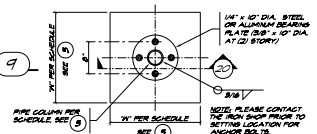
OVERLAYMENT
A. 1 1/8" THICK OAK.
B. 3/4" THICK HIGH DENSITY PARTICLE BOARD (FOR CARPET).

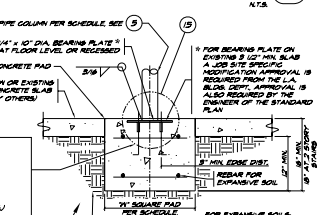
* INCLUDES HOLES FOR MOUNTING HOOD OVERLAYMENT PER A OR B ABOVE (SPECIAL ORDER AVAILABLE WITHOUT HOLES)





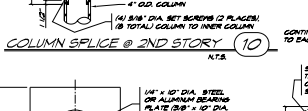


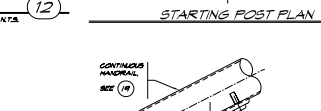


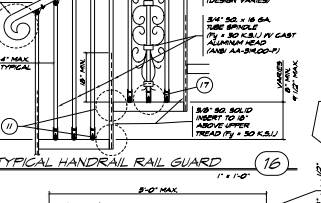


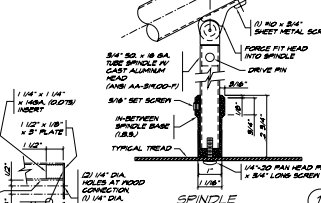
BEARING PLATE ANCHORAGE:
(4) 1/2" DIA. x 10" A.B. (GALV. IV. ALUMINUM BASE PLATE) FOR EXTERIOR INSTALLATION USE GALV. A.B. (STAINLESS STEEL REQUIRED IN ALUMINUM PLATE) OR (4) 5/8" DIA. MIN. H.I.T. KWIK BOLT 3 (USP) ANCHORS W/ 3 1/2" MIN. EMBED. (320 FT-LBS. TORQUE) L.A. R.R. 123577 REEVALUATION DUE DATE 09-01-10 (INSTALL ANCHORS AFTER CONCRETE HAS CURED 28 DAYS.)
NOTE: KBS ANCHORS INSTALLED IN EXTERIOR LOCATIONS SHALL BE HOT-DIPPED GALVANIZED OR STAINLESS STEEL. (STAINLESS STEEL REQUIRED WITH ALUMINUM PLATE).

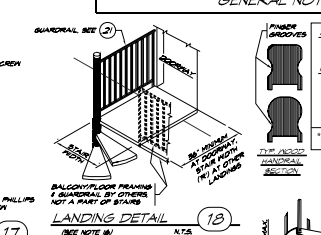
NOTE: CONCRETE FLOOR OR HOOD FLOOR FRAMING (EXISTING OR NEW) SHALL BE DESIGNED FOR THE SPECIFIC COLUMN LOAD FOR EACH INSTALLATION. ANY REQUIRED STRUCTURAL CALCULATION OR ENGINEERING SHALL BE PROVIDED BY OTHER.







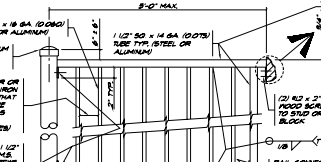


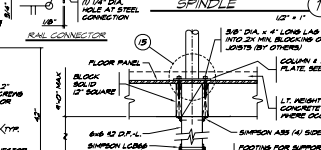


STANDARD HANDRAIL
1. 1 1/2" O.D. x 1/8" THICK ALUMINUM ALLOY 6063-T52
2. 1 1/2" O.D. x 1/8" THICK ALUMINUM ALLOY 6061-T6
3. 1 1/2" O.D. x 1/8" THICK BRASS
4. 50% O.D. MIN. 3/4" WIDE x 2" HIGH W/ FINGER GROOVES (SEL. STRUCT.)
5. 1 1/4" O.D. x 1/4" BRASS.

* BRASS SHALL BE A.S.T.M. B43-14 STANDARD H58.

HANDRAILS 19
N.T.S.





TYPICAL RISERS

RISER HEIGHT	LANDING TO LANDING HT. - "H"						
	12 RISERS	13 RISERS	14 RISERS	15 RISERS	16 RISERS	17 RISERS	18 RISERS
5"	-----	5'-5"	5'-10"	10'-0"	10'-5"	11'-4"	12'-0"
5 1/2"	5'-6"	5'-3 1/2"	5'-11"	10'-7 1/2"	11'-4"	-----	-----
6"	6'-0"	6'-6"	10'-6"	11'-3"	12'-0"	-----	-----
6 1/2"	6'-6"	10'-3 1/2"	11'-1"	11'-10 1/2"	-----	-----	-----

MINIMUM FINISH FRAMED OPENING FOR STAIRS

STAIR DIA. "D"	FINISHED OPENING
3'-0"	3'-2" x 3'-2"
5'-6"	5'-8" x 5'-8"
6'-0"	6'-2" x 6'-2"
6'-6"	6'-8" x 6'-8"
7'-0"	7'-2" x 7'-2"

FRAME ROUGH OPENING LARGER TO ALLOW FOR FINISH MATERIAL SUCH AS TYP. GYP. BD., TRIM, ETC.

RIGHT HAND UP
NOTE: (9 RISER LAYOUTS SHOWN (12 TREADS & 1 LANDING)

LEFT HAND UP

INDICATES DIRECTION TO ENTER STAIR (DOWN)

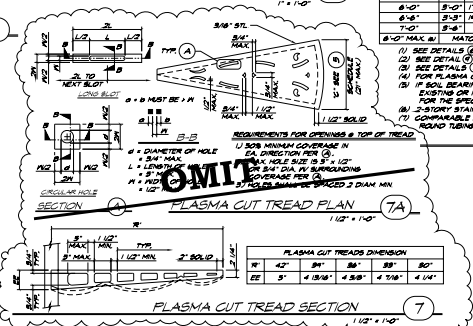
1. LANDING IS REVERSIBLE. 60 OR 90 DEGREE EDGE OF LANDING MAY BE USED FOR TOP STEP.
2. 24" MINIMUM RISER HEIGHT REQUIRED FOR HEADROOM BELOW SQUARE LANDING.
3. IF DOORWAY OCCURS AT LANDING, A LARGER LANDING MAY BE REQUIRED. SEE NOTE 18 & DETAIL 8

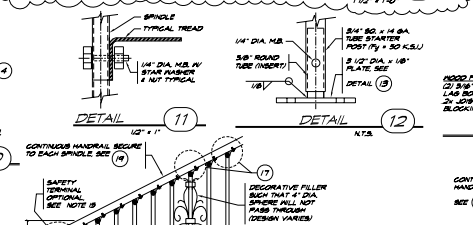
TREAD, COLUMN, & FOOTING SCHEDULE

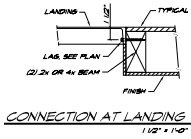
STAIR DIAMETER "D"	TREAD "R" in	TREAD "E" in (2R)	TREAD MAX. LOAD (LBS.)	COLUMN PIPE DIA. & TYPE (1)	COLUMN O.D.	CONC. PAD "H" SIZE SOIL BRG. VALUE 1,500 P.S.F.
5'-0"	2'-6"	14 5/4"	4"	2,300	3" STD.	9 1/2"	18"
5'-6"	2'-9"	16 5/8"	4"	2,300	3" STD.	9 1/2"	18"
6'-0"	3'-0"	17 7/8"	4"	2,300	3 1/2" STD.	4"	18"
6'-6"	3'-3"	19 3/8"	4"	2,300	3 1/2" EX. STR.	4"	18"
7'-0"	3'-6"	21"	4"	2,300	3 1/2" EX. STR.	4"	18"
8'-0" MAX. W/	MATCH ABOVE		4"	3,800	3 1/2" EX. STR.	4"	20"

(1) SEE DETAILS 7 & 8
(2) SEE DETAIL 6
(3) SEE DETAILS 5 & 20
(4) FOR PLASMA CUT TREADS SEE 7 & 7A
(5) IF SOIL BEARING VALUE IS GREATER THAN 1,500 P.S.F. USE "H" FOR 1,500 P.S.F. EXISTING OR NEW CONCRETE FLOOR OR HOOD FLOOR FRAMING SHALL BE DESIGNED FOR THE SPECIFIC COLUMN LOAD FOR EACH INSTALLATION.
(6) 2-STORY STAIRS (24-10" MAX. HT. WITH LANDING AT MID HEIGHT).
(7) COMPARABLE DIAMETER AND WALL THICKNESS OF STEEL ROUND H.S.S. OR ALUMINUM ROUND TUBING MAY BE SUBSTITUTED FOR PIPE SHOWN.

STAIR SCHEDULE 5







GENERAL NOTES

(THESE NOTES SHALL APPLY UNLESS OTHERWISE NOTED)

NOTE: WHERE CODES IN SPECIFIED, IT SHALL BE THE 2008 LOS ANGELES CITY BUILDING CODE, 2007 CALIFORNIA BUILDING CODE WITH L.A. CITY AMENDMENTS AND 2007 CALIFORNIA BUILDING CODE AND 2006 INTERNATIONAL BUILDING CODE.

1. CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AT THE JOB SITE.
2. SOIL BEARING MINIMUM = 1,500 P.S.F. PER TABLE 1804.3 FOR CLAY, SANDY CLAY, SILTY CLAY, CLAYEY SILT, SILT AND SANDY SILT PER GRADING PREINSPECTION OR SOILS REPORT.
3. CONCRETE PER 1904 (CONTAIN SHALL BE STANDARD MIX, 2,500 P.S.I. AT 28 DAYS. DENSITY INSPECTION NOT REQUIRED.
4. STRUCTURAL STEEL PLATES AND BARS SHALL BE A.S.T.M. A-36 (OR HIGHER) YIELD STRENGTH. ALUMINUM PLATE FOR TREADS SHALL BE 6061-H32. ALL OTHER PLATE SHALL BE 6061-T6.
5. STEEL PIPE COLUMNS AND SLEEVES SHALL BE A.S.T.M. A-53 GRADE B OR ROUND H.S.S. A.S.T.M. A-500 GRADE B.
6. ALUMINUM PIPE COLUMNS AND ROUND TUBE COLUMNS SHALL BE 6061-T6.
7. STEEL TUBING SHALL BE A.S.T.M. A-500 GRADE C. (Fy = 50 K.S.I. MIN.).
8. ALUMINUM TUBING SHALL BE 6061-T6.
9. BOLTS SHALL BE A.S.T.M. A-307. SET SCREWS SHALL BE A.S.T.M. F-912.
10. BOLTS IN ALUMINUM SHALL BE HOT DIPPED GALVANIZED A.S.T.M. A153 OR ELECTRO-GALVANIZED A.S.T.M. B633.
11. FASTENERS FOR EXTERIOR EXPOSURE SHALL BE GALVANIZED FOR STEEL STAIRWAY AND STAINLESS STEEL FOR ALUMINUM STAIRWAY.
12. STEEL WELDING SHALL BE PER CODE, USING SHIELDED METAL ARC PROCESS WITH E70XX ELECTRODES OR EQUAL BY AN APPROVED FABRICATOR'S SHOP.
13. ALUMINUM WELDING SHALL BE PER CODE WITH 5356 WELD FILLER.
14. ALL FABRICATION SHALL BE DONE IN THE SHOP OF A LICENSED FABRICATOR OF THE CITY OF LOS ANGELES OR EQUAL.
15. STAIRWAYS SHALL BE USED FOR ONE AND TWO FAMILY DWELLING ONLY.
16. SPIRAL STAIRWAYS ARE PERMITTED TO BE USED AS A COMPONENT IN THE MEANS OF EGRESS ONLY WITHIN DWELLING UNITS. (NOTE THAT A PRIVATE STAIRWAY IS A STAIRWAY THAT SERVES A SINGLE TENANT. A SINGLE TENANT MAY BE ONE OR MORE OCCUPANTS IN A DWELLING).
17. PROVIDE MINIMUM OF 26" WIDE WALKING AREA FROM OUTER EDGE OF SUPPORT COLUMN TO INNER EDGE OF HANDRAIL 7 1/2" MINIMUM TREAD AT A POINT 12" FROM WHERE THE TREAD IS NARROWEST. MINIMUM 4" x 12" TREAD AT INNER EDGE. MAXIMUM 8 1/2" STAIR TREADS AND RISERS SHALL BE OF UNIFORM SIZE AND SHAPE. THE TOLERANCE BETWEEN THE LARGEST AND SMALLEST RISER HEIGHT OR BETWEEN THE LARGEST AND SMALLEST TREAD DEPTH SHALL NOT EXCEED 3/8" (0.375 INCH) IN ANY FLIGHT OF STAIRS.
18. THE TOP OF GUARDRAILS SHALL BE 42" MINIMUM IN HEIGHT. OPEN GUARDRAILS SHALL HAVE INTERMEDIATE RAILS OR AN ORNAMENTAL PATTERN SUCH THAT A 4" SPHERE CANNOT PASS THROUGH.
19. HANDRAILS SHALL BE CONTINUOUS THE FULL LENGTH OF THE STAIRS. FOR PRIVATE STAIRWAYS, HANDRAILS ARE NOT REQUIRED TO EXTEND 12" BEYOND THE TOP OR BOTTOM RISER PER CODE SECTION 1013.3.
20. HANDRAILS SHALL COMPLY WITH ALL 2008 CBC CODE SECTIONS 1009.11 AND 1009.12.
21. PRINTED PLANS OR POOR QUALITY PRINTS (TOO DARK OR TOO LIGHT) WILL NOT BE ACCEPTABLE FOR OBTAINING A BUILDING PERMIT.
22. A PLOT PLAN AND/OR FLOOR PLAN IS REQUIRED FOR OBTAINING A BUILDING PERMIT USING THIS PROJECT.
23. REPRESENTATIONS OF PATTERNS AND VIEWS SHOWN ON THIS PLAN MAY NOT MATCH CURRENT PRODUCTION.
24. ALL WORK MUST COMPLY WITH L.A. CITY PLANNING AND ZONING CODES AND LOCAL CODES.
25. STRUCTURAL OBSERVATION IS NOT REQUIRED PER L.A. CITY INFORMATION P/B 2008-034. (CBC/IBC SECTION 1704.3.2).
26. DESIGN LOADS:
   A. LIVE LOADS
      FLOOR: 40 P.S.F. OR 300 LB. ON 4 SQ. IN. ON TREADS & 40 P.S.F. ON LANDING.
   B. SPECIAL LOADS
      HANDRAIL AND GUARDRAIL: 200 LB. IN ANY DIRECTION.
      INTERMEDIATE RAILS: 50 LB. ON ONE SQ.FT.
   C. SNOW LOADS
      P_g = 40 P.S.F. GROUND SNOW LOAD
      $P_f = 0.7 C_e C_t I P_g$ = (0.7)(1.0)(1.0)(1.0)(40) = 40 P.S.F.
      C_e = 1.2 SHELTERED (MOST SEVERE FACTOR)
      C_t = 1.3 HEATED (MOST SEVERE FACTOR)
      I = 1.0 (OCCUPANCY CATEGORY I OR II)
   D. WIND DESIGN DATA
      BASIC WIND SPEED: 80 M.P.H. (3-SECOND GUST) AT 30' ABOVE GRADE.
      I_w = 1.0
      EXPOSURE: 'C'.
      INTERNAL PRESSURE COEFFICIENT: N/A
      COMPONENTS AND CLADDING: N/A
      NOTE: WHEN STAIRWAY IS USED ON EXTERIOR OF BUILDING, IT SHALL NOT BE LOCATED NEAR HILLS, RIDGES, OR ESCARPMENTS.
   E. EARTHQUAKE DESIGN DATA
      I_E = 1.0 (OCCUPANCY CATEGORY I OR II)
      S_s = 2.503g
      S_1 = 1.003g
      SITE CLASS: D
      S_{DS} = 1.00g
      S_{D1} = 1.00g
      SEISMIC DESIGN CATEGORY: E
      SEISMIC FORCE RESISTING SYSTEM: ORDINARY MOMENT FRAME.
      DESIGN BASE SHEAR: V = 0.3W Ip (A.S.D.) AT 30 FT. ABOVE GRADE.
      C_s = 0.333
      R = 3.0
      ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE.
27. ADDITIONAL REQUIREMENTS:
   A. FLASHA CUT TREAD SHALL HAVE A SOLID SURFACE. OMIT
   B. RISER SHALL HAVE SPACE REDUCTION BAR PER DETAIL 23 OR EQUAL.
   C. OUTDOOR STAIRWAYS SHALL BE CONSTRUCTED SO THAT WATER WILL NOT ACCUMULATE ON WALKING SURFACES. 2% MAXIMUM SLOPE.
   D. WALKING SURFACES SHALL BE SOLID SURFACES.
   E. USEABLE SPACE UNDER STAIRS SHALL NOT BE ENCLOSED.

GENERAL NOTES 5A

L.A. CITY
STANDARD PLAN #111
L.A. CITY LICENSED
FABRICATOR #1150
CITY OF SAN DIEGO
STANDARD
MASTER PLAN #25
PTS PROJECT: #161221

SCALE ON 30 x 42 PRINTED SHEET
1" 1"
DO NOT SCALE PLANS OR DETAILS

APPROVED STANDARD PLAN
ACCEPTED BY
DATE
APPROVAL STAMP

8-18-08	2
4-22-09	3

WOOD Engineering, Inc.
Structural Engineering
Project Management
Environmental Assessment & Remediation
10060 FOOTHILL BOULEVARD
RANCHO CUCAMONGA, CA 91730
(909) 466-1000 • FAX (909) 466-9899

THE IRON SHOP
CONTRACTOR: PHONE: (800) 382-4766 OR (909) 605-1000
2848 GUASTI ROAD, UNIT D.
ONTARIO, CA 91761
TELEPHONE: (800) 382-HION
FAX: (909) 605-8899

SPIRAL STAIRWAY

MODEL NO.: STANDARD #111

THIS PLAN IS VALID ONLY WITH PET SEAL & SIGNATURE OF ENGINEER.

DESIGN K. MOURA
CHECKED
DATE 3-18-08
SCALE AS SHOWN
JOB NO. 08-62
SHEET 1 OF SHEETS