

GENERAL STRUCTURAL NOTES

GENERAL REQUIREMENTS

1. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE STRUCTURAL ENGINEERS IN THIS OR SIMILAR LOCALITIES. THEY NECESSARILY ASSUME THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKMEN WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT CAN BE EXPLICITLY SHOWN ON THESE DRAWINGS, IT IS UNDERSTOOD THAT THE CONTRACTOR WILL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR ALL MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
2. CALCULATION AND DESIGN OF MISCELLANEOUS NON-STRUCTURAL ITEMS, SUCH AS STAIRS, RAILINGS, NON-STRUCTURAL WALLS AND PREPARED STRUCTURAL ITEMS, SUCH AS FLOOR AND ROOF TRUSSES, ARE NOT INCLUDED AND ARE TO BE PROVIDED BY OTHERS UNLESS SPECIFICALLY NOTED ON THESE DRAWINGS.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DESIGN AND PROVIDE ADEQUATE SHORING, BRACING, FORM-WORK, ETC., AS REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. CONSTRUCTION MATERIALS SHALL BE UNIFORMLY SPREAD OUT SUCH THAT DESIGN LIVE LOAD PER SQUARE FOOT AS STATED HEREIN IS NOT EXCEEDED. VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING SHORING AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES IN ACCORDANCE W/ THE LOCAL BUILDING DEPARTMENT. ALL WORK OR CONSTRUCTION SHALL COMPLY W/ ALL APPLICABLE BUILDING CODES, REGULATIONS AND SAFETY REQUIREMENTS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS, CONDITIONS AND ELEVATIONS W/ ARCHT. DRAWINGS PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL INFORM THE ARCHITECT IN WRITING OF ANY DISCREPANCIES OR OMISSIONS NOTED ON THE DRAWINGS. ANY SUCH DISCREPANCY, OMISSION, OR VARIATION NOT REPORTED BEFORE START OF CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. WHERE DISCREPANCIES OCCUR IN THESE DRAWINGS, NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL STRUCTURAL NOTES AND TOP DETAILS.
6. WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDA.
7. OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. IF ANY OPTION IS USED, THE CONTRACTOR SHALL USE THE LATEST EDITION AND/OR ADDENDA.
8. TYP DETAILS AND NOTES SHALL APPLY, THOUGH NOT NECESSARILY INDICATED AT A SPECIFIC LOCATION ON PLANS WHERE NO DETAILS ARE SHOWN. CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT. DETAILS MAY SHOW ONLY ONE SIDE OF CONNECTION OR MAY OMIT INFO FOR CLARITY.
9. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHT., MECH, PLUMBING AND ELECTRICAL W/ APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
10. ALL INSPECTIONS REQ'D BY THE BUILDING CODES, LOCAL BUILDING DEPARTMENTS OR BY THESE PLANS SHALL BE PROVIDED BY AN INDEPENDENT INSPECTION COMPANY OR THE BUILDING DEPARTMENT. SITE VISITS BY THE ENGINEER DO NOT CONSTITUTE AN INSPECTION, UNLESS SPECIFICALLY CONTRACTED FOR.

11. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL ITEMS. SHOP DRAWINGS ARE REVIEWED ONLY FOR GENERAL COMPLIANCE W/ THE STRUCTURAL DRAWINGS. REVIEW DOES NOT INDICATE THAT THE SHOP DRAWINGS ARE CORRECT OR COMPLETE. RESPONSIBILITY FOR CORRECTNESS SHALL REST W/ THE CONTRACTOR. ANY CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM CONTRACT DRAWINGS SHALL BE CLOUDED ANY OF THE AFOREMENTIONED SHALL NOT BE CONSIDERED APPROVED AFTER ENGINEERS REVIEW UNLESS SPECIFICALLY NOTED ACCORDINGLY. THE SHOP DRAWINGS DO NOT SUPERSEDE OR REPLACE THE ORIGINAL CONTRACT DRAWINGS, ANY ENGINEERING PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF AN APPROPRIATELY REGISTERED ENGINEER. ENGINEERING STRUCTURAL SOLUTIONS SHALL NOT BE RESPONSIBLE FOR THE ADEQUACY OF ENGINEERING DESIGNS PERFORMED BY THE OTHERS. ALLOW 5 WORKING DAYS FOR THE ENGINEER'S REVIEW. ONE COPY OF EACH SUBMITTAL WILL BE RETAINED FOR ENGINEERING STRUCTURAL SOLUTIONS' RECORDS.

BASIS FOR DESIGN

1. GOVERNING BUILDING CODE 2003 IBC
2. GRAVITY DESIGN
FLAT ROOF 21 PSF
DEAD 20 PSF
LIVE 20 PSF
- PITCHED ROOF
DEAD 28 PSF
LIVE 20 PSF
3. SEISMIC DESIGN
SEISMIC GROUP II
I_e 1.5
S_{DS} (SHORT PERIOD) 0.73
S_{DS} (10-SECOND PERIOD) 0.203
SITE CLASS 0
LATERAL SYSTEM SPECIAL REINFORCED MASONRY SHEAR WALLS
R 5.0
SEISMIC RESPONSE COEFFICIENT, C_s 0.178
ANALYSIS PROCEDURE EQUIVALENT LATERAL-FORCE PROCEDURE
4. WIND DESIGN
BASED WIND SPEED 90 MPH
EXPOSURE B
K 1.15
5. SOILS
SOIL BEARING PRESSURE 1500 PSF
MIN FOOTING EMBEDMENT 18 INCHES

FOUNDATION

1. FOUNDATIONS WERE DESIGNED IN CONFORMANCE W/ RECOMMENDATIONS BY TERRACON, REPORT # 64035136, DATED DECEMBER 5, 2003 AND UPDATE LETTER DATED JANUARY 18, 2004. SITE PREPARATION AND GRADING REQUIREMENTS FROM THE GEOTECHNICAL REPORT AND ANY ADDENDA SHALL BE COMPLETED PRIOR TO CONSTRUCTION OF FOUNDATIONS. ANY TESTS, INSPECTIONS, FIELD OBSERVATIONS, OR APPROVAL FROM THE GEOTECHNICAL ENGINEER RECOMMENDED BY THE GEOTECHNICAL REPORT SHALL BE PERFORMED PRIOR TO PLACEMENT OF FOUNDATIONS, REINFORCING STEEL OR CONCRETE. ALTERATION TO SITE PREPARATION OR GRADING SHALL BE REPORTED TO THE ENGINEER PRIOR TO FOUNDATION CONSTRUCTION.
2. ALL FOOTINGS SHALL EXTEND BELOW GRADE THE MIN EMBEDMENT DEPTH AS NOTED IN THE BASIS FOR DESIGN. GRADE SHALL BE DEFINED AS THE FOLLOWING:
- TOP OF SLAB AT INTERIOR FOOTINGS
 - TOP OF LOWEST ADJACENT COMPACTED SUBGRADE (PAD GRADE BEFORE LANDSCAPING) OR NATURAL GRADE W/IN 5 FEET OF BUILDING AT EXTERIOR AND PERIMETER FOOTINGS
 - TOP OF EXTERIOR PAVING OR CONCRETE PERMANENTLY LOCATED DIRECTLY ADJACENT TO AND EXTENDING A MIN OF 5 FEET FROM BUILDING.
3. CONVENTIONAL CONCRETE SLABS ON GRADE SHALL BE SUPPORTED AS SPECIFIED IN FOUNDATION PLAN NOTES. FILL MATERIAL SHOULD BE MONITORED, BUT NOT SATURATED. JUST PRIOR TO PLACING CONCRETE, CARE SHALL BE TAKEN IN PLACING SLABS ON GRADE TO NOT DISTURB FILL MATERIAL.
4. BACKFILL AGAINST FOUNDATION WALLS OR EXTERIOR WALLS BELOW GRADE SHALL NOT BE PLACED UNTIL AFTER THE WALLS ARE RESTRAINED BY THE COMPLETED INTERIOR FLOOR SYSTEMS.
5. ADEQUATE DRAINAGE AWAY FROM STRUCTURE SHALL BE PROVIDED BY CONTRACTOR OR OTHERS AS REQ'D.
6. BACKFILL AND RECOMPACT ALL TRENCHES PER THE SOILS REPORT AND SPECIFICATIONS. (MIN 90% DRY DENSITY FOR FINE GRAINED SOILS AND MIN 95% DRY DENSITY FOR GRANULAR SOILS)

SITE CLEARING

1. STRIP AND REMOVE EXISTING VEGETATION, DEBRIS, UNCONTROLLED FILL, OR DISTURBED NATURAL SOILS, AND OTHER DELETERIOUS MATERIALS FROM PROPOSED BUILDING AREAS, ADJACENT WALKS AND SLABS, AND IN AREAS TO BE PAVED. EXCAVATIONS SHOULD EXTEND AT LEAST 5 FEET BEYOND THE STRUCTURE IN PLAN. NEW UNCONTROLLED FILL IS DEFINED AS ANY EXISTING FILL THAT WAS NOT PROPERLY PLACED, OBSERVED AND TESTED.
2. ALL EXPOSED SURFACES SHOULD BE FREE OF MOUNDS AND DEPRESSIONS WHICH COULD PREVENT UNIFORM COMPACTION.

SITE CLEARING (CONT)

3. IF UNEXPECTED FILLS OR UNDERGROUND FACILITIES ARE ENCOUNTERED DURING SITE CLEARING, SUCH FACILITIES SHOULD BE REMOVED AND THE EXCAVATION THOROUGHLY CLEANED AND BACKFILLED. ALL EXCAVATIONS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER PRIOR TO BACKFILL PLACEMENT.
- OVEREXCAVATION
1. THE UPPER LAYER OF THE UNCONTROLLED FILL AS IDENTIFIED BY THE GEOTECHNICAL REPORTS SHOULD BE OVEREXCAVATED AND REPLACED W/ PROPERLY COMPACTED FILL MATERIAL MEETING THE SPECIFICATIONS OF IMPACTED SOIL FILL MATERIAL OF THE GEOTECHNICAL ENGINEER.
2. W/IN THE ENTIRE BUILDING AREA AND 5 FEET BEYOND, OVEREXCAVATE AND REPLACE THE UNCONTROLLED FILL MATERIAL W/ PROPERLY COMPACTED FILL MATERIAL IN AREAS TO BE PAVED (INCLUDING ADJACENT SIDEWALKS) AND AT LEAST 2 FEET BEYOND IN PLAIN VIEW. IT WILL ONLY BE NECESSARY TO OVEREXCAVATE AND REPLACE 4 FEET OF THE UNCONTROLLED FILL MATERIAL BELOW EXISTING GRADE OR FINAL SUBGRADE, WHICHEVER IS LOWER. SEE TYPICAL OVER EXCAVATION AND SUBGRADE PREPARATION SECTION ON SHEET SO.3.

EARTH WORK

1. FILL WOULD BE CONSIDERED UNCONTROLLED FILL UNLESS OBSERVATION AND TESTING WAS PERFORMED DURING PLACEMENT. ALL UNCONTROLLED FILL SHOULD BE REMOVED AND REPLACED W/ PROPERLY COMPACTED FILL. THE UNCONTROLLED FILL SOILS CAN BE RE-USED FOR CONTROLLED FILL PROVIDED ALL OVERSIZE MATERIAL, UNSUITABLE MATERIAL (AS DETERMINED BY THE GEOTECHNICAL ENGINEER), VEGETATION AND DEBRIS IS REMOVED. THE THICKNESS OF THE PREVIOUSLY PLACED FILL RANGED FROM 4 1/2 FEET TO 8 1/2 FEET AT THE BORING LOCATIONS.
2. OBSERVATION OF FOUNDATION EXCAVATIONS SHOULD BE PERFORMED BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF REINFORCING AND CONCRETE TO CONFIRM THAT SATISFACTORY BEARING MATERIALS ARE PRESENT.

SOIL/FILL MATERIAL

1. ON-SITE SOILS W/ AN EXPANSIVE POTENTIAL LESS THAN 4 PERCENT, MINUS DEBRIS, OVERSIZED MATERIAL (GREATER THAN 6 INCHES) OR ORGANIC MATTER, MAY BE USED IN REQUIRED FILLS.
2. IMPORTED SOIL FILL MATERIAL SHOULD CONFORM TO THE FOLLOWING:
- | GRADATION (ASTM C136) | PERCENT FINER BY WEIGHT |
|-----------------------|-------------------------|
| 6" | 100 |
| 3" | 70-100 |
| No. 4 SIEVE | 35-100 |
| No. 200 SIEVE | 30 (MAX) |
- MAXIMUM LIQUID LIMIT 30
 - MAXIMUM PLASTICITY INDEX 10
 - MAXIMUM EXPANSIVE POTENTIAL (%) (60 PSF SURCHARGE) 4.0
 - MAXIMUM SULFATE CONTENT (%) 0.10
 - MAXIMUM SODIUM CONTENT (%) 0.02

FILL PLACEMENT AND COMPACTION

1. AFTER PERFORMING REQ'D EXCAVATIONS, THE EXPOSED SOILS SHOULD BE CAREFULLY OBSERVED TO VERIFY REMOVAL OF ALL UNSUITABLE DEPOSITS. EXPOSED SOILS SHOULD THEN BE SCORIFIED TO A DEPTH OF 6 INCHES, WATERED AS NECESSARY, AND COMPACTED AS RECOMMENDED.
2. FILL MATERIAL SHOULD BE PLACED ON A HORIZONTAL PLANE UNLESS OTHERWISE ACCEPTED BY THE GEOTECHNICAL ENGINEER.
3. ALL REQUIRED FILL SHOULD BE PLACED IN LOOSE LIFTS NOT OVER 8 INCHES IN THICKNESS.
4. MATERIAL SHOULD BE COMPLETED TO THE FOLLOWING:

MATERIAL	PERCENT COMPACTION (ASTM D1557)	MOISTURE CONTENT
FINE-GRAINED	90 MINIMUM	+2 PERCENT OVER OPTIMUM (MINIMUM)
GRANULAR	95 MINIMUM	-2 PERCENT OVER OPTIMUM (MINIMUM)

5. CLAY SOILS SHOULD NOT BE ALLOWED TO DRY OUT AND CRACK DURING OR AFTER CONSTRUCTION. MOISTURE CONTENTS SHOULD BE MAINTAINED AT LEAST UNTIL FOUNDATIONS, FLOOR SLABS, FLATROOF AND PAVEMENTS ARE CONSTRUCTED. ANY DRIED OR CRACKED SOILS SHOULD BE WETTED UNTIL THEY REACH ACCEPTED MOISTURE CONTENT OR THEY SHOULD BE EXCAVATED AND REPLACED W/ ACCEPTABLE PROPERLY COMPACTED FILL.
6. FIELD DENSITY TESTS SHOULD BE TAKEN FOR APPROXIMATELY EACH 1 1/2 FEET IN ELEVATION GAIN AFTER COMPACTION, BUT NOT TO EXCEED 3 FEET IN VERTICAL HEIGHT BETWEEN TEST. FIELD DENSITY TESTS MAY BE TAKEN INTERVALS OF 6 INCHES IN ELEVATION GAIN IF REQUIRED BY THE ENGINEER. THE LOCATION OF THE TESTS IN PLAN SHALL BE SO SPACED TO GIVE THE BEST POSSIBLE COVERAGE AND SHALL BE TAKEN NO FURTHER APART THAN 50 FEET. THE ENGINEER MAY USE ADDITIONAL TESTS AS CONSIDERED NECESSARY TO CHECK ON THE UNIFORMITY OF COMPACTION. WHERE SHEEPSFOOT ROLLERS ARE USED, THE TESTS SHALL BE TAKEN IN THE COMPACTED MATERIAL, BELOW THE DISTURBED SURFACE. NO ADDITIONAL LAYERS OF FILL SHALL BE SPREAD UNTIL THE FIELD DENSITY TESTS INDICATED THAT THE SPECIFIED DENSITY HAD BEEN OBTAINED.

CONCRETE

1. MIN 28 DAY STRENGTH SLAB ON GRADE, FOOTINGS, AND WALLS 4500 PSI (DESIGNED FOR 2500) MAX WATER CEMENT RATIO 0.45 CONCRETE SLUMP 4 INCHES
2. CONCRETE MIXES SHALL BE DESIGNED BY A CERTIFIED LABORATORY AND APPROVED BY THE ENGINEER.
3. ALL CONCRETE SHALL BE REGULAR W/ 145 POUNDS PER CUBIC FOOT USING HARDROCK AGGREGATES CONFORMING TO ASTM C33 WATER SHALL BE CLEAN AND POTABLE.
4. PORTLAND CEMENT SHALL CONFORM TO ASTM C118, CHAPTER 3.2 TYPE V.
5. NO MORE THAN 90 MINUTES SHALL ELAPSE BETWEEN CONCRETE BATCHING AND CONCRETE PLACEMENT, UNLESS APPROVED BY THE ENGINEER OR AUTHORIZED TESTING AGENCY.
6. CONCRETE MIXING, PLACEMENT AND QUALITY SHALL BE PER ACI 318, CHAPTER 5. MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED, EXCEPT SLABS ON GRADE OR ON COMPOSITE STEEL DECK. DECK NEED BE VIBRATED ONLY AROUND AND UNDER FLOOR DUCTS OR SIMILAR ELEMENTS. REMOVE ALL DEBRIS FROM FORMS BEFORE PLACING CONCRETE. CONCRETE SHALL NOT BE DROPPED THROUGH REINFORCING STEEL (AS IN WALLS AND COLUMNS) SO AS TO CAUSE SEGREGATION OF AGGREGATES. UNCONTROLLED FALL OF CONCRETE SHALL NOT EXCEED 5 FEET. CARE SHALL BE TAKEN IN PLACING SLABS ON GRADE NOT TO DISTURB FILL MATERIAL.
7. ALL ITEMS TO BE CAST IN CONCRETE SUCH AS REINFORCING, DOWELS, BOLTS, ANCHORS, PIPES, SLEEVES, ETC., SHALL BE SECURELY POSITIONED IN THE FORMS BEFORE PLACING THE CONCRETE.
8. CONCRETE SLAB ON GRADE CONTROL JOINTS SHALL BE SAW-CUT SUCH THAT ENCLOSED AREA DOES NOT EXCEED 150 SQUARE FEET (APPROX 12'-0" X 12'-0").
9. PIPES OTHER THAN ELECTRICAL CONDUITS SHALL NOT BE EMBEDDED IN STRUCTURAL CONCRETE EXCEPT WHERE SPECIFICALLY APPROVED BY THE ENGINEER. MAX PIPE SIZE SHALL BE 1/3 OF THE SLAB THICKNESS AND LOCATED AT THE MID-DEPTH. MIN SPACING SHALL BE 3 TIMES THE PIPE DIAMETER. PIPES SHALL NOT IMPAIR THE STRENGTH OF THE MEMBER.
10. PROTECT CONCRETE FROM DAMAGE OR REDUCED STRENGTH DUE TO COLD OR HOT WEATHER IN ACCORDANCE W/ ACI 305 AND 308.
11. ACI RECOMMENDATIONS TO CONTROL SLAB ON GRADE CRACKING:
- 1 1/2" MAX AGGREGATE SIZE
 - ACI 302 AGGREGATE SPECIFICATION USING MINS OF #8 AND #4 AGGREGATES TO PROVIDE A WELL GRADED AGGREGATE MIX
 - PROVIDE CONTROL JOINTS AT 2 TO 3 TIMES THE SLAB THICKNESS IN FEET OR EACH WAY (MAX) (I.E. 4" SLAB = 8'-0" TO 12'-0" JOINTS)
 - MAX WATER CEMENT RATIO 0.50

STONE/MASONRY VENEER ANCHOR TIES

1. STONE/MASONRY VENEER ANCHOR TIES SHALL BE ONE OF THE FOLLOWING BY HOBAS & BARWAD OR EQUAL:
- 315-ØF FLEXIBLE DOWELT BRICK TIE W/ SEISMIC CLIP INTERLOCKING SYSTEM
 - ØW-10-X SEISMIC ANCHOR W/ SEISMIC CLIP INTERLOCKING SYSTEM
2. INSTALLATION:
- MIN SPACING SHALL BE 16" O.C. HORIZONTAL AND VERTICAL.
 - PROVIDE CONTINUOUS HORIZONTAL CHAINED ØW #8 WIRE IN CENTER THIRD OF MORTAR JOINTS AT 16" O.C. ENGAGE Ø8 WIRE W/ ALL ANCHOR TIES
 - WHEN STUDS ARE USED FOR BACKUP SUPPORT, STUDS SHALL BE SPACED AT 16" O.C. MAX SPACING OF STUD BACKUPS SHALL BE 16" O.C. STUDS SHALL BE COVERED W/ 1/2" SHEATHING AND APPROVED PAPER.
 - CONSTRUCTION JOINTS IN MASONRY VENEER WALLS SHALL BE PROVIDED AS PER THE ARCHT. DWGS, AND SHALL BE SPACED AT A MAX OF 30'-0" W/ 1/2" BRICK VENEER AND A MAX OF 15'-0" O.C. FOR MASONRY BLOCK VENEER.

MASONRY

1. CONCRETE BLOCK SHALL BE HOLLOW, MEDIAN WEIGHT, LOW-BEARING CONCRETE MASONRY UNITS CONFORMING TO ASTM C90, 7.3, 7.3.1, 9.0 AND 7.4.1 W/ A MIN NET COMPRESSIVE STRENGTH OF 1900 PSI. ALL BLOCKS SHALL BE PLACED IN RUNNING BOND CONSTRUCTION (UNO) W/ ALL VERT CELLS IN ALIGNMENT.
2. MORTAR MIX SHALL CONFORM TO REQUIREMENTS OF ASTM C270, ASTM C780 FOR FIELD TESTING AND IBC SECTION 2103, TYPE M OR S W/ MIN COMPRESSIVE STRENGTH OF 2500 PSI AND 1800 PSI RESPECTIVELY. TYPE M MORTAR SHALL BE USED WHERE MASONRY IS IN CONTACT W/ SOIL.
3. GROUT SHALL CONFORM TO REQUIREMENTS OF ASTM C476. USE SUFFICIENT WATER FOR GROUT TO FLOW INTO ALL JOINTS OF THE MASONRY W/OUT SEGREGATION. GROUT SHALL HAVE A MIN COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS. ALL CELLS IN CONCRETE BLOCKS CONTAINING REINFORCING SHALL BE FILLED SOLID W/ GROUT. HOLD GROUT DOWN 1-1/2" BELOW TOP OF BLOCK AT GROUT JOINTS.
4. NET COMPRESSIVE STRENGTH OF THE OVERALL MASONRY SYSTEM W/ PRISM TESTING (MORTAR, BLOCK AND GROUT) SHALL BE (F_m) 1500 PSI MIN.
5. MIN WALL VERT REINFORCING, UNO ON PLANS OR DETAILS, SHALL BE:
- | | |
|----------|----------------|
| 8" WALL | #5 AT 32" O.C. |
| 12" WALL | #5 AT 16" O.C. |
- PROVIDE (2) #5 FULL HEIGHT VERT BARS IN CENTER OF GROUTED CELL AT ALL WALL INTERSECTIONS, CORNERS, WALL ENDS, JAMBS AT WALL OPENINGS, AND EACH SIDE OF CONTROL JOINTS, UNO ON PLANS DOWEL ALL VERT REINFORCING TO FOUNDATION W/ DOWELS TO MATCH AND LAP VERT REINFORCING.
6. MIN HORIZ REINFC UNO:
- | | |
|------------------|---------------------------------|
| ROOF LINES | (4) #5 CONTINUOUS |
| TOP OF PARAPET | (4) #5 CONTINUOUS |
| MIN HORIZ REINFC | #5 SPACED AT 40" O.C. MAX HORIZ |
- PROVIDE BENT BARS PER TYPICAL DETAILS TO MATCH AND LAP HORIZ BOND BEAM REINFORCING AT CORNERS AND WALL INTERSECTIONS TO MAINTAIN BOND BEAM CONTINUITY USE BOND BEAM U-BLOCK UNITS AT HORIZ REINFORCING.
7. MIN LINTEL WHERE NOT NOTED ON PLANS, SHALL HAVE A MIN OF (2) #5 CONT HORIZ BARS IN BOTTOM OF BOND BEAM OR LINTEL BLOCK AND SHALL BE GROUTED SOLID TO A MIN DEPTH OF 24 INCHES. ALL LINTEL REINFORCING AND GROUT SHALL EXTEND 2 FEET MIN PAST JAMBS UNO ON PLANS OR DETAILS.
8. LAP REINFORCING BARS AS SHOWN BELOW. STAGGER LAP SPLICES A MIN OF 60 BAR DIAMETERS (UNO).

MASONRY REINFORCING LAP SCHEDULE		
BAR	LAP LENGTH	
#3	20"	
#4	26"	
#5	40"	
#6	80"	

LENGTHS SHOWN ACCOMMODATE A 2 1/2" MIN CLEAR COVER

9. VERT CONTROL JOINTS IN MASONRY WALLS SHALL BE LOCATED PER TYP MASONRY CONTROL JOINT DETAIL, UNO ON PLANS. JOINTS SHALL BE PLACED SO AS NOT TO FALL W/IN A LINTEL UNO NOR W/IN A WALL JAMB ADJACENT TO AN OPENING OR UNDER A POINT LOAD.

STEEL DECK

1. ROOF DECK SHALL BE AS NOTED ON PLAN. DECK SHALL BE ERRECTED IN ACCORDANCE W/ MFR'S RECOMMENDATIONS. STEEL DECK MAY BE EITHER GALVANIZED OR PRIME PAINTED. PROVIDE 3 SPAN MINIMUM, UNO ON PLANS.
- PROVIDE (5) 5/8" DIAMETER PUDDLE WELDS PER SHEET AT PERPENDICULAR SUPPORTS AT ENDS, END LAPS, AND INTERMEDIATE SUPPORTS.
 - PROVIDE 5/8" DIAMETER PUDDLE WELD AT 12" O.C. AT PARALLEL SUPPORTS, PERIMETER BEAMS AND LEDGES, EDGES OF OPENINGS AND AT ONE-TO-ONE CORRELATOR ELEMENTS AS NOTED ON FRAMING PLANS.
 - PROVIDE BUTT FURNISHES AT 24" O.C. SIDE SEAM ATTACHMENT.
2. STEEL DECK SUPPLIER SHALL PROVIDE ALL NECESSARY ACCESSORIES SUCH AS RIDGE AND VALLEY PLATES, SADDLES, COVER PLATES, ETC., TO MAKE THE JOB COMPLETE.
- STRUCTURAL STEEL
1. STRUCTURAL STEEL MEMBERS SHALL CONFORM W/ THE FOLLOWING STANDARDS AND MATERIAL PROPERTIES UNLESS NOTED OTHERWISE:
- | SUBJECT | STANDARD | EY |
|---|---------------------------|--------|
| W SHAPES AND STRUCTURAL TEE CHANNELS AND ANGLES | ASTM A582 (GRADE 50) | 50 KSI |
| | ASTM A36 | 36 KSI |
| BARNS AND PLATES | ASTM A36 | 36 KSI |
| HSS (ROUND) | ASTM A500 (GRADE B) | 42 KSI |
| HSS (RECTANGLE) | ASTM A500 (GRADE B) | 46 KSI |
| BOLTS | ASTM A325 | --- |
| NUTS | ASTM A563 | --- |
| HARDENED STEEL WASHERS | ASTM F1554 | --- |
| LOAD INDICATOR WASHER | ASTM F1559 | --- |
| ANCHOR BOLTS (ANCHOR RODS) | ASTM F1554 (APPLICABLE W) | 36 KSI |
- WELDABILITY SUPPLEMENT S1)
- | SUBJECT | STANDARD | EY |
|--------------------------|--------------------|--------|
| SHEAR STUDS/HEADED STUDS | ASTM A108 (TYPE B) | --- |
| THREADER ROD | ASTM A36 | 36 KSI |

2. ALL BOLTS SHALL BE INSTALLED AS BEARING-TYPE CONNECTIONS W/ THREADS INCLUDED IN SHEAR PLANE (TYPE "N" CONNECTION) UNLESS NOTED OTHERWISE. UNLESS NOTED OTHERWISE, ALL HIGH-STRENGTH BOLTS SHALL BE FULLY PRETENSIONED USING LE JUNE OR LOAD-INDICATOR WASHERS SO NOT PRETENSION FOUNDATION ANCHOR BOLTS.
3. ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE FABRICATED AND ERRECTED IN ACCORDANCE W/ ASD SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS, LATEST EDITION.
4. WELDING SHALL BE PERFORMED BY WELDERS HOLDING VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN THE TYPE OF WELD SHOWN ON THE DRAWINGS. ALL WELDING SHALL USE E70XX LOW HYDROGEN ELECTRODES UNLESS NOTED OTHERWISE. SHOP WELDS MAY USE 70ksi WELDABLE WIRE. ALL WELDS INVOLVING REINFORCING BARS SHALL USE E7018 ELECTRODES. ALL WELDING SHALL CONFORM W/ THE LATEST AMERICAN WELDING SOCIETY STANDARDS. NO TACK WELDING OF ASTM A325 OR ASTM A582 BOLTS.
5. GROUT BENEATH COLUMN BASES OR BEARING PLATES SHALL BE 5,000 PSI (MIN) NON-SHRINK FLOWABLE GROUT OR DRYPACK. INSTALL GROUT UNDER BEARING PLATES BEFORE FRAMING MEMBER IS INSTALLED. AT COLUMNS, INSTALL GROUT UNDER DISPELLERS AFTER COLUMN HAS BEEN PLUMBED. BUT PRIOR TO FLOOR OR ROOF INSTALLATION. GROUT DEPTH SHALL BE SUFFICIENT TO ALLOW GROUT OR DRYPACK TO BE PLACED BENEATH PLATE W/OUT VOID (1 1/2" MIN).
6. STEEL EXPOSED TO WEATHER SHALL BE GALVANIZED AND PAINTED AT OWNER'S DISCRETION.

STEEL JOISTS /JOIST GRIDDERS

1. ALL JOISTS SHALL BE DESIGNED, FABRICATED, WELDED AND ERRECTED IN ACCORDANCE W/ THE LATEST EDITION OF THE "STANDARD SPECIFICATIONS" OF THE STEEL JOIST INSTITUTE.
2. JOIST MFR SHALL DESIGN AND SUBMIT CALCULATIONS BY AN APPROPRIATELY REGISTERED ENGINEER FOR ALL JOISTS AND JOIST GRIDDERS. CALCULATIONS SHALL SATISFY DEFLECTION AND CAMBER REQUIREMENTS. LIVE LOAD DEFLECTIONS SHALL BE LIMITED TO SPAN/360. ALL JOISTS AND JOIST GRIDDERS SHALL BE CAMBERED FOR THE DESIGN DEAD LOAD. MFR SHALL ALSO ADDITIONAL WEB MEMBERS AS REQ'D AND ADJUST CHORD AND WEB SIZES ACCORDINGLY, BUT SHALL NOT ALTER DEPTH OF JOISTS W/O APPROVAL OF THE ARCHITECT. DESIGN CALCULATIONS SHALL INCLUDE SUPERIMPOSED LOADS FROM MECH, ELECTRICAL, PLUMBING AND OTHER ROOF-SUPPORTED EQUIPMENT. VERIFY SIZE, WT AND LOCATION OF EQUIPMENT W/ ARCHT., MECH, PLUMBING AND ELECTRICAL DWGS.
3. CONTRACTOR SHALL SUBMIT SHOP DWGS ALONG W/ DESIGN CALCULATIONS SEALED BY A REGISTERED ENGINEER FOR REVIEW PRIOR TO MFR SHOP DWGS AND CALCULATIONS. SHALL INCLUDE DETAILS OF ANY OPTIONAL FIELD SPLICES.
4. ALL STEEL JOISTS, GRIDDERS OR BEAMS SHALL BEAR AT A PANEL POINT. JOISTS OR BEAMS SHALL BE EQUALLY SPACED BETWEEN COL LINES UNO ON PLANS. MFR SHALL DESIGN JOIST SHEDS WHERE BEARING LENGTH IS LESS THAN 4' AT LH SERIES JOIST AND LESS THAN 3' AT K SERIES JOIST.

5. MFR SHALL PROVIDE BRIDGING AS REQ'D PER SJI SPECIFICATIONS. WHERE BOTTOM CHORD WELD IS INDICATED ON DWGS, DO NOT WELD BOTTOM CHORD TO JOIST SUPPORT UNTIL FULL DEAD LOAD IS IN PLACE. WHERE CROSS BRIDGING INTERFERED W/ MECH INSTALLATIONS, REMOVE THE INTERFERING CROSS BRIDGING ELEMENTS AFTER TOTAL DEAD LOAD IS APPLIED AND REPLACE W/ EQUIVALENT HORIZONTAL ANGLES AT TOP AND BOTTOM CHORDS.
- STEEL JOISTS /JOIST GRIDDERS (CONT)
6. MFR SHALL DESIGN JOIST AND JOIST GRIDDERS IN ACCORDANCE W/ THE U.L. DESIGN REQUIREMENTS IN ORDER TO ACHIEVE THE FIRE RATING SPECIFIED IN ARCHT. DWGS.
7. STEEL JOISTS SHALL BE DESIGNED AND APPROPRIATE BRACING REQUIRED FOR A NET 10 PSF UPLIFT DUE TO WIND.

REINFORCING STEEL

1. REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615. REINFORCING SHALL BE GRADE 60 (F_y = 60 KSI) DEFORMED BARS FOR ALL BARS #4 AND LARGER AND ALL BARS USED FOR CONCRETE WALLS. REINFORCING MAY BE GRADE 40 (F_y = 40 KSI) DEFORMED BARS FOR ALL BARS #3 AND SMALLER UNO ON PLANS OR DETAILS. ALL REINFORCING TO BE WELDED SHALL BE ASTM A615, GRADE 60 ALLOY WELDABLE STEEL.
2. ALL DIMENSIONS SHOWING THE LOCATION OF REINFORCING STEEL NOT NOTED AS "CLR" OR "CLR" ARE TO CENTER OF STEEL. MIN COVER FOR NON-PRESTRESSED CONCRETE REINFORCING SHALL BE AS FOLLOWS, UNO ON PLANS OR DETAILS:

EXPOSURE CONDITION	COVER	TOLERANCES (+/-)
FTGS & SLABS ON GRADE	3"	3/8"
WALLS	1 1/2"	3/8"

3. LAP SPLICES OF REINFORCING STEEL IN CONCRETE BEAMS, SLABS AND FTGS SHALL BE ACCORDING TO ACI 318 CHAPTER 12 OR LAP SCHEDULE WHERE PRESENT, UNO. STAGGER SPLICES A MIN OF ONE LAP LENGTH. NO TACK WELDING OF REINFORCING BARS ALLOWED. LATEST ACI CODE AND DETAILING MANUAL APPLY. PROVIDE BENT CORNER BARS TO MATCH AND LAP W/ HORIZ BARS AT ALL CORNERS AND INTERSECTIONS PER TYP DETAILS WHERE PROVIDED. VERT WALL BARS SHALL BE SPLICED AT OR NEAR FLOOR LINES. SPLICE TOP BARS AT CENTER LINE OF SPAN AND BOTTOM BARS AT THE SUPPORT IN SPANDRILLS, BEAMS, GRADE BEAMS, ETC., UNO.

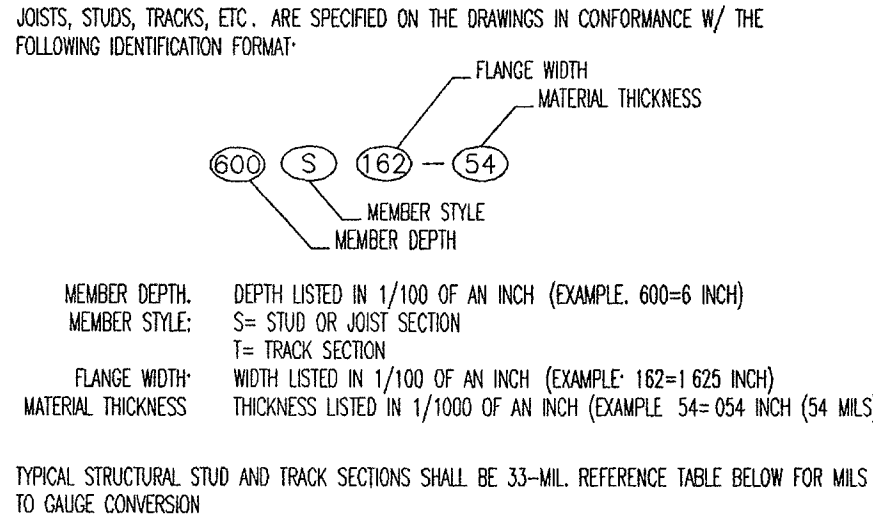
REBAR LAP SCHEDULE		
BAR	(a) LAP	(b) 17 LAP
#3	18"	31"
#4	18"	31"
#5	23"	36"
#6	28"	46"
#7	36"	62"
#8	47"	80"
#9	59"	101"
#10	75"	128"
#11	92"	157"

- (a) WHERE SPLICES ARE STAGGERED AT LEAST ONE LAP LENGTH USE THESE LAP LENGTHS.
- (b) WHERE MORE THAN 1/3 OF BARS ARE SPLICED AT ONE LOCATION USE THESE LAP LENGTHS.
4. MECHANICAL SPLICE COUPLERS SHALL HAVE CURRENT IBCO APPROVAL AND SHALL BE CAPABLE OF DEVELOPING 125% OF THE STRENGTH OF THE BAR.
5. WELDING OF REINFORCING BARS, METAL INSERTS, AND CONNECTIONS SHALL CONFORM W/ IBC STANDARD 19-2, AND SHALL BE MADE ONLY AT LOCATIONS SHOWN ON PLANS OR WHERE THE ALL REINFORCING SHALL BE BENT COLD. BARS SHALL NOT BE UN-BENT AND RE-BENT.
6. REINFORCING BAR SPACING SHOWN ON PLANS ARE MAX ON CENTERS. ALL BARS SHALL BE DETAILED AND PLACED PER DESI SPECIFICATIONS AND HANDBOOK. DOWEL ALL VERT REINFORCING TO FOUNDATION. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE.

COLD FORMED STEEL FRAMING

1. ALL COLD FORMED STEEL FRAMING SHALL BE FABRICATED AND ERRECTED IN ACCORDANCE W/ MFR'S RECOMMENDATIONS AND IN ACCORDANCE W/ THE LATEST EDITION OF THE AISI SPECIFICATIONS FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS.
2. ALL BOTTOM TRACKS SHALL BE ATTACHED TO CONCRETE W/ 0.145x1 5/8 SHOTPIPS AT 24" O.C. MIN, UNO ON SHEAR WALL SCHEDULE. SHOTPIPS SHALL BE HLTI X-BN TYPE OR EQUAL.
3. STRUCTURAL DWGS TYPICALLY SHOW ONLY THE PRIMARY STRUCTURAL FRAMING ELEMENTS OF THE SYSTEM. CONTRACTOR SHALL PROVIDE ALL ACCESSORIES INCLUDING TRACK, WEB STIFFENERS, BLOCKING, LINTELS, CLIP ANGLES, REINFORCEMENTS, FASTENING DEVICES, BRACING, AND OTHER ACCESSORIES AS RECOMMENDED BY THE MFR TO PROVIDE A COMPLETE FRAMING SYSTEM.

4. STEEL FOR 97, 68, AND 54 MIL SECTIONS SHALL HAVE A MIN WELD YIELD STRENGTH OF 50 KSI, UNO. STEEL FOR ALL STUD, JOIST, AND TRACK SECTIONS 43 MILS AND THINNER, ALL DIAGONAL TENSION STRAPS OR BRACES, AND BRIDGING SHALL HAVE A MIN YIELD STRENGTH OF 33 KSI, UNO. STEEL SHALL BE GALVANIZED OR THOROUGHLY COATED W/ MUST INHIBITIVE PAINT AT ALL LOCATIONS.
5. FASTENING OF COMPONENTS SHALL BE W/ SELF-TAPPING SCREWS OR WELDS. ALL WELDS OF GALVANIZED STEEL SHALL BE TOUCHED UP W/ ZINC-RICH PAINT. ALL WELDS OF CARBON SHEET STEEL SHALL BE TOUCHED UP W/ PAINT.
6. ALL STUDS SHALL BE SECURELY SEATED FOR FULL END BEARING ON TOP AND BOTTOM TRACK UNO PROVIDE A SINGLE STUD UNDER TRUSS OR JOIST AND PROVIDE DOUBLE STUDS AT ALL JAMBS, CORNERS, INTERSECTIONS, AND BEAM BEARING UNO. ALL STUDS SHALL BE ATTACHED AT TOP AND BOTTOM TRACK W/ (2) #10 SELF TAPPING SCREWS MIN.
7. WALL STUD BRIDGING AS RECOMMENDED BY THE STUD MFR SHALL BE INSTALLED TO PREVENT BOTH WEAK AXIS BENDING AND STUD ROTATIONS AT 4'-0" MAX INTERVALS. WALLS 8'-0" AND SHORTER SHALL HAVE A SINGLE ROW OF BRIDGERS AT MID-HEIGHT. IN ADDITION, BRIDGING SHALL BE PROVIDED AT ROOF LINES AND ELEVATIONS AS NOTED ON THE DWGS. SLOD BRIDGING SHALL BE INSTALLED IN LEU OF BRIDGING WHERE NOTED ON THE DWGS.
8. SCREWS SHALL BE SELF-TAPPING PAN HEAD, HEX HEAD, OR WAFER HEAD SHEET METAL SCREWS. SCREWS WHICH ARE REMOVED SHALL BE REPLACED BY A SCREW OF A LARGER DIAMETER. WHERE THE REPLACEMENT IS MADE INTO AN EXISTING HOLE, REPLACE ALL SCREWS WHICH STRIP OUT MATERIAL. SCREWS SHALL BE SPACED NO CLOSER THAN 5/8 INCH ON CENTER AND W/ A MIN FREE EDGE DISTANCE OF 5/8 INCH. CLIP ANGLES OR FLAT CLIPS USED FOR ATTACHMENTS SHALL BE 33-MIL MIN, UNO. SIZE CLIP ANGLES AND FLAT CLIPS TO MAINTAIN MIN STUD SPACING AND EDGE DISTANCE NOTED ABOVE. ALL SCREWS #8 AND LARGER SHALL HAVE A MIN HEAD SIZE OF 0.282 INCH. LENGTH OF SCREWS SHALL BE DETERMINED BY THE FOLLOWING PENETRATION OF SCREWS THROUGH JOINED MATERIAL. SHALL NOT BE LESS THAN 3 EXPOSED THREADS.
9. ALL WELDING SHALL BE PERFORMED BY WELDERS EXPERIENCED IN LIGHT GAGE STRUCTURAL STEEL FRAMING WORK.
10. JOISTS STUDS, TRACKS, ETC., SHALL BE IDENTIFIED ON PLAN AS SHOWN BELOW. PROPERTIES OF MEMBER SHALL CONFORM TO THE PROPERTIES AS LISTED IN THE PRODUCT TECHNICAL INFORMATION MANUAL OF THE STEEL JOIST MFR ASSOCIATION (SISMA) A630 ER-4843P.
11. JOISTS, STUDS, TRACKS, ETC., ARE SPECIFIED ON THE DRAWINGS IN CONFORMANCE W/ THE FOLLOWING IDENTIFICATION FORMAT:



12. TYPICAL STRUCTURAL STUD AND TRACK SECTIONS SHALL BE 33-MIL. REFERENCE TABLE BELOW FOR MILS TO GAUGE CONVERSION
- | GAUGE REFERENCE TABLE | |
|-----------------------|----------|
| MIN THICK (Mils) | Gauge No |
| 33 | 20 |
| 43 | 18 |
| 54 | 16 |
| 68 | 14 |
| 97 | 12 |

INSPECTIONS

1. SPECIAL INSPECTION INDEPENDENT OF THE CONTRACTOR, ARCHITECT, OR ENGINEER OF RECORD SHALL BE PROVIDED BY OWNER ACCORDING TO 2000 IBC CHAPTER 17 (TABLE 1704.3 - STEEL, TABLE 1704.4 - CONCRETE, MASONRY - TABLE 1704.5.3). THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK FOR CONFORMANCE W/ THE CONTRACT DOCUMENTS, NOT THE SHOP DWGS. THE SPECIAL INSPECTOR SHALL SEND REPORTS TO THE OWNER, THE BUILDING OFFICIAL, THE ARCHITECT, THE ENGINEER, AND CONTRACTOR. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CONFORMANCE. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING THAT THE SPECIAL INSPECTION WORK WAS, TO THE BEST OF HIS KNOWLEDGE, IN CONFORMANCE W/ THE PLANS, SPECIFICATIONS AND APPLICABLE WORKMANSHIP PROVISIONS OF THE IBC. CONT. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR THE FOLLOWING WORK:

STEEL VERIFICATION AND INSPECTION	CONT	PERIODIC
1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS, AND WASHERS.		■
2. INSPECTION OF HIGH-STRENGTH BOLTING BEARING-TYPE CONNECTIONS.		■
3. INSPECTION OF WELDING: A. STRUCTURAL STEEL. 1) COMPLETE AND PARTIAL PENETRATION GROOVE WELDS. 2) MULTI-PASS FILLET WELDS 3) SINGLE-PASS FILLET WELDS > 5/16" 4) SINGLE-PASS FILLET WELDS < 5/16" 5) FLOOR AND DECK WELDS	■	■
B. REINFORCING STEEL: 1) WELDED REBAR SHALL BE ASTM A706		■
4. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE W/ APPROVED CONSTRUCTION DOCUMENTS.		■