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WESTWOOD **MASSACHUSETTS** 580 High Street Westwood, MA 02090

Wentworth Hall **Library Expansion** FOUNDATION PROJECT **Bid # ECON -20-B-003**

FOR BID 09.17.2019

STATE BUILDING CODE & IBC 2015. AT A MINIMUM THE

Wentworth Hall Library **Expansion**

Washington Street Islington, MA

OWNER

mckay

35 Bryant Street Dedham, MA 02026 ph:781.326.5400 www.mckayarchitects.net

REV#	DATE	ISSUANCE

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construction and is to notify McKay Architects of any discrepancies

JOB NO DWG BY RJM

T-1.1



GENERAL NOTES

AND ALL CODE HAVING JURISDICTION OVER THIS PROJECT.

BETWEEN CONSTRUCTION DOCUMENTS AND EXISTING CONDITIONS.

REGULATIONS THAT MAY APPLY TO THE CONSTRUCTION OF THE PROJECT.

THE GENERAL CONTRACTOR SHALL NOTIFY THE ARCHITECTS OF ALL DISCREPANCIES

2. THE GENERAL CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL

3. ALL WORK OF THIS PROJECT SHALL COMPLY WITH ACCEPTED BUILDING PRACTICES

4. REFER TO LIMITS OF WORK DRAWINGS FOR OVERALL DESCRIPTION OF WORK AREAS.

5. THE GENERAL CONTRACTOR SHALL LEAVE THE PROJECT SITE AND ALL SURROUNDING

AREAS IN FINAL CLEAR CONDITION INCLUDING THE REMOVAL OF ALL DEBRIS RESULTING

6. THE CONTRACTOR SHALL AT ALL TIMES DURING THE PROGRESS OF THE WORK REMOVE

7. THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES AND VERIFY THAT ALL CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF ALL MATERIALS BY

8. THE CONTRACTOR SHALL UTILIZE THE AREAS WITHIN THE SCOPE OF WORK FOR

9. ALL WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE OVER ALL OTHERS, DO NOT

10. VERIFY FIELD CONDITIONS PRIOR TO COMMENCEMENT OF EACH PORTION OF THE

11. DIMENSIONS ARE TO CENTER LINES, EXISTING BUILDING GRID LINES OR TO FACE OF

13. ALL FINISHED WORK SHALL BE FREE OF DEFECTS. THE OWNER RESERVES THE RIGHT TO REJECT ANY MATERIALS AND WORKMANSHIP WHICH ARE NOT CONSIDERED TO BE AT

14. NO CHANGES OR SUBSTITUTIONS ARE ALLOWED UNLESS APPROVED BY THE OWNER.

THE HIGHEST STANDARDS OF THE VARIOUS TRADES INVOLVED.

WORK. THE CONTRACT DRAWINGS ARE COMPLIMENTARY AND WHAT IS REQUIRED BY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. THE CONTRACTOR SHALL COORDINATE ALL

SCALE DRAWINGS. IF THERE IS A QUESTION OR CONFLICT IN DIMENSIONS, NOTIFY THE

ALL CONSTRUCTION DEBRIS AND MAINTAIN A DUST FREE ENVIRONMENT FOR ALL

SCOPE OF WORK

FOUNDATION AS SHOWN ON DRAWINGS INCLUDING, BUT NOT LIMITED TO, LABOR, MATERIALS, FORMWORK, REINFORCING TO COMPLETE THE

SCOPE OF WORK - CODE

FOUNDATION IS TO BE IN PLACE TO ALLOW FOR RELOCATION OF EXISTING WENTWORTH HALL AND ADDITION. (WORK BY OTHERS)

WORK IS TO INCLUDE FOOTINGS, PIERS, WALLS, REIFORCING. WORK IS NOT TO INCLUDE CONCRETE SLAB.

TEMPORARY FENCING AND GATE WILL BE IN PLACE. IT IS THIS CONTRACTORS RESPONSIBILTY TO MAINTAIN THE FENCE AND GATE IN THE SAME WORKING CONDITION AS ACCEPTED. TEMPORARY TOILET FACILITIES WILL BE PROVIDED.

THE TOWN OD WESTWOOD SHALL RETAIN THE SERVICES OF AN INDEPENDENT TESTING AGENCY TO PERFORM STRUCTURAL INSPECTIONS AS INDICATED ON THE DRAWINGS AND AS REQUIRED BY THE PROGRAM OF STRUCTURAL TESTS AND INSPECTIONS.

SHOP DRAWINGS, IN ADDITION TO MATERIAL SUBMITTALS SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION FOR THE FOLLOWING: -BOLTS, ANCHORS

-REINFORCING

MATERIAL SYMBOLS **ABBREVIATIONS**

T-1.1	Title Sheet	3 A-3.1	BUILDING CROSS SECTION	NEW CONSTRUCTION
ST-1.1	Site Plan			
S-0.1	General Notes I	(5)	DOOR NUMBER	EXISTING CONSTRUCTION

GRAPHIC SYMBOLS

G CONSTRUCTION ROOM NUMBER

WINDOW NUMBER

ELEVATION DESIGNATION SECTION REFERENCE

NEW DOOR TO BE INSTALLED

EXISTING DOOR TO REMAIN

PARTITION TYPE

CONCRETE

EARTH

BLOCKING

BATT INSULATION

GRAVEL

WOOD

DRYWALL

CONC CONCRETE CONT CONTINUOUS CARPET **CERAMIC TILE** DIMENSION DWG(S) DRAWING(S) EACH **EIFS** EXT INSUL. FINISH SYSTEM **ELEC** ELECTRICAI **ELEV ELEVATION** ELECTRICAL WATER COOLER **EXTERIOR** FIRE CODE / FIRE CORE FLOOR DRAIN FIRE EXTINGUISHER CABINET

-CONRETE MIX

ATTEN ATTENUATING

CLEAR

COLUMN

BLDG BUILDING

CLR

COL

ABOVE FINISH FLOOR

CEILING HEIGHT

CENTER LINE

INSUL INSULATION INT INTERIOR LAV LH

LAVATORY LEFT HAND(ED) MAX MAXIMUM MECH MECHANICAL **MINIMUM** METAL NIGHT LIGHT **NOMINAL**

MEDIUM DENSITY NOT IN CONTRACT NOT TO SCALE

ON CENTER **OUTSIDE DIAMETER**

MANUFACTURER MASONARY OPENING

GENERAL CONTRACTOR

GLASS OR GLAZING

HOLLOW CORE

HOLLOW METAL

HOT WATER HEATER

HORIZONTAL

HEIGHT

LENGTH

HVAC HEATING, VENT, A/C

HDWR HARDWARE

GYPSUM WALL BOARD

OPPOSITE HANDED

FIRE RETARDANT TREATED

FINISHED FLOOR FINISHED FLOOR ELEVATION FIN FLUORESCENT LIGHTING **FACE OF FINISH** FACE OF CONCRETE

FACE OF STUD

THK THICKNESS TYP TYPICAL

UNO UNLESS NOTED OTHERWISE VERIFY IN FIELD

VCT VINYL COMPOSITION TILE VTR VENT THROUGH ROOF

SCOPE OF WORK - CONT. STRUCTURAL INSPECTIONS AND TESTING WILL BE PERFORMED PER CHAPTER 17 OF THE MASSACHUSETTS

FOLLOWING WILL BE INSPECTED: -SOIL CONDITIONS -CONCRETE PLACEMENT -REINFORCING

P LAM PLASTIC LAMINATE

PRESSURE TREATED

PLYWD PLYWOOD

QΤ

REQ

REF

REV

SD

 \mathbf{SQ}

STN

PAIR

PAINTED

RISER

RADIUS

REQUIRED

REFERENCE

REVISION(S)

RIGHT HAND(ED)

ROUGH OPENING

SOUND ATTENTION BATTS

SMOKE DETECTORS

ROOF TOP UNIT

SPECIFICATION

STAINLESS STEEL

SHEET VINYL

TOILET PAPER DISPENSER

SIMILAR

SQ FT SQUARE FEET

STEEL

STAIN

TREAD

QUARRY TILE

GOVERNMENT BUILDING CODE

THE MASSACHUSETTS BUILDING CODE, 9TH EDITION

WC WATER CLOSET

WOOD

X-REF CROSS REFERENCE

WD

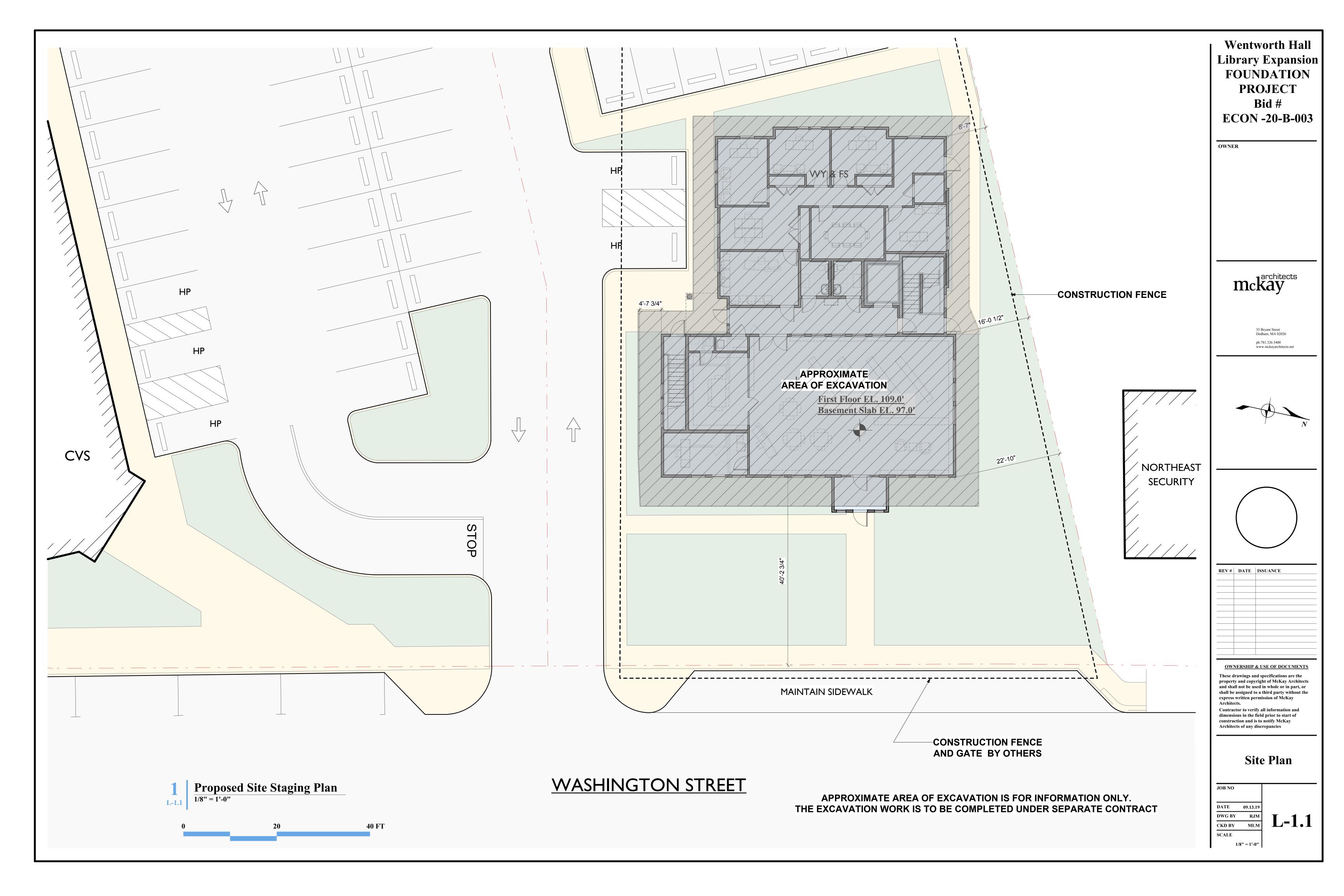
REV#	DATE	ISSUANCE

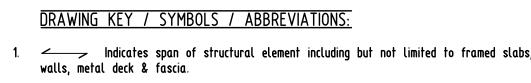
OWNERSHIP & USE OF DOCUMENTS

Contractor to verify all information and dimensions in the field prior to start of

Title Sheet

DATE 09.17.19 CKD BY MLM **SCALE**





2. Indicates direction of "called North" for the project. See Civil Drawings for geographic North

Symbols:

```
Pounds or Number
                     Diameter
                     Plus Angle
                     Indicates moment connection at end of member
                     Indicates diagonal bracing member
_ _ _
Abbreviations:
```

Anchor Bolt American Concrete Institute American Institute of Architects

American Institute of Steel Construction American Iron and Steel Institute Allowable Stress Design American Society for Testing and Materials American Welding Society Balance Bottom Each Way Bottom Long Bottom Short Braced Frame Beam Cast-in-Place

Hollow Structural Shape

Long Leg Horizontal Long Leg Vertical Low Point

Lightweight Lightweight Concrete

Méchanical

Moment Frame

Not In Contract

Normal Weight Normal Weight Concrete

Powder Actuated Fastener

Pounds per cubic foot

Pressure injected Footing

Pounds per square foot

Pounds per square inch

Poly Vinyl Chloride

Steel Deck Institute

Steel Joist Institute

Slab on Grade

Square Stainless Steel

Standard Stiffener

Symmetrical Tie Beam

Top Long Top Short To Be Determined

Temperature Top Each Way

Top of Deck Top of Steel

Top of Wall Tons per square foot

Vertical Vapor Barrier

Work Point

Unless Noted Otherwise

Vertical Each Face Verify in Field

Vertical Outside Face

Welded Wire Fabric

Occupational Safety and Health Administration

Millimeters

Number Near Side North South

On Center

Outside Diameter

Opposite Hand

Penetration

Plate Girder

Post Tension

Roof Drain

Reference

Slip Critical

Mezzanine

Kips (1000 pounds) per square foot Kips (1000 pounds) per square inch

Load and Resistance Factor Design

Inside Face

Information

Concrete Masonry Unit Construction Continuous Cooling Tower Drill & Epoxy D & E Deep Drawing Existing Each Face E.J. or EXP. Expansion Join Elevation Electrical

Embedment Each Side Each Way East West Exterior Floor Drain Foundation Far Face Finished Floor Footing Gage Galvanized Grade Beam H. or HORIZ Horizontal Horizontal Each Face Horizontal Inside Face Horizontal Outside Face

O.H. or OPP

SECTION AND DETAIL MARKS:

GENERAL NOTES:

- 1. All work shall conform to the requirements of the State Building Code of the Commonwealth of Massachusetts, 9th edition,
- 2. Structural drawings may represent construction with a reference scale. Due to the process of drawing development and revision, not all work may be shown "exact" in scale. Do not "scale" drawings to obtain missing information or to interpret any information not specifically dimensioned for "exact" detailing, fabrication or construction purposes.
- 3. Electronic versions of structural drawings may represent construction with a reference scale and dimensions. Due to the process of drawing development and revision, not all work may be drawn electronically to exactly match reference dimensions or scale.
- 4. The Contractor is completely responsible for the safety of adjacent structures, property, his workmen, and the general public, as affected by the construction of this project.
- 5. All Contractors are required to examine the contract documents, visit the site and fully inform themselves as to all existing conditions and limitations, prior to agreeing or bidding to perform work. Failure to visit the site and become familiar with the existing conditions and limitations of the site will not relieve the Contractor from furnishing materials or performing work in accordance with the drawings and specifications without additional cost to the Owner. It is the Contractor's responsibility to make field measurements in time for their incorporation in the Shop Drawings of new work. Any discrepancies that exist between existing conditions and the contract documents shall be brought to the attention of the Architect and Engineer.
- Furnish and place all supports, temporary and permanent, whether shoring, bracing, needling, underpinning, and/or sheet piling, necessary to brace existing construction to remain, so that no movement of any kind occurs to any existing structures. Temporary supports shall be maintained in place until permanent supports are installed. Design of these supports shall be by an engineer registered in the state of construction and in the employ of the Contractor.
- 7. The Contractor shall compare the structural drawings with the architectural drawings for floor/roof elevations, slopes, and locations of depressed or raised floor or roof areas and report any discrepancy to the Architect and Engineer prior to fabrication.
- 8. Primary openings through the framing are shown on these drawings, The General Contractor shall examine the structural, architectural and mechanical drawings for the required openings and shall verify size and location of all openings with the Mechanical contractor. Providing the openings required by all trades shall be a part of the General Contract, whether or not shown in the structural drawings. Framing details are given in these drawings for such openings. Any deviation from the openings shown on the structural drawings shall be brought to the Architect's and Engineer's attention for review.
- 9. Where these General Notes are in conflict with project specifications, information shown on these General Notes governs
- 10. Structural work not specifically indicated on these drawings that can reasonably be implied to be the same or similar to other work shown at corresponding places, shall be included in the contractor's work for the affected trade(s).

DESIGN LOADS:

1. Uniformly Distributed Floor Live Loads:

Offices and administration	
First floor lobbies, public areas	
and corridors u.n.o.	•
Slab on grade u.n.o	125 psf
Storage	125 psf
Stairs and landings	100 psf
Library reading room	60 psf
Library stacks	150 psf

2. Concentrated Live Loads:

Floors have been designed to support the uniformly distributed live loads prescribed above or the following concentrated loads, which ever produces the greater stress.

rne	rollowing concentrated	loaas,	WNICH	ever	produces	The	greater	STre
	<u>Location</u>				<u>Con</u>	<u>cent</u> ı	ated Lo	<u>ad</u>
	Stair treads (on 2.0 inches square)				300	lbs	D	
	Hatches, skylight ribs, accessible ceilings (on 1.0 inch square)	and			200	lbs		
	Roofs w/o concrete (on 6 inches square)				200	lbs	0	

3. Roof Live Load: (Commonwealth of Massachusetts State Building Code, 9th edition)

Ground Snow Load, Pg = 40 psf (Table 1604.11). Additional loadings due to snow drift applied in accordance with Section 1608.3 to 1608.10.

```
Snow Density = 0.13Pq + 14 \le 30 pcf
Pf = 0.7Ce \times Ct \times Is \times Pq
  Ce = 1.0
  Ct = 1.0 heated
  ls = 1.0
  Pf = 35.0 psf heated
```

DESIGN LOADS CONT.:

4. Live Load Reduction:

For design live loads of 100 psf or less, except for buildings of Use Group A (assembly) or Use Group E (educational) and for garages or open parking structures and for one-way slabs and for roofs, a structural member having an influence area of 400 square feet or more may be designed for a reduced live load determined by the following formula:

Element	KLL
Interior columns	4
Exterior columns without cantilever slabs	4
Edge columns with cantilever slabs	3
Corner columns with cantilever slabs	2
Edge beams without cantilever slabs	2
Interior beams	2
Cantilever beams	1

Maximum reduction multiplier = 0.4 for members supporting more than one floor and 0.5 for members supporting one floor

Earthquake Loads:

Risk Category I

Site Class C Section 1613.0

Seismic Base Shear = Vu = CsW Seismic Response Coefficient Cs = Cs = SDs / (R/le)but not > SD1 / T(R/le) not < 0.044SDs(le) Ss = 0.196 S1 = 0.066

> Fa = 1.2 Fv = 1.6SDs = 2/3 FaSs = 0.157SD1 = 2/3 FvS1 = 0.070R = 6.5 (light framed walls sheathed with wood structural panels rated for shear

resistance) le = 1.0 T = Building period

W = effective seismic weight of the structure Seismic design category = B Analysis Type = Equivalent Lateral Force

6. Foundation walls are designed for the following equivalent fluid pressures:

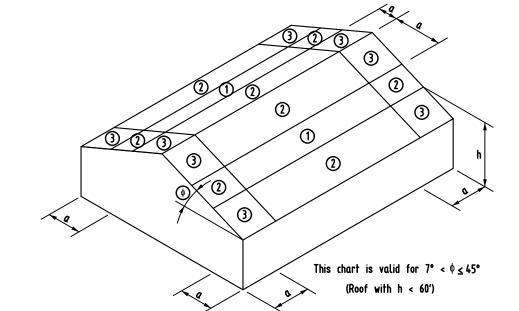
Cantilevered Walls Walls Laterally Supported at Top

Above elevation 00'-0" Below elevation 00'-0"

Wind loads:

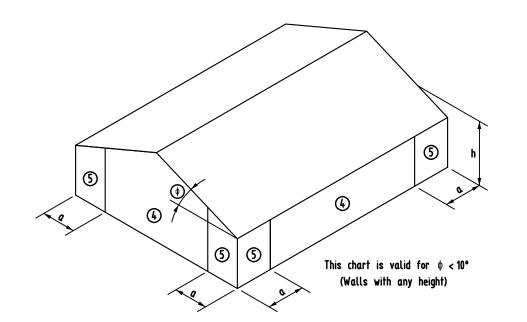
Risk Category II - Vult = 129 mph, Vaso = 99.9 mph Wind Exposure = B Wind pressures and distributions in accordance with Section 1609.

Component & Cladding Wind Pressure				
	Wind speed V _{ASD} = mph Mean Roof height, h = Exposure = Method 2			
Zone	Effective wind area (ft²)	Press (ps		
1	10	-47.0	10.0	
	20	-44.4	10.0	
	50	-40.9	10.0	
	100	-38.3	10.0	
2	10	-73.8	10.0	
	20	-70.1	10.0	
	50	-66.3	10.0	
	100	-61.6	10.0	
3	10	-100.6	10.0	
	20	-95.9	10.0	
	50	-89.6	10.0	
	100	-84.8	10.0	
4	10	-32.2	32.2	
	20	-32.2	32.2	
	50	-30.5	29.6	
	100	-29.2	27.7	
5	10	-58.9	32.2	
	20	-58.9	32.2	
	50	-52.2	29.6	
	100	-47.0	27.7	



COMPONENT & CLADDING LOADS AT ROOF

- a: 10 percent of least horizontal dimension or 0.4h, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 feet (0.9m).
- h: Mean roof height in feet, except that eave height shall be used for roof angles < 10°.
- φ: Angle of plane of roof from horizontal in degrees.



COMPONENT & CLADDING LOADS AT WALL

NOTES:

- a: 10 percent of least horizontal dimension or 0.4h, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 feet (0.9m).
- h: Mean roof height in feet, except that eave height shall be used for roof angles < 10°.
- φ: Angle of plane of roof from horizontal in degrees.

FOUNDATIONS:

- 1. The foundation design is based on recommendations contained in the Geotechnical Report by McArdle Gannon Associates, Inc. dated 06-03-19. Contractor is responsible to follow the direction and limitations contained in the report as it pertains to performing foundation work for this project.
- 2. Walls placed directly on rock shall have the rock surface clean and free of organic material and be of reasonably level surface with maximum change in profile of 6" in any sq. ft. area. Substantial voids shall be filled with concrete or mortar.
- 3. All foundations shall be placed on undisturbed soil or compacted engineered fill. No foundations shall be placed in water or on frozen ground. Allowable bearing pressure is 3.0 tons per square foot. Top or bottom foundation elevations where given, are minimum depths, and are not to be construed as limiting in any way the depth of excavation required to reach the bearing condition required by the project geotechnical report.
- 4. Foundations subject to frost conditions shall be installed to a minimum of 4 feet below finished exterior grade or the lowest slab level within unheated space.
- 5. All foundation excavations are to be finished by hand and inspected and approved by the Geotechnical Engineers before any concrete is placed.
- 6. Unless otherwise noted, all foundation elements are to be centered under supported members.
- 7. Dowel bars between construction elements shall match bars of primary reinforcement u.n.o. Dowels shall lap primary reinforcing with a class B splice length.
- 8. Where foundation elements require back fill on each side, all sides shall be filled simultaneously in order to maintain a maximum backfill differential elevation of 1'-0" u.n.o.
- 9. Contractor shall control surface and underground water as required during construction so that all foundation work is done in the dry. The Contractor shall insure that ground water levels under adjacent structures are not altered in any way by the construction. In addition, where so directed by these plans or by the project geotechnical report, the Contractor will continue to maintain a condition of no hydrostatic pressure until sufficient building weight is in place to prevent flotation of any part of the structure.
- 10. Non-cantilevered walls retaining earth rely on the completed floor slabs for lateral support. No walls shall be back filled until the slab constructions at the top and bottom of the wall are in place and have achieved a minimum of 75% of their specified design strength.
- 11. Cantilevered walls retaining earth that directly support structural steel shall be completely backfilled prior to steel erection u.n.o.
- 12. Overlap joints at vapor barrier 12" minimum and continuously tape seams

CONCRETE:

- 1. All concrete work shall be controlled concrete, mixed and placed under the supervision of an approved testing agency and conform to the 2014 edition of the ACI Building Code Requirements for Reinforced Concrete (ACI 318) and the State Building Code of the Commonwealth of Massachusetts. In case of conflict, the State Building Code shall govern.
- 2. Refer to architectural drawings for concrete finishes. Where finish is not specified, conform to requirements of ACI 301 - "Specifications for Structural Concrete for Buildings".
- 3. All concrete shall be normal weight concrete with sand and 3/4" minimum gravel aggregate type I or type II Portland Cement and a minimum compressive strength (f'c) in 28 days of
- 4. Concrete must reach the following percentages of its 28-day compressive strength (f'c) before forms or shores may be removed:

Location	Minimum %
Footing	20%
Walls	20%

No construction loads shall be supported on, nor any shoring removed from, any part of the structure under construction except when that portion of the structure in combination with remaining forming and shoring system has sufficient strength to support safely its weight and loads placed thereon.

Forms shall be removed in such manner as not to impair safety and serviceability of the structure. All concrete to be exposed by form removal shall have sufficient strength not to be damaged thereby.

- 5. Concrete at walls retaining unbalanced levels of soil on each side shall reach specified 28 day strength prior to back filling on either side. Any concrete directly supporting framing must reach 75% of specified 28 day strength prior to erection.
- 6. All exterior concrete directly exposed to the weather or possible freeze/thaw action shall contain an air entrainment admixture. Air content to be 6 +11/2%
- 7. Expansion, control or construction joints locations shown on the drawings may not be altered without prior written approval of the Structural Engineer. At poured in place walls and footings construction joints shall be located to allow a maximum pour length of 60'-0".
- 8. All concrete shall be placed without horizontal construction joints, except where specifically noted. Vertical construction joints and stops in shored concrete work shall be made at mid-span. Horizontal reinforcement shall be continuous through vertical construction joints. Horizontal bars shall extend beyond the construction joint a minimum of the bar's development length on each side.
- 9. The following floor flatness criteria applies: Slab on grade FF 35 FL 25

No less than 80% of the floor surface profile shall be outside a plus or minus 3/16" within any 10'-0" length at the time of testing

- 10. Grout under all bearing plates shall be non-shrink, nonmetallic grout with a minimum compressive strength of 5000 psi at 3 days.
- 11. Pipes or conduits placed in slabs on grade shall not be placed closer than 3 diameters on centers, have an outside diameter less than ${\mathcal X}$ of the slab thickness, and be positioned so that they do not interfere with slab reinforcement. Aluminum conduits shall not be placed in concrete. No conduits or pipes shall be placed in slabs on metal deck.
- 12. Slab permanently supported by soil may be poured an as large an area as can be handled provided that sawcut joints are cut as soon as the concrete will support a man's weight without permanent deformation and the joint cutting process does not dislodge aggregate.
- 13. No concrete shall be cast before review and approval of the reinforcing and embedded items have been obtained from the Architect, his designated representative, or the independent
- 14. Any key shown on the drawings is to be continuous and nominal size 2" x 4" u.n.o.
- 15. Concrete cast on sloped surfaces shall begin at the lowest elevation and continue uninterrupted toward the higher elevations.
- 16. See architectural drawings for door and window openings, drips, washes, reglets, masonry anchors, and for miscellaneous embedded plates, bolts, anchors, angles, etc.
- 17. All exposed edges of concrete members shall be chamfered ¾" unless shown otherwise on architectural drawings. 18. Contractor must submit a detailed layout of proposed slab openings and block outs showing
- 19. At sawcutting of existing concrete, including slabs on grade, no overcut at corners is allowed. All corners shall have a core hole of sufficient diameter made prior to cutting at

exact dimensions relative to framing members and/or column grids for approval by the

- 20. Floor slabs may require surface coating and/or concrete admixture to control surface moisture to allow compatibility with water based floor adhesives. Coordinate requirements and scope with Architect.
- 21. Maximum aggregate size at normal weight concrete to be 3/4".

adjacent sides to prevent cut beyond the required dimension.

Structural Engineer prior to cutting any openings.

22. Maximum W/C at exterior slabs on grade to be 0.40. Increase minimum required strength to

Wentworth Hall Library **Expansion**

Washington Street Islington, MA

OWNER

FOUNDATION PROJECT BID# ECON-20-B-003

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GOLDSTEIN-MILANO LL Structural Engineers

> 125 Main Street Reading, MA 01867 781-670-9990 (p) 781-670-9939 (f)

EV# DATE ISSUANCE

OWNERSHIP & USE OF DOCUMENTS

dimensions in the field prior to start of

construction and is to notify McKay

Architects of any discrepancies

These drawings and specifications are the property and copyright of McKay Architects and shall not be used in whole or in part, or shall be assigned to a third party without the express written permission of McKay Contractor to verify all information and

General Notes 1

JOB NO 18197.00 DATE 05.29.19 DWG BY DAD CKD BY BRC SCALE

AS NOTED

9.17.19

REINFORCING:

- 1. Detailing of concrete reinforcement and accessories shall be in accordance with ACI 315 -"Manual of Standard Practice for Detailing Reinforced Concrete Structures", latest edition.
- 2. All reinforcing bars shall conform to ASTM A615, Grade 60.
- 3. All welded wire fabric (W.W.F.) shall conform to ASTM A1064. (Fv=65 ksi min.) W.W.F. shall be provided in flat sheets. Install W.W.F. in the longest lengths practical. Lap adjoining pieces at least one full mesh + 2" and wire together. Offset end laps in adjacent widths to prevent continuous laps. Stair pans may be reinforced with 2x2-W1.4xW1.4 W.W.F. or fibermesh at 1½ lbs. / cu. vd.
- 4. Concrete cover for reinforcement including W.W.F. shall be provided per the following table unless otherwise noted on the drawings:

Condition	Cover (inches)
Surfaces cast against earth	3
Formed surfaces exposed to earth or weather	
#6 through #18 bars	2
# 5 bars and smaller	1 1/2
Formed surfaces not exposed to earth or weather:	
Slabs, walls	3/4
Beams, girders	1 1/2
Soil supported slabs on grade:	
top	1 1/2

Maximum deviation from these requirements shall be ± 1 inch for sections 10 inches thick or less: and ±1/2 inch for sections over 10 inches thick. See ACI 318-99, for conditions not

5. Provide and schedule with the shop drawings, all necessary accessories to hold reinforcing securely in position. Minimum requirements shall be:

> .. 4'-0" on center (maximum) Support bars for high chairs to be No. 5 minimum.

.. 4'-0" on center (maximum)

- 6. All reinforcement including W.W.F. shall be continuous through construction joints u.n.o.
- Where continuous bars are called for, they shall run continuously around corners and be lapped at necessary splices with a class B splice (ACI 318-14), or hooked at discontinuous ends. Lap lengths shall be as given in the splice and development tables in these drawings Lap beam top bars at mid-span and beam bottom bars at supports, unless otherwise noted
- 8. All hooks shown on drawings shall be standard hooks unless otherwise noted.
- 9. Provide additional reinforcing at the sides and corners of all openings in concrete in accordance with the typical details on these drawings.
- 10. At multiple top or bottom bar layer placements in footings, etc., bars parallel to short direction to be placed in bottom most or top most layer u.n.o.
- 11. Provide continuous support bars for stirrups where primary bars do not exist.
- 12. Top & bottom horizontal reinforcing in beams and girders shall be detailed to be placed in one layer unless noted otherwise on the drawings. At lap splices, bars may be tied "above and below" or "side by side" as required for proper fit and alignment.
- 13. All beam and girder "stirrups" or "ties" shall be continuous closed type unless otherwise noted on the drawings. Stirrups or ties do not extend through footings, u.n.o.
- 14. In beams and girders over 18" deep provide continuous #4 bars on the side faces at 12" on center maximum. These side bars do not require development into supports u.n.o.. Dowels where shown shall lap primary reinforcing with a class B splice length.
- 15. Field bending of a reinforcing bar is permitted provided the bar was not at anytime previously bent within 6" of the same location along the bar.

REINFORCED MASONRY:

- All concrete masonry unit (CMU) work shall conform to the "Building Code Requirements of Masonry Structures" (ACI 530-13).
- The compressive strength of the masonry, f'm, shall be at least 2000 psi.
- All cmu shall conform to ASTM C90, grade N-1, with an individual compressive strength of
- 4. Mortar for walk construction shall be Type M or S conforming to ASTM C720.
- Grout for piers and walls shall conform to ASTM C476 with a minimum compressive strength of 2500 psi determined in accordance with the provisions of ASTM C1019. All masonry cells containing reinforcing bars are to be grouted solid. Additional grouting may be specified on these drawings.
- 6. Wire for joint reinforcing shall conform to:
 - a. General: Welded wire units of 9 gauge minimum all rods, prefabricated lengths of not less than 10'-0", with matching corner "" and intersecting "T" units. ASTM A1064, with deformed continuous side and intermediate rods; and plain cross rods; widths approximately 2" less than normal width of walls and partitions as required to position side rods for full embedment in mortar with mortar coverage o not less than 2" on joint faces exposed to exterior and not less than 2" elsewhere. Minimum yield point of 70 ksi.
 - b. Type: Ladder or Truss type.
 - c. Finish: Hot dipped galvanized after fabrication, ASTM A153, Class B-2 (1.5 oz. per sq. ft.), except manufacturer's standard mill galvanized may be used for interior walls and partitions.
- Unless noted otherwise on plans, provide the following minimum reinforcement:

Nominal Wall thickness	Vertical Reinforcing	Horizontal Reinforcing	Bond beams
8"	#5 @ 48" o.c.	#9 Durowall @ 16" o.c.	(2)-#4 continuous @ 10'-0" o.c.

Unless noted otherwise on plans, provide additional vertical reinforcement in the cell immediately/adjacent to each side of a masonry opening and in the end cell of discontinuous walls as indicated below. These bars are to extend full height of the wall of in the gase of masonry openings at multi-story walls, from story level above to story level below the opening. Extend additional reinforcement a minimum of 36 bar diameters beyond the opening

8" CMU Walls - (2)-#5

The minimum length of lap for reinforcing bars is 48 bar diameters, unless shown otherwise on the drawings.

REINFORCED MASONRY CONT.:

- Property secure reinforcing bars to maintain the positions indicated on the drawings during the grout operations. Reinforcing bars to be located in center of cells unless otherwise
- All CMU shall be laterally braced during construction for the governing code lateral design loads until permanent restraints have been installed. Minimum brace load to be 200 lbs./fl at the tops of walls.
- Cold weather CMU requirements:

Mean daily air temperature	Additional requirements
40° - 32° F	Heating mixing water or aggregate to 70° F. Protect masonry from rain or snew for 24 hours.
32° - 20° F	Heating mixing water or aggregate to 70° F. Provide wind breaks for wind velocity in excess of 15 m.p.h. Cover masonry with insulating blankets for 24 hours and provide heat sources on both sides of masonry construction.
Below 20° F	Heating mixing water or aggregate to 70° F. Provide enclosures and heat to maintain 40° F minimum temperature. Temperature of masonry units must be 40° F minimum when laid. Maintain masonry above 40° F for 24 hours by enclosure and supplemental heat.

STRUCTURAL STEEL

Structural steel design conforms to "Specification for Structural Steel Buildinas" (AISC Fourteenth Edition) and "Seismic Provisions for Structural Steel Buildings" (AISC 341-10)

Structural steel rolled shall conform to the following ASTM designations:

ASTM A-572. Grade 50 All W shapes

ASTM A-36 or A-572 (any grade)... All other rolled shapes, individual plates and bars unless noted otherwise

ASTM A-500, Grade B or C.,

ASTM A-53, Grade B

Do not paint structural steel unless otherwise specified

Unless otherwise detailed in the drawings, provide loose steel angle lintels over all openings in masonry construction per the schedule below. Lintels shall have a minimum of 8" bearing on each side of opening. Steel angles in pairs, indicated thus (JL), shall be plug welded or bolted at 2'-0" o.c. or stitch welded top and bottom at 1'-0" o.c. All angles t be installed vertically. Lintels at walls exposed to the weather shall be galvanized.

Square or Rectangular HSS sections

ST	STEEL LINTEL SCHEDULE		
Wall thickness	Span	Lintel	
4"	< 5'-0"	L4x3 1 x 5	
	5'-0" ≤ 7'-0"	L5x3 ¹ / ₂ x ⁵ / ₁₆	
	7'-0" ≤ 9'-0"	L6x3 2 x8	
	9'-0" < 12'-0"	L6x3 1 x 1	
8"	< 5'-0"	JL4x3 1 2x 5	
	5'-0" ≤ 7'-0"	JL5x3½x %	
	7'-0" ≤ 9'-0"	JL6x3 2 x8 €	
	9'-0" ≤ 12'-0"	JL6x3 2 x 2	
12"	< 7'-0"	JL6x6x ₹	
	7'-0" ≤ 9'-0"	JL6x6x ³ g	
	9'-0" ≤ 12'-0"	JL6x6x 2	

- Cuts or burning of holes in or splicing of structural steel members in the field will not be permitted, unless specifically approved in each case by the Structural Engineer prior to
- All structural steel, including baseplates and anchor bolts, to be exposed to soil in the finished work, are to be coated with an approved coal tar epoxy. 16 mils minimum thickness.

STRUCTURAL STEEL CONNECTIONS:

- All shop and field welds shall be made by certified welders, and shall conform to "Structural Welding Code - Steel" (AWS D1.1-11), using electrodes conforming to (AWS E-70 series).
- All bolted connections between structural steel members shall be made with ASTM A325 or A490 bolts with appropriate nuts and washers.
- ASTM A325 or A490 bolts shall be installed with the bolt tension (pre-tensioned) specified in table J3.1 of the AISC Specification (Fourteenth Edition), shall be used for all connections. Where tension control (TC) bolts are used and access to the bolt spline cannot be obtained to tighten the bolt, replace the bolt with a standard hex type bolt to allow tightening per this note.
- Details and connections completely detailed in the Contract Drawings may not be altered without written approval by the Structural Engineer.
- Unless otherwise noted, all connections at HSS sections shall be designed and detailed in accordance with the AISC "Hollow Structural Sections Connections Manual". Latest Edition. All rectangular HSS members to be oriented long side vertical u.n.o.
- Flat bar stock of equal thickness and material grade may be substituted for "fitted" stiffener plates at all locations. Width of bar may be within (-0", +%") of "fitted" plate dimension.
- Weld sizes not shown in details herein shall be the minimum required size based on thickness of thinner part as per AISC Fourteenth Edition, Tables J2.3 & J2.4. Where the thinner material is t'' or less use र्दे" weld size.
- Discontinue all around welds at the flange tips of open sections. Do not weld along the "length" of a 7. All flush connections shall have metal beam or joist hangers. flange thickness.
- Minimum connection plate thickness shall be 3%" u.p.o
- All holes called out to be slotted are to be short slotted holes as defined by AISC u.n.o.

METAL ROOF DECK:

Design of metal roof deck shall be governed by the "Specifications for the Design of Cold Formed Steel Structural Members" by the American Iron and Steel Institute (ASI) and conform to the design and loading requirements of the "Steel Deck Institute" (SDI).

Metal roof deck shall be SDI deck, rolled of steel sheet, galvanized and conforming to ASTM 653. Galvanizing shall conform to the requirements of A924 coating class G60. The metal roof deck supplied shall be capable of supporting the design loads given in these drawings. Section properties per foot of width for a given specified deck type and gauge

METAL DECK PROPERTIES (note #1)						
Depth (inches)	Gauge	Minimum width/depth (W/H)	l (positive)	l (negative)	S (positive)	S (negative)
3	18	2.0	1.190 inches ⁴	1.380 inches ⁴	0.680 inches ³	0.740 inches ³
	20	2.0	0.820 inches ⁴	1.040 inches ⁴	0.490 inches ³	0.540 inches ³

1. Section properties for a given gauge may vary slightly with manufacturer. Properties listed in the table are representative of Fy = 33 ksi material. Use of metal deck with higher material strengths and lower deck properties is acceptable.

METAL	ROOF	DECK	FASTENING	SCHEDULE
Location			Fas	tening
All Supports			Every Rit	or 6" o.c.

- . All fastening = ¾"Ø fusion welds
- 2. Side laps shall be fastened at 2'-6" o.c. maximum with welds, button punch or Tek fasteners in accordance with manufacturer's recommendations Fasten side laps between adjacent deck units with welds, button punch or #10 Tek fasteners in accordance with manufacturer's recommendations.
- 3. Do not suspend pipes, ducts, or conduit directly from metal roof deck.
- 4. Metal deck design may be performed either using the ASD or LRFD design method

WOOD FRAMING KEY:

Abbreviations:

SW	Shear wall
BW	Bearing wall
ML	Microlam
GL	Glulam
LVL	Laminated Veneer Lumber
PSL	Parallel Strand Lumber
O.C.	on center
P.E.S.	Plywood Each Side
HF	Hem Fir
DFL	Douglas Fir Larch
TJI	Truss Joist
P.A.F.	Powder Activated Fasteners
P.T.	Pressure Treated

GENERAL WOOD FRAMING:

- lumber and its fastenings, shall conform to the National Design Specifications of stress-grade lumber and its fastenings, latest edition, as recommended by the National Forest Product Association. Current Edition of Wood grading rules are to be followed. All connections shall conform to the current edition of the National Design Specification for Wood Construction, and the contract documents. All materials must be grade marked.
- Unless otherwise noted, all joists, studs, lintels/headers and shearwalls shall be Hem-fir No. 2 or Spruce Pine No. 2 with Fb=875 psi (single use); Fv=70 psi; E=1,400,000 psi, Fb=1000 psi (repetitive) (MC19). Lumber sizes shown in the drawings are mominal size. Actual sizes shall conform to American Lumber Standard PS-20-70.
- [2. a. Materials for exterior walls, interior bearing walls and shearwalls shall be stud arade Southern Yellow Pine (MC19) or stud grade Douglas Fir Larch (MC19).
 - b. Lumber for headers, beams, and other framing members shall be #2 Southern Yellow Pine (MC19) or #2 Douglas-fir (MC19).
 - c. All other non-structural wall construction shall be either construction grade or utility Southern Yellow Pine (MC19) or Douglas Fir Larch (MC19).
 - d. Wall top plates and sill plates shall be South Pine No. 2 with the following minimum properties:
 - Fb = 1500 psi, E 1,600,000 psi, Fv = 175 psi
- The indicated species and grade shall be used in the following locations:

General Framing			
Studs	. Hem-fir,	Stud or No.	3 grade or bett
Plates	. Hem-fir,	No. 2 grade	or better
Joists, Headers, Rafters	. Hem-fir,	No. 2 grade	or better
Beams, Stringers,		_	
Posts, Timbers	Hem-fir,	No. 1 grade	or better
Blocking	. Hem-fir,	Utility grade	or better
Furring	. Hem-fir,	Standard gro	ide or better

- 4. All repetitive framing members are to be spaced at 16" o.c. u.n.o.
- 5. Roof sheathing shall extend fully under overbuilt areas of roofs
- Provide double studs (minimum) under all headers, or built-up beams unless otherwise noted. Such studs shall continue from point load application to the foundation. Header shall be supported on jamb stud and be designed to support load imposed.
- 8. All beam over post connections shall have a metal post cap unless otherwise noted.
- 9. Bolt holes through wood shall be drilled $\frac{1}{16}$ " maximum larger than the diameter of the bolts to be installed. Bolts through wood shall be fitted with standard washers at head and nut ends. Edge of a bored hole shall not be within $\frac{1}{2}$ inch of the stud edge. Bored holes shall not be located at cut or notch in the studs.
- 10. A hole greater in diameter than 40 percent of the stud width may not be bored in any wood stud. Bored holes in diameter equal to 60 percent of the width of the stud are permitted in non-load bearing partitions or walls where each bored stud is doubled provided not more than two such successive double studs occur.
- 11. All wood framing exposed to weather shall be preservative pressure treated Southern Yellow Pine No. 2 or Better

GENERAL WOOD FRAMING CONT .:

- 12. Non-load bearing interior partitions shall be 2x4 studs at 16" o.c. Headers over openings in interior non-load bearing partitions shall be (2)-2x4. Nail plate to stud with two 16d nails. When top plate is parallel to ceiling of floor framing install 2x4 cross blocking not more than 4'-0" o.c. See attached details for top plate
- 13. Solid blocking to be installed below all studs or posts that do not bear directly on floor joists or trusses so that axial load is transferred to the wall below.
- 14. All studs to be continuous from floor to floor or floor to roof.
- 15. Verify that surfaces to receive rough carpentry are prepared to required grades and dimensions. Do not begin work until unsatisfactory conditions are corrected.
- 16. Coordinate with other trades. Provide required grounds, blocking, wood backing and framing. Perform cutting and patching of rough carpentry work as required.
- 17. Framing lumber shall be sound, thoroughly seasoned, surfaced four sides, well manufactured and free from warp not correctable by bridging, blocking or nailing. Moisture content shall be a maximum of
- 18. Stack all material minimum of 6" above ground to insure proper ventilation and cover with
- 19. At stacked wall openings provide matching cripple studs below all jack studs
- 20. Floor and Roof Framina:
 - a. Joists shall be toe nailed to wood support with two 10d nails.
 - b. Minimum bearing for joists 15"
 - c. End of joists shall be lapped over bearing and nailed together with (3)-16d nails; minimum lap = 4".
 - d. Maximum joist overhang 12" unless otherwise noted.
 - e. Joists shall be doubled under parallel partitions.

unless noted otherwise on plans.

- f. Bridging shall be solid using 2x joist depth installed in offset fashion or 1" x 3" cross bridging type . Maximum spacing = 8 ft.
- q. Rafters to be connected to hip and valley members with a minimum of (6)-16d equally spaced unless noted otherwise on plans.
- h. All rafters to LVL ridge connections to made with a minimum of (6)-16d toe nails equally spaced and a single A34 Simpson angle. Use A34 Simpson angle each side
- at a (2) or more built up rafter. i. Valley's and hips to be connected to supporting elements with a minimum of (8)-16d
- j. For framing openings up to 2'-0" wide, double the members on each side of the opening Larger openings shall be called to the attention of the Engineer if not shown on the drawings.
- k. If framed openings are double framed, nail inner stud to outer stud with 16d nails at 24" o.c. Toe pail inner stud to wall plate with (2) 8d nails or end nail with (2) 16d nails. Nail outer stud to header with (4) 16d nails and to top plate with (2) 8d toe nails. It single framed, toe nail jam stud to wall plates with (2) 8d nails or end nail with (2) 16d nails. Toe nail jam stud to header with 8d nails.
- a. Bearing walls will be 2x6 at 16" o.c., unless otherwise noted
- b. Study shall be nailed to the sole plate with three 10d or four 8d toe nails.
- c. Where structural sheathing overlaps sole plate nail sheathing to sole plate at 6"maximum center
- d. Use 2x bridging at mid-height
- 22. Plates (Bearing or Non-bearing): a. Sole plates shall be nailed to subfloor and joists with 16d nails at each joists.
 - b. Top plates for bearing partitions shall be two 2x6 or a continuous header. Plate members of partitions shall be lapped or anchored to exterior wall framing. Splices in lower member of top plate shall occur over studs. Nail plates to studs with two 16d nails 16" o.c.
 - c. Reinforce plates with steel straps when cut for piping or duct work.
 - d. Sill plates bearing directly on foundation concrete or cmu shall be pressure treated lumber, 0.25CCA minimum Southern Pine No. 2 or better. Anchorage shall be as per attached details.
- e. Bottom plates at all walls resting on soncrete to be double 2x. General Contractor option to use single 2x plate at non-bearing or non-shear walls.

23. Beams and girders:

- a. Beams and girders shall bear a minimum of 4" on supports
- b. Where beams and girders of nominal 2" members are shown, hail with two rows of 16d nails spaced not more than 24" o.c., locate end joints in members over supports.
- c. Splices in beams shall be only over supports unless otherwise specified by the Structural
- d. All built-up wood beams wider than 6" will be bolted with %" diameter through-bolts at 2'-0" o.c. staggered spacing, unless otherwise noted.
- e. Beams and girders shall bear over the top of all posts where they exist at either end.

- a. The lateral bracing system specified in these documents is comprised of the shear capacity of walls designated as shear walls.
- b. All shear walls that are perpendicular to floor framing require shear blocks in the floor cavity to develop transfer of horizontal diaphragm forces from the deck to the lateral bracing system. Provide nail on hardware at roof as specified on drawings.
- c. All shear walls that are parallel to floor framing require premanufactured ladder braces inthe floor cavity to develop transfer of horizontal diaphraam forces from the deck to the lateral bracing system. Provide nail on hardware to roof as specified on the drawings. Premanufactured ladder braces are 2x braces added to the continuous bearing member required over walls framed parallel to truss spans.
- d. Shear walls must begin and end with double studs minimum. Refer to plans for additional requirements. These studs must be blocked vertically (minimum 2x4) to be continuous through floor framing space. Toe nail each stud and vertical blocking with (4) 8d nails. Shear walls must be sheathed continuously from bottom of wall.
- e. Provide 2x bridging at mid-height.

remove until permanent work has been completed.

- f. The lateral bracing system includes the following structural components to resist the wind and seismic forces:
- 1. Party walls with required nailing, sill bolts and shear blocks (or ladder braces) as noted on building plans.

25. Temporary erection bracing shall be provided to hold structural timber securely in position. Do not

2. Shear walls with required nailing, sill bolts, hardware when required and shear blocks (or ladder braces) as noted on building plans.

DECKING AND SHEATHING:

Current edition of Plywood Association Grading Rules are to be followed.

- Combined subfloor/underlayment shall consist of A.P.A. X" thick plywood fongue and groove, with exterior glue which conforms to Product Standard PS-1 for Construction and Industrial Plywood. Advantech product of equivalent strength & thickness may also be used.
- Decking for floors shall be $\frac{23}{22}$ " [$\frac{1}{2}$ "] thick [T. & G. plywood sheathing] [oriented strand
- board (OSB)] [(sturdy floor)] with panel span rating of $\frac{1}{2}$.] Subflooring shall be nailed with 8d common or 6d annular or spiral threaded. Nails shall be
- spaced not more than 6" o.c. edges and 12" o.c. intermediate. Space panel ends $\frac{1}{16}$ " and panel edges $\frac{1}{16}$ " to permit expansion due to varying moisture
- 4. Plywood/decking shall be placed with face grain parallel to span. Stagger all joints.
- 1. Plywood roof to be C-DX P11 $\frac{3}{16}$ installed with grain of outer plies at right angles to joists and be staggered so that end joists in adjacent panels occur over different joists. Provide at least $\frac{1}{16}$ " joint at panel edges to permit expansion due to varying moisture conditions. Provide plywood clips spaced no more than 12" o.c. except on roofs to receive finish metal.
- Attachment of decking to roof framing shall be made with galvanized 8d spiral threaded or annular nails. Nails shall be spaced not further than 6" o.c. edges and 12" o.c. intermediate.

- 1. Wood sheathing at shearwalls shall be 15/2" [1/2"] thick [OSB] [plywood] grade
- Wood sheathing shall be American Plywood Association Grade C-D, interior grade with external glue Group 1 or 2.
- 3. Exterior sheathing shall be 1/4" exterior grade exposure 1 OSB board [1/4" thick plywood]. Attachment shall be galvanized 8d common nails at 6" o.c. at edges of panel and 12" o.c. at intermediate support locations, unblocked. This attachment of exterior OSB [plywood] is in addition to any shear wall requirements indicated elsewhere.
- 4. Nail wood sheathing to study, plates and blocking with 8d nails spaced at 6" o.c. along all edges of plywood sheets and 12" o.c. along intermediate members u.n.o.
- 6. [Interior shearwalls shall be sheathed with 3/8" gypsum sheathing board. Exterior shearwalls

[Gypsum sheathing for shearwall shall be $rac{\pi}{2}$ " thick and free of imperfections and conform

shall be sheathed with $\frac{1}{16}$ " OSB board structural 1 on the outside face and $\frac{1}{16}$ " gypsum

PREMANUFACTURED WOOD TRUSSES

sheathing board on the inside face.

- 1. Trusses are designed for in service conditions only. Store off the ground and under waterproof cover. Contractor shall take necessary precautions to properly brace trusses during lifting and erection until all diaphragms are installed. Store and handle trusses in a vertical position, taking care to prevent out of plane bending. Set and secure trusses level, plumb and in correct locations. Insure that truss ends have sufficient bearing area Install permanent bracing and bridging prior to application of loads. Cutting and altering of members is not permitted without prior approval of the Manufacturer and the Structural
- 2. Truss lengths and profiles shall be coordinated with architectural drawings prior to fabrication. Configuration and size of web and chord members shall be determined by truss
- 3. Furnish all labor, material and equipment necessary for design, fabrication, delivery, and
- erection of all fabricated wood trusses and related shop fabrication members. 4. Design and fabrication criteria of all wood trusses shall meet with "National Design Specifications for Stress-Grade Lumber and its Fastenings" by National forest Products Association (latest revision). "Timber Construction Standards" by American Institute of Timber Construction (latest revision), and "Design Specifications for Light Metal Connected Wood
- Trusses" by Truss Plate Institute. 5. Trusses shall be designed and fabricated by truss manufacturer. The design shall be
- prepared by a Registered Engineer bearing a license in the state the project is located. 6. Shop drawings, signed and sealed by a Professional Engineer registered in [The State the project is located in], shall be submitted to the architect for review prior to fabrication.
- Shop drawings shall include the following items:
- a. Plan lavout identifying all trusses. b. Calculations for load determination on trusses, giving all uniform or concentrated
- c. Truss configuration drawing giving stresses on all members including plates and
- reactions at supports.

manufacturer

- d. Deflections.
- e. Lumber Grades.

Truss Plate Institute specification TPI-74.

- f. Metal Connector types and sizes. The moisture content of lumber shall not exceed 19% nor be less than 7% at the time of
- Chord and web members shall be either Southern Yellow Pine or Douglas Fir. All trues connectors plates shall be manufactured from structural quality galvanized sheet metal not less than 20 gauge thickness with a minimum yield of 33,000 psi and a minimum ultimate tensile strength of 45,000 psi. The corrosion resistant coating shall meet or exceed ASTM A446, standard specification for sheet metal. Press-fit metal plates shall comply with
- 10. Open joints which depend on stiffness of metal connector plates to transmit stresses and improper fitting joints will not be permitted.
- 11. Dead knots and waves on lumber shall may be used under connector plates if the plates are increased (overplated) to account for missing teeth.
- Design and detailing of premanufactured products, connections and accessories shall be in accordance with the recommendations of the A.I.T.C. "Timber Construction Manual" and N.F.P.A "National Design Specifications for Wood Construction".

Wentworth Hall Library **Expansion**

Washington Street Islington, MA

OWNER

FOUNDATION PROJECT BID# ECON-20-B-003



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9.17.19

REV# DATE ISSUANCE

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construction and is to notify McKay

Architects of any discrepancies

JOB NO

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General Notes II

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PREMANUFACTURED WOOD TRUSSES CONT.

13. Truss manufacturer shall design all floor and roof truss for all gravity, shear and lateral loads as noted herein and on plans. Add the truss selfweight to these loads.

<u>Design Lòads:</u>

Top Chord Live = [30] psf (or snow drift where applicable) Top Chord Dead = 10 psf Bottom Chord Dead = 5 psf Total Load = \(50 \) psf (or snow drift where applicable) Duration Factor = 1.15

<u>Corridors</u> Top Chord Live = Top Chord Dead = Bottom Chord Dead = 💆 Total Load = Repetitive Factor = 1.15

Concentrated Loads:

- All Concentrated Loads, partial uniform loads, or combinations thereof shall be determined by the truss manufacturer and accounted for in the design of the trusses. The truss system shall be engineered to accept all imposed loads as indicated above. Truss manufacturer will provide calculations indicating additional snow and dead loads for the roof locations with gussets, crickets and valley locations requiring additional roof framing intersections of higher or lower roofs in accordance with ANSI AS8
- 14. Roof trusses shall be designed to withstand uplift due to wind in accordance with [section 1611.11 of the Massachusetts State Building Code.] [Governing Code.] [These notes.]
- 15. Maximum live load deflection shall be span/240 for rook trusses and span/480 for all
- 16. Each roof truss shall be held down to the top plates with two Simpson seismic and hurricane ties H10 each side of truss or better.
- 17. All floor trusses shall bear directly above studs at the wall below so axial load shall be
- transferred from floor to walls through the plate.
- 18. Verify that surfaces to receive trusses are prepared to required grades and dimensions. Do not begin work until unsatisfactory conditions are corrected.
- 19. Provide and install rough hardware and metal fastenings as indicated, specified or required for proper installation of trusses. Nails, spikes, screws, bolts and similar items shall be sizes and types to properly secure members in place.
- 20. [All prefabricated wood floor trusses shall have a center duct opening. Coordinate opening with architect and mechanical drawings.

LAMINATED VENEER, PARALLEL STRAND & GLULAM LUMBER:

- Material, manufacture, and quality control shall be in accordance with the proposed Commercial Standard "Structural Glued Laminated Timber" of AITC and Current WCLA glued laminated standards.
- 2. LVL lumber shall be fabricated from ultrasonically graded Southern Pine Veneers in accordance with NER 126.
- 3. PSL lumber shall be fabricated from long, thin strands or either eastern or western species wood bonded together with a microwave process.
- 4. Eastern PSL lumber (ES) may include Southern Pine or Yellow Poplar. Western PSL lumber (WS) may include Douglas Fir, Longpole Pine, Western Hemlock or White Fir.
- 5. PSL lumber shall be fabricated in parallel strands (PSL) in conformance with NER 292.
- GL lumber shall be fabricated from laminated 2x lumber according to standards set forth in NDS and other applicable codes.
- 7. The members shall have the following minimum design stresses:

Stress Type	Member T ype		
	LVL	P/SL	GL
Modulus of elasticity (E)	2,000 ksi	2 <mark>,</mark> 000 ksi	2,000 ksi
Flexural stress (fb)	2,600 psi	/2,900 psi	2,400 psi
Shear modulus of elasticity (G)	125,000 psi/	125,000 psi	125,000 psi
Compression perpendicular to grain and perpendicular to wide face of strands (f'c)	525 psi	525 psi	525 psi
Compression perpendicular to grain and parallel to wide face of strands (f'c)	750 psi	750 psi	740 psi
Compression parallel to grain (f'c)	/ 2,510 psi	2,900 psi	2,400 psi
Horizontal shear perpendicular to wide face of strands (fv)	285 psi	290 psi	290 psi
Horizontal shear parallel to wide face of strands (fv)	_	210 psi	210 psi

- Heal cuts on beams must not overhapa inside face of support member.
- LVL and PSL members shall be fabricated without camber. Glulam members may be cambered to remove dead load deflection.
- 10. The LVL. PSL and GL members shall be protected from the weather while in storage. Care shall be exercised during handling to prevent damage to the same. A coat of end sealer shall be supplied to ends/of all members as soon as practical after end trimming.
- Adhesives shall comply/with ASTM D2559-76 Adhesive for Structural Laminated Products for use under exterior (wet use) exposure conditions.
- 12. Prior to start of erection, verify the locations and elevation of all bearing surfaces and embedded anchors. Report any deviation to the General Contractor. Do not begin work until unsatisfactory conditions are corrected. Take measurements on site as required for correct fabrication and installation.
- 13. Fit members together properly and accurately without trimmina, cutting or other modification not approved by the Engineer
- The completely assembled work shall be inspected and approved by the Architect and Structural Engineer or their designee before being covered, restrained or loaded by other

WOOD FASTENING & HARDWARE:

- 1. Expansion anchors shall be Hilti "kwik bolts" or an approved equal.
- 2. Adhesive anchors shall be Hilti "HVA anchors" or an approved equal.
- 3. Powder actuated fasteners shall be Hilti "DS Series Fasteners" or an approved equal
- 4. All wood fasteners and hardware shall be as manufactured by Simpson Strong Tie. Alternates shall be submitted to engineer for review.
- 5. Holdowns, straps and hurricane clips shall be installed according to manufacturer's
- 6. Metal framing anchors shall be used for all connections where shown on the drawings. Provide nails and bolts according to manufacturer's requirements.
- 7. Connection hardware type to be as follows or approved equal unless noted otherwise on
 - Trusjoist on Microlam header Simpson Type MIT Trusjoist on Microlam or masonry wall - Simpson Type WM Microlam to Microlam connection - Simpson Type GLT Shearwall tie-downs - Simpson Type HD Microlam on wood or steel column - Simpson Type CC Sloped rafter to header - Simpson Type LSV Flush framed 2x lumber - Simpson Type U/or HUS Steel Strapping - 18 and 20 Ga. 4" & 6" Galv. 33 ksi steel
- 8. Nailing installation and materials are to be in compliance with A.I.T.C. NDS and in accordance with the 2009 International Building Code, Table 2304.9.1.
- 9. Gun nails may be used in lieu of hard nailing. Gun nail sizes shall be as follows:

/	
Penny Weight	<u>Gun Nail Diameter</u>
8d /	0.113"
10d /	0.123 "
12d /	0.123"
16d /	0.133"

- 10. All nails shall be common type u.n.o. Where indicated to be galvanized, nails shall be hot-dipped conforming to ASTM-A153.
- 11. Nails shall have a minimum penetration into the supporting member of 6 times the wire diameter unless ofherwise noted on plans
- 12. Edge distance for all nails shall be minimum of 2 times the wire diameter unless otherwise

TJI JØIST SPECIFICATIONS

- Procedures for
- 1. Designing, installing, securing, bracing, etc., of all ioists.

Shop drawings:

- a. Include the following on submitted shop drawings
 - 1. Stamp and signature of engineer responsible for preparation of all joist design and lavout drawing.
 - Dead and live design loads in plf.
 - 3. Name and trademark of Joist Fabricator and project name and location.
- 4. Concentrated load requirements have been designed for and shown on documents
- 5. Joist connection hardware requirements.
- 6. Joist block requirements.
- 7. Web stiffener and squash block requirements
- b. All joist shop drawings must be reviewed and written approval provided, by General Contractor, prior to submittal of shop drawings to Structural Engineer.
- c. Shop drawings can not be reviewed by Goldstein-Milano LLC without seal and signature of Joist Company Engineer on all joist engineering sheets and layout drawings.
- d. All roof joists must be designed for uplift loads, uplift values at each bearing point must be shown on engineering sheet.

3. General:

- a. Fabrication of joists shall be designed and manufactured in accordance with NES report no. NER-200, except where this specification exceeds report requirements.
- b. Manufacturer's name or trademark and joist type shall be visible on all joists.
- c. Joist Fabricator shall have his plant inspected four times per year by an independent testing laboratory. Regulations and copies of inspections made available to owner upon
- d. Joist Fabricator shall specify hardware required at joist to joist connections.
- e. Joists to be designed per table 16-B (13) (fire sprinkler structural support).
- f. Joists shall be designed for a maximum deflection of L/480 (live load) and L/240 (total

SUBMITTALS:

- Submit substantiating data for each concrete mix design contemplated for use to the Structural Engineer not less than six weeks prior to first concrete placement. Data for each mix shall, as a minimum, include the following:
- a. Mix identification designation (unique for each mix submitted).
- b. Statement of intended use for mix.
- c. Mix proportions, including all admixture used d. Manufacture's data and/or certifications verifying conformance of all mix materials, including admixtures, with specified requirements.
- e. Wet and dry unit weight. f. Entrained air content.
- g. Design slump.
- . Required average strength qualification data per ACI 301 3.9.1 and 3.9.2. Submit separate qualification data for each production facility which will supply concrete to the project.
- Submit shop drawings for fabrication, bending and placement of concrete and masonry reinforcement. Comply with ACI Detailing Manual (SP 66).
- Submit Structural Steel Shop Drawings. Clearly indicate profiles, sizes, spacing and location of structural members, connections, attachments, anchorages, framed openings, size and type of fasteners, cambers, and clearances. Indicate welded connections using standard AWS welding symbols. Clearly indicate net weld lengths, sizes and welding sequences. Clearly identify all high strength bolts not required to be tensioned (installed "snug tight" and identified by AISC.
- Submit Metal Deck Shop Drawings. Indicate decking plan, deck profile, dimensions, gage, anchorage, supports, projections, openings and reinforcement, finishes, applicable details and accessories, type, locations and size of welds.
- 5. Furnish wood truss shop drawings. Indicate truss framing plans, pitch, span and spacing of trusses, gauge thickness, nominal sizes and location of connectors at joints, bearing and anchored details, framed opening, permanent bracing and bridging and all related items. Submit Manufacturer's instructions on lateral bracing with shop drawings. Submit calculations performed by (Massachusetts) professional engineer.

INSPECTION CONCRETE:

- Concrete inspection and testing will be made in accordance with building code requirements, and Contract Documents, and will include the following:
- a. Testing concrete for strength, slump, air content, temperature, and unit weight
- b. Marking and testing concrete cylinders, including furnishing cylinder container for
- c. Transporting and storing of all specimens involved in testing and inspection. Test cylinders are to be transported to laboratory not later than 24 hours and not earlier
- than 16 hours after casting. d. Inspection of mixing and placing of concrete at the site, including record of: amount and location of concrete placement, method of placing concrete, and any other pertinent
- 2. The Testing laboratory will take specimens as follows: At least one set of four cylinders for each 50 cubic yards or fraction thereof of each class of concrete, but not less than
- a. For concrete placed by plumbing, test specimen and concrete used for determination of slump, air content and weight are to be taken at the point of placement of concrete into the forms.
- b. Samples will be obtained in accordance with ASTM C172.

one set for any one day's operation.

- c. Marking, curing and subsequent handling of test cylinders, except as modified herein. shall be in accordance with ASTM C31. Testing shall be in accordance with ASTM C39.
- d. The cylinder shall be placed in laboratory storage under moist curing conditions at approximately 70 degrees f within 24 hours after molding, and maintain therein until tested. Tests will be as follows:
- 1) One cylinder shall be tested at 7 days for information.
- 2) Two cylinders shall be tested at 28 days for acceptance. The acceptance test results shall be the average strength of these two cylinders
- 3) One cylinder shall be kept for eventual testing at 56 days to verify any marginal results of 28-day tests. If not required to be tested, cylinder will be discarded
- Test Reports: Reports of cylinder tests shall be submitted as specified herein within five days of laboratory testing. Test reports shall, as a minimum, include:
 - a. Results of field testing at time of sampling including date and time of sampling, amount of water added at site prior to sampling, ambient air temperature and concrete temperature, concrete slump and air content, and concrete wet unit weight.
 - b. Results of laboratory testing including date test specimen were transported to laboratory, date and age of concrete at time of testing, compressive strength of each cylinder tested, coverage compressive strength of tested cylinders, and specified design strength of concrete represented by the test.
- Additional Testing: Contractor shall bear the cost of testing and inspection resulting as consequence of the following:
- a. Work not in compliance with the Contract Documents.
- b. Testing requested by the Contractor or Subcontractor such as additional cylinders for early breaks, etc.
- c. Testing to verify the adequacy of work done without prior notice, without proper supervision, or contrary to standard construction practice.
- Reinforcing Steel Inspection: Concrete reinforcing shall be inspected prior to closing of concrete form work or placing of concrete. Inspector to verify size, spacing, quantity of reinforcing per latest contract documents.

INSPECTION GROUT:

- Prepare test specimens in accordance with the requirements of the governing building code. Comply with ASTM C1107.
- 2. For each day's production prepare, test and submit compression test results of one set of 3 (2" x 2") cubes made from each type of grout used in the field.

INSPECTION REINFORCED UNIT MASONRY:

- Prepare test specimens in accordance with the requirements of the governing building code.
- Tests, consisting of three prisms each made in the field from materials currently in use, shall be conducted for each 5000 square feet, or fraction thereof, of structural Unit Masonry throughout the course of construction. Not less than three such tests shall be conducted for the project.
- Mortar and groun tests shall be conducted on materials used to construct the first set of three prisms in B above. In the event such tests fail to achieve the required strength. perform additional testing as required by the Structural Engineer.
- Testing Agency shall provide special inspection complying with the requirements of the governing building code during the construction of the following work:

All CMU Walls

- Special inspection shall be performed by personnel experienced in Unit Masonry construction and acceptable to the Architect and Structural Engineer. The special inspector shall observe the preparation of all Unit Masonry prisms, and grout and mortar specimens.
- 1. Low-lift grouting techniques, the special inspector shall observe and verify compliance with contract documents for the placement of Unit Masonry units, reinforcing and grout on a schedule of at least twice each day that Unit Masonry construction is in
- High-lift grouting techniques, the special inspector shall observe and verify compliance with contract documents for the placement of Unit Masonry units, grout, and reinforcing immediately prior to closing of clean-outs for each section of Unit Masonry to be arouted: he shall continuously observe the arouting operation of the first 1000 square feet of Unit Masonry installed and on a schedule of twice for each three days that grouting operations are in progress thereafter
- Special inspection shall also include:
 - a. Verify size and spacing of all reinforcing. b. Verify all reinforcing is placed with required lap and development lengths, and is located properly in grouted cells.

INSPECTION - STRUCTURAL STEEL:

Testing and inspection will be made by an approved testing laboratory selected and paid by the owner. Contractor shall furnish testing agency access to work, facilities and incidental labor required for testing and inspection. Retention by the Owner of an independent testing agency shall in no way relieve the Contractor of responsibility for performing all work in accordance with the contract requirements.

- Furnish the Testing Agency with the following:
- a. A complete set of shop and erection drawings.
- b. 48 hour advance notice of complete work prior to spray fireproofing (where
- c. Full and ample means and assistance for testing all material.
- d. Proper facilities, including scaffolding, temporary work platforms, etc., for inspection of the work in the mills, shop and field.
- Each person installing connections shall be assigned an identifying symbol or mark, and all shop and field connections shall be identified so that the inspector can refer back to the person making the connection.
- The Testing Agency's inspector will perform his duties in such a way that neither fabrication nor erection is unnecessarily delayed or impeded. In no case will the inspector recommend or prescribe the method of repair of a defect.
- Field inspection by the Testing Agency of erected steel will be such as to assure that the work conforms to specified requirements and will include:
- a. Inspection of welding as required herein.
- b. Ascertainment of proper fit and alignment.
- c. Ascertainment that the welding is performed only by welding operators and welders who are properly certified. The Testing Agency shall witness such qualification testing of welding operators and welders, as may be required.

Welding and Materials:

- Inspection of welding by the Testing Agency will be such as to assume that the work conforms to specified requirements, and will include:
- a. Ascertainment that electrodes used for manual shielded metal-arc welding and electrodes used for submerged arc welding conform to the requirements of this section.
- b. Ascertainment that the approved welding procedure and the approved welding sequence is
- c. Ascertainment that the welding is performed only by welding operators and welders who are properly certified. The Testing Agency shall witness/such qualification testing of welding operators and welders, as may be required.
- d. Ascertainment that the fit-up, joint preparation, size, contour, extent or reinforcement, and length and location of welds conform to specified requirements of the contract drawings, and that no specified welds are omitted or unspecified welds added without approval.
- The Testing Agency shall test field welds in accordance with AWS D1.1 as follows:
- a. All welds 100% visual.
- b. Fillet Welds (u.n.o.): One spot test per member; magnetic particle
- c. Partial Penetration Welds: One spot /est per weld; magnetic particle.
- d. Full Penetration Welds: All completed penetration grove welds contained in joint and splices shall be tested one hundred percent (100%) by ultrasonic testing.

Additional testing will be required

- a. If more than 10 percent of the tested welds are rejected, then an additional 10 percent of all such welds shall be tested using the same method. This 10 percent additional testing process shall be repeated until the rejection rate drops below 1 to 10.
- b. All cost of additional inspection required by this paragraph shall be done at the Contractor's expense.
- In addition, if defec<mark>t</mark>ive welds are discovered, the remaining uninspected welds shall receive such ultrasonic or/magnetic particle inspection as may be required by the Structural Engineer.
- The welding inspector will have the authority to reject weldments. Such rejection may be based on visual inspection where in his opinion the weldment would not pass a more detailed
- Reports by the Testing Agency's inspector will contain, as a minimum, an adequate description of each weld tested, the identifying mark of the welder responsible for the weld, a critique of any defects noted by visual inspection or testing, and a statement regarding the acceptability of the weld tested, as judged by current A.W.S. standards. Reports shall be distributed as early as possible but not later than one work week after the tests have been performed. The Structural Engineer shall be notified, in the judgment of the inspector, test results require immediate comment.

INSPECTION - STRUCTURAL STEEL CONT.:

- 12. High Strength Bolts:
- a. The inspector shall determine the appropriate requirements of Sections J3 and M2/of the AISC "Specifications" are met.

b. Standard Bolts:

- 1) Verify Contractor's testing of installation procedures (turn of the nut) to achieve specified bolt tensions for each lot of bolts. Contractor to provide a calibrated device capable of indicating bolt tension.
- 2) Verify required bolt tension for all bolts.
- 3) If rejectable bolts are found in any connection all the remaining bolts in that connection shall be inspected for tightness. Inspection procedure shall be in accordance with "Specification for Structural Joints Using ASTM A325 or A490 Bolts" approved by Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation (Research Council on Structural Connections). Cost of additional inspection required by this paragraph shall be borne by the contractor.
- c. Tension Control (self-indicating) Bolts:
- 1) Verify Contractor's testing of bolt capacity to achieve specified tensions for each lot
- 2) Perform a visual inspection of all high strength bolted connections to assure that all torque-off lines have been sheared.

INSPECTION METAL DECKING:

- A. Metal Deck:
 - 1. The Testing Agency will visually inspect all metal deck to observe that the material is not damaged and has been installed to the requirements of the contract documents.
 - 2. The Testing Agency sha<mark>x</mark>l visually inspect all deck welds for size and spacing and verify they meet the requirements of the contract documents prior to being covered by other work.

Wentworth Hall Library **Expansion**

Washington Street Islington, MA

OWNER

FOUNDATION PROJECT BID # ECON-20-B-003



35 Bryant Street Dedham, MA 02026 ph. 781.326.5400 www.mckavarchitects.net

GOLDSTEIN-MILANO LL Structural Engineers

125 Main Street Reading, MA 01867 781-670-9990 (p) 781-670-9939 (f)

REV# DATE ISSUANCE

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Architects of any discrepancies

General Notes III

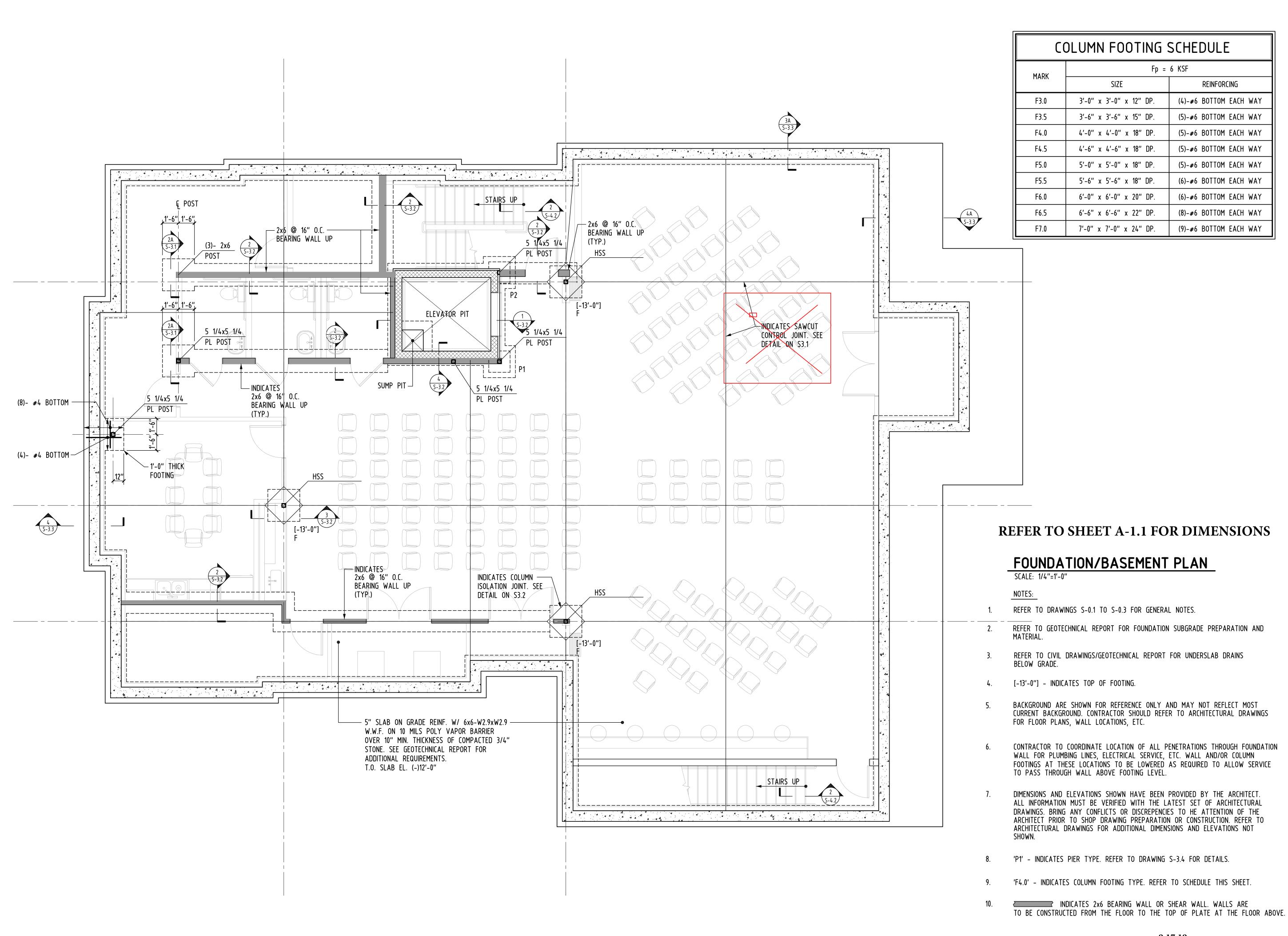
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SCALE

JOB NO

9.17.19

AS NOTED



Wentworth Hall Library Expansion 918

Washington Street Islington, MA

OWNER

FOUNDATION PROJECT BID # ECON-20-B-003

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Foundation Plan

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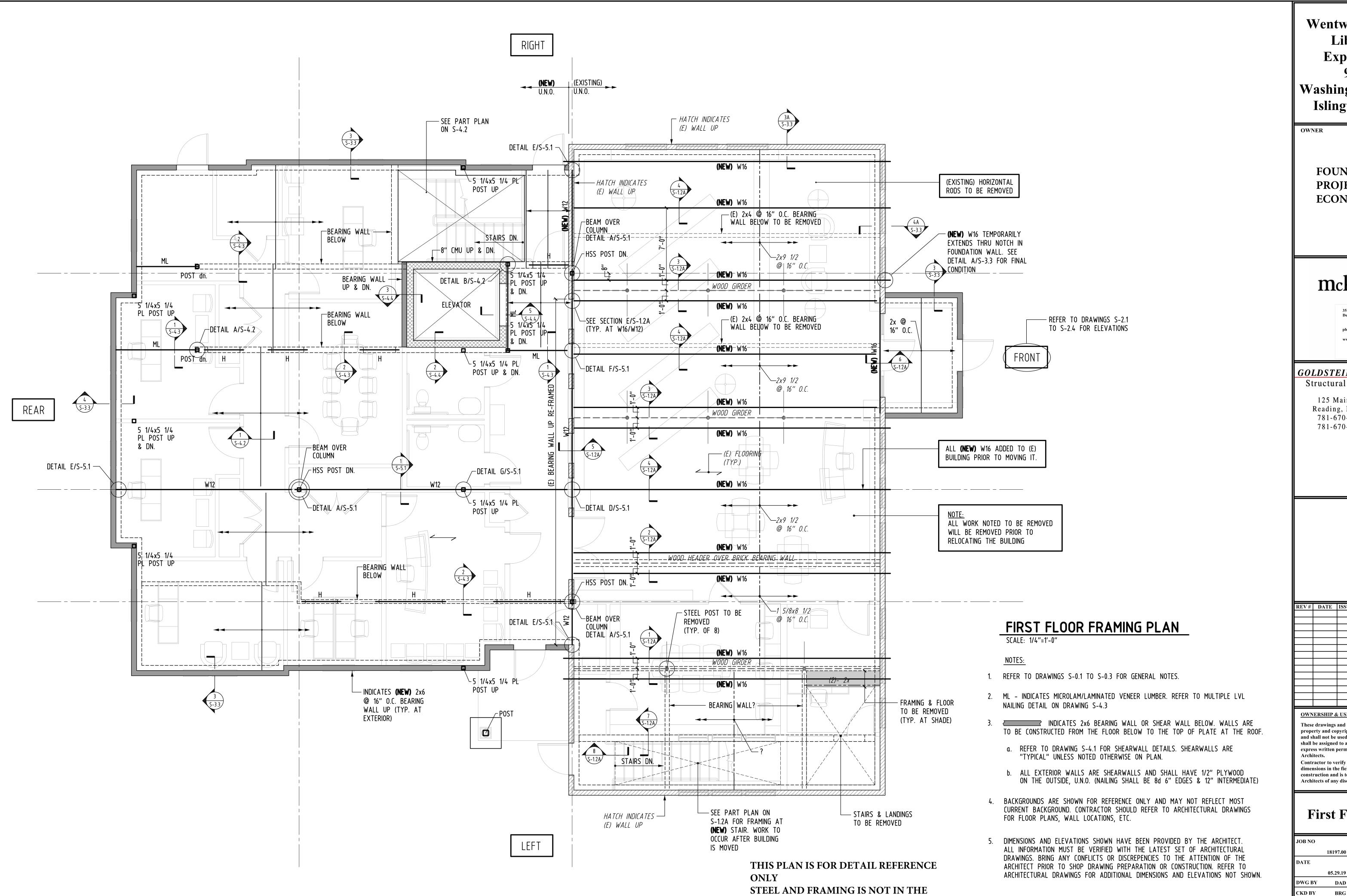
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SCOPE OF WORK

Wentworth Hall Library **Expansion** 918

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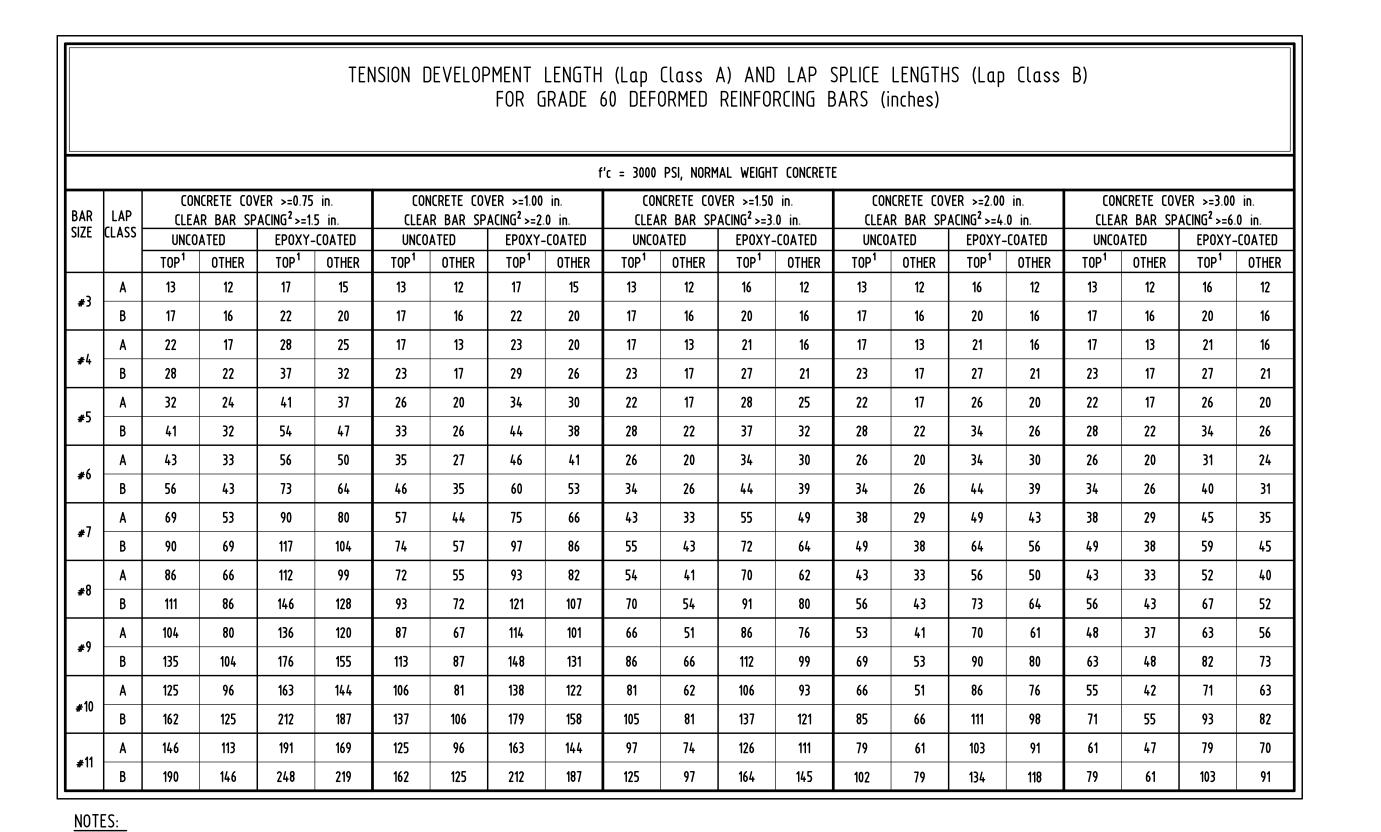
First Floor Plan

JOB NO 18197.00 05.29.19

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SCALE

9.17.19



- HORIZONT

BARS

-WATERSTOP

IF CONSTRUCTION JOINT EXISTS

AT CORNERS

(WHERE REQUIRED)

—12" MINIMUM TO TOP OF SLEEVES

(HOOK BAR WHERE Ld CAN NOT BE OBTAINED)

-MINIMUM CLEAR DISTANCE =

3x d_{max} OF ALL SLEEVES (TYPICAL)

- ADD ONE HALF OF PARALLEL (2)-#5 x 4'-0" LONG — DIAGONAL BARS AT EACH INTERUPTED BARS AT EACH SIDE CORNER (MINIMUM) OF OPENING, BUT NOT LESS THAN 2-#5 (1 EACH FACE) — TOP OF WALL TOP OF WALL -WHERE IT IS NOT POSSIBLE TO MAINTAIN SPLICE DISTANCE 36" MAX. HOOK BARS WHERE BEYOND OPENING, NOTIFY ENGINEER PRIOR TO BLOCKING BE MAINTAINED OUT OPENING (TYPICAL ALL SIDES) CLASS B SPLICE DIMENSION (TYP. MIN. #5 EACH FACE-– ADD MATCHING Π BARS **ADDITIONAL** AT INTERRUPTED BARS SQUARE / RECTANGULAR OPENINGS CIRCULAR OPENINGS

-FOUNDATION BEARING

ELEVATION

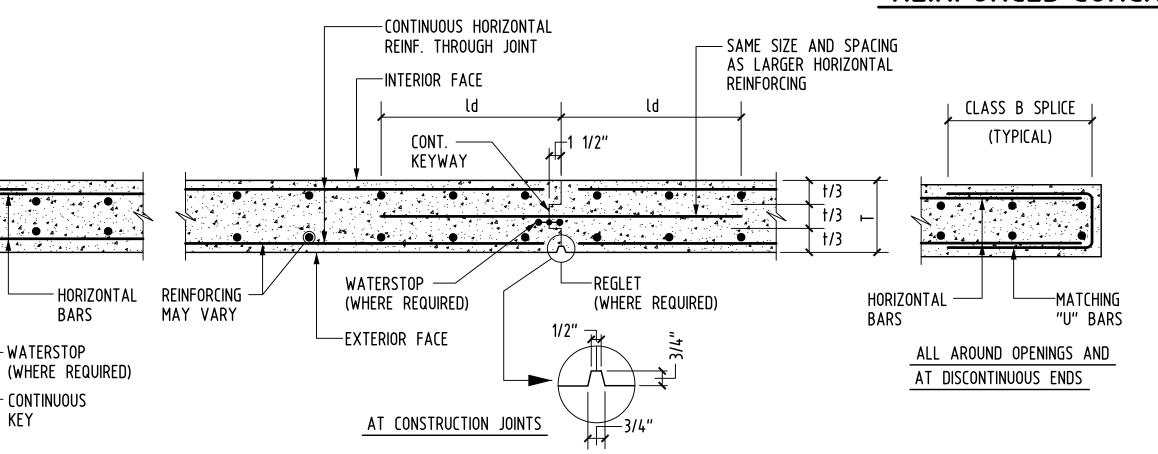
FOUNDATION

ELEMENT

___ LOWER

- USE AS SHOWN FOR OPENING SIZE LESS THAN WALL REINFORCING CLEAR BAR SPACING, ELSE APPLY SQUARE OPENING DETAIL AT LEFT.
- AT MULTIPLE OPENINGS MAINTAIN 3+ DIA. CLEAR SPACING & SUBMIT FOR REINFORCING REVIEW.

TYPICAL REINFORCING AT OPENINGS IN REINFORCED CONCRETE WALLS



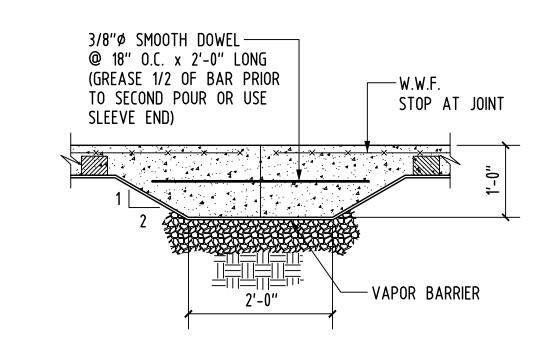
FOUNDATION BEARING —

ELEVATION

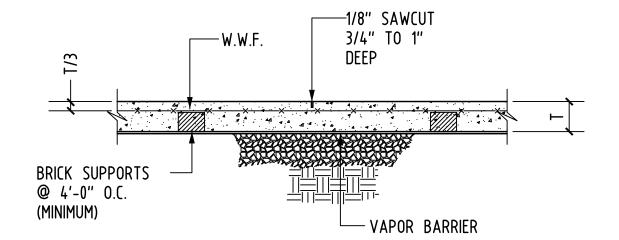
UPPER ——— FOUNDATION

ELEMENT

SUBGRADE -



CONSTRUCTION JOINT AT SLAB ON GRADE



CONTROL JOINT AT SLAB ON GRADE OWNERSHIP & USE OF DOCUMENTS

property and copyright of McKay Architects and shall not be used in whole or in part, or shall be assigned to a third party without the express written permission of McKay Contractor to verify all information and

dimensions in the field prior to start of construction and is to notify McKay Architects of any discrepancies

> Concrete **Details I**

TYPICAL CONCRETE WALL DETAILS

NOTES:

1. ALL HOOKS STANDARD U.N.O.

AT INTERSECTIONS

2. PROVIDE CONT. WATERSTOP AT ALL EXPOSED JOINTS ABOVE GRADE.

DRILLED-IN AND EPOXY DOWEL EMBEDMENT SCHEDULE		
REINFORCING SIZE	UNCOATED BARS EMBEDMENT DEPTH (INCHES)	
#4 BAR	6	
#5 BAR	7	
#6 BAR	8	
#7 BAR	10	
#8 BAR	12	
#9 BAR	13	
#10 BAR	16	

1. TO BE USED WHERE CAST IN PLACE DOWELS ARE OMITTED. USE PER ENGINEER OF RECORD DIRECTION ONLY.

(MINIMUM) ALLOWABLE GRADE CHANGE AT ADJACENT SOIL BEARING FOUNDATIONS

FOR OPENING THAT FIT BETWEEN HORIZONTAL & VERTICAL WALL

REINF. NO ADDITIONAL REINF. REQUIRED.

REFER TO PROJECT GEOTECHNICAL REPORT FOR ADDITIONAL REQUIREMENTS.

VARIES

TYPICAL MULTI-SLEEVE DETAIL AT FOUNDATION WALL

USE FOR 3 OR MORE SLEEVES

TYPICAL FOUNDATION

- ADDITIONAL MATCHING VERTICAL

REINF. EACH FACE

1. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.

CLASS B SPLICE

AT CORNERS

30" (TYPICAL)

TOP OF WALL

ADDITIONAL (2) -#5

9.17.19

FOUNDATION 2'-0" LENGTH CANNOT PROJECT BID # ECON-20-B-003 mckay FOR OPENING DIAMETER ≤6" THIS DETAIL NOT REQUIRED.

> GOLDSTEIN-MILANO LL Structural Engineers

Wentworth Hall

Library

Expansion

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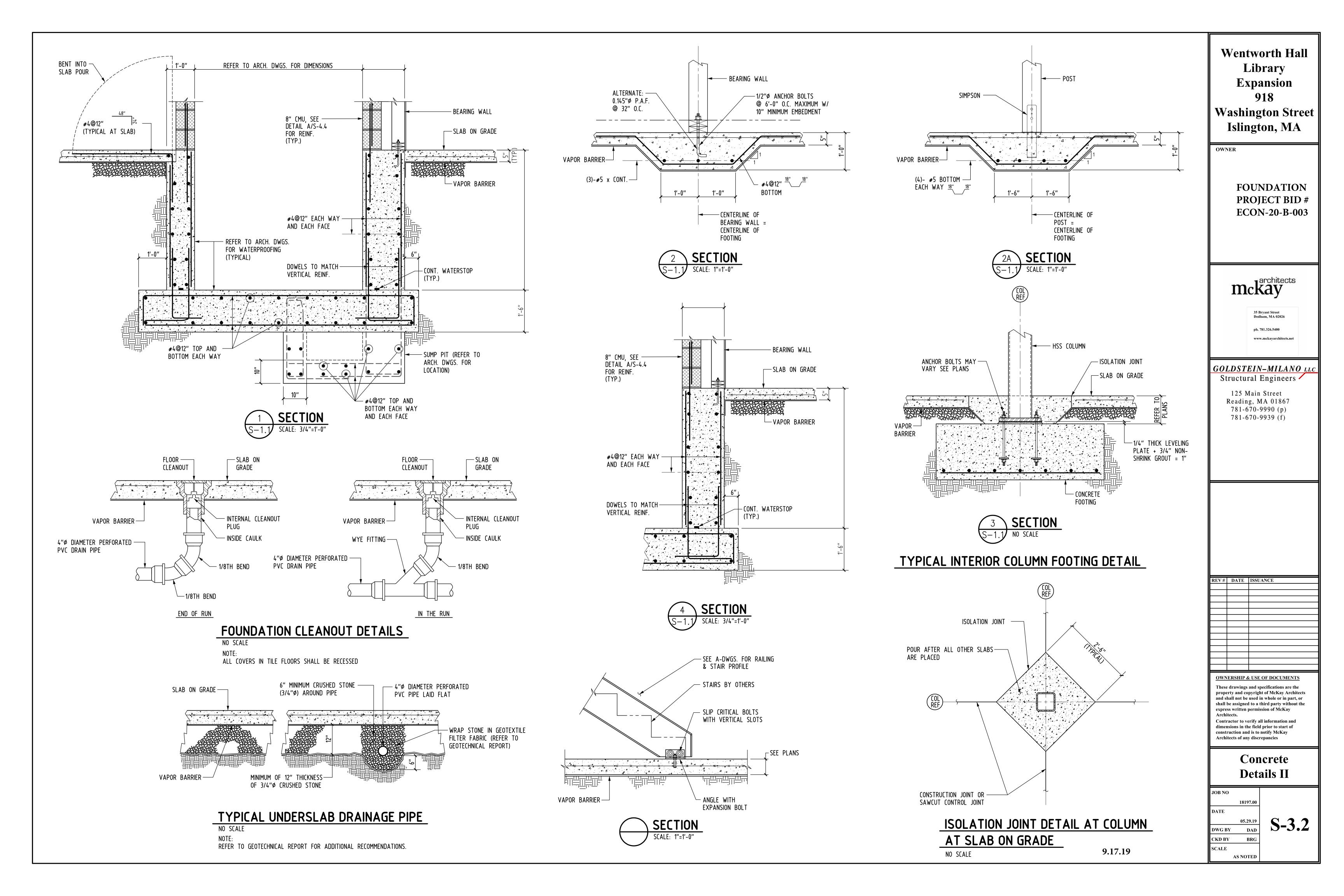
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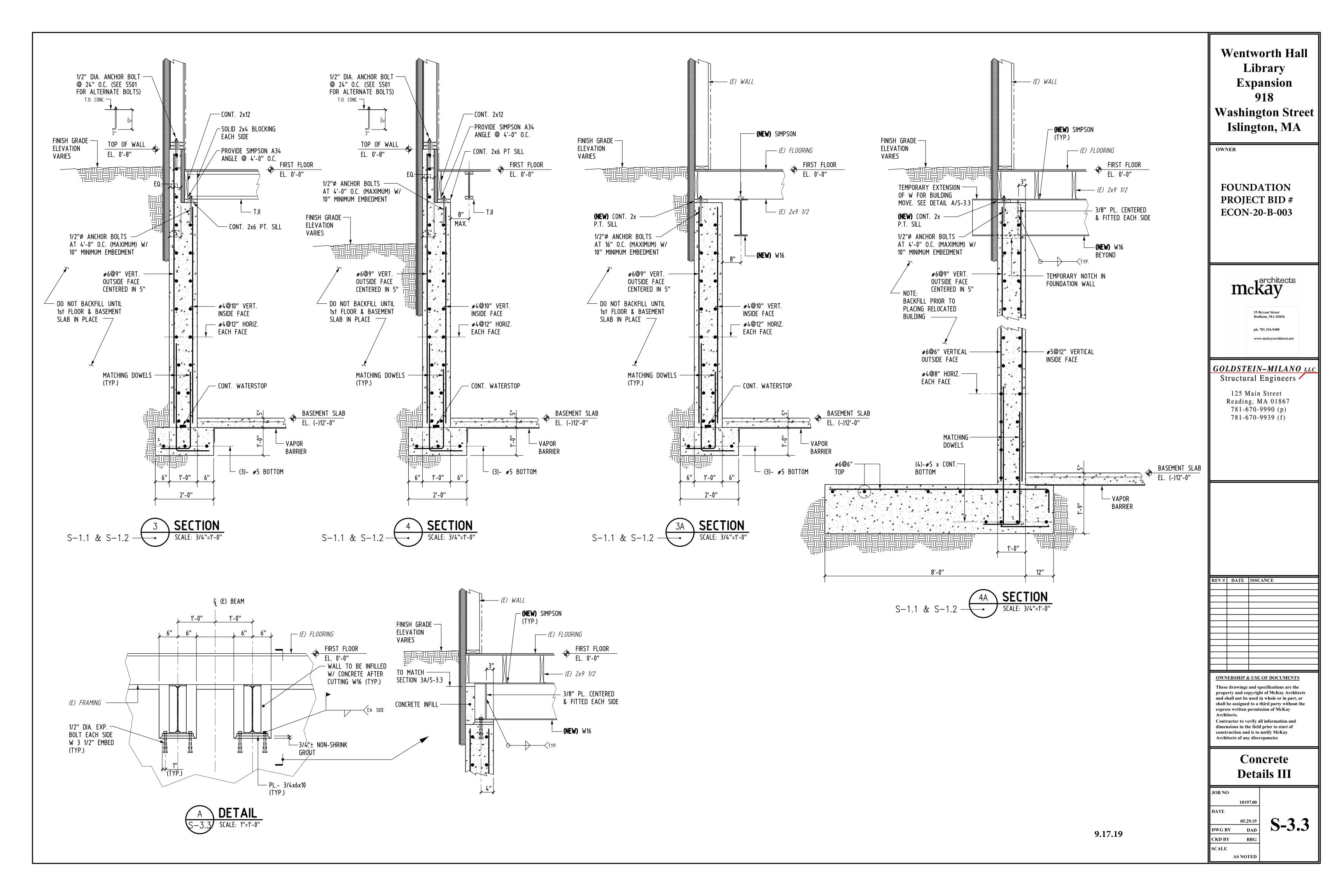
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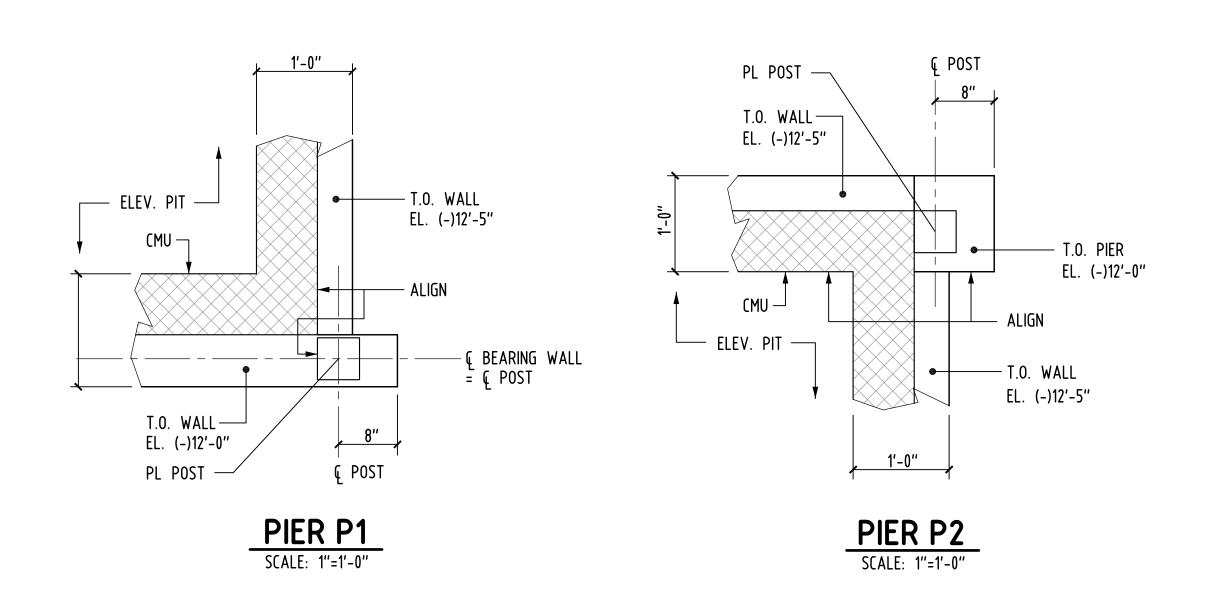
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Wentworth Hall Library Expansion 918

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Concrete Details IV

JOB NO

18197.00

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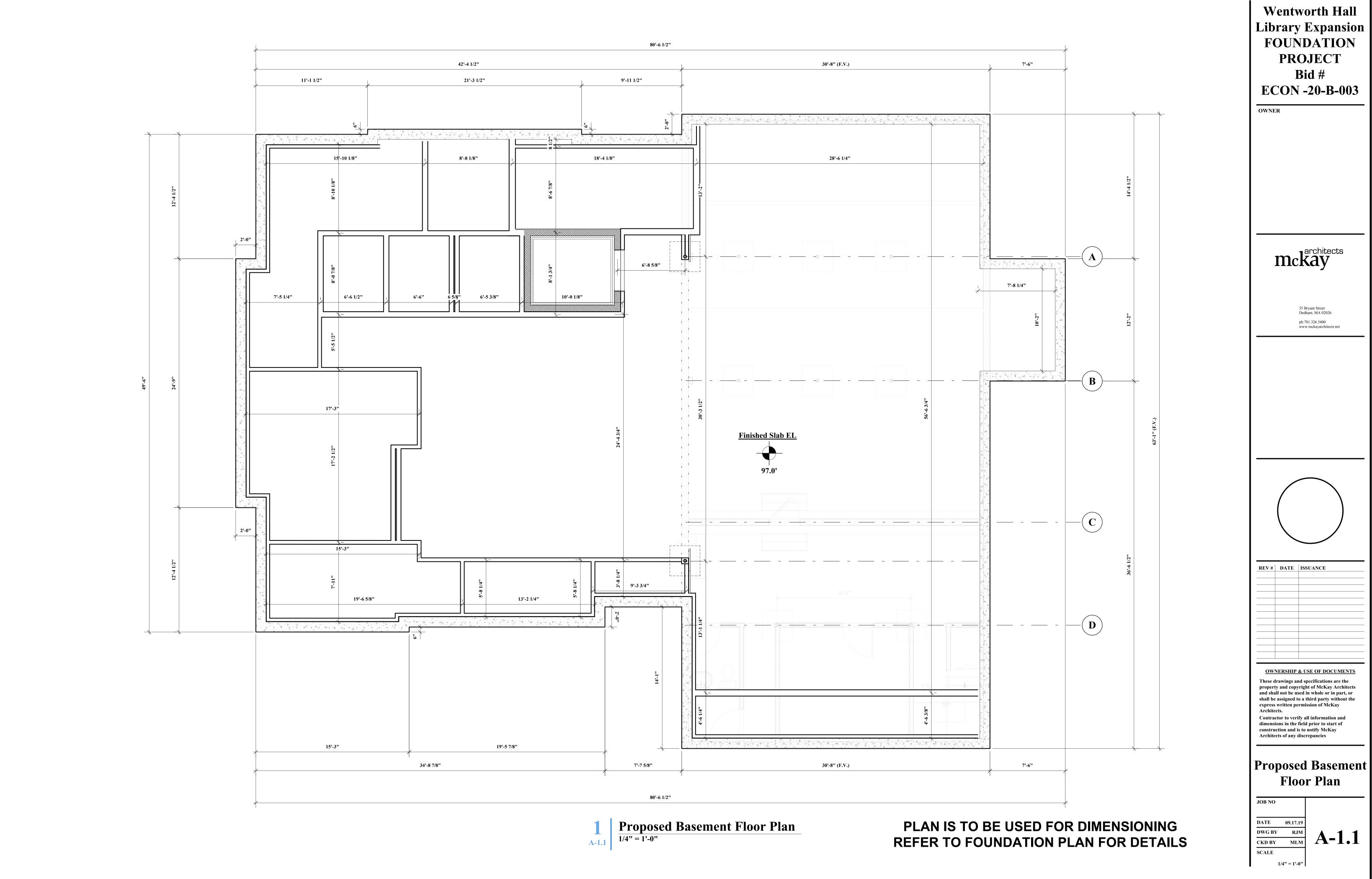
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Library Expansion