

# 20089 500 Market St / Portsmouth, NH Photographs taken by Aaron Wilson, P.E.

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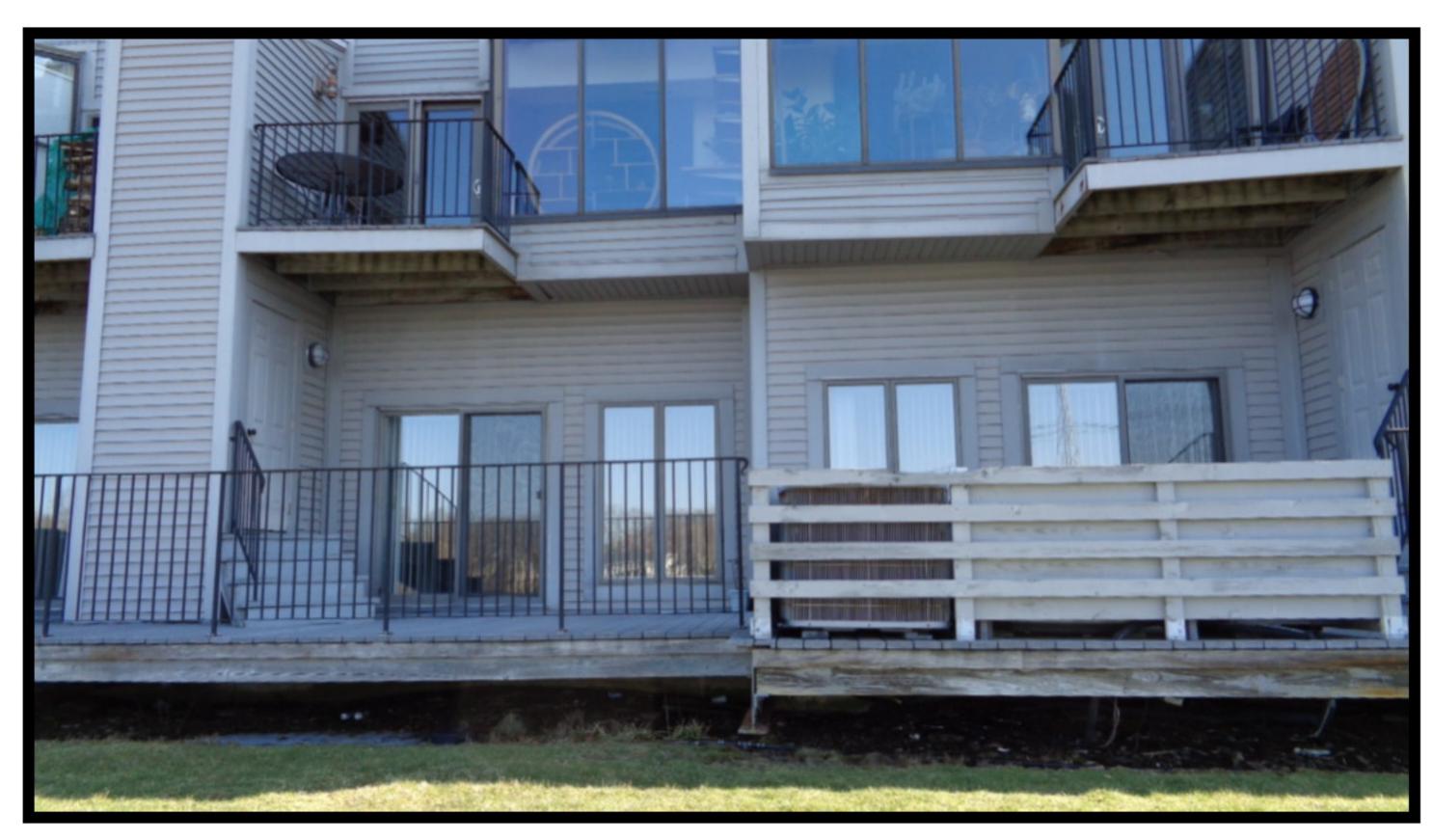




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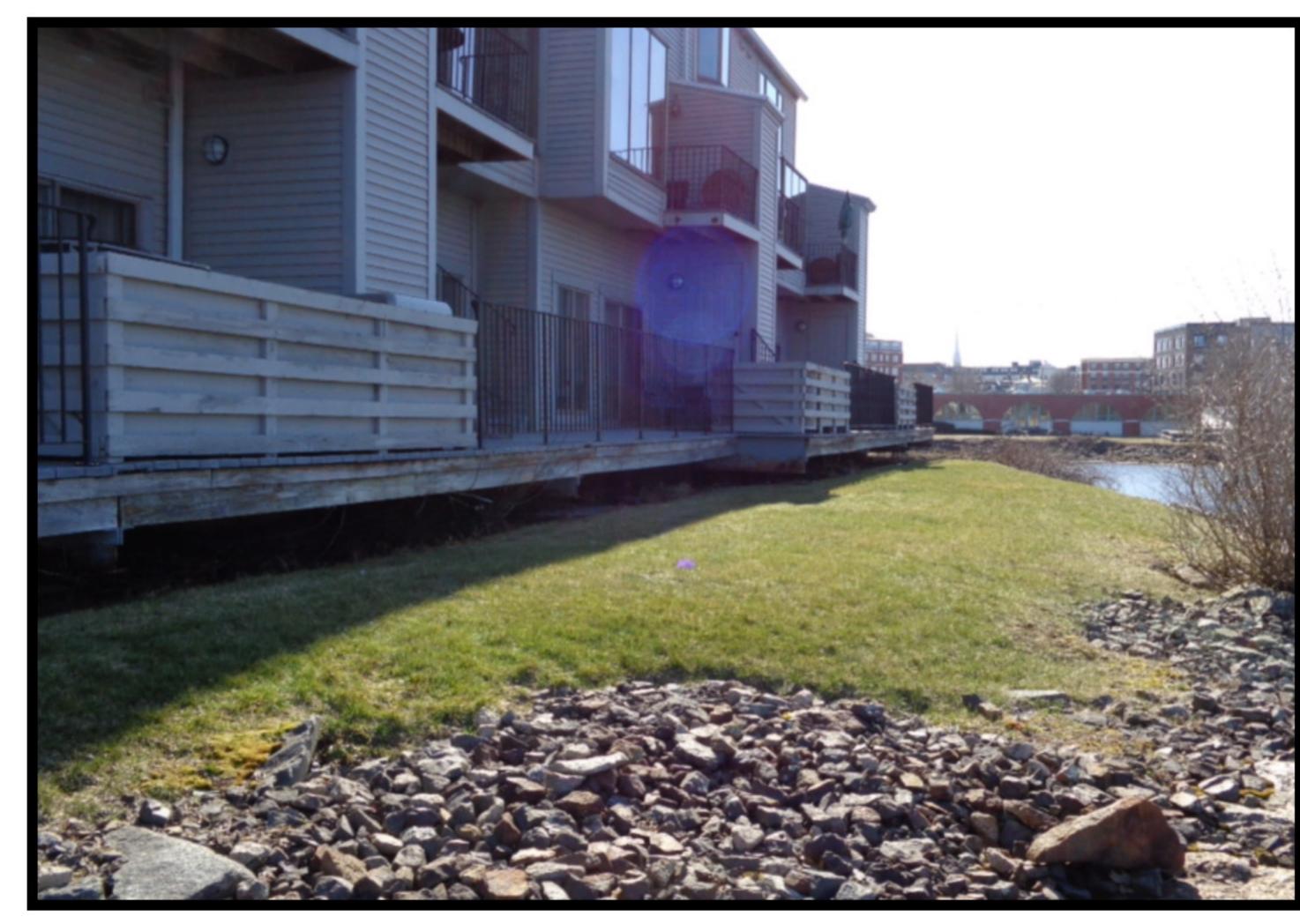
ASSOCIATED DESIGN PARTNERS, INC.

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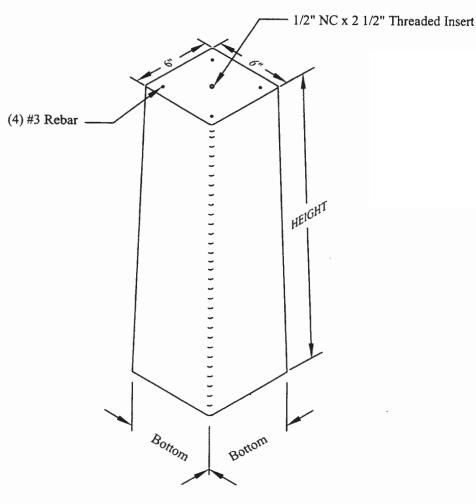




ASSOCIATED DESIGN PARTNERS, INC.



## Precast Concrete Piers



#### **ELEVATION**

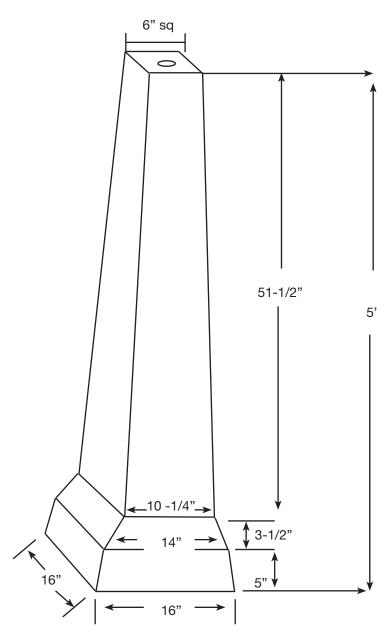
Height (Feet)	Bottom (Inches)	Item #	Weight
4'-0"	9"	21740	230 lbs.
5'-0"	10"	21750	340 lbs.
6'-0"	11"	21760	450 lbs.

#### DESIGN NOTES:

- 1) Concrete Mix Design is 4,000 PSI standard at 28 days, Type 3 Cement.
- 2) Reinforcing Steel ASTM A 615, Grade 60
- 2) Smooth Finish on all exposed surfaces.

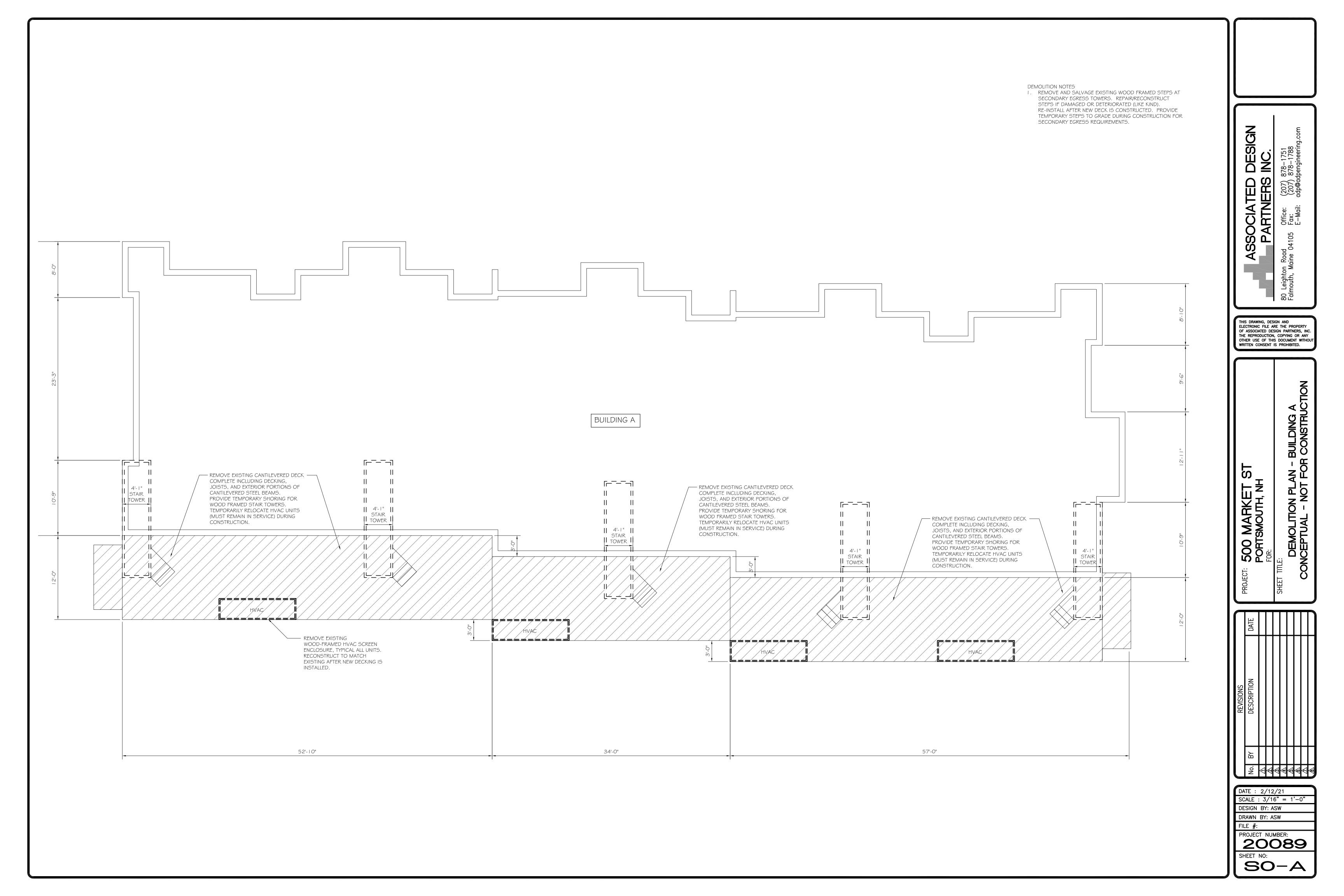


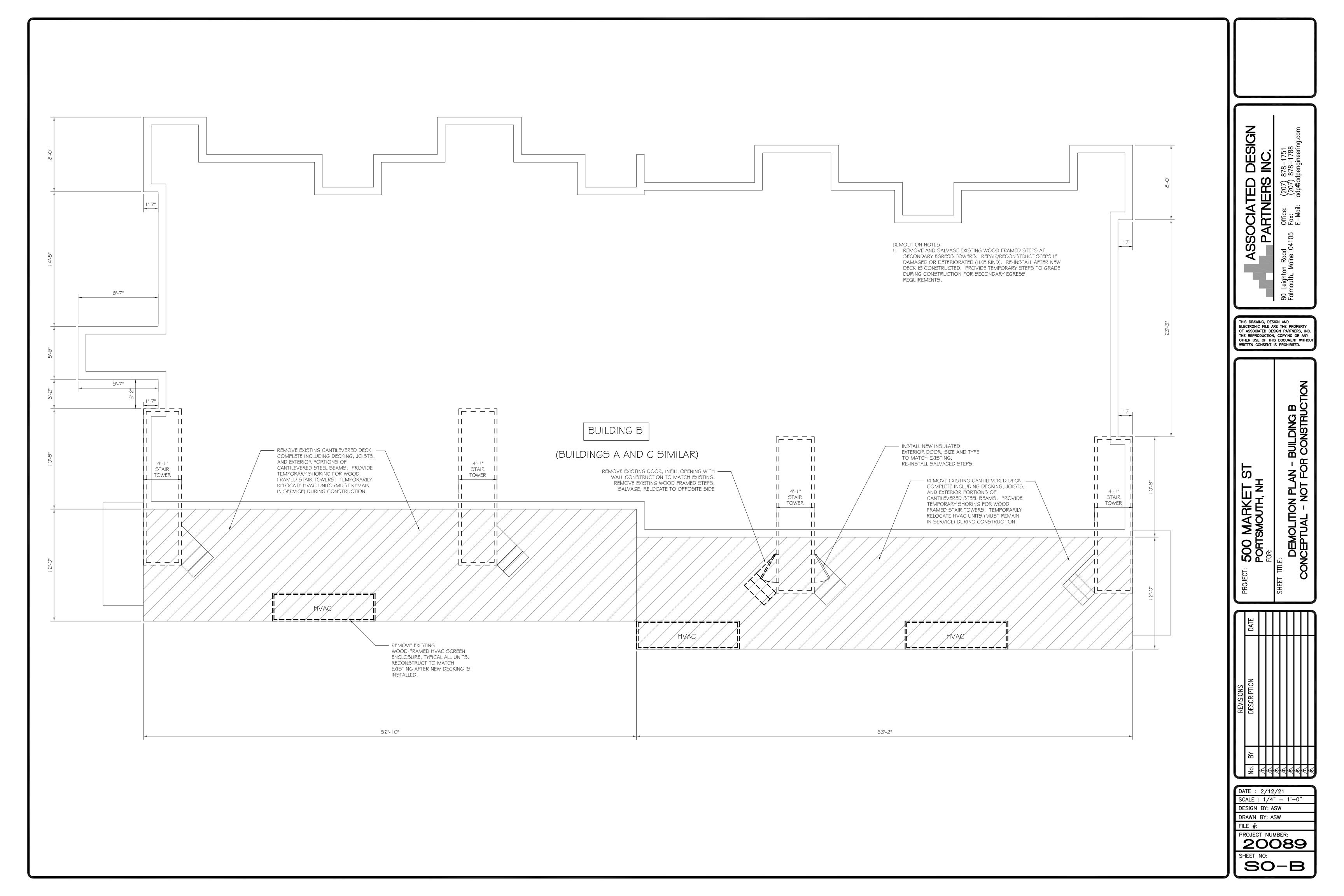
# Precast Concrete Deluxe Pier

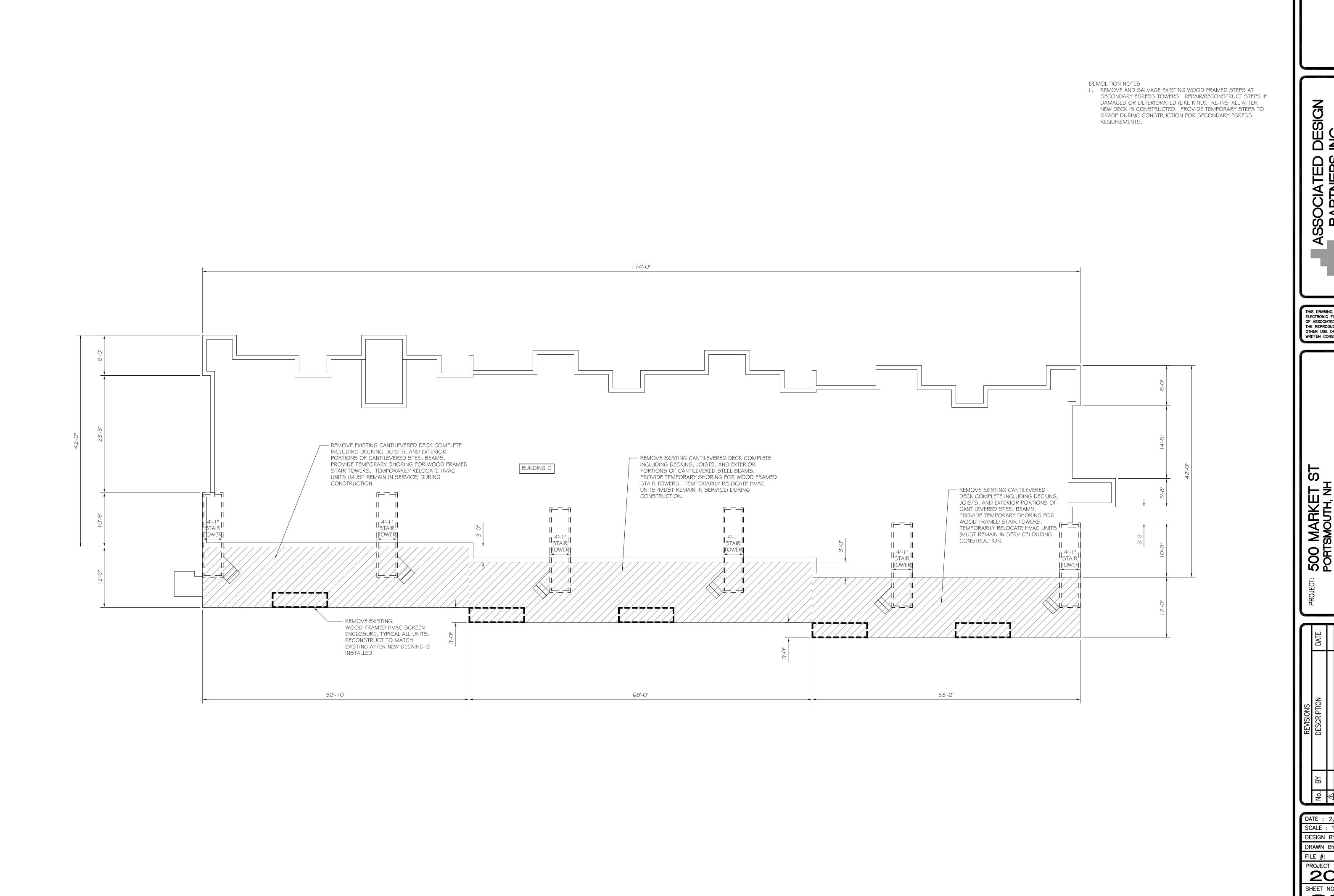


#### Design Notes:

- 1. Concrete Mix Desin is 5,000 PSI standard at 28 days, Type 3 Cement.
- 2. Reinforced Steel ASTM A 615, Grade 60.
- 3. Smooth Finish on all exposed surfaces.







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ITION PLAN - BUILDING C

HEET TITLE:

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Y DESCRIPTION DATE

DATE: 2/12/21

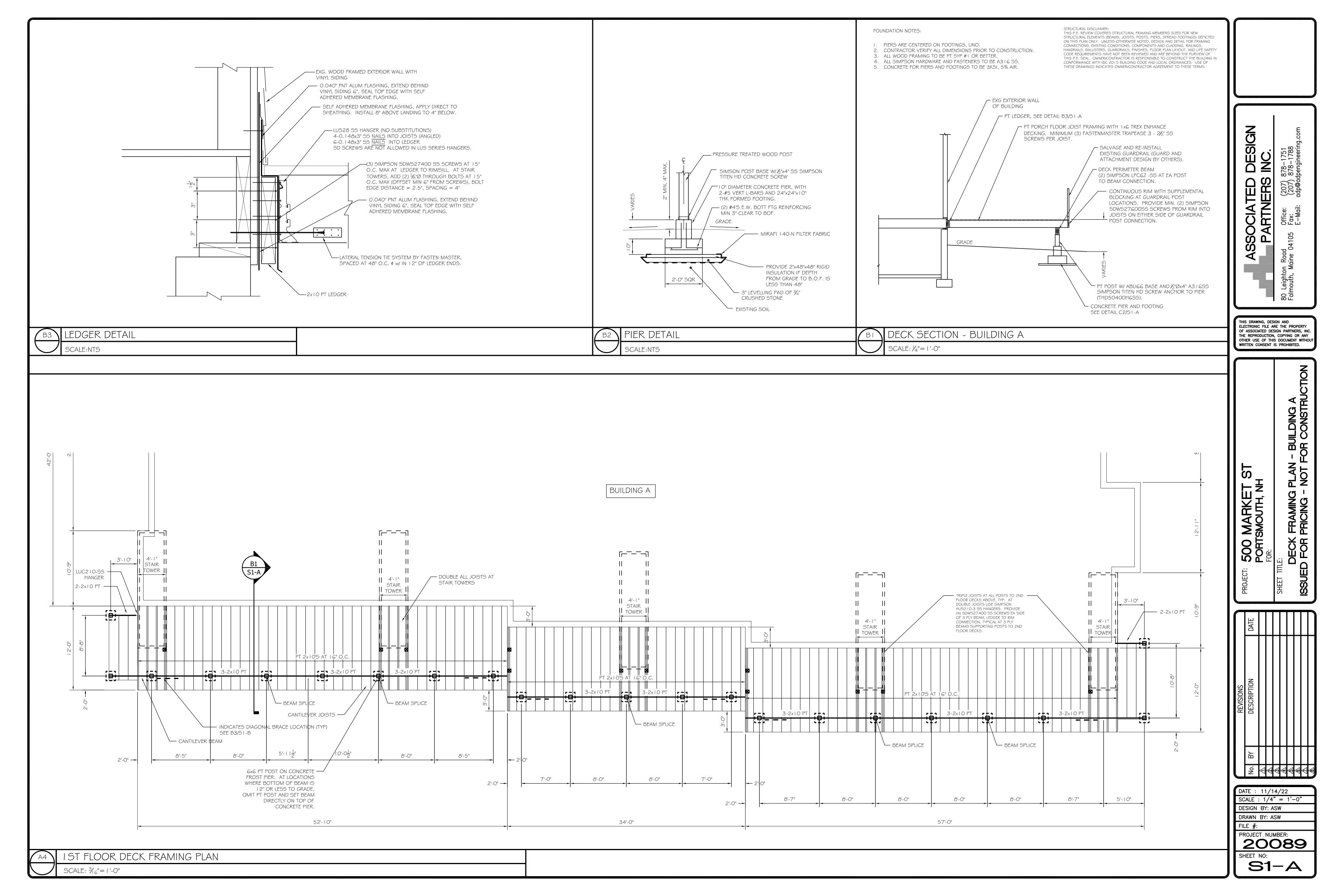
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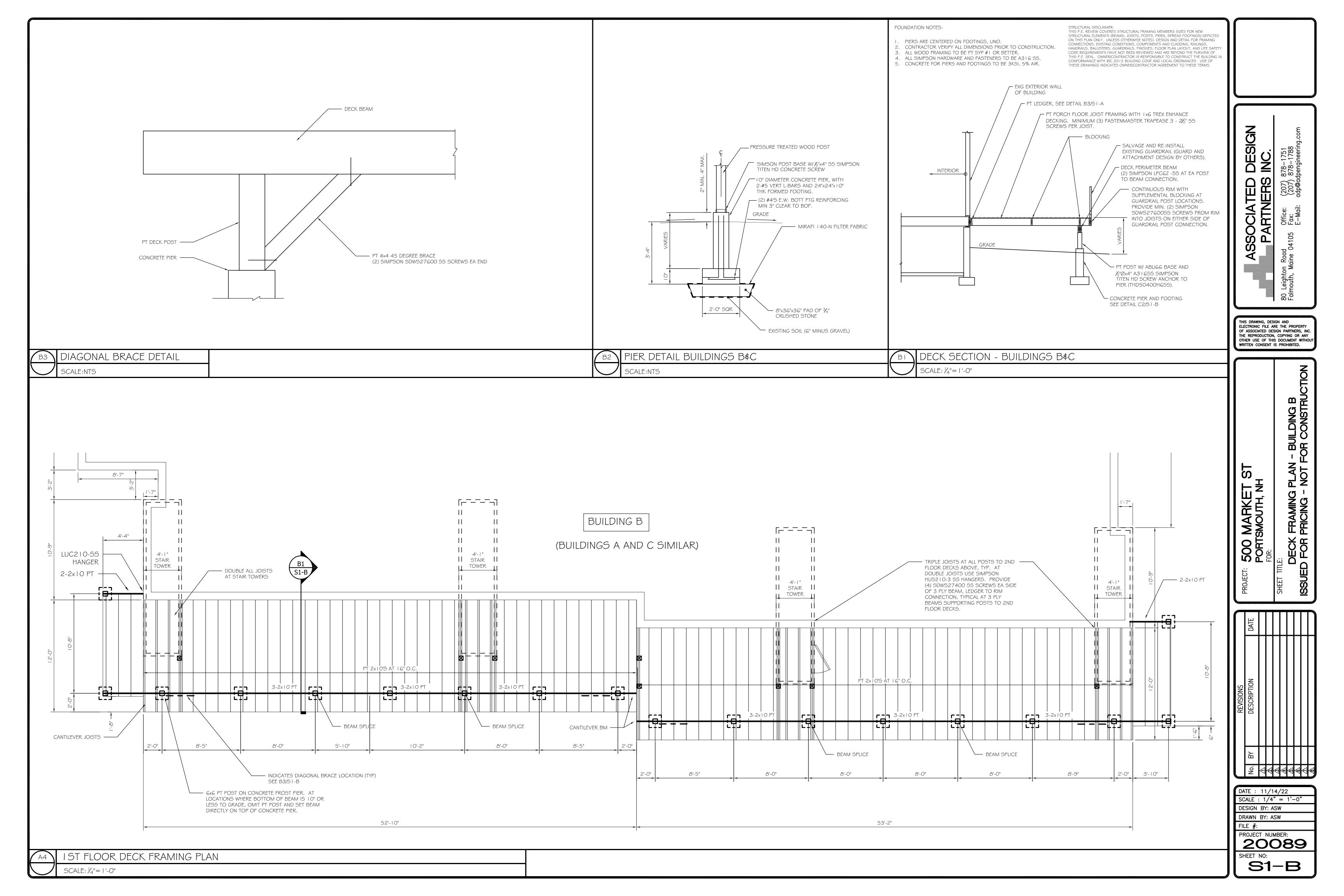
DESIGN BY: ASW

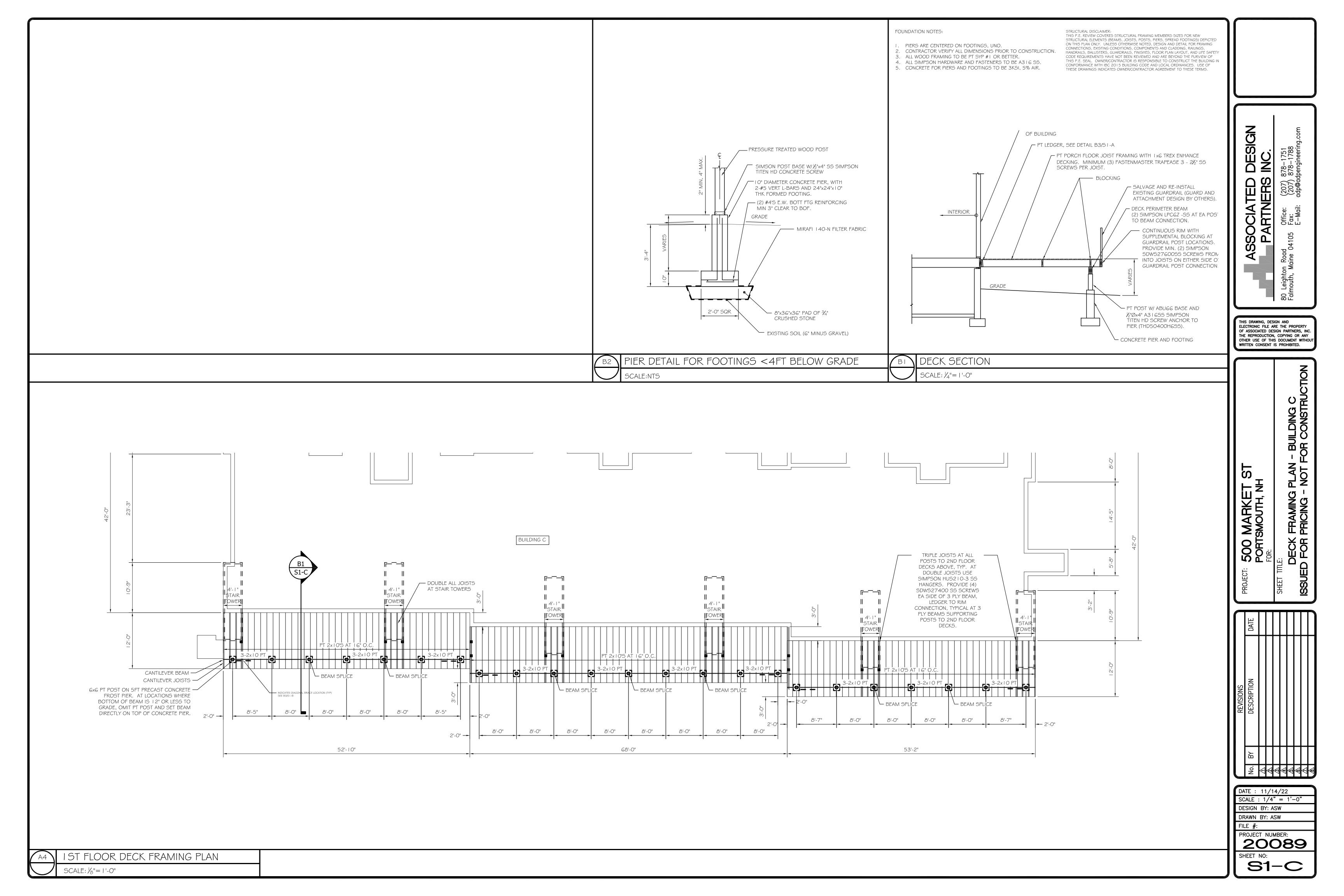
DRAWN BY: ASW

PROJECT NUMBER:

SHEET NO:







## GENERAL STRUCTURAL NOTES

- I. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF ALL APPLICABLE STATE AND LOCAL CODES, INCLUDING BUT NOT -HB 1681 / IBC BUILDING CODE 2018 ED
- -ANSI-ASCE 7-16 -ACI 318-14 "BUILDING CODE REQUIREMENTS FOR
- REINFORCED CONCRETE" -ACI 30 I "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR
- BUILDINGS" -AISC STEEL CONSTRUCTION MANUAL 14TH ED ASD
- -AISI S I 00- I 2 COLD FORMED STEEL DESIGN SPECIFICATION -ANSI-AWC NDS-2015 NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION WITH

## 2. DESIGN LOADS

- 2.1. GRAVITY FLOOR DESIGN LOADS: SNOW LOAD:  $P_q = 50psf$ , I = 1.0, Ct = 1.2, Ce = 1.0. Pf= 42PSF AT FLAT SURFACES
  - DEAD LOAD 10 PSF DECK LIVE LOAD = 100PSF
  - DEFLECTION CRITERIA: DECK JOISTS ΔLL=SPAN/360, ΔTL=SPAN/240
- 2.2. LATERAL WIND: V=115MPH, EXP D, CAT II BUILDING, Kd=0.85, Kz=1.0, Kzt=1.0, OPEN BUILDING, Qh=34.2 PSF.

#### 2.3. LATERAL - SEISMIC:

- $S_5=0.327$ ,  $S_1=0.075$ ,  $S_1TE=D$ ,  $F_2=1.538$ ,  $F_3=1.0$ ,  $F_3=1.0$ ,  $F_4=1.0$ ,  $F_5=1.0$ ,  $F_7=1.0$ ,  $F_7$ Sd1=0.119, I=1.0, SDC=C, LIGHT FRAMED WOOD BRACING, R=6.5,  $\Omega$ o=2.5, Cd = 4, V=0.05W
- 3. CONTRACTOR SHALL BRING TO THE ATTENTION OF THE ENGINEER ANY CONDITIONS DIFFERENT FROM THOSE SHOWN ON THE DRAWINGS AND ALSO ANY CONDITIONS THAT PREVENT THE CONTRACTOR'S COMPLETION OF THE WORK AS SHOWN ON THE CONSTRUCTION DRAWINGS.
- 4. ALL WORK SHALL BE PERFORMED BY PERSONS QUALIFIED IN THEIR TRADE AND LICENSED TO PRACTICE SUCH TRADE IN THE STATE IN WHICH THE PROJECT IS LOCATED.
- 5. THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH ANY ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS, IN ADDITION TO SPECIFICATIONS AND ANY SHOP DRAWINGS PROVIDED BY SUBCONTRACTORS AND SUPPLIERS.
- 6. ALL DIMENSIONS, ELEVATIONS, AND CONDITIONS SHALL BE VERIFIED IN THE FIELD BY GENERAL CONTRACTOR (G.C.) AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK.
- 7. UNLESS OTHERWISE NOTED, DETAILS, SECTIONS, AND NOTES SHOWN ON ANY DRAWING SHALL BE CONSIDERED TYPICAL FOR ALL SIMILAR DETAILS.
- 8. THESE DRAWINGS DO NOT SHOW SIZE, LOCATION OR TYPE OF OPENING IN THE FOUNDATION SYSTEM FOR ELECTRICAL, PLUMBING OR MECHANICAL EQUIPMENT. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING THESE
- 9. ALL SHOP DRAWINGS PROVIDED BY OTHERS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION OF MATERIAL OR THE PURCHASE OF NON-RETURNABLE STOCK. DIMENSIONAL REVIEW IS THE CONTRACTOR'S RESPONSIBILITY.

## WOOD FRAMING NOTES

- I. STRUCTURAL LUMBER: No. I SYP OR BETTER, PRESSURE
- 2. DESIGN CODES:
- A. NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION BY THE NATIONAL FOREST PRODUCTS ASSOCIATION, 2015 ED.
- 3. FASTENERS: COMPLY WITH IBC 2018 TABLE 2304.9.1 FASTENING SCHEDULE.

## EARTHWORK NOTES

- I. SITE WORK AND CONCRETE CONTRACTORS ARE REQUIRED TO REVIEW THE ONSITE SUBSURFACE SOIL CONDITIONS WITH THE SER AT THE START OF INITIAL CONSTRUCTION. SITE CONTRACTOR WILL NOTIFY SER AFTER EXCAVATION HAS STARTED AND PRIOR TO THE PLACEMENT OF ANY STRUCTURAL
- 2. REMOVE ALL TOPSOIL AND UNCONTROLLED FILL FOR THE AREAS RECEIVING BUILDING FOUNDATIONS.
- 3. BACKFILL TO THE NECESSARY SUBGRADES REQUIRED ON THE STRUCTURAL FOUNDATION PLANS WITH CONTROLLED STRUCTURAL FILL MATERIAL MEETING THE FOLLOWING **GRADATION:**

PERCENT PASSING	SCREEN OR SIEVE SI
6	100
3	90-100
NO. 4	35-70
NO. 40	5-35
NO. 200	0-5

- 4. PLACE CONTROLLED STRUCTURAL FILL IN UNIFORM LIFTS AND COMPACT TO A MINIMUM OF 95% OF THE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D | 557 "MODIFIED PROCTOR DENSITY".
- 5. PROVIDE SITE GRADING AROUND THE PERIMETER OF THE BUILDING TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE FOUNDATION DURING AND AFTER CONSTRUCTION .
- 6. MAINTAIN THE INTEGRITY OF NATURAL SOILS AND CONTROLLED STRUCTURAL FILLS DURING CONSTRUCTION. PROTECT FOOTING AND STRUCTURE SUBGRADES AGAINST FREEZING AND EXCESSIVE WETTING. REMOVE AND REFILL FROZEN SUBGRADES, MOISTURE CONDITION, OR REPLACE EXCESSIVELY WET SUBGRADE MATERIALS.
- 7. NOTIFY ENGINEER TO OBSERVE SUBGRADES PRIOR TO PLACING FOOTINGS. FOOTINGS ARE DESIGNED FOR A MIN. SOIL BEARING CAPACITY OF 2000PSF, OR FOR BEARING ON SOUND LEDGE.
- 8. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER IF LEDGE IS ENCOUNTERED TO DETERMINE PINNING REQUIREMENTS.
- 9. ALL FOOTINGS SHALL EXTEND A MINIMUM OF 4'-6" BELOW EXTERIOR FINISHED GRADE, OR BE DOWELED TO LEDGE
- 10. PROOF ROLL SUBGRADE PRIOR TO SLAB CONSTRUCTION. PROVIDE STRUCTURAL FILL MEETING THE GRADATION SPECIFIED HEREIN FOR FILL MATERIALS BELOW THE SLAB, MAXIMUM PERCENT PASSING 200 SIEVE = 5%.
- II. COMPACT CONTROLLED STRUCTURAL FILLS IN ACCORDANCE WITH THE FOLLOWING SCHEDULE AND ASTM D | 557. USE ONLY HAND-OPERATED EQUIPMENT ADJACENT TO WALLS. FILL BOTH SIDES OF WALLS TO EQUAL ELEVATIONS BEFORE COMPACTING.

DEGREE OF COMPACTION: COMPACT TO THE FOLLOWING MINIMUM DENSITIES:

FILL AND BACKFILL LOCATION	DENSITY
UNDER STRUCTURE FOUNDATIONS	95% OF MA
TOP 2 FEET UNDER PAVEMENT	95%
BELOW TOP 2 FEET UNDER PAVEMENT	92%
TRENCHES THROUGH UNPAVED AREAS	90%
EMBANKMENTS	90%
PIPE BEDDING	92%
BESIDE STRUCTURE FOUNDATION WALLS,	
TANK WALLS AND RETAINING WALLS	90%
UNDER PIPES THROUGH STRUCTURAL FILLS	90%
UNDER DRAIN FILTER SAND	92%

MAXIMUM DENSITY: ASTMD | 557, MODIFIED.

FIELD DENSITY TESTS: ASTMD | 556 (SAND CONE) ASTMD2167 (RUBBER BALLOON), OR ASTMD2922 (NUCLEAR METHODS)

12. CONTRACTOR IS REQUIRED TO CONFORM TO OSHA (29 PART 1926.650-652) SUBPART P "CONSTRUCTION STANDARD FOR EXCAVATIONS".

CONCRETE NOTES

FOR BUILDINGS"

1.2 FIELD QUALITY CONTROL

REINFORCED CONCRETE"

OF STANDARD PRACTICE"

CU. YD OR FRACTION THEREOF.

FEWER THAN FIVE ARE USED.

COMPLY WITH THE FOLLOWING LATEST EDITIONS AND CURRENT

1.1 ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE

1.3 CRSI "CONCRETE REINFORCING STEEL INSTITUTE, MANUAL

TESTING AGENCY: CONTRACTOR WILL ENGAGE A QUALIFIED INDEPENDENT

TESTING FOR QUALITY CONTROL MAY INCLUDE THOSE SPECIFIED IN THIS

A. TESTING SERVICES: TESTING OF COMPOSITE SAMPLES OF FRESH CONCRETE OBTAINED ACCORDING TO ASTM C 172 SHALL BE PERFORMED ACCORDING TO THE FOLLOWING REQUIREMENTS:

TESTING AND INSPECTING AGENCY TO SAMPLE MATERIALS, PERFORM TESTS,

AND SUBMIT TEST REPORTS DURING CONCRETE PLACEMENT. SAMPLING AND

I. TESTING FREQUENCY: OBTAIN ONE COMPOSITE SAMPLE FOR EACH DAY'S POUR OF EACH CONCRETE MIX EXCEEDING 5 CU. YD, BUT LESS THAN 25 CU. YD, PLUS ONE SET FOR EACH ADDITIONAL 50

a. WHEN FREQUENCY OF TESTING WILL PROVIDE FEWER THAN FIVE

COMPRESSIVE-STRENGTH TESTS FOR EACH CONCRETE MIX, TESTING SHALL BE CONDUCTED FROM AT LEAST FIVE

RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF

1.2 ACI 318 "BUILDING CODE REQUIREMENTS FOR

I. CODES:

TESTING:

## CONCRETE NOTES (CONT).

- 1. SLUMP: ASTM C 143; ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIX. PERFORM ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY APPEARS TO CHANGE.
- 2. AIR CONTENT: ASTM C 231, PRESSURE METHOD, FOR NORMAL-WEIGHT CONCRETE; ASTM C 173, VOLUMETRIC METHOD, FOR STRUCTURAL LIGHTWEIGHT CONCRETE; ONE TEST FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIX.
- 3. CONCRETE TEMPERATURE: ASTM C 1064; ONE TEST HOURLY WHEN AIR TEMPERATURE IS 40 DEG F AND BELOW AND WHEN 80 DEG F AND ABOVE, AND ONE TEST FOR EACH COMPOSITE SAMPLE. 4. COMPRESSION TEST SPECIMENS: ASTM C 31/C 31M; CAST AND LABORATORY CURE ONE SET OF FOUR STANDARD CYLINDER SPECIMENS FOR EACH COMPOSITE SAMPLE.
- 5. COMPRESSIVE-STRENGTH TESTS: ASTM C 39; TEST TWO LABORATORY-CURED SPECIMENS AT 7 DAYS AND TWO AT 28 DAYS. B. STRENGTH OF EACH CONCRETE MIX WILL BE SATISFACTORY IF EVERY AVERAGE OF ANY THREE CONSECUTIVE COMPRESSIVE-STRENGTH TESTS EQUALS OR EXCEEDS SPECIFIED COMPRESSIVE STRENGTH AND NO COMPRESSIVE-STRENGTH TEST VALUE FALLS BELOW SPECIFIED
- COMPRESSIVE STRENGTH BY MORE THAN 500 PSI. C. CHECK SLAB FOR COMPLIANCE WITH SPECIFIED FLOOR FLATNESS
- TOLERANCES IN ACCORDANCE WITH ASTM E 1155. D. TEST RESULTS SHALL BE REPORTED IN WRITING TO ENGINEER, CONCRETE MANUFACTURER, AND CONTRACTOR WITHIN 48 HOURS OF TESTING. REPORTS OF COMPRESSIVE-STRENGTH TESTS SHALL CONTAIN PROJECT IDENTIFICATION NAME AND NUMBER, DATE OF CONCRETE PLACEMENT, NAME OF CONCRETE TESTING AND INSPECTING AGENCY, LOCATION OF CONCRETE BATCH IN WORK, DESIGN COMPRESSIVE STRENGTH AT 28 DAYS, CONCRETE MIX PROPORTIONS AND MATERIALS, COMPRESSIVE BREAKING STRENGTH, AND TYPE OF BREAK FOR BOTH 7-AND 28-DAY TESTS
- E. NONDESTRUCTIVE TESTING: IMPACT HAMMER, SONOSCOPE, OR OTHER NONDESTRUCTIVE DEVICE MAY BE PERMITTED BY ENGINEER BUT WILL NOT BE USED AS SOLE BASIS FOR APPROVAL OR REJECTION OF
- CONCRETE. CORE TESTS WILL BE REQUIRED F. ADDITIONAL TESTS: TESTING AND INSPECTING AGENCY SHALL MAKE ADDITIONAL TESTS OF CONCRETE WHEN TEST RESULTS INDICATE THAT SLUMP, AIR ENTRAINMENT, COMPRESSIVE STRENGTHS, OR OTHER REQUIREMENTS HAVE NOT BEEN MET, AS DIRECTED BY ENGINEER. TESTING AND INSPECTING AGENCY MAY CONDUCT TESTS TO DETERMINE ADEQUACY OF CONCRETE BY CORED CYLINDERS COMPLYING WITH ASTM C 42 OR BY OTHER METHODS AS DIRECTED BY ENGINEER.

## 3. SUBMITTALS:

- A. PRODUCT DATA: FOR EACH TYPE OF MANUFACTURED MATERIAL AND PRODUCT INDICATED.
- B. DESIGN MIXES: FOR EACH CONCRETE MIX. INCLUDE ALTERNATE MIX DESIGNS WHEN CHARACTERISTICS OF MATERIALS, PROJECT CONDITIONS, WEATHER, TEST RESULTS, OR OTHER CIRCUMSTANCES WARRANT ADJUSTMENTS I. INDICATE AMOUNTS OF MIX WATER TO BE WITHHELD FOR LATER
- ADDITION AT PROJECT SITE. C. MATERIAL CERTIFICATES: SIGNED BY MANUFACTURERS CERTIFYING THAT EACH OF THE FOLLOWING ITEMS COMPLIES WITH
- REQUIREMENTS I.CEMENTITIOUS MATERIALS AND AGGREGATES. ADMIXTURES.
- 3. CURING MATERIALS
- 4. CONCRETE REINFORCING BARS. I. SUBMIT FOR RECORD, A WRITTEN PLAN OF THE FIELD PROCEDURES
- TO BE IMPLEMENTED FOR COLD WEATHER PROTECTION

#### 4. MATERIALS:

- 4.1 REINFORCING STEEL: GRADE 60, ASTM 615, NEW
- DEFORMED BARS. 4.2 REINFORCING FOR SLABS: SEE PLAN
- 4.3 MIXING WATER SHALL BE POTABLE. FREE OF ANY SUBSTANCES THAT MAY BE DELETRIOUS TO THE CONCRETE OR REINFORCING STEEL.

## 5. CONCRETE MIX:

5.1 PIERS AND FOOTINGS: -CEMENT SHALL BE ASTM 150, TYPE II PORTLAND CEMENT -28 DAY COMPRESSIVE STRENGTH: 3000 PSI - MAX AGGREGATE SIZE: 3/4" -AIR CONTENT: 5% + 1% BY VOLUME -MAX WATER-CEMENT RATIO: 0.50 -AGGREGATE SHALL CONFORM TO ASTM C33

## 5.3 ADMIXTURES:

- PROVIDE ADMIXTURES WHICH ARE CHEMICALLY COMPATIBLE FOR THEIR INTENDED USE. COMPLY WITH MANUFACTURER'S INSTRUCTIONS FOR USE. BASE DOSAGE RATES ON CEMENT CONTENT. CALCIUM CHLORIDE IS NOT ALLOWED.
- 5.3.1 MID-RANGE WATER REDUCERS : EQUAL TO DARACEM 55 BY GCP, ASTM C-494.
- 5.3.2 ACCELERATORS: EQUAL TO DARASET 200 BY GCP, ASTM C-494 TYPE C.
- 5.3.3 AIR ENTRANCING: EQUAL TO "DARAVAIR 1000" BY GCP, ASTM C-260 AND ARMY CORPS CRD-C-13.

## 5.4 CONCRETE SURFACE COATINGS:

5.4.1 BITUMINOUS DAMPPROOFING: EQUAL TO BRUSH GRADE FOUNDATION COATING BY EUCLID (EXTERIOR WALLS ONLY).

# 5.5 FORMS AND RELATED MATERIAL:

A NON-STAINING TYPE.

5.5.1 FORMS FOR CONCRETE SURFACES THAT WILL BE EXPOSED IN THE FINISHED BUILDING SHALL BE PLYFORM CLASS I, B-B EXTERIOR TYPE CONFORMING TO U.S. PRODUCT STANDARD PS I. FORMS FOR CONCRETE SURFACES NOT EXPOSED IN THE FINISHED BUILDING MAY BE PLYFORM OR MATCHED LUMBER. 5.5.2 FORM OIL USED ON SURFACE OF FORMS SHALL BE

## CONCRETE NOTES (CONT).

#### 5.6 ALUMINUM PRODUCTS:

- 5.6.1 NO ALUMINUM CONDUIT, PIPE, INSERTS, REGLETS, ETC. SHALL BE PLACED IN ANY CONCRETE, UNLESS
- COATED WITH BITUMINOUS DAMPPROOFING. 5.6.2 NO EQUIPMENT MADE OF ALUMINUM OR ALUMINUM ALLOYS SHALL BE USED FOR PUMP LINES, TREMIES OR CHUTES IN CONVEYING CONCRETE TO POINT OF PLACEMENT.

#### 5.7 GROUT:

5.7.1 NON-SHRINK GROUT FOR USE UNDER COLUMN BASE PLATES AND BEAM BEARING PLATES SHALL BE EMBECO GROUT #885, PRE-MIXED, AS MANUFACTURED BY MASTER BUILDERS, OR APPROVED EQUIVALENT.

#### 5.8 PREFORMED EXPANSION JOINT FILLER:

5.8.1 A NON-EXTENDING AND RESILIENT BITUMINOUS TYPE JOINT FILLER, 1/2" THICK.

# 5.9 EMBEDDED ITEMS:

5.9.1 EMBEDDED ITEMS SUCH AS ANCHOR BOLTS. ETC.. SHALL BE INSTALLED USING A TEMPLATE AND BE SECURELY HELD IN PLACE DURING CONCRETE

## 5.10 SPACERS, SUPPORTS AND FASTENERS:

5.10.1 FORM SPACERS, REINFORCING TIES AND CHAIRS, AND OTHER DEVICES NEEDED FOR PROPERLY SPACING, SUPPORTING, AND FASTENING REINFORCEMENET SHALL BE PROVIDED. CLAY BRICKS ARE NOT ALLOWED FOR USE AS SLAB STEEL BOLSTERS.

## 5.11 VAPOR BARRIER:

5.11.1 UNDERSLAB MOISTURE VAPOR BARRIER SHALL BE MADE OF A LAYER OF 6 MIL. POLYETHYLENE PLASTIC. PLACE VAPOR BARRIER OVER SUB-GRADE, DIRECTLY UNDER SLAB.

### 6. CONSTRUCTION PRACTICES:

### 6.1 REINFORCEMENT:

- COMPLY WITH REQUIREMENTS OF CRSI, LATEST EDITION.
- 6.1.1 MINIMUM CONCRETE COVER: 3" FOR CONCRETE CAST AGAINST SOIL; 2" FOR OTHER CONCRETE, UNLESS OTHERWISE SHOWN.

#### 6.2 DEVELOPMENT AND SPLICING:

PROVIDE DEVELOPMENT AND TENSION LAP SPLICE LENGTHS IN ACCORDANCE WITH THE FOLLOWING, UNLESS NOTED OTHERWISE ON PLANS:

DEVELOPMENT		CLASS C*
BAR SIZE	LENGTH*	LAP SPLICE
#4	24"	24"
#5	32"	32"
#6	38"	3 <i>8</i> "
#7	44"	44"
#8	50"	50"

## \*INCREASE BY 30% FOR BARS SPACED <6".

## 6.3 CHAMFERS:

CHAMFER ALL EXPOSED EDGES AND CORNERS OF CONCRETE 1/2" OR I " SIMILAR THROUGHOUT.

## 6.4 JOINTS:

- 6.4. I CONSTRUCTION JOINTS: PLACE PERPENDICULAR TO THE MAIN REINFORCEMENT. CONTINUE REINFORCEMENT ACROSS CONSTRUCTION JOINTS. PROVIDE KEYWAYS AT LEAST 1 1/2" (UNLESS OTHERWISE SHOWN) DEEP IN CONSTRUCTION JOINTS IN WALLS, SLAB, AND BETWEEN WALLS AND FOOTINGS. ACCEPTED BULKHEADS DESIGNED FOR THIS PURPOSE MAY BE USED IN SLABS. PROVIDE WATERSTOP WHERE INDICATED.
- 6.4.2 ISOLATION JOINTS: PROVIDE IN SLABS-ON-GRADE AT POINTS OF CONTACT BETWEEN SLABS-ON-GRADE AND VERTICAL SURFACES, SUCH AS FOUNDATION WALLS, GRADE BEAMS, COLUMN PEDESTALS, AND ELSEWHERE AS NECESSARY.
- 6.4.3 CONTRACTION (CONTROL) JOINT: PROVIDE IN SLABS-ON-GRADE BY SAW CUTTING TO A DEPTH OF 1/4 THE SLAB THICKNESS. PROVIDE A ONE PART ELASTOMERIC JOINT SEALANT TO JOINT GROOVE, A MINIMUM OF 60 DAYS AFTER SLAB PLACEMENT UNLESS OTHERWISE APPROVED. SEE PLAN FOR JOINT LAYOUT.

# 6.5 CONCRETE MIXING:

- 6.5.1 READY-MIXED CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH THE
- REQUIREMENTS SET FORTH IN ASTM C94. 6.5.2 ALL CONCRETE SHALL BE MIXED UNTIL THERE IS A UNIFORM DISTRIBUTION OF THE MATERIALS BEFORE DISCHARGE. THE MIXING SHALL BE CONTINUOUS AFTER THE WATER HAS BEEN
- ADDED TO THE MIX IN THE DRUM. 6.5.3 NO CONCRETE SHALL BE PLACED IN THE FORMS MORE THAN 90 MINUTES AFTER THE WATER HAS BEEN ADDED.
- 6.5.4 AFTER THE MAXIMUM WATER CEMENT RATIO HAS BEEN ACHIEVED, RETEMPERING OF THE CONCRETE WILL NOT BE ALLOWED, UNLESS APPROVED BY ENGINEER.

# CONCRETE NOTES (CONT).

#### 6.6 CONCRETE PLACEMENT:

- 6.6.1 DEPOSIT CONCRETE CONTINUOUSLY IN LAYERS NOT DEEPER THAN 24" OVER PREVIOUS LAYERS WHICH ARE STILL PLASTIC. AVOID COLD JOINTS. CONSOLIDATE CONCRETE BY MECHANICAL VIBRATING EQUIPMENT, SUPPLEMENTED BY HAND-SPACING, RODDING AND TAMPING. DO NOT USE MECHANICAL VIBRATORS TO TRANSPORT CONCRETE.
- 6.6.2 HOT-WEATHER PLACEMENT: PLACE CONCRETE ACCORDING TO RECOMMENDATIONS IN ACI 305R AND AS FOLLOWS, WHEN HOT-WEATHER CONDITIONS EXIST: 6.6.2.1 COOL INGREDIENTS BEFORE MIXING TO MAINTAIN CONCRETE TEMPERATURE BELOW 90 DEG F AT TIME OF PLACEMENT. CHILLED MIXING WATER OR CHOPPED ICE MAY BE USED TO CONTROL TEMPERATURE, PROVIDED WATER EQUIVALENT OF ICE IS CALCULATED TO TOTAL AMOUNT OF MIXING WATER. USING LIQUID NITROGEN TO COOL CONCRETE IS CONTRACTOR'S OPTION.
- 6.6.2.2 COVER STEEL REINFORCEMENT WITH WATER-SOAKED BURLAP SO STEEL TEMPERATURE WILL NOT EXCEED AMBIENT AIR TEMPERATURE IMMEDIATELY BEFORE EMBEDDING IN CONCRETE. 6.6.2.3 FOG-SPRAY FORMS, STEEL REINFORCEMENT, AND SUBGRADE JUST BEFORE PLACING CONCRETE.

KEEP SUBGRADE MOISTURE UNIFORM WITHOUT

STANDING WATER, SOFT SPOTS, OR DRY AREAS.

#### 6.6.3 COLD-WEATHER PLACEMENT: COMPLY WITH ACI 306.1 AND AS FOLLOWS.

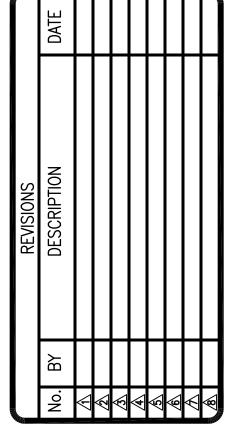
- 6.6.3. I PROTECT CONCRETE WORK FROM PHYSICAL DAMAGE OR REDUCED STRENGTH THAT COULD BE CAUSED BY FROST, FREEZING ACTIONS, OR
- LOW TEMPERATURES. 6.6.3.2 WHEN AIR TEMPERATURE HAS FALLEN TO OR IS EXPECTED TO FALL BELOW 40 DEG F, UNIFORMLY HEAT WATER AND AGGREGATES BEFORE MIXING TO OBTAIN A CONCRETE MIXTURE TEMPERATURE OF NOT LESS THAN 50 DEG F AND NOT MORE THAN 80 DEG F AT POINT OF PLACEMENT.
- 6.6.3.3 DO NOT USE FROZEN MATERIALS OR MATERIALS CONTAINING ICE OR SNOW. DO NOT PLACE CONCRETE ON FROZEN SUBGRADE OR ON SUBGRADE CONTAINING FROZEN MATERIALS.
- 6.6.3.4 DO NOT USE CALCIUM CHLORIDE, SALT, OR OTHER MATERIALS CONTAINING ANTIFREEZE AGENTS OR CHEMICAL ACCELERATORS, UNLESS OTHERWISE SPECIFIED AND APPROVED IN MIX DESIGNS.

#### 6.7 CONCRETE CURING:

- 6.7.1 SLABS: USE MOISTURE (WET) CURE PROCEDURES
- 6.7.2 FORMED SURFACES: CURE FORMED SURFACES WITH FORMS IN PLACE FOR ENTIRE CURING PERIOD, UNLESS ALTERNATE METHODS ARE APPROVED BY THE ENGINEER. CONTACT STRUCTURAL ENGINEER @ 207-878-1751FOR ALTERNATIVE CURING METHODS. DURING COLD WEATHER CURING, PROVIDE CAST-IN THERMOMETERS FOR MONITORING CONCRETE CURING TEMPERATURE AT LOCATIONS AS DIRECTED BY ENGINEER. MAINTAIN A 50°F WITH USE OF INDIRECT HEAT OR INSULATIVE BLANKETS.
- 6.8 ANCHOR BOLTS: USE TYPE, SIZE, AND LENGTH AS INDICATED ON PLANS.

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DATE : 11/14/22 | SCALE : 1/4" = 1'-0"DESIGN BY: ASW DRAWN BY: ASW PROJECT NUMBER:

20089