GENERAL NOTES SPECIFICATIONS Refer to project specifications for detailed requirements for material and workman-ELEVATIONS & All elevations and dimensions shown for new construction are based on the design drawings for the existing buildings. Field verify all DIMENSIONS elevations and dimensions before proceeding with construction. BUILDING CODE BOCA -1999 A - DESIGN LOADS Typical Floors (2, 3, and 4) A1) Live Corridors (at or below Ground Floor) 100 psf Corridors (above Ground Floor) 100 psf Public areas (lobbys, atriums, etc.) Stairways (egress) 100 psf Fifth Floor (mechanical) Minimum roof live load (snow governs) All permanent stationary construction. See Table 1, this sheet. A3| Seismic Use Group I-2 with emergency treatment facilities Seismic Hazard Exposure Group III Seismic Performance Category C $A_{V} = A_{\alpha} = 0.11$ Site Coefficient, S = 1.2 Structural System - Ordinary moment frame of steel Analysis Procedure - Equivalent Lateral Force (per Code) Reference wind pressure = 20.7 psf A4) Wind Basic Wind Velocity = 90 mph Exposure C I = 1.23 Ground Snow = 60 psf Flat Roof Snow = 51 psf Drift Loading = (per ASCE 7-95) B - FOUNDATIONS B1) Soil Bearing Bear all footings on undisturbed soil, U.O.N. Spread and strip footings have been designed for a maximum allowable bearing pressure of 5 KSF. B2) Excavation All foundation excavation to be inspected by the Geotechnical Engineer. Excavate to lines and grades to properly install foundations on undisturbed soil approved by the Geotechnical Engineer for the required bearing capacity. The elevations shown on the drawings are anticipated and actual elevations are to be established in the field by the Geotechnical Engineer. The difference in elevation between the bottoms of adjacent footings shall be equal to or less than the horizontal distance between them. Any adjustment of footing elevations due to field conditions must have the prior approval of the Engineer. B3) Footing Subgrade Follow recommendations of geotechnical report included in project manual. Place all spread and Preparation and Fill strip footings on 2" lean concrete (2,00psi) "mud" mat. B4) Slab Subgrade Follow recommendations of geotechnical report included in project manual. Place slab on grade Preparation and Fill on a 7" bed of granular fill with continuous vapor barrier (Lap 8" and tape all joints) between the slab and granular fill. (U.O.N.) B5) Backfill Against Do not backfill against foundation walls until wall concrete is at full design strength and until slabs at base and top of wall are in place, and have reached their design strength. U.O.N. in geotechnical report, backfill with approved material placed in 6 in. layers and compacted to 95% density at optimum moisture content as defined by ASTM D-1557, Method D. B6) Foundation Placement Protect all soil bearing surfaces from freezing before and after foundation construction. If construction is performed during freezing weather, backfill footings to a sufficient depth (up to four feet) as soon as possible after construction. Alternatively, use approved insulating blankets or other approved means for protection against freezing. Do not place foundation concrete in water or on frozen ground. Protect in-place foundations and slabs from frost penetration until the project is complete. B7) Utilities and other Footings to bear below an imaginary reference line drawn Underground Struct. upward and outward on a 1V:1H slope from the bottom of any adjacent utilities or other underground structures. Provide temporary bracing for retaining walls during backfilling Retaining Walls prior to pouring slab on grade. B9) De-Icing Do not use salt or chloride-compounds to de-ice site. All footings shall extend at least 41-611 below grade for frost protection. B10| Frost Protection See Specifications for design and installation of mini-pile foundations. B11) Mini-Piles C - CONCRETE WORK C1) Concrete Strength Provide the following 28 day compressive strength for field concrete: 4,000 psi normal weight for all cast-in-place concrete foundations, columns, and column encasement; 4000 psi lightweight for slabs on metal deck. C2) Portland Cement ASTM C150, Type II. Water cement ratio as required for design strength. Normal weight: ASTM C33, with maximum size of 3/4 in. C3) Aggregate C4) Water C5) Slump 4" max. unless chemical admixtures are used C6) Admixtures ASTM C260 air-entraining agent as required for a total entrained air content of 6% (±1%) for all concrete exposed to freezing. ASTM C494 water reducing agent in all concrete. Do not use calcium chloride. C7| Steel Reinforcement ASTM A615 Grade 60. ASTM A497 for wire fabric. Use finger jointed flat sheets Provide #6 chair bars, high chairs, ties, clips, slab bolsters and other accessories where not specified on the drawings in accordance with Manual of Standard practice or Detailing Reinforcing Concrete Structures ACI 315 or CRS1-WRS1 Manual of Standard Practice. Use plastic tips on all chairs placed on the sides of concrete formwork. Field welding of crossing bars ("tack" or "spot" welding) is not permitted. U.O.N.-provide 2 - #6 at each side of all openings in walls and slabs and extend 2 ft-6 in. beyond the opening or as detailed, except vertical bars at sides of openings in walls are to extend from floor to floor. Bars may be moved aside at openings or sleeves, but do not cut or omit. C9) Minimum Concrete Concrete placed against earth: 1-1/2 in. Slabs-on-grade bottom: Slabs-on-grade top: Formed concrete exposed to earth, water or weather: Formed slabs, top and bottom: Interior faces of walls: Columns or piers (main reinforcement): C10) Walls and Grade Place walls and grade beams in level, full height lifts with construction and control joints where indicated on structural drawings. Provide openings for water, electrical, and other services as required. Provide keys and dowels at all construction ioints. As shown on drawings but not less than 40 bar diameters for slabs and beam bottom bars, and C11) Splicing of Reinforcement not less than 48 bar diameters for walls and beam top steel. Provide a lap of 8 in or 1-1/2 spaces, whichever is larger, for WWF. Tie wires together at lap. Reinforce all walls with at least #4 @ 12 in. each way each face and 2 - #6 each C12) Minimum Reinforcement edge. In slabs, provide at least 0.0018 times the area of concrete in each direction. Submit for Designer's approval complete bending and placing details of all C13) Shop Drawings reinforcing steel including welded wire fabric, indicating position of splices. Include C14) Standard Be familiar with the latest recommendations and specifications of the American Specifications Concrete Institute. ACI 301 Structural Concrete for Buildings ACI 302 Concrete Floor and Slab Construction ACI 304 Measuring, Mixing, Transporting and Placing Concrete ACI 305 Hot Weather Concreting ACI 306 Cold Weather Concreting ACI 315 Detailing Reinforcing Steel ACI 318 General Design of Items Not Otherwise Specified ACI 347 Formwork CRSI Manual of Standard Practice C15) Construction Provide keys and dowels at all construction joints, Provide dowels with an area equal to 0.003 times the concrete cross sectional area at construction joint. Submit the proposed location of construction joints to the Designer for approval, Maximum spacing of construction joints to be 60 ft for walls and structural floors and 80 ft for slabs on grade. No concrete footing shall be poured until subgrade for same has been approved by a licensed professional engineer. C17) Base Plate Grouting 8000 psi 28-day compressive strength. C18) Curing Compounds Do not use curing compounds without written approval from the Engineer. Unless otherwise noted on the drawings, shear keys below wall bottoms shall be 4" wide by 3" deep. Shear keys at wall tops shall be $3^{\prime\prime}$ wide by $2^{\prime\prime}$ deep. Do not use EPS material for forming keys unless it is firmly attached to rigid backup materials. C20| Surface Treatment Roughen all existing concrete surfaces common with new concrete to an amplitude of 1/4". C21) Housekeeping pads Pads and curbs may be shown on plan in certain instances for reference only. See Architectural and Mechanical Drawings and Specifications and coordinate with equipment manufacturer's requirements and location. Use same concrete as base slab U.O.N. Maximum pad thickness is 6 inches. D - STRUCTURAL STEEL UON, rolled shapes and plates; ASTM A992 or ASTM A572 Grade 50 (Fy = 50,000 psi) D1) Structural Shapes See project specifications. ASTM A500 - Grade B |Fy = 46,000 psi|. D2) Hollow Structural Section (HSS) ASTM A53 Type E Grade B or ASTM A501. D3| Round HSS D4) Bolted Connections ASTM A325 and A490. See typical steel details. Tension control bolts acceptable, ASTM A36 or ASTM A449 bolts UON on the drawings. Conform to AWS Specifications for electrodes based on welding process and the type and grade of steel. D7) Erection Provide anchor bolts, steel wedges, threaded screws or shims to support and plumb all columns. Grout solid under base plates immediately after columns are plumb. Provide begring plates and wall anchors or anchor bolts for all beams resting on concrete and all other necessary connecting hardware. Set anchor bolts using template. Do not field cut or field modify any structural steel without prior written approval by architect for each specific case. For openings in masonry walls not otherwise provided for on Architect's drawings, D8| Lintels provide loose lintel per schedule in typical steel details. Steel angles in pairs shall be plug welded together every 12 inches. Provide a minimum of six inches of bearing for all lintels. All exterior lintels to be hot-dipped galvanized. D9| Fireproofing Fireproof beams and columns as shown on the Architectural drawings and/or Specifications. D10) Paint Shop prime all steel not encased in concrete or to be fireproofed. For all exposed steel, use a three coat paint system with a zinc-rich primer, an epoxy intermediate coat, and a protective top coat, or hot-dip galvanize the steel after fabrication is complete. Shop fabricate to greatest extent possible by welding including beam stiffeners, column caps and base, holes and connections. Submit complete shop drawings from field dimensions for the Architect's approval of all structural steel prior to D12| Standard AISC Specifications, 1993 Load and Resistance Factor Design Specification for Structural Steel Building, The AISC Code of Standard Practice, and AWS Structural Specifications Code - Steel.

Beams equally spaced unless otherwise noted. Cantilever beams U.O.N. on plans, minimum bolt size shall be 3/4" diameter. All shop connections shall be high strength bolted or welded. All ends of columns at splices and other surfaces in contact on bearing connections shall be square cut to complete true bearing. U.O.N., all beam to beam moment connections shall develop the strength of the smaller member being connected. Connection forces shown on drawings are service forces U.O.N. Shear reactions shown on plan at one beam end are the same at both beam ends. Do not take 33% allowable stress increase. Include full depth shear connection in design of beams with axial force shown on plan in addition to the flange connections Galvanized nuts and bolts to be matched assemblies. Provide metal deck made from galvanized steel with minimum yield strength of 33 ksi. See Drawings and Specifications for gauge and profile. Provide sheet metal pour stops with thickness based on SDI criteria (SDI Publication #29); 14 gauge min. thickness. Provide headed type studs which conform to ASTM A108 Grade 1015 or 1020 cold finished carbon steel. The number of shear stude required per beam is indicated by [#] on the Drawings. Provide 3/4 in diameter by 5 in long studs UON. Space studs uniformly along length of beam. Provide a minimum of 1 in. from the edge of any stud and the face of concrete, a metal deck rib or similar discontinuity. AISI Specification for the Design of Cold-Formed Steel Structural Members, 9DI Code of Recommended Practice and Specifications for Composite Steel Floor Deck,

D - STRUCTURAL STEEL (Continued...)

D14) Slip Critical

E4) Standard

E5| Reinforcement

E6| Embedded Conduit

Connections

E - METAL DECK and SHEAR STUDS

are same size as backspan U.O.N.

required to transfer the loads.

- bolted moment connections

- truss member connections

- as required by details and sections

AISC Specifications per D12 above,

requires shoring of single span sheets.

in each bay.

and AWS Structural Welding Code - Steel and Structural Steel Welding Code - Sheet Steel.

Where required, deck bottom reinforcement shall be continuous

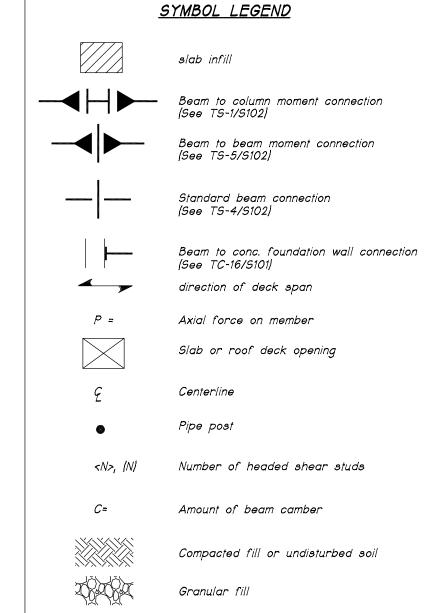
minimum concrete cover: 3/4ⁱⁱ. Do not use any aluminum pipe or

E8| Expansion Anchors Set expansion anchors at deck ribs only. Do not cut any reinforcement in deck ribs.

Maximum outer diameter 1", space no closer than 3 diameters on center,

conduit. Add subframing as directed by Engineer where these parameters

Composite beam design assumes unshored deck construction. Deck design



At Rate of B or Bot. Bottom Each Way Bottom of Steel Cast-in-Place Center of Gravity Centered Centerline Clean Out Clear Column Concrete Concrete Masonry Unit Concrete Reinforcing Steel Institute Connection Construction Const. Jt. Construction Joint Control Joint Continuous Cubic Yard Depression Dia. or ø Diameter Dimension Direction Drawing Edge of Concrete Each Face Each Side Each Way Elevation Elevator Expansion Bolt Exp. Jt or EJ Expansion Joint Exterior Far Face Finish Floor Floor Drain Full Penetration Weld Yield Strength of Steel Galvanized Grade Beam High Strength Hollow Structural Section H or Horiz. Horizontal Horizontal Each Face Horizontal Inside Face Horizontal Outside Face Inclusive or Including

ABBREVIATIONS

<u>ABBREVIATION</u>

<u>WORD or PHASE</u>

Alternate

Anchor Bolt

Architect

Allowable Stress Design

American Concrete Institute

American Welding Society

American Institute of Steel Construction

American Society for Testing and Materials

American Iron and Steel Institute

Unless Otherwise Noted Vertical Each Face Verify In Field or Vertical Inside Face Vertical Outside Face WWF Welded Wire Fabric Working Point

<u>ABBREVIATION</u> <u>WORD or PHASE</u>

Kip (1000 pounds)

Kips/Square Foot

Lightweight Concrete

Long Leg Horizontal

Long Leg Vertical

Long Slotted Hole

Manufacturer

Material

Maximum

Minimum

Number

On Center

0pening

Pre-cast

Reference

Roof Drain

NTS

0png

No. or #

Pl. or LP

T & B

Mechanical

Near Face

Not to Scale

Polyvinyl Chloride

Pounds/Square Fooi

Pounds/Square Inch

Steel Joist Institute

Short Leg Vertical

S'lab-on-Grade

Stainless Steel

Steel Deck Institute

Standard

Structural

Symmetrical

Top & Bottom

Top of Steel

Top of Wall Typical

Top, Each Way

Top of Concrete

Sump Pit

Reinforce or Reinforcement

Shear Connector or Slip Critical Bolt

Normal Weight Concrete

Load & Resistance Factor Design

Left End

Lightweight

Table 1: L	Iniform F	loor c	and Ro	oof Des	sign L	oads
Area	Dead Loads (psf)		Superimposed Dead Loads (psf)			
	Slab and deck	Steel (1)	Partition (7)	Ceiling MEP	Roofing	Other (2)
oor & Roof Load	ds					
pper Basement	53 (3)	bms-5 gir-5	20	15 (8)		
round Floor	53 (3)	bms-5 gir-5	20	15 (8)		
oors 2-4	53 (3)	bms-5 gir-5	20	15 (8)		
echanical loor 5 nclosed	53 /3/	bms-7 gir-7	-	15 (8)		
oof over ech. Floor	53 (3)	bms-5 gir-5	-	20 (8)	5 (6)	
ab Openings & l	Mechanical Shafts	5				
nafts, rimarily Pipes, onduits	-	-	-	-	-	-
nafts, rimarily Ducts	-	-	-	-	-	-
airwells, triums	-	-	-	~	-	-
her						
ast & South erraces	53 (3)	bms-7 gir-7	-	15 (8)	-	50 (4)
kterior Walls	-	-	_	-	-	50 (9)

Table 1 Notes:

- (1) Uniform load allowance for beams and girders (Column weights are not included).
- Load updated as required. (2) This table does not show added floor loads for raised floors, toppings, etc. over restricted areas.
- These are incorporated as required. [3] 6-1/4" slab on 3" Lok-Floor, LW concrete, 5 psf added for unshored construction.
- (4) Concrete pavers, insulation, waterproofing, etc. on terraces.
- (5) 3" 20 gage metal roof deck.

(6) Allowance for membrane and polystyrene insulation. No ballast.

- [7] Partition load not required where live loads exceed 80 psf [BOCA 99, 1606.2.4].
- (8) Uniform load allowance for extra mechanical ducts, pipes, etc. For individual beams, a concentrated dead load of 2000 lbs anywhere along its length is a minimum hung load allowance. This concentrated load will not be accumulative on girders and columns. (9) 4" brick veneer with 6" metal stud backup system, typ.

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Consulting Engineers

General Notes:

Charles Street Project Portland, Maine MMC Project No. 21841

GENERAL NOTES AND

KMG/SK JHT/JMT Approved By Copyright © 2004 The Ritchie Organization

AS NOTED | Sheet Number