GENERAL

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF ALL APPLICABLE STATE AND LOCAL CODES, INCLUDING BUT NOT LIMITED TO:
   - INTERNATIONAL BUILDING CODE 2009
   - ANSI/ASCE 7-05
   - ACI 318-05 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
   - ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"
   - AISC STEEL CONSTRUCTION MANUAL, 13TH EDITION
   - SJI 40TH EDITION STEEL JOIST MANUAL
2. ANY DISCREPANCIES BETWEEN THE ABOVE LISTED CODES AND THE CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION BEFORE PROCEEDING WITH AFFECTED WORK.
3. ALL WORK SHALL BE PERFORMED BY PERSONS QUALIFIED IN THEIR TRADE AND LICENSED TO PRACTICE SUCH TRADE IN THE STATE IN WHICH THE PROJECT IS LOCATED.
4. THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH ANY ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS IN ADDITION TO SPECIFICATIONS AND ANY SHOP DRAWINGS PROVIDED BY SUBCONTRACTORS AND SUPPLIERS.
5. ALL DIMENSIONS, ELEVATIONS, AND CONDITIONS SHALL BE VERIFIED IN THE FIELD BY THE GENERAL CONTRACTOR (G.C.) AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION BEFORE PROCEEDING WITH THE AFFECTED PART OF WORK.
6. UNLESS OTHERWISE NOTED, DETAILS, SECTIONS, AND NOTES SHOWN ON THESE DRAWINGS SHALL BE CONSIDERED TYPICAL FOR ALL SIMILAR DETAILS.
7. THESE DRAWINGS DO NOT SHOW SIZE, LOCATION, OR TYPE OF OPENINGS IN THE FOUNDATION SYSTEM FOR ELECTRICAL, PLUMBING, OR MECHANICAL EQUIPMENT. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING THESE ITEMS.
8. ALL SHOP DRAWINGS PROVIDED BY OTHERS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO THE FABRICATION OF MATERIAL OR THE PURCHASE OF NON-RETURNABLE STOCK. DIMENSIONAL REVIEW IS THE CONTRACTOR'S RESPONSIBILITY.
9. REFER TO THESE DRAWINGS, CIVIL DRAWINGS AND GEOTECHNICAL REPORT FOR UNDER-DRAIN AND PERIMETER DRAIN REQUIREMENTS.
10. ANY AND ALL TEMPORARY BRACING OR SHORING WHICH IS NEEDED TO HOLD THE STRUCTURE IN A SAFE AND STABLE POSITION UNTIL IT IS COMPLETE, IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. CONSULT INDEPENDENT ENGINEER IF DESIGN ASSISTANCE OR REVIEW IS NEEDED.
11. THE BUILDING PERMIT APPLICANT (E.G. OWNER, CONTRACTOR) MUST PROVIDE SPECIAL INSPECTIONS PER THE REQUIREMENTS OF CHAPTER 17 OF THE 2009 INTERNATIONAL BUILDING CODE AND FURNISH INSPECTION REPORTS TO THE CODE OFFICIAL AND TO THE ENGINEER OF RECORD. THE TESTING/INSPECTION AGENCY(S) MUST BE APPROVED BY THE ENGINEER OF RECORD.
12. THE ENGINEER, AT HIS OPTION, MAY PROVIDE THE CONTRACTOR WITH ELECTRONIC FILES FOR HIS/HER CONVENIENCE AND USE IN THE PREPARATION OF SHOP DRAWINGS. DATA CONTAINED ON THESE ELECTRONIC FILES ARE THE ENGINEER'S INSTRUMENT OF SERVICE AND MAY NOT BE ELECTRONICALLY COPIED FOR REUSE AS SHOP DRAWINGS. FURTHERMORE, THESE ELECTRONIC FILES ARE NOT CONSTRUCTION DOCUMENTS AND THEREBY, THE CONTRACTOR IS NOT RELIEVED OF HIS/HER DUTY TO FULLY COMPLY WITH THE CONTRACT DOCUMENTS, INCLUDING, WITHOUT LIMITATION, THE NEED TO CHECK, CONFIRM AND COORDINATE ALL DIMENSIONS AND DETAILS, TAKE FIELD MEASUREMENTS, VERIFY FIELD CONDITIONS AND COORDINATE THE CONTRACTOR'S WORK WITH THAT OF OTHER CONTRACTORS FOR THE PROJECT. THE CONTRACTOR MAY NOT MANUALLY ALTER THE HARD COPIES OF THE CONSTRUCTION DOCUMENTS AND REUSE THEM AS SHOP DRAWINGS.

REFERENCE DOCUMENTS

1. GEOTECHNICAL ENGINEERING SERVICES REPORT 08-04945 DATED OCTOBER 24, 2012. PREPARED BY S.W. COLE ENGINERING

DESIGN LOADS

1. THE STRUCTURE IS DESIGNED IN ACCORDANCE WITH IBC 2009 TO CARRY ALL THE DEAD LOADS OF THE VARIOUS STRUCTURAL AND ARCHITECTURAL SYSTEMS AND THE FOLLOWING LIVE LOADS:

<u>LIVE</u>

FIRST & SECOND FLOOR RETAIL OR PUPLIC AREAS & CORRIDORS THAT SERVE THEM = 100 PSF
ALL RESIDENCAIL & HOTEL ROOMS & CORRIDORS THAT SEVE THEM = 40 PSF

<u>SNOW</u>

BASIC GROUND SNOW LOAD = 50 PSF
P_F = 38.5 PSF, C_E= 1.0, C_T = 1.1, I_S= 1.0 (50 psf USED FOR DESIGN)

<u>WIND</u>

WIND SPEED = 100 MPH
EXPOSURE "C"
I_W = 1.0

<u>SEISMIC</u>

SEISMIC USE GROUP = II
SITE "D" (PER REFERENCED GEOTECHNICAL REPORT)

I_E = 1.0
S_{DS} = 0.320
S_{D1} = 0.123
SEISMIC DESIGN CATEGORY = B
BASIC SEISMIC-FORCE-RESISTING SYSTEM = STRUCTURAL STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
R = 3 , CD = 3
ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE

SOIL BEARING

1. ALL FOOTINGS SHALL BE CARRIED DOWN TO REST ON UNDISTURBED SOIL OR SHALL BEAR ON STRUCTURAL FILL COMPACTED IN 12" LAYERS TO 95% COMPACTION OR ON RAMMED EARTH PIERS (SEE GEOPILE FOUNDATIONS). THE UNDERLYING SOILS AND THE STRUCTURAL FILL SHALL HAVE A MINIMUM SAFE LOAD BEARING CAPACITY OF 4000 PSF.
2. REMOVE ALL EXISTING TOPSOIL, PAVEMENT, ORGANIC MATERIALS, OR OTHER SOIL THAT APPEAR TO BE UNSUITABLE PRIOR TO PREPARING THE FOOTING GRADE.
3. IF ANY ADVERSE SOIL CONDITIONS ARE ENCOUNTERED WHICH EXTEND BELOW FOOTING LEVEL, SUCH AS THOSE LISTED ABOVE AND NOTED IN THE GEOTECHNICAL REPORT, THE GENERAL CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY FOR DETERMINATION OF HOW TO REMEDY THE CONDITION BEFORE CONTINUATION OF THE WORK.
4. NO FOOTINGS SHALL BE PLACED IN WATER OR ON FROZEN GROUND. ALL EXTERIOR CONSTRUCTION SHALL BE CARRIED DOWN TO A MINIMUM OF FOUR FEET AND SIX INCHES (4'-6") BELOW FINISHED, ADJACENT EXTERIOR GRADE.
5. REFER TO GEOTECHNICAL REPORT BY S.W. COLE FOR ALL INFORMATION REGARDING EXCAVATION, BACKFILL, STRUCTURAL FILL, SUBGRADE PREPARATION, ETC. IF ANY CONTRADICTING INFORMATION IS FOUND BETWEEN GEOTECHNICAL REPORT AND STRUCTURAL DRAWINGS, GEOTECHNICAL REPORT SHALL GOVERN.

REINFORCING STEEL

SHEETS ONLY.

CORNERS AND LAP SPLICED AS NECESSARY. LAP SPLICES MUST BE STAGGERED. BARS MUST BE HOOKED AT DISCONTINUOUS ENDS. LAP LENGTHS SHALL BE AS SHOWN OR NOTED ON THE DRAWINGS. IF LAP/SPLICE LENGTHS ARE NOT INDICATED, FOLLOW ACI STANDARDS.

CAST-IN-PLACE-CONCRETE

1. ALL WORK SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318-05) AND "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301)
2. INTERIOR SLABS ON GRADE TO BE OF THICKNESS SHOWN ON DRAWINGS WITH REINFORCING AS INDICATED. CONTROL JOINTS SHALL BE SOFT CUT IMMEDIATELY AFTER FINISHING IN THE PATTERN INDICATED.
3. PROVIDE 15-MIL POLYETHYLENE MOISTURE VAPOR RETARDER DIRECTLY BELOW ALL INTERIOR SLABS-ON-GRADE, OVER 10" BASE OF COMPACTED CRUSHED STONE. OVERLAP SEAMS 6" AND TAPE AS REQUIRED TO MAINTAIN POSITION.
4. SEE THE REFERENCED GEOTECHNICAL MEMORANDUM AND THE RECOMMENDATIONS OF A COMPETENT GEOTECHNICAL ENGINEER FOR SUBGRADE PREPARATION, BACKFILL MATERIAL AND COMPACTION REQUIREMENTS.
5. MINIMUM CONCRETE PROTECTION FOR REINFORCING STEEL SHALL BE AS FOLLOWS:
   CONCRETE CAST AGAINST EARTH: 3 INCHES
   FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
   a. 1-1/2 INCHES FOR #5 BARS AND SMALLER
   b. 2 INCHES FOR #6 BARS AND GREATER
6. USE OF CALCIUM CHLORIDE IS PROHIBITED IN ANY CONCRETE MIX.
7. CONCRETE SHALL BE ADEQUATELY PROTECTED FROM HOT OR COLD WEATHER AS REQUIRED BY ACI PUBLICATIONS 305 AND 306, RESPECTIVELY.
8. ALL CONCRETE FOR WALLS, FOOTINGS, AND INTERIOR SLABS-ON-GRADE SHALL BE 3/4" AGGREGATE, OF NORMAL WEIGHT AND ATTAIN A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS (U.N.O.). CONCRETE FOR INTERIOR ROUND COLUMNS SHALL BE OF NORMAL WEIGHT AND ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS. CONCRETE FOR EXTERIOR SLABS-ON-GRADE SHALL BE OF NORMAL WEIGHT AND ATTAIN A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
9. SLAB CONTROL JOINTS, SHALL BE SAW CUT AND SHALL BE CUT IMMEDIATELY AFTER FINISHING. JOINTS SHALL BE AT MINIMUM 1/4 OF THE THICKNESS OF THE SLAB.
10. BACKFILL BOTH SIDES OF FOUNDATION WALLS SIMULTANEOUSLY TO THE MAXIMUM HEIGHT POSSIBLE. DO NOT FURTHER BACKFILL THE HIGH SIDE UNTIL THE FLOOR/ROOF FRAMING AND THE DECK ON THE LOW SIDE ARE INSTALLED AND IF A CONCRETE DECK, IT HAS REACHED ITS MINIMUM DESIGN COMPRESSIVE STRENGTH. FOUNDATION WALLS SUBJECT TO UNBALANCED FILL HEIGHTS MAY NOT BE FULLY BACKFILLED UNTIL CONCRETE HAS REACHED ITS MINIMUM COMPRESSIVE STRENGTH OR APPROVED BY THE STRUCTURAL ENGINEER-OF-RECORD (EOR).
11. ALL CONCRETE SHALL BE CURED BY AN APPROVED METHOD AS PRESCRIBED BY ACI.
12. MAXIMUM WATER TO CEMENT RATIO (W/C) SHALL BE 0.5 FOR 3000 PSI CONCRETE AND 0.45 FOR 4000 PSI CONCRETE WITH MID-RANGE WATER REDUCERS (MRWR). FOR THE 5000 PSI CONCRETE MIX, WATER TO CEMENT RATIO MUST BE THE LOWEST VALUE REQUIRED TO MEET THE DESIGN EXPOSURE CONSIDERATIONS. W/C RATIO FOR 3000 PSI CONCRETE IN FOOTINGS MAY BE 0.53 WITHOUT THE USE OF MID-RANGE WATER REDUCERS. MINIMUM CEMENTITIOUS QUANTITIES FOR NORMAL WEIGHT CONCRETE SHALL BE 517 LBS./CU. YD. FOR 3000 PSI CONCRETE AND 611 LBS./CU. YD. FOR 4000 PSI CONCRETE. MINIMUM CEMENT CONTENT FOR 5000 PSI CONCRETE SHALL BE BASED ON W/C RATIO AND THE REQUIRED DESIGN STRENGTH.
13. FOR NORMAL WEIGHT CONCRETE, MAXIMUM CONCRETE SLUMP SHALL BE FOUR (4) INCHES WITHOUT MRWR AND SIX (6) INCHES WITH MRWR. MRWR MUST BE USED IN ALL NORMAL WEIGHT CONCRETE EXCEPT FOOTINGS. USE OF MRWR IN FOOTINGS IS AT CONTRACTOR'S OPTION.
14. USE AIR-ENTRAINING ADMIXTURES IN CONCRETE SUBJECT TO FREEZING AND THAWING; THIS INCLUDES EXTERIOR FOUNDATION WALLS, EXTERIOR SLABS AND ROUND (5000 PSI) INTERIOR COLUMNS. MAXIMUM AIR CONTENT AT POINT OF DELIVERY TO BE 6 PERCENT PLUS OR MINUS 1.5 PERCENT.
15. DO NOT USE AIR-ENTRAINING ADMIXTURES IN CONCRETE FOR USE IN INTERIOR SLABS. AIR CONTENT OF TROWELED FINISH FLOORS MUST NOT EXCEED 3 PERCENT.

REINFORCING STEEL

1. ALL REINFORCING SHALL BE DEFORMED BARS CONFORMING TO ASTM A615 GRADE 60.

2. WELDED WIRE FABRIC REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A185. USE FLAT SHEETS ONLY.

3. ALL REINFORCING SHALL BE DETAILED IN ACCORDANCE WITH THE LATEST ACI DETAILING MANUAL.

4. WHERE CONTINUOUS BARS ARE CALLED FOR, INDICATED, REQUIRED, THEY SHALL RUN CONTINUOUSLY AROUND CORNERS, LAPPED AT NECESSARY SPLICES, SPLICES STAGGERED AND HOOKED AT DISCONTINUOUS ENDS. LAP LENGTHS SHALL BE AS SHOWN OR NOTED ON THE DRAWINGS. IF LAP/SPLICE LENGTHS ARE NOT INDICATED FOLLOW ACI STANDARDS.

SLAB-ON-GRADE CONTROL JOINTS

1. CONTROL JOINTS IN CONCRETE SLABS ARE GENERALLY SPACED IN A MANNER TO CONTROL CRACK LOCATIONS OCCURRING DUE TO CURING SHRINKAGE AND THERMAL MOVEMENT OF CONCRETE. WELDED WIRE FABRIC DOES NOT INHIBIT CRACKING, BUT HOLDS CONCRETE TIGHTLY TOGETHER AFTER CRACKING HAS OCCURRED. IN ORDER TO BETTER CONTROL RANDOM CRACKING OF CONCRETE THE FOLLOWING MEASURES ARE RECOMMENDED:
   A) SUPPLY A WELL COMPACTED AND CONSISTENT SUBGRADE.
   B) LIMIT WATER VOLUME IN CONCRETE USING A STIFFER MIX.
   C) SUPPLY ADEQUATE CURING MEASURES. WET CURE OR USE CURING SEALERS.
   D) LIMIT JOINT SPACING TO 2 TIMES SLAB THICKNESS IN FEET.

2. SLAB CURLING IS ALSO A PROBLEM WHICH HAS BECOME MORE PREVALENT WITH MODERN CONCRETE MIXES WHICH HAVE HIGHER STRENGTHS. THE FOLLOWING MEASURES IN ADDITION TO THOSE STATED ABOVE ARE RECOMMENDED TO LIMIT CURLING OF CONCRETE SLABS-ON-GRADE:
   A) CURE THE SLAB PROPERLY.
   B) USE HIGHER QUANTITY OF COARSE AGGREGATES IN THE MIX.
   C) USE A LOWER AMOUNT OF CEMENT.

RAMMED AGGREGATE PIERS

1. RAMMED AGGREGATE PIERS AND GROUTED RAMMED AGGREGATE PIERS SHALL BE PROVIDED BENEATH COLUMN FOOTINGS AND WALL FOOTINGS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE STRUCTURAL ENGINEER.
2. THE AGGREGATE PIER INSTALLER SHALL RETAIN A PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF MAINE, TO PROVIDE STAMPED SHOP DRAWINGS FOR THE STRUCTURAL ENGINEER'S REVIEW.
3. THE SHOP DRAWINGS SHALL INDICATE FOOTING LOCATIONS WHERE THE FOOTING DESIGNED FOR SPREAD-FOOTING BEARING CONDITIONS IS REQUIRED TO BE INCREASED OR RECONFIGURED TO ACCOMMODATE THE AGGREGATE PIER LAYOUT AND GEOMETRY. G.C. NOTE THAT SOME FOOTINGS MAY INCREASE IN SIZE TO ACCOMMODATE PIER LAYOUT.

STEEL STAIRS

1. STEEL STAIRS TO BE DESIGNED BY STEEL STAIR FABRICATOR TO CONFORM TO STRUCTURAL AND DIMENSIONAL REQUIREMENTS OF CONTRACT DRAWINGS AND ALL APPLICABLE CODE REQUIREMENTS.
2. STEEL STAIR FABRICATOR SHALL PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO START OF FABRICATION.

STRUCTURAL STEEL

1. STRUCTURAL STEEL WORK SHALL CONFORM TO ALL REQUIREMENTS OF THE 2009 INTERNATIONAL BUILDING CODE.
2. STRUCTURAL STEEL WORK SHALL CONFORM TO "SPECIFICATIONS FOR DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS (AISC CURRENT EDITION)", "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS (AISC CURRENT EDITION)", AND "STRUCTURAL WELDING CODE (AWS D1.1-04)".
3. STRUCTURAL STEEL SHALL BE NEW STEEL CONFORMING TO THE FOLLOWING:
   a) ROLLED SHAPES AND PLATES - ASTM A36 (EXCEPT AS NOTED BELOW)
   b) WIDE FLANGE SHAPES - ASTM A992
   c) STRUCTURAL TUBES - ASTM A500, GRADE B
   d) ANCHOR RODS - HEADED RODS CONFORMING TO ASTM F1554, GRADE 36
4. ALL BOLTED CONNECTIONS SHALL USE NEW BOLTS. ALL BOLTS SHALL BE INSTALLED AS BEARING TO A 'SNUG-TIGHTENED' CONDITION, UNLESS NOTED OTHERWISE ON THE DRAWINGS. ALL BOLTED CONNECTIONS SHALL BE DESIGNED, FABRICATED, AND INSTALLED IN COMPLIANCE WITH RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", DATED JUNE 23, 2000.
5. VOIDS BENEATH COLUMN BASE PLATES SHALL BE DRY PACKED WITH NON-SHRINK CONSTRUCTION GROUT BEFORE APPLICATION OF LOADS.
6. WELDED CONNECTIONS SHALL BE MADE BY AWS QUALIFIED WELDERS USING FILLER MATERIAL CONFORMING TO E70XX, LOW HYDROGEN.
7. PROVIDE TEMPORARY ERECTION BRACING TO HOLD STRUCTURAL STEEL FRAMING SECURELY IN PLACE. MAINTAIN BRACING UNTIL FLOOR AND ROOF DECKS AND PERMANENT LATERAL BRACING ARE FULLY INSTALLED. TEMPORARY BRACING REQUIREMENTS ARE NOT PROVIDED BY THE E.O.R.
8. STRUCTURAL STEEL SHALL BE TRUE AND PLUMB BEFORE CONNECTIONS ARE FINALLY BOLTED OR WELDED.
9. ALL BOLTS AND FIELD WELDING MUST BE COMPLETED PRIOR TO RELEASING HOISTING CABLES.
10. FIELD CUTTING OF STRUCTURAL STEEL OR ANY MODIFICATIONS SHALL NOT BE MADE WITHOUT APPROVAL BY ENGINEER.
11. ALL CONNECTIONS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER RETAINED BY THE FABRICATOR. SHOP DRAWINGS AND STAMPED CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. FABRICATOR'S ENGINEER SHALL BE LICENSED IN NH AND CARRY PROFESSIONAL LIABILITY INSURANCE WITH A MINIMUM PER INCIDENT AND ANNUAL COVERAGE OF $500,000.
12. THE STEEL FABRICATOR SHALL BE AISC CERTIFIED, OR BE ABLE TO DEMONSTRATE TO THE ENGINEER'S SATISFACTION THAT ALL AISC PROCEDURES FOR FABRICATION, QUALITY CONTROL, AND RECORD KEEPING ARE STRICTLY ADHERED TO. THE ENGINEER SHALL DETERMINE IF FABRICATOR QUALIFICATIONS ARE ACCEPTABLE.
13. SHOP DRAWINGS SHALL BE PREPARED BY FABRICATOR. PHOTO COPIES OF STRUCTURAL DRAWINGS ARE NOT ACCEPTABLE.
14. ALL STEEL TO BE SHOP PRIMED GREY.

STEEL JOISTS

1. ALL STEEL JOISTS SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST SJI AND AISC SPECIFICATIONS FOR THE SPAN, SIZE, LOADS, AND SERIES INDICATED ON THE DRAWINGS.
2. ALL JOIST BRIDGING SHALL BE SIZED AND LOCATED IN ACCORDANCE WITH THE LATEST SJI SPECIFICATIONS.
3. ALL LOADS FROM HANGING MECHANICAL, PLUMBING, AND ELECTRICAL EQUIPMENT SHALL BE SUPPORTED AT PANEL POINTS ONLY.
4. SHOP DRAWINGS SHALL BE PROVIDED BY JOIST MANUFACTURER AND APPROVED BY THE ENGINEER PRIOR TO PRODUCTION.
5. STEEL JOISTS SHALL BE MANUFACTURED BY AN APPROVED SJI MEMBER.
6. ENDS OF K-SERIES AND KCS-SERIES JOISTS SHALL BE FASTENED TO STEEL SUPPORTS WITH A MINIMUM OF TWO (2)- 1/8" FILLET WELDS, 2" LONG, OR WITH TWO (2)- 1/2" DIAMETER BOLTS OR THE EQUIVALENT. ENDS OF JOIST GIRDERS OR LH-SERIES JOISTS SHALL BE FASTENED TO STEEL SUPPORTS WITH A MINIMUM OF (2)- 1/4" FILLET WELDS, 2" LONG, OR WITH TWO (2)- 3/4" DIAMETER BOLTS OR THE EQUIVALENT.
7. ALL JOISTS SHALL BE ADEQUATELY BRACED BEFORE LOADS ARE APPLIED.
8. BRIDGING SHALL BE INSTALLED PER SJI SPECIFICATIONS/RECOMMENDATIONS AND SHALL BE ANCHORED TO WALLS OR OTHER APPROVED ELEMENTS AT ENDS.
9. USE 10 PSF FOR NET DESIGN UPLIFT REQUIREMENTS FOR ROOF JOISTS.
10. ALL JOISTS AND JOIST GIRDERS TO BE SHOP PRIMED GREY.

STEEL GALVANIZED DECKS

1. UNLESS OTHERWISE NOTED ON THE DRAWINGS, STEEL NON-COMPOSITEE FLOOR FORM DECK AS MANUFACTURED BY VULCRAFT OR APPROVED EQUAL. AND SHALL BE PRIMED GRAY. UNLESS OTHERWISE NOTED, FASTEN FORM DECK TO EACH SUPPORT USING 5/8" PUDDLE WELDS IN A 33/4 PATTERN (FOR 33" COVERAGE). NO SIDELAP FASTENERS REQUIRED. FASTEN PERIMETER EDGES TO SUPPORTING STEEL USING 5/8" PUDDLE WELDS @ 12" O/C.
2. UNLESS OTHERWISE NOTED ON THE DRAWINGS, STEEL ROOF DECK SHALL BE 1.5B22 AS MANUFACTURED BY VULCRAFT OR APPROVED EQUAL. UNLESS OTHERWISE NOTED, FASTEN ROOF DECK TO EACH SUPPORT USING 5/8" PUDDLE WELDS IN A 36/4 PATTERN. USE ONE (1)- #10 TEK SCREW PER SPAN FOR SIDELAP FASTENING. FASTEN PERIMETER EDGES TO SUPPORTING STEEL USING 5/8" PUDDLE WELDS @ 12" O/C.
3. ROOF & FLOOR DECKS MUST SPAN OVER FOUR (4) OR MORE SUPPORTS (I.e. 3-SPAN CONDITION-U.N.O.).

GALVANIZING

1. ITEMS EXPOSED TO THE EXTERIOR AND INDICATED ON THE DRAWINGS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION. DURAGALV BY DUNCAN GALVANIZING OF EVERETT, MA IS SPECIFIED AS A REFERENCE STANDARD OF QUALITY.
2. PRIOR TO GALVANIZING, THE STEEL SHALL BE IMMERSED IN A PRE FLUX SOLUTION OF ZINC AMMONIUM CHLORIDE. THE USE OF WET KETTLE PROCESS IS PROHIBITED. GALVANIZE ALL FERROUS FASTENERS, CLIPS, SLEEVES, ANCHORS AND ACCESSORIES IN CONTACT WITH GALVANIZED ITEMS.
3. GALVANIZING MUST COMPLY WITH ASTM A123 OR A153 AS APPLICABLE FOR FABRICATION AND DESIGN REQUIREMENTS.
4. ALL GALVANIZED MATERIALS MUST BE INSPECTED FOR COMPLIANCE WITH THE ABOVE SPECIFICATIONS AND MARKED WITH A STAMP, INDICATING THE NAME OF GALVANIZER, THE ASTM SPECIFICATION AND THE WEIGHT OF THE ZINC COATING IN OUNCES PER SQUARE FOOT.
5. A NOTARIZED STATEMENT OF COMPLIANCE WITH SPECIFICATIONS MUST BE SUBMITTED TO THE ENGINEER OF RECORD BY THE GALVANIZER WITH THE INITIAL SHIPMENT.
6. GALVANIZER MUST FURNISH CERTIFICATION THAT SAMPLES REPRESENTING EACH LOT HAVE BEEN EITHER TESTED OR INSPECTED AS DIRECTED BY THE APPLICABLE ASTM SPECIFICATION (A123 OR A153) AND THE REQUIREMENTS HAVE BEEN MET. A REPORT OF THE TEST RESULTS MUST BE FURNISHED TO THE OWNER IF REQUESTED.
7. FIELD WELDED JOINTS MUST BE GROUND SMOOTH AND FINISHED WITH FOUR (4) FULL COATS OF CALIFORNIA PRODUCTS CORPORATION WW TOTRUST, SEALUBE ZRC, ZIRP BY DUNCAN OR APPROVED EQUAL.

COLD-FORMED (LIGHT GAGE) EXTERIOR STEEL FRAMING

1. DESIGN AND INSTALLATION OF THE LIGHT GAGE STEEL FRAMING IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR/LIGHT GAGE SUBCONTRACTOR. REFER TO CONTRACT DOCUMENTS FOR INFORMATION AND SUBMITTAL REQUIREMENTS.
2. ALL STEEL STUDS, JOISTS, AND ACCESSORIES SHALL BE MADE OF THE TYPE, SIZE, GAGE, AND SPACING SHOWN ON THE DRAWINGS. ALL LIGHT GAGE STEEL FRAMING SHALL BE MANUFACTURED BY MARINOWARE OR APPROVED EQUAL.
3. ALL STRUCTURAL MEMBERS SHALL BE DESIGNED IN ACCORDANCE WITH AMERICAN IRON AND STEEL INSTITUTE (AISI) "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", NAS-01 INCLUDING 2004 SUPPLEMENT.
4. ALL STUDS, JOISTS AND ACCESSORIES SHALL BE MANUFACTURED PER ASTM C955. ALL STUDS, JOISTS AND ACCESSORIES SHALL BE GALVANIZED TO HAVE A MINIMUM G-60 COATING IN CONFORMANCE WITH ASTM C955. STUDS, JOISTS AND ACCESSORIES, 16 GAGE OR HEAVIER SHALL BE FORMED FROM SHEET STEEL CONFORMING TO ASTM A653, FY=50 KSI. THOSE 18 GAGE OR LIGHTER SHALL BE FORMED OF SHEET STEEL CONFORMING TO ASTM A653, FY=33 KSI.
5. REFER TO MARINOWARE TECHNICAL PUBLICATION "STUD-RITE LIGHTWEIGHT STEEL FRAMING SYSTEM" FOR TECHNICAL INFORMATION, RECOMMENDATIONS, DETAILS, SUGGESTED SPECIFICATIONS, ERECTION AND BRACING.
6. ALL LIGHT GAGE STUD AND TRACK COMPONENTS SHALL BE CLEARLY IDENTIFIED WITH STANDARD INDUSTRY MARKINGS OR COLOR CODING.
7. ALL CURTAIN WALL STUDS SHALL BE FASTENED TO THE BOTTOM TRACK WITH A MINIMUM NO. 8 SCREW TO EACH FLANGE. AT TOP, USE 2 INCH DEFLECTION TRACK WITH A 1" GAP BETWEEN TRACK AND TOP OF STUD. FASTEN STUD TO TOP TRACK WITH A NO. 6 SCREW ON ONE SIDE ONLY FOR ERECTION PURPOSES, REMOVE SCREWS ONCE THE WALL IS STABILIZED BY BRIDGING AND/OR SHEATHING. INSTALL ONE ROW OF HORIZONTAL BRIDGING WITHIN ONE (1) FOOT OF THE TOP OF THE WALL.
8. CURTAIN WALL STUDS SHALL BE OF THE WIDTHS INDICATED. CURTAIN WALL STUDS SHALL BE MIN. 18 GAGE AND SPACED TO A MAXIMUM OF 24 INCHES ON CENTER. BOTTOM TRACK SHALL BE MINIMUM 18 GAGE AND DEFLECTION TRACK SHALL BE MINIMUM 16 GAGE.
9. FIELD CUTTING OF STUDS MUST BE ACCOMPLISHED BY SAWING OR SHEARING. TORCH CUTTING OF COLD-FORMED MEMBERS IS NOT ACCEPTABLE.
10. NOTCHING OR COPING OF STUDS IS NOT PERMITTED UNLESS SPECIFICALLY PERMITTED PER THE LIGHT GAGE SHOP DRAWINGS.
11. STUDS MAY NOT BE SPLICED UNLESS SPECIFICALLY PERMITTED PER THE SHOP DRAWINGS.
12. USE A MINIMUM OF THREE (3) STUDS AT ALL EXTERIOR WALL CORNERS.
13. JOIST OR ROOF MEMBERS MUST BE INSTALLED DIRECTLY OVER STUDS BELOW.
14. STUDS FROM FLOOR ABOVE MUST BE LOCATED DIRECTLY OVER JOISTS BELOW.
15. FOR SCREWS, MAINTAIN A MINIMUM 3/4" CLEARANCE FROM ALL EDGES OF STEEL MEMBERS. MAINTAIN A MINIMUM 3/4" ON CENTER SPACING BETWEEN ADJACENT SCREWS.
16. IF REQUIRED, ALL WELDED CONNECTIONS MUST CONFORM TO THE REQUIREMENTS OF AWS D1.3 "SPECIFICATIONS FOR WELDING SHEET STEEL IN STRUCTURES", (PER EDITION REFERENCED IN THE APPLICABLE BUILDING CODE). REFER TO AWS D19.0 "WELDING ZINC COATED STEEL" AND ANSI Z49.1 FOR INFORMATION REGARDING SAFE WELDING PROCEDURES.
17. MINIMUM WELD THROAT THICKNESS MUST MATCH OR EXCEED THE BASE METAL THICKNESS OF THE THINNEST CONNECTED PART UNLESS NOTED OTHERWISE.
18. ALL HEADERS AND/OR BUILT-UP BEAMS <u>MUST BE</u> CONSTRUCTED WITH <u>UNPUNCHED</u> MEMBERS ONLY.
19. SPLICING OF HEADERS IS NOT PERMITTED, UNLESS APPROVED BY THE DESIGN ENGINEER.
20. STAMPED LIGHT GAGE SHOP DRAWINGS AND CALCULATIONS SHALL BE PROVIDED BY LIGHT GAGE CONTRACTOR. CONTRACTOR'S ENGINEER SHALL BE LICENSED IN THE STATE OF ME AND CARRY PROFESSIONAL LIABILITY INSURANCE WITH A MINIMUM PER INCIDENT AND ANNUAL COVERAGE OF $1,000,000.
21. SHOP DRAWINGS SHALL DETAIL WINDOW AND DOOR HEADERS, SILLS AND POSTS, AND CONNECTIONS. FOR LIGHT GAGE STUDS BACKING MASONRY VENEER, USE A DEFLECTION CRITERIA OF L/600. FOR LIGHT GAGE STUDS BACKING AN EIFS SYSTEM, FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR MAXIMUM DEFLECTION BUT IT SHALL NOT BE MORE THAN L/240.
22. ALL STUD WALLS SHALL HAVE HORIZONTAL BRIDGING AND CROSS BRACING INSTALLED AS RECOMMENDED BY THE MANUFACTURER. ALL BRACING SHALL BE INSTALLED BEFORE APPLICATION OF LOADS.
23. <u>CONTRACTOR'S LIGHT GAGE ENGINEER IS REQUIRED TO PERFORM SITE VISITS AS NECESSARY TO ENSURE THAT LIGHT GAGE WORK CONFORMS WITH THEIR DESIGN.</u>

BRICK VENEER LOOSE LINTEL SCHEDULE

1. UNLESS OTHERWISE INDICATED ON THE DRAWINGS PROVIDE AN ANGLE, PLACED WITH LONG LEG VERTICAL, FOR EACH 4" OF MASONRY THICKNESS FOR ALL MASONRY OPENINGS IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

ROUGH OPENING	LINTEL
UP TO 3'	L3-1/2 x 3-1/2 x 3/8
3' 1" TO 4' 6"	L4 X 3-1/2 X 3/8
4' 6" TO 6' 0"	L5 X 3 1/2" X 3/8"
6' 1" TO 11' 0"	L7 X 4 X 3/8"

2. ALL LINTELS SHALL BE HOT DIP GALVANIZED.
3. LINTELS SHALL BE 12" LONGER THAN MASONRY OPENING AND SHALL HAVE A MINIMUM OF 6" BEARING ON MASONRY AT EACH END. WHERE LINTEL ABUTS A COLUMN PROVIDE A STRUCTURAL CLIP ANGLE CONNECTION.

LEGEND

TOF	TOP OF FOOTING ELEVATION "_"
TOSH	TOP OF BRICK SHELF ELEVATION "_"
TOW	TOP OF WALL TO ELEVATION "_"
JB	JOIST BEARING ELEVATION
JH	JOIST HEADER
TOC	TOP OF CONCRETE ELEVATION
TOF	TOP OF FOOTING ELEVATION
TOJ	TOP OF JOIST ELEVATION
TOPR	TOP OF CONCRETE PIER ELEVATION
TOS	TOP OF STRUCTURAL STEEL ELEVATION
TOSH	TOP OF BRICK/VENEER SHELF ELEVATION
TOW	TOP OF WALL ELEVATION
UNO	UNLESS NOTED OTHERWISE
TYP	TYPICAL
BOT	BOTTOM
99' 8"	APPROXIMATE EXTERIOR FINISH GRADE

FOOTING TYPE — F2, P-2 — COLUMN PIER TYPE
BASE PLATE TYPE — BP-2
TOPR 99'-0" — TOP OF PIER ELEVATION
TOF 96'-8" — TOP OF FOOTING ELEVATION

REVISION SCHEDULE

DATE	REVISION DESCRIPTION	BY
01-30-13	UPDATE INFORMATION AND REVISE TITLE BLOCK	EJL
02-13-13	UPDATE INFORMATION	EJL

OPECHEE CONSTRUCTION CORPORATION
11 CORPORATE DRIVE, BELMONT NH 03220
PHONE (603) 527-9090 FAX (603) 527-9191

STRUCTURAL NOTES

PROJECT: COMMERCIAL & MAPLE STREET MIXED USE DEVELOPMENT
PORTLAND ME.

STATE OF MAINE
JEFFREY S. NAWROCKI
No. 6044
LICENSED
PROFESSIONAL ENGINEER
2/13/13

DATE: 02-13-13
SCALE: NTS
DRAWN BY: EJL
SHEET: SN.1