Mystic Water Works at Capen Court

Client
Somerville Housing Authority

Historical Consultant
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Cost Estimator
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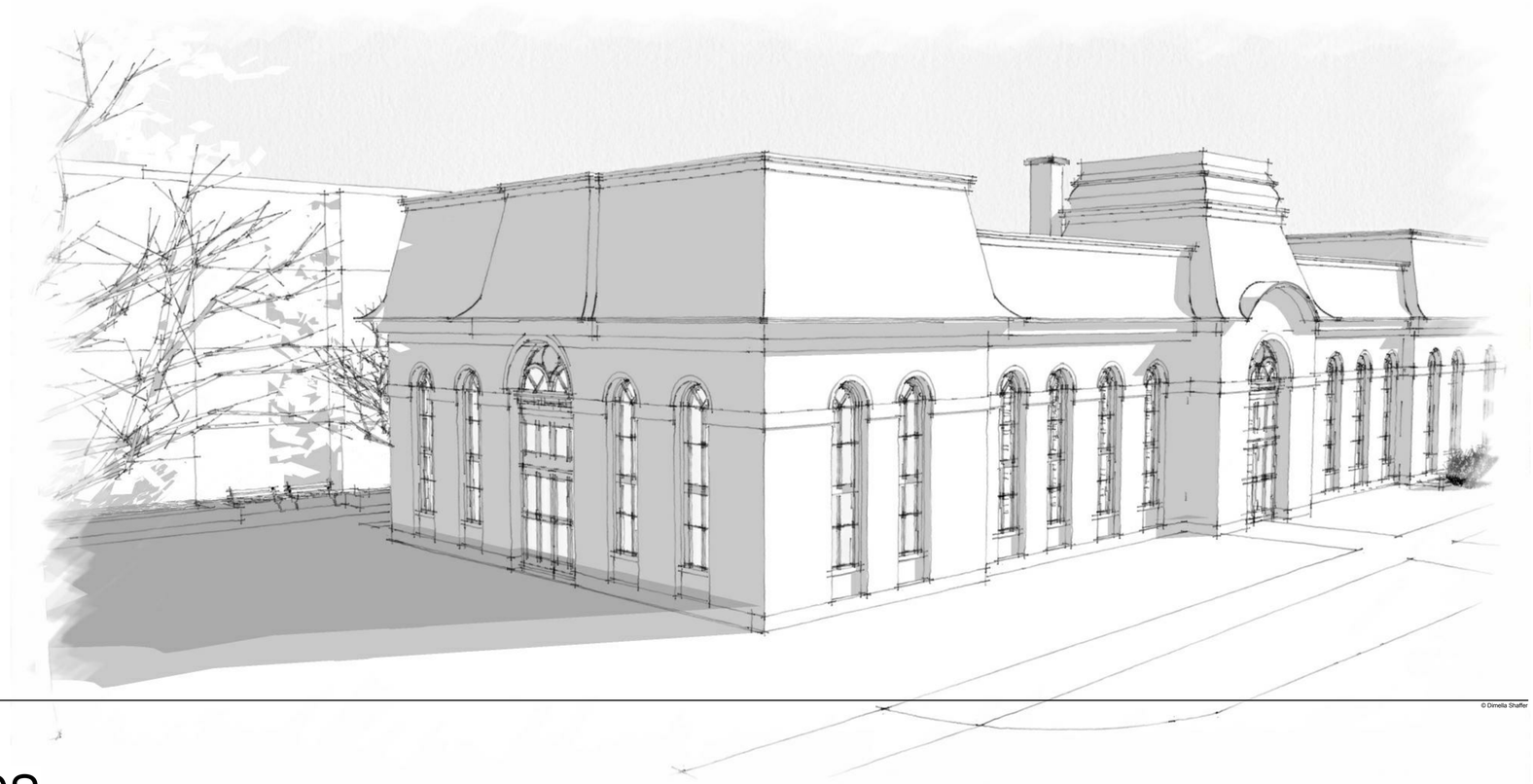

ARCHITECTURAL
& STRUCTURAL DRAWINGS

COMPREHENSIVE PERMIT SUBMISSION SET
SEPTEMBER 16, 2011

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STRUCTURAL DRAWINGS	
Sheet Number	**Sheet Name**
S0.1	GENERAL NOTES
S0.2	GENERAL NOTES
SD1.00	BASEMENT AND FIRST FLOOR DEMOLITION PLAN
SD1.01	ATTIC & ROOF DEMOLITION PLAN
S1.00	BASEMENT AND FIRST FLOOR PLAN - PUMP HOUSE
S1.01	SECOND FLOOR AND ROOF PLANS - PUMP HOUSE
S1.02	FIRST AND SECOND FLOOR PLANS - NEW BUILDING
S1.03	THIRD AND FOURTH FLOOR PLANS - NEW BUILDING
S1.04	ROOF PLAN - NEW BUILDING
S3.01	TYPICAL CONCRETE DETAILS
S3.02	CONCRETE DETAILS
S4.01	TYPICAL MASONRY DETAILS
S5.01	TYPICAL STEEL DETAILS
S5.02	STEEL DETAILS
S7.01	TYPICAL WOOD DETAILS
S7.02	TYPICAL WOOD SHEAR WALL DETAILS
S7.03	WOOD DETAILS

ARCHITECTURAL DRAWINGS	
Sheet Number	**Sheet Name**
A0.1	DRAWING LIST - ARCHITECTURE AND STRUCTURE
D1.01	BASEMENT DEMO PLAN (PUMP HOUSE)
D1.02	FIRST FLOOR DEMO PLAN (PUMP HOUSE)
D1.03	ATTIC DEMO PLAN (PUMP HOUSE)
D3.01	NORTH AND WEST DEMO ELEVATIONS (PUMP HOUSE)
D3.02	SOUTH AND EAST DEMO ELEVATIONS (PUMP HOUSE)
A0.3	UNIT DATA AND CODE SUMMARY - PUMP HOUSE BUILDING
A0.4	UNIT DATA AND CODE SUMMARY - NEW BUILDING
A1.00	BASEMENT & FIRST FLOOR PLAN - PUMP HOUSE BUILDING
A1.01	SECOND FLOOR & ATTIC PLANS - PUMP HOUSE BUILDING
A1.02	ROOF PLAN - PUMP HOUSE BUILDING
A1.03	FIRST & SECOND FLOOR PLANS - NEW
A1.04	THIRD & FOURTH FLOOR PLANS - NEW
A1.05	ROOF PLAN - NEW
A3.01	EXTERIOR ELEVATIONS - PUMP HOUSE BUILDING
A3.02	NEW BUILDING ELEVATIONS
A3.03	NEW BUILDING ELEVATIONS
A6.01	EXISTING AND PROPOSED WINDOW DETAILS
A6.02	EXISTING AND PROPOSED WINDOW DETAILS
A6.03	EXISTING AND PROPOSED WINDOW DETAILS
A7.1	ENLARGED UNIT PLAN - UNIT 1
A7.2	ENLARGED UNIT PLAN - UNIT 2
A7.3	ENLARGED UNIT PLAN - UNIT 2-A (GROUP 2A ACCESSIBLE)
A7.4	ENLARGED UNIT PLAN - UNIT E1
A7.5	ENLARGED UNIT PLAN - UNIT E2 (GROUP 2A ACCESSIBLE)
A7.6	ENLARGED UNIT PLAN - UNIT E3

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Comprehensive Permit Submission	Sept. 16, 2011

Scale:

Drawn By: Author **Checked By:** Checker **Reviewed By:**

Project No. 2010080.00

Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

DRAWING LIST - ARCHITECTURE AND STRUCTURE

A0.1

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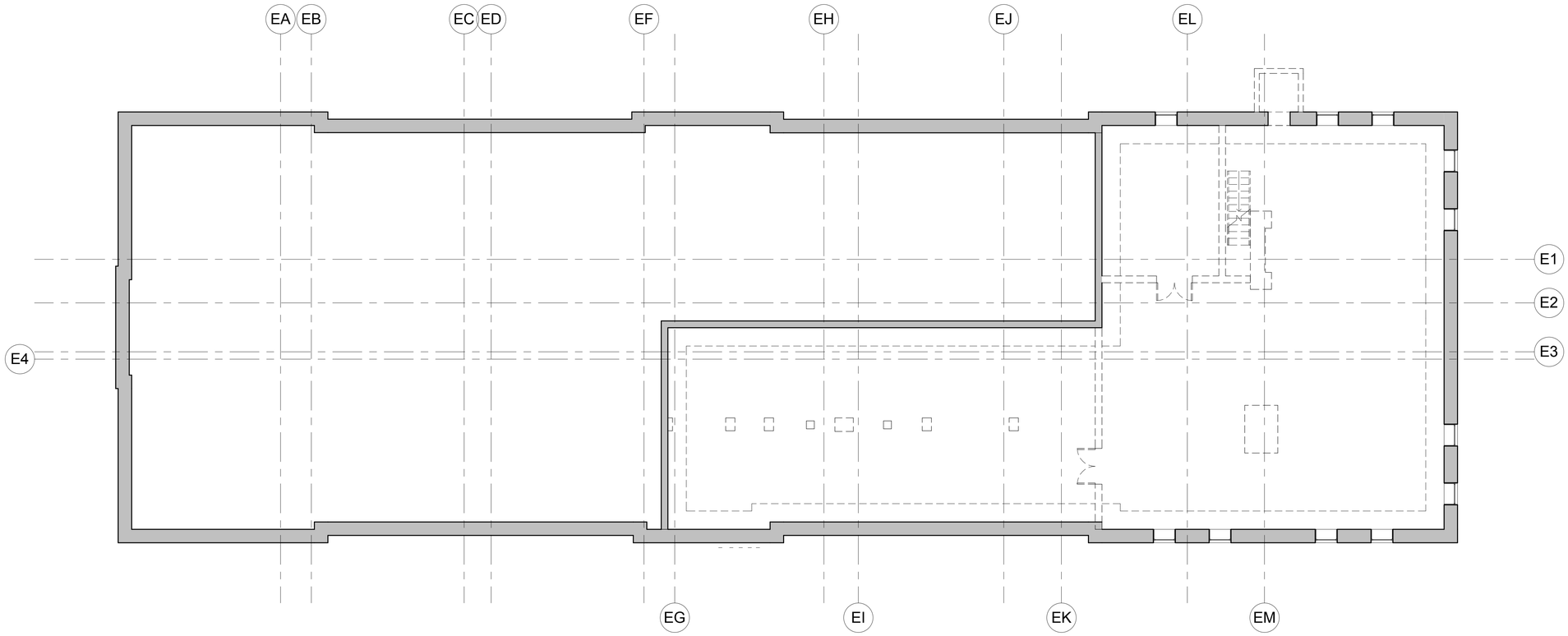

1 Basement Demo Plan (Pump House)
1/8" = 1'-0"

DEMOLITION LEGEND

EXISTING WALL TO REMAIN

EXISTING CONSTRUCTION TO BE REMOVED OR MODIFIED (SEE NOTES)

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Comprehensive Permit Submission August 31, 2011
Issue Description **Date**

Scale:
As indicated

Drawn By: Author
Checked By: Checker
Reviewed By:

Project No. 2010080.00

Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

BASEMENT DEMO PLAN (PUMP HOUSE)

D1.01

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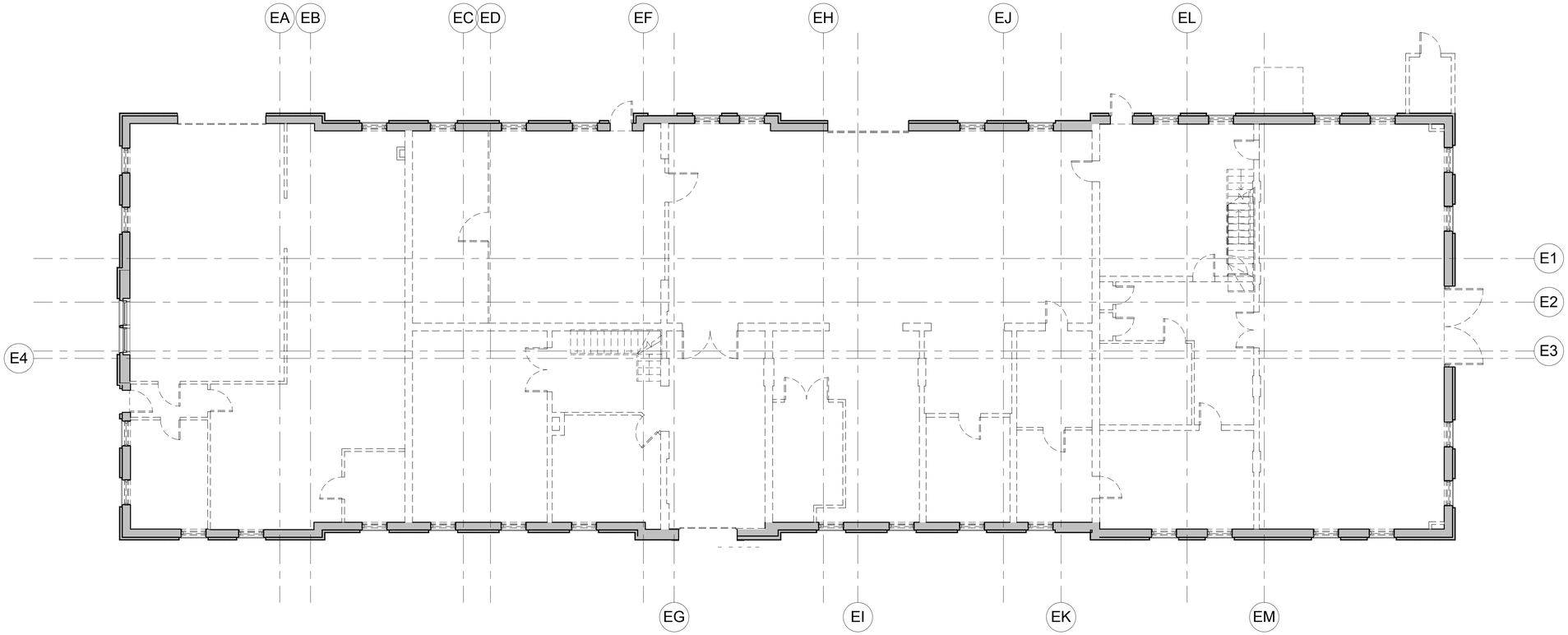

1 First Floor Demo Plan (Pump House)
1/8" = 1'-0"

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Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

FIRST FLOOR DEMO PLAN (PUMP HOUSE)

D1.02

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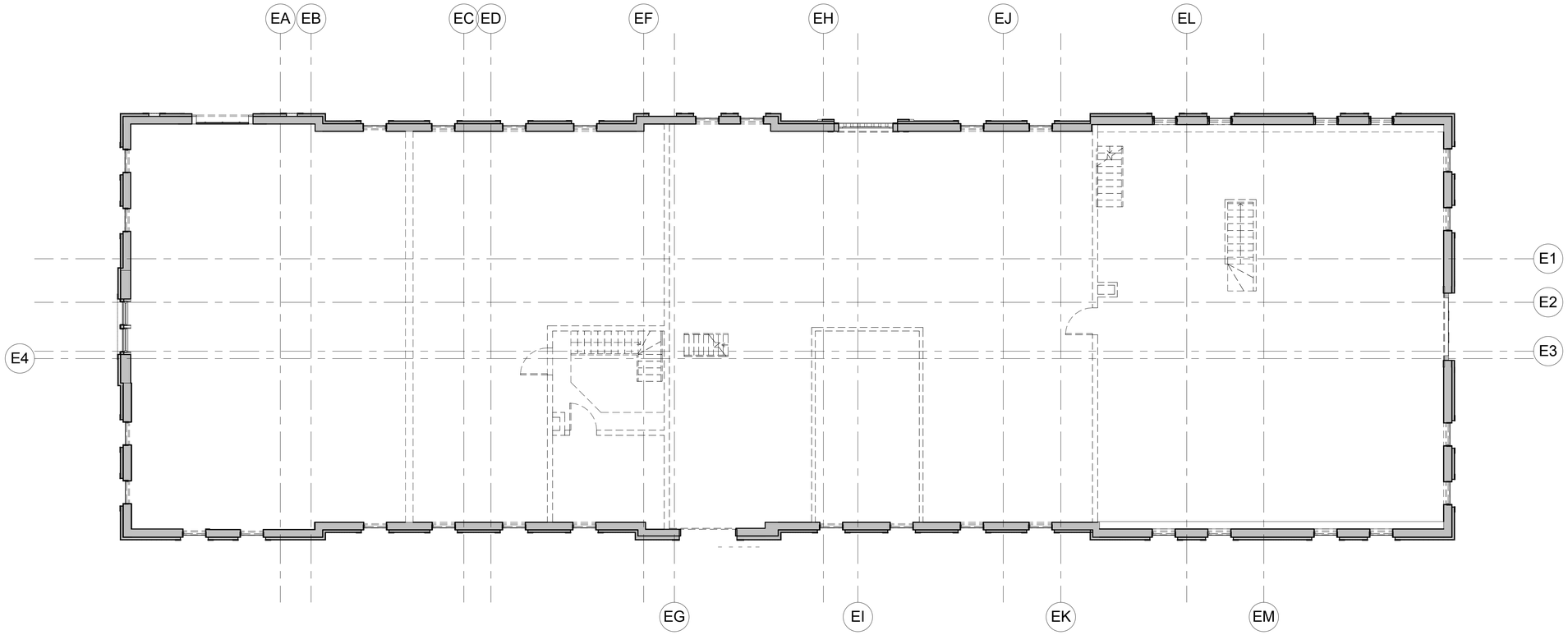

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Comprehensive Permit Submission August 31, 2011
Issue Description **Date**

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As indicated

Drawn By: Author **Checked By:** Checker **Reviewed By:**

Project No. 2010080.00

Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

ATTIC DEMO PLAN (PUMP HOUSE)

D1.03

C:\Users\jkresch\Documents\2010080_MWW at Capen Court_Central_JDK.rvt

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DEMOLITION GENERAL NOTES:

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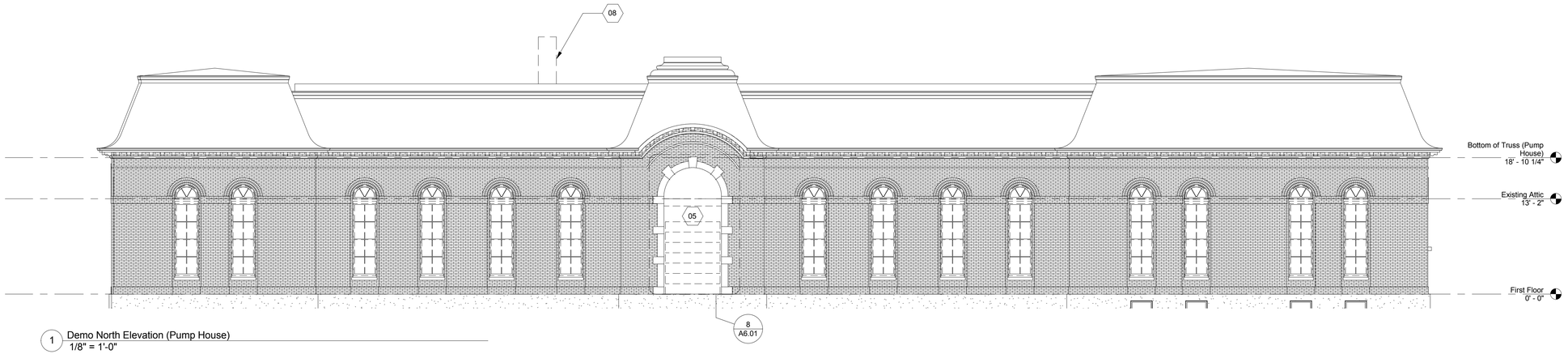
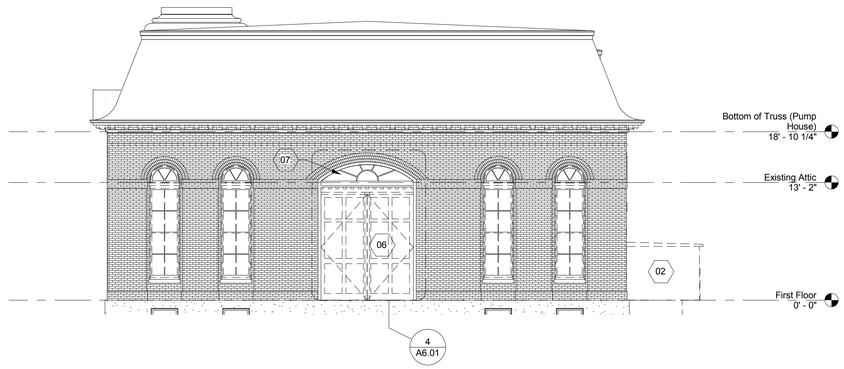


1 Demo North Elevation (Pump House)
1/8" = 1'-0"



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07	PROTECT AND REPAIR EXISTING SASH AND GLAZING	02	REMOVE ATTACHED STORAGE STRUCTURE, REPAIR ANY PENETRATIONS IN FOUNDATION WALL
08	REMOVE EXISTING CHIMNEY, PROVIDE FRAMING IN OPENING	03	REMOVE EXTERIOR DOOR AND FRAME. FILL OPENING WITH MASONRY TO MATCH EXISTING
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DEMOLITION LEGEND

EXISTING WALL TO REMAIN

EXISTING CONSTRUCTION TO BE REMOVED OR MODIFIED (SEE NOTES)

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Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

NORTH AND WEST DEMO ELEVATIONS (PUMP HOUSE)

D3.01

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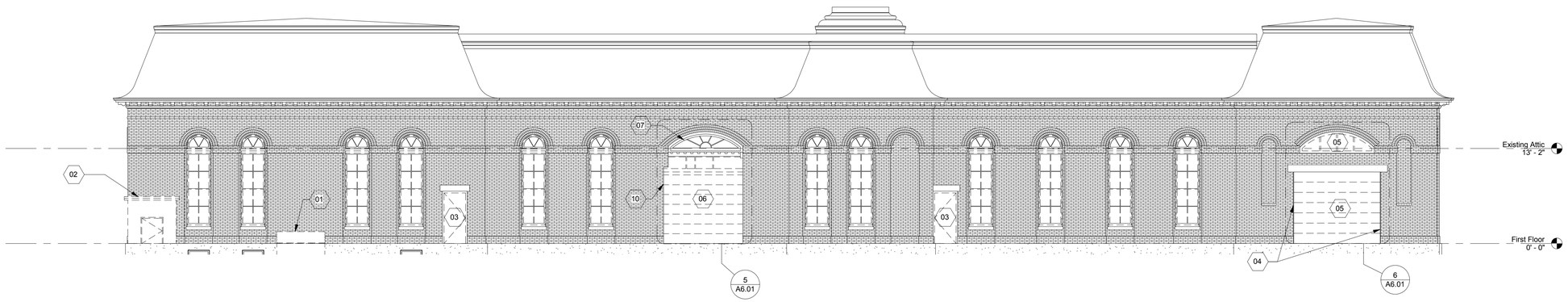
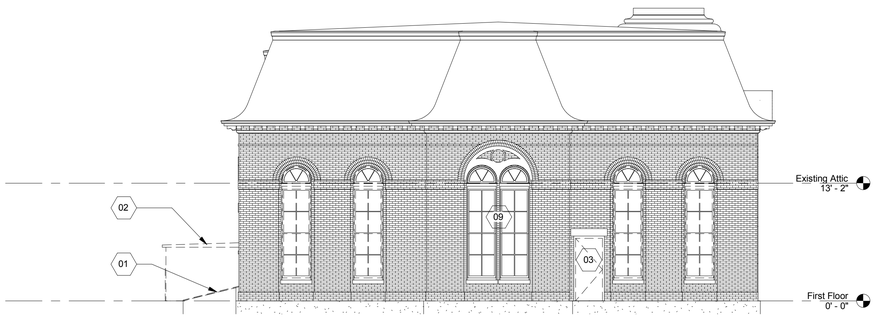


1 Copy of South Elevation (Pump House)
1/8" = 1'-0"



2 Copy of East (Pump House)
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Project No. 2010080.00

Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

SOUTH AND EAST DEMO ELEVATIONS (PUMP HOUSE)

D3.02

UNIT TYPE DATA (PUMP HOUSE)

UNIT TYPE	# UNITS	# BR's	UNIT AREA (SF)	ACCESSIBILITY
E1	6	1	583	GROUP 1
E1-A	7	1	560	GROUP 1
E1-B	2	1	551	GROUP 1
E1-C	4	1	575	GROUP 1
E1-D	2	1	531	GROUP 1
E2	2	1	617	GROUP 2A
E3	2	1	596	GROUP 1

1 BR. UNITS	25
2 BR. UNITS	0
ACC. UNITS	2
TOTAL UNITS	**25**

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Comprehensive Permit Submission Sept. 16, 2011
Issue Description **Date**

Scale:
1/4" = 1'-0"

Drawn By: Author **Checked By:** Checker **Reviewed By:**

Project No. 2010080.00

Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

UNIT DATA AND CODE SUMMARY - PUMP HOUSE BUILDING

A0.3

Introduction
This existing historic building, located at 149 Capen Street in Somerville, Massachusetts, currently sits vacant after serving as a public waterworks building. This project includes creating apartment housing through the conversion of the existing Mystic Waterworks building and the construction of an adjacent new apartment building. This report covers the code compliance for the conversion of the existing waterworks building into new residential units. There will be a change in use as part of this renovation from Use Group B and F-1 to Use Group R-2. This code summary is based on architectural drawings received July 22, 2011. Following is a list of applicable codes:

Code Type	Applicable Code (Model Code Basis)
Building	780 CMR: Massachusetts State Building Code, 8th Edition (2009 International Building Code) (2009 International Existing Building Code)
Fire Prevention	527 CMR: Massachusetts Fire Prevention Regulations
Accessibility	521 CMR: Massachusetts Architectural Access Board Regulations
Electrical	527 CMR 12.00: Massachusetts Electrical Code (2011 National Electrical Code)
Elevators	524 CMR: Massachusetts Elevator Code (2004 ASME A17.1)
Mechanical	2009 International Mechanical Code (IMC)
Plumbing	248 CMR: Massachusetts Plumbing Code
Energy Conservation	2009 International Energy Conservation Code & Stretch Energy Code

1. The City of Somerville has adopted the Stretch Energy Code (780 CMR Appendix AA) which will become effective on January 1, 2012.

International Existing Building Code
The 2009 International Existing Building Code with Massachusetts amendments allows for 3 separate compliance methods, the Prescriptive Method (in general, altered areas must comply with the code for new construction), Work Area Method (level of compliance is based on the classification of work), and Compliance Alternative Method (numerical method that allows tradeoffs for deficiencies). This report is based on the Work Area Method.

1. **Work Area and Classification of Work:**

   The proposed work includes a change in use, and alterations to the existing building. For the purposes of this report the renovations in the existing building will be classified as Level 3 alterations, which includes the reconfiguration of spaces, the addition or elimination of doors and windows, the reconfiguration or extension of systems, and/or the installation of additional equipment in more than 50% of the aggregate area of the building. Therefore, the work must comply with IEBC Chapters 6, 7, 8 & 9.

2. **Occupancy Classification:**
   - R-2 (Apartments and Accessory Storage and Mechanical Spaces)

3. **Construction Type:**

   It is our understanding that the existing building is solid load bearing brick with wood beams. Since this includes combustible structural members, the construction type is likely either Type VA or VB. The minimum construction type of the overall building must be Type VB as shown in Section 4 of this report.

4. **Height and Area Limitations:**

   Since there is a change in use to a higher height and area hazard category and there is an addition planned as part of this renovation, the building is required to comply with the height and area limitations for the construction type of the building (IEBC 912.5.1 & 1002.1).

Code Reference	Type VB – R-2	
	Height	Area
780 CMR Table 503: Tabular Value	2 St. (40 ft)	7,000 ft²
780 CMR Section 506.3: Sprinkler Height Increase	1 St. (20 ft)	-
780 CMR Section 506.2 Frontage Increase (100% Open)[a]	-	5,250 ft²
780 CMR Section 506.3: Sprinkler Area Increase	-	14,000 ft²
Total Height and Area Allowed	**3 St. (60 ft)**	**26,250 ft²**
Actual Height and Area	**2 St. (30 ft)**	**9,750 ft²**

As shown above, the building is permitted to remain as Type VB construction.

5. **Fire Resistance Ratings:**

   The following table summarizes the required fire resistance ratings for the building elements of Type VB construction, based on 780 CMR Table 601 and other applicable code provisions:

Building Element	Fire Resistance Rating (Hrs)	Opening Protectives (Hrs)
Structural Frame	0[A]	-
Exterior Bearing Walls including columns along the exterior wall	0	-
Interior Bearing Walls	0[A]	-

Floor Construction	0[A]	-
Roof Construction	0	-
Stair Enclosures, Shafts, Exit Enclosures < 4 stories (IEBC 912.7.2, 780 CMR 708.2)	1	1
Dwelling Unit Separation (780 CMR 420.2)	1	¾
Residential Corridors (780 CMR Table 1018.1)	½	½
New Trash Rooms > 100 ft² in Area (780 CMR Table 508.2.5)	Smoke Partitions	Self-Closing
New Laundry Rooms > 100 ft² in Area (780 CMR Table 508.2.5)	Smoke Partitions	Self-Closing
Emergency Electrical Room (527 CMR 12.00 700-9(D)(1))	2[B]	1½

A. Not less than the rating of the assembly supported.
B. No rating is required for the room when fully sprinklered, however, a 2-hr rating is still required for the emergency feeder-circuit wiring.

New fire walls, fire barriers, fire partitions, smoke barriers, and smoke partitions, or any other wall required to have protected openings or penetrations must be identified with signs or stenciling within concealed spaces (i.e. floor-ceiling, attic spaces) at 30 ft intervals (780 CMR 703.6).

The laundry room and trash room are both over 100 ft², therefore they need to be enclosed with smoke partitions and provided with self-closing doors.

6. **Exterior Wall Rating:**

   Since the renovation includes a change in use from B and F-1 to R-2, the exterior walls of the building are permitted to remain unaltered since this is a change in use to an equal or lesser hazard category (IEBC 912.6.2).

   The existing building is not required to comply with the exterior wall rating requirements due to the change in use, but it is required to do so based on the adjacent construction of a new building. Since this existing building and the new building will be located on the same lot an imaginary lot line must be drawn between the buildings to determine the fire separation distance of each wall and the required rating and opening limitations. The buildings are located 42 ft apart. Since the existing building is not required to comply with the exterior wall rating requirements the imaginary lot line can be placed 12 ft from the existing building and 30 ft from the new building, thereby not requiring ratings for the new building's exterior.

7. **Vertical Openings:**

   All existing vertical openings connecting two or more floors must be enclosed with 1-hour rated construction and approved opening protectives, unless the

openings meet one of the exceptions in IEBC 703.2.1. New vertical openings are required to comply with 780 CMR 708.2.

Both stairs connecting the first and second stories are permitted to be unenclosed in accordance with 780 CMR Section 1016.1 Ex 4. These open stairs must be separated from the basement level by a one hour fire partition.

8. **Interior Finishes:**

   The existing interior finish of walls and ceilings in the work area and in all exits and corridors serving the work area must comply with the code requirements for new construction (IEBC 703.4, 803.3, & 912.3). All newly installed wall and ceiling finishes, and interior trim materials must also comply with 780 CMR Table 803.9 (IEBC 602.1, 602.2, 602.3). The requirements are summarized below:

Walls & Ceilings (IBC Table 803.9)

Use Group:	R-2
Exit Stair	Class C
Exit Access Corridors	Class C
Rooms & Enclosed Spaces	Class C

New Floor Finishes
Since the building will be equipped with an automatic sprinkler system, traditional floor coverings such as wood, vinyl, carpeting, and other resilient floor coverings passing the DOC FF-1 pill test are allowed throughout the building, including all exits, exit passageways and exit access corridors (IBC Section 804.4.1).

9. **Means of Egress:**

   The means of egress including the number of exits and egress capacity must be sufficient for the number of occupants on all floors (IEBC MA Amendment Section 102.2.2.1). As shown in the following table and detailed calculations at the end of this report, the building is generally compliant with these egress requirements with the exception of the basement space.

Means of Egress

Floor	Occupant Load	Number of Exits		Exit Capacity (persons)
		Required	Provided	
0	13	2	1	2,427
1	70	2	2	907
2	67	2	2	460

As shown above, the building is provided with sufficient egress capacity with the exception of the basement storage/laundry area. The basement is permitted to have one means of egress if the travel distance is less than 100 ft and there are fewer than 29 occupants (780

illuminated exit signs at each exit (780 CMR Sections 1015.1 & 1011.1).

If the travel distance in the basement is not reduced to less than 100 ft two remote means of egress are required.

9.8 All dwelling units that contain over 4000 square feet (20 occupants) or have a travel distance over 125 feet must be provided with two means of egress (780 CMR 1015.1, 104.3 Ex 4).

9.9 Remote means of egress must be separated by ½ of the diagonal dimension of the room or space they serve (780 CMR 1015.2.1). The distance between exits may be measured along 1-hour fire resistance rated corridors complying with 780 CMR 1018 but must otherwise be measured in a straight line between exit doors.

9.10 All exits must discharge to the exterior of the building except that a maximum of 50% of the number and capacity of the exit enclosures are allowed to exit through areas on the level of discharge if the egress path fully conforms with the requirements of 780 CMR 1027.1.

As designed 50% of the exits discharge directly to the exterior, if both stairs will be open they are permitted to discharge through the first floor in accordance with 780 CMR 1016.1 Ex 4.

9.11 Doors into exit stairs must be self closing or automatically closing by listed closing devices (IEBC 705.4.3; 780 CMR 1022.3).

9.12 All means of egress lighting and exit signs throughout the building must be provided with an emergency power supply to assure continued illumination for not less than 1.5 hours in case of primary power loss (IEBC 805.2 & 805.3; and 780 CMR 1006.1 & 1011.1).

9.13 A stairway in an exit enclosure is not permitted to continue below its level of exit discharge unless an approved barrier is provided at the level of exit discharge (780 CMR 1022.7).

The enclosed stair continues below the level of exit discharge, therefore a barrier is required.

10. **Required Fire Protection Systems:**

    The following fire protection systems are required in the areas noted:

- Automatic sprinkler system throughout entire building (IEBC 704.2.2, 912.2.1)
- Fire alarm system (780 CMR 907.2.9)
- Single and multiple station smoke detectors in the R-2 areas (780 CMR 907.2.11.2)

CMR Table 1021.2). As designed, the travel distance from the furthest storage unit to the exit stair is 105 ft. Since two means of egress are required they must be remotely located (minimum separation of 39'-4"). The proposed service exit is not remotely spaced therefore it cannot be considered a second means of egress. Therefore the second means of egress must be relocated or the maximum travel distance reduced to 100 ft.

General Egress Requirements
The means of egress throughout the building is required to comply with the code for new construction due to an increase in hazard category, including some of the following requirements (IEBC 912.4.1):

9.1 Maximum exit access travel distance must be less than 250 feet (780 CMR Table 1016.1).

9.2 Maximum Dead End Corridor Length must be < 50 feet or 2.5 times the least width of space (780 CMR 1018.4 Exception 2).

The basement storage area contains a dead end corridor measuring 80 ft. A door should be installed within 50 ft of the end of the corridor to eliminate this non-compliant condition.

9.3 All rooms or spaces with an occupant load greater than 50 people must be provided with two egress doors swinging in the direction of egress and illuminated exit signs at each exit (780 CMR Sections 1015.1, 1008.1.2, & 1011.1). Boiler rooms require two means of egress if the room is greater than 500 sqft, and includes individual fuel-fired equipment greater than 400,000 Btuh input capacity (780 CMR 1015.3).

9.4 The clear width of all doors must be at least 32" (780 CMR 1008.1.1).

All egress doors measured 32" minimum in clear width.

9.5 Horizontal sliding doors are permitted to be used as a means of egress in areas serving less than 10 occupants (780 CMR 1008.1.2 Ex 9).

The horizontal sliding doors in the dwelling units are compliant as designed.

9.6 Egress doors must swing in the direction of egress travel where serving an occupant load of 50 or more people (780 CMR 1008.1.2).

Door swings throughout the building are compliant.

9.7 All rooms or spaces with a travel distance of over 125 feet (100 ft for basement areas) must be provided with two egress doors and

- Fire extinguishers (780 CMR 906.1)
- Carbon monoxide detection throughout (780 CMR 916.1)

If required, fire pumps must be located in a dedicated room protected with 2 hour fire rated construction and accessed by directly from the exterior or through a 2 hour fire rated enclosure (780 CMR 913.2.1 & 913.2.2).

The fire pump room must have direct access to the exterior of the building or be provided with a 2 hour rated enclosure to the exterior.

11. **Energy Code Provisions for Existing Buildings**

    The building must comply with the 2009 International Energy Conservation Code (IECC) with Massachusetts Amendments (Massachusetts Energy Conservation Code). Alternatively, the provisions of ASHRAE 90.1-2007 can be met in lieu of the IECC. The IECC 101.4.3 also requires all new or altered systems or portions thereof within the existing building to comply with the code requirements applicable to new construction without requiring the unaltered portions to be upgraded.

    Additionally, the City of Somerville has adopted the Stretch Energy Code (780 CMR Appendix AA) which goes into effect on January 1, 2012. Renovation of a 2 story building for residential occupancy is required to meet a HERS rating of 85 (780 CMR Appendix AA 401.6.2) or the prescriptive option for alterations or repairs (Appendix AA 401.6).

12. **Structural Provisions for Existing Buildings**

    Alterations to buildings must be evaluated by a registered structural engineer to determine compliance with the IEBC; however, for a Level 3 alteration, some of the major thresholds for seismic and wind load compliance are as follows:

1. Where not more than 30 percent of the total floor and roof areas of the building are involved in structural alteration within a 12-month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the loads applicable at the time of the original construction or of the most recent substantial structural alteration as defined by Section 807.4.2 (IEBC 807.4.3).

2. Where more than 30 percent of the total floor and roof areas of the building or structure have been or are proposed to be involved in structural alteration within a 12-month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the 780 CMR for wind loading and with reduced 780 CMR level seismic forces as specified in Section 101.5.4.2 for seismic loading (IEBC 807.4.2). The areas to be counted toward the 30 percent shall be those areas tributary to the vertical load-carrying components, such as joists, beams, columns, walls and other structural components that have been

or will be removed, added or altered, as well as areas such as mezzanines, penthouses, roof structures and in-filled courts and shafts.

3. Where a permit is issued for reroofing more than 25 percent of the roof area of a building assigned to Seismic Design Category B, C, D, E or F with a structural system consisting of concrete or reinforced masonry walls with a flexible roof diaphragm or unreinforced masonry walls with any type of roof diaphragms, the work shall include installation of wall anchors at the roof line to resist the reduced 780 CMR level seismic forces as specified in Section 101.5.4.2 of this code and design procedures of Section 101.5.4, unless an evaluation demonstrates compliance of existing wall anchorage (IEBC 606.2.1 MA Amendment).

4. Where a permit is issued for reroofing for more than 25 percent of the roof area of a building assigned to Seismic Design Category B, C, D, E or F that has parapets constructed of unreinforced masonry, the work shall include installation of parapet bracing to resist the reduced 780 CMR seismic forces specified in Section 101.5.4.2 of this code, unless an evaluation demonstrates compliance of such items (IEBC 606.3.1 MA Amendment).

5. Where roofing materials are removed from more than 100 percent of the roof diaphragm of a building, and the basic wind speed is greater than 90 mph and the occupancy category is type III or type IV or the basic wind speed is 105 or greater, the roof diaphragms and connections that are part of the main wind-force resisting system shall be evaluated for the wind loads specified in the 780 CMR, including wind uplift (IEBC 606.3.2 MA Amendment).

Massachusetts Architectural Access Board Regulations
Alterations to the building must comply with the requirements of the Massachusetts Architectural Access Board Regulations (521 CMR). For existing building alterations the requirements of 521 CMR are based on the cost of the proposed work:

A. If the cost of the proposed work is **less than $100,000,** only the new work must comply.

B. If the cost of the proposed work is **greater than $100,000** then all new work must comply and the existing building must include an accessible public entrance, toilet room, telephone and drinking fountain (if public phones and drinking fountains are provided) (521 CMR Section 3.3.1(b)). Exempt work when calculating the cost of work includes roof repair or replacement, window repair or replacement, and repointing and masonry repair work.

C. If the cost of the proposed work is **greater than 30% of the full and fair cash value** of the existing building, the entire building is required to fully comply with 521 CMR (521 CMR Section 3.3.2). There is no exempt

UNIT TYPE DATA (NEW BUILDING)

UNIT TYPE	# UNITS	# BR's	UNIT AREA (SF)	ACCESSIBILITY
1	28	1	611	GROUP 1
2	5	1	538	GROUP 1
2-A	2	1	538	GROUP 2A

1 BR. UNITS	35
2 BR. UNITS	0
ACC. UNITS	2
TOTAL UNITS	**35**

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Comprehensive Permit Submission Sept. 16, 2011
Issue Description **Date**

Scale:
1/4" = 1'-0"

Drawn By: Author **Checked By:** Checker **Reviewed By:**

Project No. 2010080.00

Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

UNIT DATA AND CODE SUMMARY - NEW BUILDING

A0.4

Introduction
The Mystic Waterworks at Capen Court residential conversion project is located at 149 Capen Street in Somerville, Massachusetts. This project involves creating senior housing through the conversion of the existing Mystic Waterworks building and the construction of a new apartment building next to the existing building. This report covers the code compliance for the proposed new four story apartment building. Following is a list of applicable codes:

Code Type	Applicable Code (Model Code Basis)
Building	780 CMR: Massachusetts State Building Code, 8th Edition (2009 International Building Code) (2009 International Existing Building Code)
Fire Prevention	527 CMR: Massachusetts Fire Prevention Regulations M.G.L. Chapter 148 Section 26G – Sprinkler Protection
Accessibility	521 CMR: Massachusetts Architectural Access Board Regulations
Electrical	527 CMR 12.00: Massachusetts Electrical Code (2011 National Electrical Code)
Elevators	524 CMR: Massachusetts Elevator Code (2004 ASME A17.1)
Mechanical	2009 International Mechanical Code (IMC)
Plumbing	248 CMR: Massachusetts Plumbing Code
Energy Conservation	2009 International Energy Conservation Code & Stretch Energy Code[1]

[1] The City of Somerville has adopted the Stretch Energy Code (780 CMR Appendix AA) which will become effective on January 1, 2012.

1. Occupancy Classification:

Separated Mixed Uses:
- Use Group R-2 (Apartments)
- Use Group A-3 (Large Patios)

2. Min. Construction Type:

- Type VA Construction (combustible, 1-hour rated)

Due to the size of the large patio it is considered a separate use group and individually governed by the height and area limitations of Use Group A-3. In order to have this use group on the third floor, the building must be one hour rated.

General Egress Requirements:

- Maximum exit access travel distance must be less than 250 ft (780 CMR Table 1016.1).

  The building is compliant as designed.

- Maximum dead-end corridor length must be less than 20 ft in A-3 areas and 50 ft in residential areas; or 2.5 times the least width of space (780 CMR 1018.4).

  No dead-end corridors were noted.

- All rooms or spaces with an occupant load greater than 50 people or with a travel distance over 75 ft in A-3 areas and 125 ft in R-2 areas must be provided with two egress doors swinging in the direction of egress and illuminated exit signs at each exit (780 CMR Sections 1015.1, 1008.1.2, & 1011.1). Boiler rooms require two means of egress if the room is greater than 500 sqft. and includes individual fuel-fired equipment greater than 400,000 Btuh input capacity.

  All areas of the building, including the deck area, are provided with a sufficient number of exits.

  If the large mechanical room will contain equipment over the BTU limits two means of egress are required.

- The clear width of all doors must be at least 32" (780 CMR 1008.1.1).

  All egress doors were at least 32" in clear width.

- Horizontal sliding doors are permitted to be used as a means of egress in areas serving less than 10 occupants (780 CMR 1008.1.2 Ex 9).

  The horizontal sliding doors in the dwelling units are compliant as designed.

- Doors serving assembly areas with more than 50 people and doors along the path of egress travel from such rooms must be provided with panic hardware (780 CMR 1008.1.10).

  Panic hardware must be provided along the means of egress from the large deck to the exit discharge

- All means of egress lighting and exit signs throughout the building must be provided with an emergency power supply to assure continued illumination for not less than 1.5 hours in case of primary power loss (780 CMR 1006.1 & 1011.1).

- Doors that serve an occupant load greater than 50 people must swing in the direction of egress travel (780 CMR 1008.1.2)

  The discharge door from Stair 2 needs to swing in the direction of egress travel. It was assumed that this stair discharges on Level 1.

- Remote means of egress must be separated by ½ of the diagonal dimension of the room or space they serve (780 CMR 1015.2.1). The distance between exits may be measured along 1-hour fire resistance rated corridors complying with 780 CMR 1018 but must otherwise be measured in a straight line between exit doors.

  All exits are sufficiently remote.

- A stair or alternating tread device must be provided to any main roof surface over four stories high (780 CMR 1009.13). Roofs and penthouses containing elevator equipment that must be accessed for maintenance are required to be accessed by a stairway (780 CMR 1009.14).

  A stair or alternating tread device continuing to the roof level was not noted on the plans.

- All exits must discharge to the exterior of the building except that a maximum of 50% of the number and capacity of the exit enclosures are allowed to exit through areas on the level of discharge if the exit enclosures discharge to a free and unobstructed path of travel to an exterior exit that is readily visible from the discharge of the exit enclosure; the entire area of the level of exit discharge is separated from areas below by construction consistent with the rating of the exit enclosure; and the egress path and all areas open to the egress path on the level of exit discharge must be fully sprinklered (780 CMR 1027.1).

  One of the two interior exit stairs discharges through the lowest level.

- All dwelling units that contain over 2000 square feet or have a travel distance over 75 feet must be provided with two means of egress (780 CMR 1015.1).

  All units are compliant as designed.

- In buildings with four or more stories, where a required accessible floor is four or more stories above or below a level of exit discharge, at least one accessible means of egress must be an elevator complying with 780 CMR 1007.4 (780 CMR 1007.2.1).
  - Standby power must be provided for the elevator to be considered an accessible means of egress (780 CMR 1007.4).

An elevator equipped with standby power is required.

- A stairway in an exit enclosure is not permitted to continue below its level of exit discharge unless an approved barrier is provided at the level of exit discharge (780 CMR 1022.7).

  Both stairs discharge on the lowest level.

- At least one passenger elevator must be sized to accommodate the loading and transportation of an ambulance gurney or stretcher sized 24" wide by 84" long with 5" radius corners (524 CMR 17.40(1)).

9. Required Fire Protection Systems:

- NFPA 13 sprinkler system (780 CMR Table 903.2 & M.G.L. c148 s26G)
- Fire alarm system (780 CMR 907.2.9)
- Single- and multiple-station smoke alarms must be installed in each room used for sleeping purposes and outside each sleeping area in the immediate vicinity of bedrooms (780 CMR 907.2.9.2 & 907.2.11.2).
- Standpipe system (780 CMR 905.3.1)
- Fire extinguishers (780 CMR 906.1)
- Carbon monoxide detection throughout (780 CMR 916.1)

Fire pumps must be located in a dedicated room protected with 2 hour fire rated construction and accessed directly from the exterior or through a 2 hour fire rated enclosure (780 CMR 913.2.1 & 913.2.2).

The fire pump is located in the main mechanical room, this is not permitted. The pump must be in its own room separated from all other portions of the building and accessed through a rated corridor.

10. Energy Code Provisions

The project is subject to the provisions of the 2009 International Energy Conservation code with Massachusetts Amendments (Massachusetts Energy Code). Additionally, the City of Somerville has adopted the Stretch Energy Code (780 CMR Appendix AA) which goes into effect on January 1, 2012. In general the Stretch Energy Code requires 20% more energy conservation that the base Massachusetts Energy Code.

11. Accessibility for Persons with Disabilities

Massachusetts Architectural Access Board Regulations
All areas open to the general public (residents, students, etc.) are required to comply with the requirements of the Massachusetts Architectural Access Board (521 CMR). This section includes the following major provisions:

- All public entrances must be accessible (521 CMR 25.1).

- All public and common use areas must be accessible and provided with an accessible route thereto (521 CMR Section 12.2.2 and 20.1).
- At least 5% of the total number of dwelling units must be Group 2A units. All other units must be Group 1 (521 CMR 9.3 and 9.4).
- In addition to the units required to be Group 2A, 2% of the total number of dwelling units in the complex must be designed for persons who are deaf or hard of hearing (521 CMR 9.7).
- In Group 1 units, the refrigerator door must open 180 degrees, if the door cannot open 180 degrees, a minimum of 30" of counter space must be provided next to the refrigerator (521 CMR 43.7).
- Group 2 kitchens require 60" turning circle clearance (521 CMR 45.3)
- Refrigerator doors in Group 2 units must open 180 degrees and have a minimum of 30" of counter space next to the refrigerator (521 CMR 45.10).
- The maximum ramp slope cannot exceed 1:12 (8.3%) in accordance with 521 CMR 24.2.1.

American's with Disabilities Act
The ADA Guidelines are not enforced by the Commonwealth of Massachusetts, they can only be enforced through a civil lawsuit or complaint filed with the U.S. Department of Justice. All public and common use areas must be accessible. In general, the majority of the dimensional requirements in the ADA are equivalent to those in the 521 CMR.
Although the provisions of the MAAB do not apply to employee only areas, the ADAAG requires that employee only work spaces must be designed to allow employees to approach, enter, and exit the work area. However, the work areas are not required be provided with accessible features (i.e. shelves, etc.).

It should be noted that the 2010 ADA standards were published September 15, 2010. There is currently a 1.5 year concurrency period where the project can comply with either the 2010 standards or the 1991 ADA standards. Mandatory compliance is required after March 15, 2012.

Stair Shafts (780 CMR 1022.1)	2	1½
Other Shafts (780 CMR 708.4)	2	1½
Dwelling Unit Separation (780 CMR 709.3, 420.2 & 420.3)	1	½
Fire Pump Room (780 CMR 913.2.1)	2[D]	1½
Elevator Machine Room (780 CMR 708.4)	2	1½
Trash Rooms Greater than 100 ft² in Area (780 CMR Table 508.2.5)	Smoke Resistant	Self Closing
Rooms With Equipment Greater than 400,000 Btuh Input Capacity (780 CMR Table 508.2.5)	Smoke Resistant	Self Closing
Emergency Electrical Room (527 CMR 12.00 700-10(D)(2))	2[E]	1½

A. Not less than the rating supported (780 CMR 707.5, 709.4. and 712.4).
B. Fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below.
C. Smoke and draft control doors per UL 1784 are required (780 CMR 715.4.3).
D. Location and access to the fire pump room shall be pre-planned with the fire department (NFPA 20 Section 5.12.1.1.3).
E. No rating is required for the room when fully sprinklered, however a 2-hr rating is still required for the emergency feeder-circuit wiring.

Fire walls, fire barriers, fire partitions, smoke barriers, and smoke partitions, or any other wall required to have protected openings or penetrations must be identified with signs or stenciling within concealed spaces (i.e. floor-ceiling, attic spaces) at 30 ft intervals (780 CMR 703.6).

5. Exterior Wall Openings & Fire Resistance Rating:

The exterior wall rating requirements and opening limitations are based on the fire separation distance for each wall. The fire separation distance is measured perpendicular to the exterior wall to the centerline of a public street, an interior lot line, or an imaginary lot line between two buildings on the same lot (780 CMR 702.0). Where the fire separation distance is more than 30 ft the wall is not required to be rated. Where the fire separation distance exceeds 20 ft, the allowable area of openings is not limited (780 CMR Table 602 and Table 705.8). Note that openings are not permitted where the fire separation distance is less than 3 ft. Also, where the fire separation distance is 10 ft or less, the exterior walls must be rated for exposure to fire from both sides (780 CMR 705.5).

An imaginary lot line must be drawn between the buildings to determine the fire separation distance of each wall and the required rating and opening limitations. The buildings are located 42 ft apart. If the imaginary lot line is drawn directly in the middle of the two buildings the exterior wall of the new building will need to be one-hour rated and can have unlimited unprotected openings. The line can also be skewed towards the existing building thereby not requiring a fire rating for either building.

6. Vertical Floor Openings

Vertical openings are required to comply with 780 CMR 708.2. Vertical openings connecting all four floors must be enclosed with 2-hour rated construction and opening protectives of 1.5 hours. Openings connecting three or less floors are required to be enclosed with one hour rated construction and opening protectives of 3/4 hours (1 hour for stair shafts).

All vertical openings are enclosed with the exception of the exterior stair which is permitted to be open.

7. Interior Finishes:

The interior finish of walls and ceilings in exits and corridors must comply with the code for new construction as shown in the table below.

Walls & Ceilings (IBC Table 803.9)

Building Component	Use Group A-3	Use Group R-2
Exit Stair	Class B	Class C
Exit Access Corridors	Class B	Class C
Rooms & Enclosed Spaces	Class C	Class C

Note that where exit stairs and exit access corridors serve all use groups, the most restrictive interior finish is required.

New Floor Finishes
Since the buildings will be equipped with an automatic sprinkler system, traditional floor coverings such as wood, vinyl, carpeting, and other resilient floor coverings passing the DOC FF-1 pill test are allowed throughout the buildings, including all exits, exit passageways and exit access corridors (780 CMR Section 804.4.1).

8. Means of Egress:

The calculated occupant load for the proposed floor plans, the corresponding required number of exits, the provided number of exits, and the provided egress capacity are summarized below (780 CMR Table 1004.1.1, Table 1021.1, and 1005.1). See the appendix of this report for detailed egress calculations.

Means of Egress

Floor	Occupant Load	Number of Exits		Exit Capacity (persons)
		Required	Provided	
1	72	2	2	510
2	72	2	3	633
3	113	3	3	440
4	35	2	2	293

3. Height and Area Limitations:

The following table summarizes the height and area limitations for Use Group A-3 and R-2 based on Type VA construction.

Code Reference	Use Group A-3		Use Group R-2	
	Height	Area	Height	Area
780 CMR Table 503: Tabular Value	2 St. (50 ft)	11,500 ft²	3 St. (50 ft)	12,000 ft²
780 CMR Section 504.2: Sprinkler Height Increase	1 St. (20 ft)	-	1 St. (20 ft)	-
780 CMR Section 506.2 Frontage Increase (75% Open)	-	5,750 ft²	-	6,000 ft²
780 CMR Section 506.3: Sprinkler Area Increase	-	23,000 ft²	-	24,000 ft²
Height and Area Allowed	**3 St. (70 ft)**	**40,250 ft²**	**4 St. (70 ft)**	**42,000 ft²**
Actual Height and Area	**3 St. (40 ft)**	**1,300 ft²**	**4 St. (50 ft)**	**8,100 ft²**

As the occupancies will be separated, the building area must be such that the sum of the ratios of the floor area of each use group divided by the allowable area for each use group does not exceed one. This calculation is shown below:

Separated Use Calculation

$$\text{Actual Area: } \frac{\text{Use Group A-3}}{1,300} + \frac{\text{Use Groups R-2}}{8,100} = 0.23 < 1 \text{ as required by 780 CMR 508.4.2}$$
$$\text{Allowed Area: } \frac{}{40,250} \quad \frac{}{42,000}$$

4. Fire Resistance Ratings:

The following fire resistance ratings are required in accordance with 780 CMR Table 601 and various sections of the code.

Building Element	Fire Resistance Rating (Hrs)	Opening Protectives (Hrs)
Structural Frame	1[A]	-
Exterior Bearing Walls	1	-
Interior Bearing Walls	1	-
Exterior Non-Bearing Walls	Based on FSD	-
Interior Non-Bearing Walls	0	-
Floor Construction	1[A]	-
Roof Construction	1[B]	-
Exit Access Corridors (780 CMR 1018.1)	½	½[C]

2 First Floor (Pump House)
1/8" = 1'-0"

1 Basement (Pump House)
1/8" = 1'-0"

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Reviewed By:

Project No. 2010080.00

Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

BASEMENT & FIRST FLOOR PLAN - PUMP HOUSE BUILDING

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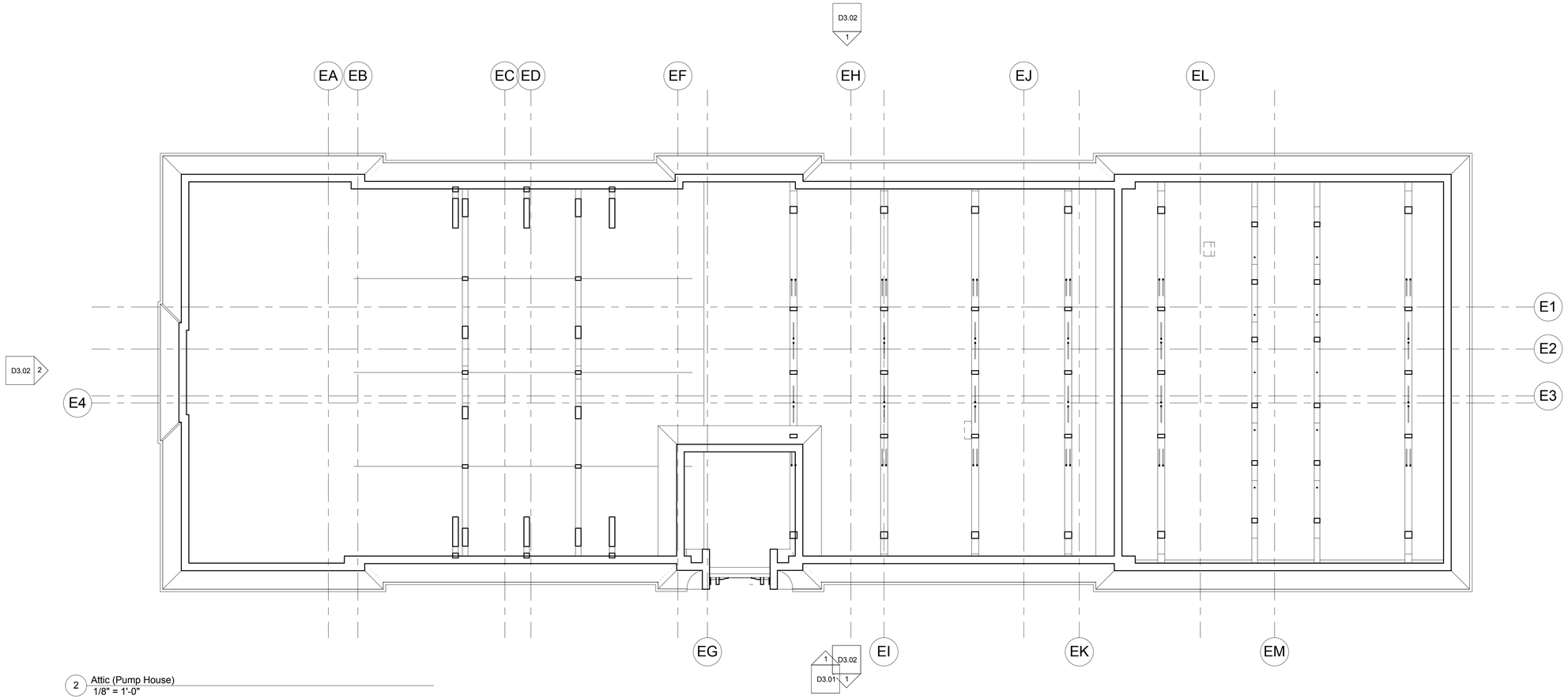
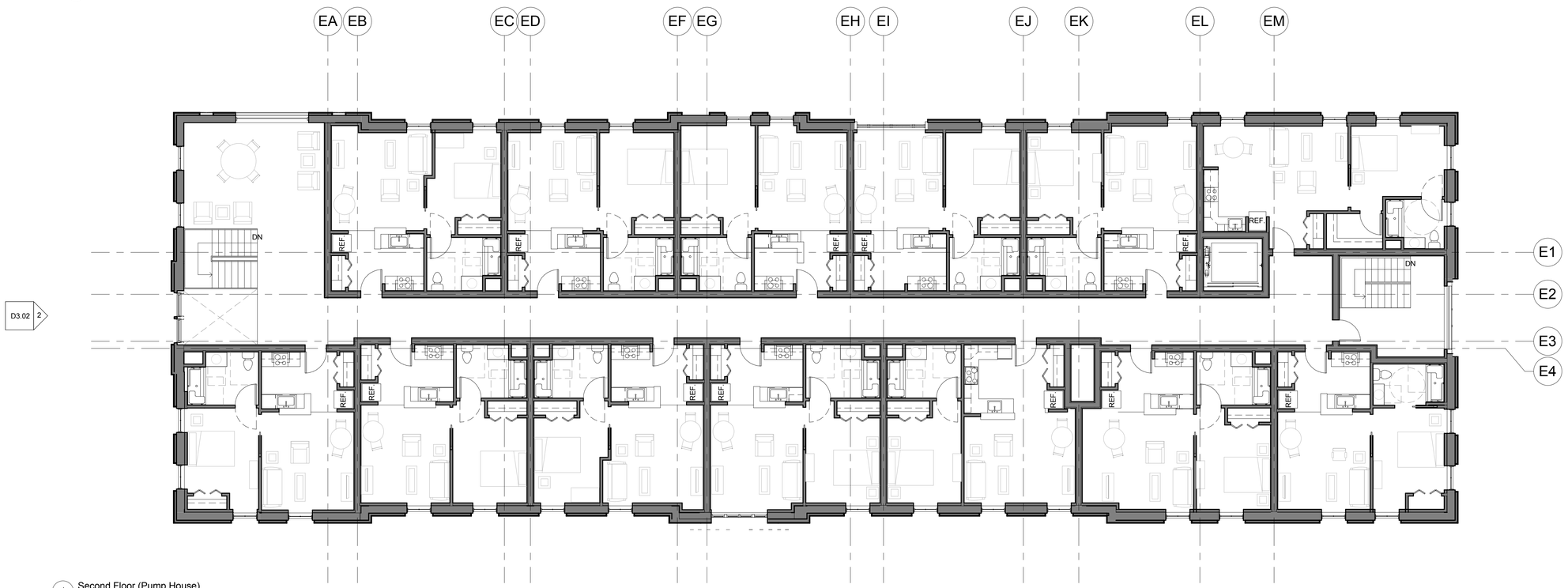


2 Attic (Pump House)
1/8" = 1'-0"



1 Second Floor (Pump House)
1/8" = 1'-0"

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Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

SECOND FLOOR & ATTIC PLANS - PUMP HOUSE BUILDING

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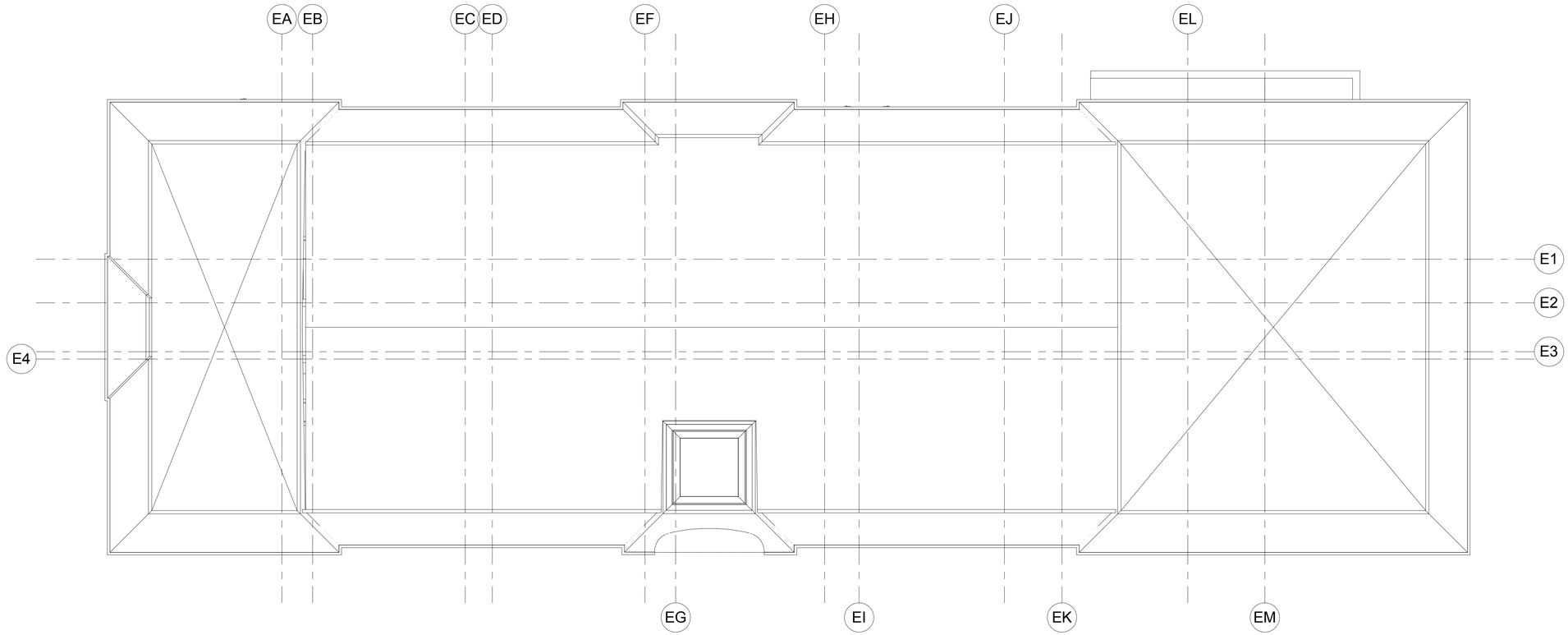

1 Roof Plan (Pump House)
1/8" = 1'-0"

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Cost Estimator
VJ Associates — Tel: 781-444-8200 Fax: 781-444-8242

Historical Consultant
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Issue Description	Date
Comprehensive Permit Submission	Sept. 16, 2011

Scale:
1/8" = 1'-0"

Drawn By: Author
Checked By: Checker
Reviewed By:

Project No. 2010080.00

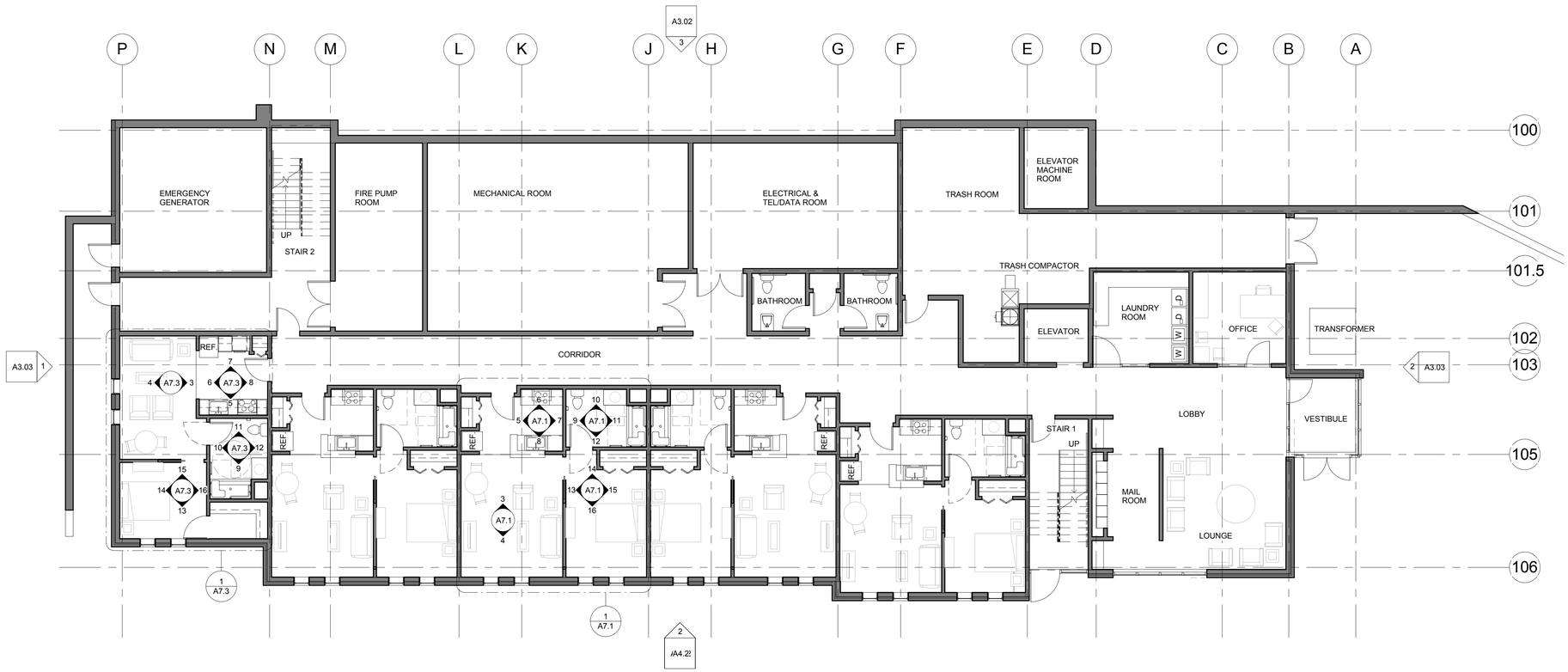
Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

ROOF PLAN - PUMP HOUSE BUILDING

A1.02

2 Second Floor (New)
1/8" = 1'-0"



1 First Floor (New)
1/8" = 1'-0"

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Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

FIRST & SECOND FLOOR PLANS - NEW

A1.03

2 Fourth Floor (New)
1/8" = 1'-0"

1 Third Floor (New)
1/8" = 1'-0"

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Mystic Water Works at Capen Court

Capen St.
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THIRD & FOURTH FLOOR PLANS - NEW

A1.04

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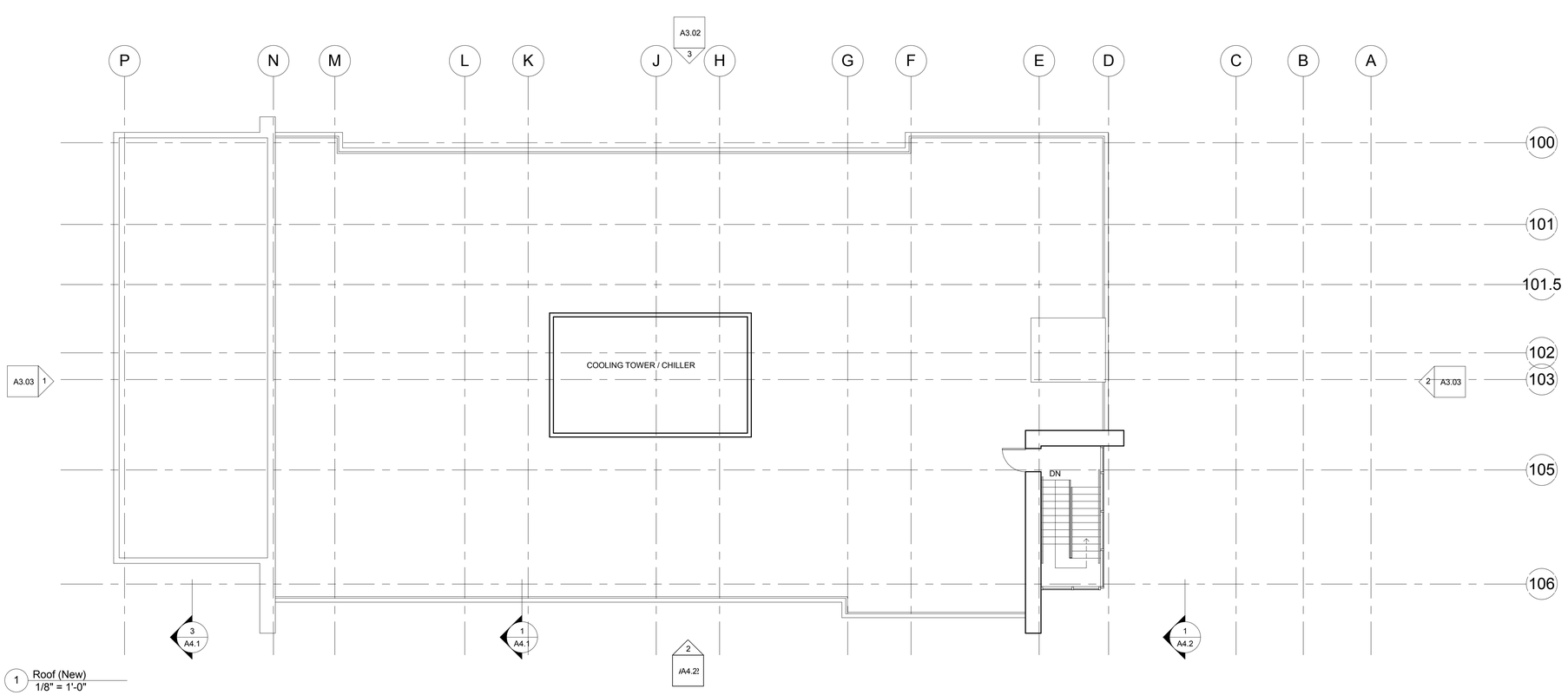

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Issue Description	Date
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Scale: 1/8" = 1'-0"

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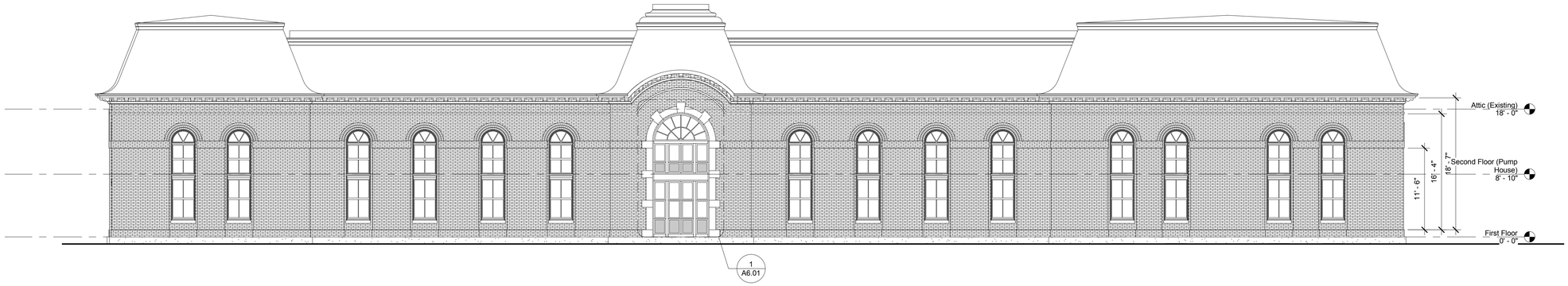
Mystic Water Works at Capen Court

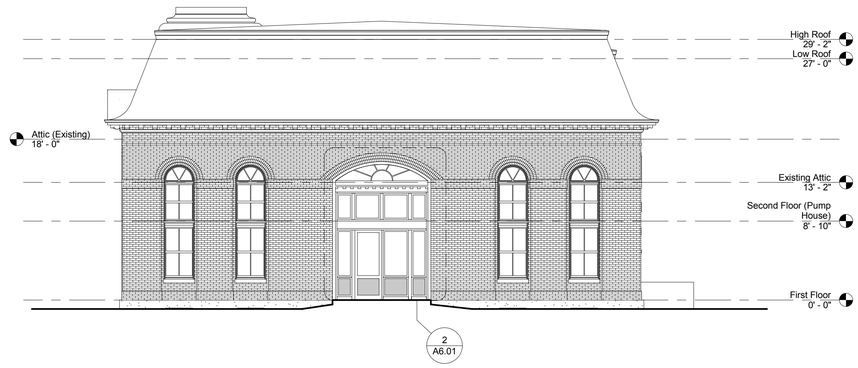
Capen St.
Somerville, MA 02144

ROOF PLAN - NEW

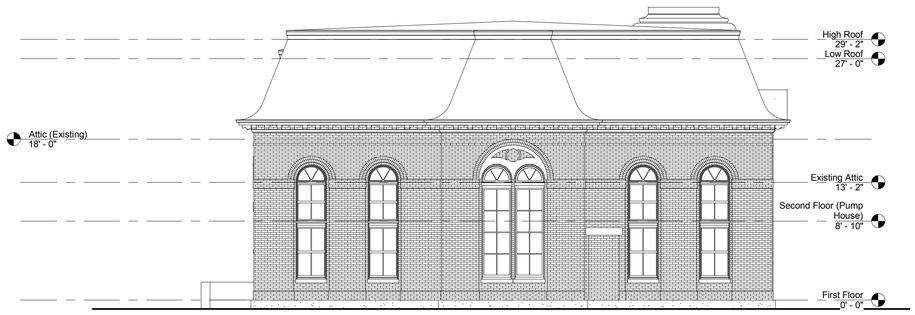
A1.05



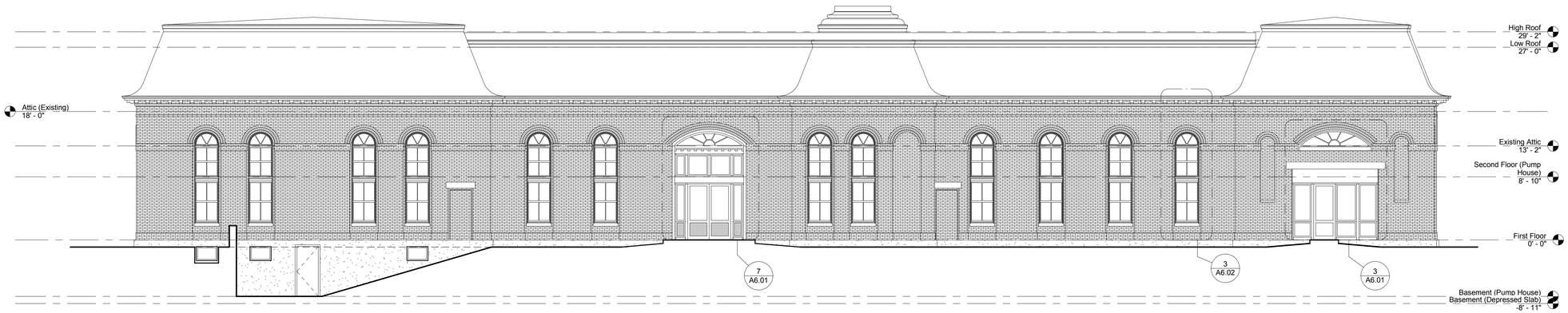
1 North Elevation (Pump House)
1/8" = 1'-0"



2 West Elevation (Pump House)
1/8" = 1'-0"



3 East (Pump House)
1/8" = 1'-0"



4 South Elevation (Pump House)
1/8" = 1'-0"

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Issue Description	Date
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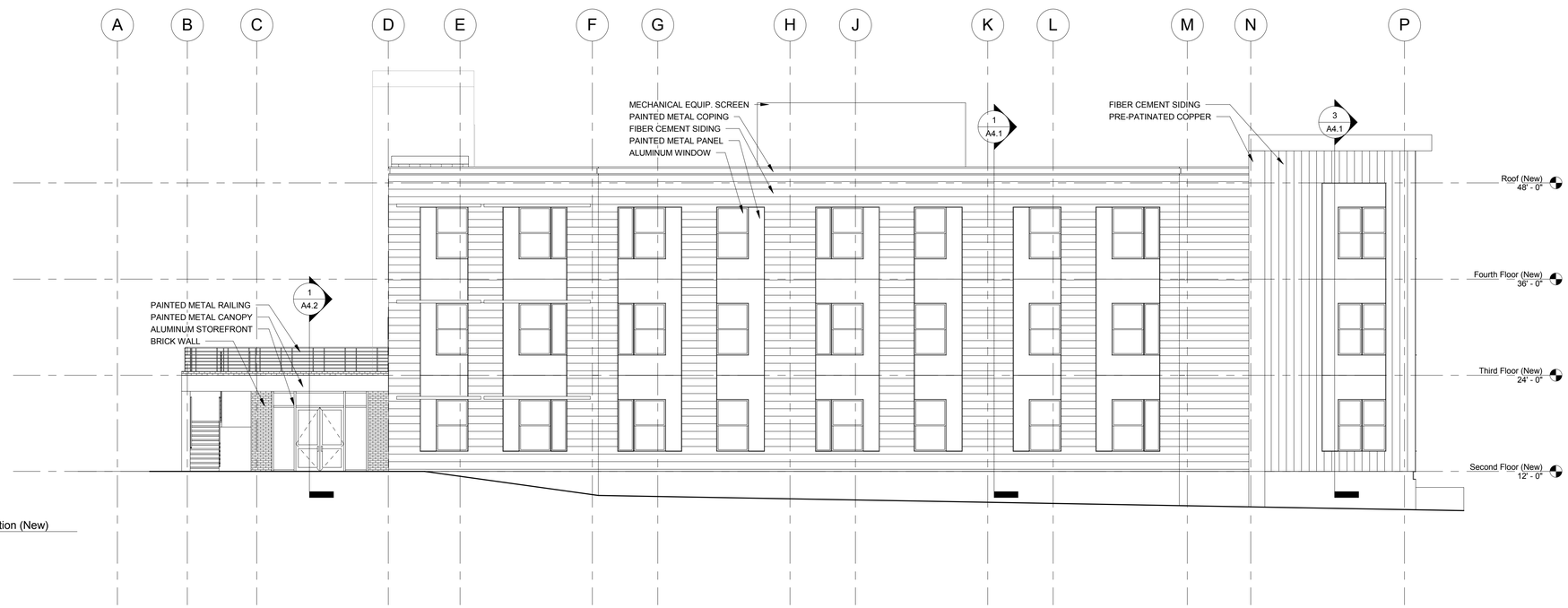
Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

EXTERIOR ELEVATIONS - PUMP HOUSE BUILDING

A3.01

1 North Elevation (New)
1/8" = 1'-0"



3 South Elevation (New)
1/8" = 1'-0"

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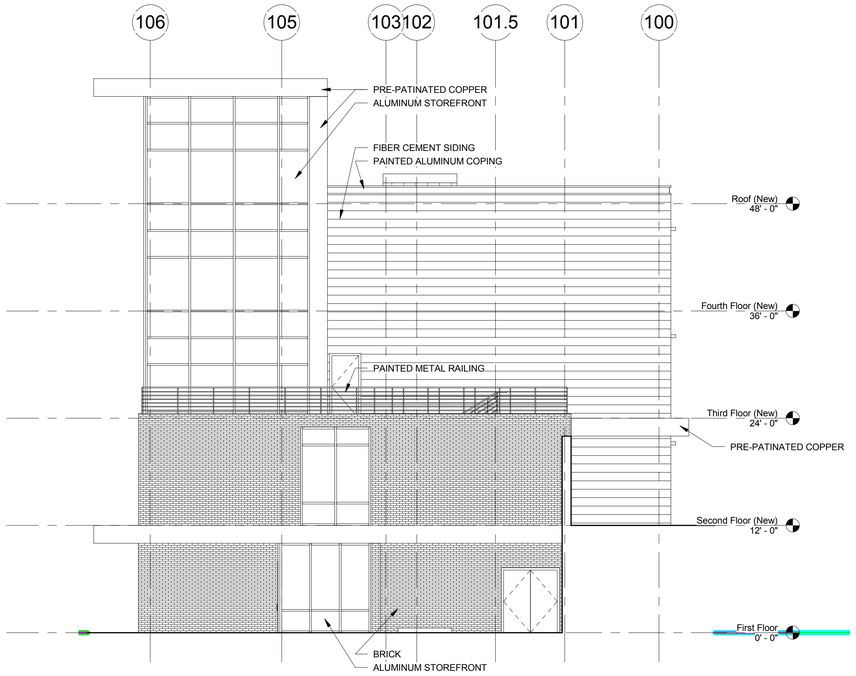
Mystic Water Works at Capen Court

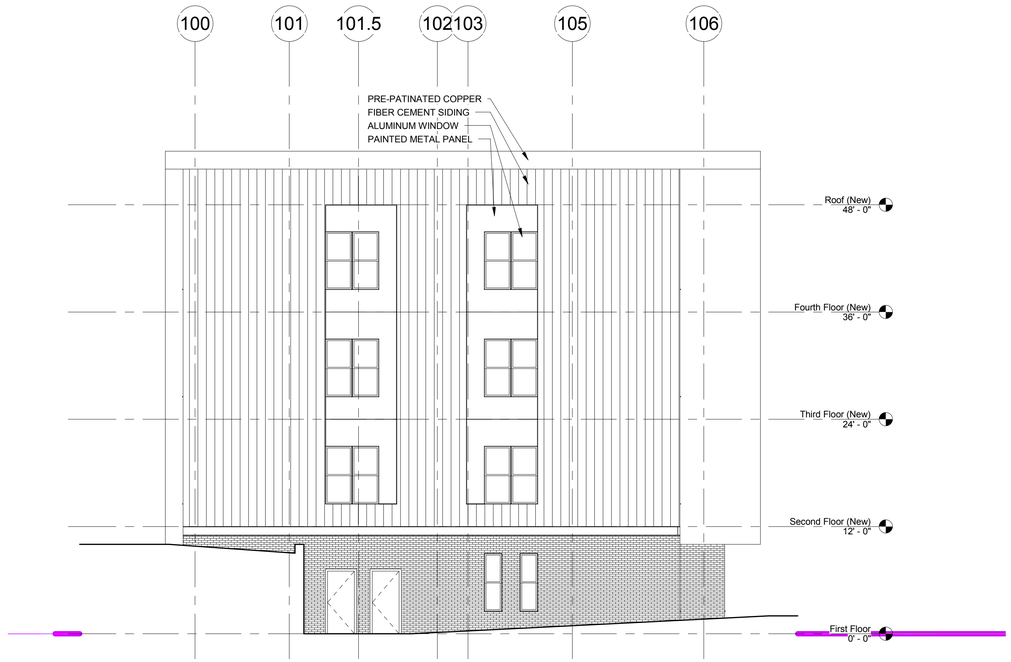
Capen St.
Somerville, MA 02144

NEW BUILDING ELEVATIONS

A3.02



2 West Elevation (New)
1/8" = 1'-0"



1 East Elevation (New)
1/8" = 1'-0"

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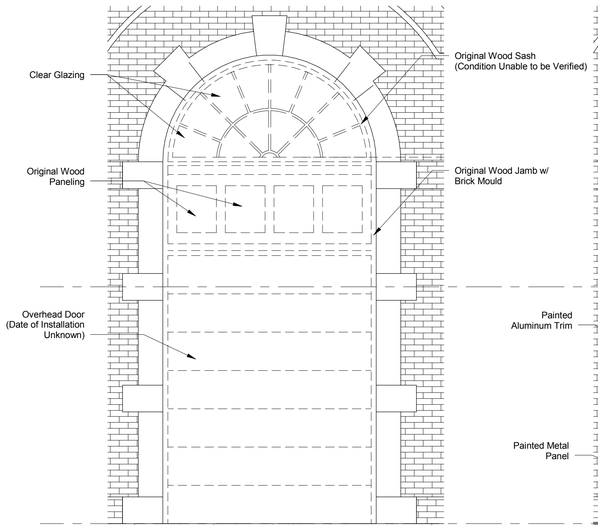
Mystic Water Works at Capen Court

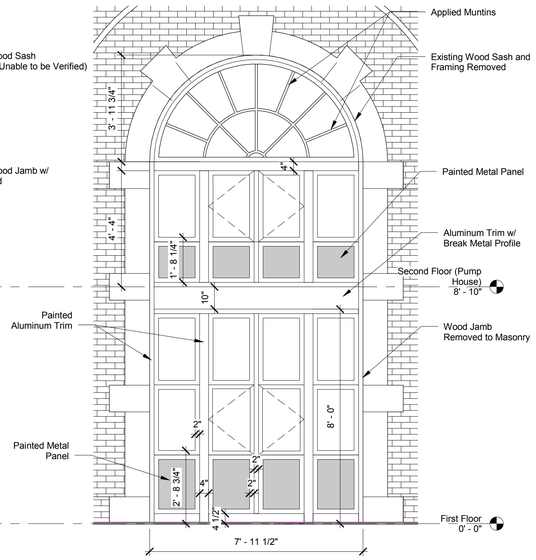
Capen St.
Somerville, MA 02144

NEW BUILDING ELEVATIONS

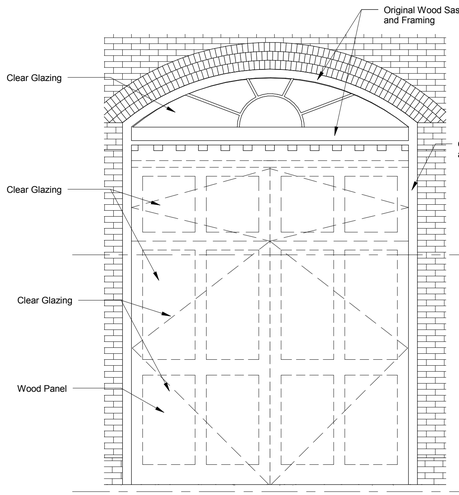
A3.03



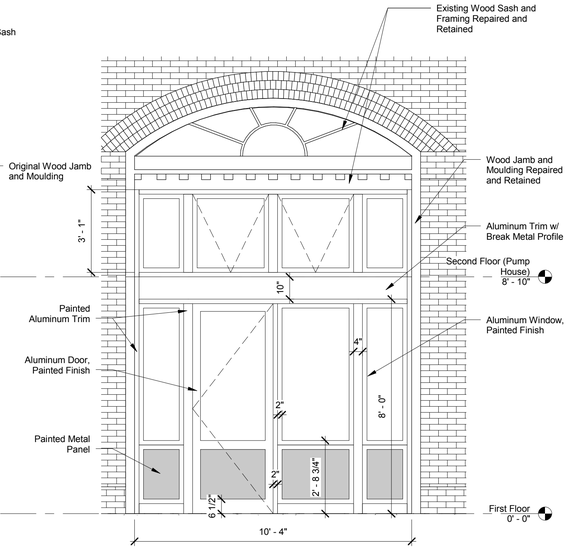
8 Callout (2) of North Elevation (Existing)
3/8" = 1'-0"



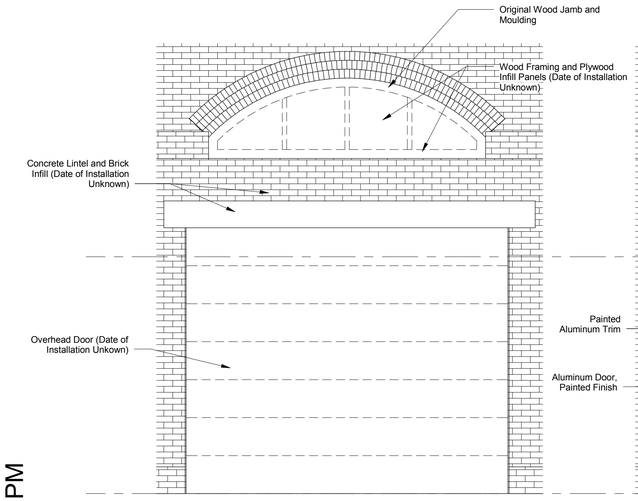
1 Callout of North Elevation (Existing)
3/8" = 1'-0"



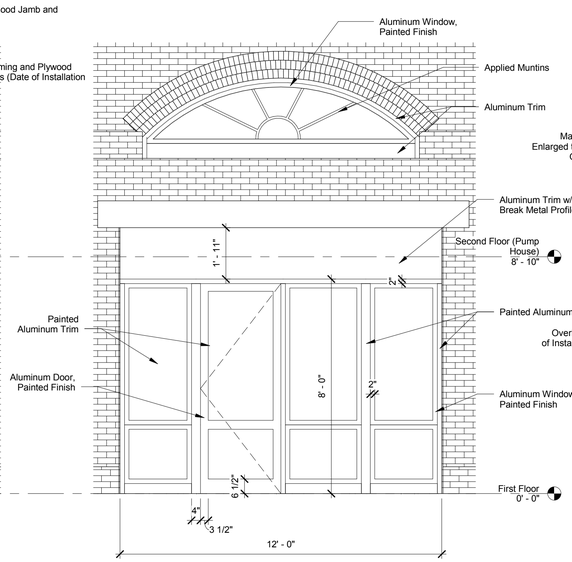
4 Callout (2) of West Elevation (Existing)
3/8" = 1'-0"



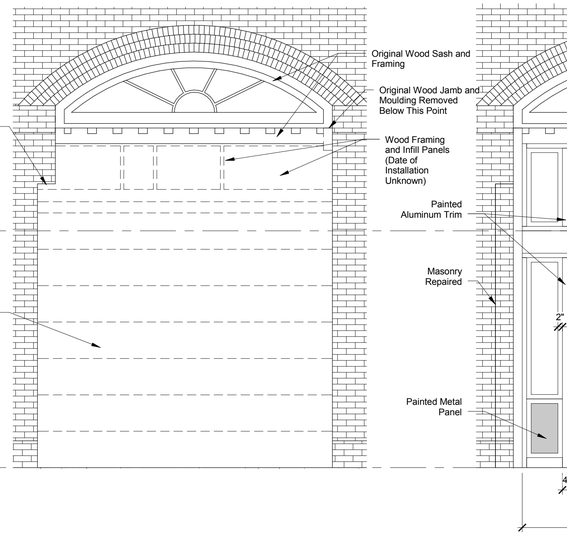
2 Callout of West Elevation (Existing)
3/8" = 1'-0"



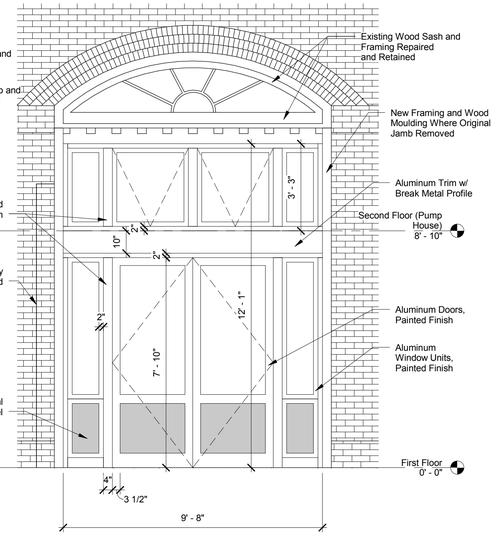
6 Callout (4) of South Elevation (Existing)
3/8" = 1'-0"



3 Callout (2) of South Elevation (Existing)
3/8" = 1'-0"



5 Callout (3) of South Elevation (Existing)
3/8" = 1'-0"



7 Callout of South Elevation (Existing)
3/8" = 1'-0"

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Issue Description	Date
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Scale:
3/8" = 1'-0"

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Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

EXISTING AND PROPOSED WINDOW DETAILS

A6.01

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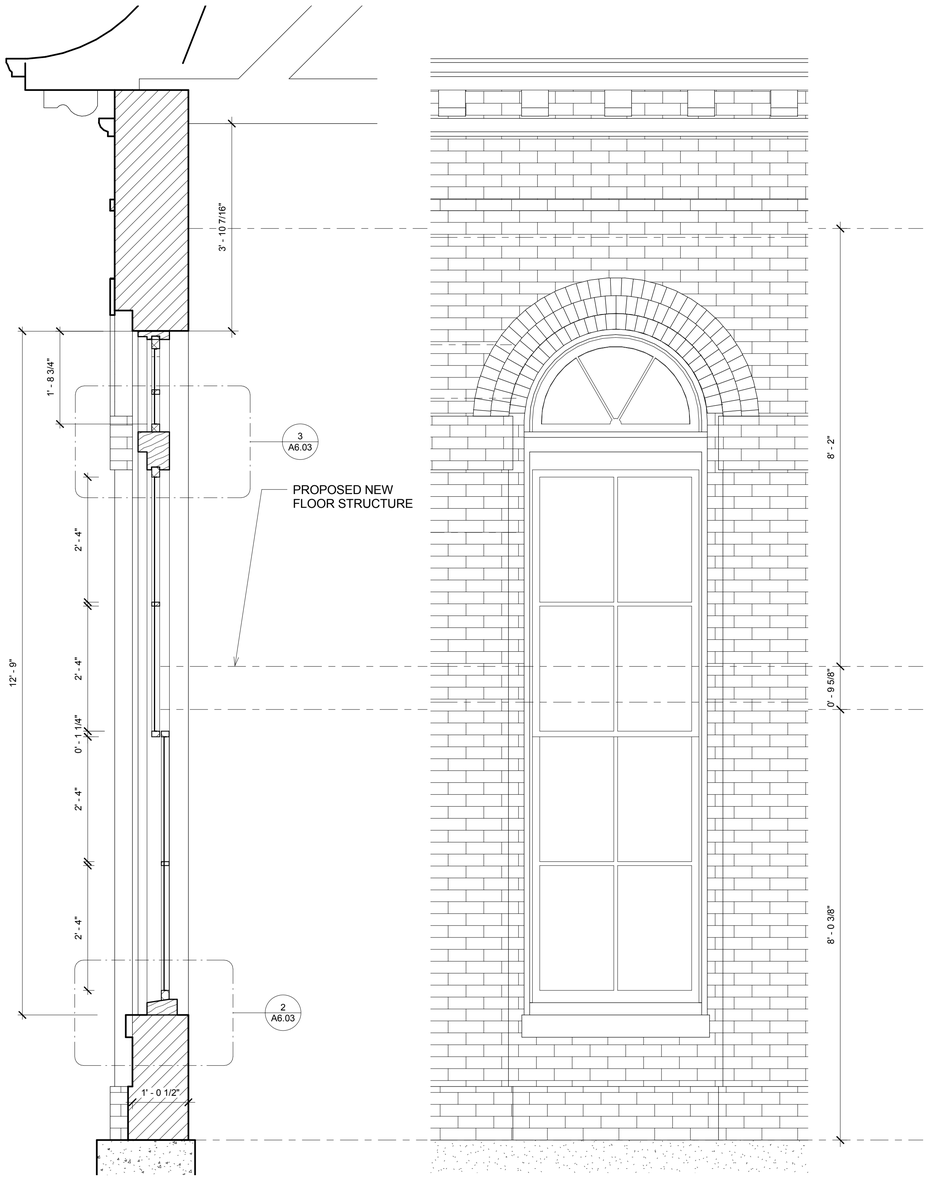
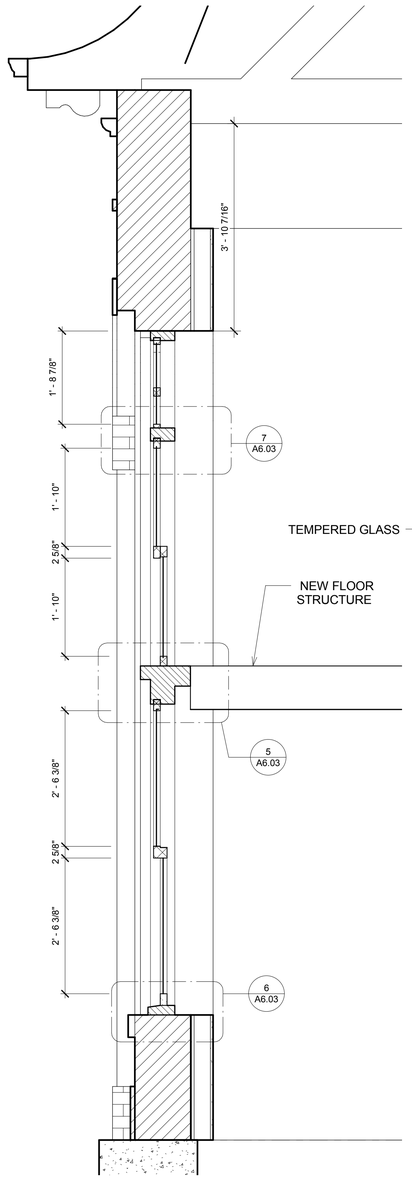
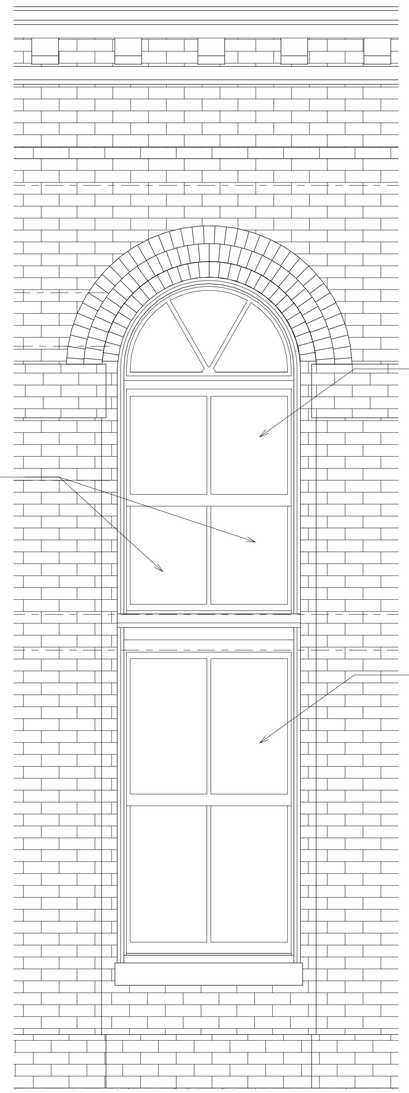


2 Window Section (Existing)
3/4" = 1'-0"

1 Double-Hung Window Elevation (Existing)
3/4" = 1'-0"



4 Window Section (Proposed)
3/4" = 1'-0"



3 Double-Hung Window Elevation (Proposed)
3/4" = 1'-0"

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Issue Description	Date
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Scale:
3/4" = 1'-0"

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Mystic Water Works at Capen Court

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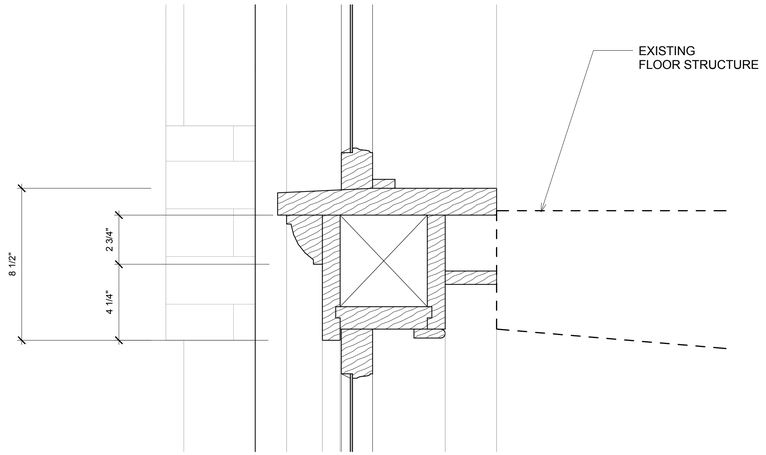
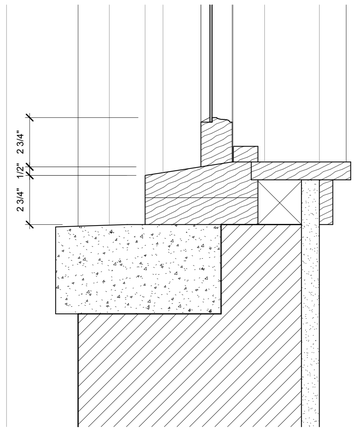
EXISTING AND PROPOSED WINDOW DETAILS

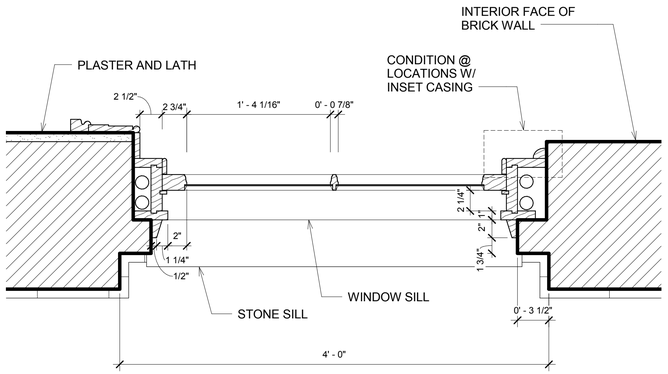
A6.02



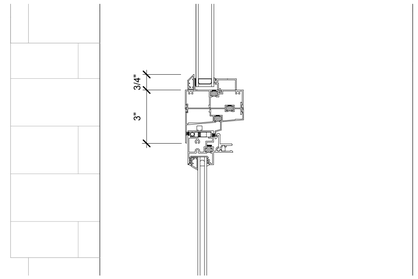
3 Detail at Floor (Existing)
3" = 1'-0"



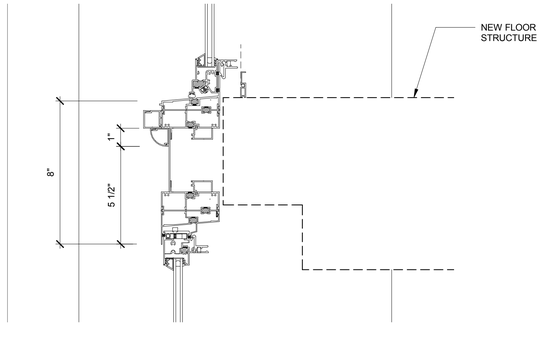
2 Detail at Window Sill (Existing)
3" = 1'-0"



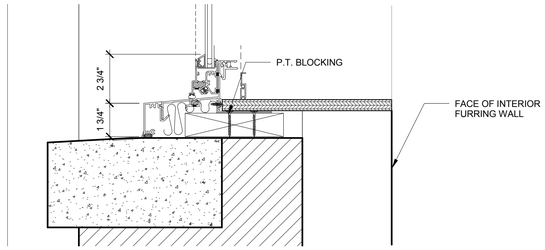
1 Horizontal Section at Lower Sash (Existing)
1 1/2" = 1'-0"



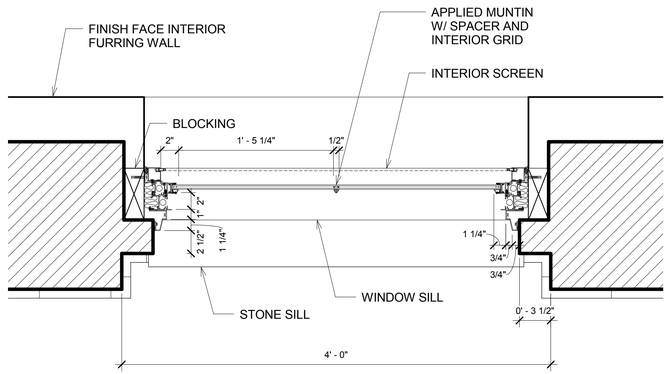
7 Detail at Fixed Sash (Proposed)
3" = 1'-0"



5 Detail at Floor (Proposed)
3" = 1'-0"



6 Detail at Window Sill (Proposed)
3" = 1'-0"



4 Horizontal Section at Lower Sash (Proposed)
1 1/2" = 1'-0"

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Comprehensive Permit Submission	Sept. 16, 2011
Issue Description	**Date**

Scale:
As indicated

Drawn By:	**Checked By:**	**Reviewed By:**
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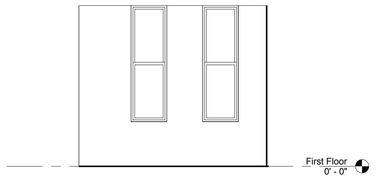
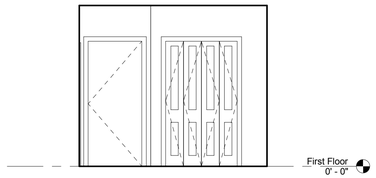
EXISTING AND PROPOSED WINDOW DETAILS

A6.03

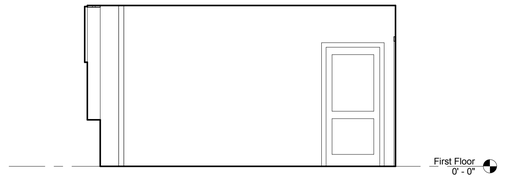


16 Unit Type 1 - Elevation D - Bedroom
1/4" = 1'-0"

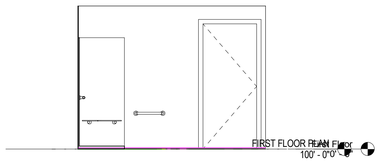
15 Unit Type 1 - Elevation C - Bedroom
1/4" = 1'-0"



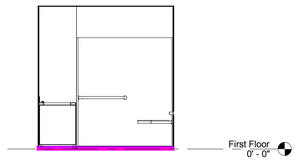
14 Unit Type 1 - Elevation B - Bedroom
1/4" = 1'-0"



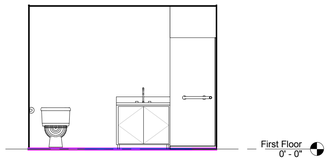
13 Unit Type 1 - Elevation A - Bedroom
1/4" = 1'-0"



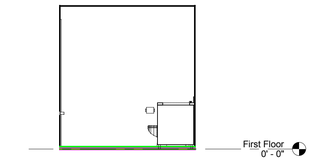
12 Unit Type 1 - Elevation D - Bath
1/4" = 1'-0"



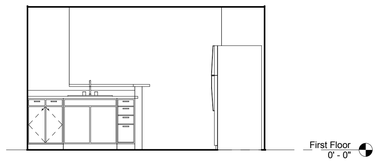
11 Unit Type 1 - Elevation C - Bath
1/4" = 1'-0"



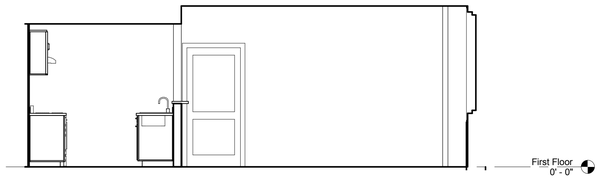
10 Unit Type 1 - Elevation B - Bath
1/4" = 1'-0"



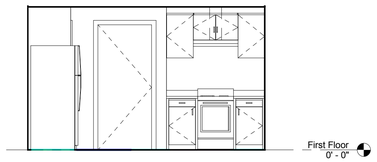
9 Unit Type 1 - Elevation A - Bath
1/4" = 1'-0"



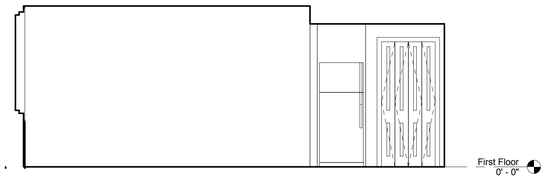
8 Unit Type 1 - Elevation D - Kitchen
1/4" = 1'-0"



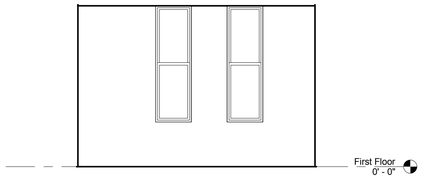
7 Unit Type 1 - Elevation C - Kitchen/Living
1/4" = 1'-0"



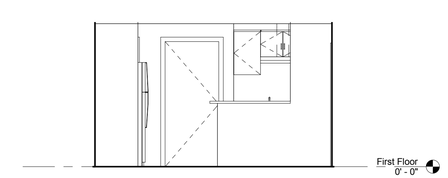
6 Unit Type 1 - Elevation B - Kitchen
1/4" = 1'-0"



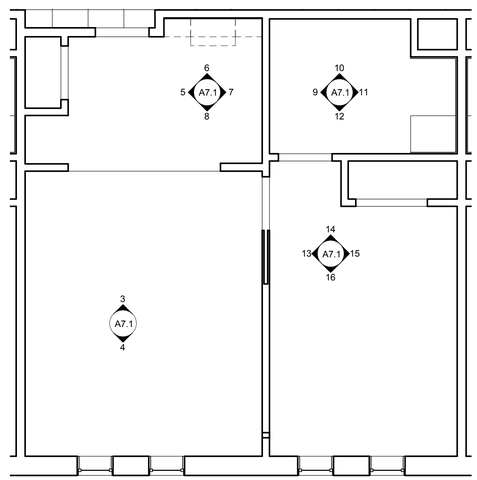
5 Unit Type 1 - Elevation A - Kitchen/Living
1/4" = 1'-0"



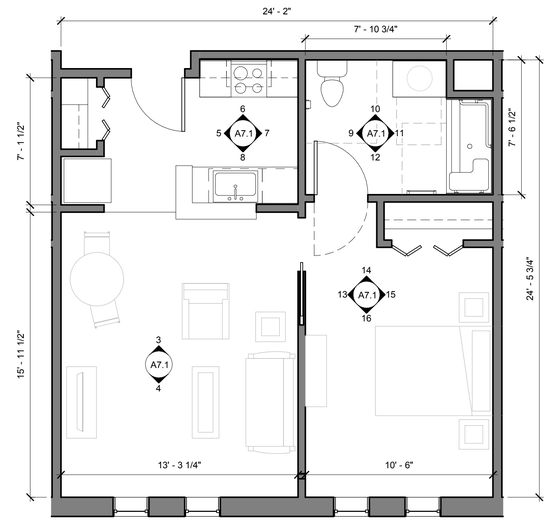
4 Unit Type 1 - Elevation D - Living
1/4" = 1'-0"



3 Unit Type 1 - Elevation B - Living
1/4" = 1'-0"



2 Unit Type 1
1/4" = 1'-0"



1 Unit Type 1
1/4" = 1'-0"

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Issue Description	Date
Comprehensive Permit Submission	Sept. 16, 2011

Scale:
1/4" = 1'-0"

Drawn By: Author **Checked By:** Checker **Reviewed By:**

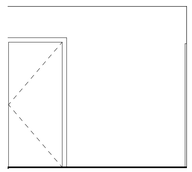
Project No. 2010080.00

Mystic Water Works at Capen Court

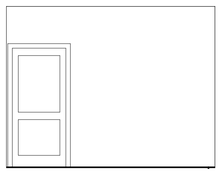
Capen St.
Somerville, MA 02144

ENLARGED UNIT PLAN - UNIT 1

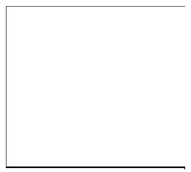
A7.1



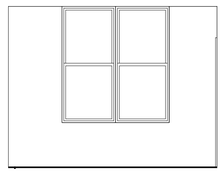
16 Unit Type 2 - Elevation D - Bedroom
1/4" = 1'-0"



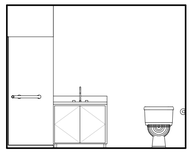
15 Unit Type 2 - Elevation C - Bedroom
1/4" = 1'-0"



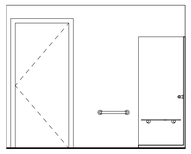
14 Unit Type 2 - Elevation B - Bedroom
1/4" = 1'-0"



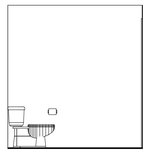
13 Unit Type 2 - Elevation A - Bedroom
1/4" = 1'-0"



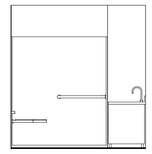
12 Unit Type 2 - Elevation D - Bath
1/4" = 1'-0"



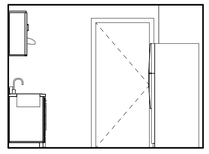
11 Unit Type 2 - Elevation C - Bath
1/4" = 1'-0"



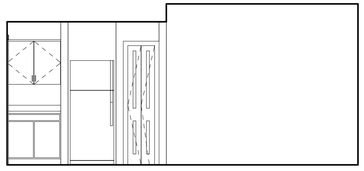
10 Unit Type 2 - Elevation B - Bath
1/4" = 1'-0"



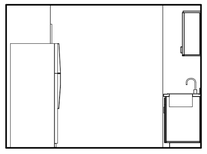
9 Unit Type 2 - Elevation A - Bath
1/4" = 1'-0"



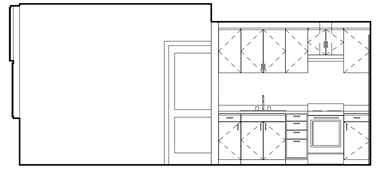
8 Unit Type 2 - Elevation D - Kitchen
1/4" = 1'-0"



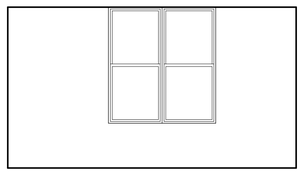
7 Unit Type 2 - Elevation C - Kitchen/Living
1/4" = 1'-0"



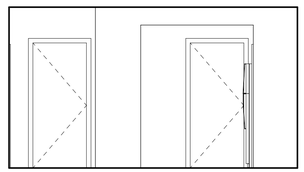
6 Unit Type 2 - Elevation B - Kitchen
1/4" = 1'-0"



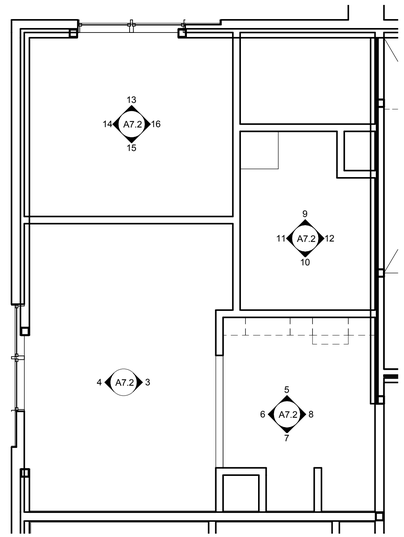
5 Unit Type 2 - Elevation A - Kitchen/Living
1/4" = 1'-0"



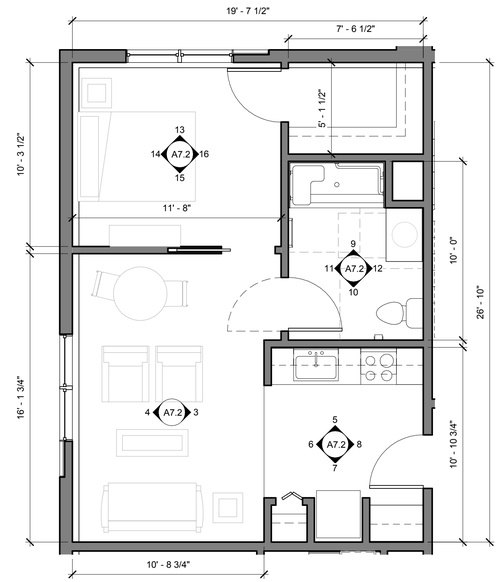
4 Unit Type 2 - Elevation B - Living
1/4" = 1'-0"



3 Unit Type 2 - Elevation A - Living
1/4" = 1'-0"



2 Unit Type 2 - Reflected Ceiling Plan
1/4" = 1'-0"



1 Unit Type 2 - Floor Plan
1/4" = 1'-0"

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MacRostie Historic Advisors Tel: 617-499-4009 Fax: 617-499-4019

Issue Description	Date
Comprehensive Permit Submission	Sept. 16, 2011

Scale:
1/4" = 1'-0"

Drawn By: Author
Checked By: Checker
Reviewed By:

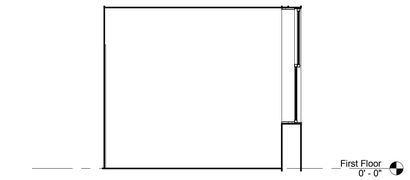
Project No. 2010080.00

Mystic Water Works at Capen Court

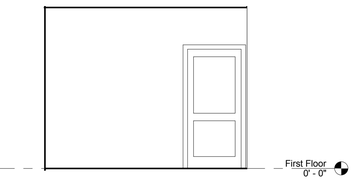
Capen St.
Somerville, MA 02144

ENLARGED UNIT PLAN - UNIT 2

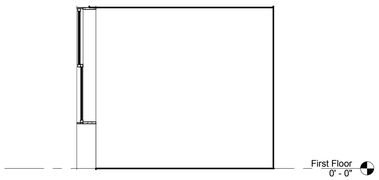
A7.2



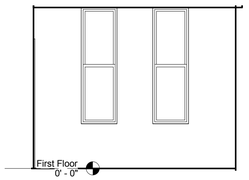
16 Unit Type 2-A - Elevation D - Bedroom
1/4" = 1'-0"



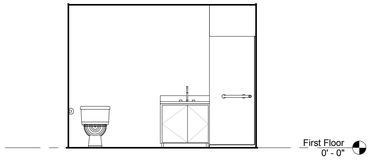
15 Unit Type 2-A - Elevation C - Bedroom
1/4" = 1'-0"



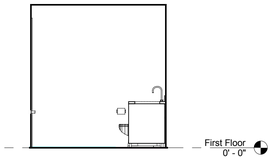
14 Unit Type 2-A - Elevation B - Bedroom
1/4" = 1'-0"



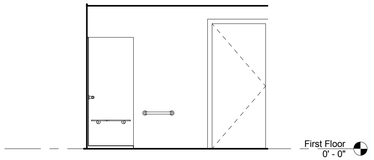
13 Unit Type 2-A - Elevation A - Bedroom
1/4" = 1'-0"



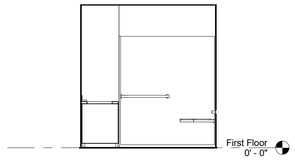
12 Unit Type 2-A - Elevation D - Bath
1/4" = 1'-0"



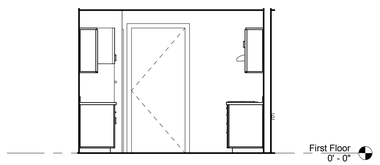
11 Unit Type 2-A - Elevation C - Bath
1/4" = 1'-0"



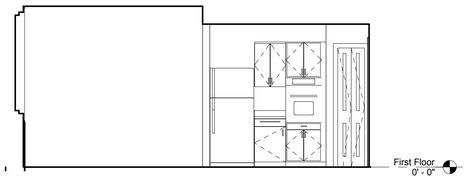
10 Unit Type 2-A - Elevation B - Bath
1/4" = 1'-0"



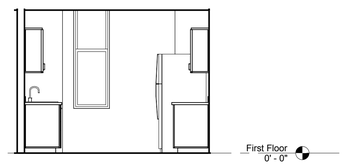
9 Unit Type 2-A - Elevation A - Bath
1/4" = 1'-0"



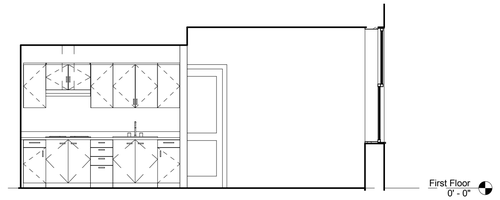
8 Unit Type 2-A - Elevation D - Kitchen
1/4" = 1'-0"



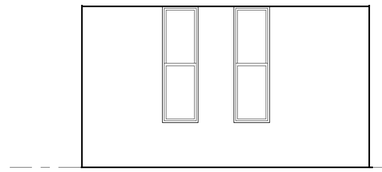
7 Unit Type 2-A - Elevation C - Kitchen/Living
1/4" = 1'-0"



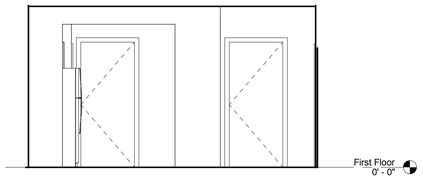
6 Unit Type 2-A - Elevation B - Kitchen
1/4" = 1'-0"



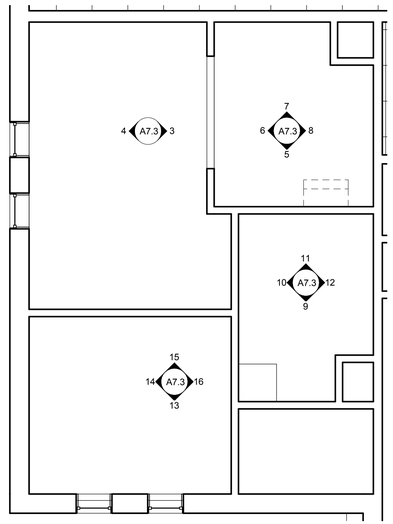
5 Unit Type 2-A - Elevation A - Kitchen/Living
1/4" = 1'-0"



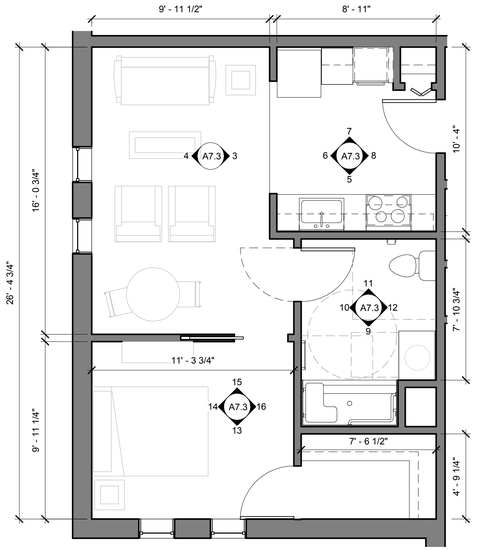
4 Unit Type 2-A - Elevation C - Living
1/4" = 1'-0"



3 Unit Type 2-A - Elevation A - Living
1/4" = 1'-0"



2 Unit Type 2-A - Reflected Ceiling Plan
1/4" = 1'-0"



1 Unit Type 2-A - Floor Plan
1/4" = 1'-0"

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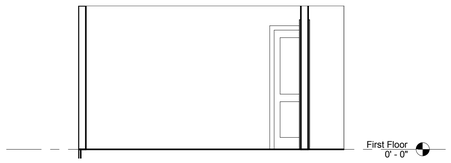
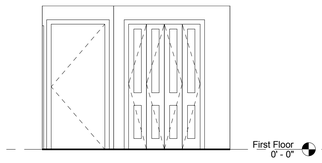
Somerville, MA 02144

ENLARGED UNIT PLAN - UNIT 2-A (GROUP 2A ACCESSIBLE)

A7.3

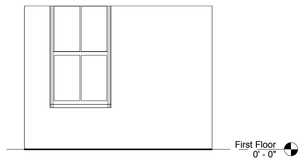


16 Unit Type E1 - Elevation A - Bedroom
1/4" = 1'-0"

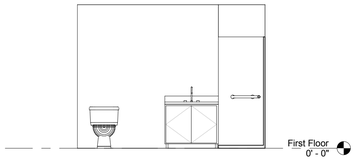


15 Unit Type E1 - Elevation B - Bedroom
1/4" = 1'-0"

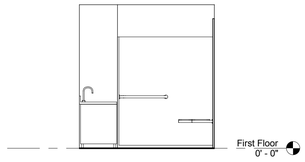
14 Unit Type E1 - Elevation C - Bedroom
1/4" = 1'-0"



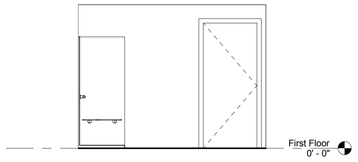
13 Unit Type E1 - Elevation D - Bedroom
1/4" = 1'-0"



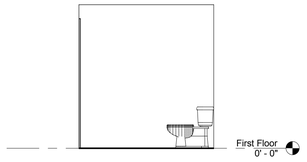
12 Unit Type E1 - Elevation A - Bath
1/4" = 1'-0"



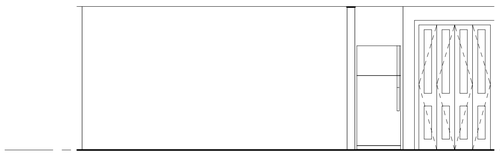
11 Unit Type E1 - Elevation B - Bath
1/4" = 1'-0"



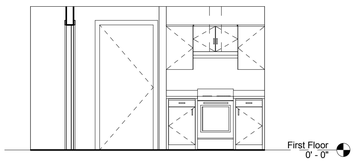
10 Unit Type E1 - Elevation C - Bath
1/4" = 1'-0"



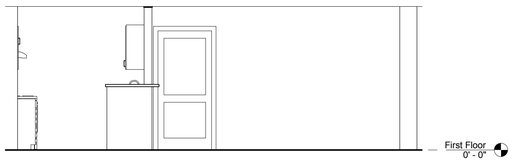
9 Unit Type E1 - Elevation D - Bath
1/4" = 1'-0"



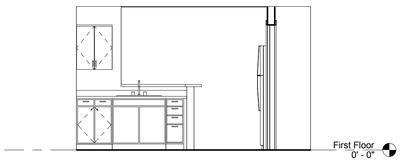
8 Unit Type E1 - Elevation A - Kitchen/Living
1/4" = 1'-0"



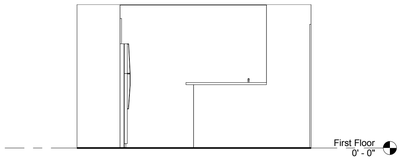
7 Unit Type E1 - Elevation B - Kitchen
1/4" = 1'-0"



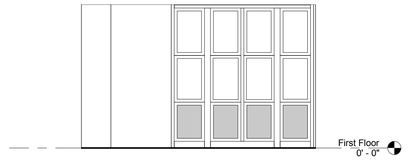
6 Unit Type E1 - Elevation C - Kitchen/Living
1/4" = 1'-0"



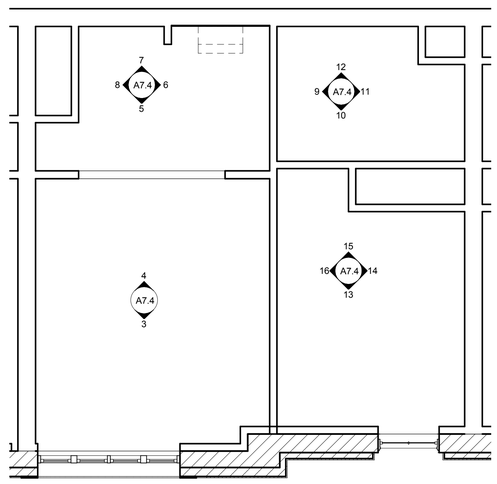
5 Unit Type E1 - Elevation D - Kitchen
1/4" = 1'-0"



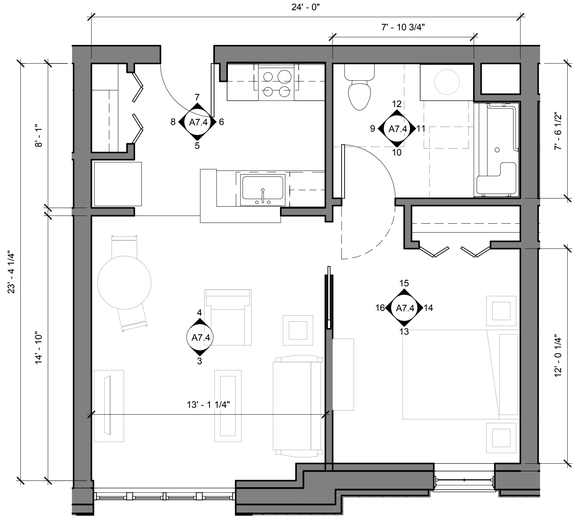
4 Unit Type E1 - Elevation B - Living
1/4" = 1'-0"



3 Unit Type E1 - Elevation D - Living
1/4" = 1'-0"



2 Unit Type E1
1/4" = 1'-0"



1 Unit Type E1
1/4" = 1'-0"

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Issue Description	Date
Comprehensive Permit Submission	Sept. 16, 2011

Scale:
1/4" = 1'-0"

Drawn By: Author **Checked By:** Checker **Reviewed By:**

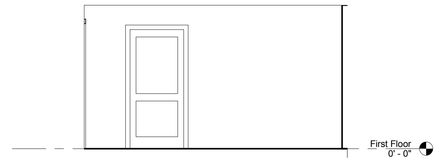
Project No. 2010080.00

Mystic Water Works at Capen Court

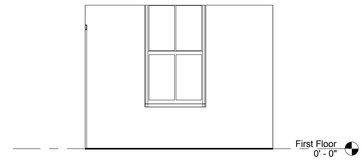
Capen St.
Somerville, MA 02144

ENLARGED UNIT PLAN - UNIT E1

A7.4

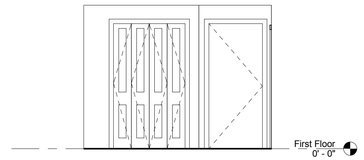


16 Unit Type E2 - Elevation A - Bedroom
1/4" = 1'-0"



15 Unit Type E2 - Elevation B - Bedroom
1/4" = 1'-0"

14 Unit Type E2 - Elevation C - Bedroom
1/4" = 1'-0"



13 Unit Type E2 - Elevation D - Bedroom
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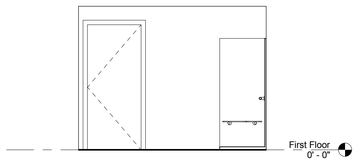
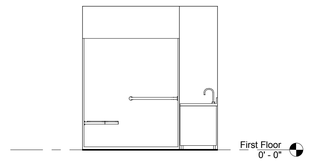
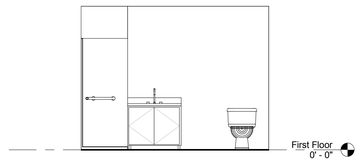


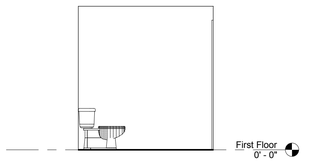
12 Unit Type E2 - Elevation A - Bath
1/4" = 1'-0"



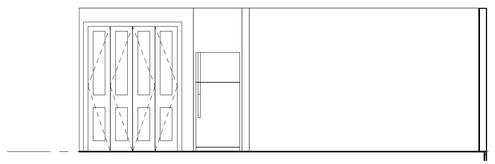
11 Unit Type E2 - Elevation B - Bath
1/4" = 1'-0"



10 Unit Type E2 - Elevation C - Bath
1/4" = 1'-0"

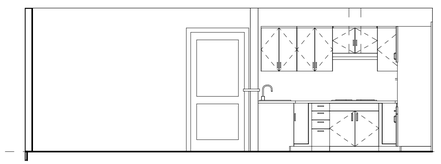


9 Unit Type E2 - Elevation D - Bath
1/4" = 1'-0"

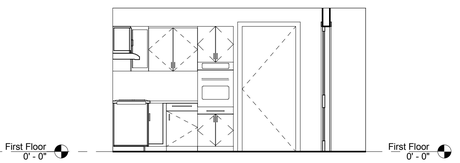


8 Unit Type E2 - Elevation A - Kitchen/Living
1/4" = 1'-0"

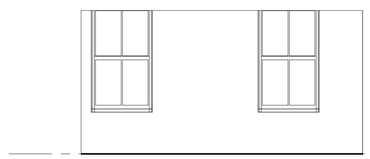
7 Unit Type E2 - Elevation B - Kitchen
1/4" = 1'-0"



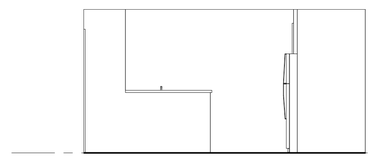
6 Unit Type E2 - Elevation C - Kitchen/Living
1/4" = 1'-0"



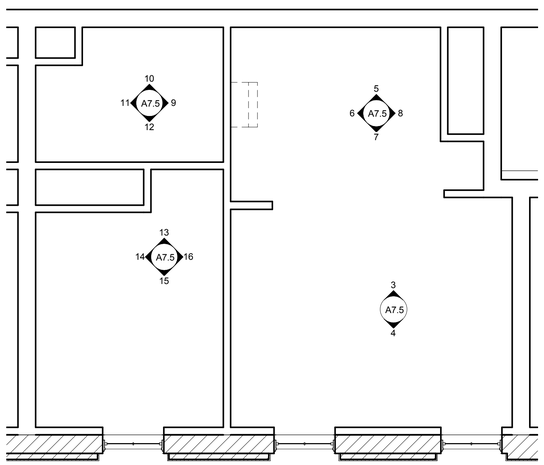
5 Unit Type E2 - Elevation D - Kitchen
1/4" = 1'-0"



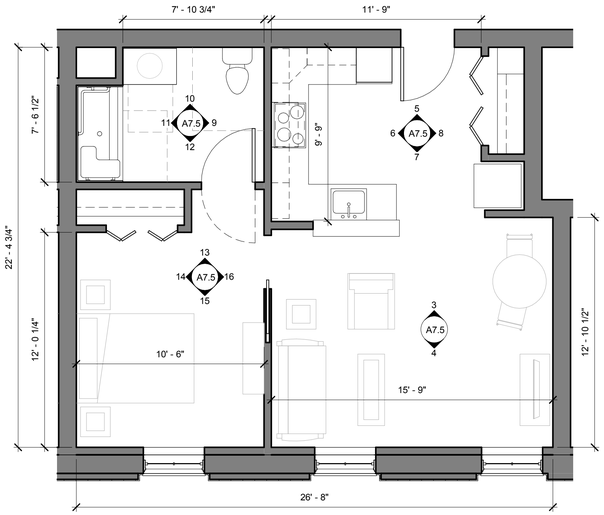
4 Unit Type E2 - Elevation B - Living
1/4" = 1'-0"



3 Unit Type E2 - Elevation D - Living
1/4" = 1'-0"



2 Unit Type E2
1/4" = 1'-0"



1 Unit Type E2
1/4" = 1'-0"

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Project No. 2010080.00

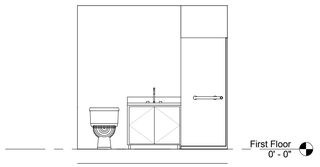
Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

ENLARGED UNIT PLAN - UNIT E2 (GROUP 2A ACCESSIBLE)

A7.5

3 Elevation 1 - b
1/4" = 1'-0"



4 Elevation 1 - c
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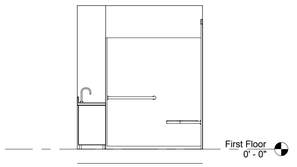

5 Elevation 1 - d
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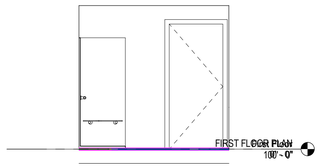

6 Elevation 4 - a
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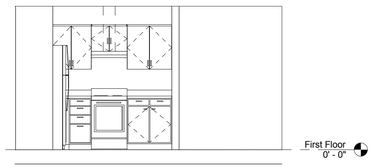
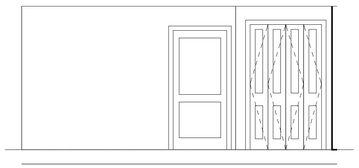
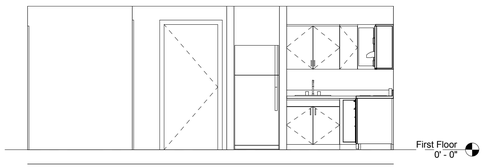


7 Elevation 2 - a
1/4" = 1'-0"

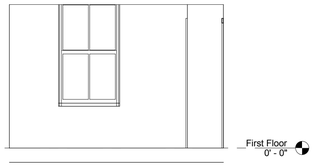
8 Elevation 2 - b
1/4" = 1'-0"



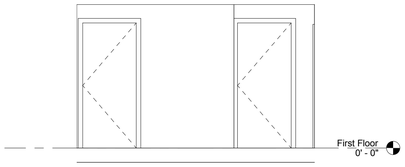
9 Elevation 2 - c
1/4" = 1'-0"



10 Elevation 2 - d
1/4" = 1'-0"



11 Elevation 3 - a
1/4" = 1'-0"



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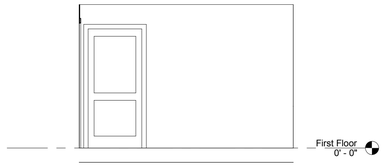
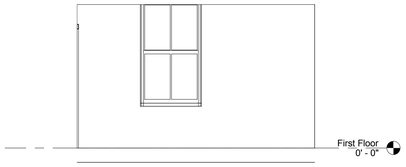
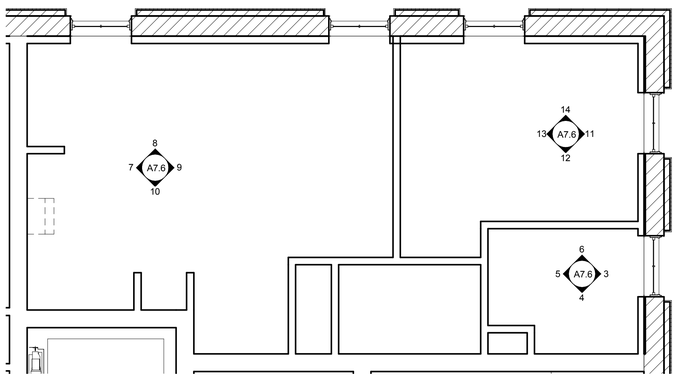
1/4" = 1'-0"



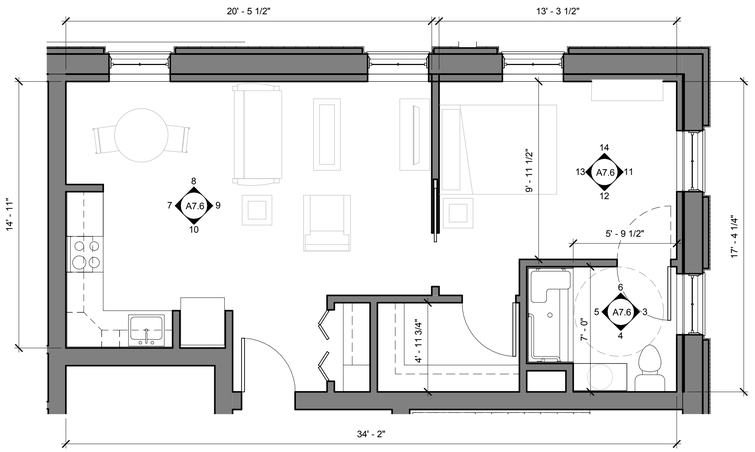
13 Elevation 3 - c
1/4" = 1'-0"



14 Elevation 3 - d
1/4" = 1'-0"



2 Callout of First Floor (Existing)
1/4" = 1'-0"



1 UNIT TYPE E3
1/4" = 1'-0"

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Scale:
1/4" = 1'-0"

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Checked By: Checker
Reviewed By:

Project No. 2010080.00

Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

ENLARGED UNIT PLAN - UNIT E3

A7.6

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GENERAL NOTES

SECTION 1 - GENERAL INFORMATION AND DESIGN CRITERIA

SECTION 1.1 - DOCUMENTS

1.1.1 Structural Drawings are not stand-alone documents. They are augmented by technical specifications and must be coordinated with Architectural, Civil and Mechanical/Electrical/Plumbing/HVAC documents.

1.1.2 General Notes and Typical Details apply generally throughout the project wherever conditions similar to those depicted exist and are not necessarily referenced specifically in the documents.

1.1.3 Structural documents are protected by U.S.A. Copyright Laws, and shall not be used for any purpose other than construction of the building described in the Architectural documents and at the geographic location shown. The structural design described in these documents is not valid for any other purpose, use or location.

1.1.4 The Geotechnical Report referenced herein is not part of the Structural Documents, however, a copy should be obtained for reference during installation of foundations and subgrade preparation.

COORDINATION

1.1.5 Contractor is responsible for coordinating Structural Documents with other trades and disciplines including; architectural, civil, mechanical, electrical, HVAC and fire protection. Some requirements are not known prior to issue and may change as layout and fabrication drawings are developed. Promptly report deviations and interferences with structural components for resolution by the Engineer.

1.1.6 Contractor shall verify dimensional location and depth of slab recesses and offsets with Architectural Drawings.

1.1.7 Contractor shall verify weights, location and details of structurally supported mechanical equipment prior to construction of the supporting structure. Report deviations from assumed conditions to the Engineer prior to fabricating materials.

1.1.8 Contractor shall verify the location, size and detail of roof openings and curbs for mechanical equipment prior to fabricating materials. Report deviations from assumed conditions to the Engineer before proceeding with work.

1.1.9 Contractor shall verify location and size of floor and roof penetrations and sleeves for mechanical and electrical components. Openings in beams, girders, columns and slabs are subject to prior approval of the Engineer.

1.1.10 Contractor shall verify elevator pit dimensions and depth, elevator shaft floor opening dimensions, over-run clearance requirements at top of shaft, and penthouse dimensions with requirements of purchased equipment. Promptly report discrepancies to Architect for resolution prior to construction.

1.1.11 Contractor shall verify dimensions, details, plumbness and squareness of existing structures meeting or tying into new construction.

1.1.12 Do not scale plans, details and sections for quantity, length or fit of materials.

REFERENCE ELEVATIONS

1.1.13 Heights of floor and roof decks and various framing components are given on the drawings relative to a reference elevation of O'-O". This reference elevation is equivalent to a Mean Sea Level Elevation of [refer civil].

TEMPORARY BRACING

1.1.14 Structural systems are designed for in-place conditions only. Contractor shall provide temporary bracing of structural components (including but not limited to beams, purlins, joists, columns, walls, basement walls and structural frame) for conditions that will exist during construction and to meet all regulatory requirements for safety of workmen.

1.1.15 Backfilling of basement walls shall not commence until intersecting floor or roof structures are in place and have attained design strength. Refer to plan discussing construction sequence for the new building retaing wall.

1.1.16 Temporary frame bracing shall remain until installation of permanent structural bracing elements, member connections and floor or roof diaphragms are complete.

SECTION 1.2 - CODES AND STANDARDS

1.2.1 Building Code of jurisdiction : Massachusetts State Building Code, 8th Edition

1.2.2 Structural Concrete Code - American Concrete Institute (ACI) 318

1.2.3 Structural Steel Code - American Institute of Steel Construction (AISC) 360

SPECIAL INSPECTIONS

1.2.4 See Technical Specifications for other materials testing and inspection requirements.

SECTION 1.3 - DESIGN CRITERIA

1.3.1 Live Loads

Balconies, Exterior	100	psf
Balconies, Residential	60	psf
Basement Walls, Surcharge	100	psf
Mechanical Room	150	psf (2)
Public Corridors	100	psf
Residential Floors	40	psf (1)
Roof	20	psf
Stair and Elevator Lobbies	100	psf
Surcharge on Retaining Walls	100	psf
Terraces, Pedestrian	100	psf

Notes:
(1) Plus partition loading (see Dead Loads)
(2) Minimum load, or weight of equipment (the heavier)

1.3.2 Roof Snow Loads

Ground Snow Load	45	psf
Flat Roof Snow Load	31.5	psf
Snow Exposure Factor (Ce)	1.0	
Snow Importance Factor (I)	1.0	

1.3.3 Dead Loads

Flooring	3	psf
Ceilings	3	psf
Floor Collateral	5	psf (1)
Floor Sprinklers	3	psf (3)
Partition Loading	20	psf (5)
Roof Collateral	5	psf (1)
Roof Insulation	2	psf
Roof Sprinklers	3	psf (3)
Roofing System	10	psf (2)

Notes:
(1) Collateral loads include; lighting, ductwork, miscellaneous framing.
(2) Roofing system weight is the maximum unit weight of roofing materials and ballast (where applicable) for which the roof structure is designed.
(3) Sprinkler loads are for distribution lines and heads, exclusive of mains, which are included separately as concentrated dead loads.
(4) Includes weight of wiring in access space.
(5) Applied where noted under "Live Loads".

1.3.4 Wind Loads

Base wind Speed (3 second gust)	105 mph
Wind Exposure Classification	C
Wind Importance Factor	1.0

1.3.5 Seismic Loads

Seismic Importance Factor (Ie)	1.00
Occupancy Category	II
Mapped Spectral Response Accelerations	
Ss	0.28
S1	0.069
Site Class	D
Spectral Response Coefficients	
Sds	0.289
Sd1	0.11
Seismic Design Category	B
Basic Seismic Force Resisting System(s)	
Light-framed walls sheathed with wood structural panels rated for shear resistance	
Design Base Shear (V)	80 kips
Response Modif. Coefficient(s) (R)	6.5
Analysis Procedure Used:	Equilivant Lateral Force Analysis Procedure

1.3.6 Concentrated Loads

Location	Load-pounds	Area	Note
Elevator Machine Room	300	4 sq.in.	
Stair Treads	300	4 sq.in.	

Notes:
(1) Concentrated loads apply to any location on supporting structure, separately from (not in addition to) uniform live loads, except as noted otherwise.
(2) Applies to each structural component individually.
(3) Load applied at any panel point along top or bottom chord.

1.3.7 Elevators - Design Loads for Elevator sheave beam and foundation
1.3.8 supports are based on the following Manufacturer and Model No.: [tbd]

1.3.9 Mechanical Units - Assumed weights and locations of roof-supported mechanical equipment are indicated on Roof Framing Plan. Notify Engineer of deviations in weight, location or detail prior to fabrication of materials.

SECTION 2 - FOUNDATIONS AND RELATED EARTHWORK

GEOTECHNICAL REPORT

2.1 Design of foundations and structural components in contact with soil is based on the recommendations given in the following:

Report by	: tbd
Date of Report	: tbd
Report Number	: tbd

2.2 Refer to the soil report for subsoil conditions that may be encountered in the installation of foundations, and other information relevant to foundations and site preparation.

SOIL IMPROVEMENT UNDER BUILDING SLABS

2.3 Design of soil-supported building slabs is based on a range of soil movement of O inches to 1 inch, based on the recommendations of Geotechnical Report.

2.4 Refer to Specifications for soil stabilization under soil-supported building slabs.

SUBGRADE UNDER BASEMENT SLABS

2.5 Basement slabs shall be placed on coarse aggregate drainage fill, minimum of [thickness in inches] inches thick, consisting of coarse graded crushed rock to 1 1/2-inch size conforming to ASTM C33.

CONCRETE FOOTINGS

2.6 Design Criteria:

Bearing Material	:	Glacial Till (to be verified by soils report)
Spread Footing Bearing Capacity	:	4,000 psf (to be verified by soils report)
Continuous Footing Bearing Capacity	:	4,000 psf (to be verified by soils report)

2.7 Exterior footings shall bear a minimum of 4 feet below finish grade.

2.8 Footings shall bear minimum of 2 feet below existing grade on undisturbed native glacial till.

2.9 Required footing thickness is minimum and shall be adjusted as necessary to achieve required bearing conditions.

2.10 Steel dowels at tops of footings shall extend 30 bar diameters above and shall be hooked 3" above bottom of footing unless noted otherwise.

2.11 Top of footing elevations given are relative to reference elevation O'-O"

BASEMENT AND EARTH RETAINING WALLS

2.12 Design of earth-retaining walls is based on equivalent hydrostatic pressure of 65 pounds per cubic foot as recommended in soil report, based on the following: (to be verified by soils report)

a. Porous, free-draining backfill
b. Perimeter drain

2.13 Do not backfill basement walls until lateral bracing structures at top and bottom of each wall between floors are constructed and have attained specified design strength. Refer to plan discussing construction sequence for the new building retaing wall.

SECTION 3 - STRUCTURAL CONCRETE

SECTION 3.1 - CONCRETE FORMS

3.1.1 Grade Beams - shall be formed both sides unless specifically shown or noted otherwise in the details.

SECTION 3.2 - STEEL REINFORCING

STEEL REINFORCING

3.2.1 All bars shall be deformed in accordance with ASTM A615. Reinforcing indicated to be welded shall conform to ASTM A706.

3.2.2 Strength of bars shall be as follows:

All Bars	Grade 60

SPLICING OF REINFORCING BARS

3.2.3 Top bars in beams, slabs or joists shall be spliced at midspan between supports, unless noted otherwise.

3.2.4 Bottom bars in beams, slabs or joists shall be spliced at supports, unless noted otherwise.

3.2.5 Vertical bars in walls shall be spliced at top of concrete above floors, unless noted otherwise.

LAPPED SPLICE LENGTHS

3.2.6 Lap reinforcing 24 bar diameters at splices unless noted or detailed otherwise.

3.2.7 Tension splice lengths shall be calculated in accordance with ACI 318. Use Class "B" splices unless noted otherwise

3.2.8 Welded wire fabric splice length (overlap), measured between outermost cross wires of each fabric sheet, shall be at least one spacing of cross wires plus 2 inches, but in no case less than 6 inches.

CONCRETE COVER TO REINFORCING

3.2.9 Clearance from face of concrete to face of reinforcing:

Footings	3"
Formed Grade Beams	1-1/2" top, 2" sides, 3" bottom
Walls	1" interior, 2" exterior exposure
Slabs & Joists	3/4"
Basement Walls	1" inside face, 2" outside face

PLACEMENT OF REINFORCING

3.2.10 Offsets in reinforcing bars shall be bent at a ratio of 1 (normal to bar axis) to 6 (parallel to bar axis).

3.2.11 Provide corner bars at intersections of beams and walls in accordance with Typical Details.

3.2.12 Provide dowels from grade beams or foundation equal in size and spacing to vertical bars in walls or pilasters and extend one splice length above and below joint line, unless noted otherwise

3.2.13 Start stirrup spacing in beams 2 inches outside of face of supports.

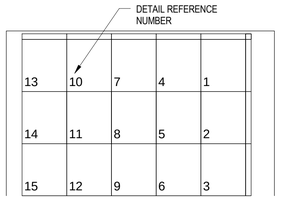
3.2.14 Place first bar of slab reinforcing parallel to side 2 inches from a free edge or half of required bar spacing from face of edge beam.

3.2.15 Single layer reinforcing in walls shall be placed at center of walls unless noted otherwise.

3.2.16 Place welded wire reinforcing in slabs poured on metal deck at center of slab unless noted otherwise.

DRAWING LIST

SHEET NUMBER	SHEET NAME
S0.1	GENERAL NOTES
S0.2	GENERAL NOTES
S1.00	BASEMENT & FIRST FLOOR PLAN - EXISTING
S1.01	SECOND FLOOR & ROOF PLANS - EXISTING
S1.02	FIRST & SECOND FLOOR PLANS - NEW
S1.03	THIRD AND FOURTH FLOOR PLANS
S1.04	ROOF PLANS
S3.01	TYPICAL CONCRETE DETAILS
S3.02	CONCRETE DETAILS
S4.01	TYPICAL MASONRY DETAILS
S5.01	TYPICAL STEEL DETAILS
S5.02	STEEL DETAILS
S7.01	TYPICAL WOOD DETAILS
S7.02	TYPICAL WOOD SHEAR WALL DETAILS
S7.03	WOOD DETAILS
SD1.00	BASEMENT & FIRST FLOOR DEMOLITION PLAN (EXISTING)
SD1.01	ATTIC &ROOF DEMOLITION PLAN - EXISTING

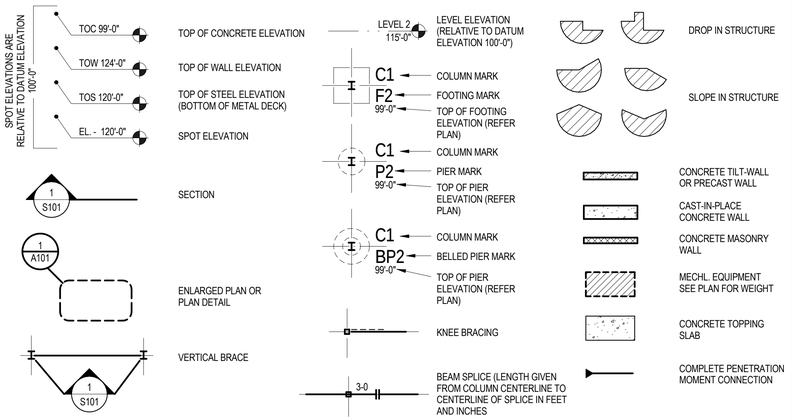


DETAIL SHEET LAYOUT

Architectural Exposed Structural Steel	AESS	Material	MATL.
Above Finish Floor	AFF	Maximum	MAX.
Aggregate	AGG.	Mechanical	MECH.
Alternate	ALT.	Mech./Elec./Plumbing	MEP
Anchor Bolt	A. BOLT	Metal	MTL.
Architect	ARCH.	Minimum	MIN.
Architectural	ARCHL.	Moment	MOM.
Beam	BM.	Near Side	N.S.
Bearing	BRG.	Non-Shrink Grout	NSG
Between	BTWN.	Not in Contract	NIC
Block	BLK.	Not to Scale	NTS
Bottom	BOT.	Number	NO.
Building	BLDG.	On Center	O.C.
Building Line	B.L.	Open Hole	O.H.
Center Line	C.L.	Opening	OPNG.
Channel	CHNL.	Opposite Hand	OP. HD.
Column	COL.	Outside Face	O.F.
Compression	C.	Pan (form)	P.
Concrete	CONC.	Panel	PNL.
Concrete Masonry	CMU	Penetration	PENET.
Connection	CONN.	Pilaster	PIL.
Construction	CONST.	Plate	PL.
Construction Joint	C.J.	Point	PT.
Continuous	CONT.	Pound	LB.
Contraction Joint	CONTR. JT.	Lbs. per Sq. Ft.	PSF
Contractor	CONTR.	Lbs. per Sq. Inch	PSI
Deformed Bar Anchor	DBA	Precast Concrete	P/C
Detail	DET.	Property Line	P.L.
Diameter	DIA. Or D.	Radius	R
Dimension	DIM.	Rectangle(ular)	RECT.
Dowel	DWL.	Reinforcing	REINF.
Drawing	DWG.	Required	REQD.
Each	EA.	Schedule	SCHED.
Each Face	E.F.	Section	SECT.
Each Way	E.W.	Shear	V.
Elevation	EL.	Sheet	SHT.
Engineer	ENGR.	Similar	SIM.
Equal	EQ.	Slip-Critical	SC
Existing	EXIST.	Square	SQ.
Expansion (bolt)	EXP.	Standard	STD.
Expansion Joint	E.J.	Steel	STL.
Exterior	EXT.	Stiffener	STIFF.
Fabricator	FABR.	Structural	STRUCTL.
Far Side	F.S.	Structure	STRUCT.
Field Verify	F.V.	Support	SUPT.
Finish	FIN.	Symmetry	SYMM.
Finish Floor	F.F.	Temperature	TEMP.
Finish Floor El.	F.F.E.	Tension	T.
Floor	FLR.	Top and Bottom	T & B
Foot Kips (moment)	F-K	Top of Concrete	TOC
Force (axial)	F.	Top of Footing	TOF
Grade	GR.	Top of Joist	TOJ
Headed Stud	H.S.	Top of Pier	TOP
Height	HT.	Top of Steel	TOS
Hollow Structural Section	HSS	Top of Wall	TOW
Horizontal	HORIZ.	Typical	TYP.
Inside Face	I.F.	Unless Noted Otherwise	UNO
Interior	INT.	Vertical	VERT.
Joint	JT.	Wood	WD.
Joist	JST. or J.	Work Point	W.P.
Kip (1,000 pounds)	K.		
Manufacturer	MFR.		
Mark	MK.		

STANDARD ABBREVIATIONS

SYMBOL LEGEND



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Project Status

Comprehensive Permit Submission	Sept. 16, 2011
Issue Description	Date

Scale: AS NOTED
Drawn By: RS | Checked By: RS | Reviewed By: AF

Project No. 2010080.00

Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

GENERAL NOTES

S0.1

GENERAL NOTES

SECTION 3.3 - CONCRETE MIX DESIGNS

3.3.1 Concrete Mix Schedule:

a) "HRC" refers to hardrock concrete having air dry unit weight of approximately 145 PCF.
b) "LWC" refers to sand lightweight concrete having an air dry unit weight not to exceed 120 PCF.
c) Where w/c ratio is not indicated in the Concrete Mix Schedule, it shall be as necessary to meet strength requirements.
d) Where the w/c ratio is shown, it shall be adhered to regardless of strength requirements.
e) "Strength" is required compressive cylinder strength at an age of 28 days.

Conc. Class	Strength psi	Agg. Type	Agg. Size	Slump Inches	Max w/c	Notes
A	3000	HRC	1-1/2"	5-7	---	
C	3500	HRC	1"	3-5	---	
D	4000	HRC	1"	3-5	---	
E	3000	HRC	3/4"	2-4	---	

3.3.2 Mix Usage Schedule:

Description of Use	Concrete Class	Air Content
Footings	A	------
Interior Slab-on-Grade	C	------
Basement Slab	C	------
Stem/Basement Walls	D	3-6%
Retaining Walls	D	3-6%
Elevator Pit Walls	B	------
Slab on Metal Form Deck	E	------
Slab on Composite Metal Deck	E	------

SECTION 3.7 - CONCRETE SLABS

3.7.1 Slabs Placed on Grade

Location	Thickness	Reinforcing
All	5 inches	#3 @ 18 EW

a) Reinforcement shall be placed 2 inches from top of slab, unless detailed otherwise.
b) Provide construction joints in slabs where indicated on Plans. Allow minimum of 4 days interval between placing adjacent sections of slab.

3.7.2 Slabs on Composite Metal Deck

Composite Slab Schedule:

Type Mark	Overall T-inches	Typ Slab Reinf	Notes/ Addnl Top Reinf
A	5.0	6x6-W2.1xW2.1 WWM	#4(6-0)@12 over girders

"Girders" refers to interior beams oriented parallel to deck.
Slab types correspond to deck type (see Composite Metal Deck).
Locate Typ Slab Reinf at center of slab above deck.
Top Cover for Addnl Top Reinf: 1".

3.7.3 Slabs on Deep-Dek Composite Metal Deck

a) Floor framing shall be Deep-Dek Composite Floor System manufactured by Metal Dek Group (a unit of CSi). Slab thickness shall be 5" normal weight concrete on 4 1/2" deck (9 1/2" nominal total thickness).
b) Deep-Dek Composite Deck shall have a yield strength of 40 ksi and shall have the following minimum properties:

18 Gauge
I = 3.903 in4
Sp = 1.534 in3
Sn = 1.599 in3
NOM. SLAB DEPTH = 9.5 in
MAX. UNSHORED CLEAR SPAN (shoring required at deck mid-span)
Single span = 15'-6"
Double span = 17'-9"
Triple span = 18'-2"

c) Slab shall be reinforced with WWF 6x6-W2.9xW2.9 centered in the slab. Refer to plan for additional top reinforcing.
d) Composite deck system shall be shored in accordance with manufacturers requirements. Shoring is to remain in place until concrete has reached 75% of specified compressive strength. In addition, shoring is to remain in place until all levels have been placed and have reached 75% of specified compressive strength.
e) At support points and edge of deck locations, composite deck shall be attached to load bearing walls and structural steel support beams with Hilti Flex Screws. Type 12-14x7/8 HHH #3 at 12" o.c. unless noted otherwise.
f) Deck shall span between supports. No midspan splicing of the deck is permitted. Clinch side laps with DEK LOK HSL AT 18" O.C. and with 1/2" puddle welds at 12" o.c. at beam supports

3.7.4 Sawjoints

Sawjoint layout plan shall be submitted for approval prior to pouring concrete slab. Layout of the sawjoints shall be based on the following:
a) A maximum center to center spacing of sawjoints in both directions of 20 feet.
b) Sawjoints shall be located on column grid lines whenever possible.
c) The ratio of sawjoints spacing in each direction shall not exceed 1.5 to 1. Example: with sawjoints in the N-S direction spaced at 13 feet on center the E-W direction shall be spaced at a maximum of 19.5 feet on center.
d) Sawjoints shall be located at each interior corner of the building.

SECTION 3.8 - POST-INSTALLED ANCHORS

3.8.1 Drill holes with rotary impact hammer drills using carbide tipped bits or matched tolerance diamond core bits. Drill bits shall be of diameter as specified by the anchor manufacturer. All holes shall be drilled perpendicular to the concrete or masonry surface.

3.8.2 Embedded items: Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Exercise care in drilling to avoid damaging existing reinforcing or embedded items. Notify the Engineer if reinforcing steel or other embedded items are encountered during drilling. Take precautions as necessary to avoid damaging gas lines and electrical and telecommunications conduit.

3.8.3 Base Material Strength: Unless otherwise specified, do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.

TESTING

3.8.4 Continuous Special Inspection is required for all post-installed anchors. Remove and replace misplaced or malfunctioning anchors. Fill empty anchor holes and patch failed anchor locations with high-strength non-shrink, non-metallic grout. Anchors that fail to meet proof load or installation torque requirements shall be regarded as malfunctioning.

EXPANSION, UNDERCUT, SCREW AND ADHESIVE ANCHORS

3.8.5 Concrete base material: provide anchors of size and type shown with ICC-ES compliance required, or approved equal.

Expansion Anchors: Hilti Kwik Bolt TZ (ICC-ES ESR-1917)
Simpson Strong-Bolt 2 (ICC-ES ESR-3037)
Simpson Strong-Bolt (ICC-ES ESR-1771)

Undercut Anchors: Hilti HDA (ICC-ES ESR-1546)
Simpson Torq-Cut (ICC-ES Pending)

Screw Anchors: Hilti Kwik HUS-EZ (ICC-ES ESR-3027)
Simpson Titen HD (ICC-ES ESR-2713)

Adhesive Anchors: Hilti HIT-RE 500-SD (ICC-ES ESR-2322)
Simpson SET-XP (ICC-ES ESR-2508)

3.8.6 CMU or Masonry base materials: provide anchors of size and type shown with ICC-ES compliance required, or approved equal.

Screw Anchors: Hilti HUS-H (ICC-ES ESR-2369)
Simpson Titen HD (ICC-ES ESR-1056)

Adhesive Anchors: Hilti HIT-HY 150-MAX (ICC-ES ESR-1967)
Simpson SET (ICC-ES ESR-1772)

INSTALLATION

3.8.7 Perform anchor installation in accordance with manufacturer's instructions.

3.8.8 Protect threads from damage during anchor installation.

3.8.9 Installing contractor shall complete Anchor Manufacturer Installation Training prior to installation of anchors.

SECTION 4 - STRUCTURAL MASONRY

GENERAL

4.1 Refer to Architectural layout and Drawings and Specifications for details and exact dimensions of brick masonry work including rustications, corbels, coursing, reglets, weep holes, waterproofing and flashing.

4.2 Grout lifts at reinforced masonry walls shall not exceed five feet.

STRUCTURAL PROPERTIES

4.3 Required prism strength of structural assembly = 1350 psi
4.4 Required 28-day compressive strength of mortar = 1800 psi
4.5 Required 28-day compressive strength of grout = 2000 psi

REINFORCING

4.6 Horizontal joint reinforcing shall be "Truss Type" 9 ga. welded wire spaced [spacing *16] inches on center vertically.

4.7 Provide special "L" and "T" shaped sections at wall intersections. Lap horizontal wires at least 12" at splices.

4.8 Horizontal reinforcing in trough tiles shall be lapped 30 bar diameters at splices. Stagger splices in adjacent bars at least 4'-0". See details for reinforcing.

4.9 Provide corner bars at intersections of reinforced trough tiles equal in size and number to horizontal reinforcing lapped 30 bar diameters each way.

4.10 Typical wall reinforcing for load bearing CMU walls shall be #5 bars vertical spaced at 24 inches on center in grout filled cells.

4.11 The first cell at corners, ends of walls, and each side of openings shall be grouted and reinforced with 1 #5 vertical.

4.12 Vertical reinforcing in grouted cells and pilasters shall be lapped 48 bar diameters and wire tied at splices, unless otherwise noted.

SECTION 5 - STRUCTURAL STEEL

SECTION 5.1 - STRUCTURAL FRAME

5.1.1 Structural Steel Properties:

High Strength Steel	ASTM A992 Grade 50
Use High Strength Steel for W Shapes and WT's, u.n.o.	
Structural Steel (Normal Strength)	ASTM A36
Use for Angles, Channels, and Plates, u.n.o.	
Steel Pipes	ASTM A53, Grade B
Hollow Structural Sections (HSS)	ASTM A500, Grade B
Erection Bolts	ASTM A307
High Strength Bolts	ASTM A325N
Anchor Bolts	ASTM F1554 Grade 36
High Strength Anchor Bolts	ASTM F1554 Grade 105

5.1.2 Continuity Plates (Full Depth column stiffeners aligned with beam flanges, or Full Depth beam stiffeners aligned with column flanges) shall match the steel grade of the base member.

WELDING

5.1.3 Unless otherwise noted, angles, plates, rods, and miscellaneous framing shall be welded at contact joints and supports. Weld sizes shall conform to AWS D1.1 minimums, except where noted otherwise.

5.1.4 Where fillet weld sizes are not indicated on weld symbols, fillet size shall be 1/16th inch smaller than thickness of thinner of materials being joined.

5.1.5 Complete penetration welds are indicated by notation "CP" on weld symbols, partial penetration by "PP".

STRUCTURAL BOLTS

5.1.6 Bolts indicated on details shall be 3/4 inch diameter, unless noted otherwise.

5.1.7 Bolts shall be tightened by the AISC "Snug Tight" method unless noted otherwise.

MISCELLANEOUS

5.1.8 Edge angles supporting floor or roof deck shall be spliced only over supports.

COMPOSITE STEEL BEAMS

5.1.9 Beams shall have shear studs spaced at 2 feet maximum on center, whether shown or not.

5.1.10 Composite steel beams do not require shoring during placement of concrete slab, unless noted otherwise.

SHEAR STUDS

5.1.11 Shear studs shall be fusion-welded, headed studs of high strength steel.

5.1.12 Unless noted otherwise, studs shall have a shank diameter of 3/4-inch.

5.1.13 Rated shear connector capacity, for use with metal decks, shall be a minimum of 11.1 kips per connector.

SECTION 5.3 - COMPOSITE METAL DECK

5.3.1 Contractor shall provide composite metal decking to meet the following criteria:
1. Decking alone shall be capable of supporting the wet weight of concrete plus construction loads without requiring intermediate shoring for all span conditions on the project, unless noted otherwise.
2. Composite slab and deck system shall be capable of supporting design loads indicated on the drawings for all span conditions on the project.

Deck thickness, indicated by gauge in Composite Steel Deck Schedule, is a minimum and shall be increased as necessary to meet these requirements, at no additional cost to the Contract.

5.3.2 Composite Steel Deck Schedule:

Type Mark	Deck Height	Minimum Gauge	Minimum Ix-in4	Minimum Sx-in3
A	3.0"	20	.993	.583
B	4.5" (nom)	18	See Section 3.7	

(See framing plans for location of deck types)

5.3.3 Composite floor system minimum load capacity requirements:

Type	Superimposed Uniform Load (psf)	Concentrated Load (lbs) *
A	150	2,000

* Concentrated load acting on area 2.5 ft x 2.5 ft; not acting simultaneously with uniform load.

5.3.4 Required shear connector efficiency of deck profile (wr/hr) = 2, where:
wr = average width of concrete rib, inches.
hr = nominal rib height, inches.

5.3.5 Trench headers shall be located only where indicated on the structural plans, unless approved in writing by the engineer.

SECTION 6 - STRUCTURAL TIMBER

SECTION 6.1 - WOOD FRAMING

6.1.1 Lumber grades shall be as follows:

Type	Species	Grade	Minimum Properties - psi Fb	Fc	Fv	E
W1	S-P-F Hem-Fir D.Fir-Larch D.Fir So. So. Pine	Stud Stud Stud Stud No. 3/Stud	675	725	135	1200000
W2	S-P-F Hem-Fir D.Fir-Larch D.Fir So. So. Pine	No. 1/2 No. 1 No. 2 No. 2 No. 2 ND	850	1150	135	1400000
W3	S-P-F Hem-Fir D.Fir-Larch D.Fir So. So. Pine	Constr. Constr. Constr. Constr. No. 2 ND	1000	1400	135	1200000
W4	S-P-F Hem-Fir D.Fir-Larch D.Fir-So. So. Pine	Sel. Str. Sel. Str. No.1 & Btr Sel. Str. No. 2 Dense	1200	1400	135	1400000

6.1.2 Usage of lumber grades
Interior Non-Bearing Walls - W1
Bearing Walls & Exterior Walls - W2
Joists, Rafters, & Headers - W3
Beams & Posts - W4

6.1.3 Structural Composite lumber for beams and posts shall have the following minimum structural properties:

Type	Species	Grade	Fb	Fv	E (psi)
BEAMS					
LVL	Laminated Veneer Lumber		2250	285	1500000
PSL	Parallel Strand Lumber		2400	290	1800000
LSL	Laminated Strand Lumber		2360	410	1550000
POSTS					
LVL	Laminated Veneer Lumber		2600	285	1800000
PSL	Parallel Strand Lumber		2900	290	2000000
LSL	Laminated Strand Lumber		DO NOT USE FOR BEAMS		

6.1.4 Nailing of wood framing shall be in accordance with "Fastening Schedule," Table 2304.9.1, of the International Building Code.

6.1.5 Metal connectors referenced on details are "Strong Tie" connectors manufactured by Simpson Co. of San Leandro, California.

6.1.6 Provide solid, full depth blocking or cross bridging for joists and rafters at supports and at intervals not exceeding 8'-0".

6.1.7 Structural panels shall be APA Rated Sheathing, Exposure 1, as follows:

Shear Walls	32/16 span rating	1/2" thick (nominal)
Roof Deck	40/20 span rating	5/8" thick (nominal)
Floor Deck	48/24 span rating	3/4" thick (nominal)

6.1.8 Studs for exterior walls shall be solid and continuous from floor to roof, or floor to floor and shall not be cut for straightening (warped studs shall be replaced).

6.1.9 Finger jointed studs may be used for exterior walls if approved by the manufacturer for exterior use.

6.1.10 Studs shall be doubled at corners and openings. Provide multiple studs at beam bearing points to equal beam width.

6.1.11 Headers over openings in non-load bearing walls shall be as follows, unless noted otherwise:

Opening Width	Header Size
up to 6 ft	2-2x6
6 ft to 8 ft	2-2x8
8 ft to 10 ft	2-2x10

6.1.12 Ceiling joists, which do not support roof loads, shall be as follows, unless noted otherwise:
C1

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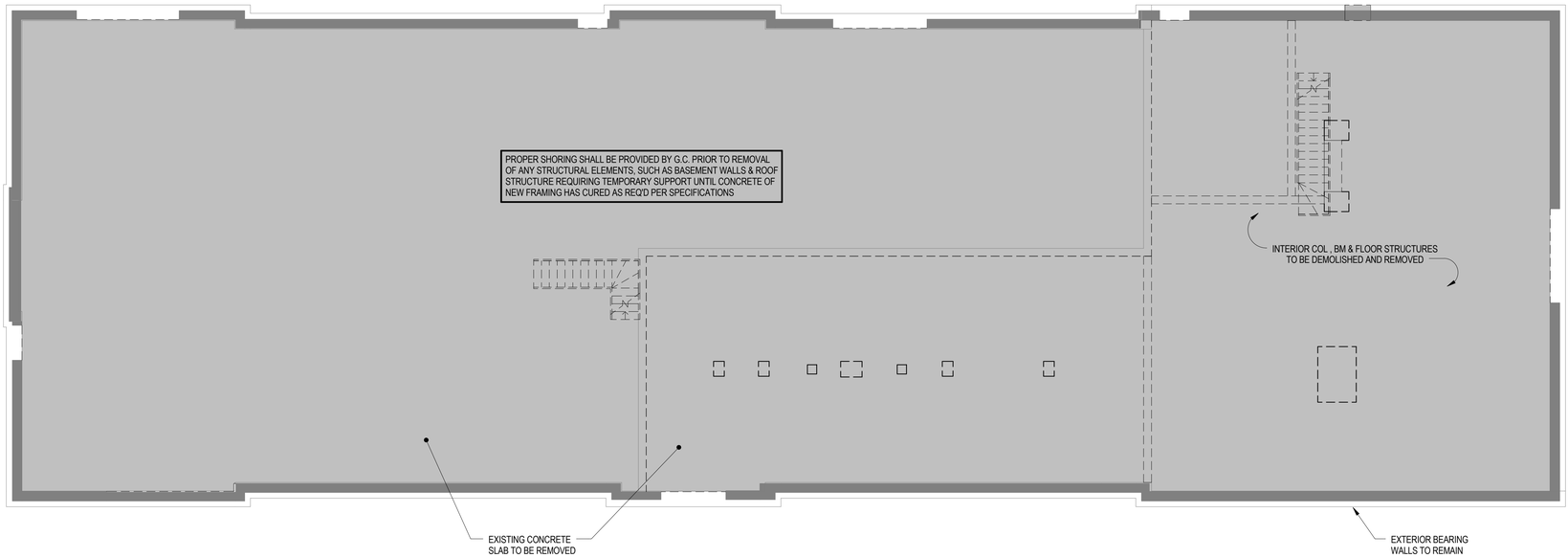
Project No. 2010080.00

Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

GENERAL NOTES

S0.2



2 First Floor Demolition Plan (Existing)

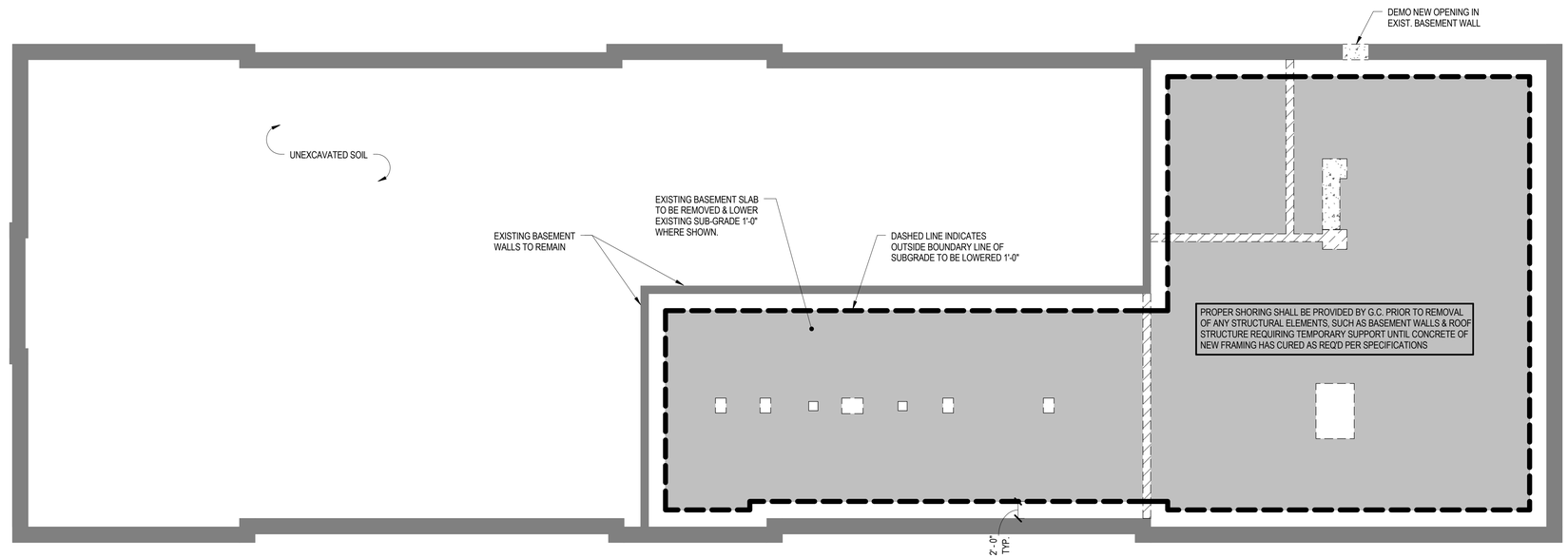
1/8" = 1'-0"

PLAN NOTES AND DEMOLITION NOTES

1. FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OF MATERIALS AND CONSTRUCTION
2. ANY MEMBER FOUND TO BE GREATER THAN 15% DETERIORATED SHALL BE REPLACED OR REINFORCED TO ORIGINAL CAPACITY.
3. REMEDIAL STRUCTURAL DESIGN IS BASED VISUAL OBSERVATIONS. G.C. SHALL NOTIFY ARCHITECT OF ANY DEVIATIONS FROM PRESUMED CONDITIONS THAT AFFECT CURRENT DETAILS.
4. G.C. SHALL CORE CORNERS OF ALL AREAS TO BE SAWCUT TO AVOID OVERRUN AND DAMAGE TO EXISTING CONCRETE REINFORCING OR CUTTING EXISTING BEAMS AND JOISTS.
5. PROPER SHORING SHALL BE PROVIDED BY G.C. PRIOR TO REMOVAL OF ANY STRUCTURAL ELEMENTS REQUIRING TEMPORARY SUPPORT UNTIL CONCRETE OF NEW FRAMING HAS CURED AS REQUIRED PER SPECFIICATIONS.
6. CORING REQUIRED BY MEP SHALL BE DONE THROUGH SLABS OR DECKING. CORING OVER EXISTING PRIMARY STRUCTURAL MEMBERS (I.E. GIRDERS, BEAMS, JOISTS) IS NOT ACCEPTABLE UNLESS SPECIFICALLY APPROVED BY ARCHITECT.
7. OPENINGS SHALL NOT BE OVERCUT.

FLOOR PLAN LEGEND

- DEMOLISH EXISTING STRUCTURE
- NEW PENETRATION IN EXISTING STRUCTURE
- 3/4 D X 3-3/8 TR-AA
  - ADHESIVE ANCHOR
  - THREADED ROD
  - EMBED LENGTH
  - THREADED ROD DIAMETER



1 Basement Demolition Plan (Existing)

1/8" = 1'-0"

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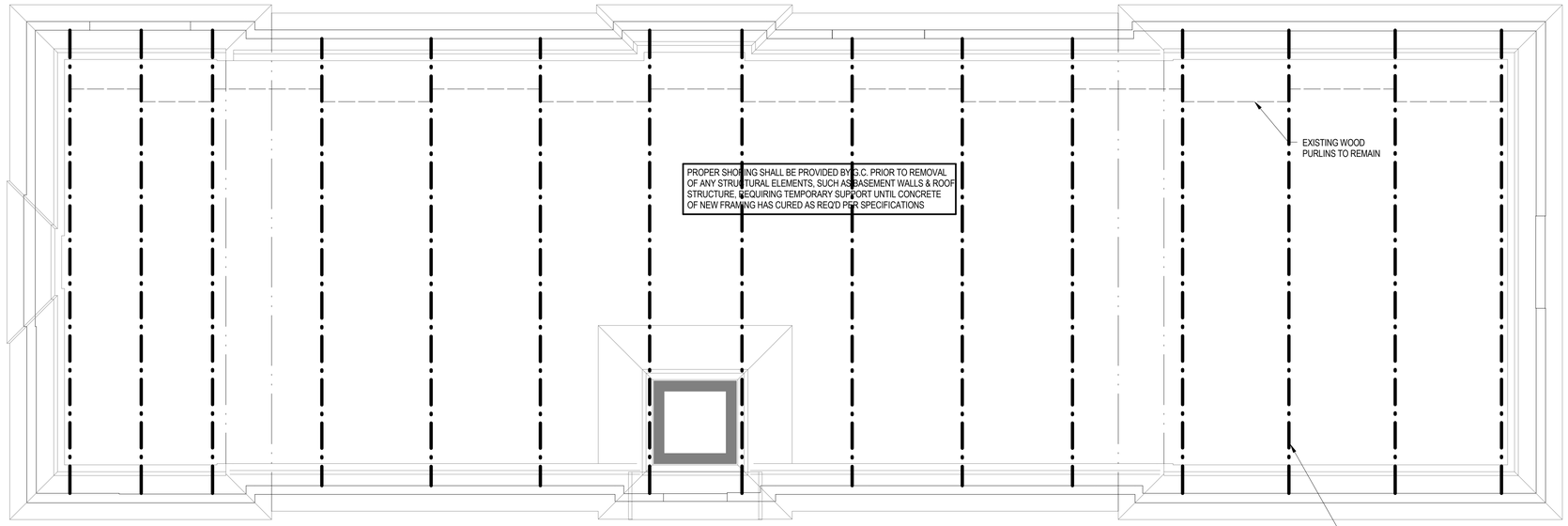
Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

BASEMENT & FIRST FLOOR DEMOLITION PLAN (EXISTING)

SD1.00



2 Roof Demolition Plan (Existing)

1/8" = 1'-0"

PLAN NOTES AND DEMOLITION NOTES

1. FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OF MATERIALS AND CONSTRUCTION
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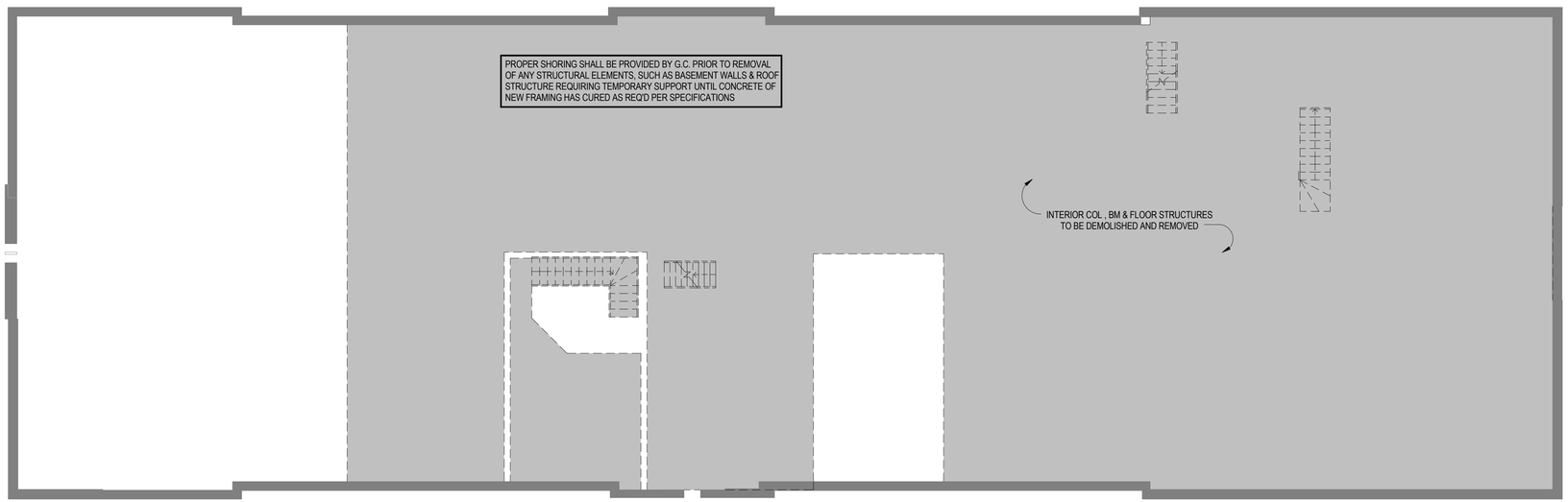
6. CORING REQUIRED BY MEP SHALL BE DONE THROUGH SLABS OR DECKING. CORING OVER EXISTING PRIMARY STRUCTURAL MEMBERS (I.E. GIRDERS, BEAMS, JOISTS) IS NOT ACCEPTABLE UNLESS SPECIFICALLY APPROVED BY ARCHITECT.
7. OPENINGS SHALL NOT BE OVERCUT.

FLOOR PLAN LEGEND

- DEMOLISH EXISTING STRUCTURE
- NEW PENETRATION IN EXISTING STRUCTURE

3/4 D X 3-3/8 TR-AA

- ADHESIVE ANCHOR
- THREADED ROD
- EMBED LENGTH
- THREADED ROD DIAMETER



1 Attic Demolition Plan (Existing)

1/8" = 1'-0"

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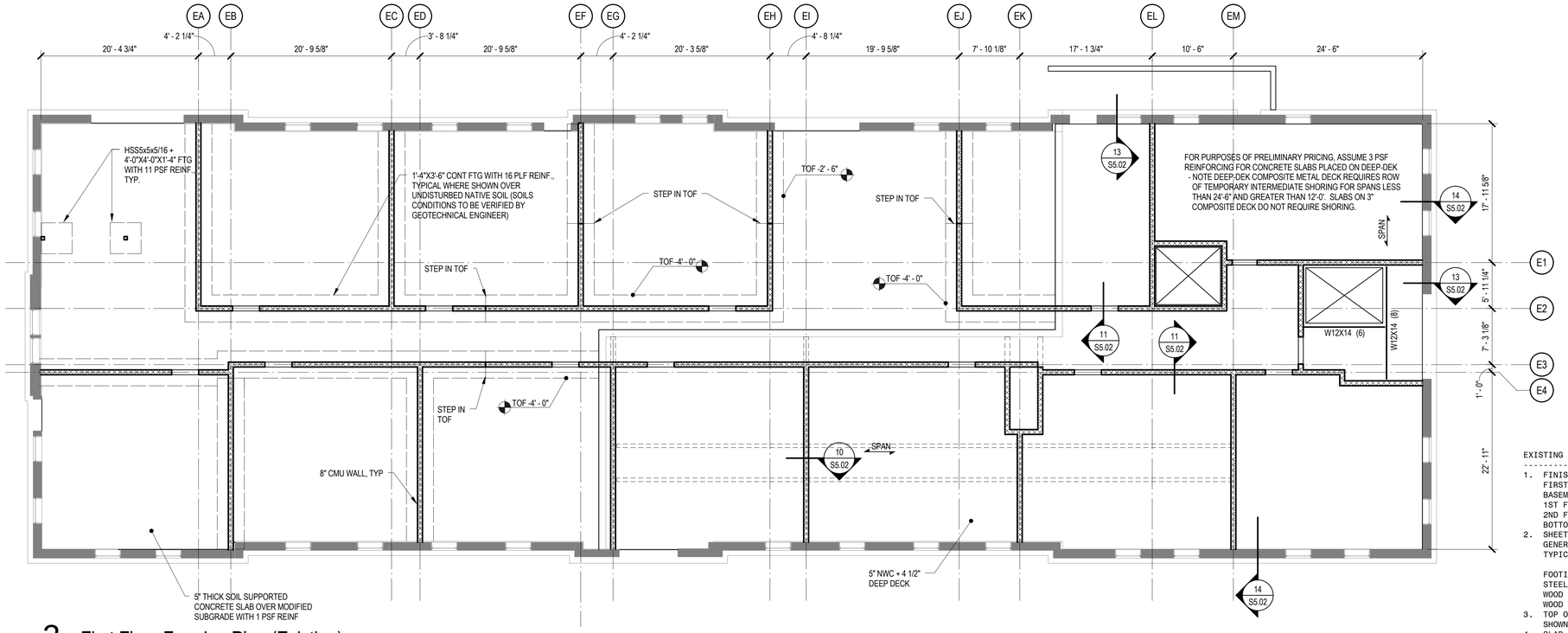
Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

ATTIC &ROOF DEMOLITION PLAN - EXISTING

SD1.01

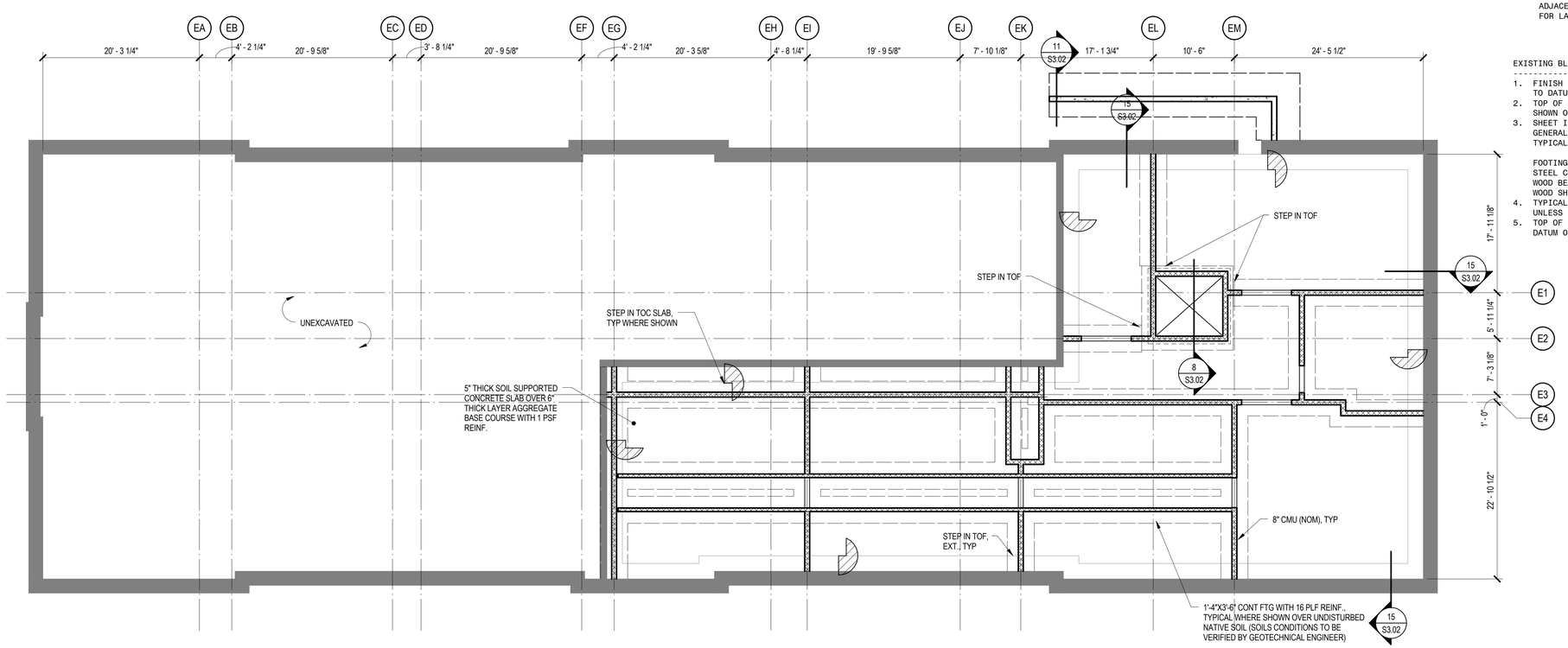


2 First Floor Framing Plan (Existing)

1/8" = 1'-0"

EXISTING BLDG / ELEVATED FLOOR PLAN NOTES

1. FINISH FLOOR ELEVATION IS RELATIVE TO FIRST FLOOR DATUM 0'-0"
   BASEMENT FLOOR = -7' -11"
   1ST FLOOR = 0'-0"
   2ND FLOOR = 8'-10"
   BOTTOM OF TRUSS = 18'-10 1/4"
2. SHEET INDEX:
   GENERAL NOTES - S0.1, S0.2
   TYPICAL DETAILS - S3.01, S4.01, S5.01 S7.01 and S7.02
   FOOTING SCHEDULE - S3.01
   STEEL COLUMN SCHEDULE - S5.01
   WOOD BEARING WALLS - S7.01
   WOOD SHEAR WALLS - S7.02
3. TOP OF CONCRETE SLAB IS FINISH FLOOR UNLESS SHOWN OTHERWISE.
4. SLAB THICKNESS VARIES IS 9 1/2" OVERALL, NOMINAL (4 1/2" COMPOSITE DECK + 5" THICK SLAB)
5. UNLESS SHOWN OTHERWISE, STEEL BEAMS ARE CENTERED ON AND EQUALLY SPACED BETWEEN COLUMN CENTERLINES.
6. NUMBER OF SHEAR STUDS IS NOTED IN PARENTHESES ( ) ADJACENT TO BEAM SIZES. SEE TYPICAL DETAILS FOR LAYOUT REQUIREMENTS OF STUDS.



1 Basement Floor Plan (Existing)

1/8" = 1'-0"

EXISTING BLDG / SOIL SUPPORTED SLAB PLAN NOTES

1. FINISH FLOOR ELEVATION IS 0'-0" (RELATIVE TO DATUM 0-0).
2. TOP OF CONCRETE SLAB IS FINISH FLOOR UNLESS SHOWN OTHERWISE.
3. SHEET INDEX:
   GENERAL NOTES - S0.1, S0.2
   TYPICAL DETAILS - S3.01, S4.01, S5.01 S7.01 and S7.02
   FOOTING SCHEDULE - S3.01
   STEEL COLUMN SCHEDULE - S5.01
   WOOD BEARING WALLS - S7.01
   WOOD SHEAR WALLS - S7.02
4. TYPICAL CONCRETE SLAB THICKNESS IS 5" (OVERALL) UNLESS NOTED OTHERWISE.
5. TOP OF FOOTING ELEVATION IS SHOWN RELATIVE TO DATUM 0-0, UNLESS SHOWN OTHERWISE.

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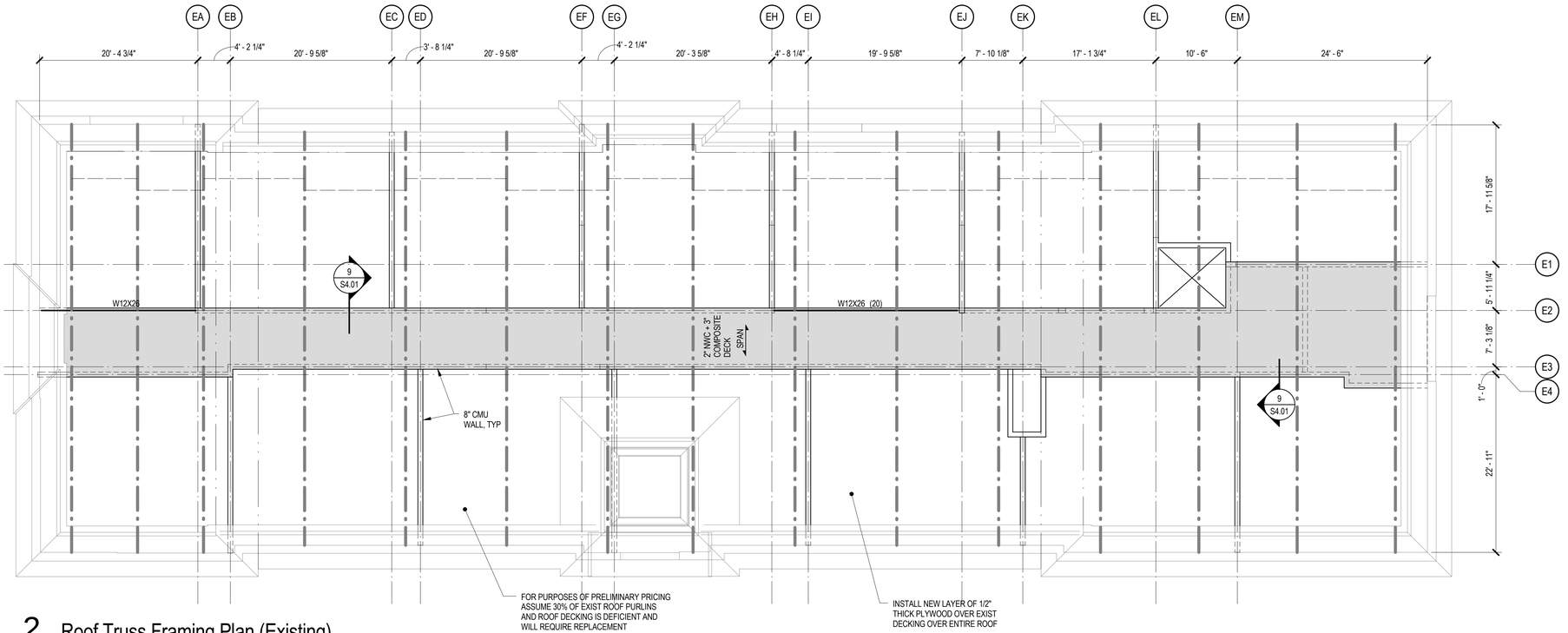
Project No. 2010080.00

Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

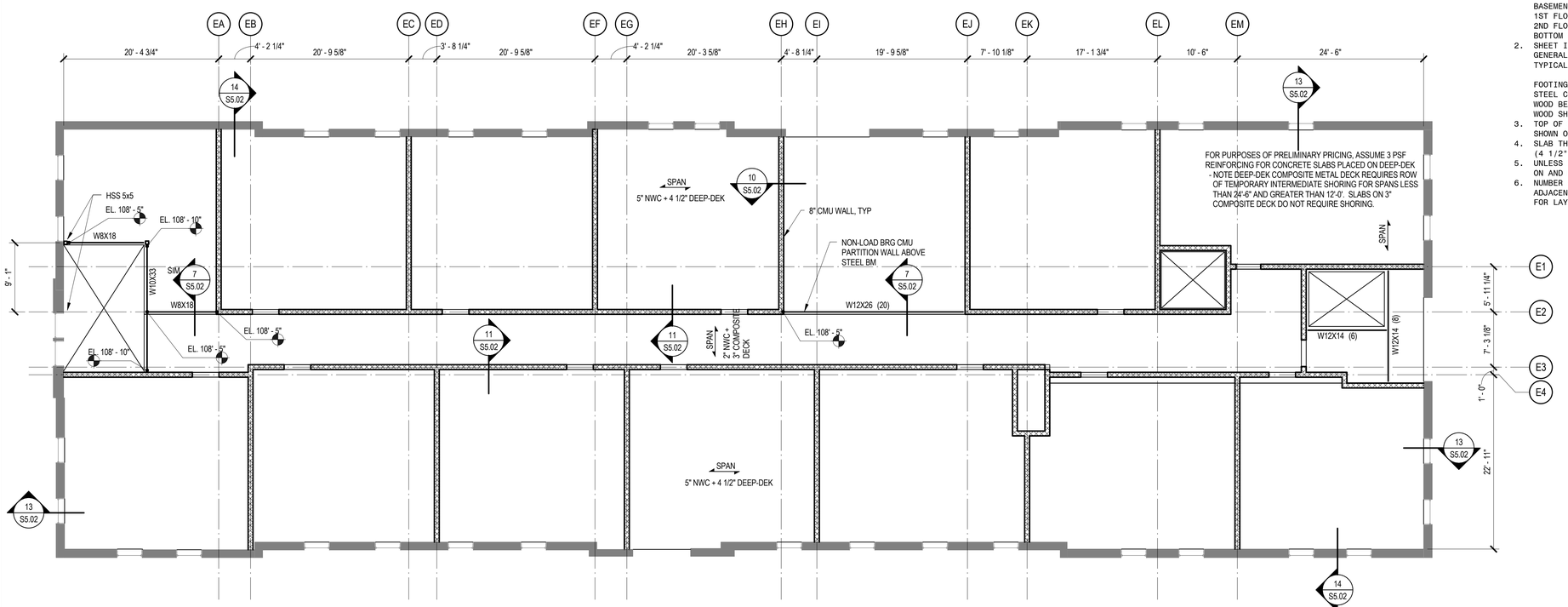
BASEMENT & FIRST FLOOR PLAN - EXISTING

S1.00



2 Roof Truss Framing Plan (Existing)

1/8" = 1'-0"



1 Second Floor Framing Plan (Existing)

1/8" = 1'-0"

EXISTING BLDG / ELEVATED FLOOR PLAN NOTES

1. FINISH FLOOR ELEVATION IS RELATIVE TO FIRST FLOOR DATUM 0'-0"
   BASEMENT FLOOR = -7'-11"
   1ST FLOOR = 0'-0"
   2ND FLOOR = 8'-10"
   BOTTOM OF TRUSS = 18'-10 1/4"
2. SHEET INDEX:
   GENERAL NOTES - S0.1, S0.2
   TYPICAL DETAILS - S3.01, S4.01, S5.01 S7.01 and S7.02
   FOOTING SCHEDULE - S3.01
   STEEL COLUMN SCHEDULE - S5.01
   WOOD BEARING WALLS - S7.01
   WOOD SHEAR WALLS - S7.02
3. TOP OF CONCRETE SLAB IS FINISH FLOOR UNLESS SHOWN OTHERWISE.
4. SLAB THICKNESS VARIES IS 9 1/2" OVERALL, NOMINAL (4 1/2" COMPOSITE DECK + 5" THICK SLAB)
5. UNLESS SHOWN OTHERWISE, STEEL BEAMS ARE CENTERED ON AND EQUALLY SPACED BETWEEN COLUMN CENTERLINES.
6. NUMBER OF SHEAR STUDS IS NOTED IN PARENTHESES ( ) ADJACENT TO BEAM SIZES. SEE TYPICAL DETAILS FOR LAYOUT REQUIREMENTS OF STUDS.

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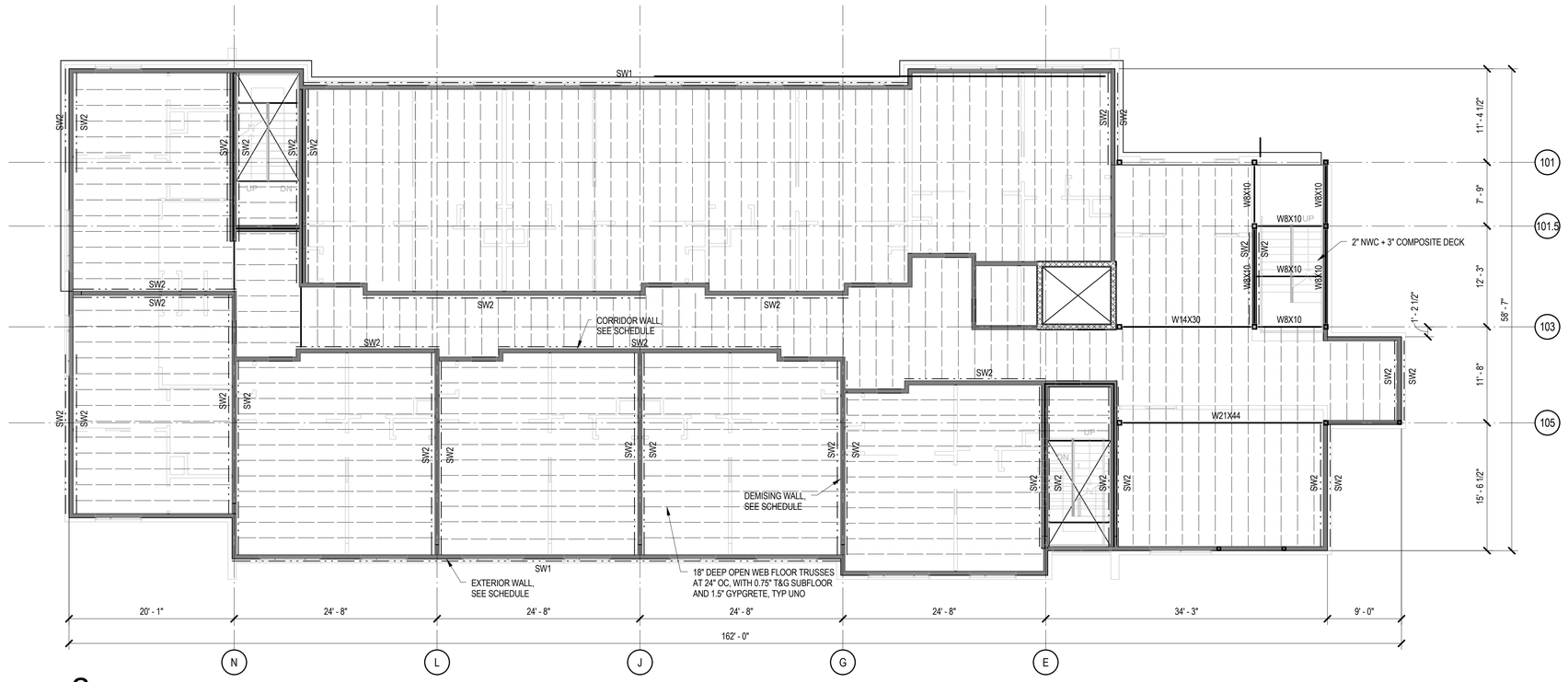
SECOND FLOOR & ROOF PLANS - EXISTING

S1.01

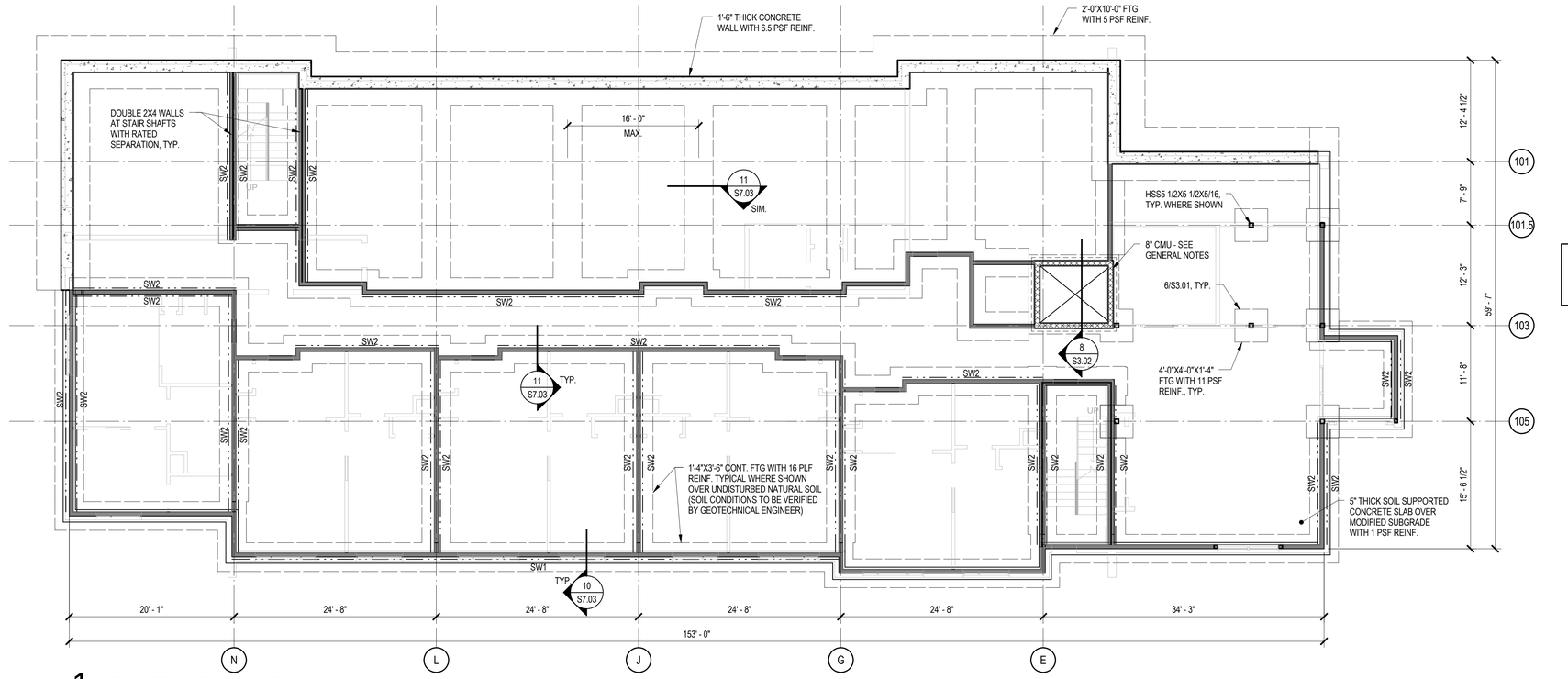


2 Second Floor Framing Plan (New)

1/8" = 1'-0"

NEW BUILDING / UPPER FLOOR PLAN NOTES

1. FINISH FLOOR ELEVATION IS RELATIVE TO FIRST FLOOR DATUM 0'-0"
   1ST FLOOR = 0'-0"
   2ND FLOOR = 12'-0"
   3RD FLOOR = 24'-0"
   4TH FLOOR = 36'-0"
2. TOP OF CONCRETE SLAB IS FINISH FLOOR UNLESS SHOWN OTHERWISE.
3. SHEET INDEX:
   GENERAL NOTES - S0.1, S0.2
   TYPICAL DETAILS - S3.01, S4.01, S5.01 S7.01 and S7.02
   FOOTING SCHEDULE - S3.01
   STEEL COLUMN SCHEDULE - S5.01
   WOOD BEARING WALLS - S7.01
   WOOD SHEAR WALLS - S7.02
4. TYPICAL WOOD FLOOR CONSTRUCTION:
   1 1/2" GYPCRETE
   3/4" T&G SUBFLOOR
   18" DEEP FLOOR TRUSSES, 24" O.C., U.N.O.
5. TRUSSES ARE SHOWN ON PLANS TO INDICATE DIRECTION OF FRAMING - LAYOUT TO BE DETERMINED BY TRUSS SUPPLIER
6. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS.



1 First Floor Framing Plan (New)

1/8" = 1'-0"

NEW BUILDING / GROUND FLOOR PLAN NOTES

1. FINISH FLOOR ELEVATION IS 0'-0" (RELATIVE TO DATUM 0-0).
2. TOP OF CONCRETE SLAB IS FINISH FLOOR UNLESS SHOWN OTHERWISE.
3. SHEET INDEX:
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   FOOTING SCHEDULE - S3.01
   STEEL COLUMN SCHEDULE - S5.01
   WOOD BEARING WALLS - S7.01
   WOOD SHEAR WALLS - S7.02
4. TYPICAL CONCRETE SLAB THICKNESS IS 5" (OVERALL) UNLESS NOTED OTHERWISE.
5. TOP OF FOOTING ELEVATION RELATIVE TO DATUM 0-0, IS SHOWN ON PLAN

BUILDING RETAINING WALL CONSTRUCTION SEQUENCE:
1. INSTALL FOOTINGS, CONC. WALL AND GROUND FLOOR SLAB WIHTIN 20 FT OF WALL
2. INSTALL WALL BACKFILL
3. INSTALL FLOOR AND WALL FRAMING

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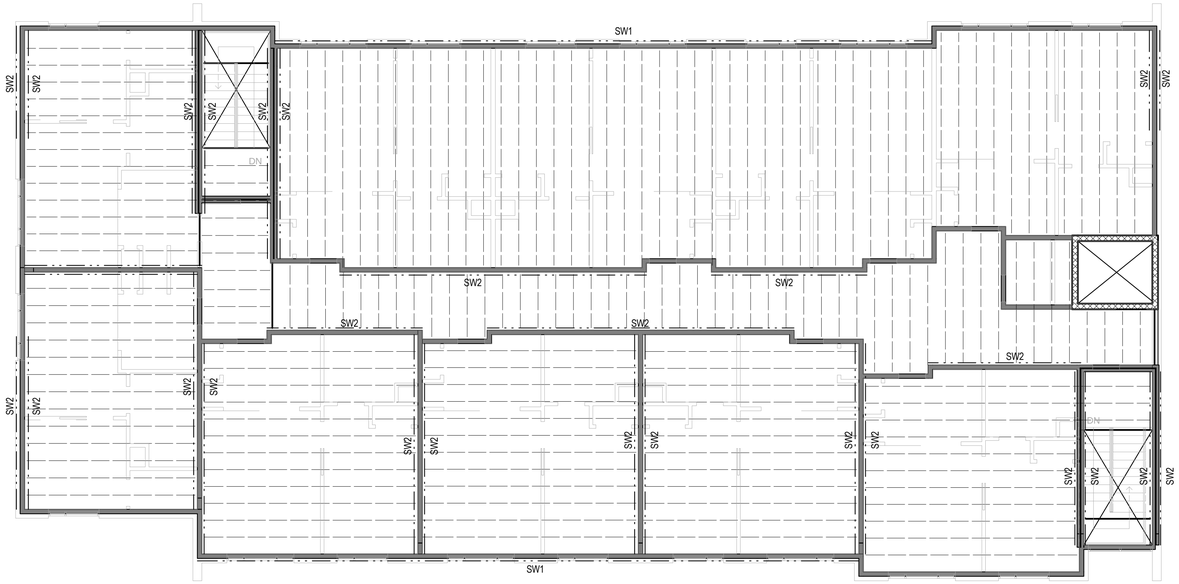
FIRST & SECOND FLOOR PLANS - NEW

S1.02



2 Fourth Floor Framing Plan (New)

1/8" = 1'-0"

1 Third Floor Framing Plan (New)

1/8" = 1'-0"

NEW BUILDING / UPPER FLOOR PLAN NOTES

1. FINISH FLOOR ELEVATION IS RELATIVE TO FIRST FLOOR DATUM 0'-0"
   1ST FLOOR = 0'-0"
   2ND FLOOR = 12'-0"
   3RD FLOOR = 24'-0"
   4TH FLOOR = 36'-0"
2. TOP OF CONCRETE SLAB IS FINISH FLOOR UNLESS SHOWN OTHERWISE.
3. SHEET INDEX:
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   TYPICAL DETAILS - S3.01, S4.01, S5.01 S7.01 and S7.02
   FOOTING SCHEDULE - S3.01
   STEEL COLUMN SCHEDULE - S5.01
   WOOD BEARING WALLS - S7.01
   WOOD SHEAR WALLS - S7.02
4. TYPICAL WOOD FLOOR CONSTRUCTION:
   1 1/2" GYPCRETE
   3/4" T&G SUBFLOOR
   18" DEEP FLOOR TRUSSES,
   24" O.C., U.N.O.
5. TRUSSES ARE SHOWN ON PLANS TO INDICATE DIRECTION OF FRAMING - LAYOUT TO BE DETERMINED BY TRUSS SUPPLIER
6. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS.

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LAFP Project No. B1139

Project Status

Issue Description	Date
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Scale: AS NOTED
Drawn By: Author | Checked By: Checker | Reviewed By: Approver

Project No. 2010080.00

Mystic Water Works at Capen Court

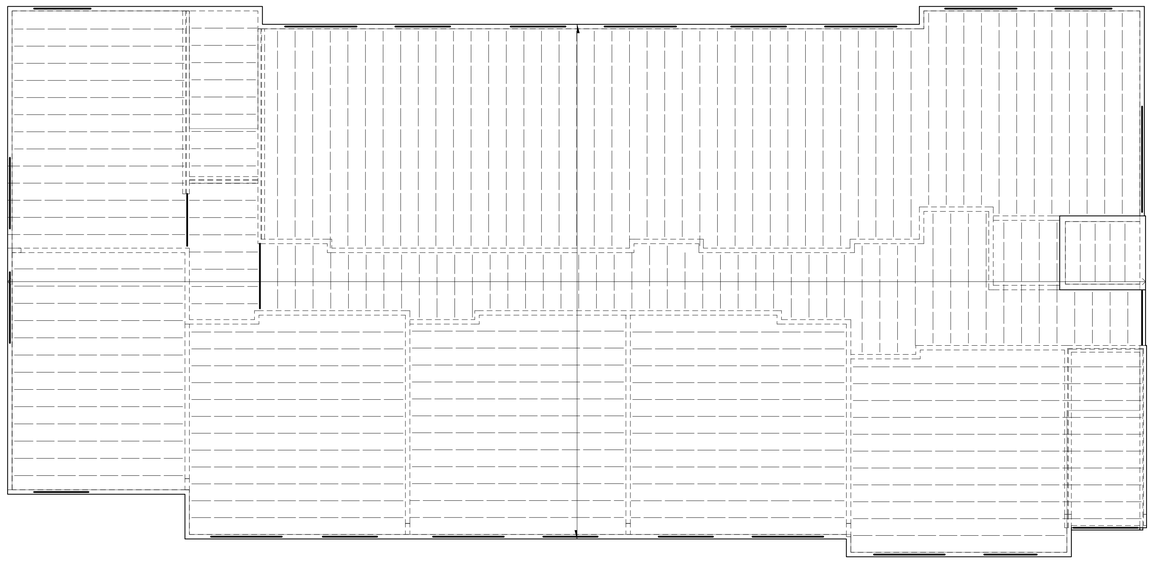
Capen St.
Somerville, MA 02144

THIRD AND FOURTH FLOOR PLANS

S1.03

NEW BUILDING / ROOF PLAN NOTES

1. SHEET INDEX:
   GENERAL NOTES - S0.1, S0.2
   TYPICAL DETAILS - S3.01, S4.01, S5.01 S7.01 and S7.02
   FOOTING SCHEDULE - S3.01
   STEEL COLUMN SCHEDULE - S5.01
   WOOD BEARING WALLS - S7.01
   WOOD SHEAR WALLS - S7.02
2. SEE ARCHITECTURAL ROOF PLAN FOR ROOF PITCH.
3. ROOF DIAPHRAGM (DECK) SHALL BE INSTALLED AS CASE 1, UNBLOCKED DIAPHRAGM AS DEFINED IN THE BUILDING CODE.
4. SEE ARCHITECTURAL FOR PLATE ELEVATIONS NOT INDICATED ON PLANS.
5. THE MAXIMUM SPACING OF ROOF TRUSSES SHALL NOT EXCEED 24"O.C.
6. CONTINUE MAIN ROOF SHEATHING UNDER BUILT UP FRAMING.
7. BUILT UP FRAMING DENOTES THAT SECONDARY FRAMING WILL BE BUILT ON TOP OF MAIN TRUSSES TO ACHIEVE ROOF PROFILE. SEE GENERAL NOTES FOR ADDITIONAL TOP CHORD DEAD LOAD REQUIREMENTS.



1 Roof Framing Plan (New)

1/8" = 1'-0"

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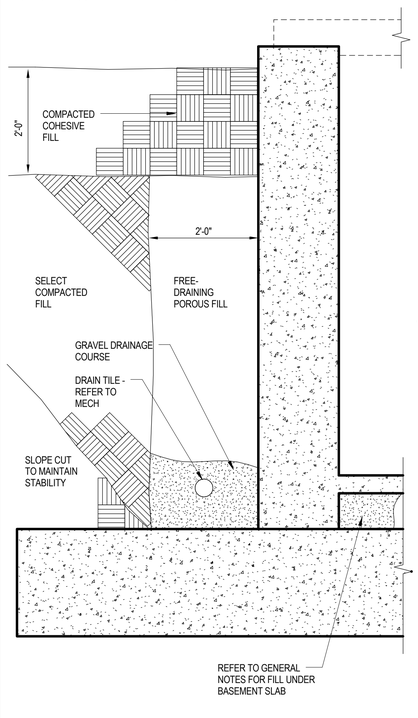
ROOF PLANS

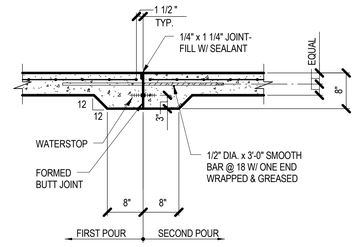
S1.04

CONSTRUCTION SEQUENCE:
1. INSTALL FOOTINGS, CONC. WALL AND GROUND FLOOR SLAB WITHIN 20'-0" OF CONC. WALL.
2. INSTALL BASEMENT WALL BACKFILL
3. INSTALL FLOOR AND WALL FRAMING AT LEVEL 2.



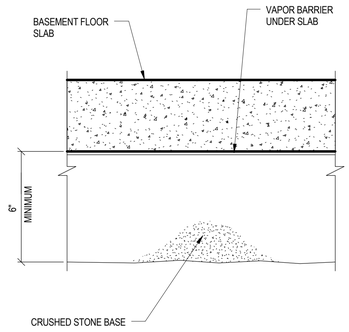
14 BASEMENT WALL BACKFILL TYPICAL DETAIL

NO SCALE TD02401



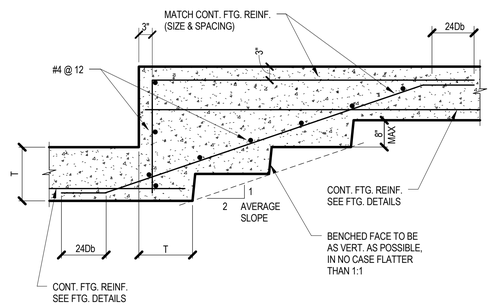
10 BASEMENT SLAB CONSTRUCTION JOINT TYPICAL DETAIL

NO SCALE TD03023



7 BASEMENT FLOOR SLAB TYPICAL DETAIL

NO SCALE TD02431



4 STEP IN CONTINUOUS FOOTING TYPICAL DETAIL

NO SCALE TD02240

11 REINFORCING AT SLAB-ON-GRADE BLOCKOUT TYPICAL DETAIL

NO SCALE TD03042

8 VERTICAL CONTROL JOINT IN BASEMENT / RETAINING WALL TYPICAL DETAIL

NO SCALE TD02440

5 SPREAD FOOTING WITH PEDESTAL TYPICAL DETAIL

NO SCALE TD02212

NOTE: FOR RECTANGULAR FOOTINGS "A" DIMENSION IS NORTH-SOUTH DIMENSION OF FOOTING.

2 SPREAD FOOTING TYPICAL DETAIL

NO SCALE TD02210

15 BASEMENT FLOOR/WALL JOINT TYPICAL DETAIL

NO SCALE TD03021

12 OPENING IN CONCRETE WALL TYPICAL DETAIL

NO SCALE TD03041

9 VERTICAL JOINT IN BASMENT WALL TYPICAL DETAIL

NO SCALE TD03024

6 SPREAD FOOTING TYPICAL DETAIL

NO SCALE TD02232

3 CORNER BARS TYPICAL DETAIL

NO SCALE TD03026

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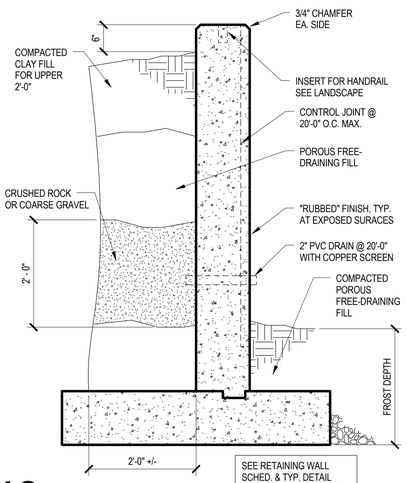
Somerville, MA 02144

TYPICAL CONCRETE DETAILS

S3.01



13

3/4" = 1'-0"

RETAINING WALL SCHEDULE

TD03001

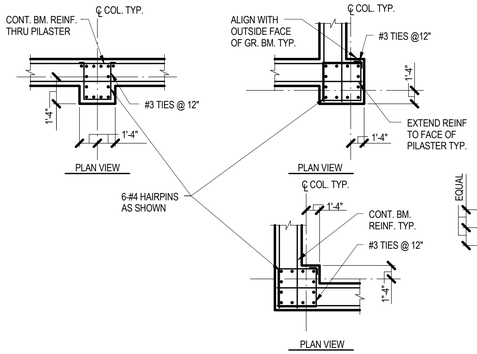
H	T1	T2	A	B	V1	V2	L1	L2	H1	H2	H3
0 TO 4'-0"	12"	12"	2'-0"	1'-6"	#4 @ 12 (0-4/H-2")	#4@12	#4@12	#4@12	#4@16	#5@14	#5@14
4'-0" TO 6'-0"	12"	12"	2'-9"	1'-9"	#5 @ 12 (0-6/3-0)	#5@12	#5@12	#5@12	#4@16	#5@14	#5@14
6'-0" TO 8'-0"	12"	12"	3'-6"	2'-0"	#5 @ 6 (0-6/4-3)	#5@12	#5@8	#5@8	#4@16	#5@14	#5@14

DOWEL BENDING DIAGRAM

TD03680

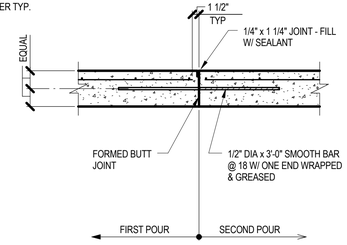
LEGEND

MARK	BAR SIZE	A	B	C
D1	#4	0-6	2-6	0
D2	#4	0	4-0	0
D3	#4	3-0	3-0	0
D4	#4	1-6	2-6	0
D5	#3	0-6	2-6	0
D6				
D7				
D8				
D9				



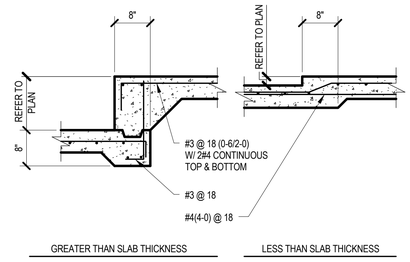
7 PILASTER REINFORCING TYPICAL DETAIL

NO SCALE TD03150



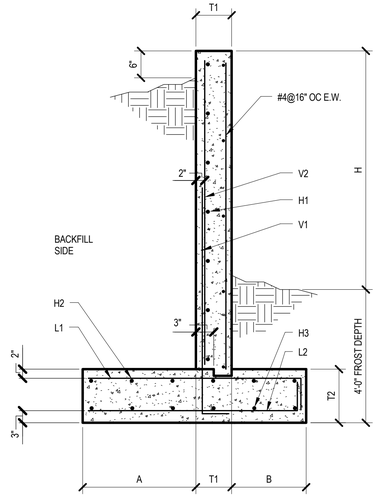
4 SLAB-ON-GRADE CONSTRUCTION JOINT TYPICAL DETAIL

NO SCALE TD03111



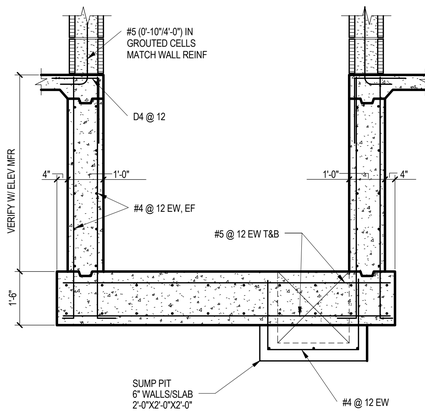
1 SLAB-ON-GRADE RECESSES TYPICAL DETAIL

NO SCALE TD03101



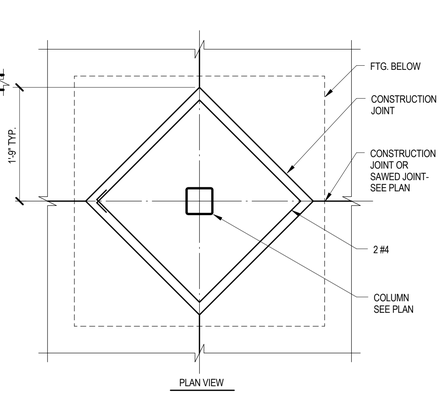
11 RETAINING WALL TYPICAL DETAIL

NO SCALE TD03002



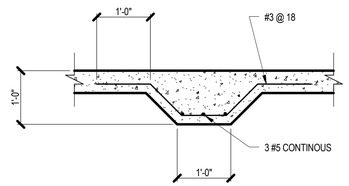
8 ELEVATOR PIT TYPICAL DETAIL

NO SCALE TD03604



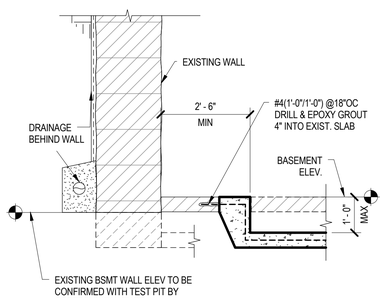
5 SLAB LEAVE-OUT AT COLUMNS TYPICAL DETAIL

NO SCALE



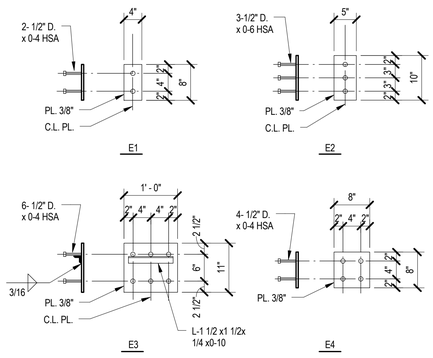
2 THICKENED SLAB TYPICAL DETAIL

NO SCALE TD03102



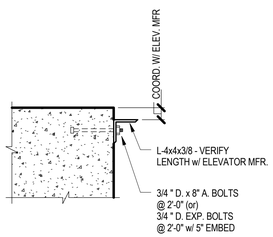
15

1/2" = 1'-0"



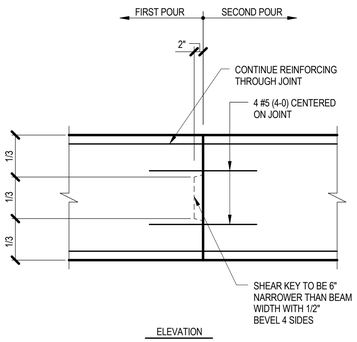
12 EMBEDDED PLATES TYPICAL DETAIL

NO SCALE TD03691



9 ELEVATOR SILL ANGLE TYPICAL DETAIL

NO SCALE TD03602



6 GRADE BM CONSTRUCTION JT TYPICAL DETAIL

NO SCALE TD03140

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Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

CONCRETE DETAILS

S3.02

C:\Users\LAFPworkstation.LAFP\Documents\B1139_Waterworks Phase 1_aford.rvt
8/12/2011 11:09:18 AM

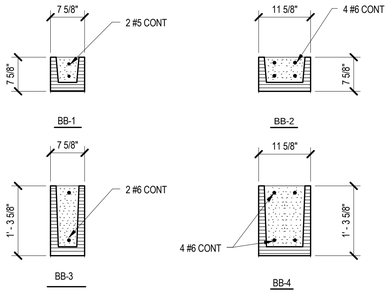
CMU LINTEL SCHEDULE

TD04101

WALL THICKNESS	MAX SPAN OR MARK	LINTEL DEPTH	TOP REINF	BOT REINF
8"	4'-0"	8"	1 #4	1 #4
8"	6'-0"	8"	1 #4	2 #4
8"	8'-0"	16"	2 #4	2 #4
8"	10'-0"	16"	2 #4	2 #4
12"	4'-0"	8"	2 #4	2 #4
12"	6'-0"	8"	2 #4	2 #5
12"	8'-0"	16"	2 #4	2 #5
12"	10'-0"	16"	2 #4	2 #5

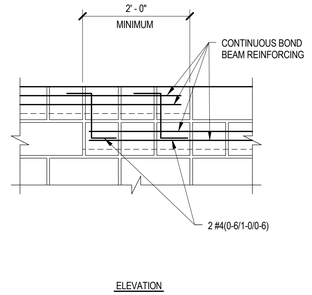
NOTES:
1. GROUTED LINTEL (TROUGH) BLOCKS SHALL EXTEND 8" BEYOND FACE OF OPENING EACH SIDE.
2. OPENINGS WIDER THAN 6'-0" SHALL HAVE THE FIRST VERTICAL CELL EACH SIDE FILLED WITH GROUT UP TO THE LINTEL BEARING LEVEL.
3. TOP BARS SHALL BE HELD IN PLACE WITH #2 CLOSED STIRRUPS AT 24" O.C.
4. PRECAST CONCRETE LINTELS OF THE SAME SIZE AND LENGTH MAY BE SUBSTITUTED EXCEPT THAT TOP BARS SHALL BE PROVIDED EQUAL TO SCHEDULED BOTTOM BARS.
5. LINTELS SHALL BE CONSTRUCTED USING SOLID BOTTOM MASONRY UNITS.

NOTES:
1. THESE BOND BEAMS APPLY TO WALLS WHERE BOND BEAMS ARE NOT SPECIFICALLY REFERENCED. REFER TO SECTIONS & DETAILS FOR SPECIAL BOND BEAMS THAT ARE REQUIRED.
2. FILL FOR BOND BEAMS SHALL BE COARSE GROUT-REFER TO GENERAL NOTES FOR INFORMATION.
3. LINTELS SHALL BE CONSTRUCTED USING SOLID BOTTOM MASONRY UNITS.



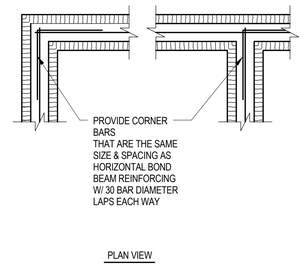
10 MASONRY BOND BEAMS TYPICAL DETAIL

NO SCALE TD04102



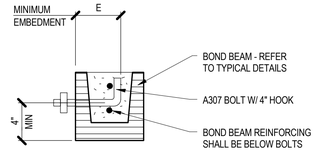
7 STEP IN BOND BEAM TYPICAL DETAIL

NO SCALE TD04103



4 BOND BEAM INTERSECTIONS TYPICAL DETAIL

NO SCALE TD04104



BOLT DIA	E
1/2 "	4"
5/8 "	4"
3/4 "	5"
7/8 "	6"

1 MASONRY ANCHOR BOLTS TYPICAL DETAIL

NO SCALE TD04105

8 PILASTER CONSTRUCTION JOINT TYPICAL DETAIL

NO SCALE TD04130

5 BEAM CONNECTION TYPICAL DETAIL

NO SCALE TD04150

2 BEAM BEARING SEAT TYPICAL DETAIL

NO SCALE TD04151

9

3/4" = 1'-0"

PLAN VIEW

6 CMU REINF. PLACEMENT TYPICAL DETAIL

NO SCALE 6/S4.01

SPAN	ANGLE SIZE
< 7'-6"	L-4x4x 5/16
7'-6" TO 10'-0"	L-6x4x 3/8 LLV

NOTES:
1. SPAN = CLEAR OPENING WIDTH.
2. BEAR 8" EA. END.
3. SEE SPEC. FOR COATING REQUIREMENT.

3 LOOSE LINTEL SCHEDULE TYPICAL DETAIL

NO SCALE TD04110

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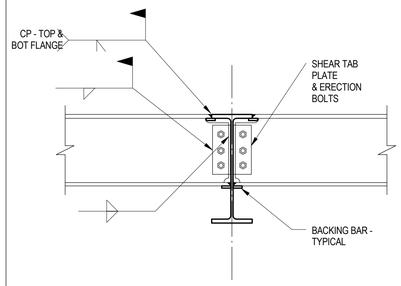
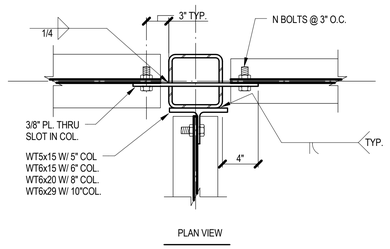
TYPICAL MASONRY DETAILS

S4.01



13 BEAM TO BEAM MOMENT CONN. TYPICAL DETAIL

NO SCALE TD05211



PLAN VIEW

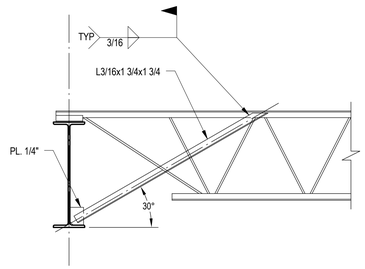
NOTES:

1. IN THE CASE OF A CORNER (2 BEAM) CONDITION, ORIENT THRU PL. TO SUPPORT DEEPER BEAM.
2. PROVIDE ADD'L. BOLTS AS REQD. WHERE REACTIONS ARE GIVEN ON PLAN.

BM. SIZE	N BOLTS
W8, W10	2
W12, W14	3
W16, W18	4
W21	5
W24	6

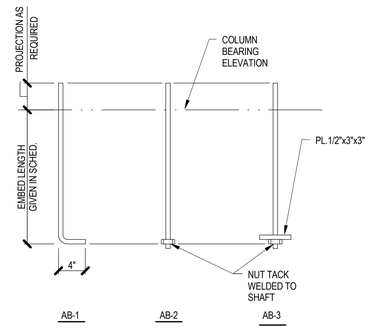
10 BEAM TO COLUMN CONNECTION TYPICAL DETAIL

NO SCALE TD05206



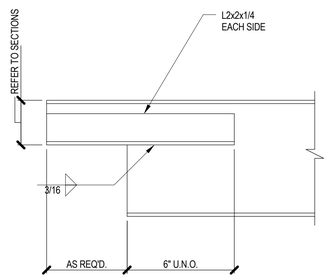
7 BOTTOM FLANGE BRACE TYPICAL DETAIL

NO SCALE TD05181



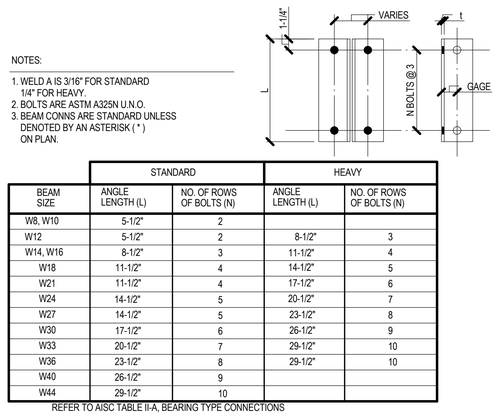
4 ANCHOR BOLT TYPES TYPICAL DETAIL

NO SCALE TD05102



14 COPED CHANNEL OR BEAM TYPICAL DETAIL

NO SCALE TD05210



NOTES:

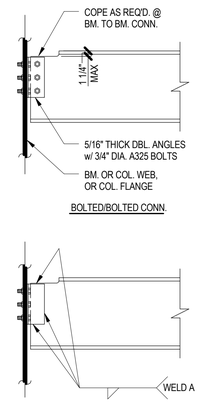
1. WELD A IS 3/16" FOR STANDARD 1/4" FOR HEAVY.
2. BOLTS ARE ASTM A325N U.N.O.
3. BEAM CONNS ARE STANDARD UNLESS DENOTED BY AN ASTERISK (*) ON PLAN.

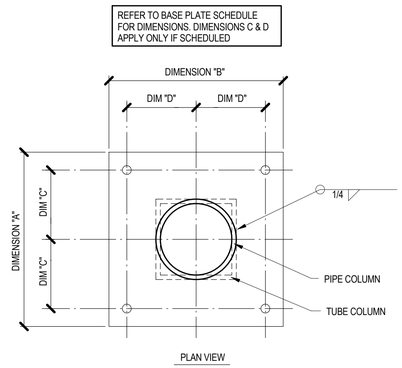
BEAM SIZE	STANDARD ANGLE LENGTH (L)	STANDARD NO. OF ROWS OF BOLTS (N)	HEAVY ANGLE LENGTH (L)	HEAVY NO. OF ROWS OF BOLTS (N)
W8, W10	5-1/2"	2		
W12	5-1/2"	2	8-1/2"	3
W14, W16	8-1/2"	3	11-1/2"	4
W18	11-1/2"	4	14-1/2"	5
W21	11-1/2"	4	17-1/2"	6
W24	14-1/2"	5	20-1/2"	7
W27	14-1/2"	5	23-1/2"	8
W30	17-1/2"	6	26-1/2"	9
W33	20-1/2"	7	29-1/2"	10
W36	23-1/2"	8	29-1/2"	10
W40	26-1/2"	9		
W44	29-1/2"	10		

REFER TO AISC TABLE II-A, BEARING TYPE CONNECTIONS

11 STEEL BM. CONN. - DOUBLE ANGLE TYPICAL DETAIL

NO SCALE TD05200

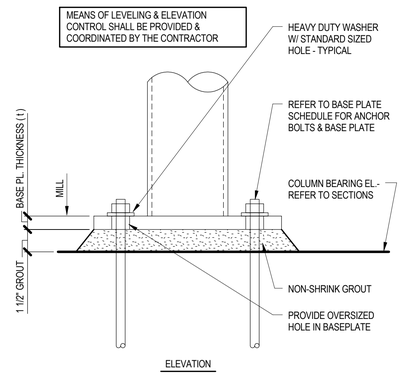




PLAN VIEW

5 COLUMN BASE PLATE TYPICAL DETAIL

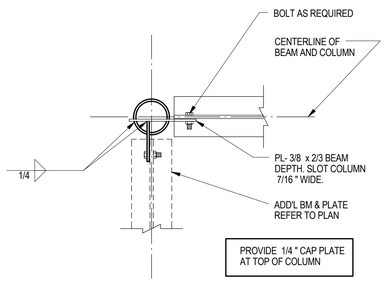
NO SCALE TD05120



ELEVATION

2 COLUMN BASE PLATE TYPICAL DETAIL

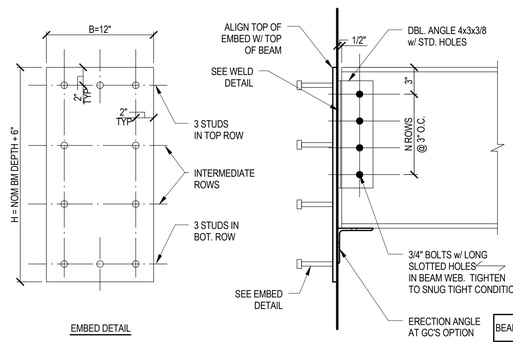
NO SCALE TD05121



PLAN VIEW

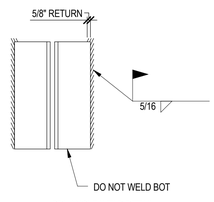
15 BEAM TO BEAM COLUMN CONN. TYPICAL DETAIL

NO SCALE TD05233



EMBED DETAIL

SEE TYPICAL DOUBLE ANGLE STEEL BEAM CONN DETAIL FOR ANGLE LENGTH AND NUMBER OF BOLTS

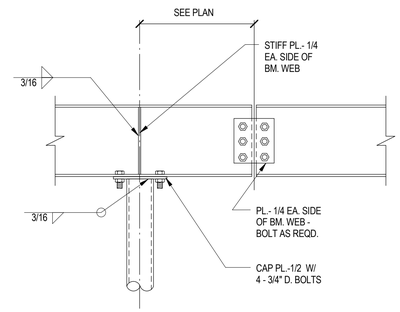


DBL ANGLE WELD DETAIL

BEAM SIZE	PLATE T	HEADED STUDS DIA	LENGTH	NO. OF INT ROWS	TOTAL NO. OF STUDS
W8-W10	3/8"	1/2"	6"	0	6
W12-W16	3/8"	1/2"	6"	1	8
W18-W21	1/2"	3/4"	6"	2	10
W24-W30	1/2"	3/4"	6"	3	12
W33	3/4"	3/4"	6"	4	14
W36	3/4"	3/4"	6"	5	16

12 STEEL BEAM TO CONCRETE CONN. TYPICAL DETAIL

NO SCALE TD05205



6 BEAM SPLICE CONNECTION TYPICAL DETAIL

NO SCALE TD05170

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LAFP Project No. B1139

Project Status

Issue Description	Date
Comprehensive Permit Submission	Sept. 16, 2011

Scale: AS NOTED
Drawn By: Author | Checked By: Checker | Reviewed By: Approver

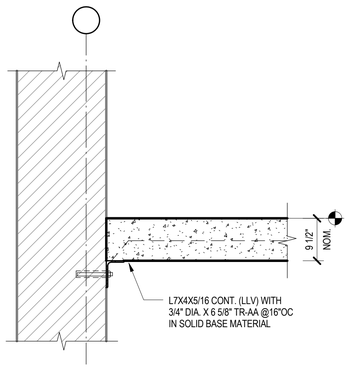
Project No. 2010080.00

Mystic Water Works at Capen Court

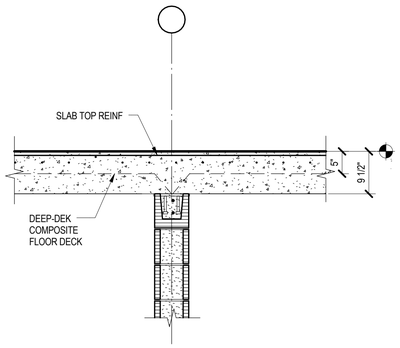
Capen St.
Somerville, MA 02144

TYPICAL STEEL DETAILS

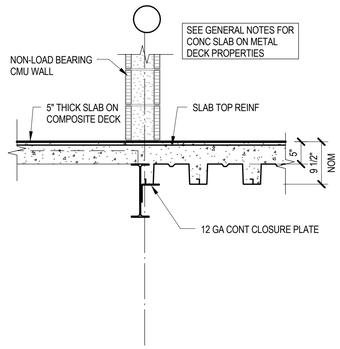
S5.01



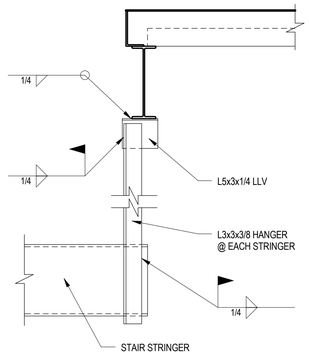
13
3/4" = 1'-0"



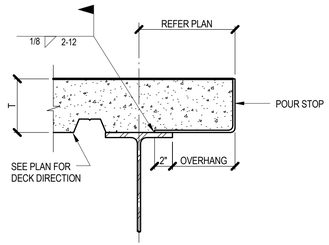
10 TYPICAL DETAIL
3/4" = 1'-0"



7
3/4" = 1'-0"



4 STAIR HANGER TYPICAL DETAIL
NO SCALE TD05650



OVERHANG	T ≤ 6 1/2	T = 7 1/2"
	POUR STOP	POUR STOP
≤ 5"	14 GA	12 GA
5 ≤ 8"	12 GA	10 GA
8" ≤ 11"	10 GA	3/16 " BENT PL
> 11"	3/16 " BENT PL	3/16 " BENT PL

1 SLAB EDGE - COMPOSITE DECK TYPICAL DETAIL
NO SCALE TD05323

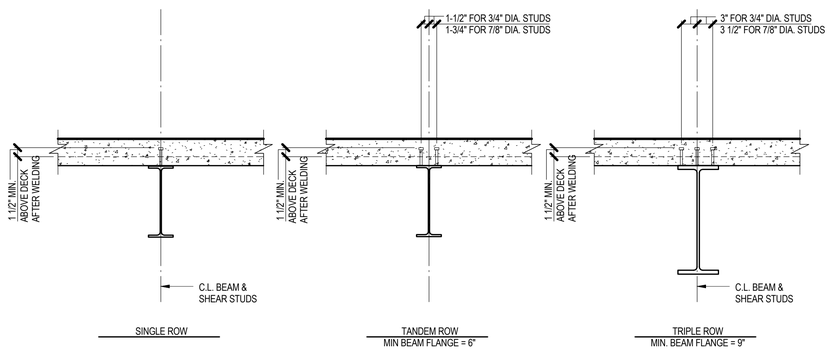
14
3/4" = 1'-0"

11 TYPICAL DETAIL
NO SCALE

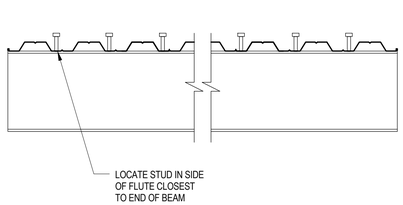
BEAM TO TUBE COL. CONNECTION AT FLOORS TYPICAL DETAIL
8
NO SCALE

5 COMPOSITE BEAM TYPICAL DETAIL
NO SCALE TD05350

2 COMPOSITE GIRDER TYPICAL DETAIL
NO SCALE TD05351

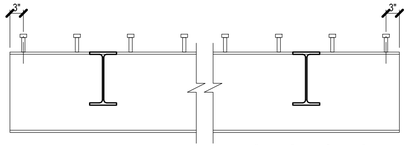


STUD WELDING DETAILS TYPICAL DETAIL
15
NO SCALE TD05355



SIMPLE BEAM

1. PLACE STUDS EVENLY DISTRIBUTED ALONG LENGTH OF BEAM AT 2'-0" O.C.
2. PLACE ADDITIONAL STUDS AT 1'-0" O.C. FROM EACH END OF BEAM. USE TANDEM OR TRIPLE ROWS AS REQUIRED.
3. TOTAL NUMBER OF STUDS SHALL NOT BE LESS THAN SHOWN ON PLAN.



GIRDER

A. UNIFORM STUD LAYOUT. EXAMPLE
   1. PLACE STUDS EVENLY DISTRIBUTED ALONG LENGTH OF BEAM AT 1'-0" O.C., STARTING AT 3" FROM EACH END OF BEAM.
   2. PLACE ADDITIONAL STUDS AT 6" O.C. FROM EACH END OF BEAM. USE TANDEM OR TRIPLE ROWS AS REQUIRED.
   3. TOTAL NUMBER OF STUDS SHALL NOT BE LESS THAN SHOWN ON PLAN.

B. SEGMENTED STUD LAYOUT. EXAMPLE
   1. PLACE STUDS EVENLY DISTRIBUTED ALONG LENGTH OF BEAM AT 1'-0" O.C. STARTING AT 3" FROM EACH END OF BEAM.
   2. PLACE ADDITIONAL STUDS BETWEEN IN-FRAMING BEAMS TO PROVIDE FOR NUMBER OF STUDS SHOWN ON PLAN. USE TANDEM OR TRIPLE ROWS AS REQUIRED.
   3. MINIMUM STUD SPACING ALONG LENGTH OF BEAM IS 6" O.C.

STUD LAYOUR - COMPOSITE BEAMS TYPICAL DETAIL
9
NO SCALE TD05356

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under the authority of
AARON A. FORD
P.E. Number 46393 on
AUGUST 12, 2011

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Project Status

Comprehensive Permit Submission	Sept. 16, 2011
Issue Description	Date

Scale: AS NOTED
Drawn By: Author | Checked By: Checker | Reviewed By: Approver

Project No. 2010080.00

Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

STEEL DETAILS

S5.02

HEADER SCHEDULE

LOCATION	MAXIMUM SPAN	SIZE	KING STUD POST EACH END WALLS BELOW			
			ROOF	4th FLOOR	3rd FLOOR	2nd FLOOR
TYPICAL INTERIOR	3-6	2-2x12	2-2x4	2-2x4	3-2x4	4-2x4 OR WP2
TYPICAL INTERIOR	6-0	2-2x12	2-2x4	3-2x4	4-2x4 OR WP2	WP3
TYPICAL EXTERIOR	3-6	3-2x12	2x6	2-2x6	2-2x6	3-2x6
TYPICAL EXTERIOR	6-0	3-2x12	2x6	2-2x6	3-2x6	3-2x6
TYPICAL EXTERIOR	11-0	5.25"X11.25" SCL	2-2x6	3-2x6	4-2x6	4-2x6
TYPICAL CORRIDOR	3-6	3-2x10	2x6	2x6	3-2x6	3-2x6

NOT USED

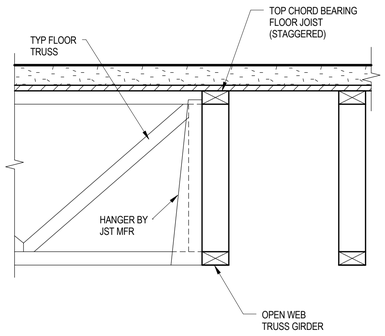
NOTES:
1) STRUCTURAL COMPOSITE LUMBER (SCL) IS APPROVED TO BE LVL, PSL, OR LSL WITH THE PROPERTIES SPECIFIED IN GENERAL NOTE 6.1.3.

STUD BEARING WALL SCHEDULE

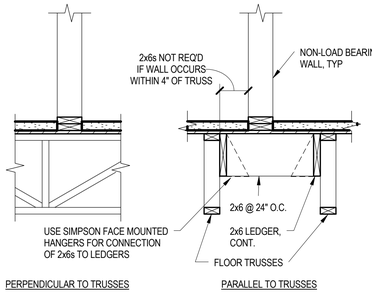
LOCATION	DEMISING WALL	INTERIOR PARTITION	EXTERIOR WALL	CORRIDOR WALL
WALL BELOW LEVEL ROOF	2x4 @ 16"	2x4 @ 16"	2x6 @ 16"	2x6 @ 16"
WALL BELOW LEVEL 4	2x4 @ 12"	2x4 @ 12"	2x6 @ 16"	2x6 @ 16"
WALL BELOW LEVEL 3	2 - 2x4 @ 16"	2x4 @ 12"	2x6 @ 16"	2x6 @ 16"
WALL BELOW LEVEL 2	3 - 2x4 @ 12"	2 - 1 1/2"X3 1/2" SCL @ 12"	2x6 @ 12"	2x6 @ 12"

NOT USED

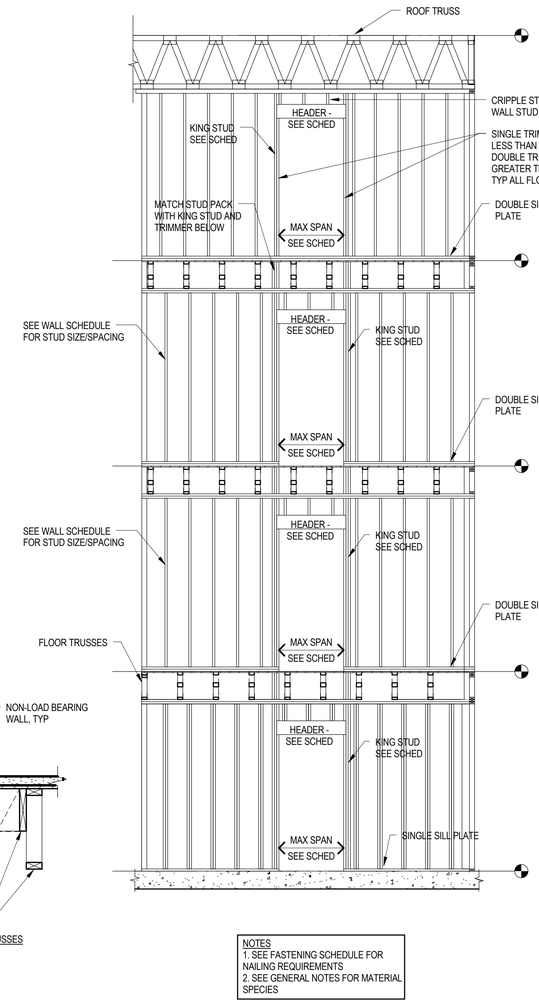
NOTES:
1) STRUCTURAL COMPOSITE LUMBER (SCL) IS APPROVED TO BE LVL, PSL, OR LSL WITH THE PROPERTIES SPECIFIED IN GENERAL NOTE 6.1.3.



14 TYPICAL DETAIL
NO SCALE 8/S7.1



11 TYP. INT. NON-LOAD BEARING WALL TYPICAL DETAIL
NO SCALE TD06504



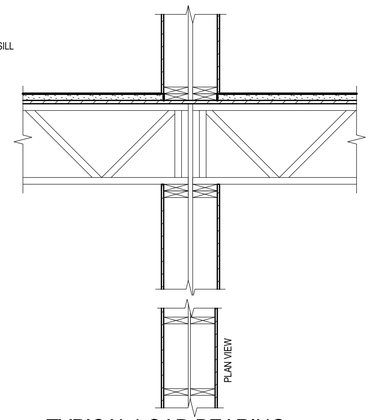
NOTES
1. SEE FASTENING SCHEDULE FOR NAILING REQUIREMENTS
2. SEE GENERAL NOTES FOR MATERIAL SPECIES

8 TYPICAL OPENING FRAMING
1/4" = 1'-0"

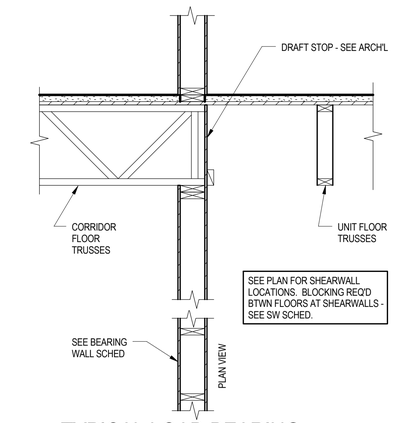
FASTENING SCHEDULE

CONNECTION	FASTENING	LOCATION
TRUSS TO SILL OR GIRDER	3 - 8d COMMON (2 1/2" X 0.131")	TOENAIL
BRIDGING TO JOIST	2 - 8d COMMON (2 1/2" X 0.131")	TOENAIL EACH END
SOLE PLATE TO JOIST OR BLOCKING	16d (3 1/2" X 0.135) @ 16" O.C.	TYPICAL FACE NAIL
TOP PLATE TO STUD	2 - 16d (3 1/2" X 0.135)	END NAIL
STUD TO SOLE PLATE	4 - 8d COMMON (2 1/2" X 0.131") 2 - 16d COMMON (3 1/2" X 0.162")	TOENAIL END NAIL
DOUBLE STUDS	16d (3 1/2" X 0.135) @ 24" O.C.	FACE NAIL, STAGGERED
DOUBLE TOP PLATES	16d (3 1/2" X 0.135) @ 16" O.C. 8 - 16d COMMON (3 1/2" X 0.162)	TYPICAL FACE NAIL, STAGGERED LAP SPLICE, STAGGERED
TOP PLATES, LAPS, AND INTERSECTIONS	2 - 16d COMMON (3 1/2" X 0.162)	FACE NAIL
CONTINUOUS HEADER, TWO PIECES	16d COMMON (3 1/2" X 0.162)	16" O.C. ALONG EDGE
CEILING JOISTS TO PLATE	3 - 8d COMMON (2 1/2" X 0.131")	TOENAIL
CONTINUOUS HEADER TO STUD	4 - 8d COMMON (2 1/2" X 0.131")	TOENAIL
CEILING JOISTS, LAPS OVER PARTITIONS	3 - 16d COMMON (3 1/2" X 0.162)	FACE NAIL
CEILING JOISTS TO PARALLEL RAFTERS	3 - 16d COMMON (3 1/2" X 0.162)	FACE NAIL
TRUSS/RAFTER TO PLATE	3 - 8d COMMON (2 1/2" X 0.131")	TOENAIL
BUILT-UP CORNER STUDS	16d COMMON (3 1/2" X 0.162)	16" O.C.
BUILT-UP GIRDER	SEE TRUSS MFR DESIGN REQUIREMENTS DETAILED ON ENGINEERED ERECTION DRWGS	FACE NAIL
BUILT-UP WOOD COLUMNS	16d (3 1/2" X 0.135) @ 8" O.C.	FACE NAIL, STAGGERED
LEDGER STRIP FOR ROOF JACK TRUSS 8' MAXIMUM LENGTH	3" x 0.131" NAILS @ 8" O.C.	FACE NAIL
ROOF SHEATHING (TO FRAMING)	8d COMMON (2 1/2" X 0.131") @ 6" O.C. 8d COMMON (2 1/2" X 0.131") @ 12" O.C.	SUPPORTED ENDS OF PANELS IN THE FIELD FOR EACH PANEL
FLOOR SHEATHING (TO FRAMING)	RING-SHANK x 10d COMMON @ 6" O.C. (1) RING-SHANK x 10d COMMON @ 12" O.C. (1) (1) GLUE SHEATHING TO ALL FRAMING EDGES	SUPPORTED ENDS OF PANELS IN THE FIELD FOR EACH PANEL ELASTOMERIC ADHESIVE CONFORMING TO ASTM D3498
FASTENING WITH TREATED PLATES	FASTENERS IN CONTACT WITH TREATED PLATES (NAILS, BOLTS, ANCHORS) SHALL BE HOT DIPPED GALVANIZED	
SHEARWALLS	8d COMMON (2 1/2" X 0.131")	AS NOTED ON PLAN

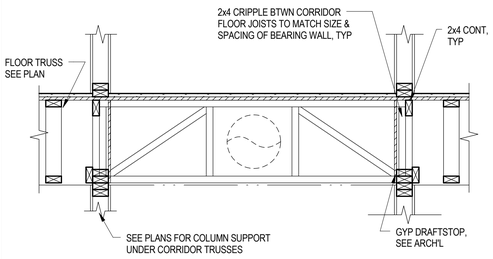
NOTES:
1 - ALL NAILS SHALL COMPLY WITH NER-272



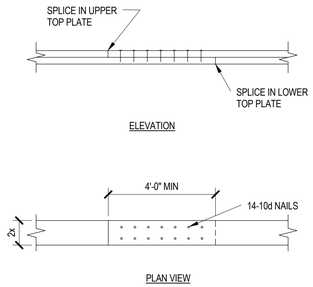
5 TYPICAL LOAD BEARING DEMISING PARTITION WALL TYPICAL DETAIL
NO SCALE 12/S7.1



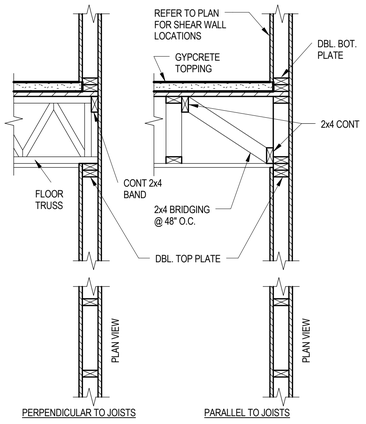
2 TYPICAL LOAD BEARING CORRIDOR PARTITION TYPICAL DETAIL
NO SCALE 11/S7.1



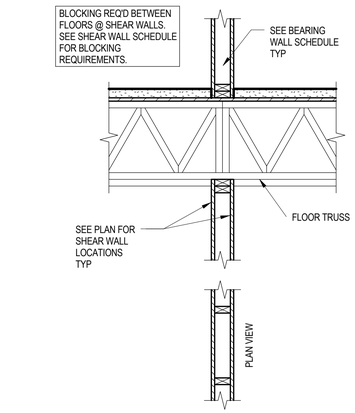
15 TYPICAL DETAIL
NO SCALE 24/S7.1



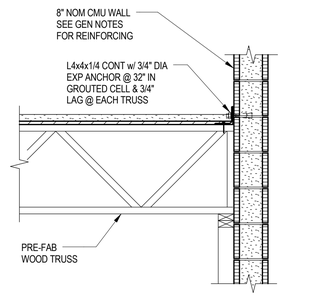
12 TYP TOP/BOTTOM PLATE SPLICE TYPICAL DETAIL
NO SCALE TD06507



9 TYPICAL LOAD BRG EXTERIOR WALL TYPICAL DETAIL
NO SCALE TD06508



6 TYPICAL LOAD BEARING UNIT PARTITION WALL TYPICAL DETAIL
NO SCALE TD06506



3 TYPICAL DETAIL
NO SCALE TD06503

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LAFP Project No. B1139

Project Status

Issue Description	Date
Comprehensive Permit Submission	Sept. 16, 2011

Scale: AS NOTED
Drawn By: Author | Checked By: Checker | Reviewed By: Approver

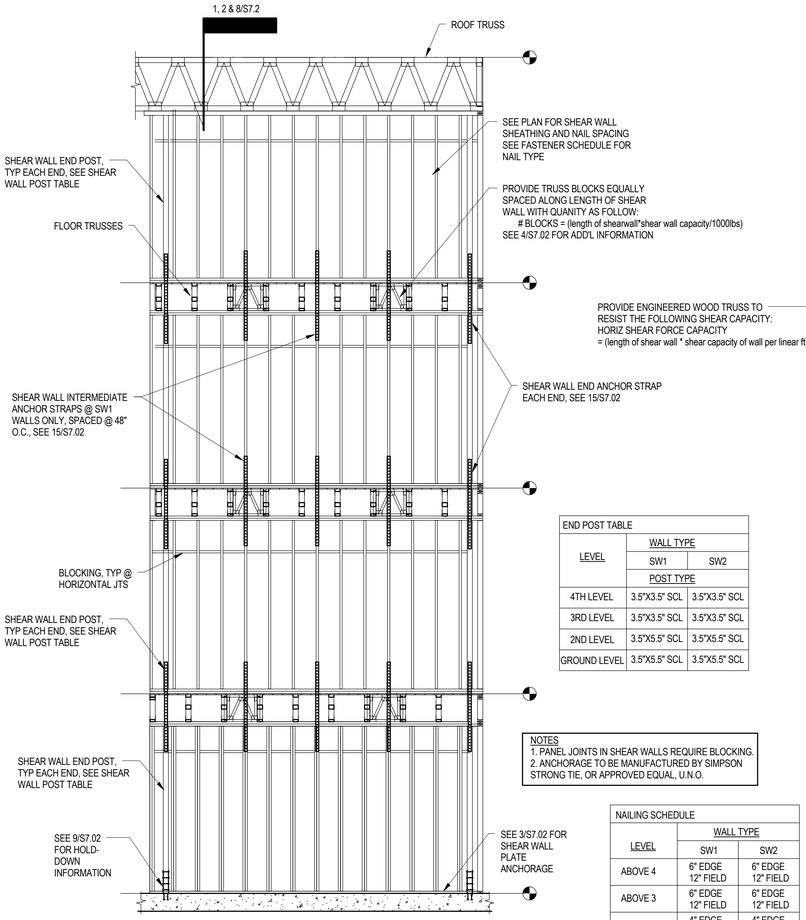
Project No. 2010080.00

Mystic Water Works at Capen Court

Capen St.
Somerville, MA 02144

TYPICAL WOOD DETAILS

S7.01



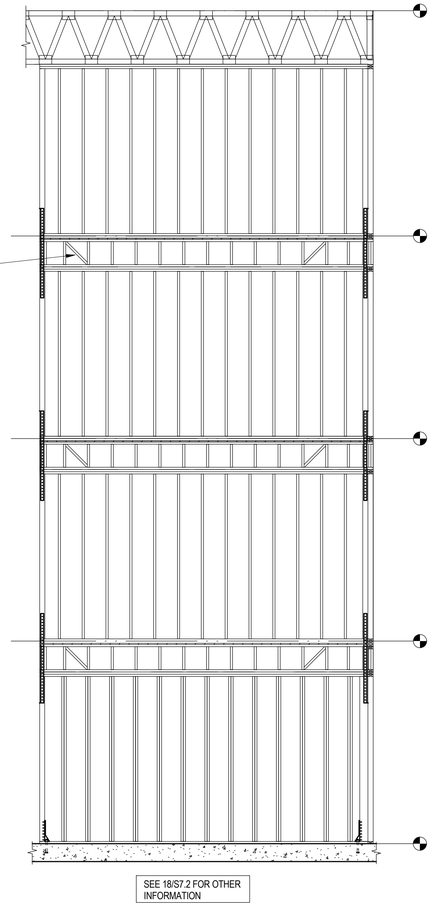
END POST TABLE		
LEVEL	WALL TYPE	
	SW1	SW2
	POST TYPE	
4TH LEVEL	3.5"X3.5" SCL	3.5"X3.5" SCL
3RD LEVEL	3.5"X3.5" SCL	3.5"X3.5" SCL
2ND LEVEL	3.5"X5.5" SCL	3.5"X5.5" SCL
GROUND LEVEL	3.5"X5.5" SCL	3.5"X5.5" SCL

NOTES
1. PANEL JOINTS IN SHEAR WALLS REQUIRE BLOCKING.
2. ANCHORAGE TO BE MANUFACTURED BY SIMPSON STRONG TIE, OR APPROVED EQUAL, U.N.O.

NAILING SCHEDULE		
LEVEL	WALL TYPE	
	SW1	SW2
ABOVE 4	6" EDGE 12" FIELD	6" EDGE 12" FIELD
ABOVE 3	6" EDGE 12" FIELD	6" EDGE 12" FIELD
ABOVE 2	4" EDGE 12" FIELD	4" EDGE 12" FIELD
ABOVE 1	4" EDGE 12" FIELD	4" EDGE 12" FIELD

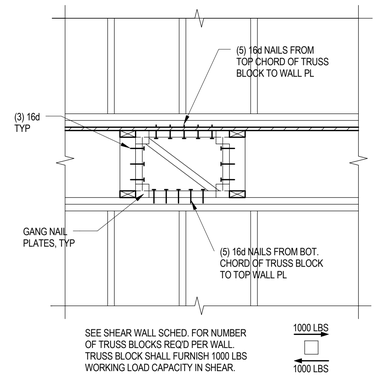
14 SHEAR WALL WITH FLOOR TRUSSES PERPENDICULAR TO SHEAR WALL

1/4" = 1'-0"



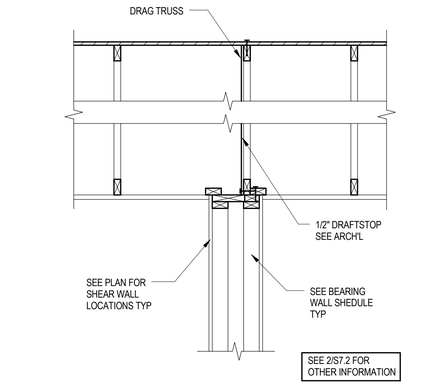
8 SHEAR WALL WITH FLOOR TRUSSES PARALLEL TO SHEAR WALL

1/4" = 1'-0"



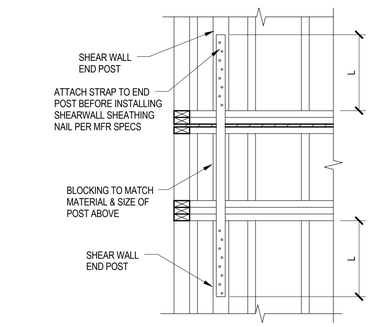
4 TRUSSES PERP TO SHEAR WALL TYPICAL DETAIL

NO SCALE TD06515



1 TYPICAL TENANT WALL AT ROOF TYPICAL DETAIL

NO SCALE TD06513



SW1 SHEAR WALLS: END STRAP TABLE			
LEVEL	STRAP	L (IN)	FASTENERS
4TH	CS14	15"	26-10d
3RD	CMST14	30"	66-10d
2ND	CMST12	39"	86-10d

SW1 SHEAR WALLS: INTERMEDIATE STRAP TABLE			
LEVEL	STRAP	L (IN)	FASTENERS
ALL	CS14	15"	26-10d

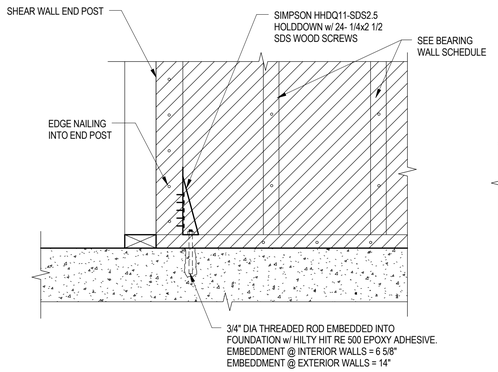
SW2 SHEAR WALLS: END STRAP TABLE			
LEVEL	STRAP	L (IN)	FASTENERS
4TH	CS14	15"	26-10d
3RD	CMST14	30"	66-10d
2ND	CMST12	39"	86-10d

SW2 SHEAR WALLS: INTERMEDIATE STRAP TABLE			
LEVEL	STRAP	L (IN)	FASTENERS
ALL	NONE REQUIRED		

NOTE:
THE NUMBER OF FASTENERS PROVIDED IS THE TOTAL NUMBER REQUIRED. PROVIDE HALF AT EACH END OF STRAP.

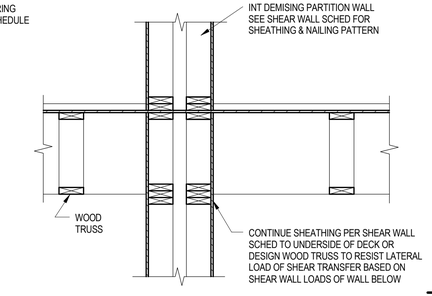
15 SHEAR WALL END AT UPPER LEVELS TYPICAL DETAIL

NO SCALE TD06520



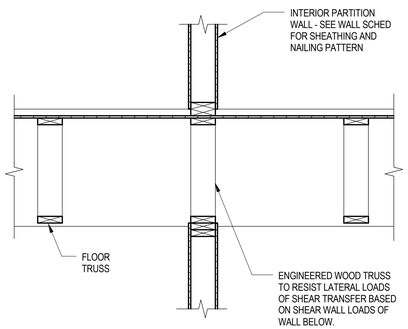
9 SHEAR WALL HOLD DOWN TYPICAL DETAIL

NO SCALE



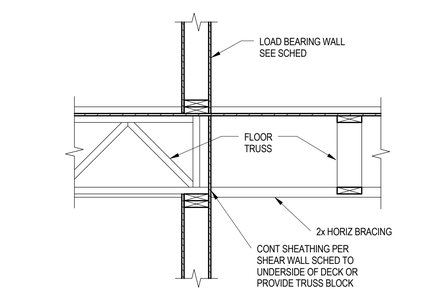
6 DEMISING PARTITION WALL TYPICAL DETAIL

NO SCALE TD06517



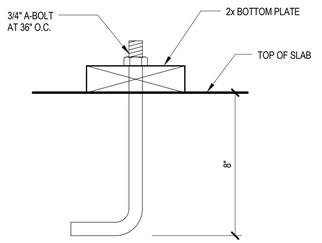
5 INTERIOR PARTITION WALLS TYPICAL DETAIL

NO SCALE TD06521



2 CHANGE IN TRUSS SPAN DIRECTION TYPICAL DETAIL

NO SCALE TD06519



3 SHEAR WALL PLATE ANCHORAGE TYPICAL DETAIL

NO SCALE TD06522

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Mystic Water Works at Capen Court

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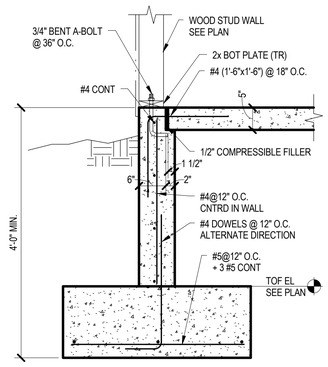
Somerville, MA 02144

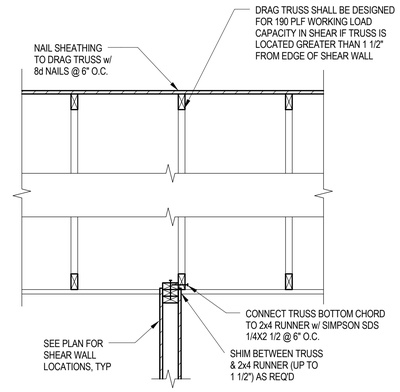
TYPICAL WOOD SHEAR WALL DETAILS

S7.02



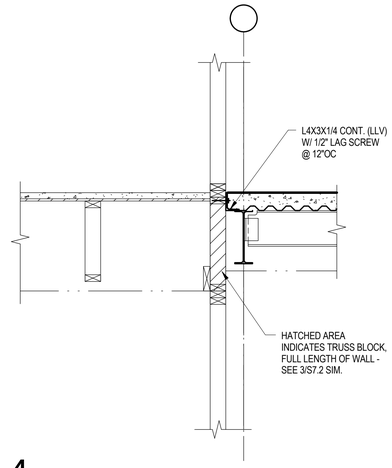
10 TYPICAL DETAIL

3/4" = 1'-0"



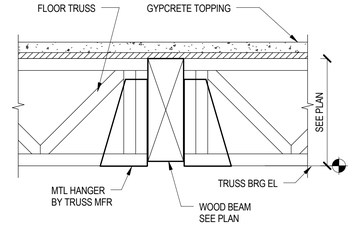
7 DRAG TRUSS TO SHEAR WALL CONN TYPICAL DETAIL

NO SCALE TD06514



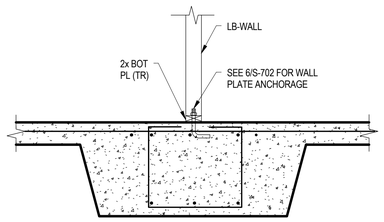
4

3/4" = 1'-0"



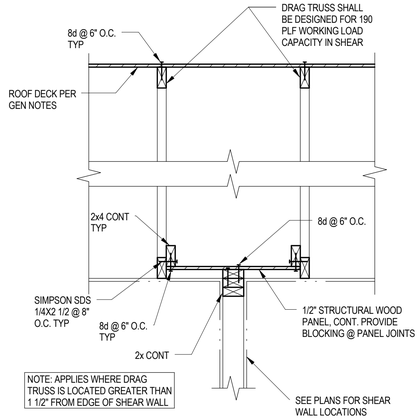
1 FACE MOUNTED TRUSS @ FLUSH BM TYPICAL DETAIL

NO SCALE



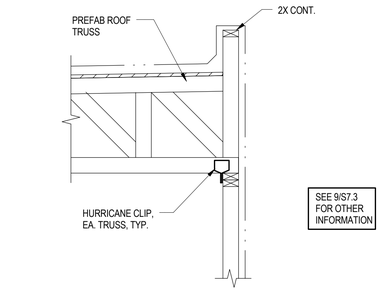
11

3/4" = 1'-0"



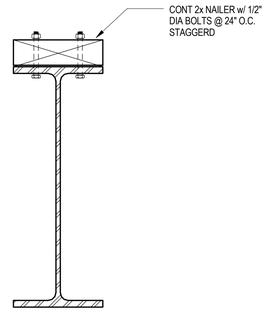
8 DRAG TRUSS TO SHEAR WALL CONN TYPICAL DETAIL

NO SCALE TD06518



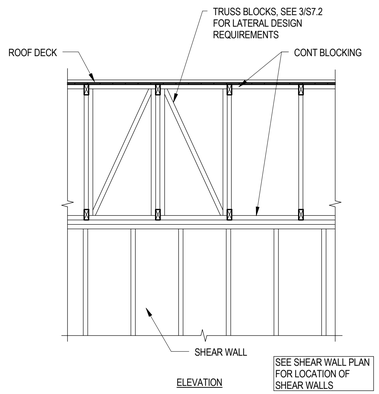
5

3/4" = 1'-0"



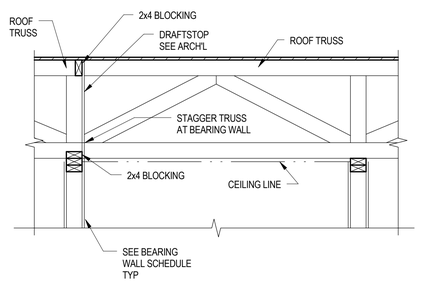
2 NAILER ANCHORAGE TYPICAL DETAIL

NO SCALE TD06512



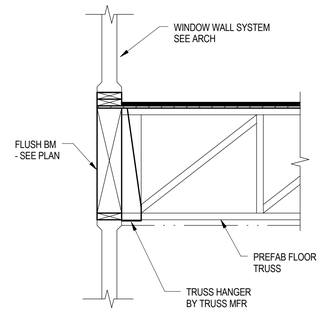
9 ROOF TRUSSES PERP. TO SW ALONG CORRIDOR TYPICAL DETAIL

NO SCALE TD06523



6 ROOF FRAMING OVER CORRIDOR TYPICAL DETAIL

NO SCALE TD06505



3 TYPICAL DETAIL

NO SCALE

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WOOD DETAILS

S7.03