Public Facilities Committee Agenda

City of Newton
In City Council

Wednesday, September 7, 2016

7:00 PM
Room 204

Items Scheduled for Discussion:

Referred to Public Facilities Committee

Public hearing

#282-16 **5-58 Site plan approval for the relocation of modular classrooms**
DESIGN REVIEW COMMITTEE petitioning, pursuant to Sec. 5-58, for site plan approval to relocate four (4) modular classrooms from the Zervas Elementary School as follows: two (2) modular classrooms to be located at Newton South High School and two (2) modular classrooms at Brown Middle School to provide additional classroom space. [08/18/16 @ 12:09 PM]

Public hearing

#249-16 **Cellco petition for Grant of Location for wireless communication equipment**
CELLCO PARTNERSHIP d/b/a VERIZON WIRELESS petitioning for a grant of location to attach wireless communication equipment to existing utility poles at the following locations [(Ward 8) 07/01/2016 @11:17 AM]:

Locations

Dudley Road (near 530 Dudley Road) at Pole #10-7
Hay Road (near 16 Hay Road) at Pole #1368-1

Public hearing

#281-16 **Cellco petition for Grant of Location for wireless communication equipment**
CELLCO PARTNERSHIP d/b/a VERIZON WIRELESS petitioning for a grant of location to attach wireless communication equipment to existing Utility Pole #20-20 at Sargent Street (near the Sargent/Centre intersection). (Ward 7) [07/20/2016 @12:21 PM]

The location of this meeting is handicap accessible and reasonable accommodations will be provided to persons requiring assistance. If you need a special accommodation, *please contact Jini Fairley, at least two days in advance of the meeting: jfairley@newtonma.gov,* or 617-796-1253. For Telecommunications Relay Service dial 711.

Public hearing

#304-16 **Verizon petition for grant of location at Greenwood Street**
VERIZON NEW ENGLAND petitioning for a grant of location to relocate Pole #6 on Greenwood Street approximately 19'± southeast to accomomodate a new driveway at house #56. (Ward 8) [08/25/16 @ 8:45 AM]

#303-16 **Request to approve traffic calming islands for Concord Street**
COMMISSIONER OF PUBLIC WORKS requesting authorization to install four torpedo traffic island in Concord Street in Lower Falls between Hagar Street and St. Mary's Street to be funded using mitigation funds previously approved by the Council for Lower Falls traffic mitigation. (Ward 4) [08/25/16 @ 1:51 PM]

Referred to Public Facilities and Finance Committees

#273-16 **$216,000 to purchase a new street sweeper**
HIS HONOR THE MAYOR requesting authorization to appropriate two hundred sixteen thousand dollars ($216,000) from bonded indebtedness to fund the purchase of a new 2016 Elgin Pelican NP dual street sweeper. [08/01/16 @ 12:50 PM]

Referred to Public Facilities and Finance Committees

#275-16 **$4 million MWRA loan to implement lead service line replacement project**
HIS HONOR THE MAYOR requesting authorization to borrow up to four million dollars ($4,000,000) in interest free loans from the Massachusetts Water Resources Authority (MWRA) for the purpose of implementing a lead service line replacement program. [08/01/16 @ 12:49 PM]

Items Not Scheduled for Discussion at this Meeting:

#200-15 **Update on the strategic plan for street and sidewalk improvements**
ALD. LAREDO requesting that the Department of Public Works provide an update on the creation of a strategic plan for the improvement of streets and sidewalks in the City. [08/13/15 @ 11:20 AM]

#255-16 **5-58 waiver for relocation of modular classrooms**
COMMISSIONER OF PUBLIC BUILIDNGS requesting a waiver of the City of Newton Ordinance Sec. 5-58. Site plan approval for construction or modification of municipal buildings and facilities. For the relocation of the existing modular classrooms from the Zervas Elementary School to the Brown Middle School and Newton South High School. [07/06/2016 @ 11:51 AM]

Referred to Public Facilities and Finance Committees

#191-16 **Funding to relocate the Zervas modulars to NSHS and Brown Middle School**
HIS HONOR THE MAYOR requesting authorization to transfer the sum of five hundred thousand dollars ($500,000) to the Public Buildings Department for the purpose of funding the relocation modular classrooms from the Zervas Elementary School to Newton South High School and Brown Middle School from the following accounts:

Department	Account	Amount
Executive Office	Full-time Salaries	$40,000
Treasury	Debt Service (010772-582A48)	$403,784
Treasury	Debt Service (010772-582A49)	$21,216
Financial Info Systems	Full-time Salaries	$35,000

[05/09/16 @ 4:59 PM]

Referred to Public Facilities and Finance Committees

#258-16 **Delegation of quinquennial perambulation to the City Engineer and GIS Administrator**
CITY CLERK requesting that the City Council officially delegate the responsibility of Quinquennial Boundary Line Perambulation to the City Engineer and the City GIS Administrator as required by Massachusetts General Law Chapter 42, Section 2, which states that "the boundary markers of every town shall be located, the marks thereon renewed, and the year located marked upon the face thereof which bears the letter of the town locating its boundary, once every five years, by at least two of the selectmen of the town or by two substitutes designated by them in writing." [06/22/16 @ 11:35 AM]

Referred to Programs & Services and Public Facilities Committees

#141-15 **Discussion on tracking and improving the condition of the gas utility infrastructure**
ALD. BROUSAL-GLASER, SANGIOLO, HESS-MAHAN, COTE, NORTON AND ALBRIGHT requesting a discussion with the Director of Urban Forestry, a representative of the Department of Public Works and a representative of the Law Department about tracking and improving the condition of the gas utility infrastructure in Newton, new state statutes governing infrastructure repairs, coordination of increased repair work with city operations, the status of negotiations with National Grid to compensate for tree deaths resulting from gas leaks, and the possibility of creating a utilities working group to monitor progress on these and related issues. [05/26/15 @ 2:52 PM]

#206-16 **Resolution requesting the administration hire a composting expert**
COUNCILOR LEARY requesting a Resolution to the Mayor requesting that he consider hiring a composting expert: either a consultant, a composting operator, or the Mass DEP to review the Rumford Avenue Composting site. [05/31/16 @ 4:52 PM]

#207-16 **Review of the management of the Rumford Avenue site**

COUNCILOR LEARY requesting the Executive Office and the Commissioner of Public Works review the management of the entire Rumford Avenue site with the input of the Solid Waste Commission and present their findings to the Public Facilities Committee within a 3 to 6 month timeframe. [05/31/16 @ 4:52 PM]

Referred to Public Safety & Transportation and Public Facilities Committees

#208-16 Update on fire prevention at the compost operation at Rumford Avenue Landfill

COUNCILOR LEARY requesting the Executive Office, the Fire Department, and the Department of Public Works provide an update on fire safety issues at the compost operation at the Rumford Avenue Landfill including details about who is currently managing the site for fires. [05/31/16 @ 4:52 PM]

#163-16 Request for discussion with DPW to consider amend Ordinance for street reconstruction

COUNCILORS CROSSLEY, LAREDO & LAPPIN requesting a discussion with the Commissioner of Public Works, to review city policy and/or ordinances governing repairs to city streets within a period of years after full reclamation and/or milling and repaving of said streets, and to consider strengthening the requirements for repairs so as to protect the public investment in said streets.

Referred to Programs & Services and Public Facilities Committees

#27-16 Updates from the Administration on the renovations at the Aquinas site

PROGRAMS & SERVICES AND PUBLIC FACILITIES COMMITTEES requesting that the School Department and/or Executive Department provide updates on removal of asbestos and other toxic materials that were identified at the Aquinas site, the scope and timing of window replacement in particular, and renovations that may be necessary to facilitate short and long-term plans for uses and operations at the site. [01/10/16 @ 1:14 PM]

#26-16 Proposed amendments to Sec. 5-54 through 5-58 of the Ordinances

COUNCILOR CROSSLEY, ALBRIGHT, HARNEY AND SANGIOLO requesting revisions to Sections 5-54 through 5-58 of the City of Newton Ordinances to clarify the City Council's role and decision-making process with respect to design review, funding, and budget oversight during the construction process of municipal capital building projects; in particular, to better align City Council decisions with typical steps in the design development process, and where applicable, with Massachusetts School Building Authority (MSBA) and other state requirements. [01/11/16 @ 4:53 PM]

#12-16 Discussion with the DPW regarding the City's recycling and solid waste programs

COUNCILOR LEARY, NORTON, KALIS, HESS-MAHAN, ALBRIGHT, AND CROSSLEY requesting an update from and discussion with the Department of Public Works and the Solid Waste Commission on the current status of Newton's solid waste management and recycling program operations and performance objectives, future goals and objectives, staffing, program challenges, and survey data due to be submitted to the Department of Environmental Protection. [12/28/15 @ 8:44 AM]

#313-15 Request for an update on the Second Water Meter Program

ALD. LAPPIN requesting an update from the Department of Public Works on the second water meter program including: the progress of the inspection and programming of the approximately 900 new outdoor irrigation meters provided by the City to property owners that have yet to be inspected and/or programmed by the City; the process going forward for the issuance, inspection, programming and tracking of second meters; and the notification of residents who already had second meters regarding the process for registering their meters. 10/26/15 @ 7:15 PM]

#237-15 Update on mitigation funds from Special Permits in Newton Centre

ALD. CROSSLEY, LAREDO, and SCHWARTZ requesting an update on funds accrued from voluntary contributions from Special Permits in Newton Centre, which can be made available to complete a safe pedestrian crossing at 714-724 Beacon Street via Special Permit Board Order #1-15 and conditions noted therein. 09/14/15 @ 10:40 AM]

Referred to Public Facilities and Finance Committees

#223-15 Discussion on the process of licensing the use of city buildings

ALD. LAREDO requesting a discussion of the process of licensing the current and future use of city building, including: (a) how licensees may request the use of city buildings; (b) the process for determining which licensees will get the use of city buildings; (c) how the fees for the use of city buildings are set; and (d) how the current process compares to the process for permitting the use of school buildings. [08/13/15 @ 11:20 AM]

Referred to Programs & Services and Public Facilities Committees

#201-15 Discussion regarding the condition of the Kennard Estate building

ALD. SANGIOLO requesting a discussion with the Commissioner of Public Buildings, the Commissioner of Parks and Recreation, and the Executive Department regarding the condition of the property located at 246 Dudley Road (Kennard Estate) and how much, if any, repairs and upgrades will be needed as the City relocates the Parks and Recreation Department to that location. [09/01/15 @ 4:00 PM].

Referred to Public Facilities and Finance Committees

#191-16 Funding to relocate the Zervas modulars to NSHS and Brown Middle School

HIS HONOR THE MAYOR requesting authorization to transfer the sum of five hundred thousand dollars ($500,000) to the Public Buildings Department for the purpose of funding the relocation modular classrooms from the Zervas Elementary School to Newton South High School and Brown Middle School from the following accounts:

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Financial Info Systems	Full-time Salaries	$35,000

[05/09/16 @ 4:59 PM]

#100-15 Discussion on pursuing municipal aggregation of energy purchasing

ALD. NORTON, SANGIOLO, LEARY, AND ALBRIGHT requesting that the Administration pursue municipal aggregation of energy purchasing with the goals of reducing and/or stabilizing electricity costs for resident, businesses and the City; and requiring the purchase of Class 1 RECs at some percentage above the level required by the Massachusetts Renewable Portfolio Standard. [04/06/15 @ 9:12 AM]

#83-15 Discussion and update on energy items

ALD. CROSSLEY, GENTILE, & ALBRIGHT requesting a discussion and update from the Administration on the following energy related items: status of municipal power purchasing contracts for gas and electricity; status of the Power Purchase Agreement

including solar PV rooftop installations, power offset (cost benefit) to date and review of potential future projects; and an update on municipal energy consumption including the recent Green Communities report filed with the Department of Energy Resources. [03/26/15 @ 9:19 AM]

Referred to Public Facil, Programs & Serv, and Public Safety & Trans Committees

#46-15 Discussion of parking options for school and municipal parking lots
ALD. JOHNSON & CICCONE, requesting a discussion with the Commissioner of Department of Public Works and the School Department to determine and discuss parking options including use of school properties based on the current municipal parking lot programs including the issuance of permits. [02/11/15 @ 1:35 PM]

#328-14 Review of double utility poles
ALD. ALBRIGHT, DANBERG, & LAREDO requesting a review of double poles in Newton including a random sampling of ten double poles on the north side and ten double poles on the south side of Newton to determine which utility is holding up the removal of double poles. [08/19/14 @ 9:16 AM]

#189-14 Update on the Zervas School construction project
PUBLIC FACILITIES COMMITTEE requesting periodic updates on the Zervas Elementary School Project. [04/17/14 @ 10:48 PM]

#188-14 Update on the Cabot School construction project
PUBLIC FACILITIES COMMITTEE requesting periodic updates on the Cabot Elementary School Project. [04/17/14 @ 10:48 PM]

Referred to Programs & Services and Public Facilities Committees

#119-14 Discussion with ISD on plans to address City non-compliance with ADA standards
ALD. ALBRIGHT AND CROSSLEY requesting discussion with the Inspectional Services Department to explain the development of short and long term plans to identify and correct buildings, sidewalks, playgrounds, etc…that do not conform to American Disability Act (ADA) standards. The discussion should include information on how improvements will be incorporated into the Capital Improvement Plan or if less than $75,000 into a comprehensive budget plan to correct ADA deficiencies. [03/12/14 @ 4:18 PM]

#131-13 Updates and discussion on the sewer, water and storm water systems
ALD. CROSSLEY, FULLER, SALVUCCI, JOHNSON, CICCONE requesting periodic updates and discussion, at the discretion of the members of the Public Facilities Committee or the Commissioner of Public Works, on the condition functioning, operations and management of all elements of the City sewer, water and storm water systems including the following:

- Water meters
- Implementation of the ten project area strategic plan to remove infiltration in the City sewer system
- Implementation of the long range strategic plan to repair and replace City water mains, especially to correct for fire flow
- Status of the City's Private Inflow Removal Program to resolve and disconnect illegal storm water connections to the City sewer system
- Current billing practices
- Rates analyses needed to facilitate an informed comparison of billing options to include the following options either alone or in combination: seasonal rates, second meters, tiered rates, frequency of billing, low income credits.

Referred to Finance and Appropriate Committees

#257-12 **Review of Fees, Civil Fines/Non-criminal Disposition in Chapter 17 of the ordinances**
RECODIFICATION COMMITTEE recommending (1) review of the Fees, Civil Fines/Non-Criminal Disposition contained in Chapter 17 LICENSING AND PERMITS GENERALLY and Chapter 20 CIVIL FINES/NON-CRIMINAL DISPOSITION CIVIL FINES to ensure they are in accordance with what is being charged and (2) review of the acceptance of G.L. c. 40 §22F, accepted on July 9, 2001, which allows certain municipal boards and officers to fix reasonable fees for the issuance of certain licenses, permits, or certificates.
Finance Voted No Action Necessary 7-0 on 12/14/15

Referred To Programs & Services And Public Facilities Committees

#36-12 **Inspection of private sewer lines and storm water drainage connections**
ALD. CROSSLEY & FULLER requesting Home Rule legislation or an ordinance to require inspections of private sewer lines and storm water drainage connections prior to settling a change in property ownership, to assure that private sewer lines are functioning properly and that there are no illegal storm water connections to the city sewer mains.

A) Sewer lines found to be compromised or of inferior construction would have to be repaired or replaced as a condition of sale;
B) Illegal connections would have to be removed, corrected, and re-inspected in accordance with current city ordinances and codes, as a condition of sale. [01/24/12 @ 8:07 AM]

Programs & Services Voted No Action Necessary 6-0 on 11/17/14

Referred to Public Safety & Transportation And Public Facilities Committees

#413-11 **Updates on the renovations to the City's fire stations**
ALD. CICCONE, SALVUCCI, GENTILE & LENNON updating the Public Facilities and Public Safety & Transportation Committees on the progress of renovations to the city's fire stations. [11-17-11 @11:07 AM]

#367-09 Discussion on repair of underground streetlight connections

PUBLIC FACILITIES COMMITTEE requesting discussion with the Law Department on how to resolve the dispute with NStar regarding whose responsibility it is to repair the streetlight connection between the manhole and the base of the streetlight. [10/21/09 @ 9:00 PM]

Respectfully submitted,
Deborah J. Crossley, Chair

City of Newton

282-16

Design Review Committee
PUBLIC BUILDINGS DEPARTMENT
Ellen Light, Peter Barrer Co- Chairs
Joshua R. Morse, Commissioner
Telephone (617) 796-1600
FAX (617) 796-1601
TTY: (617) 796-1089
52 Elliot Street
Newton Highlands, MA 02461-1605

Setti D. Warren
Mayor

RECEIVED
Newton CITY CLERK
2016 AUG 29 AM 8:58
David A. Olson, CMC
Newton, MA 02458

Honorable Board of Aldermen
City of Newton
1000 Commonwealth Avenue
Newton Centre, MA 02459

24 August 2016

RE: Modular Classroom Projects at Newton South High School and Brown Middle School

SUBJECT: 100% Schematic Design and Site Plan Review

Honorable City Council:

The Design Review Committee has met to discuss the drawings prepared by RDA Architects dated July 25, 2016 for the proposed modular classroom projects at Newton South High School and Brown Middle School. The Committee discussed site lighting, modular placement, accessibility, circulation, and building foundation systems.

Further the DRC indicated that the use of the existing metal building at NSH for classroom space was not acceptable and that classrooms may only be located in the relocated modular units. For the Brown School project the Committee expressed concerns with respect to students and staff having to go out doors to come and go from the proposed modular classroom and that that outdoor exposure be minimized.

The Design Review Committee determined that the schematic design and site plans are appropriate. The Committee believes that the proposed circulation and placement of modular classrooms is appropriate for both schools. The Committee voted unanimously to recommend that the project be presented for site plan approval. In accordance with Section 5-58 of the Revised Ordinances, this letter is to petition the City Council on behalf of the School Department for Site Plan Approval.

Furthermore, upon approval by the City Council and prior to releasing construction documents to the City's on-call General Contractor for construction, the DRC identified the following areas of design which must be addressed.

- Newton South High School – No space within the existing metal building shall designed / used for classrooms.
- Brown Middle School – Provide a continuous enclosed walkway to shelter the users from the climate to the maximum extent allowable by code.
- General:
  - Site lighting should be installed in a way that maximizes student and staff safety, while ensuring no light pollution to abutters.
  - Ensure the foundation system is built in a way that protects the modular infrastructure from animals and pests.
  - Ensure there are no site drainage issues.

Sincerely,

Signed PJB

Peter Barrer
Co-Chair Design Review Committee

CC: Joshua R. Morse, Commissioner of Public Buildings
Dori Zaleznik, Chief Administrative Officer
Maureen Lemieux, Chief of Staff/CFO
David Fleishman, School Superintendent

Final Label Report

#282-16

SBL	Owner	Number	Street	Unit
81051 0078D	TUZMAN GREGORY & VICTORIA	102	ADELINE RD	
81051 0050V	SHACHAM EITAM	110	ADELINE RD	
81006 0009	NATANEL URI & INNA	263	ARNOLD RD	
81050 0020	JIH GUOR-CHIN & YIN-CHU	4	BRANDEIS CIR	
81050 0019	HOFFMAN ANDREW & MARLA	10	BRANDEIS CIR	
81050 0018	RESNICK MICHAEL M	16	BRANDEIS CIR	
81050 0017	LI ZHI	22	BRANDEIS CIR	
81051 0055	WARTEL MELVIN I & MARCIA P		BRANDEIS RD	
81051 0054	GLAZIER ARNOLD & MARYANN GASH	9	BRANDEIS RD	
81051 0056	WARTEL MELVIN I & MARCIA P	17	BRANDEIS RD	
81051 0057	HONG JEN-SHIANG	25	BRANDEIS RD	
81051 0058	MAGIER EUGENE M & DEBRA A	35	BRANDEIS RD	
81051 0059	SOOHOO SAEBOM JILL	45	BRANDEIS RD	
81051 0060	PERLMAN MARJORIE H TR	53	BRANDEIS RD	
81051 0061	PENG LILY	61	BRANDEIS RD	
81051 0062	ESTRIN YEFIM & MARINA	71	BRANDEIS RD	
81051 0050H	CHITCHIAN KIRKOR & AZAD S	79	BRANDEIS RD	
81051 0050J	APTEKMAN ANGELA TR L/E	87	BRANDEIS RD	
81051 0050K	CHIN DAVID & KARIN TRS	93	BRANDEIS RD	
81051 0050L	TREVENS NEWTON & WILLA R	99	BRANDEIS RD	
81051 0050M	WALDMAN LAUREL B	107	BRANDEIS RD	
81051 0050N	MELMAN PAUL & YAEL	111	BRANDEIS RD	
81051 0050T	STAVROPOULOS JOHN G & ANNA G	118	BRANDEIS RD	
81051 0050P	LOPEZ RUSSELL GREGORY	119	BRANDEIS RD	
81051 0050S	KAUFFMAN MICHAEL G	126	BRANDEIS RD	
81051 0050Q	CONCANNON ELLEN B	131	BRANDEIS RD	
81051 0050R	SLOVIK DAVID M & LOIS S	132	BRANDEIS RD	
81051 0021	HAMBLIN ELIZABETH	9	BURDEAN RD	
81051 0022L	MONSEIN-ROSE MERLE	17	BURDEAN RD	
81051 0030	PORTNOY JAY S & DEBORAH S	60	BURDEAN RD	
81051 0029	WANG DA ZHI	70	BURDEAN RD	
82009 0021	KEEZER MARY JANE	5	CYNTHIA RD	
82009 0022	MEISEL ELLEN S	15	CYNTHIA RD	
82009 0023	MOY CONNIE	25	CYNTHIA RD	
82009 0024	MAGITSKY SAUL	7	DEBORAH RD	
82009 0025	VORONOV BORIS	15	DEBORAH RD	
82009 0026	ALBERT JOSEPH & BEVERLY E	21	DEBORAH RD	
82004 0019L	AVRAS VICTORIA L & GENNADY		DUDLEY RD	
81051 0003A	SLOVIK DAVID M & LOIS S		DUDLEY RD	
81051 0016A	ROSENBLATT MICHAEL S TR		DUDLEY RD	
81051 0002	YOUNGER PETER R & KATHERINE B	57	DUDLEY RD	
81051 0003	SLOVIK DAVID M & LOIS S	85	DUDLEY RD	
81051 0004	KAUFER STEPHEN	95	DUDLEY RD	
81051 0005	CRYSTAL BRUCE A & ELLEN K	109	DUDLEY RD	
81051 0006	SOLEJA MOUSHMI	133	DUDLEY RD	

SBL	Owner	Number	Street	Unit
82004 0029	SCHWARTZ HOWARD E & MELISSA B T/C	140	DUDLEY RD	
81051 0006A	GANDHI DEVESH	147	DUDLEY RD	
81051 0006B	DJL DEVELOPMENT DUDLEY LLC	157	DUDLEY RD	
82004 0028	CAMIEL DANIELLE N	160	DUDLEY RD	
81051 0007	SCHULLER GUNTHER A TR	167	DUDLEY RD	
82004 0027	BURDICK LALOR & PATRICIA N	180	DUDLEY RD	
81051 0007A	ZAGORIANAKOS PETER	181	DUDLEY RD	
82004 0026	MOSKOW MICHAEL B & DONNA B	190	DUDLEY RD	
82004 0025	BUCKLER DOROTHEA J & SHELDON A TRS	200	DUDLEY RD	
81051 0009	DROOTIN IVAN & MARCIA T/C	229	DUDLEY RD	
82004 0024	BENNETT MEREDITH A	230	DUDLEY RD	
82004 0022	KOZOL DAVID M	244	DUDLEY RD	
81051 0010	JEDREY CHRISTOPHER M & MICHELINE E	249	DUDLEY RD	
81051 0011	DOSORETZ VICTOR J	275	DUDLEY RD	
81051 0015	KRAFT JOSHUA M & CAROLYN U	295	DUDLEY RD	
82004 0019K	AVRAS VICTORIA L & GENNADY	320	DUDLEY RD	
81051 0016	ROSENBLATT ANN S TR	331	DUDLEY RD	
82004 0019J	SHAW DAVID M & PAIGE	16	FARINA RD	
82004 0019H	GREENBERG ROBERT & MARJORIE	24	FARINA RD	
82004 0019G	KILLIAN RONALD S & CAROL A	34	FARINA RD	
82004 0019F	WONG DAVID T & JOYCE TRS	44	FARINA RD	
82004 0019E	MARKS JAMES S & LAURA S	50	FARINA RD	
81006 0004	BERMAN PHYLLIS E	15	FOX HILL RD	
81006 0005	LEWIS CRAIG A	23	FOX HILL RD	
81006 0006	WORTH AMY K & ROBERT J TRS	31	FOX HILL RD	
81006 0007	LINKOV ALEXANDER	37	FOX HILL RD	
81006 0008	CASLER DOROTHY MAE TR	45	FOX HILL RD	
81051 0018	TWENTY-NINE GREENWOOD LLC		GREENWOOD ST	
81051 0014	MOSKOW MICHAEL B TR		GREENWOOD ST	
81051 0019	MOSKOW MICHAEL B TR		GREENWOOD ST	
81051 0017	TWENTY-NINE GREENWOOD LLC	29	GREENWOOD ST	
82009 0020	ASH PAUL B & BEVERLY	48	GREENWOOD ST	
82009 0019	SPIVAK GENE & RITA	56	GREENWOOD ST	
82009 0018	SHAHRAZ SAEID	66	GREENWOOD ST	
82009 0017	SCHNEIDER CRAIG D & TAMAR K	74	GREENWOOD ST	
82009 0016	SADEGH MARJAN	82	GREENWOOD ST	
81051 0020	BIKOFSKY DAVID R & KAREN S	83	GREENWOOD ST	
82009 0015	SHIVEK LOUISE	90	GREENWOOD ST	
81003 0006	LINSKY MARK	5	HARTMAN RD	
81005 0014	WU TIEN-MU & JIA-RONG	8	HARTMAN RD	
81003 0007	MASTROPIERI ROCCO & JOANNA I	15	HARTMAN RD	
81005 0015	GOLDSTEIN ANDREW K & SUSAN C	16	HARTMAN RD	
81005 0016	KUSSELL MAURICE LANCE	24	HARTMAN RD	
81005 0017	SINGH MICHAEL N	30	HARTMAN RD	
81005 0018	ELMALEH DAVID R	38	HARTMAN RD	
81004 0002	ROCNICK JENNIFER L & EDWARD F	45	HARTMAN RD	
81005 0019	PERRY BLAINE C & HELEN S	50	HARTMAN RD	
81004 0003	HUTTER JEFFREY W & KATHLEEN	51	HARTMAN RD	
81005 0033	CHAN WAI HON PHILIP	37	LEVBERT RD	
81005 0045	SHAFER LINDA C	38	LEVBERT RD	

SBL	Owner	Number	Street	Unit
81005 0032	PERRIN SCOTT D	43	LEVBERT RD	
81005 0031	ROSENGARD JEANNE R	51	LEVBERT RD	
81005 0030	TAPPER MARILYN L/E	57	LEVBERT RD	
81005 0044	JAFF DEBRA & MICHAEL	60	LEVBERT RD	
81005 0029	ARON DORIS E & ROBERT TRS	65	LEVBERT RD	
81005 0043	FINN ROSALYN S	68	LEVBERT RD	
81005 0028	73 LEVBERT LLC	73	LEVBERT RD	
81005 0027	CHANDOK DHARMENDER	77	LEVBERT RD	
81005 0026	HECHT ARLENE D	87	LEVBERT RD	
81051 0040	SAMSON PAUL S & JUDITH L	45	LITTLEFIELD RD	
81005 0004	LEVIN RICHARD D & JANICE B	48	LITTLEFIELD RD	
81051 0041	SIAGEL STEVEN A & CYNTHIA J TRS	53	LITTLEFIELD RD	
81005 0005	INSOFT ROBERT M	56	LITTLEFIELD RD	
81051 0042	SAGE WILLIAM & MARCI	59	LITTLEFIELD RD	
81005 0006	FISHMAN DONALD A & JOYCE A	68	LITTLEFIELD RD	
81051 0043	SEGAL MAX	75	LITTLEFIELD RD	
81005 0007	LEE ROBERT & DONNA	76	LITTLEFIELD RD	
81051 0044	RAMADURAI MURALI & SUJATHA M	83	LITTLEFIELD RD	
81005 0008	LEE CHAO-MIN	84	LITTLEFIELD RD	
81051 0045	HOFFMAN STEVEN L & SALLY L TR	91	LITTLEFIELD RD	
81005 0009	MOSYAK ALEXANDER & LIDIA	92	LITTLEFIELD RD	
81051 0045A	LOCHEN ERLEND	99	LITTLEFIELD RD	
81005 0010	ALLEN SUSAN D	100	LITTLEFIELD RD	
81005 0013	DEZUBE ESTHER C S & BRUCE	109	MEADOWBROOK RD	
81005 0012	AU ALISON Y TR	115	MEADOWBROOK RD	
81006 0003	SOLOWSKY NANCY H	118	MEADOWBROOK RD	
82004 0011	JALINOUS LEILA	60	NARDELL RD	
82004 0010	MICHEL YURY	66	NARDELL RD	
82004 0009	GAZIT YUVAL	72	NARDELL RD	
82004 0008	UPNEJA ARUN & ANURADHA	80	NARDELL RD	
82004 0007	ABRAMOWITZ ELAINE M TR	88	NARDELL RD	
82004 0006	POST CYNTHIA H	96	NARDELL RD	
81051 0053	WANG ZHENRONG	60	PARKER TER	
81011A0011	BARGAR THELMA F TR	5	SHARPE RD	
81006 0012	CHEN JUNG-MING & SHU-YUAN TRS	8	SHARPE RD	
81006 0011	RHEE EDDIE & KATHERINE	16	SHARPE RD	
81006 0010	METAXAS DONNA & NICHOLAS	22	SHARPE RD	
81051 0008A	HERMAN DENNIS A & CECILE S TRS	7	STONEWOOD DR	
81051 0008B	KOGAN IRINA	10	STONEWOOD DR	
81051 0008	DIARBAKERLY JANET	20	STONEWOOD DR	
81004 0001	SHNAYDER MIKHAIL	4	VILLAGE CIR	
81003 0008	MEURER MICHAEL J	5	VILLAGE CIR	
81011A0025	SHI GUO-PING	5	VOSS TER	
81011A0013	HOLLOWELL ROBERT P III	10	VOSS TER	
81050 0013	VAN VREDEN MONICA A	58	WHEELER RD	
81011A0012	REGELMAN YAKOV & LYUBOV	79	WHEELER RD	
81051 0029A	BOVARNICK JAY TR	15	WINSTON RD	
81051 0022K	GOODSTEIN SHERRI F	20	WINSTON RD	
81051 0047A	BAMEL JON	28	WINSTON RD	
81051 0022J	WILCOX SARAH W	30	WINSTON RD	

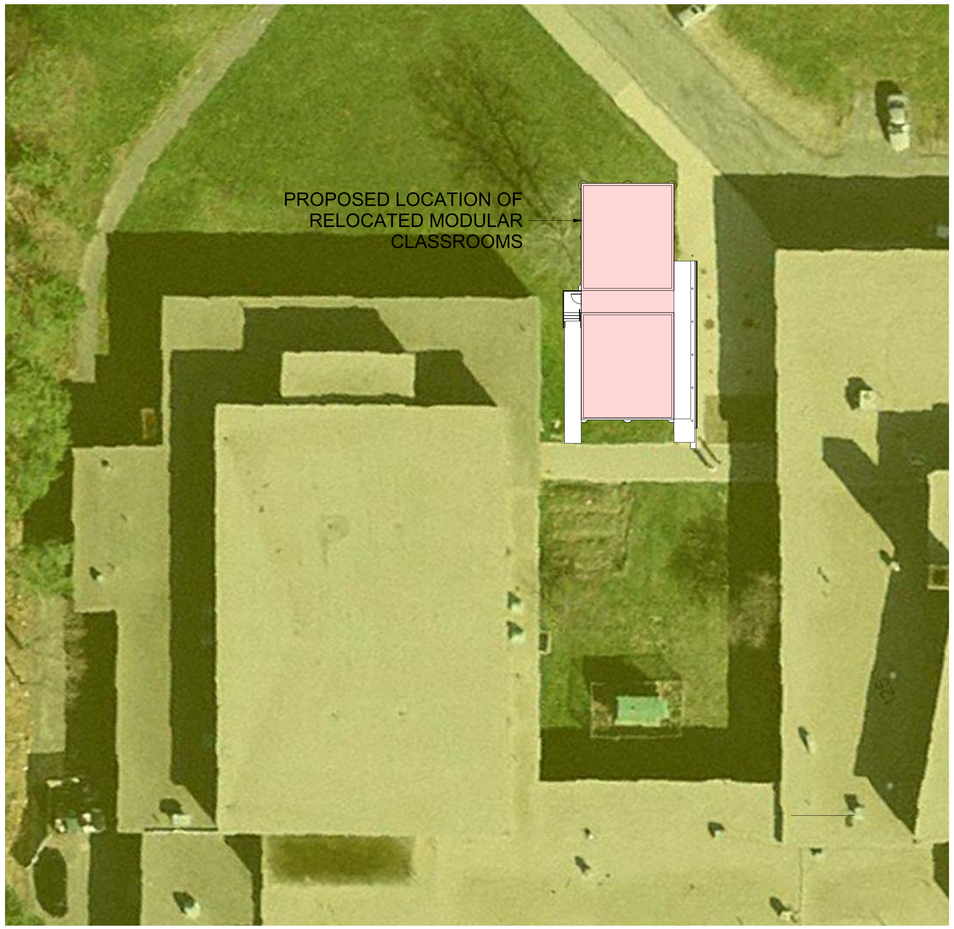
SBL	Owner	Number	Street	Unit
81051 0022H	EMANI SIRISHA & SLTARAM M	38	WINSTON RD	
81051 0022G	GORDON ANGELA & WILLIAM	46	WINSTON RD	
81051 0022F	RABB MICHAEL	54	WINSTON RD	
81051 0028A	FRANKEL TAMAR	61	WINSTON RD	
81051 0022E	BOVARNICK JON & JILL D	62	WINSTON RD	
81051 0028	GORELIK LEONID	69	WINSTON RD	
81051 0022D	SCHNEIDER ARLYN B	70	WINSTON RD	
81051 0024	ALLABADI BABAK	77	WINSTON RD	
81051 0022C	EHRENFRIED JOSHUA H & DAHLIA B	78	WINSTON RD	
81051 0024A	PILLAY SRINIVASAN S	83	WINSTON RD	
81051 0022B	ELBERT MICHAEL ARON & GALINA TR	86	WINSTON RD	
81051 0022	THEALL MATTHEW D & KATHY P	91	WINSTON RD	
81051 0022A	TURETSKY MARSHA K	94	WINSTON RD	

MODULAR CLASSROOMS AT

BROWN MIDDLE SCHOOL

125 MEADOWBROOK RD, NEWTON MA

REVIEW SET
AUGUST 25, 2016



LOCATION PLAN **NO SCALE**

RAYMOND DESIGN ASSOCIATES, INC. • ARCHITECT

60 LEDGEWOOD PLACE, ROCKLAND, MA 02370 TEL: 781. 421. 3480

MEPFP ENGINEERS:
WOZNY / BARBAR & ASSOCIATES, INC.
CONSULTING ENGINEERS
1076 WASHINGTON STREET
HANOVER MA 02339

DRAWING LIST

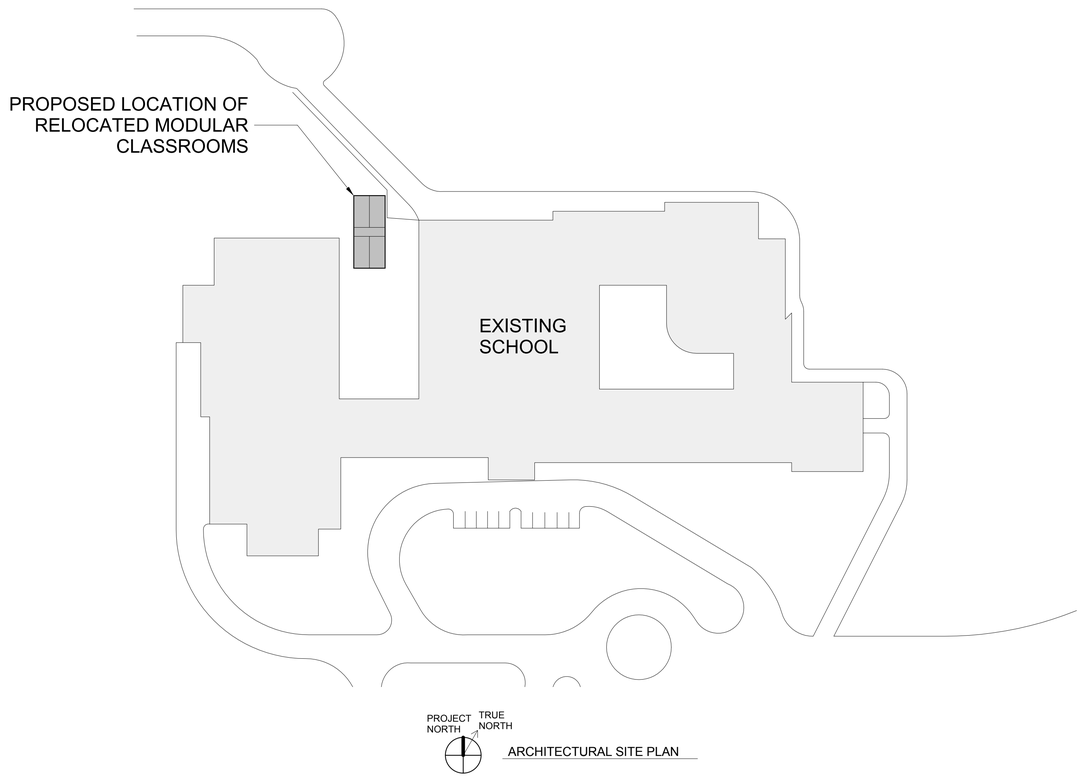
A0.00 COVER SHEET
A0.01 EXISTING SITE PLAN & PHOTOS
A0.02 DEMOLITION PLAN & ELEVATIONS
A0.03 MSBC - FIRE PROTECTION - OPENING ANALYSIS
A1.00 FOUNDATION PLAN - FLOOR PLAN
A1.01 REFLECTED CEILING PLAN - ROOF PLAN - ENLARGED PARTIAL FLOOR PLAN
A3.00 ELEVATIONS
A4.00 BUILDING SECTIONS
A4.10 WALL SECTIONS
A4.11 WALL SECTIONS
A4.20 SECTION DETAILS - PLAN DETAILS
A5.01 SPECIFICATIONS
A5.02 SPECIFICATIONS
A6.01 FRAMING PLANS

S0.01 GENERAL NOTES
S0.02 TYPICAL DETAILS
S1.01 FIRST FLOOR FOUNDATION PLAN

P1.00 LEGEND, NOTES & PLANS

E0.01 LEGEND, NOTES & ABBREVIATIONS
E0.02 ELECTRICAL SITE PLAN
E1.01 LIGHTING PLAN
E1.02 POWER PLAN
E1.03 FIRE ALARM PLAN
E1.04 ELECTRICAL SPECIFICATIONS

M0.0 MECHANICAL LEGEND, SYMBOLS, GENERAL NOTES & DETAILS
M1.0 MECHANCIAL FLOOR PLAN & ROOF PLAN



ARCHITECTURAL SITE PLAN

REVIEW SET
AUGUST 25, 2016

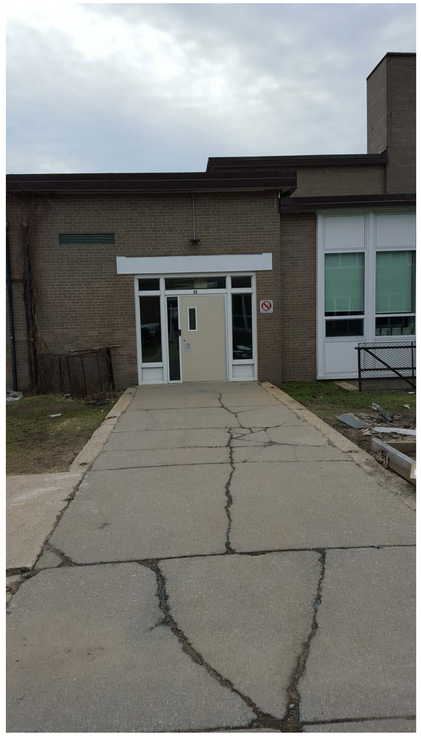
MODULAR CLASSROOMS AT
BROWN MIDDLE SCHOOL
125 MEADOWBROOK RD, NEWTON MA

6 EXISTING COURTYARD LOOKING SOUTH
(MODULAR SITE ON LAWN TO RIGHT)

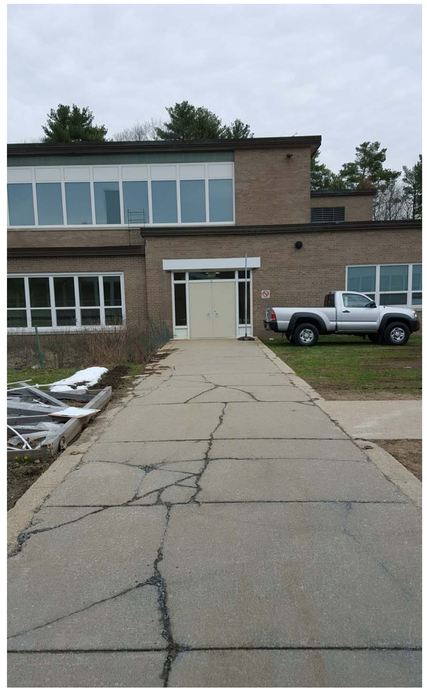
5 WEST FACADE - MODULAR SITE IN FOREGROUND

4 WEST FACADE - MODULAR SITE / ON GRASS

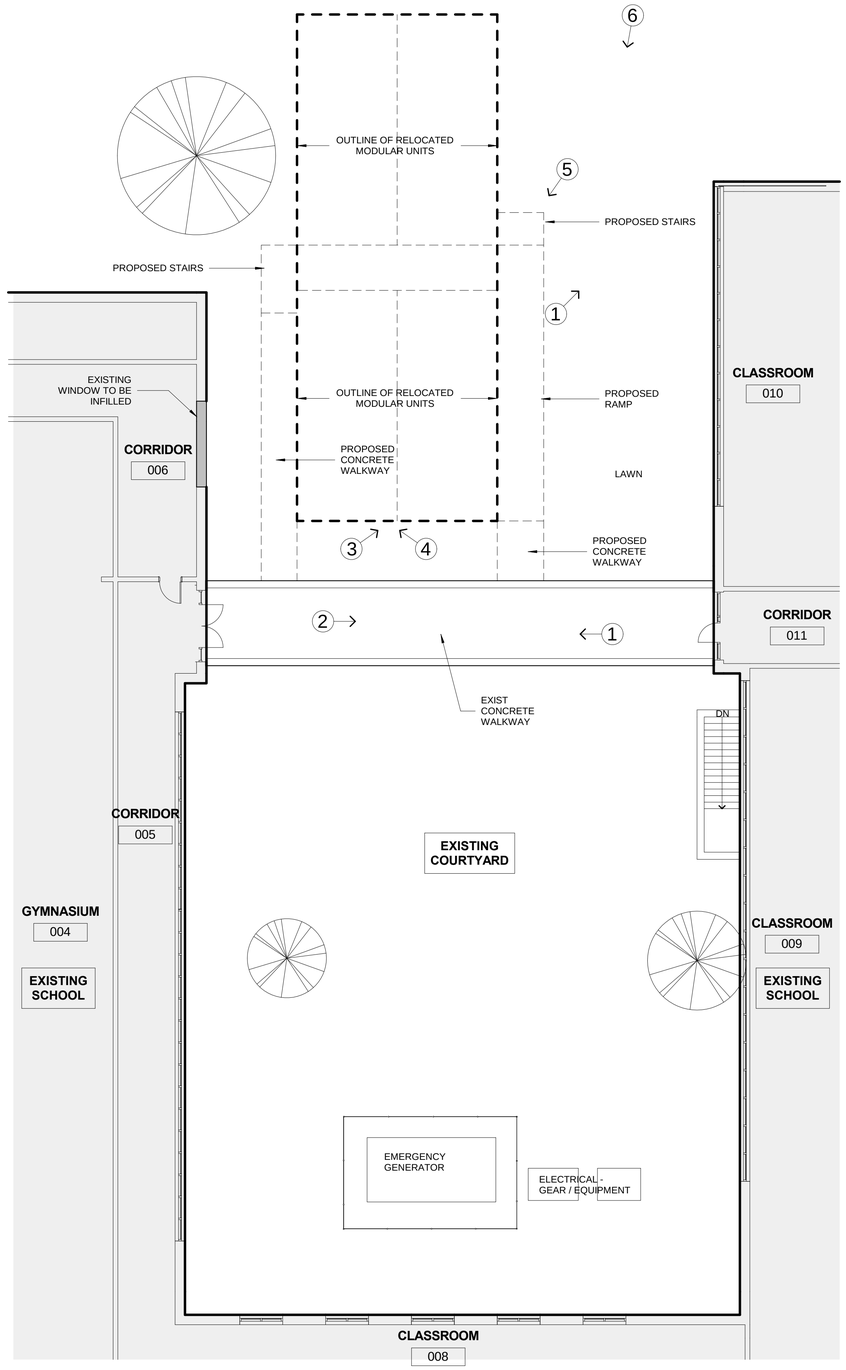
3 EXISTING OIL TANKS (FOREGROUND)
EXISTING MODULARS (BACKGROUND)



2 EXISTING WALKWAY & EAST FACADE



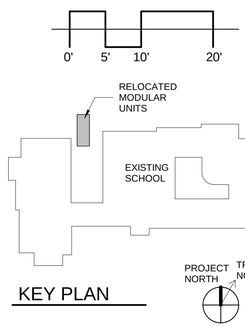
1 EXISTING WALKWAY & WEST FACADE



1 ARCHITECTURAL SITE PLAN
1" = 10'-0"

LEGEND

2 PHOTO KEY



KEY PLAN

RDA
Raymond Design Associates, Inc.
Architects & Planners
60 Ledgewood Place
Rockland, MA 02370

BROWN MIDDLE SCHOOL
125 MEADOWBROOK RD, NEWTON MA
EXISTING SITE PLAN & PHOTOS

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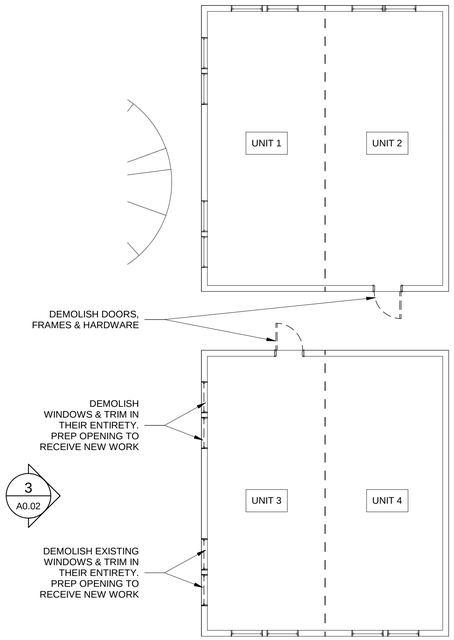
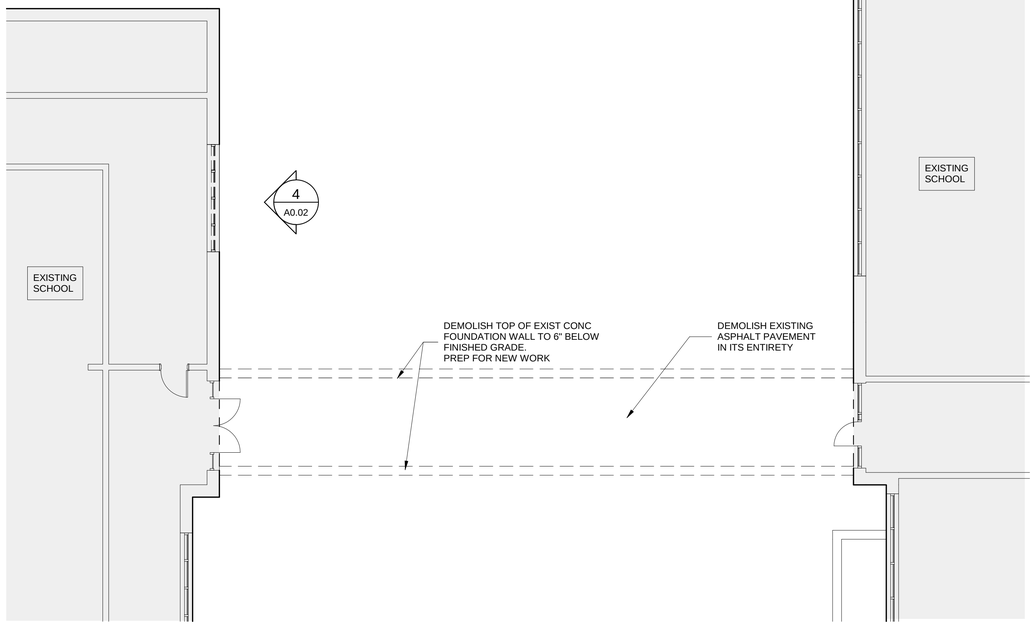
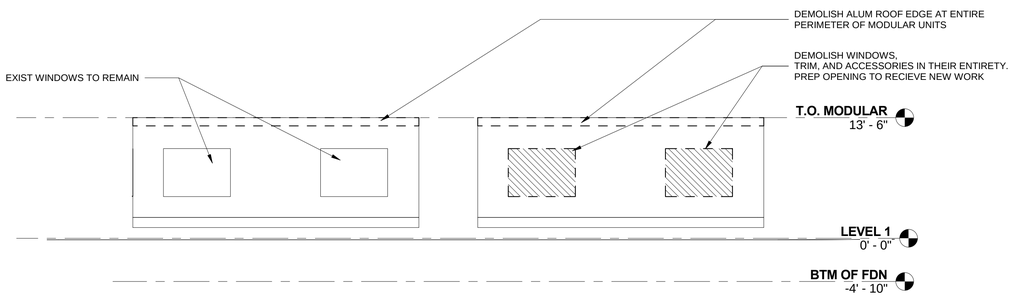
A0.01



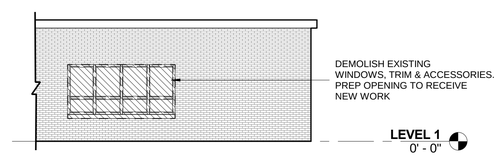
2 MODULAR UNITS PLAN - DEMOLITION
1/8" = 1'-0"



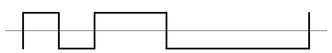
1 SITE PLAN - DEMOLITION
1/8" = 1'-0"

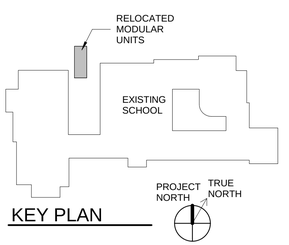


3 MODULAR UNITS ELEVATION - DEMOLITION
1/8" = 1'-0"



EXIST CLASSROOM ELEVATION - DEMOLITION
4 1/8" = 1'-0"





KEY PLAN

RDA
Raymond Design Associates, Inc.
Architects & Planners
60 Ledgewood Place
Rockland, MA 02370

BROWN MIDDLE SCHOOL
125 MEADOWBROOK RD, NEWTON MA
DEMOLITION PLANS & ELEVATIONS

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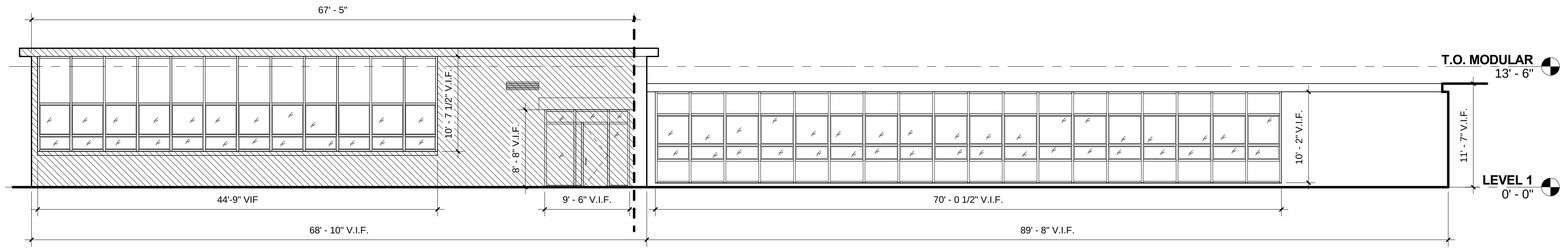
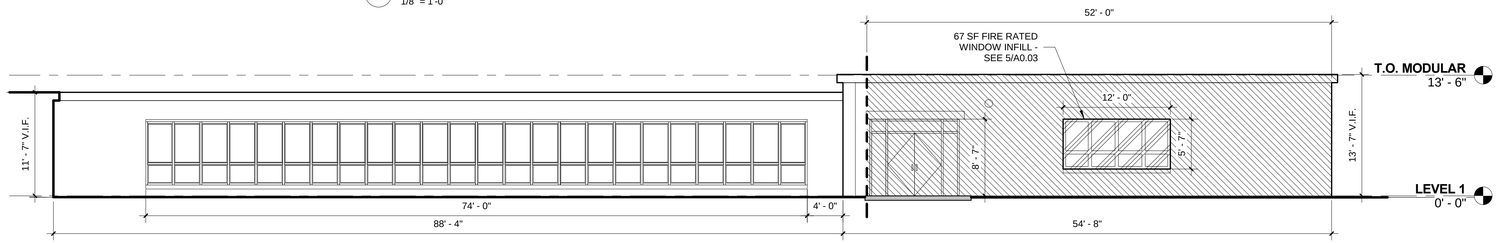
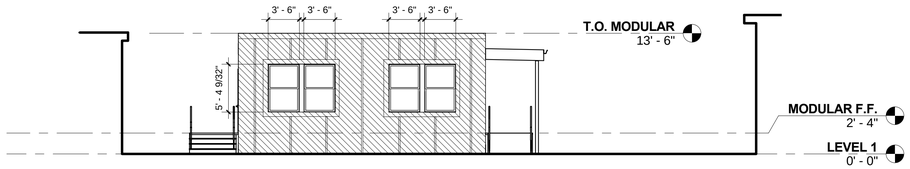


1 EAST ELEVATION - EXISTING BUILDING
1/8" = 1'-0"



2 WEST ELEVATION - EXISTING BUILDING
1/8" = 1'-0"



3 MODULAR UNIT - SOUTH ELEVATION
1/8" = 1'-0"

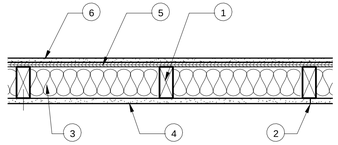
ANALYZED AREA

OPENING REDUCTION REQUIRED

OPENING ANALYSIS					
ELEVATION	WALL AREA	EXISTING OPN'G	DISTANCE TO P.L.	ALLOWED OPNG	ACTION REQ.
1/A0.03	1048 sq.ft	557 sq.ft	>30'	UNLIMITED	N/A
2/A0.03	706 sq.ft	153 sq.ft	10' TO <15'	15% = 105.9 SF	REDUCE OPN'G BY 47 sq.ft
3/A0.03	309 sq.ft	80 sq.ft	>20' TO <25'	45% = 139.05 SF	N/A

TABLE 602
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE[a, e]

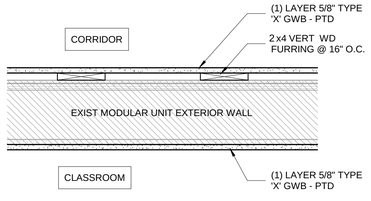
FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H[f]	OCCUPANCY GROUP F-1, M, S-1[g]	OCCUPANCY GROUP A, B, E, F-2, I, R, S-2[g], U[b]
X < 5[c]	All	3	2	1
5 ≤ X <10	IA Others	3 2	2 1	1 1
10 ≤ X < 30	IA, IB IIB, VB Others	2 1 1	1 0 1	1[d] 0 1[d]
X ≥ 30	All	0	0	0



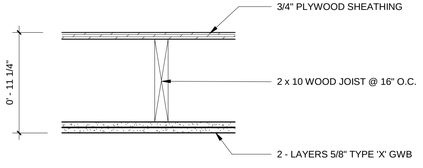
1HR RATED EXTERIOR WALL - UL DESIGN 303 (1)

1. 2x6 WOOD STUDS @ 16" O.C.
2. JOINTS FINISHED / VENEER PLASTER OPTIONAL
3. R-21 BATT INSULATION
4. 1 LAYER 5/8" THK TYPE 'X' GYPSUM BOARD
5. 15/32" EXT PLYWOOD SHEATHING
6. CEMENT BOARD SIDING EXTERIOR

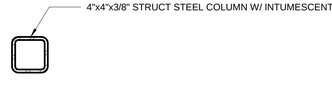
5 EXIST MODULAR UNIT EXT WALL ASSEMBLY & WALL TYPE 1
1 1/2" = 1'-0"



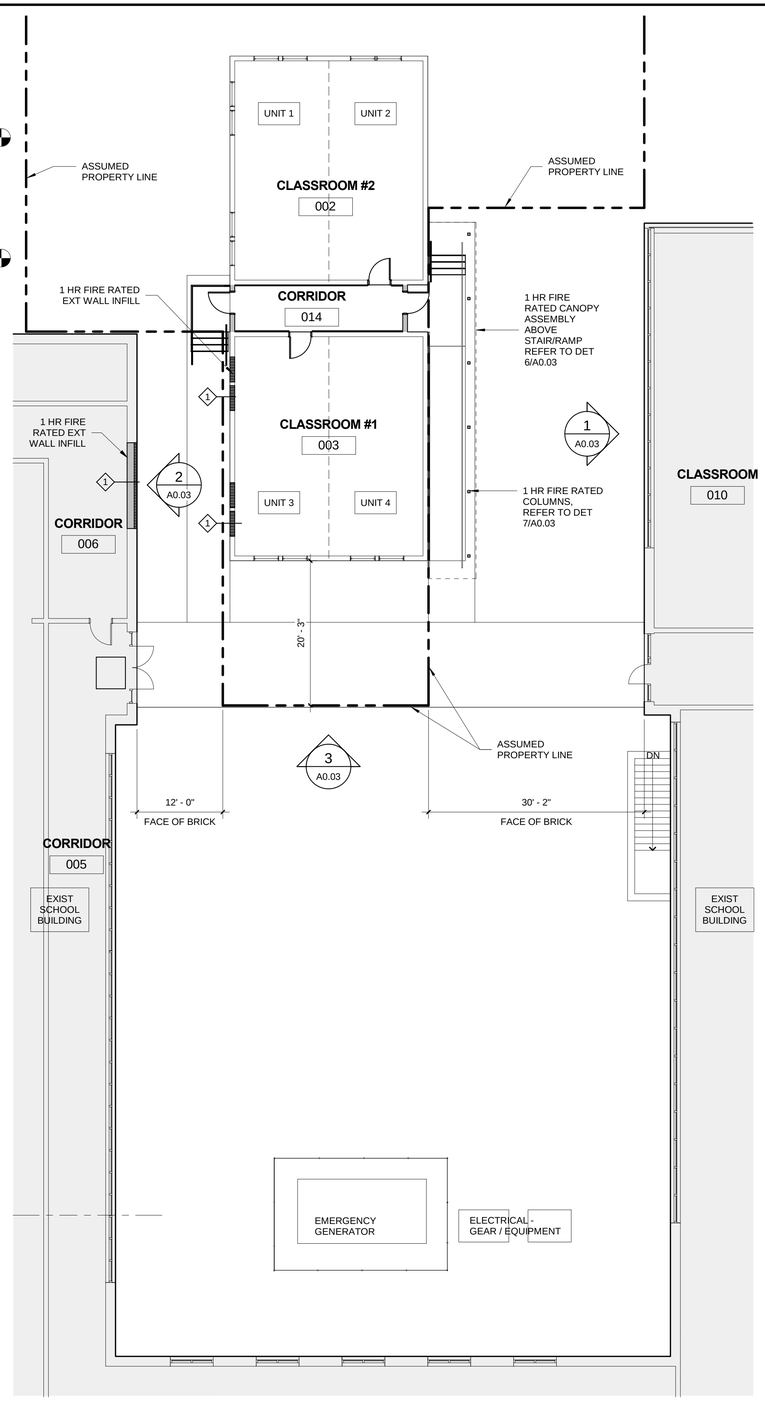
9 WALL TYPE 2
1 1/2" = 1'-0"



6 1 HR - ROOF ASSEMBLY - #GA FILE NO. RC-2601
1 1/2" = 1'-0"

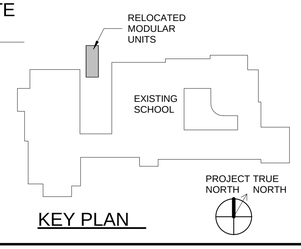


7 1 HR RATED - UL DESIGN X661 STEEL COLUMN W/ INTUMESCENT COATING
1 1/2" = 1'-0"



4 OPENING ANALYSIS - ARCHITECTURAL SITE PLAN
1" = 10'-0"

0' 5' 10' 20'



KEY PLAN

RDA
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Architects & Planners
60 Ledgewood Place
Rockland, MA 02370

BROWN MIDDLE SCHOOL
125 MEADOWBROOK RD, NEWTON MA
MSBC - FIRE PROTECTION - OPENING ANALYSIS

Revisions:

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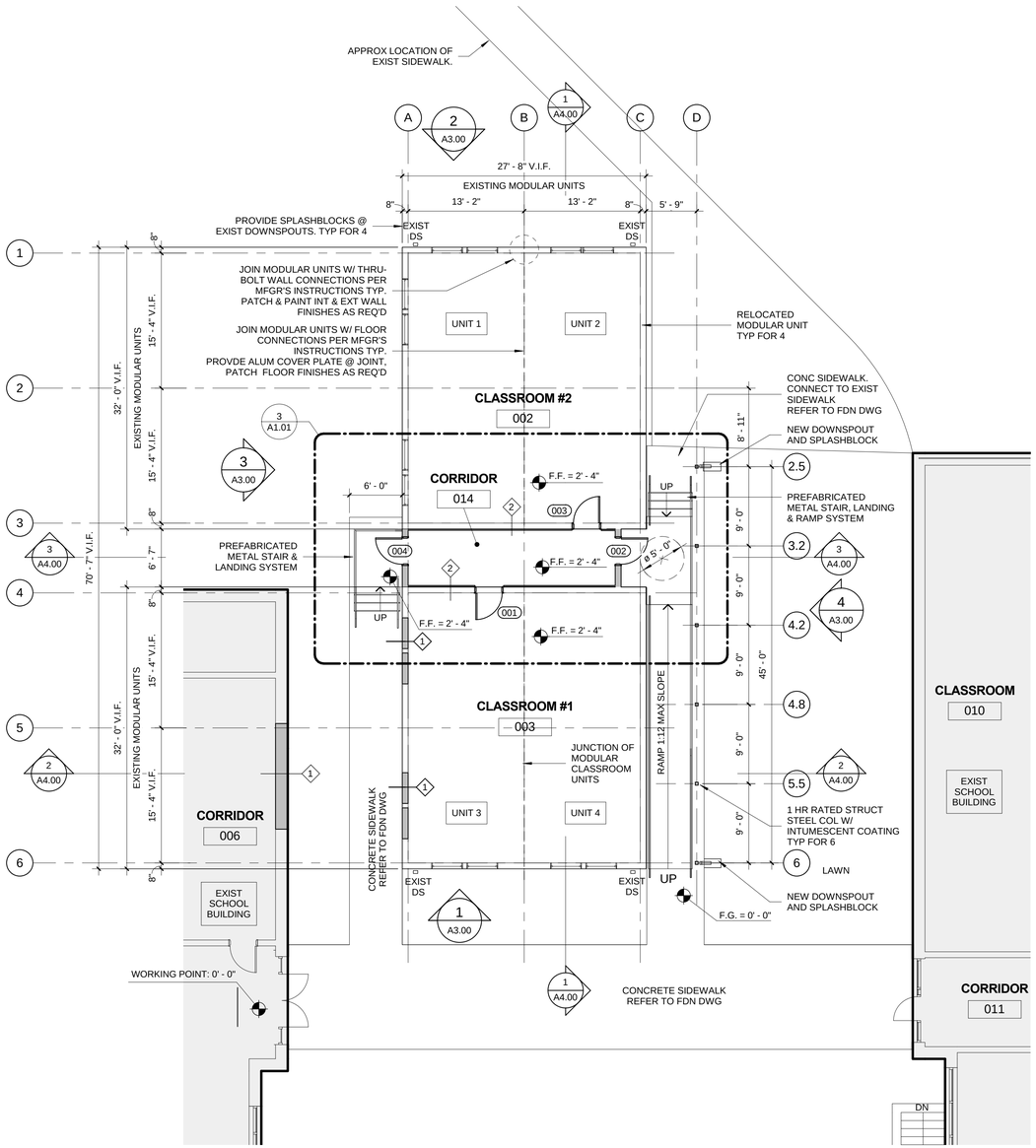
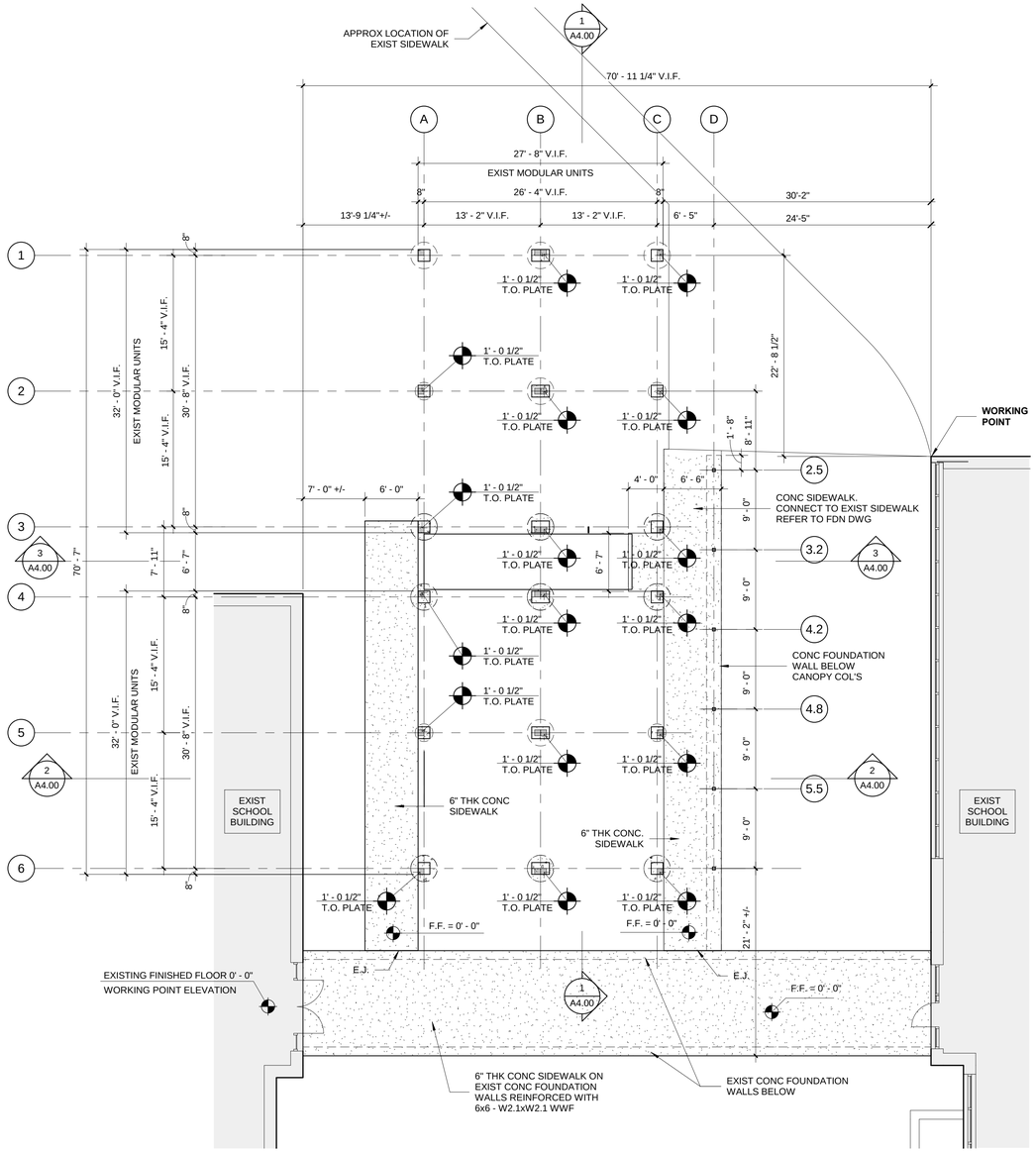
A0.03

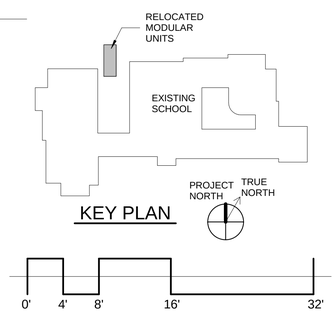


2 FLOOR PLAN
1/8" = 1'-0"



1 FOUNDATION PLAN
1/8" = 1'-0"

NOTE:
CONTRACTOR TO VERIFY HEIGHTS OF EXIST FINISHED FLOORS OF ADJACENT BUILDINGS



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BROWN MIDDLE SCHOOL
125 MEADOWBROOK RD, NEWTON MA
FOUNDATION PLAN & FLOOR PLAN

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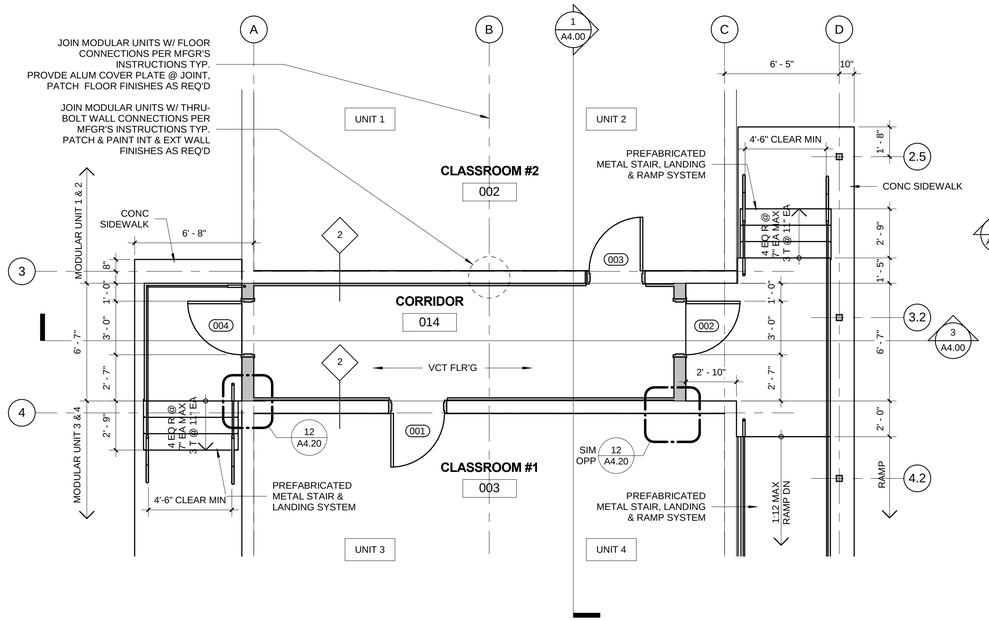
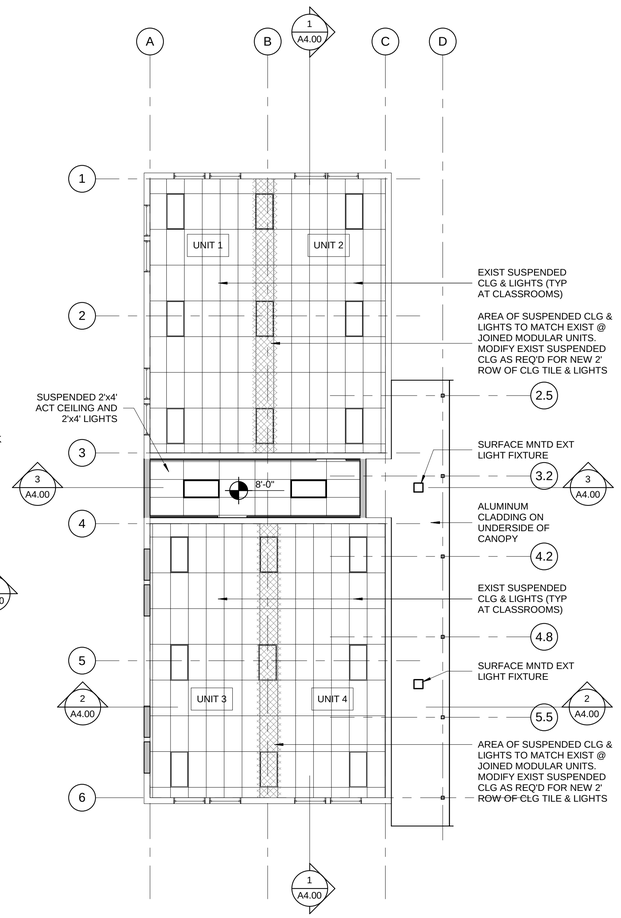
Date:	JULY 25, 2016

A1.00

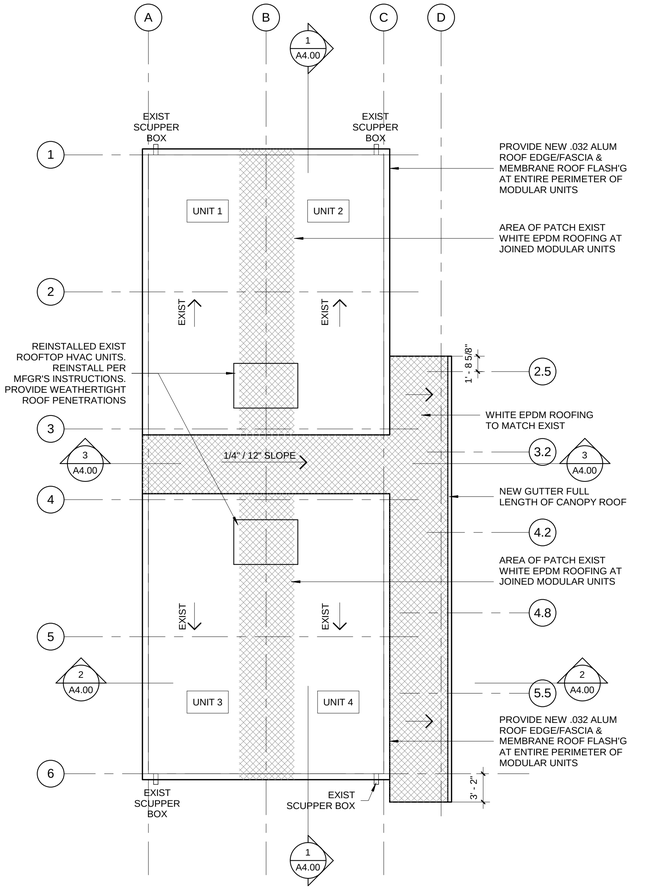
282-16



3 ENLARGED PARTIAL FLOOR PLAN
1/4" = 1'-0"



2 REFLECTED CEILING PLAN
1/8" = 1'-0"



1 ROOF PLAN
1/8" = 1'-0"

DOOR SCHEDULE

LOCATION			FRAME				DOOR							RATING	HARDWARE	NOTES
DOOR NO.	FROM ROOM	TO ROOM	MAT'L.	ELEV TYPE	DETAILS	FINISH	MAT'L	ELEV. TYPE		WIDTH	HEIGHT	THICK NESS	FINISH	UL LABEL	SET NUMBER	
MODULAR F.F.																
001	003	014	PM	A		PTD	HM	A	SGL	3' - 0"	7' - 0"	0' - 1 3/4"	TF	90 MIN	2	
002	014		PM	A		PTD	HM	A	SGL	3' - 0"	7' - 0"	0' - 1 3/4"	TF	90 MIN	1	1, 2
003	002	014	PM	A		PTD	HM	A	SGL	3' - 0"	7' - 0"	0' - 1 3/4"	TF	90 MIN	2	
004	014		PM	A		PTD	HM	A	SGL	3' - 0"	7' - 0"	0' - 1 3/4"	TF	90 MIN	1	1, 2

DOOR SCHEDULE NOTES:

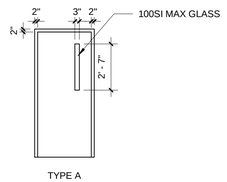
1. INSULATED DOOR
2. THERMALLY BROKEN FRAME

HARDWARE SETS:

1. DOOR CLOSER, EXIT DEVICE W/ LEVER TRIM, 1 1/2 PAIR HINGES, PROTECTION PLATES, WEATHERSTRIPPING, THRESHOLD
2. DOOR CLOSER, CYLINDRICAL LOCKSET W/ LEVER TRIM, 1 1/2 PAIR HINGES, PROTECTION PLATES, WALL/FLOOR STOPS

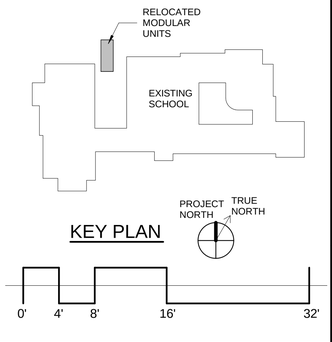
ABBREVIATIONS:

ELEV - ELEVATION HM - HOLLOW METAL MAT'L - MATERIAL MIN - MINUTES NO - NUMBER
PM - PRESSED METAL PTD - PAINTED SGL - SINGLE LEAF TF - TRANSPARENT FINISH



TYPE A

DOOR/FRAME TYPES 1/4" = 1'-0"



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BROWN MIDDLE SCHOOL
125 MEADOWBROOK RD, NEWTON MA
RCP - ROOF PLAN - ENLARGED FLOOR PLAN

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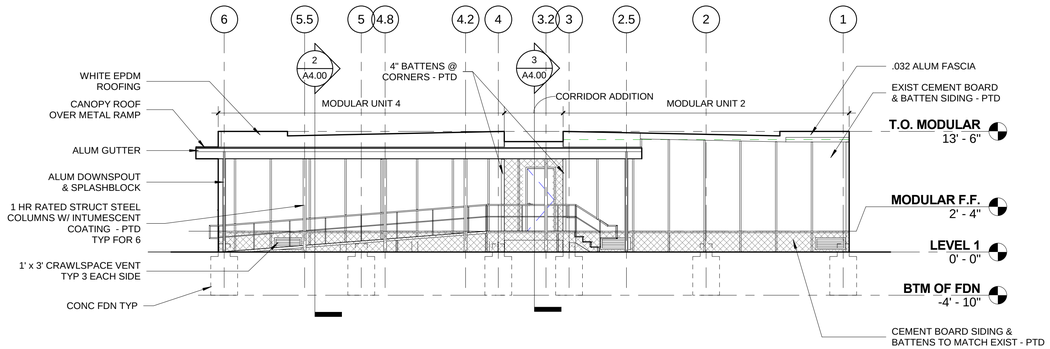
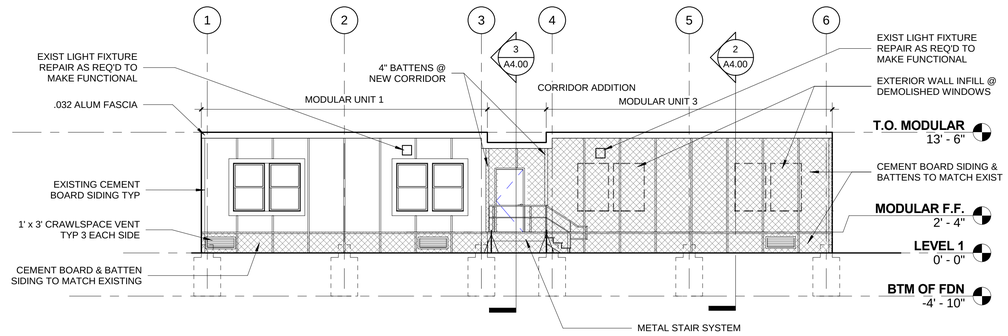
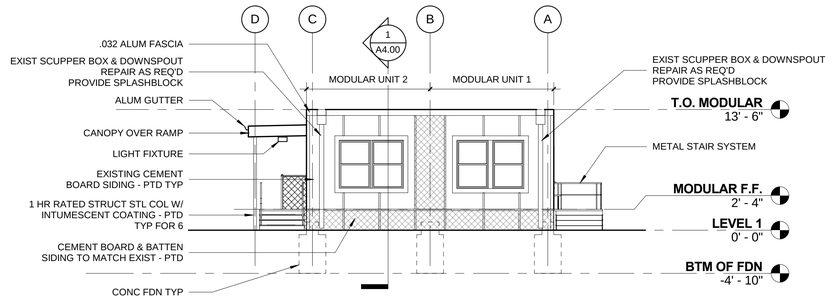


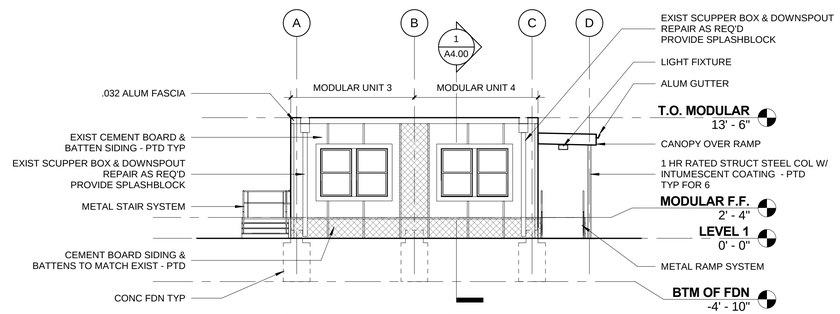
4 MODULAR BLDG - EAST ELEVATION
1/8" = 1'-0"



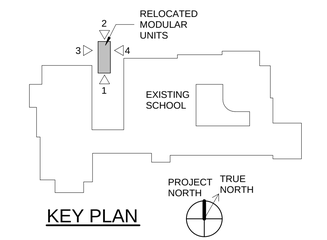
3 MODULAR BLDG - WEST ELEVATION
1/8" = 1'-0"



2 MODULAR BLDG - NORTH ELEVATION
1/8" = 1'-0"



1 MODULAR BLDG - SOUTH ELEVATION
1/8" = 1'-0"



KEY PLAN

0' 4' 8' 16' 32'

NOTE:
PAINT ALL EXIST & NEW CEMENT BOARD SIDING & BATTENS

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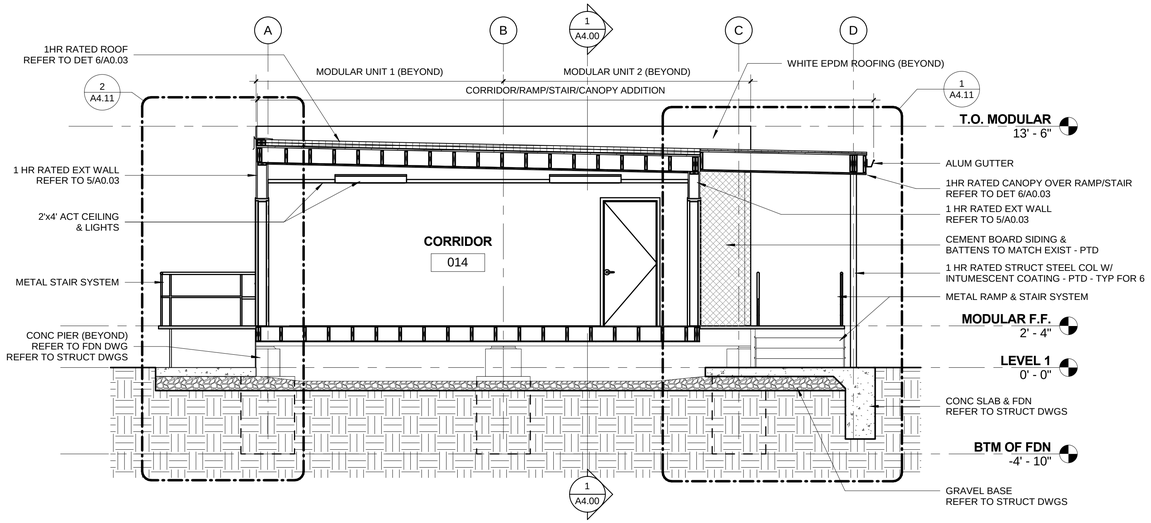
ELEVATIONS

Revisions:

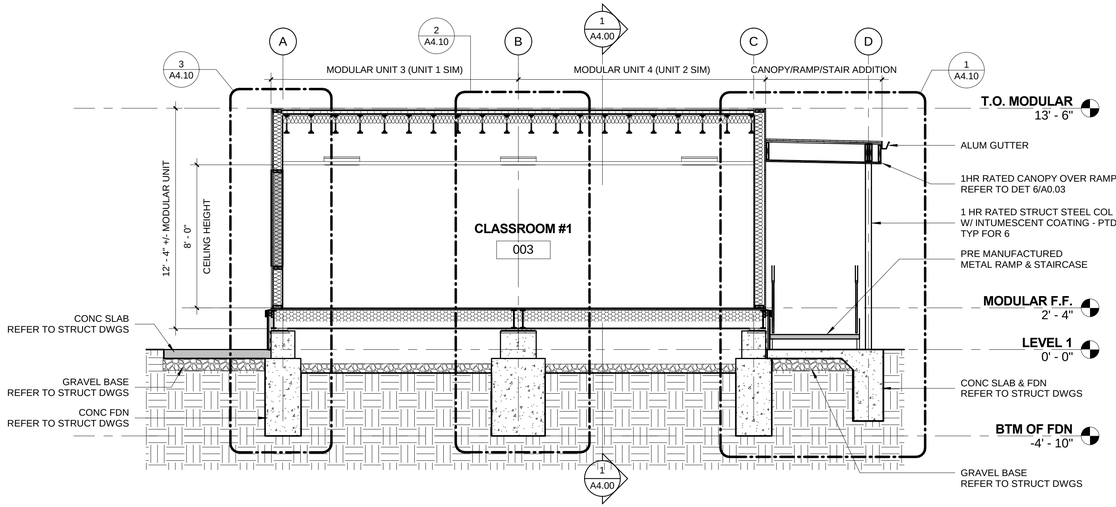
No.	Date	Description

Drawn By:	Author
Checked By:	Checker
Approved By:	Approver
Drawing Scale:	As indicated
Project Number:	Project Number
Date:	JULY 25, 2016

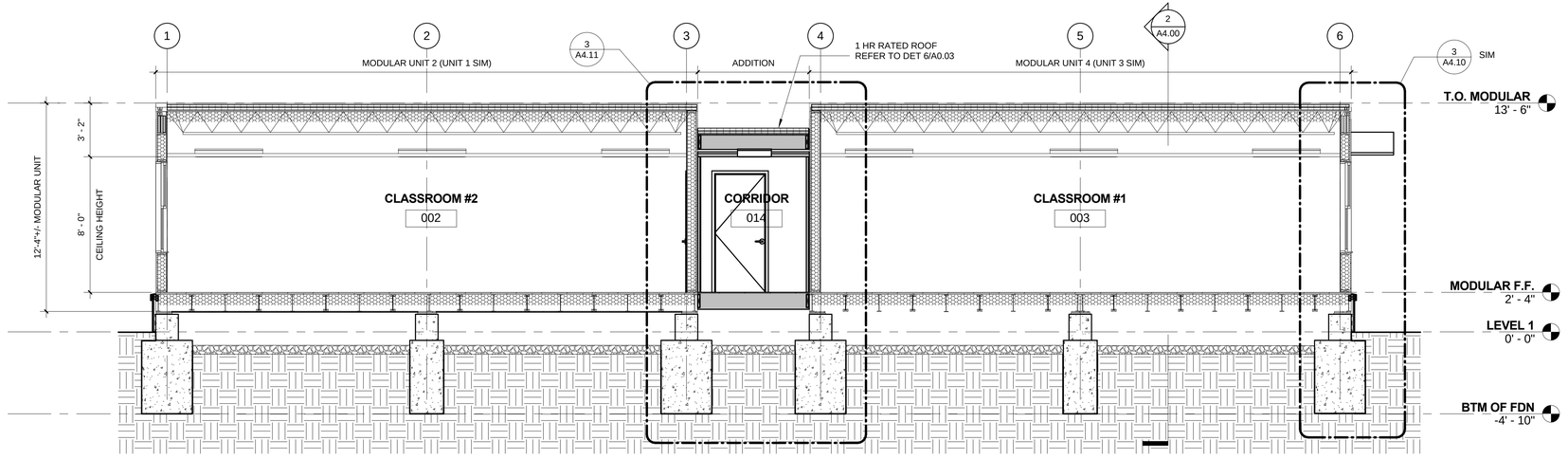
A3.00



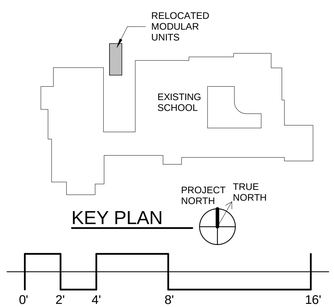
3 BUILDING SECTION @ CORRIDOR
1/4" = 1'-0"



2 BUILDING SECTION @ MODULAR UNITS
1/4" = 1'-0"



1 LONGITUDINAL SECTION
1/4" = 1'-0"



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BUILDING SECTIONS

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No.	Date	Description

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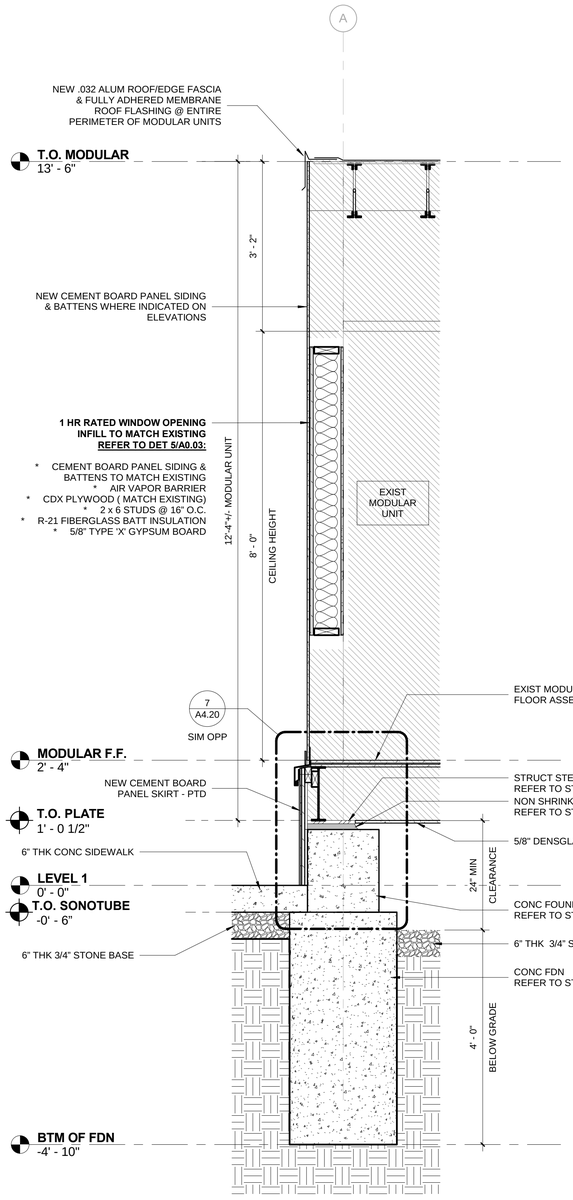
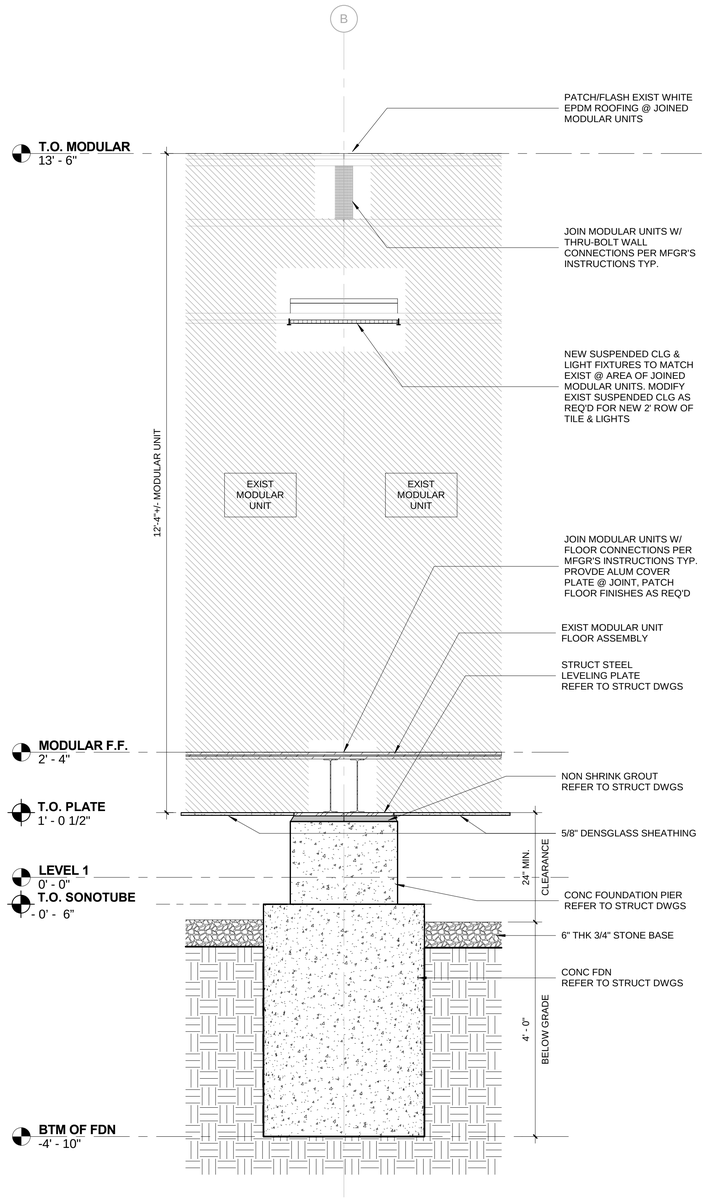
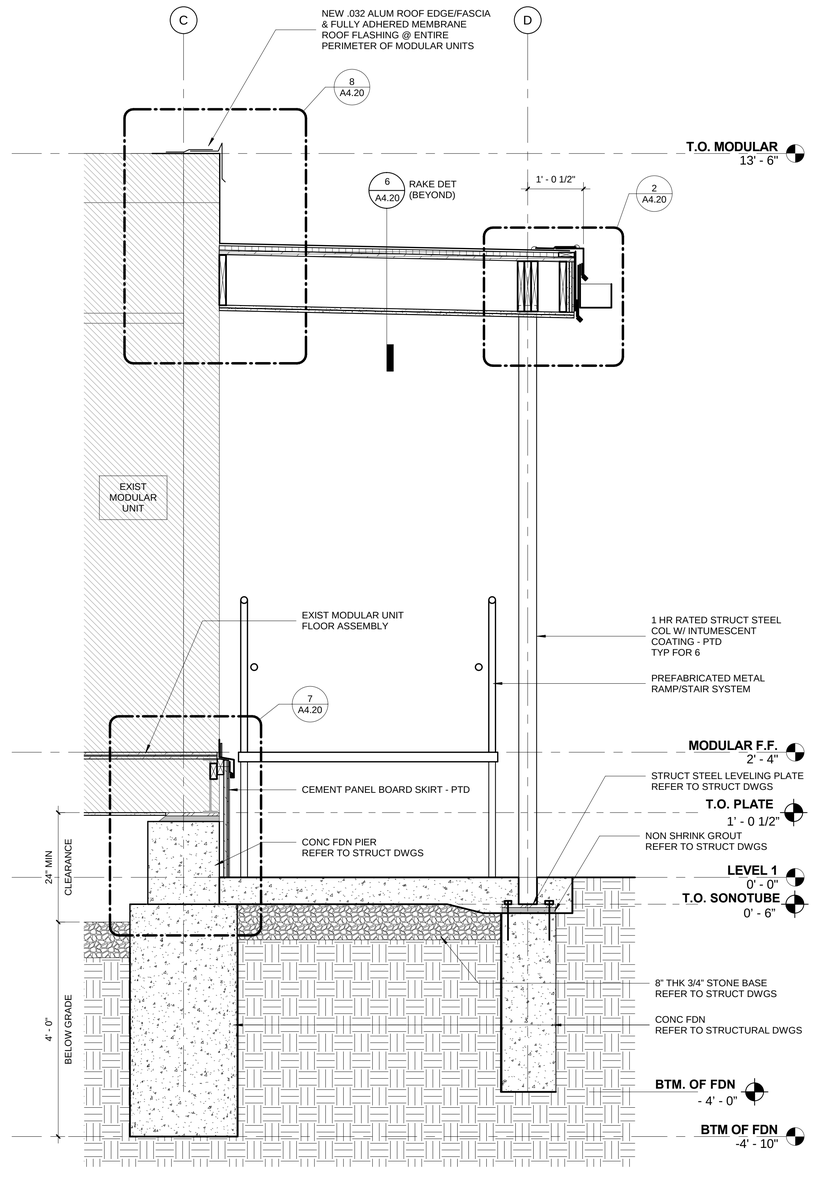
A4.00



3 WALL SECTION @ MODULAR UNIT
3/4" = 1'-0"



2 SECTION DETAIL @ CENTRAL PIER FDN
3/4" = 1'-0"



1 WALL SECTION @ CANOPY
3/4" = 1'-0"

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WALL SECTIONS

Revisions:

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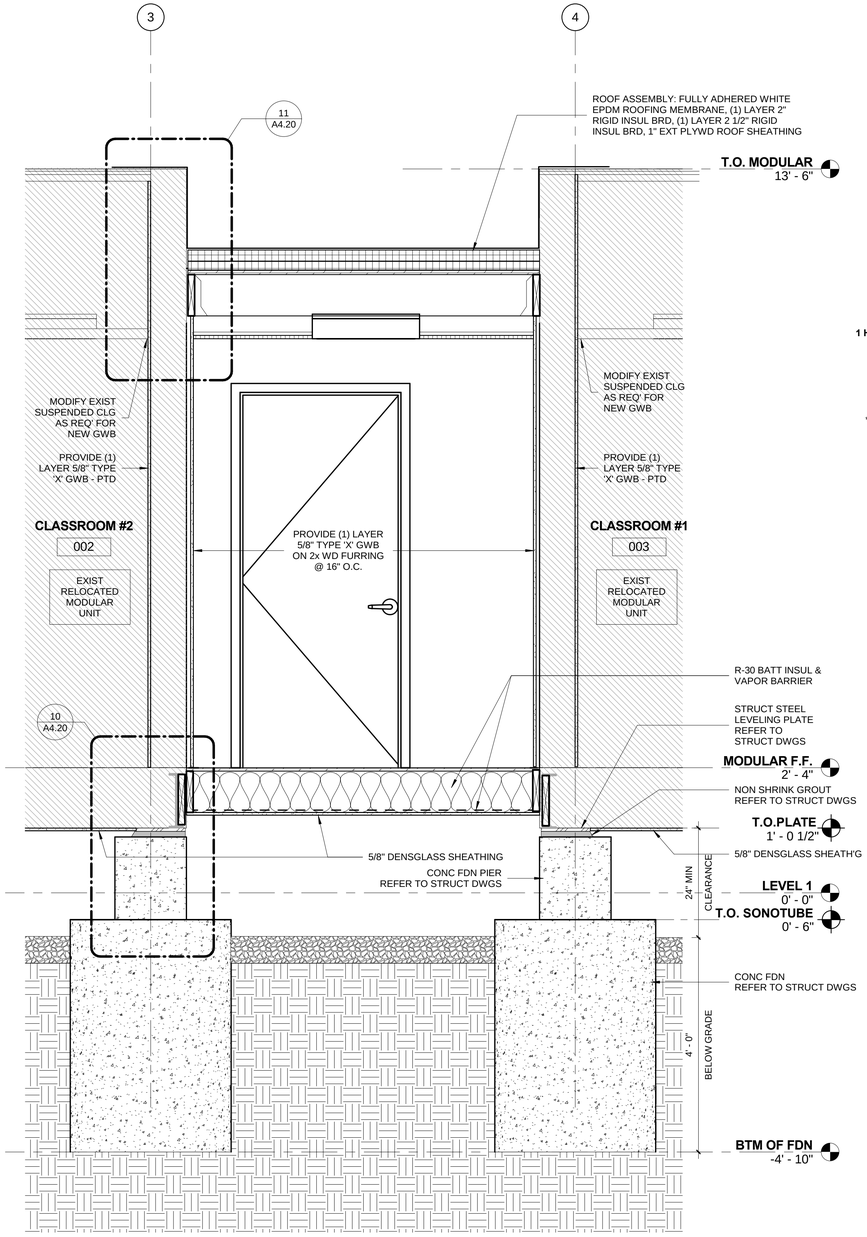
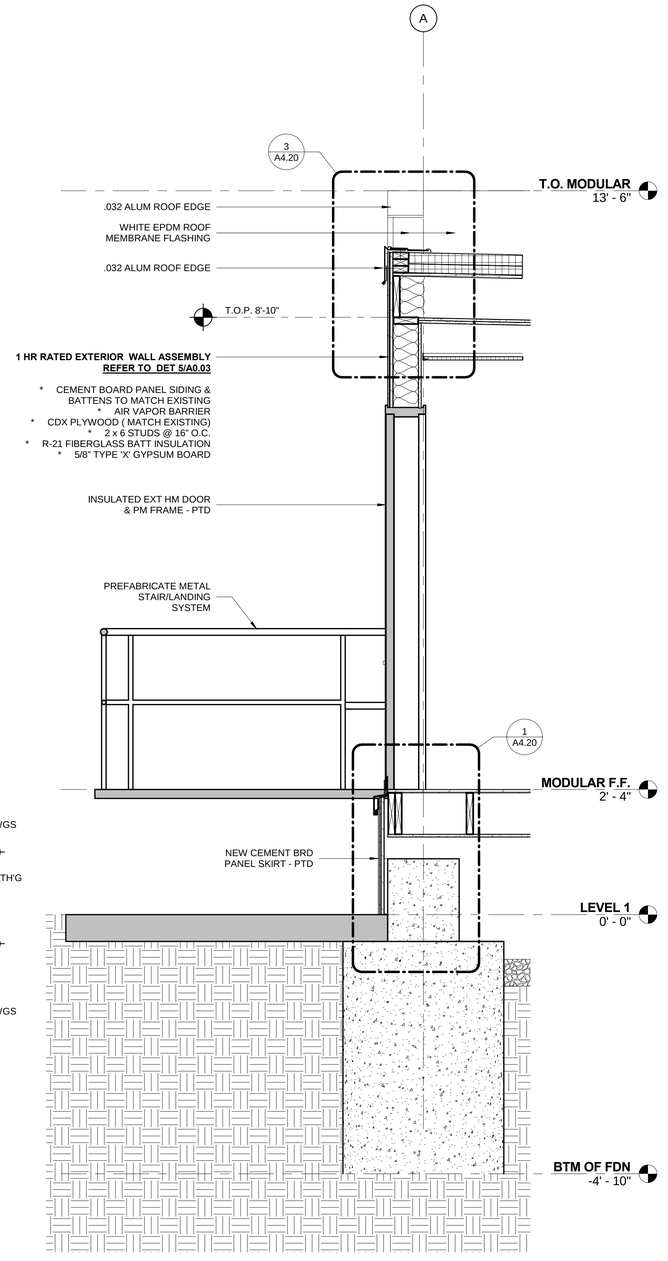
A4.10



3 WALL SECTION @ CORR ADDITION
3/4" = 1'-0"



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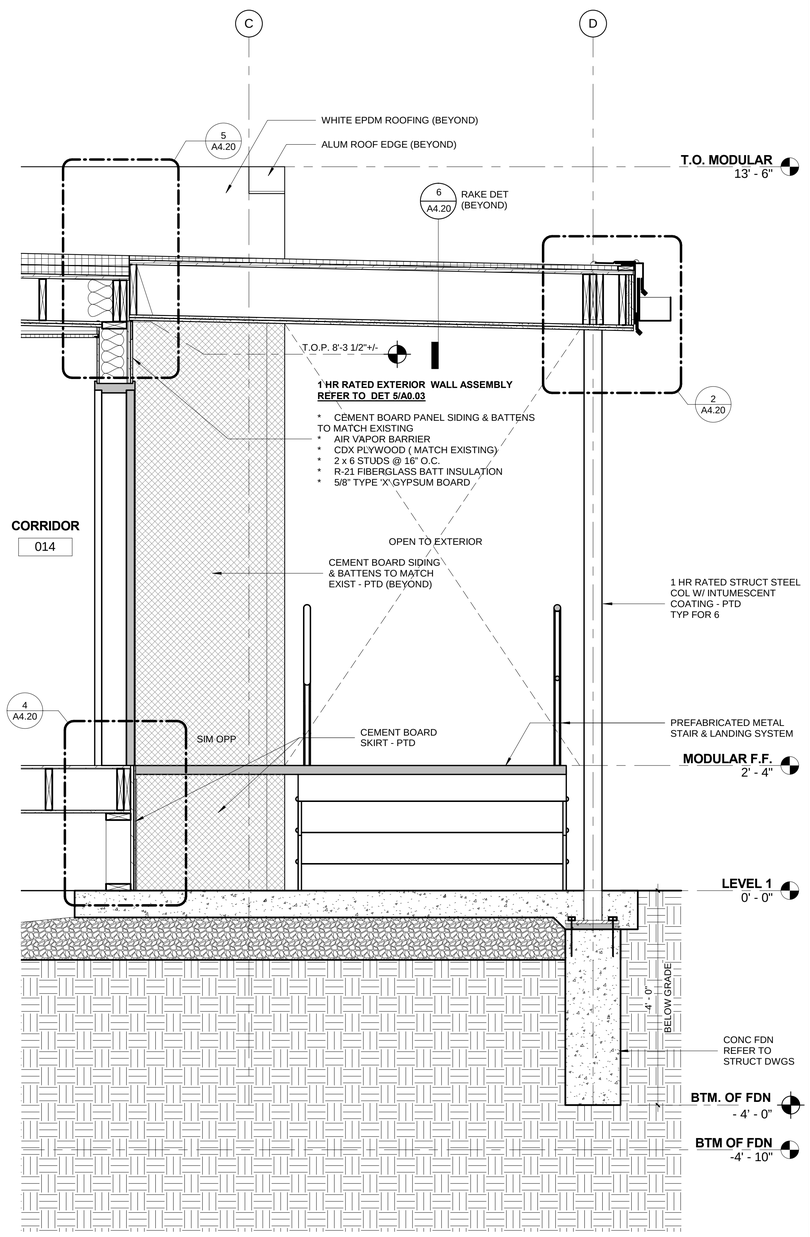
3/4" = 1'-0"



1 WALL SECTION @ CANOPY
3/4" = 1'-0"

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WALL SECTIONS

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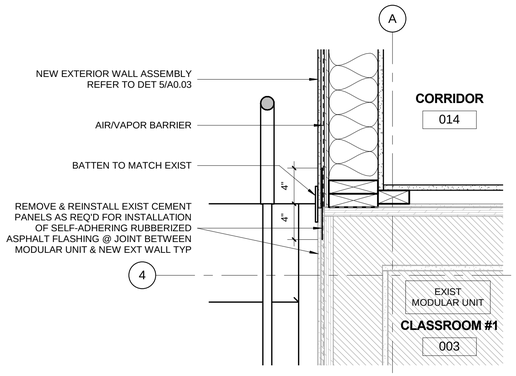
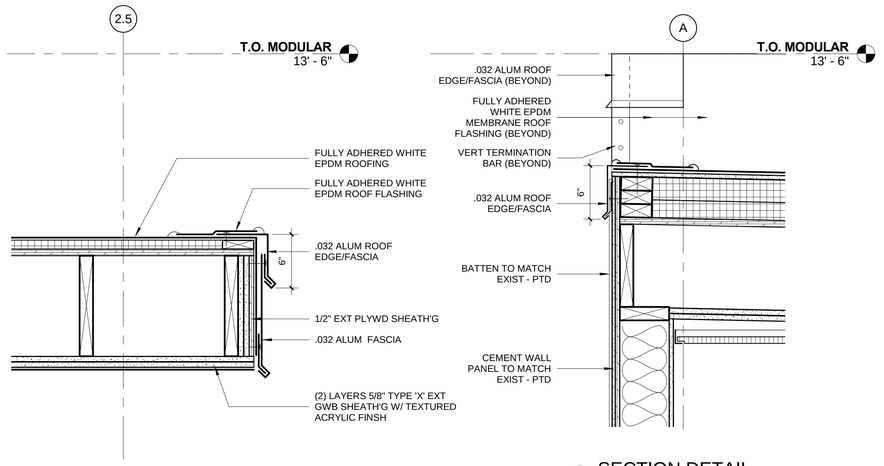
A4.11



12 PLAN DETAIL
1 1/2" = 1'-0"



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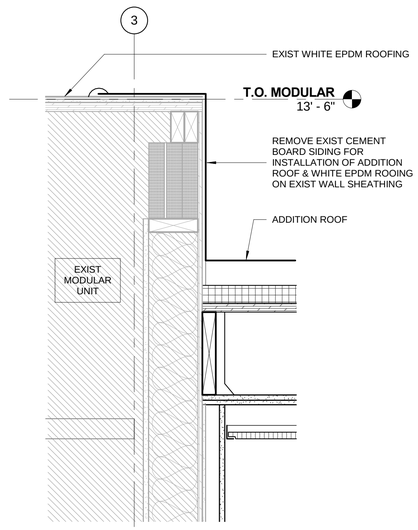
1 1/2" = 1'-0"



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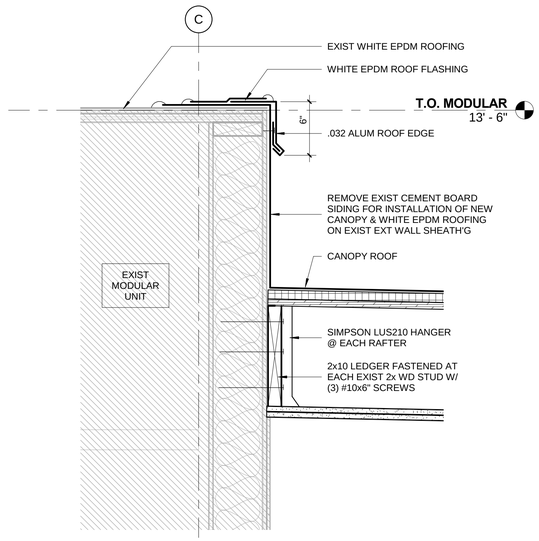
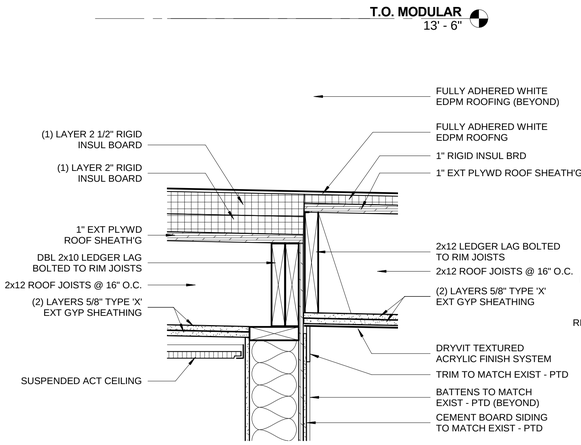
1 1/2" = 1'-0"

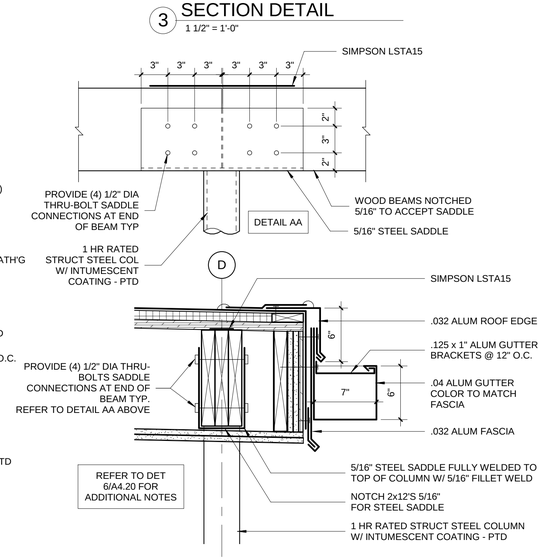


8 SECTION DETAIL
1 1/2" = 1'-0"

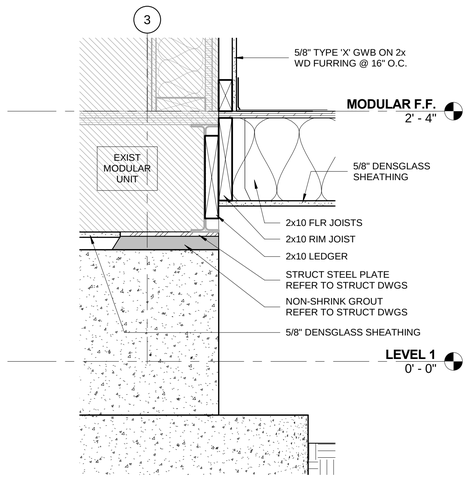
6 SECTION DETAIL
1 1/2" = 1'-0"



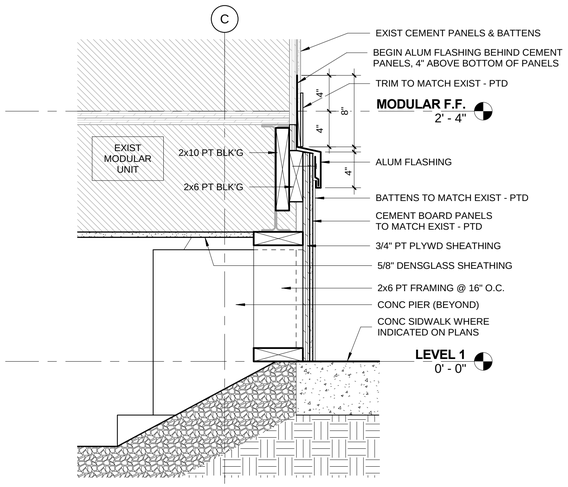
5 SECTION DETAIL
1 1/2" = 1'-0"



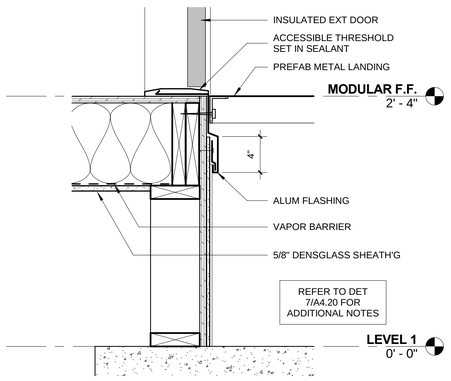
2 SECTION DETAIL
1 1/2" = 1'-0"



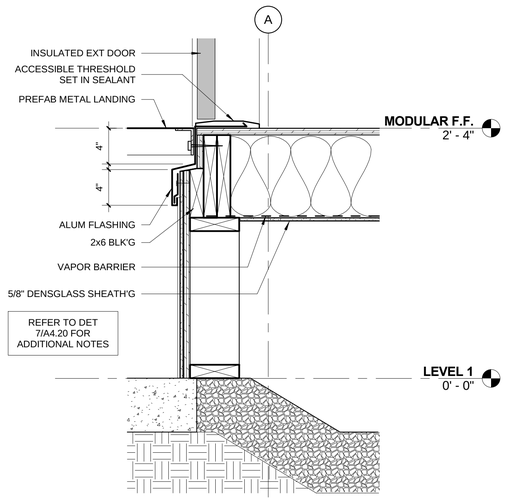
10 SECTION DETAIL
1 1/2" = 1'-0"



7 SECTION DETAIL
1 1/2" = 1'-0"



4 SECTION DETAIL
1 1/2" = 1'-0"



1 SECTION DETAIL
1 1/2" = 1'-0"

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SECTION DETAILS - PLAN DETAILS

Revisions:

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A4.20

C. Accessories

1. Adhesives:Water resistant, low VOC, acceptable to the resilient flooring manufacturer, for substrate conditions. Acceptable products include the following, or approved equal:
   a. Advanced Adhesive Technology, Inc, Dalton GA, product: "No. 432 Modified Acrylic Cove Base Adhesive".
2. Joint Sealer for between the top of wall base and irregular wall surfaces: Plastic filler as recommended by manufacturer.
3. Cleaning material: Domestic neutral floor detergent having a pH 7 or pH 8, as recommended by the flooring manufacturer.

VINYL FLOORING

A. Vinyl composition tile: 12 x 12 inch by 1/8 inch thick with solid color extending through thickness of tile; composed of vinyl resins, non-asbestos inorganic mineral fillers, and colorfast pigments complying with FS SS-T-312B(1), Type IV, Composition 1 and ASTM F1066 Composition 1, Class 2.
   1. Acceptable products include the following, or approved equal:
      a. Armstrong World Industries, Inc. product "Standard Excelon, Imperial Texture".
      b. Azrock product "Cortina Colors" and "Cortina Complements".
      c. Tarkett products "Expressions".
      d. Mannington Commercial Flooring, product "Essentials".
   2. Color: As selected by the Architect from the manufacturer's full range of available colors.

ACOUSTICAL INSULATION

A. Manufacturers

Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal: Fibrex Insulations Inc., Sarnia, Ontario

B. Materials

1. Acoustical batt insulation: Mineral wool fiber insulation batts, conforming to ASTM C665 Type 1, and ASTM C553 with a nominal density of 2.5 pounds per cubic foot, nominally 3-1/2 inches thick.
   a. Flame Spread Classification: Class A (less than 25, per testing by NFPA 255, ASTM E-84 or UL 723).
   b. Recycled content of slag in mineral wool insulation: Use maximum available percentage of material (slag). Mineral wool insulation products incorporated into the work shall contain not less than 75 percent of recycled material (slag) by weight.
   c. Acceptable products include: Fibrex Insulations Inc. product: "Fibrex Sound Attenuation Fire Batt (SAFB)"

C. Accessories

1. Staples, tape, adhesives and fasteners required for the proper and complete installation for work of this Section shall be as recommended by each respective manufacturers of each insulation type.

PAINTING

A. Preparation:
   1. Furnish and lay suitable drop cloths in all areas where coating work is being done to protect floors and all other surfaces from damage during the work. Protect adjoining surfaces with painters mask tape.
   2. Prior to preparing surfaces or finishing, remove all finish hardware for painting doors and frames, except hinges and locks on exterior door; remove electrical plates, light fixture trim and fittings. Re-install hardware and other removed items after painted surfaces are thoroughly dry.
   3. Gypsum Wallboard: Fill holes, dents, and similar flaws in gypsum wallboard with plaster of Paris or spackling compound. Cut out and fill cracks. Sand surface of patch smooth and flush with adjacent surfaces. Do not abrade adjacent surfaces. Patched areas shall not be detectable in finished work.
   4. Plaster: Fill holes, dents, and similar flaws in plaster with plaster of Paris or spackling compound. Cut out and fill cracks. Sand surface of patch smooth and flush with adjacent surfaces. Do not abrade adjacent surfaces. Patched areas shall not be detectable in finished work.
      a. Plaster Moisture Test: Before painting new plaster, test surfaces with a moisture detecting device, such as Kaydel Plaster Test, type CP-48, manufactured by Hard Moisture Gauges, Inc. Do not apply sealer or paint when moisture content of plaster exceeds 8%. Dry-brush plaster thoroughly prior to painting or sealing.
   5. Wood Trim and Windows: Fill holes, dents, and similar flaws in wood trim with paintable wood filler. Cut out and seal irregular joints. Sand surface of patched areas smooth and flush with

6. Arch corner beads with 1-1/4 inch flanges, one flange slotted
   a. Plastic Components model number: 209A.
7. Control joints: "V" type joint with nominal 3/16 inch reveal and removable temporary tape:
   a. Gold bond model "EZ Strip Expansion Joint".

D. Source Quality Control

1. Obtain gypsum board products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum boards.

ACOUSTICAL CEILINGS

A. Manufacturers

Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Acoustical ceiling panels:
   a. Armstrong World Industries, Inc., Lancaster, PA.
2. Field fabricated gypsum drywall ceiling panels:
   a. United States Gypsum Company, Chicago IL. (USG).
3. Suspension system:
   a. Armstrong World Industries, Inc., Lancaster PA.

B. Acoustical Ceiling Panels

1. Ceiling Type 1 ceiling panel (Typical, unless noted otherwise any ceiling not identified on the Drawings shall be considered Ceiling Type 1): Panel size: 24 by 24 inch by 3/4 inch thick.
   a. Acceptable products or approved equal: Armstrong product "Cirrus, Tegular" product number 584.
   b. Area where acoustical tile work is existing, match existing.

C. Ceiling Grid

1. Ceiling Types 1 ceiling grid: Fireguard exposed tee grid in white color. Acceptable products include the following, or approved equal: Armstrong; 15/16" Fireguard Exposed Tee System.

D. Accessories

1. Edge moldings: Standard edge trim: Grid system manufacturer's standard L-shape edge trim compatible with exposed grid system and color matched.
   a. Armstrong: Model 7800.
2. Hanger attachments: Of the most appropriate types for the specific receiving surfaces.
   a. Hangers: ASTM A641 Soft temper, pre-stretched galvanized carbon steel wire, with a yield stress of at least 3 times design load, but not less than 12 gage.
3. Joint Sealer: One component acrylic latex, permanently elastic, non-staining, non- shrinking, non-migrating and paintable.
   a. Tremco, Beachwood OH; product, "Acoustical Sealant".

RESILIENT BASE AND ACCESSORIES

A. Manufacturers

1. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
   a. Johnsonite, Middlefield OH.

B. Resilient Base

1. Rubber Base: 4 inches high as indicated on the Drawings, coved or straight, ribbed back, 1/8 inch thick, rounded top, complying with ASTM F-1861, Type TP, Thermoplastic Rubber (TBR). Colors shall be as selected. Rubber base shall be furnished in continuous lengths, approximately 100 feet long.
2. Base accessories: Premolded end stops of same material, size and color as base. Job-form all external and internal corners from base material, pre-molded corner pieces will not be acceptable.

a. Manufacturer: To establish a standard of quality, design and function desired, Drawings and specifications have been based on Kinetics, Noise Control Inc., product, "IsoGrid Ceiling Hanger" as specified herein.
b. Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal: Kinetics, Noise Control Inc., Dublin, OH.

4. Grid system for direct attachment of finish board: Comprised of double web main furring tees, 1 1/2 inches high by 1-3/8 inches flange face by 0.020 inch thick; double web cross tees, 1 1/2 inches high by 15/16 inch flange face by 0.020 inch thick; 0.020 inch thick wall channels, with 1-1/2 inches interior web height; and all splices, clips, and related items. Provide Underwriters Laboratories Label fire-rated assemblies for locations requiring fire-rated ceilings and soffits
   a. Chicago Metallic product "System 640 and System 650 Furring System"

E. Accessories

1. Metal sheet plate blocking and bracing, where indicated: galvanized sheet 0.0312 inch thickness (20 gage).
2. Fasteners:
   a. Expansion-type fasteners for securing vertical concrete and masonry surfaces.
   b. Concrete stub nails for securing runners to concrete.
   c. N°.7 by 7/16 inch Pan head self-drilling screw to attach metal framing components.
3. Reinforcing plates for blocking: 20 gage cold rolled sheet steel, provide minimum 6 inch width, or as otherwise indicated on the drawings.

GYPSUM BOARD

A. Manufacturers

Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Gypsum board products:
   a. United States Gypsum Company, Chicago, IL. (USG).
2. Polyvinyl chloride trim and accessories:
   b. Plastic Components, Inc., Miami, FL.
3. Polyvinyl chloride trim and accessories:
   a. Plastic Components, Inc., Miami, FL.
4. Joint Sealants:
   a. Tremco, Beachwood, OH.

The design and details as shown on the Drawings and the model numbers specified herein are to establish the standards of design and quality and not to limit competition.

B. Board Materials

1. Gypsum board, (typical): UL fire resistance rated, ASTM C 1396 'Type X' board, 5/8 inch thick, 48 inch width, of lengths to minimize end joints, with tapered edges.
   a. Acceptable products include the following, or approved equal: USG Sheetrock brand "Firecode Core".

C. Accessories

1. Gypsum board polyvinyl chloride trim accessories, conforming to ASTM D 1784 and C 1047.
2. J Bead: Edge trim with exposed 1/2 inch face cap, furnish trim model number corresponding to the board thickness where installed.
   a. Plastic Components model number: 200X-50 (for 1/2 inch thick board) or 200S-58 (for 5/8 inch thick board).
3. L-Bead with removable leg: Casing edge trim for joints at ceilings doors and windows, with removable leg strip, furnish trim model number corresponding to the board thickness where installed
   a. Plastic Components model number: 224-50 (for 1/2 inch thick board) or 224-58 (for 5/8 inch thick board).
4. L Bead: casing edge trim, furnish trim for edge conditions not covered by removable leg specified above; model number corresponding to the board thickness where installed
   a. Plastic Components model number: 221-50 (for 1/2 inch thick board) or 221-58 (for 5/8 inch thick board).
5. Corner beads, 90 degree with 1-1/4 inch flanges:
   a. Plastic Components model number: 209.

NON-STRUCTURAL METAL FRAMING

A. Manufacturers

Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Metal components and related items:
   a. Georgia Pacific Corporation, Gypsum Division, Atlanta, GA.
2. Suspended furring system for ceilings and soffits:
   a. Armstrong World Industries, Inc., Lancaster, PA.

The design and details as shown on the drawings and the model numbers specified herein are to establish the standards of design and quality and not to limit competition.

B. Framing Materials

3. Studs: 'C-shaped' screw studs, hot-dip galvanized steel complying to ASTM C 645, 18 gage (0.0329 inch [0.84 mm] minimum thickness), of widths indicated on the Drawings, or other gages as required under the specified standards to meet fire resistance ratings.
4. Runners for metal studs: 'U-shaped' hemmed, hot-dip galvanized steel track conforming to ASTM C645, of gage and width to match respective stud sizes, or heavier gage per design requirements, having 1-1/4 inch leg, provided at tops and bottoms of all studs and at heads of all openings in stud partitions.
5. Internal reinforcement for various stud conditions, and bracing as required: 10 gage, minimum, galvanized steel.
6. Furnish cross bracing and knee bracing, as required to assure a completely rigid assembly on metal stud partitions and furred areas.

C. Deflection Track Assemblies:

1. Non Fire-Rated Assemblies:
   a. Deflection Track: Manufacturer's standard top runner with extended flanges designed to prevent cracking of gypsum board applied to interior partitions resulting from deflection of the structure above fabricated from steel sheet complying with ASTM A 653 or ASTM A 568. Thickness as indicated for studs, and width to accommodate depth of studs, and the following configuration.
      i. Top runner with extended deep flanges that either have V-shaped offsets that compress; slots 1 inch o.c. that allow fasteners attached to studs through the slots; or 16 gage sliding clip assemblies attached to top track and clipped to stud
2. Fire-Rated Assemblies: Head of wall dynamic fire rated joint systems for head of wall assemblies in compliance with UL 2079 HW-D classified assemblies. Provide one of the following systems:
3. Deflection track / clip system: The Steel Network, Inc., product "VertiClip", including step bushings. Clips and track 20 gage, and of width to accommodate depth of studs indicated.
4. Deflection slip track System: Comply with requirements of ASTM C 645 except configuration, of thickness indicated for studs and width to accommodate depth of studs indicated with flanges offset to accommodate gypsum board thickness.
   a. Fire Trak Corp., Kimball, MN products:
      i. "Shadowline" at balanced and unbalanced fire-rated assembly partitions.
      ii. "Cavity Shadowline" at shaftwall and chase wall (double stud) partitions.
5. Coordination: Verify with partition schedule on the Drawings to ensure proper depth of flange offsets at various partitions types.

D. Ceiling And Soffit Suspension Materials

1. Hanger attachments: Galvanized steel hanger eyes, of size and capacity to safely sustain a live load of at least 150 pounds per hanger attachment.
2. Hangers: Soft temper, pre-stretched galvanized carbon steel wire, conforming with ASTM A641, with a yield stress load of at least three times design load, but not less than 12 gage.
3. Sound isolation hangers (Ceilings Type 10 and Type 12 as indicated on the Drawings): Pre-compressed neoprene rubber and spring isolation hanger designed for high frequency sound waves and low frequency vibrations. Size hangers as recommended by manufacturer for anticipated ceiling load.

SPECFICATIONS

FIRESTOPPING

A. Firestop mortar: asbestos free, cementitious mortar, U.L. classified as a "fill, void, or cavity material" for through penetration firestop system when tested in accordance with ASTM/UL1479.
   1. Acceptable products include the following, or approved equal:
      a. Hilti, Inc., product "CP 637 Firestop Mortar".

B. Silicone Firestop sealant: Single component, non-combustible silicone elastomer firestop sealant, U.L. classified as a "fill, void, or cavity material" for through penetration firestop system when tested in accordance with ASTM E-814/UL1479.
   1. Acceptable products include the following, or approved equal:
      a. Hilti, Inc., product "CP 601S Elastic Firestop Sealant".

HOLLOW METAL FRAMES

Manufacturers

A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
   1. Essex Industries, Inc. New Haven, CT.

Hollow Metal Frames

A. General: Match Existing for various types of frames, sizes, and profiles, UL fire-resistive Label frames, and other characteristics of frames and related items.
   1. Frame type: Shop welded frames with mitered joints arc-welded, reinforced and ground smooth.
   2. Frame size may limit full assembly in shop. Frames may be shipped to site in pieces to accommodate installation as required and approved by the Architect. All field assembled frames shall be field welded, ground smooth, filled sanded and field primed to receive paint finish specified under Section 09 91 00 - PAINTING.

B. Materials for frames, reinforcement, anchors, anchor clips and related items: commercial grade cold-rolled steel conforming to ASTM A109 or commercial grade hot-rolled and pickled steel conforming to ASTM A415.
   1. Frame gage:
      a. Interior frames: 16-gage, 0.053 inch thick (1.3 mm), except as otherwise required for specific U.L. Label.
   2. Splice plates or channels: same gage as door frame.
   3. Glazing stops: 16 gage, minimum 0.053 inch (1.3 mm) thick, except as otherwise required for specific U.L. Label.

C. Frame construction:
   1. Fire-rated frame assemblies: Modify specified construction to meet all construction requirements required for fire-resistive rating.
      a. Affix appropriate UL, FM or Warnock Hersey labels to each rated frame assembly, indicating applicable rating.
      b. All field construction joints shall be field welded, filled with metal paste filler and sanded. Mechanical joint fasteners are not acceptable.
         1) Metal paste filler shall consist of 2 component epoxy, high strength, structural adhesive as manufactured by, and consisting of the following or approved equal.
            a) Dynatron/Bondo Corp., Atlanta, GA, product: "Bondo Plastic Filler".
   2. Shop-fabricate frames as whole single units per door opening, except when frame size is too large to ship as a single unit. Oversized frames may be shipped in large sections as practicable for field assembly with concealed splice plates or channels.
   3. Frame corner construction: As specified in paragraph A, above.
   4. Reinforcements, stiffeners, and base angle clips: Welded to interior surfaces of frames to provide a stable base and so as to not interfere with installation of hardware.
   5. Provide mortar boxes, welded to frame, at back of hardware cut-outs where mortar or other materials may obstruct hardware operation.
   6. Appearance of finished frames: Strong, rigid, completely free from warp and buckle, with miters well-formed and in true alignment, and with surfaces smooth and free from defects of any kind.

D. Anchorage:
   1. Anchor clips for frames in metal stud partitions: 16-gage steel z-shaped clips, 1-1/2 inch upturned and downturned legs, or equivalent type standard with the manufacturer, contained within the frames, for screw attachment to metal studs under Section 09 22 16 - NON-STRUCTURAL METAL FRAMING.
   2. Anchors for fire-resistive rated frames: Conform to all UL requirements for the specific fire-resistive ratings.
   3. Typical frames: Provide not less than 3 anchors, clips, or bolts (as applicable), per jamb.

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Brown Middle School
Modular Building
125 Meadowbrook Rd, Newton, Massachusetts

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A5.01

b. Apply screen printing inks evenly without pinholes, scratches or orange- peeling.

6. Graphics: All text, symbols and graphics shall be reproduced utilizing computer generated digital art. All screen printed graphics shall utilize photographically prepared screens and shall be printed in accordance with industry standards. Hand-cut screens are not acceptable.
   a. All edges and corners and letter forms shall be true and clean. Letterforms, color areas, or lines with rounded positive or negative corners, built-up edges, bleeding and spattering shall not be accepted.
   b. Prepare artwork from typesetters reproduction of the test specified, minimum 1200 dpi resolution, camera ready artwork. All camera ready artwork and typesetting shall be no less than 75 percent of actual finished size.
7. Mounting: Surface applied by means of silastic adhesive mounting.
8. Sign colors: As selected by Architect from manufacturer's standard and standard special colors.
   a. All signs shall be two color signs.

HVAC

A. Codes, Ordinances, And Permits

1. Perform all work in accordance with the requirements of Newton Building Department, State of Massachusetts Building Code, 8th Edition, and applicable State and Federal Laws. Give all requisite notices, file all requisite plans, and obtain all permits required to perform HVAC Work.

2. Permits: Be responsible for filing documents, and securing of inspection and approvals. Pay all local connection and permit fees.

3. All HVAC equipment shall be installed to meet all State, Local and Federal sound ordinances.

B. Mechanical Installations

1. Coordinate mechanical equipment and materials installation with other building components before installing.

2. Verify all dimensions by field measurements.

3. Arrange for chases, slots, and openings in other building components to allow for mechanical installations.

4. Coordinate the installation of required supporting devices and sleeves to be set in poured in place concrete and other structural components, as they are constructed.

5. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the work. Give particular attention to large equipment requiring positioning prior to closing-in the building.

6. Coordinate the cutting and patching of building components to accommodate the installation of mechanical equipment and materials.

7. Where mounting heights are not detailed or dimensioned, install mechanical services and overhead equipment to provide the maximum headroom possible.

8. Install mechanical equipment to facilitate maintenance and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.

9. Coordinate connection of mechanical system with overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.

C. Air Outlets And Inlets

1. Ceiling Registers and Grilles:

General: Except as otherwise indicated, provide manufacturer's standard "Egg-Crate" type registers and grilles where shown; of size, shape, capacity and type indicated; constructed of materials and components as indicated, and as required for complete installation.

Compatibility: Provide registers and ceiling grilles with border styles that are compatible with adjacent ceiling systems, and that are specifically manufactured to fit into ceiling construction with accurate fit and adequate support. Refer to general construction drawings and specifications for types of ceiling construction.

Manufacturer: Subject to compliance with requirements, provide registers and grilles by: Price Industries or approved equal.

adjacent surfaces. Do not abrade adjacent surfaces. Patched areas shall not be detectable in finished work.

B. Interior Gypsum Board (Drywall) Partitions:

1. One coat latex primer.
   a. Sherwin-Williams: "Harmony Interior Latex Primer", B11W900 Series.
2. Two coats eggshell paint:
   a. Sherwin-Williams: "Harmony Low Odor Interior Latex Egg-Shell", B9 Series".

C. Interior Gypsum Board (Drywall) Ceilings And Underside Of Soffits:

1. One coat latex primer.
   a. Sherwin-Williams: "Harmony Interior Latex Primer", B11W900 Series.
2. Two coats flat paint:
   a. Sherwin-Williams: "Harmony Low Odor Interior Latex Flat", B5 Series.

D. Interior Metal, Aluminum, shop primed and previously painted (includes metal vents, metal door frames):

1. Touch up bare metal with latex metal primer.
   a. Sherwin-Williams: "DTM Acrylic Primer Finish", B66 W1 Series.
2. Two coats acrylic semi-gloss enamel:
   a. Sherwin-Williams: "Sher-Cryl HPA Semi-Gloss", B66 Series.

E. Interior Wood Trim, shop primed, to receive painted (opaque) finish: Touch up bare wood with acrylic primer-sealer (undercoat).

1. Sherwin-Williams: "PrepRite Classic Latex Primer", B28W200 Series.
2. Two coats acrylic semi-gloss enamel: Sherwin-Williams: "ProClassic Waterborne", B31W20 Series.

E. Joint Sealer Type AP (Acrylic painters caulk): One component acrylic latex caulking compound, conforming to FS 19-TP-21M and ASTM C 834, paintable within 24 hours after application, with a minimum movement capability of ±12.5 percent, equal to one of the following:

1. Sonneborn, product, "Sonolac".
2. Tremco, product, "Tremflex 834".
3. Bostik, product, "Chem-Calk 600".
4. Pecora, product " AC-20+".

SIGNAGE

A. Manufacturers

1. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
   a. Apco New England, Franklin, MA.

B. Signage - General

1. General: Provide sign copy to comply with the requirements indicated in the Drawings, for sizes, styles, spacing, content, positions, materials, finishes and colors of letters.
   a. All Signs shall conform to United States "*Americans with Disabilities Act*" and Commonwealth of Massachusetts Regulation 521 CMR: *Architectural Access Board*.
   b. Final placing and sizing of lettering shall be done as part of the shop drawing approval process, at which time the manufacturer shall make recommendations for Architect's review. Lettering shall have stroke width to height ratio and width to height ratio in accordance with the Americans with Disabilities Act.
2. Installation of all signs shall be done by vandal-proof method, fully described on the shop drawings.

C. Interior Plaque Signage

1. Photopolymer plaque signage (general requirements): Identification signs with raised tactile graphics, text, and Grade 2 Braille. Signs shall consisting of 1/32 inch thick synthetic light sensitive photo emulsion permanently bonded to a rigid phenolic substrate, aluminum or acrylic plaque.
2. Raised lettering: Minimum above the surface of the sign 1/32", and be in compliance with Americans with Disabilities Act.
   a. Bond photopolymer permanently to sign plaque, with appropriate laminating film, as recommend by the photopolymer manufacturer.
3. Lettering height: 2 inches
4. Lettering font: Arial
5. Screenprinting: All screen printing graphics, including raised areas of tactile plaques except Braille, shall be screen printed in a contrasting color so as to meet the color contrast requirements of Americans with Disabilities Act.
   a. All non-tactile text shall be screen printed with catalyzed epoxy ink. Applied vinyl lettering and graphics is not acceptable.

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SPECIFICATIONS AND GENERAL NOTES

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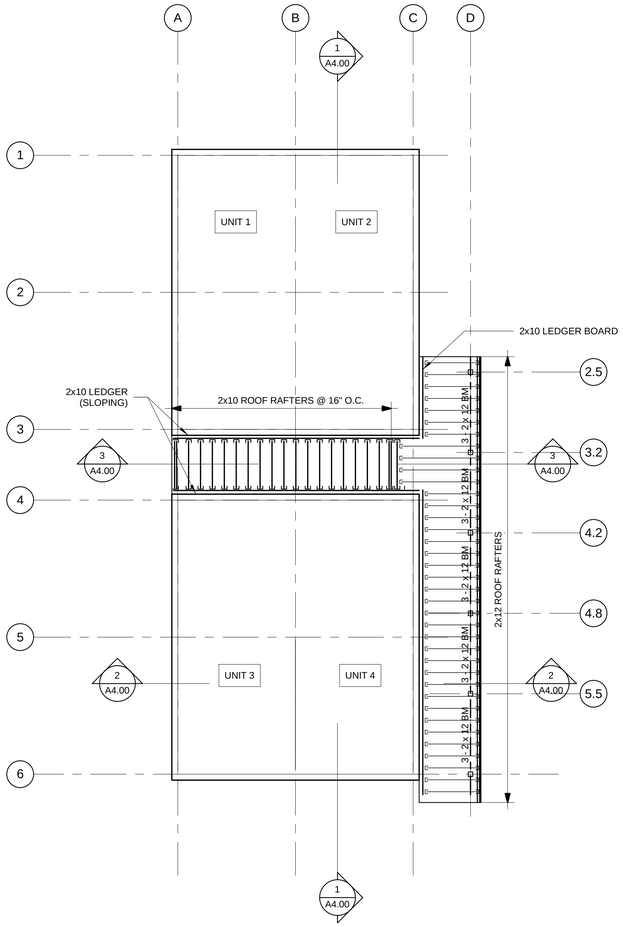
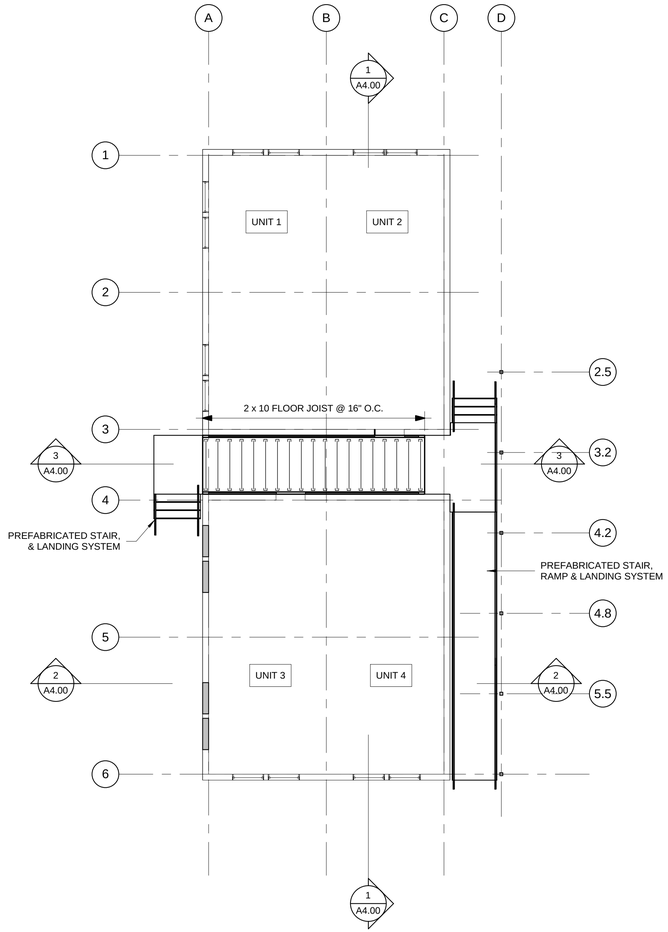
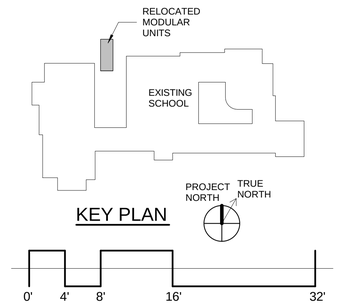


2 ROOF FRAMING PLAN
1/8" = 1'-0"



1 FLOOR FRAMING PLAN
1/8" = 1'-0"



KEY PLAN

0' 4' 8' 16' 32'

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BROWN MIDDLE SCHOOL
125 MEADOWBROOK RD, NEWTON MA
FRAMING PLANS

Revisions:

No.	Date	Description

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Checked By:	Checker
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GENERAL NOTES

G1. THE FOUNDATION LAYOUT SHOWN IS SCHEMATIC ONLY AND APPROXIMATE LAYOUT FOR THE PIERS TO BE COORDINATED WITH THE MODULAR BUILDING STRUCTURE.

G2. THE SUPERSTRUCTURE HAS NOT BEEN EVALUATED OR DESIGNED TO MEET THE CODE FOR NEW CONSTRUCTION. THE FOUNDATION HAS BEEN DESIGNED PER THE REQUIREMENTS OF THE EIGHTH EDITION OF THE MASSACHUSETTS STATE BUILDING CODE .

G3. FOUNDATION SIZES SHOWN ARE BASED ON AN ASSUMED SOIL BEARING CAPACITY OF 4,000 POUNDS PER SQUARE FOOT.

G4. THE CONTRACTOR SHALL BE COMPLETELY RESPONSIBLE FOR THE SAFETY OF ADJACENT STRUCTURES, PROPERTY, AND THE PUBLIC. THE CONTRACTOR SHALL SHORE, BRACE, AND PROTECT THE EXISTING BUILDING AS REQUIRED FOR CONSTRUCTION OF NEW WORK.

G5. DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURE SHOWN ON STRUCTURAL DRAWINGS HAVE BEEN OBTAINED FROM EXISTING DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING WITH FIELD MEASUREMENTS OF ALL DIMENSIONS AND ELEVATIONS WHICH ARE REQUIRED FOR FABRICATION AND INSTALLATION OF ADDITIONS TO EXISTING STRUCTURE THAT ARE BEING MADE UNDER THIS CONTRACT.

FOUNDATION NOTES

F1. ALL BACKFILL UNDER STRUCTURAL SLABS, MATS, AND FOOTINGS WILL BE ENGINEERED STRUCTURAL FILL COMPACTED IN SPECIFIED LIFTS TO 95 PERCENT OF MAXIMUM DRY DENSITY, UNLESS OTHERWISE INDICATED OR SPECIFIED. REFER TO EARTHWORK SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

F2. FOUNDATIONS AND SLABS SHALL NOT BE POURED IN WATER OR ON FROZEN GROUND.

F3. THE OWNER AND ENGINEER ASSUME NO RESPONSIBILITY FOR THE VALIDITY OF THE SUBSURFACE CONDITIONS DESCRIBED ON THE DRAWINGS, SPECIFICATIONS, BORING LOGS, OR TEST PITS. THIS DATA IS INCLUDED ONLY TO ASSIST THE CONTRACTOR DURING BIDDING AND SUBSEQUENT CONSTRUCTION AND REPRESENT CONDITIONS ONLY OF THOSE SPECIFIED LOCATIONS AT THE PARTICULAR TIME THEY WERE MADE.

REINFORCED CONCRETE NOTES

R1. ALL CONCRETE WORK SHALL CONFORM TO ACI-318-08 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND TO THE EIGHTH EDITION OF THE MASSACHUSETTS STATE BUILDING CODE IN CASE OF CONFLICT, THE MASSACHUSETTS STATE BUILDING CODE SHALL GOVERN.

R2. ALL CONCRETE SHALL BE CONTROLLED, MIXED, AND PLACED UNDER THE SUPERVISION OF AN APPROVED CONCRETE TESTING AGENCY, PROVIDED BY OWNER.

R3. UNLESS OTHERWISE NOTED, ALL CONCRETE SHALL BE NORMAL WEIGHT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 POUNDS PER SQUARE INCH AT THE END OF 28 DAYS. CONCRETE SLABS ON GRADE AND SUPPORTED CONCRETE SLABS SHALL BE NORMAL WEIGHT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 POUNDS PER SQUARE INCH AT THE END OF 28 DAYS. CONCRETE SLABS ON STEEL DECK SHALL BE LIGHTWEIGHT CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT THE END OF 28 DAYS.

R4. CONCRETE SHALL REACH THE 40 PERCENT OF ITS 28 DAY COMPRESSIVE STRENGTH (f'C) BEFORE FORMS OR SHORES FOR WALLS MAY BE REMOVED. NO FORMS CAN BE REMOVED UNLESS CONCRETE HAS ATTAINED SUFFICIENT STRENGTH TO SUPPORT ITS OWN WEIGHT.

R5. REINFORCING BARS SHALL CONFORM TO ASTM A615 WITH 60,000 POUNDS PER SQUARE INCH YIELD STRENGTH, AS INDICATED AND SHALL HAVE THE FOLLOWING CONCRETE COVER, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

A. SURFACES PLACED IN CONTACT WITH THE GROUND - 3"
B. FORMED SURFACE EXPOSED TO GROUND - 2"
C. INSIDE FACE OF FORMED WALL - 1 1/2"
D. WALL PIER TIES - 1 1/2"
E. SLAB REINFORCING - 3/4" TOP & BOTTOM

STRUCTURAL STEEL NOTES

S1. ALL STEEL WORK SHALL CONFORM TO THE 2005 SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION AND TO THE EIGHTH EDITION OF THE MASSACHUSETTS STATE BUILDING CODE IN CASE OF CONFLICT, THE MASSACHUSETTS STATE BUILDING CODE SHALL GOVERN.

S2. THE STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:

A. ALL STRUCTURAL WIDE FLANGE SHAPES: ASTM A992 FY = 50KSI, HAVING A MINIMUM YIELD STRENGTH OF 50 KSI, UNLESS OTHERWISE NOTED.
B. BARS, PLATES, CHANNELS, AND CONNECTION ANGLES: ASTM A36, UNLESS NOTED OTHERWISE.
C. STRUCTURAL TUBES: ASTM A500, GRADE B. FY = 46KSI.
D. STRUCTURAL PIPES: ASTM A53, GRADE B OR ASTM A501.
E. ALL ANCHOR BOLTS SHALL CONFORM TO ASTM F1554.

S3. ALL WELDING SHALL BE IN ACCORDANCE WITH THE AWS D1.1 STRUCTURAL WELDING CODE.

S4. DESIGN AND DETAIL OF ALL CONNECTIONS SHALL BE ACCORDING TO AISC.

S5. ALL CONNECTIONS SHALL BE DOUBLE ANGLE CONNECTORS DESIGNED FOR A BEAM REACTION "R" DETERMINED BY THE MEMBER CAPACITY AS SPECIFIED BY AISC EXCEPT COMPOSITE STRUCTURAL STEEL BEAMS AND GIRDERS WHICH SHALL BE DESIGNED USING THE REACTION "R" MODIFIED BY THE MAGNIFICATION FACTOR AS FOLLOWS:

FOR STEEL SECTION DEPTH = "D"
"RC" = REQUIRED CONNECTION CAPACITY FOR COMPOSITE BEAMS.

- FOR "D" GREATER THAN OR EQUAL TO 24", RC = 1.5R
- FOR "D" GREATER THAN OR EQUAL TO 21", BUT LESS THAN 24", RC = 1.75R
- FOR "D" GREATER THAN OR EQUAL TO 14", BUT LESS THAN 21", RC = 2.0R OR
- FOR "D" LESS THAN 14" RC = 2.25R

ADD TO "R" OR "RC" THE LOADS OR REACTIONS OF MEMBERS SUPPORTED BY THE BEAM NEAR SUPPORTS AND/OR VERTICAL COMPONENTS OF FORCE IN DIAGONAL BRACING MEMBERS FRAMING INTO THE MEMBER.

S6. PROVIDE 1/4" THICK LEVELING PLATES FOR USE IN ALIGNING AND SETTING ANCHOR BOLTS AND BASE PLATES.

S7. MOMENT CONNECTIONS BETWEEN BEAMS AND COLUMNS INDICATED ON THE DRAWINGS SHALL BE DESIGNED AND DETAILED FOR THE FULL MOMENT CAPACITY OF THE CONNECTING MEMBERS, UNLESS NOTED OTHERWISE.

S8. PROVIDE 1/4" THICK CLOSURE PLATES AT ALL OPEN ENDED TUBE STEEL MEMBERS.

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GENERAL NOTES

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Checked By: CJO
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Project Number:

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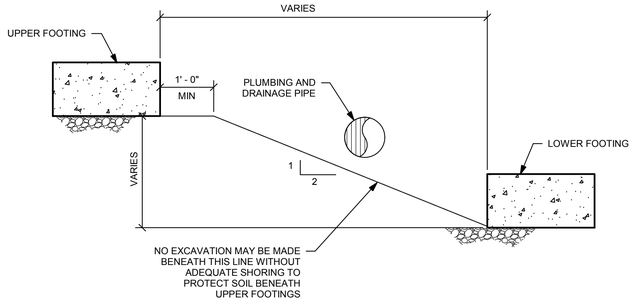
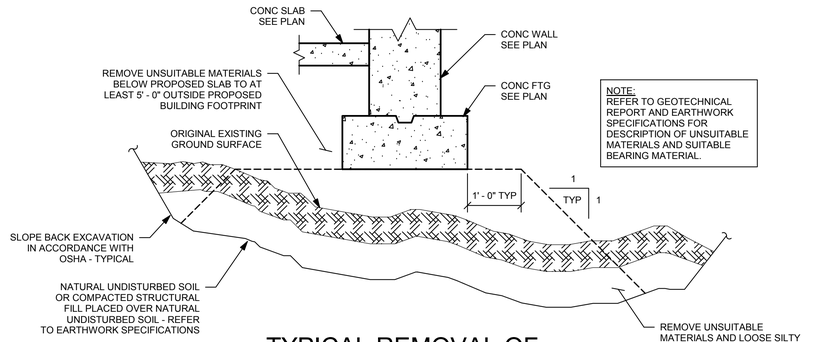
S0.01



TYPICAL SLOPE BETWEEN FOOTINGS DETAIL

1

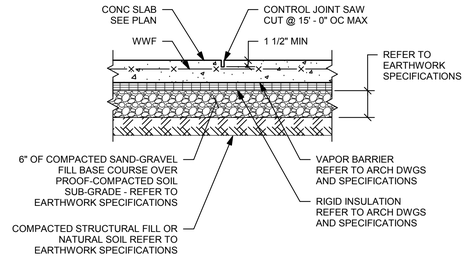
NO SCALE



TYPICAL REMOVAL OF UNSUITABLE MATERIALS DETAIL

2

NO SCALE

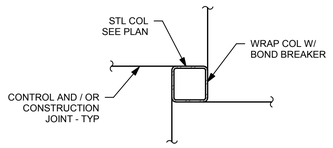


TYPICAL SLAB ON GRADE CONTROL JOINT DETAIL

NOTE:
SUBMIT A PLAN SHOWING PROPOSED LOCATIONS OF ALL THE CONTROL JOINTS AND CONSTRUCTION JOINTS FOR REVIEW BY THE ENGINEER PRIOR TO PLACEMENT OF CONCRETE FOR THE SLAB

3

NO SCALE



NOTES:

1.) SIMILAR AT EXTERIOR COLUMNS.

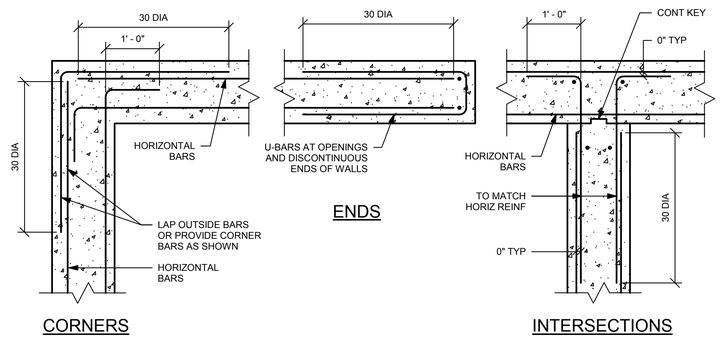
2.) CONTROL AND/OR CONSTRUCTION JOINTS SHALL EXTEND TO CORNER OF COLUMN. HAND CUTTING MAY BE REQUIRED.

3.) CARE SHALL BE TAKEN NOT TO DAMAGE COLUMN.

TYPICAL PLAN OF INTERIOR COLUMNS AT SLAB ON GRADE DETAIL

4

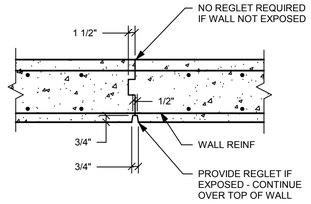
NO SCALE



TYPICAL PLAN OF HORIZONTAL REINFORCING OF CONCRETE WALLS DETAIL

5

NO SCALE

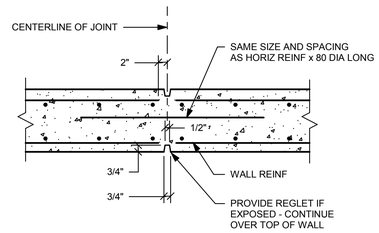


TYPICAL CONCRETE WALL CONSTRUCTION JOINT DETAIL

NOTE:
SPACE AT 60' - 0" CENTER TO CENTER MAX.

6

NO SCALE



TYPICAL CONCRETE WALL CONTROL JOINT DETAIL

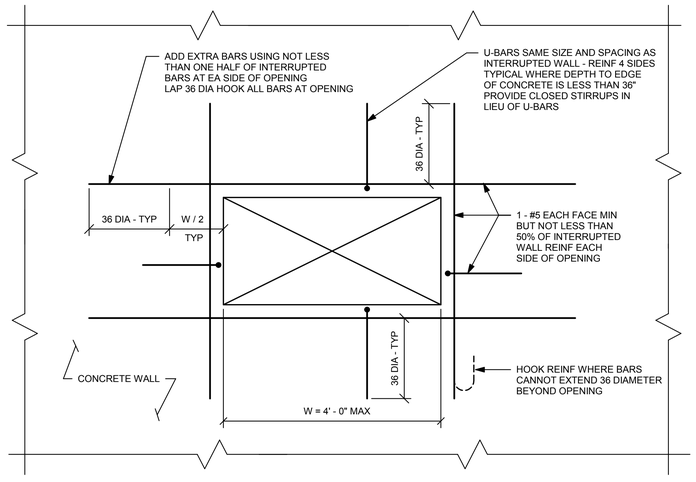
NOTES:

1.) SPACE AT 30' - 0" CENTER TO CENTER MAX.

2.) A CONSTRUCTION JOINT MAY BE SUBSTITUTED FOR A CONTROL JOINT, SEE CONSTRUCTION JOINT DETAIL.

7

NO SCALE



TYPICAL REINFORCEMENT AT OPENINGS IN REINFORCED CONCRETE WALLS DETAIL

NOTE:
FOR QUANTITY, LOCATION, AND SIZES REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS

8

NO SCALE

BAR SIZE	ℓd PER SPACING AND COVER CASE			
	CASE 1		CASE 2	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	22	17	32	25
#4	20	22	43	33
#5	36	28	54	41
#6	43	33	64	50
#7	63	48	94	72
#8	72	55	107	82
#9	81	62	121	93
#10	91	70	136	105
#11	101	78	151	116
#14	121	93	181	139
#18	161	124	241	186

TENSION DEVELOPMENT LENGTHS, ℓd (INCHES)
FOR GRADE 60 UNCOATED BARS
f'_C = 3000 psi; NORMAL-WEIGHT CONCRETE
BASED ON ACI 12.2.2

BAR SIZE	LAP CLASS	LAP LENGTH PER SPACING AND COVER CASE			
		CASE 1		CASE 2	
		TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	B	28	22	42	32
#4	B	37	29	56	43
#5	B	47	36	70	54
#6	B	56	43	84	64
#7	B	81	63	122	94
#8	B	93	72	139	107
#9	B	105	81	157	121
#10	B	118	91	177	136
#11	B	131	101	196	151

TENSION LAP SPLICE LENGTHS, ℓd (INCHES)
FOR GRADE 60 UNCOATED BARS
f'_C = 3000 psi; NORMAL-WEIGHT CONCRETE
BASED ON ACI 12.2.2

BAR SIZE	ℓd PER SPACING AND COVER CASE			
	CASE 1		CASE 2	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	19	15	28	22
#4	25	19	37	29
#5	31	24	47	36
#6	37	29	56	43
#7	54	42	81	63
#8	62	48	93	71
#9	70	54	105	81
#10	79	61	118	91
#11	87	67	131	101
#14	105	81	157	121
#18	139	107	209	161

TENSION DEVELOPMENT LENGTHS, ℓd (INCHES)
FOR GRADE 60 UNCOATED BARS
f'_C = 4000 psi; NORMAL-WEIGHT CONCRETE
BASED ON ACI 12.2.2

BAR SIZE	LAP CLASS	LAP LENGTH PER SPACING AND COVER CASE			
		CASE 1		CASE 2	
		TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	B	24	19	36	28
#4	B	32	25	48	37
#5	B	40	31	60	47
#6	B	48	37	72	56
#7	B	70	54	106	81
#8	B	80	62	121	93
#9	B	91	70	136	105
#10	B	102	79	153	118
#11	B	113	87	170	131

TENSION LAP SPLICE LENGTHS, ℓd (INCHES)
FOR GRADE 60 UNCOATED BARS
f'_C = 4000 psi; NORMAL-WEIGHT CONCRETE
BASED ON ACI 12.2.2

3,000 PSI NORMAL-WEIGHT CONCRETE

CASE 1 BEAMS AND COLUMNS: CONCRETE COVER $\geq d_b$, C,- C, BAR SPACING $\geq 2\,d_b$ AND WITH STIRRUPS OR TIES THROUGHOUT ℓd NOT LESS THAN THE CODE MINIMUM
OTHER MEMBERS: CONCRETE COVER $\geq d_b$ AND C,-C BAR SPACING $\geq 3\,d_b$

CASE 2 BEAMS AND COLUMNS: CONCRETE COVER $< d_b$ AND C,- C, BAR SPACING $< 2d_b$
OTHER MEMBERS: CONCRETE COVER $< d_b$ OR C,- C BAR SPACING $< 3\,d_b$

4,000 PSI NORMAL-WEIGHT CONCRETE

ABBREVIATIONS:

d_b DENOTES NOMINAL BAR DIAMETER
$>$ DENOTES GREATER THAN
$\geq$ DENOTES EQUAL TO OR GREATER THAN
$<$ DENOTES LESS THAN
$\leq$ DENOTES EQUAL TO OR LESS THAN

NOTES:

1.) TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST IN THE MEMBER BELOW THE REINFORCEMENT. WALL REINFORCEMENT IS CLASSIFIED AS OTHER BARS.

2.) FOR LIGHTWEIGHT AGGREGATE CONCRETE MULTIPLY THE VALUES ABOVE BY 1.3.

MINIMUM SPLICE AND EMBEDMENT LENGTH SCHEDULE

(UNLESS SHOWN OTHERWISE ON DRAWINGS)

9

NO SCALE

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BROWN MIDDLE SCHOOL
125 MEADOWBROOK RD, NEWTON MA
TYPICAL DETAILS

Revisions:

No.	Date	Description

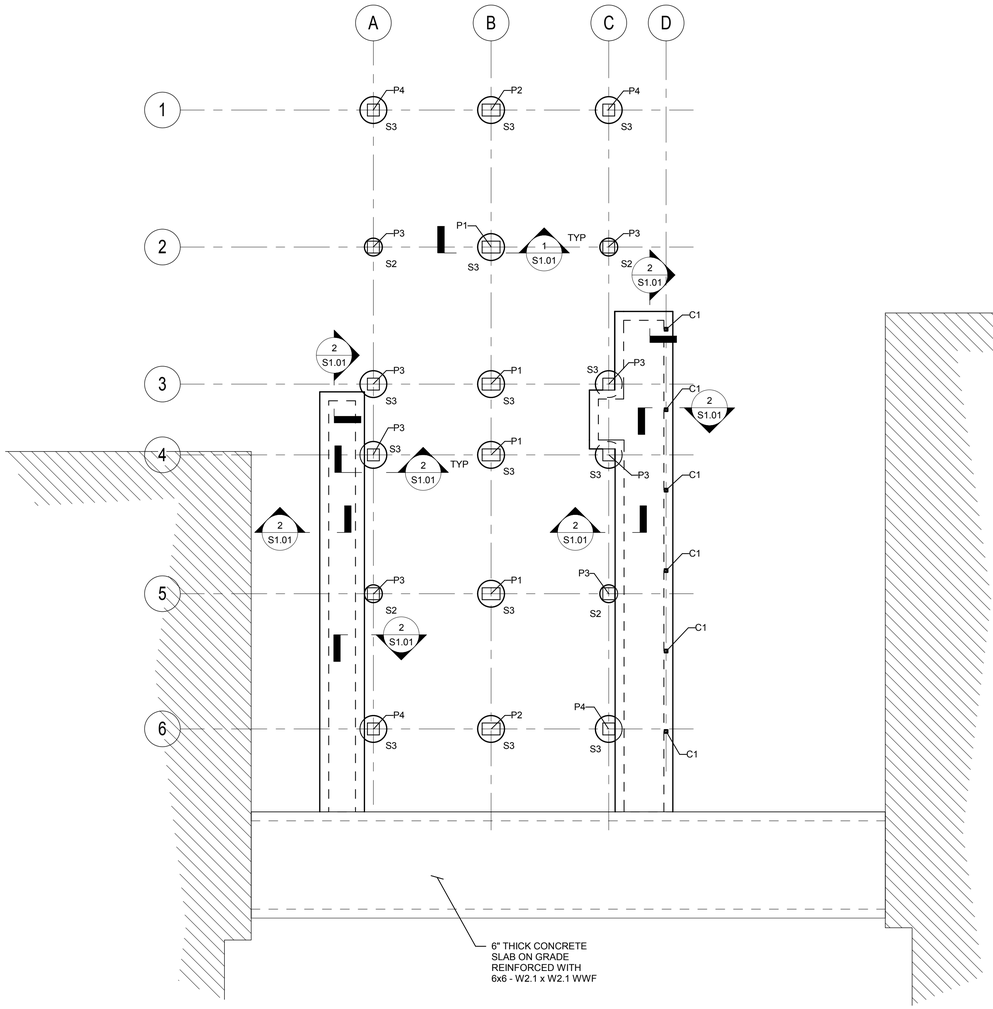
Drawn By: WER
Checked By: CJO
Approved By: MVD

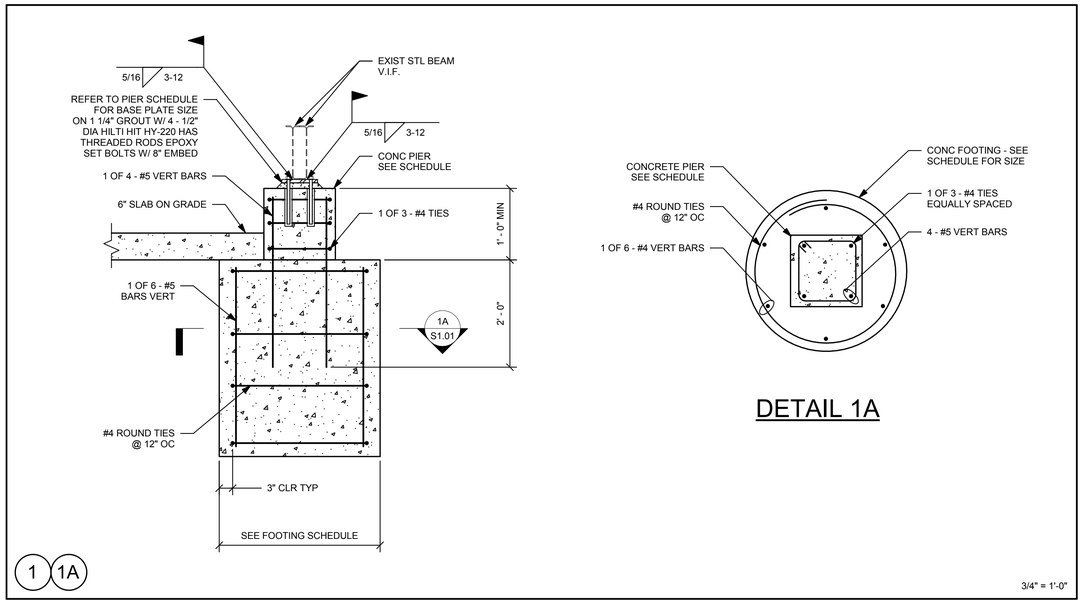
Drawing Scale: 3/4" = 1'-0"

Project Number:

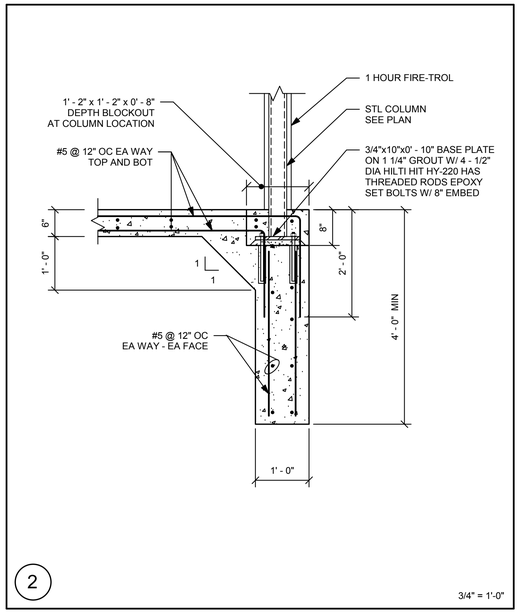
Date: May 25, 2016

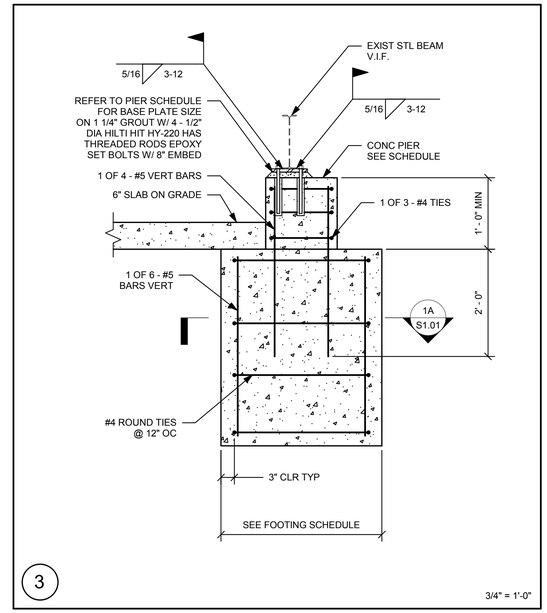
S0.02





DETAIL 1A





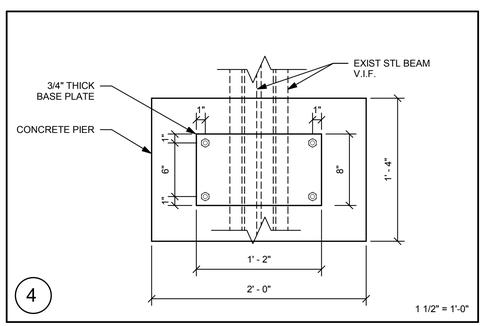
FOOTING SCHEDULE		
MARK	SIZE	REINFORCEMENT
S1	36" DIA SONOTUBE	SEE DETAIL 1 ON S1.01
S2	24" DIA SONOTUBE	SEE DETAIL 1 ON S1.01

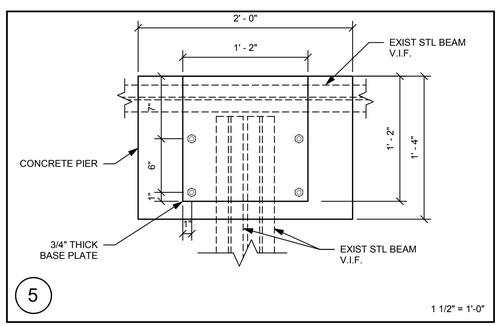
CONCRETE PIER SCHEDULE		
MARK	SIZE	STEEL BEARING PLATE SIZE
P1	16" x 24" x 12" MIN	SEE DETAIL 4 ON S1.01
P2	16" x 24" x 12" MIN	SEE DETAIL 5 ON S1.01
P3	16" x 16" x 12" MIN	SEE DETAIL 6 ON S1.01
P4	16" x 16" x 12" MIN	SEE DETAIL 7 ON S1.01

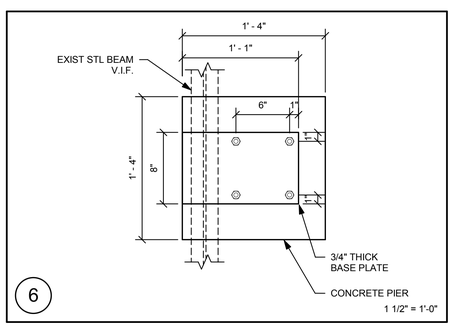
NOTE:
REFER TO ARCHITECTURAL DRAWINGS FOR ROTATION OF BASEPLATE IN RELATION TO EXISTING STEEL BEAM

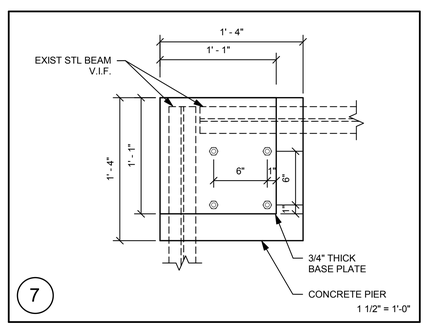
COLUMN SCHEDULE		
MARK	SIZE	BASE PLATE SIZE
C1	HSS4x4x1/4	3/4" x 10" x 0' - 10"

NOTE:
C1 COLUMN TO HAVE A 6x6 FIRE-TROL SHELL WITH MINIMUM 1 HOUR FIRE RATING.









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BROWN MIDDLE SCHOOL
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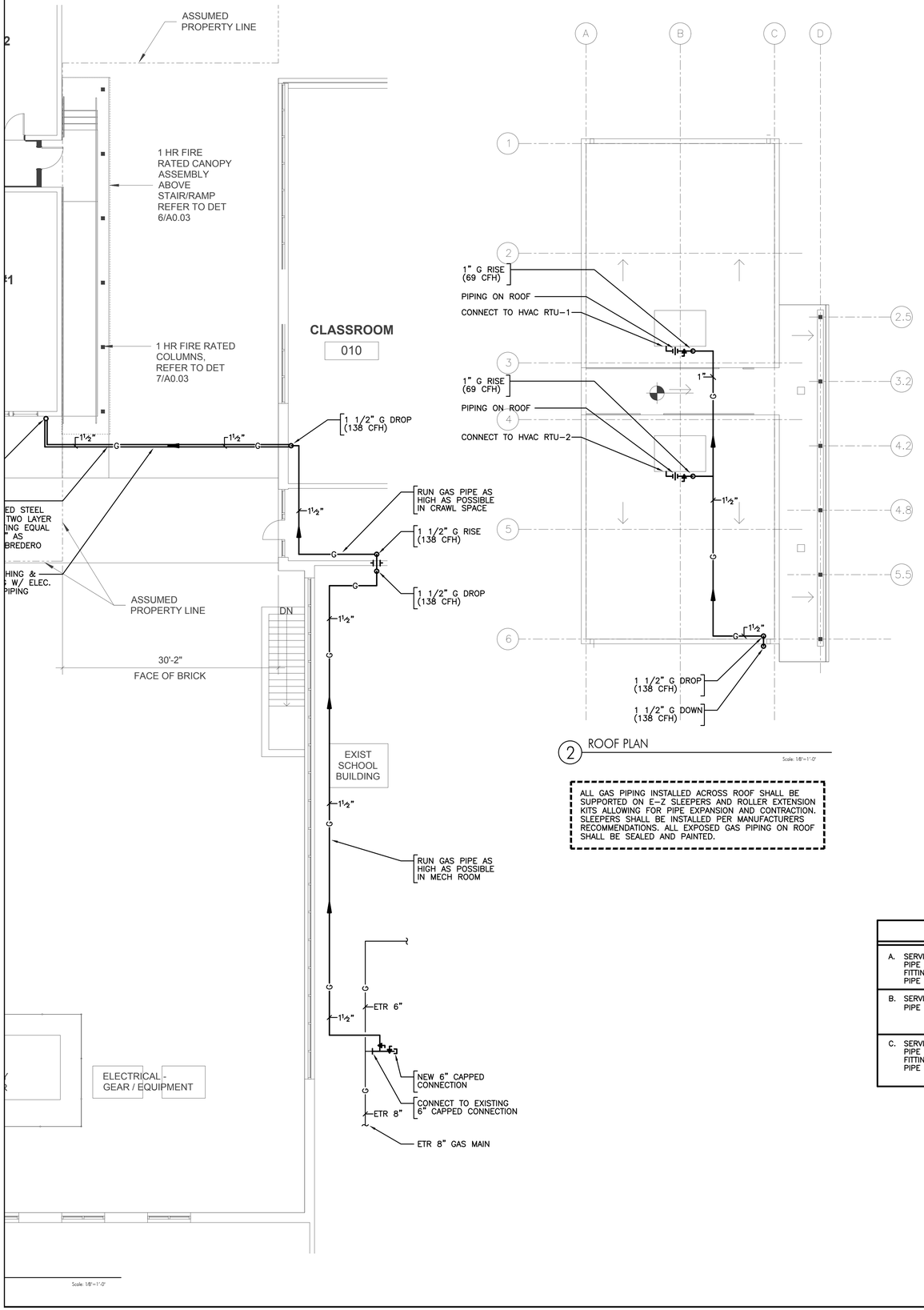
FIRST FLOOR FOUNDATION PLAN

Revisions:

No.	Date	Description

Drawn By:	DH
Checked By:	CJO
Approved By:	MVD
Drawing Scale:	As indicated
Project Number:	
Date:	May 25, 2016

S1.01



2 ROOF PLAN

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

ALL GAS PIPING INSTALLED ACROSS ROOF SHALL BE SUPPORTED ON E-Z SLEEPERS AND ROLLER EXTENSION KITS ALLOWING FOR PIPE EXPANSION AND CONTRACTION. SLEEPERS SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS. ALL EXPOSED GAS PIPING ON ROOF SHALL BE SEALED AND PAINTED.

PLUMBING LEGEND

	NEW WORK INDICATED AS HEAVY LINEWORK
	EXISTING WORK INDICATED AS LIGHT LINEWORK
	ABOVE FLOOR PIPING (SINGLE LINEWORK)
	BELOW FLOOR PIPING (DOUBLE LINEWORK)
	SOIL (S) OR WASTE (W) PIPING
G	NATURAL GAS (G) PIPING
	UNION CONNECTION
	GAS VALVE
	EXISTING WORK TO BE REMOVED
	CUT & CAP EXISTING PIPING
	CONNECT TO EXISTING
	UP (PENETRATES LEVEL ABOVE)
	RISE (BUT DOES NOT PENETRATE LEVEL ABOVE)
	DOWN (PENETRATES LEVEL BELOW)
	DROP (BUT DOES NOT PENETRATE LEVEL BELOW)
VOD	VALVE ON DROP
RE	REMOVE EXISTING
ETR	EXISTING TO REMAIN
CTE	CONNECT TO EXISTING
C&C	CUT AND CAP

PLUMBING GENERAL NOTES:

THE WORK CONSISTS OF FURNISHING ALL LABOR AND MATERIALS NECESSARY TO INSTALL A COMPLETE AND READY FOR CONTINUOUS OPERATION PLUMBING SYSTEM INCLUDING BUT NOT LIMITED TO APPARATUS AND EQUIPMENT FOR THIS PROJECT.

ALL EQUIPMENT AND MATERIALS FURNISHED UNDER THE PLUMBING SUB CONTRACT INCLUDING LABOR AND TESTING PERFORMED HEREIN SHALL BE IN ACCORDANCE WITH THE STATE BUILDING CODE, FUEL GAS AND PLUMBING CODE, ALL LOCAL CODES AND REGULATIONS, NATIONAL FIRE PROTECTION ASSOCIATION, INSURANCE REGULATIONS AND REQUIREMENTS GOVERNING SUCH WORK.

ANY AND ALL PERMITS REQUIRED FOR INSTALLATION OF ANY MATERIALS SHALL BE OBTAINED AS PART OF THE WORK OF THE DRAWINGS AND SPECIFICATIONS INCLUDING ALL FEES AND EXPENSES INCURRED.

REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL PLUMBING FIXTURES AND EQUIPMENT.

MISCELLANEOUS DISCREPANCIES OR OMISSIONS WHICH MIGHT APPEAR ON THE PLANS OR SPECIFICATIONS WILL NOT RELIEVE THE PLUMBING SUB CONTRACTOR OF CODE COMPLIANCE.

PIPING AND FITTINGS SPECIFICATIONS

A.	SERVICE (OPTION 1): PIPE MATERIAL: FITTING MATERIAL: PIPE JOINT:	NATURAL GAS (INCLUDING RELIEF VENTS) 2-1/2 INCH AND SMALLER SCHEDULE 40 BLACK STEEL VIEGA MEGAPRESS CARBON STEEL FITTINGS. VIEGA MEGAPRESS CARBON STEEL FITTINGS.
B.	SERVICE (OPTION 2): PIPE MATERIAL:	NATURAL GAS (2 INCH AND SMALLER) CORRUGATED STAINLESS STEEL TUBING SYSTEM (CSST). WITH ALL REQUIRED BONDING, STRIKE PLATES, SUPPORTS, ETC. INSTALLED PER MANUFACTURER'S LISTING REQUIREMENTS AND ALL APPLICABLE CODE REQUIREMENTS.
C.	SERVICE: PIPE MATERIAL: FITTING MATERIAL: PIPE JOINT:	NATURAL GAS (3 INCH AND LARGER) SCHEDULE 40 BLACK STEEL (ASTM A120). CARBON STEEL WELDED, FLANGE.

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BROWN MODULAR BUILDINGS
125 MEADOWBROOK RD, NEWTON, 02459
LEGEND, NOTES AND PLANS

Revisions:

No.	Date	Description

Drawn By: RWF
Checked By: JJD
Approved By: GW

Drawing Scale: As Noted

Project Number: 16047

Date: July 21st, 2016

P1.00

SYMBOL	DESCRIPTION	NOTES
LIGHTING FIXTURES		
FP 1a / FP 1a / FP 1a / FP 1a / FP 1a / FP 1a	WALL OR CEILING MOUNTED LIGHTING FIXTURE	UPPER CASE LETTERS INDICATE FIXTURE TYPE. REFER TO FIXTURE SCHEDULE FOR MANUFACTURER SUBSCRIPT LOWER CASE LETTERS INDICATE SWITCH CONTROL ASSOCIATIONS FR 1a FP 1a SHADING OF FIXTURES THUS: FR FP FP FP INDICATES FIXTURE ON NIGHT/EMERGENCY CIRCUIT OR EMERGENCY BATTERY BACK UP BALLAST WHERE APPLICABLE, CONTRACTOR SHALL CONFIRM LOCATION OF REMOTE EMERGENCY BALLAST WITH ARCHITECT PRIOR TO PURCHASE AND INSTALLATION. EMERGENCY BALLAST SHALL BE SIMILAR TO BODINE B30ST OR B30 WITH INTEGRAL INDICATOR LIGHT TEST SWITCH. PROVIDE 2 LAMP APPLICATION WHERE APPLICABLE. CONTRACTOR SHALL PROVIDE ALL MOUNTING HARDWARE APPLICABLE TO CEILING, WALL, AND FLOOR TYPE INTO WHICH FIXTURE IS INSTALLED CONTRACTOR SHALL COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL INTERIOR/EXTERIOR ELEVATIONS CONTRACTOR SHALL COORDINATE AND CONFIRM K RATING OF LAMPS TO ACHIVE COLOR AS PER ARCHITECT
	EXTERIOR POLE MOUNTED FIXTURE	CONTRACTOR SHALL FURNISH AND SUPPLY ANY STEP DOWN TRANSFORMERS FOR ANY LOW VOLTAGE LIGHTING
EMERGENCY LIGHTING		
EB	EMERGENCY LIGHTING WITH BATTERY UNIT	ALL EMERGENCY BATTERY PACKS SHALL HAVE REMOTE HEAD CAPABILITY UNLESS NOTED OTHERWISE
	DUAL REMOTE EMERGENCY LIGHTING HEAD	
	SINGLE REMOTE EMERGENCY LIGHTING HEAD	
EXIT SIGNS		
WP 1	CEILING MOUNTED EXIT SIGN	ALL EXIT SIGNS SHALL BE FURNISHED WITH INTERNAL, 90 MINUTE BATTERY UNLESS NOTED OTHERWISE APPLICATION OF SHADED QUADRANTS AND ARROWS THUS: INDICATE LETTERED FACE AND DIRECTIONAL CHEVERONS AS REQUIRED UPPER CASE LETTERS INDICATE REFERENCE TO LIGHTING FIXTURE SCHEDULE
WP 1	WALL MOUNTED EXIT SIGN	

SYMBOL	DESCRIPTION	NOTES	
WIRING DEVICES—SWITCHES			
S_{WP}	SINGLE POLE SWITCH	20A 120–277V AC "WP" – INDICATES WEATHER PROOF	SUBSCRIPT LOWER CASE LETTERS INDICATE SWITCH CONTROL ASSOCIATIONS SUBSCRIPT UPPER CASE LETTERS DENOTE SWITCH TYPE AS LISTED IN NON–STANDARD SWITCHES UNLESS NOTED OTHERWISE SWITCHES SHALL BE MOUNTED 48" TO CENTER LINE AFF
SP	SINGLE POLE SWITCH WITH PILOT LIGHT		
S2	DOUBLE POLE SWITCH		
S3	THREE–WAY SWITCH		
S4	FOUR–WAY SWITCH		
ST	SPRING WOUND INTERVAL TIME SWITCH	TORK OR EQUAL 30 MINUTE MAX	
D	LINEAR SLIDE BAR DIMMER SWITCH	1500W–120 VOLT RATING UNLESS NOTED OTHERWISE	
OS 1	CEILING MOUNTED CORRIDOR OCCUPANCY SENSOR (80' oc)	WATT STOPPER: W–2000H	CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY POWER PACKS, RELAYS, CABLES, AND CONTROL MODULES TO COMPLETE SYSTEM SUBSCRIPT LOWER CASE LETTERS INDICATE SWITCH LEG CONTROL
OS 2	CEILING MOUNTED DUAL TECHNOLOGY SENSOR (1,600 sf)	WATT STOPPER: DT–300	
OS	WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR	WATT STOPPER: DW–100	
OS ab	WALL MOUNTED DUAL TECHNOLOGY DUAL RELAY SENSOR	WATT STOPPER: DW–200	
DS 1	CEILING MOUNTED ON/OFF DAYLIGHT SENSOR	WATT STOPPER: LMLS–105	

SYMBOL	DESCRIPTION	NOTES
LIGHTING CONTROL SYSTEM		
TC	7 DAY ASTRONOMICAL TIME CLOCK	TORK OR EQUAL
PC	WALL MOUNTED PHOTOCELL	
LC	LIGHTING CONTACTOR	
KS	KEY SWITCH LINE VOLTAGE	
MS	MASTER CONTROL SWITCH	
TELECOMMUNICATION SYSTEMS		
MHNC	MODULAR HOME NETWORK CENTER PROVIDE (1) DEDICATED 120V CIRCUIT & DOUBLE DUPLEX RECEPTACLE	MODULAR HOME NETWORKING PANEL SHALL BE LEVITON 47606–AHT IN 47605–140 ENCLOSURE OR EQUAL WITH 120V. RECEPTACLE
	WALL MOUNTED DATA OUTLET	4"x4" SQUARE OUTLET BOX WITH 1"C BACK TO TELEPHONE CLOSET P – DENOTES PUBLIC PAY PHONE W – DENOTES POWER FEED F – DENOTES MODULAR FURNITURE BEZEL (2)VOICE,(2)DATA OUTLETS BY OTHERS
	WALL MOUNTED COMBINATION TEL/DATA OUTLET	
	WALL MOUNTED TEL OUTLET	
T	FIRE RATED FURNITURE FEED POKE THROUGH DEVICE FOR TEL/DATA CONNECTIONS TO ELECTRIFIED FURNITURE	
T	4" SQUARE OUTLET BOX HOLE COVERPLATE FOR ELECTRIFIED FURNITURE	WITH 1 1/2" GROMMETTED TEL/DATA CONNECTION TO PARTITIONS, MOUNTED 8" AFF
TV	WALL MOUNTED CABLE TV OUTLET	4"x4" SQUARE OUTLET BOX WITH 1" CONDUIT STUBBED 6" ABOVE ACCESSIBLE CEILING SEE ARCH PLAN FOR MOUNTING HEIGHT

SYMBOL	DESCRIPTION	NOTES
WIRING DEVICES – RECEPTACLES		
1	WALL DUPLEX CONVENIENCE OUTLET MTD 18" AFF	20A/125V, 2P, 3W, GNDG., NEMA 5–20R SHADING OF SYMBOL THUS: INDICATES RECEPTACLE WITH EACH HALF SEPARATELY WIRED. (HALF CONSTANT HALF SWITCH CONTROLLED.) "1"– INDICATES CIRCUIT NUMBER SUBSCRIPT LOWER CASE LETTERS INDICATE SWITCH CONTROL ASSOCIATIONS SHADING OF SYMBOL THUS: INDICATES RECEPTACLE MTD 6" ABOVE COUNTER TO CENTER LINE OR 48" AFF UNLESS NOTED OTHERWISE 'WP' – INDICATES WEATHER PROOF 'GFI' DENOTES GROUND FAULT INTERRUPTING TYPE RECEPTACLE ALL POWER OUTLET FACEPLATES SHALL BE LABELED WITH CIRCUIT NUMBER AND PANEL DESIGNATION FEEDING OUTLET
	CEILING MOUNTED DUPLEX CONVENIENCE OUTLET	
IG	ISOLATED GROUND DUPLEX CONVENIENCE OUTLET	
	WALL DOUBLE DUPLEX CONVENIENCE OUTLET	
H	HOSPITAL GRADE DUPLEX CONVENIENCE OUTLET	
	WALL MTD SINGLE CONVENIENCE OUTLET	
9	WALL MOUNTED SPECIAL PURPOSE POWER RECEPTACLE	NUMERAL WITHIN SQUARE DENOTES RECEPTACLE TYPE AS LISTED IN SCHEDULE OF NON–STANDARD RECEPTACLES
P	FIRE RATED FURNITURE FEED POKE THRIUGH DEVICE FOR POWER CONNECTIONS TO ELECTRIFIED FURNITURE	
P	4" SQUARE OUTLET BOX TO OUTLETS LOCATED IN FURNITURE PARTITIONS (SEE FLOOR PLANS)	
WIRING DEVICES – MISCELLANEOUS		
PP	2 CHANNEL PWR/DATA POWER POLE WITH ELEC DEVICES AND PLATES	WIREMOLD AMDPT SERIES OR EQUAL
	2 PIECE SURFACE MTD RACEWAY WITH 20A DUPLEX RECEPTACLES SPACING AS SHOWN ON ELECTRICAL PLANS	WIREMOLD OR EQUAL
	2 PIECE MULTI–CHANNEL RACEWAY WITH 20A DUPLEX RECEPTACLES AND DATA OUTLETS SPACING AS SHOWN ON ELECTRICAL PLANS	WIREMOLD OR EQUAL
	FLUSH FLOOR MOUNTED POWER/DATA CONVIENCE RECEPTACLES	POKE THRU APPLICATION: 2 HOUR RATED. WIREMOLD RC SERIES OR EQUAL. COORDINATE FINAL POWER AND TEL/DATA TERMAINTIONS WITH TENANT FLOOR TRENCH APPLICATION: DEEP RECTANGULAR CAST IRON BOX WIREMOLD OR EQUAL PROVIDE 1"C FROM TEL/DATA TO 6" AFF. CONTRACTOR SHALL SUPPLY ALL COVERS AND FACE PLATES SPECIFIC TO SERIES
JUNCTION BOXES		
J	CEILING MOUNTED JUNCTION BOX	
J	WALL MOUNTED JUNCTION BOX	
J	SURFACE MOUNTED JUNCTION BOX	
J	FLUSH FLOOR MOUNTED JUNCTION BOX	
PB	PULL BOX	
J	JUNCTION BOX WITH FLEXIBLE CONNECTION TO EQUIPMENT	P – DENOTES POWER FEED C – DENOTES COMMUNICATIONS FEED

SYMBOL	DESCRIPTION	NOTES	
MOTORS AND CONTROLS			
	MOTOR	COMPLETE INFO. FOR MOTOR IS INDICATED BY APPLICATION OF INDEXING SYMBOLS REFERENCE TO SCHEDULE OF MECHANICAL EQUIPMENT	
	MAGNETIC MOTOR STARTER COMPLETE W/ THERMAL OVERLOAD PROTECTION	SUBSCRIPT INDICATES NEMA SIZE	COMPLETE INFORMATION FOR CONTROL ITEMS IS INDICATED BY THE APPLICATION OF INDEXING SYMBOL REFERENCE APPLIED TO ASSOCIATED EQUIP.
	MANUAL MOTOR STARTER (THERMAL OVERLOAD SWITCH)		
VFD	VARIABLE FREQUECY DRIVE	REFER TO HVAC SCHEDULE FOR MOTOR LOAD HORSEPOWER SIZE	
CP	CONTROL PANEL (MECHANICAL EQUIP)	FURNISHED AND INSTALLED BY OTHERS. WIRED BY THE ELECTRICAL CONTRACTOR	

SYMBOL	DESCRIPTION	NOTES
DISTRIBUTION EQUIPMENT		
	SURFACE MOUNTED PANEL	
	FLUSH MOUNTED PANEL	
TVSS	SURGE SUPPRESSION	PROVIDE PER SPECIFICATIONS
T	TRANSFORMER	SEE ELECTRICAL PLANS FOR KVA RATING
	GROUNDING PER SPECIFICATION	
M	METER SOCKET AND METER	METER SOCKET PROVIDED BY CONTRACTOR PROVIDED BY LOCAL UTILITY CO.
	OVERCURRENT AND/OR SWITCHING DEVICE "WP" – INDICATES WEATHER PROOF	COMPLETE INFORMATION FOR DEVICES IS INDICATED BY APPLICATION OF TAG SYMBOLS 30 – INDICATES UNFUSED SWITCH 30 – FRAME SIZE 30/15 – INDICATES FUSED SWITCH 30 – FRAME SIZE 15 – FUSE SIZE CB – INDICATES ENCLOSED CIRCUIT BREAKER 30/15 – INDICATES COMBINATION FUSED SWITCH AND STARTER 30 – FRAME SIZE 15 – FUSE SIZE CB – INDICATES COMBINATION ENCLOSED CIRCUIT BREAKER AND STARTER INDICATES BY OTHERS
	WALL MOUNTED EMERGENCY POWER OFF BUTTON	

SYMBOL	DESCRIPTION	NOTES
BRANCH CIRCUITRY		
	LIGHTING AND APPLIANCE BRANCH CIRCUITRY CONCEALED ABOVE	ARROW HEAD INDICATES HOME RUN CIRCUITRY TO 20A–1P CIRCUIT BREAKER (UNLESS NOTED OTHERWISE) NUMBER OF ARROW HEADS INDICATE NUMBER OF BRANCH POLES REQUIRED IN PANEL CROSS MARKS INDICATE NUMBER OR NO. 12 WIRES IN 3/4" CONDUIT PLUS GROUND. ABSENCE OF CROSSMARKS INDICATES 2#12, 1#12 GROUND HOME RUNS ARE INDICATED THUS: LL2 – 1, 3, 5
	LIGHTING AND APPLIANCE BRANCH CIRCUITRY CONCEALED BELOW	
	LIGHTING AND APPLIANCE BRANCH RUN EXPOSED	
	INDIVIDUAL RUN TURNING UP	"LL2" DENOTES PANEL DESIGNATION. "1,3,5" DENOTES CIRCUIT NO'S 1,3,5 CONTAINING 20A. 1P. CB'S IN PANELBOARD
	INDIVIDUAL RUN TURNING DOWN	CONDUIT RUNS REQUIRING CIRCUIT BREAKER GREATER THAN 20A–1P WIRE SIZE GREATER THAN NO. 12 AND CONDUIT SIZE GREATER THAN 3/4" ARE NOTED NOTED THUS: LL2–1, 3, 5 50A 3P 4 #4, 1 #8 GROUND 1–1/4" CONDUIT
	INDIVIDUAL RUN TURNING UP&DOWN	
GENERAL CIRCUITRY		
	BUSWAY	
	CIRCUIT BREAKER BUS PLUG, BREAKERS AS INDICATED	
	BUSWAY FEED/ LUG CONNECTION	
PE	IDENTIFICATION OF INDIVIDUAL RUN OTHER THAN BRANCH CIRCUITRY OR SECONDARY FEEDERS	PE – PRIMARY ELECTRIC SE – SECONDARY ELECTRIC TEL – TELEPHONE TV – TELEVISION CATV – CABLE TELEVISION E – EMERGENCY
SECONDARY FEEDERS		
	FEEDER RUN CONCEALED ABOVE	ARROW HEAD INDICATES HOME RUN TO PANEL BOARD
	FEEDER RUN CONCEALED BELOW	FEEDER SIZING SHOWN ON POWER RISER DIAGRAM
	FEEDER RUN AS PER SPECIFIC NOTATION	
TAG SYMBOLS		
	INDEX SYMBOL	HEXAGONAL SYMBOLS CONTAINING TWO UPPER CASE LETTERS INDICATE REFERENCE TO A SCHEDULE OF SPECIAL EQUIPMENT HEXAGONAL SYMBOLS CONTAINING UPPER CASE LETTERS AND NUMERICALS INDICATE REFERENCE TO SCHEDULE OF MECHANICAL EQUIPMENT HEXAGONAL SYMBOLS CONTAINING NUMERICALS ONLY INDICATE REFERENCE TO AN EXPLANATION OF ELECTRICAL WORK REQUIREMENT
	GANGING CROSS REFERENCE	THE NOTED INDICATION ADJACENT TO A DEVICE DENOTES THAT THE DEVICE IS TO BE GANGED IN A BOX WITH ANOTHER DEVICE SIMILARLY NOTED AT THE SAME LOCATION ON ANOTHER DRAWING
( )	SPECIAL MOUNTING HEIGHT INDICATIONS	DIMENSION NOTED IN PARENTHESIS ADJACENT TO ANY ITEM OF THE DRAWINGS INDICATES THE HEIGHT OF IT'S HORIZONTAL CENTERLINE ABOVE FINISHED FLOOR
*	MOUNTING HEIGHT REFERENCE TO ARCHITECTURAL DRAWINGS	
	LINE INDICATING PHYSICAL SIZE OF ELECTRICAL ITEMS	INDICATION USED CIRCUMSCRIBING OTHER SYMBOLS TO DELINEATE PHYSICAL SIZE
	DETAIL TITLE ANNOTATION INDICATING DETAIL NUMBER	
	WIRING DEVICE GANGING SYMBOL	GANGING SYMBOL SHOWN IN CIRCUITRY RUN IN COMBINATION WITH ANY WIRING DEVICE SYMBOL THUS: S S S DENOTES WIRING DEVICES WHICH ARE TO BE GANGED IN A COMMON PLATE OUTLET

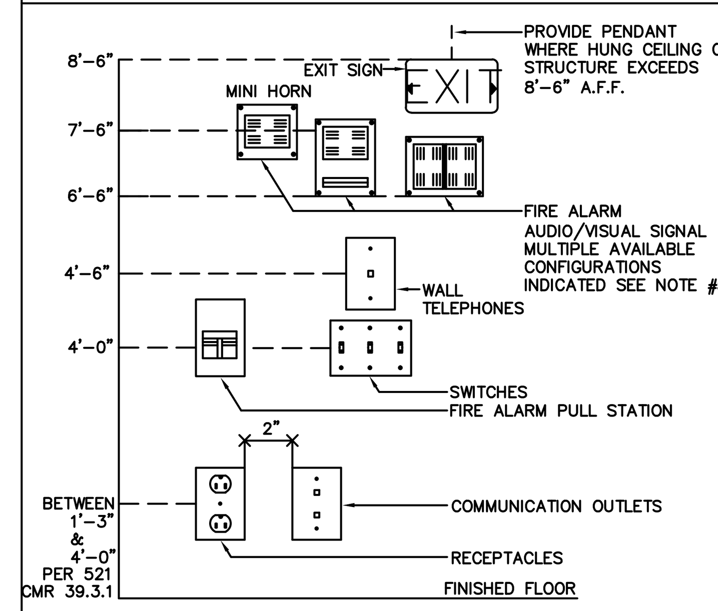
SYMBOL	DESCRIPTION	NOTES	
FIRE ALARM SYSTEM			
F	MANUAL FIRE ALARM PULL STATION		
	FIRE FIGHTER FIRE EMERG PHONE		
	VISUAL ONLY FIRE ALARM DEVICE		
F	COMBINATION AUDIO AND VISUAL FIRE ALARM DEVICE		
F C	CEILING MOUNTED AUDIO AND VISUAL FIRE ALARM DEVICE		
S	WALL MOUNTED FIRE ALARM SPEAKER		
S	WALL MOUNTED FIRE ALARM SPEAKER AND STROBE		
M	WALL MOUNTED MINI–HORN		
M	WALL MOUNTED FIRE ALARM MINI–HORN & STROBE		
F	FIRE ALARM MASTER BOX		
K	KNOX BOX		
B	ROTATING FIRE ALARM BEACON LIGHT		
EB	ELECTRIC BELL PROVIDE (1) DEDICATED 120V CIRCUIT		
FACP	FIRE ALARM CONTROL PANEL	S	COMBINATION SMOKE DETECTOR/ VISUAL ALARM FOR HEARING IMPAIRED.
FAA	FIRE ALARM ANNUNCIATOR PANEL	H	COMBINATION HEAT DETECTOR/ VISUAL ALARM FOR HEARING IMPAIRED.
RTS	REMOTE TEST STATION	CO	CEILING MOUNTED CARBON MONOXIDE DETECTOR
RI	REMOTE INDICATOR ALARM DEVICE	CO	WALL MOUNTED CARBON MONOXIDE DETECTOR
S	SMOKE DETECTOR	DETECTOR TYPE SUBSCRIPT: L LOCAL 120V DETECTOR R RECEIVER UNIT T TRANSMITTER UNIT D IN DUCT DETECTOR E ELEVATOR RECALL B BEAM TYPE PHOTOELECTRIC SA SUPPLY AIR DUCT DETECTOR RA RETURN AIR DUCT DETECTOR CO COMBINATION SMOKE/CARBON MONOXIDE DETECTOR	
H	HEAT DETECTOR		
S H	WALL MOUNTED SMOKE OR HEAT DETECTOR		
FS TS PS	SPRINKLER SYSTEM MONITOR FS WATER FLOW TS TAMPER SWITCH PS DRY ALARM PRESSURE SWITCH	MONITOR TYPE: MM MONITORING MODULE CM CONTROL MODULE	
DH	MAGNETIC DOOR HOLDER	PROVIDE CONNECTION TO DOOR HARDWARE INTEGRAL HOLDERS	
SK	SMOKE EXHAUST FAN KEY SWITCH		
I	ADDRESSABLE CONTROL OR MONITOR MODULE	MODULE SUBSCRIPT TYPE: C CONTROL MODULE M MONITOR MODULE	

SYMBOL	DESCRIPTION	NOTES
EXISTING ELECTRICAL EQUIPMENT		
ETR	EXISTING TO REMAIN	ALL EXISTING TO REMAIN LIGHTING SHALL BE CLEANED AND RELAMPED CONTRACTOR SHALL VERIFY THAT ALL EXISTING TO REMAIN ELECTRICAL DEVICES ARE OPERATIONAL & FUNCTIONAL. IF ETR DEVICES ARE NOT OPERATIONAL, IT SHALL BE REPLACED WITH A NEW DEVICE OF THAT TYPE. ALL REPLACED DEVICES SHALL MATCH EXISTING CONTRACTOR SHALL EXTEND AND CONNECT EXISTING WIRING TO NEW LOCATION OF RELOCATED EQUIPMENT. CONTRACTOR SHALL REPLACE EXISTING WIRING BACK TO SOURCE IF NECESSARY IF EXISTING WIRING DOES NOT REACH RELOCATED EQUIPMENT. CONTRACTOR SHALL EVALUATE CONDITION OF EXISTING WIRING AND REPLACE IF NECESSARY.
X	EXISTING EQUIPMENT TO BE REMOVED	
XR	EXISTING EQUIPMENT TO BE REMOVED AND RELOCATED	
RX	NEW LOCATION OF RELOCATED EXISTING EQUIPMENT	
RR	REMOVE EXISTING DEVICE AND REINSTALL NEW DEVICE IN SAME LOCATION	
N	DENOTES NEW DEVICE	
	DOTTED DENOTES EXISTING ELECTRICAL EQUIPMENT	

GENERAL NOTES

1. ALL CONDUITS AND EQUIPMENT SHALL BE INSTALLED AND GROUND IN ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF THE APPLICABLE LOCAL AND NATIONAL CODES.
2. CONDUIT RUNS ARE SHOWN DIAGRAMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARRALEL TO BEAMS AND WALLS. EMPTY CONDUITS SHALL HAVE NYLON PULL LINE
3. CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO MOTORS AND OTHER EQUIPMENT.
4. NO CONDUIT SMALLER THAN 3/4", NOR WIRE SIZE SMALLER THAN NO. 12 A.W.G. FOR POWER SHALL BE USED UNLESS OTHERWISE NOTED.
5. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF THE WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE CONSTRUCTION MANAGER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
6. SWITCHES SHALL BE MOUNTED 4'–0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. RECEPTACLES SHALL BE MOUNTED 18" AFF
7. ALL SURFACE MOUNTED PANELS AND PANELBOARDS ON THE INSIDE OF EXTERIOR WALLS ABOVE GRADE OR IN OTHER LOCATIONS CONSIDERED AS DAMP, SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4" AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
8. ALL PANELBOARDS SHALL BE MOUNTED SO THAT THE DISTANCE FROM THE TOP CIRCUIT BREAKER OPERATING HANDLE TO THE FLOOR SHALL NOT EXCEED 6'–6"
9. LIGHTING FIXTURES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS, WITH THE DISTANCE BEING MEASURED FROM THE BOTTOM OF THE LIGHTING FIXTURE TO THE FINISHED FLOOR.
10. FOR LOCATION OF HVAC, PLUMBING, FIRE PROTECTION, AND MISCELLANEOUS EQUIPMENT SEE RESPECTIVE TRADE DRAWINGS.
11. ALL CONDUIT RUNS CROSSING EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION AND DEFLECTION TYPE FITTINGS AS REQUIRED. FOR EXACT LOCATIONS OF EXPANSION JOINTS SEE STRUCTURAL DRAWINGS.
12. ALL MOTOR STARTER CONTROL TRANSFORMERS SHALL BE SIZED TO PROVIDE SUFFICIENT VOLT–AMPERE CAPACITY FOR OPERATING ALL ELECTRICAL DEVICES ASSOCIATED WITH CONTROL OF THE MOTOR, IN ADDITION TO THE STARTER COIL. IT SHALL INCLUDE RELAYS, TIMERS, MOTOR HEATERS, INDICATING LIGHTS, ETC.
13. CONDUIT AND WIRE (NOT SHOWN) FOR FIXTURES, SWITCHES AND/OR RECEPTACLES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AND SHALL BE:
    a. 3/4" (MIN.) CONDUIT RUN
    1. EXPOSED IN UNFINISHED AREAS.
    2. CONCEALED ABOVE HUNG CEILINGS AND IN WALLS IN FINISHED AREAS.
    b. NO.12 (MIN.) Cu WIRE (MIN.) TYPE "THWN/THNN" NO. OF WIRES AS REQUIRED.
14. FOR EQUIPMENT PAD CONSTRUCTION DETAILS SEE STRUCTURAL DRAWINGS.
15. ALL 120V BRANCH CIRCUITS GREATER THAN 100 LINEAR FEET SHALL BE #10AWG MIN.
16. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LAYOUTS FOR ALL ELECTRICAL ROOMS BASED ON ACTUAL EQUIPMENT OF MANUFACTURER SELECTED, SUBMIT FOR REVIEW PRIOR TO INSTALLATION.
17. PROVIDE ELECTRICAL OUTLET PLATE GASKET SEALS AT RECEPTACLES, SWITCHES AND OTHER ELECTRICAL BOXES ON EXTERIOR WALLS AND ON INTERIOR WALLS BETWEEN CONDITIONED AND NON–CONDITIONED SPACES.
18. THE ELECTRICAL CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL SHOWING ALL ELECTRICAL TELEPHONE, SECURITY, FIRE ALARM, COMMUNICATION AND OTHER SYSTEMS CONDUITS IN SLAB AND ABOVE CEILING ETC.. COORDINATE WITH OTHER TRADES AND BUILDING'S STRUCTURE TO AVOID ANY CONFLICT.
19. ALL TERMINATION LUGS SHALL BE SIZED ACCORDINGLY TO ACCOMMODATE INDICATED CONDUCTORS.
20. THE ELECTRICAL CONTRACTOR SHALL SUBMIT PLANS FOR APPROVAL SHOWING ALL COMMUNICATIONS EQUIPMENT AND DEVICES THROUGHOUT THE BUILDING. THE ELECTRICAL CONTRACTOR SHALL ALSO LABEL AND IDENTIFY ALL CONDUITS THAT SERVE DIFFERNT SYSTEMS.
21. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL LIGHT FIXTURES.
22. COORDINATE LOCATIONS OF ALL LIGHT FIXTURES IN MECHANICAL AND ELECTRICAL ROOMS WITH LAYOUT OF EQUIPMENT, PIPING AND DUCTWORK.
23. ALL EXIT SIGNS SHALL BE UNSWITCHED.
24. ALL SWITCHED LIGHT FIXTURES CIRCUITED TO A NORMAL/EMERGENCY CIRCUIT ARE TO BE WIRED WITH AN EMERGENCY BY–PASS RELAY.
25. ALL 20 AMPERE, SINGLE POLE CIRCUITS SHALL BE PROVIDED WITH A SEPARATE FULL SIZE NEUTRAL CONDUCTOR.
26. CONFIRM EXACT POWER REQUIREMENTS AND CONNECTION LOCATIONS FOR ALL EQUIPMENT WITH THE PLUMBING, FIRE PROTECTION, HVAC AND GENERAL CONTRACTOR
27. PROVIDE AN SOU KIT FOR ALL MECH EQUIPMENT RATED LESS THAN 1/2HP (TYP)
28. CERTAIN SYMBOLS IN THE SYMBOL LIST DO NOT APPEAR ELSEWHERE IN THE DRAWINGS. SUCH SYMBOLS ARE INCLUDED TO PERMIT INTERPRETATIONS TO BE MADE IN THE EVENT OF DESIGN CHANGES.
29. ELECTRICAL CONTRACTOR SHALL MAINTAIN RATING OF ANY CEILING, WALL, FLOOR OR ANY BUILDING STRUCTURE THAT ANY ELECTRICAL SYSTEM PENETRATES. SEE ARCHITECTURAL PLAN FOR RATINGS.

MOUNTING HEIGHTS



NOTES

1.) ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT EXIT SIGNS

2.) DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.

3.) ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.

4.) REFER TO THE ARCHITECTS ELEVATION DETAILS FOR EXACT HEIGHT AND LENGTH OF SURFACE RACEWAYS.

5.) WALL MOUNTED VISUAL APPLIANCE THE ENTIRE LENS OF A/V SIGNAL OR VISUAL–ONLY SIGNAL IS NOT LESS THAN 80" AND NOT GREATER THAN 96" A.F.F. CONTRACTOR SHALL CONTACT ENGINEER IF PERFORMANCE BASED ALTERNATIVE (NFPA 72 7.5.4.5) IS REQUIRED DUE TO CEILING HEIGHTS.

6.) ALL LOAD CENTERS LOCATED WITHIN GROUP I & GROUP II UNITS SHALL BE MOUNTED WITH BREAKER A MAXIMUM OF 54" A.F.F. AND 18" FROM INTERIOR CORNER.

7.) ALL WALL MOUNTED AUDIBLE NOTIFICATION APPLIANCES SHALL HAVE THEIR TOPS ABOVE THE FINISHED FLOORS AT HEIGHTS OF NOT LESS THAN 90" (7'6") AND BELOW THE FINISHED CEILINGS AT DISTANCES NOT LESS THAN 6".

ABBREVIATIONS

ABBR	ABBREVIATIONS	L	LENGTH
A/AMP	AMPERE	LA	LIGHTNING ARRESTOR
AC	ALTERNATING CURRENT	LP	LIGHTING PANEL
A/C	AIR CONDITIONING	LTG	LIGHTING
AFF	ABOVE FINISHED FLOOR	LV	LOW VOLTAGE
AFG	ABOVE FINISHED GRADE		
ARCH	ARCHITECTURAL	M	METER
ATC	AUTOMATIC TEMPERATURE CONTROL	MM	MILLIMETER
		MCB	MAIN CIRCUIT BREAKER
ATS	AUTOMATIC TRANSFER SWITCH	MEC	MASS ELECTRIC COMPANY
AUTO	AUTOMATIC	MECH	MECHANICAL
		MER	MAIN ELECTRIC ROOM
		MFR	MANUFACTURER
BAT	BATTERY	MLO	MAIN LUG ONLY
BIS	BYPASS ISOLATOR SWITCH	MISC	MISCELLANEOUS
		MTD	MOUNTED
C	CONDUIT		
CATV	CABLE TELEVISION		
CAB	CABINET	N	NEUTRAL
CB	CIRCUIT BREAKER	N/C	NORMALLY CLOSED
CCTV	CLOSED CIRCUIT TELEVISION	NEC	NATIONAL ELECTRIC CODE
CKT	CIRCUIT		
CL	CENTERLINE	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CM	CENTIMETER		
CLG	CEILING		
CO	COMPANY	NIC	NOT IN CONTRACT
COL	COLUMN	NL	NIGHT LIGHTING CKT
C/T	CURRENT TRANSFORMER	N/O	NORMALLY OPEN
CW	COOL WHITE	NO	NUMBER
DET	DETAIL	OC	ON CENTER
DIA	DIAMETER	O/C	OVERCURRENT
DISC	DISCONNECT	OL	OVERLOAD
DN	DOWN		
DP	DISTRIBUTION PANEL	PB	PULL BOX
DPDT	DOUBLE POLE DOUBLE THROW	PH	PHASE
		PNL	PANEL
DPST	DOUBLE POLE SINGLE THROW	PP	PUMP
		PRI	PRIMARY
DT	DUST TIGHT	P/T	POTENTIAL TRANSFORMER
DWG	DRAWING		
EA	EACH	PVC	POLYVINYL CHLORIDE
EC	ELECTRICAL CONTRACTOR	PWR	POWER
EL	ELEVATION		
ELEC	ELECTRIC	RECEPT	RECEPTACLE
ELEV	ELEVATOR	REC	RECESSED
ES	ENERGY SAVING	RPA	RELAY PANEL
EX	EXISTING		
FDR	FEEDER	SEC	SECONDARY
FLR	FLOOR	SP	SPARE
FLUO	FLUORESCENT	SPECS	SPECIFICATIONS
		SPKLR	SPRINKLER
GEN	GENERATOR	SW	SWITCH
GFI	GROUND FAULT INTERRUPTER		
GFP	GROUND FAULT PROTECTOR	TB	TERMINAL BOARD
GND	GROUND	TEL	TELEPHONE
		TV	TELEVISION
HC	HUNG CEILING	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
HGT	HEIGHT		
HID	HIGH INTENSITY DISCHARGE LAMP	TYP	TYPICAL
		U.N.O.	UNLESS NOTED OTHERWISE
HO	HIGH OUTPUT	V	VOLTS
HP	HORSE POWER	VA	VOLT AMPERAGE
HPS	HIGH PRESSURE SODIUM	VAC	VACUUM
HVAC	HEATING, VENTILATION AND AIR CONDITIONING	VENT	VENTILATING
		VFD	VARIABLE FREQUENCY DRIVE
HZ	HERTZ		
HV	HIGH VOLTAGE	VT	VAPOR TIGHT
IN	INCHES		
INCAND	INCANDESCENT	W	WATT ON WIRE
JB	JUNCTION BOX	W/	WITH
KV	KILOVOLT	WP	WEATHERPROOF
KVA	KILOVOLT–AMPERES		
KW	KILOWATT		

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BROWN MODULAR BUILDINGS
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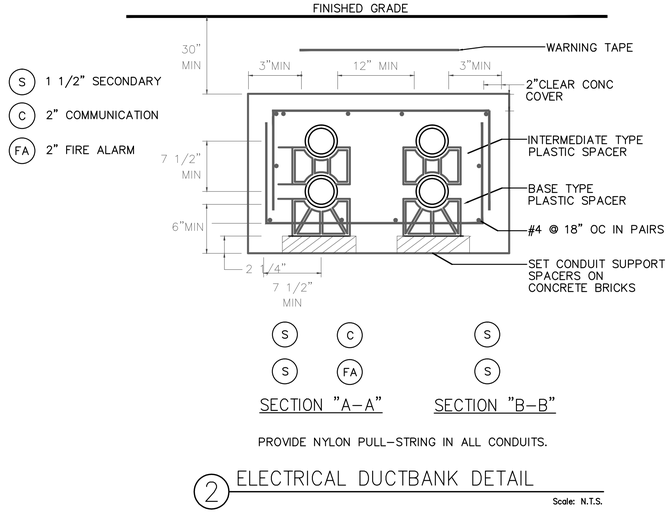
LEGEND, NOTES □ ABBREVIATIONS

Revisions:

No.	Date	Description

Drawn By: RJA
Checked By: SA
Approved By: SA
Drawing Scale: NTS
Project Number: 16047
Date: July 21st, 2016

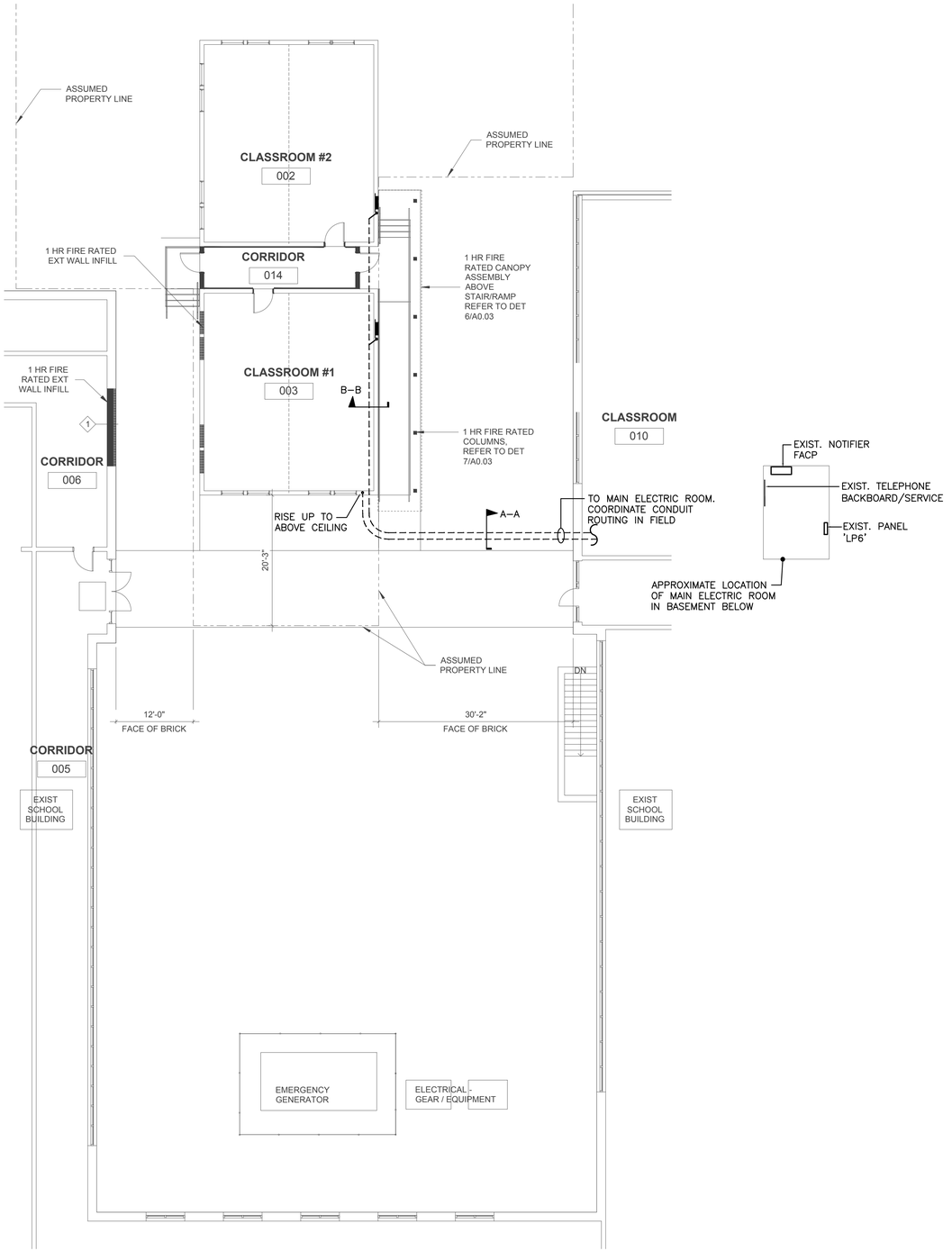
E0.01



PROVIDE NYLON PULL–STRING IN ALL CONDUITS.

2 ELECTRICAL DUCTBANK DETAIL

Scale: N.T.S.



1 ELECTRICAL SITE PLAN

Scale: 1"=10'-0"

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ELECTRICAL SITE PLAN

Revisions:

No.	Date	Description

Drawn By:	RJA
Checked By:	SA
Approved By:	SA
Drawing Scale:	As Noted
Project Number:	16047
Date:	July 21st, 2016

E0.02

LIGHTING FIXTURE SCHEDULE							
MOUNTING		FLUORESCENT	INCANDESCENT/HID		EXIT		
RECESSED		FR	R		XR		
CEILING/SURFACE		FC	C		XC		
PENDANT/SUSPENDED		FP	P		XP		
WALL		FW	W		XW		
TRACK		FT	T				
TYPE	DESCRIPTION	MANUFACTURER & CATALOG NUMBER	LAMPS		INPUT		REMARKS
			NUMBER	TYPE	VOLTS	WATTS	
FR1	RECESSED 2'x4' FLUORESCENT LIGHT FIXTURE	COLUMBIA LIGHTING: 4VS24-328G-FSDR12-EU	3	T5/28	UNI	84	FIXTURE TO MATCH EXISTING
FS1	SURFACE MOUNTED OUTDOOR EMERGENCY FIXTURE	DUAL LITE: C9-42F-E	1	42W/CFL	120/277	48	FIXTURE TO MATCH EXISTING
⊗	LED UNIVERSAL EXIT	DUAL LITE: LXURWE	1	LED	120/6	3	FIXTURE TO MATCH EXISTING
EB	EMERGENCY BATTERY UNIT	DUAL LITE: EZ-2	2	6V5W MR16	120/6	11	FIXTURE TO MATCH EXISTING

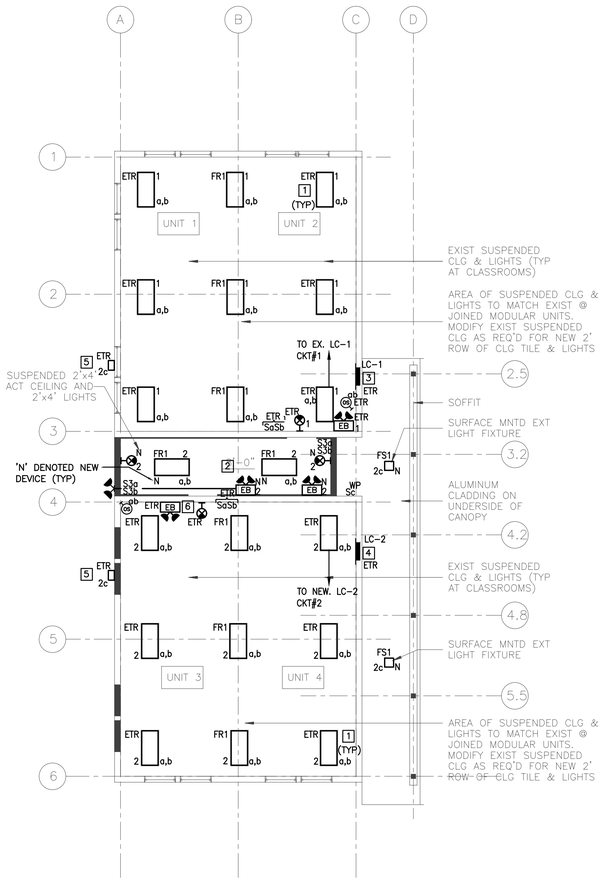
ALTERNATE LIGHTING FIXTURE SCHEDULE							
MOUNTING		FLUORESCENT	INCANDESCENT/HID		EXIT		
RECESSED		FR	R		XR		
CEILING/SURFACE		FC	C		XC		
PENDANT/SUSPENDED		FP	P		XP		
WALL		FW	W		XW		
TRACK		FT	T				
TYPE	DESCRIPTION	MANUFACTURER & CATALOG NUMBER	LAMPS		INPUT		REMARKS
			NUMBER	TYPE	VOLTS	WATTS	
FR1	RECESSED 2'x4' LED LIGHT FIXTURE	COLUMBIA LIGHTING: LTGR24-35MWG-R-ESDU	1	LED	UNI	47.7	FIXTURE TO MATCH EXISTING

GENERAL LIGHTING NOTES

1. FURNISH ALL LIGHTING FIXTURES COMPLETE WITH MOUNTING ACCESSORIES TO MEET JOB REQUIREMENTS VERIFY FIXTURE MOUNTING AND LOCATION AGAINST ARCHITECTS PLANS, ELEVATIONS AND DETAIL DRAWINGS. EXACT LOCATION OF ALL FIXTURES SHALL BE CONFIRMED WITH THE ARCHITECT PRIOR TO ROUGHING IN.
2. SERIES FIXTURES SHALL SATISFY LENGTHS AS SHOWN ON THE DRAWINGS.
3. FIXTURE LETTERS SHOWN ONCE ON A CONTINUOUS ROW OF FIXTURES SHALL BE TYPICAL FOR THAT ROW UNLESS OTHERWISE NOTED.
4. ALL FIXTURES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE, INDEPENDENT OF HUNG CEILING WITH ROD OR JACK CHAIN SUPPORT. STEM LENGTHS, STEM FINISHES AND STEM LOCATIONS OF ALL PENDANT FIXTURES TO BE VERIFIED AND CONFIRMED BY OWNER, ARCHITECT AND ENGINEER PRIOR TO ORDERING STEMS.
5. ALL INCANDESCENT LAMPS SHALL BE RATED 120 VOLTS UNLESS OTHERWISE SPECIFIED.
6. ALL FLUORESCENT TUBE LAMPS SHALL BE ENERGY SAVING TYPE. SYLVANIA FLUORESCENT "OCTRON" OR APPROVED EQUAL.
7. ALL FLUORESCENT BALLAST'S UNLESS NOTED OTHERWISE SHALL BE 120V ELECTRONIC TYPE, U.L. APPROVED AS A COMBINATION WITH OCTRON LAMPS. ALL T8, FLUORESCENT AND COMPACT FLUORESCENT BALLAST'S SHALL BE OF THE HPF ELECTRONIC TYPE WHERE THAT OPTION IS AVAILABLE. WHERE HPF ELECTRONIC BALLAST'S ARE NOT AVAILABLE, USE PREMIUM LOW ENERGY HPF MAGNETIC BALLAST'S.
8. "ALTERNATE MANUFACTURER" AND "OR APPROVED EQUAL" MEANS EQUIVALENT OR SUPERIOR IN PERFORMANCE, MATERIALS, WORKMANSHIP AND APPEARANCE TO THE SPECIFIED EQUIPMENT.
9. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRANSFORMERS AND/OR BALLAST'S REQUIRED TO OPERATE ALL LAMPS SPECIFIED, INCLUDING REMOTE BALLAST'S AND/OR TRANSFORMERS AND THE ENCLOSURES FOR SAME. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF COMPATIBILITY BETWEEN LAMPS SPECIFIED, BALLAST'S AND/OR TRANSFORMERS SPECIFIED, AND DIMMING AND OTHER CONTROL DEVICES SPECIFIED. NOTIFY ARCHITECT AND ENGINEER CONSULTANT OF ANY INCOMPATIBILITY PRIOR TO ORDERING EQUIPMENT.
10. ELECTRICAL SUBCONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE COORDINATION OF ALL LIGHTING EQUIPMENT AND CONTROL DEVICES WITH CEILING AND WALL TYPES SPECIFIED PRIOR TO ORDERING LIGHTING EQUIPMENT.
11. IN ADDITION TO ANY SUBMITTAL REQUIREMENTS STATED IN ELECTRICAL SPECIFICATIONS OF CONTRACT DOCUMENTS, SHOP DRAWINGS AND PRODUCT DATA SUBMITTALS SHALL INCLUDE PHYSICAL DIMENSIONS, PHOTOMETRICS, SPECIFIC LAMP TYPE AND MOUNTING DETAILS.
12. PRELIMINARY AIMING OF ALL ADJUSTABLE LIGHTING EQUIPMENT SHALL BE DONE DURING INSTALLATION BY THE ELECTRICAL CONTRACTOR AS INDICATED ON THE LIGHTING PLANS/AIMING DIAGRAM, WHERE SUCH A DIAGRAM IS INCLUDED IN CONTRACT DOCUMENTS OR AS AN ADDENDUM. FINAL AIMING OF ALL ADJUSTABLE LIGHTING EQUIPMENT SHALL BE DONE BY THE ELECTRICAL CONTRACTOR AS DIRECTED BY THE ARCHITECT.
13. IN ALL FIXTURES WITH ADJUSTABLE SOCKETS, SET SOCKETS DURING INSTALLATION TO LOCATE SPECIFIED LAMP IN CORRECT RELATIONSHIP TO REFLECTOR AS RECOMMENDED BY FIXTURE MANUFACTURER.
14. INSTALL CONES IN WALLWASHERS WITH CUTOUT(S) IN INNER REFLECTOR FACING WALL(S) TO BE LIT.
15. UNLESS NOTED TO THE CONTRARY PROVIDE WHITE CEILING TRIMS FOR ALL RECESSED LUMINARIES.
16. WHERE CONTROL DEVICES WITH FINNED HEAT SINKS, SUCH AS LUTON "NOVA" SERIES, ARE SPECIFIED, FINS SHALL NOT BE REMOVED TO MAKE DEVICES FIT BOXES MORE CONVENIENTLY. REFER TO MANUFACTURERS SPECIFICATIONS FOR THE NUMBER OF GANG BOXES REQUIRED TO ACCOMMODATE THE SPECIFIED EQUIPMENT WITHOUT BREAKING OFF FINS.
17. RELAYS USED FOR CONTROL OF LIGHTING (IF ANY) SHALL BE LOCATED AND THE LOCATION SOUNDPROOFED SO AS TO BE INAUDIBLE FROM NORMALLY OCCUPIED AREAS WHEN ACTIVATED.
18. TO ASSURE THE MINIMIZATION OF NOISE, FIXTURES MUST BE MOUNTED SECURELY TO THE SUPPORTING STRUCTURE, AND ALL LOOSE INTERNAL PARTS MUST BE SECURELY TIGHTENED BEFORE ACTIVATING CIRCUITS. WHERE TRANSFORMERS HAVE SELECTOR SWITCHES TO ALLOW USE OF VARIOUS WATTAGE LAMPS, THESE SWITCHES MUST BE SET TO THE WATTAGE OF THE SPECIFIED LAMP. ELECTRICAL CONTRACTOR SHALL PROVIDE DIRECTIONAL ARROWS ON EXIT SIGNS AS INDICATED ON LIGHTING FLOOR PLANS.
19. ALL EXIT SIGNS SHALL BE SUPPLIED WITH AN INTERNAL, 90 MINUTE, EMERGENCY BATTERY. THE ELECTRICAL CONTRACTOR SHALL FIELD INSTALL BODINE "B50" EMERGENCY BALLAST WITH REMOTE TEST SWITCH.
20. IN AN ACCESSIBLE LOCATION FOR 2-LAMP EMERGENCY OPERATION OF FIXTURE. COORDINATE LIGHTING FIXTURE MOUNTING HEIGHTS WITH ARCHITECTURAL CASEWORK OR INTERIOR ELEVATION DRAWINGS.
21. COORDINATE EXACT LIGHTING FIXTURE LOCATIONS AND LENGTHS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
22. PROVIDE "HOT" UNSWITCHED POWER AT ALL LIFE SAFETY BATTERY BALLASTS AND EXIT SIGNS.
23. BRANCH CIRCUITS SHALL BE 3 WIRE WHERE REQUIRED. ALL EXIT SIGNS SHALL BE SUPPLIED WITH INTERNAL, 90 MINUTE, EMERGENCY BATTERY. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ANY STEP DOWN TRANSFORMERS, WIRING, AND CONTROLS FOR LOW VOLTAGE LIGHTING WHERE NECESSARY.
24. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MOUNTING HARDWARE APPLICABLE TO CEILING TYPE INTO WHICH FIXTURE IS TO BE INSTALLED. REFER TO ARCHITECTS REFLECTED CEILING PLAN FOR CEILING MATERIALS.
25. ALL EMERGENCY BATTERY PACKS SHALL BE SUPPLIED WITH CONTACTS TO ACCEPT REMOTE EMERGENCY HEADS.
26. WHERE NECESSARY. WHERE LIGHT FIXTURES ARE INSTALLED IN RATED CEILING, THE CONTRACTOR SHALL PROVIDE HOUSING SUITABLE FOR THAT APPLICATION. UL LISTED FIRE RATED BOX ELCO FIRE BOX OR EQUAL.
27. COORDINATE WITH THE ARCHITECTURAL DRAWING THE CEILING TYPES AND PROVIDE IC RATINGS WERE REQUIRED.
28. ALL FIXTURES UTILIZING HID LAMPS SHALL MEET THE ENERGY INDEPENDENT AND SECURITY ACT "EISA".

ELECTRICAL KEYED NOTES:

1. EXISTING 2'x4' RECESSED LENS TYPE FIXTURES TO REMAIN. ELECTRICAL CONTRACTOR SHALL CLEAN AND RE-LAMP. TYPICAL FOR ALL EXISTING (ETR) TO BE RE-USED LIGHT FIXTURES. REFER TO LIGHTING FIXTURE SCHEDULE FOR ALTERNATE 2'x4' LIGHT FIXTURE.
2. FURNISH AND INSTALL NEW DEVICES IN CORRIDOR 014. ALL DEVICES SHALL MATCH EXISTING BUILDING STANDARDS.
3. EXISTING TO REMAIN 24 POLE LOAD CENTER 'LC-1.
4. EXISTING TO REMAIN 24 POLE LOAD CENTER LC-2.
5. EXISTING WALL MOUNTED EXTERIOR LIGHT FIXTURE.
6. EXISTING BATTERY UNITS SHALL BE CHARGED AND TESTED FOR COMPLIANCE. IF EBU'S CANNOT COMPLY WITH MINIMUM OF 90 MINUTES ON BATTERY OPERATION. EBU'S SHALL BE REPLACED WITH NEW. (TYP)



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

LIGHTING NOTES:

1. SEE DRAWING E0.01 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. COORDINATE LIGHTING FIXTURE MOUNTING HEIGHTS WITH ARCHITECTURAL CASEWORK AND INTERIOR ELEVATION DRAWINGS.
3. COORDINATE EXACT LIGHTING FIXTURE LOCATIONS AND LENGTHS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
4. CIRCUIT NUMBER DESIGNATIONS ARE INTENDED TO ILLUSTRATE BRANCH WIRING CONFIGURATION ONLY.
5. ELECTRICAL CONTRACTOR SHALL COORDINATE AND CONFIRM K RATING (TEMPERATURE) OF FIXTURE LAMPS TO ACHIEVE COLOR AS PER ARCHITECT. LAMPS SHALL BE 3500K UNLESS NOTED OTHERWISE.
6. PROVIDE "HOT" UNSWITCHED POWER AT ALL LIFE SAFETY BATTERY BALLASTS AND EXIT SIGNS. BRANCH CIRCUITS SHALL BE 3 WIRE WHERE REQUIRED. ALL EXIT SIGNS SHALL BE SUPPLIED WITH INTERNAL, 90 MINUTE, EMERGENCY BATTERY.
7. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ANY STEP DOWN TRANSFORMERS, WIRING, AND CONTROLS FOR LOW VOLTAGE LIGHTING WHERE NECESSARY.
8. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MOUNTING HARDWARE APPLICABLE TO FIXTURE AND CEILINGS TYPE INTO WHICH FIXTURE IS TO BE INSTALLED. REFER TO ARCHITECTS REFLECTED CEILING PLAN FOR CEILING MATERIALS.
9. ALL EMERGENCY BATTERY PACKS SHALL BE SUPPLIED WITH CONTACTS TO ACCEPT REMOTE EMERGENCY HEADS.
10. CONTRACTOR SHALL COORDINATE ALL LIGHTING WITH NEW SYSTEMS ABOVE CEILING PRIOR TO INSTALLATION. CONTRACTOR SHALL RESOLVE ANY INSTALLATION CONFLICTS IN FIELD AND NOTIFY ARCHITECT AND ENGINEER OF CHANGE.
11. WHERE LIGHT FIXTURES ARE LOCATED WITHIN RATED CEILINGS OR WALLS, THE THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A UL APPROVED FIRE RATED ENCLOSURE. PROVIDE ELCO FIRE BOX OR APPROVED EQUAL.
12. COORDINATE WITH THE ARCHITECTURAL DRAWING THE CEILING TYPES AND PROVIDE IC RATINGS WERE REQUIRED.
13. ALL EXPOSED AND SURFACE MOUNTED RACEWAY SHALL BE WIREMOLD OR EQUAL. COORDINATE ROUTING WITH ARCHITECT.
14. ALL FIXTURES UTILIZING HID LAMPS SHALL MEET THE ENERGY INDEPENDENT AND SECURITY ACT "EISA"
15. ALL SWITCHED EMERGENCY LIGHTS SHALL HAVE EMERGENCY BYPASS RELAYS OR EQUIVALENT RELAYS PROVIDED WITH DIMMING CONTROLS SYSTEM TO BRING LIGHTS UP TO 100% LEVEL DURING A FIRE ALARM EVENT.
16. ALL FLOOR/CEILING CONNECTIONS SHALL BE FIRE STOPPED.
17. ALL EXISTING TO REMAIN LIGHT FIXTURES SHALL BE CLEANED AND RE-LAMPED. (TYPICAL)

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LIGHTING PLAN

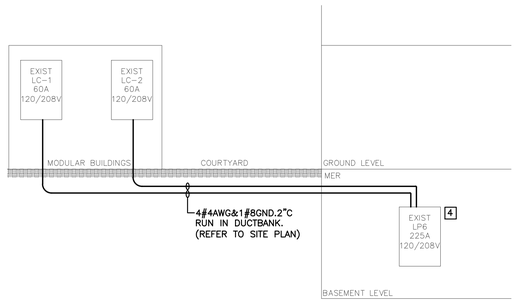
Revisions:		
No.	Date	Description

Drawn By:	RJA
Checked By:	SA
Approved By:	SA
Drawing Scale:	As Noted
Project Number:	16047
Date:	July 21st, 2016

E1.01

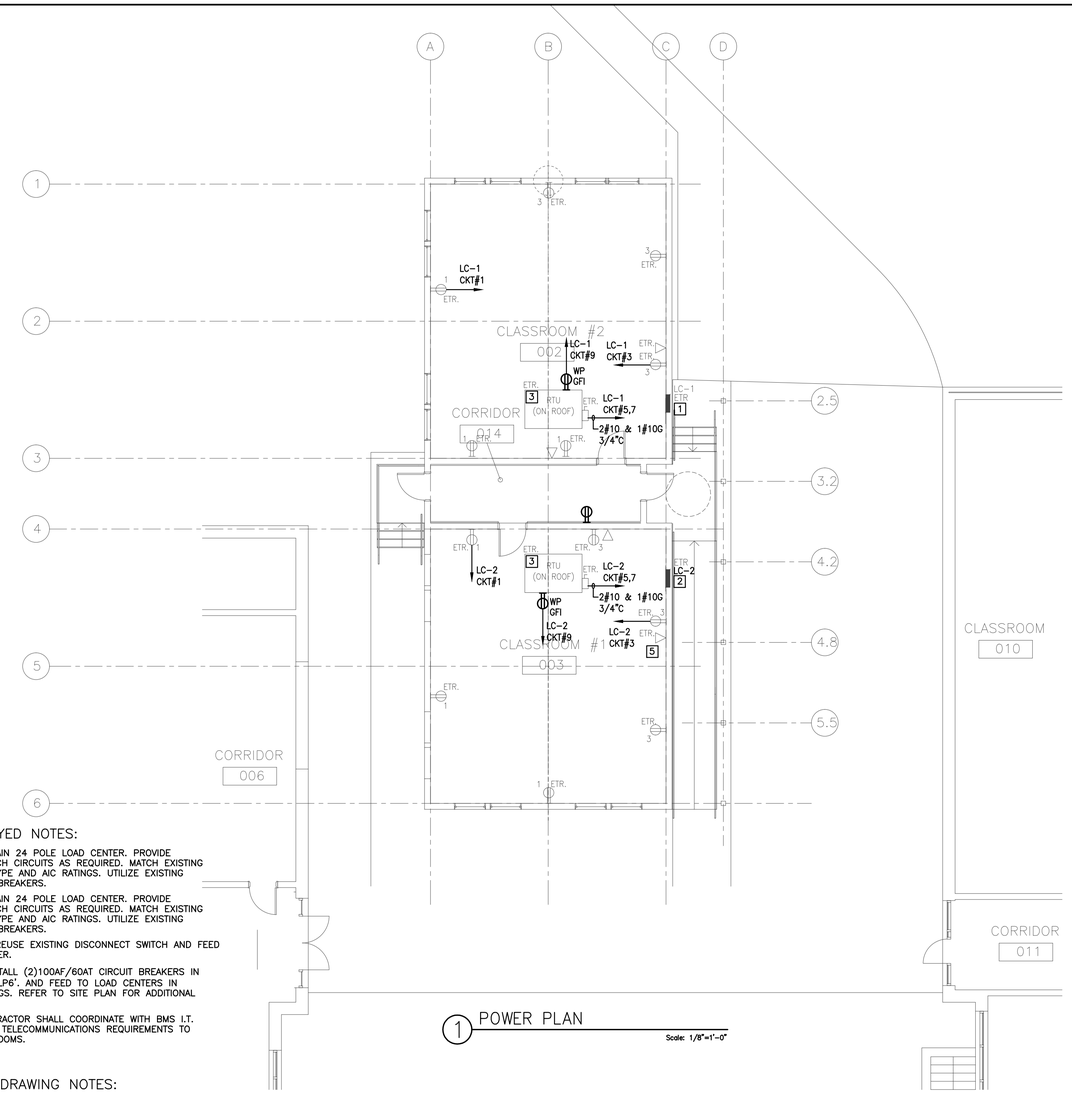
EXISTING LOAD CENTER SCHEDULE												
PANEL: LC-1		WIRES: 3			MOUNTING: R			TOTAL POLES: 24				
PHASE: 3		VOLT: 120/208			AIC: 10K			MAINS: 60 MLO				
	DESCRIPTION OF LOAD	LOAD (KVA) A	LOAD (KVA) B	BREAKER TRIP	BREAKER POLE	BREAKER POLE	BREAKER TRIP	LOAD (KVA) A	LOAD (KVA) B	DESCRIPTION OF LOAD	
1	LIGHTING			20	1					SPACE	2
3	RECEPTACLES			20	1					SPACE	4
5	RTU			30	/					SPACE	6
7	"			/	2	1	20			RECEPTACLES	8
9	ROOFTOP GFI			20	1	1	20			DOOR MGS	10
11	SPACE					1	20			HALL HEAT	12
13	SPACE									SPACE	14
15	SPACE									SPACE	16
17	SPACE									SPACE	18
19	SPACE									SPACE	20
21	SPACE									SPACE	22
23	SPACE									SPACE	24
	SUBTOTAL CONNECTED									SUBTOTAL CONNECTED	
	SUBTOTAL CONNECTED KVA A =										
	SUBTOTAL CONNECTED KVA B =										
	TOTAL CONNECTED KVA =										

EXISTING LOAD CENTER SCHEDULE												
PANEL: LC-2		WIRES: 3			MOUNTING: R			TOTAL POLES: 24				
PHASE: 3		VOLT: 120/208			AIC: 10K			MAINS: 60 MLO				
	DESCRIPTION OF LOAD	LOAD (KVA) A	LOAD (KVA) B	BREAKER TRIP	BREAKER POLE	BREAKER POLE	BREAKER TRIP	LOAD (KVA) A	LOAD (KVA) B	DESCRIPTION OF LOAD	
1	RECEPTACLES			20	1	1	20			LIGHTING	2
3	RECEPTACLES			20	1	1	20			SPARE	4
5	RTU			30	/	1	20			SPARE	6
7	"			/	2	1	20			SPARE	8
9	ROOFTOP GFI			20	1	1	20			SPARE	10
11	SPARE			20	1					SPACE	12
13	SPARE			20	1					SPACE	14
15	SPACE									SPACE	16
17	SPACE									SPACE	18
19	SPACE									SPACE	20
21	SPACE									SPACE	22
23	SPACE									SPACE	24
	SUBTOTAL CONNECTED									SUBTOTAL CONNECTED	
	SUBTOTAL CONNECTED KVA A =										
	SUBTOTAL CONNECTED KVA B =										
	TOTAL CONNECTED KVA =										



2 PARTIAL POWER RISER DIAGRAM

Scale: NTS



1 POWER PLAN

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

ELECTRICAL KEYED NOTES:

1. EXISTING TO REMAIN 24 POLE LOAD CENTER. PROVIDE ADDITIONAL BRANCH CIRCUITS AS REQUIRED. MATCH EXISTING MANUFACTURER TYPE AND AIC RATINGS. UTILIZE EXISTING BRANCH CIRCUIT BREAKERS.
2. EXISTING TO REMAIN 24 POLE LOAD CENTER. PROVIDE ADDITIONAL BRANCH CIRCUITS AS REQUIRED. MATCH EXISTING MANUFACTURER TYPE AND AIC RATINGS. UTILIZE EXISTING BRANCH CIRCUIT BREAKERS.
3. EXISTING RTU'S, REUSE EXISTING DISCONNECT SWITCH AND FEED FROM LOAD CENTER.
4. FURNISH AND INSTALL (2)100AF/60AT CIRCUIT BREAKERS IN EXISTING PANEL 'LP6'. AND FEED TO LOAD CENTERS IN MODULAR BUILDINGS. REFER TO SITE PLAN FOR ADDITIONAL INFORMATION.
5. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH BMS I.T. DEPARTMENT FOR TELECOMMUNICATIONS REQUIREMENTS TO MODULAR CLASSROOMS.

POWER/COMM DRAWING NOTES:

1. SEE DRAWING E0.01 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. COORDINATE EXACT ELECTRICAL DEVICE MOUNTING HEIGHTS AND LOCATIONS WITH ARCHITECTURAL CASEWORK OR ARCHITECTURAL INTERIOR/EXTERIOR ELEVATION DRAWINGS.
3. COORDINATE COLOR OF RECEPTACLE FACEPLATES AND DEVICES WITH ARCHITECT PRIOR TO ORDERING EQUIPMENT.
4. ALL NEW EQUIPMENT SHALL MATCH BASE BUILDING STANDARDS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE.
5. CIRCUIT NUMBER DESIGNATIONS ARE INTENDED TO ILLUSTRATE BRANCH WIRING CONFIGURATION ONLY.
6. DEVICES SHALL BE COORDINATED WITH THE DEPTH OF NEW PARTITIONS.
7. ALL POWER/DATA OUTLET FACEPLATES SHALL BE LABELED WITH CIRCUIT NUMBER FEEDING OUTLET AND PANEL DESIGNATION. LABEL STYLE AND SIZE SHALL MATCH BASE BUILDING STANDARDS. CONTRACTOR SHALL COORDINATE COLOR, SIZE AND METHOD OF LABELING WITH ARCHITECT.
8. ALL EXPOSED AND SURFACE MOUNTED CONDUIT SHALL BE GALVANIZED RIGID STEEL.
9. IN ROOMS WITH CMU WALLS ALL NEW CONDUITS, OUTLETS AND PLUGMOLD ETC. SHALL BE SURFACE MOUNTED. (TYPICAL)

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POWER PLAN

Revisions:

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Date: July 21st, 2016

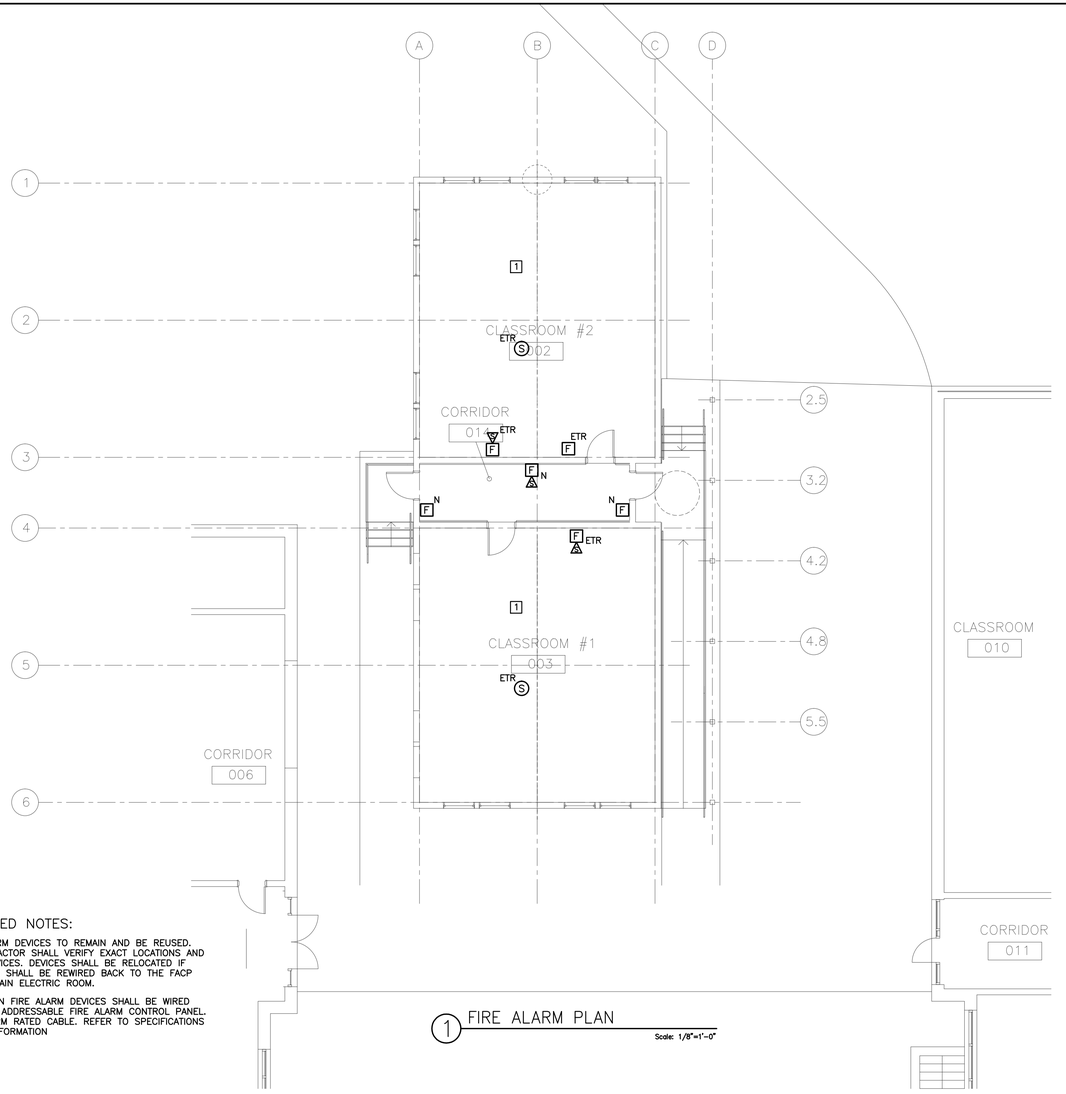
E1.02

FIRE ALARM NOTES:

1. SEE DRAWING E0.01 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. COORDINATE EXACT ELECTRICAL DEVICE MOUNTING HEIGHTS AND LOCATIONS WITH ARCHITECTURAL CASEWORK OR ARCHITECTURAL INTERIOR/EXTERIOR ELEVATION DRAWINGS.
3. CIRCUIT NUMBER DESIGNATIONS ARE INTENDED TO ILLUSTRATE BRANCH WIRING CONFIGURATION ONLY.
4. DEVICES SHALL BE COORDINATED WITH THE DEPTH OF NEW PARTITIONS.
5. ALL EXPOSED AND SURFACE MOUNTED CONDUIT SHALL BE GALVANIZED RIGID STEEL.
6. REFER TO LOCAL FIRE PREVENTION RULES AND REGULATIONS FOR ADDITIONAL INFORMATION.
7. FIRE ALARM CABLE SHALL BE RED ARMORED CABLE.
8. FIRE ALARM DEVICES AND COMPONENTS SHALL BE WIRED BACK TO THE FIRE ALARM CONTROL PANEL. ALL FIRE ALARM STROBES TO BE SYNCHRONIZED. PROVIDE A COMPLETE TEST OF THE ENTIRE FIRE ALARM SYSTEM UPON COMPLETION OF THE INSTALLATION THE SYSTEM SHALL MEET ALL REQUIREMENTS OF THE NFPA AND LOCAL CODES. COORDINATE EXACT REQUIREMENTS WITH LOCAL FIRE DEPARTMENT PRIOR TO WORK BEING PERFORMED.

FIRE ALARM SYSTEM NOTES:

1. REFER TO FLOOR PLAN FOR EXACT LOCATIONS AND QUANTITIES OF ALL DEVICES. REFER TO DRAWING E0.01 FOR SYMBOLS, LEGENDS AND SCHEDULES
2. REFER TO THE SPECIFICATIONS FOR ADDITIONAL FIRE ALARM SYSTEM REQUIREMENTS.
3. ALL FIRE ALARM SYSTEM RACEWAY SIZES AND CIRCUITRY REQUIREMENTS SHALL BE IN ACCORDANCE WITH EQUIPMENT MANUFACTURERS RECOMMENDATIONS AND ALL CODES THAT MAY APPLY.
4. CABLING MUST BE UNIQUELY IDENTIFIED AND LABELED, AND A PERMANENT, ACCURATE RECORD OF THE IDENTIFICATION AND USE OF EACH CABLE MUST BE MADE AT THE TIME OF INSTALLATION. LABELING IS TO BE DONE WITH PERMANENT MARKERS ON CLEAR MYLAR TAPE. THE TAPE SHALL BE LONG ENOUGH SO WHEN WRAPPED AROUND THE CABLE IT WILL WRAP OVER ITSELF, PROTECTING THE WRITING.
7. SPACE DETECTORS IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDED DISTANCE. PROVIDE ADDITIONAL DETECTORS WHERE REQUIRED.
8. ALL LOW VOLTAGE FIRE ALARM CIRCUITS MAY OCCUPY A COMMON CONDUIT. RUN AC POWER AND CONTROL WIRING (FAN SHUTDOWN, ETC.) IN SEPARATE CONDUIT. DO NOT RUN WITH ANY OTHER FIRE ALARM SYSTEM WIRING IN A COMMON CONDUIT.
9. ALL CONDUIT, MOUNTING BOXES AND PANELS SHALL BE HUNG AND FASTENED WITH FITTINGS TO ENSURE POSITIVE GROUNDING THROUGHOUT THE ENTIRE SYSTEM.
10. TRANSPOSING OR CHANGING COLOR CODING OF WIRES IS NOT PERMITTED. ALL CONDUCTORS IN CONDUIT CONTAINING MORE THAN ONE WIRE SHALL BE LABELED ON EACH END WITH "E-Z MARKERS".
11. CONDUCTORS IN CABINETS SHALL BE FORMED AND HARNESSED SO THAT EACH DROPS OFF DIRECTLY OPPOSITE TO ITS TERMINAL.
12. ALL WIRING SHALL BE CHECKED AND TESTED TO ENSURE THAT THERE ARE NO GROUNDS, OPENS, OR SHORTS.
13. WIRING COLOR CODES SHALL BE CONSISTENT THROUGHOUT THE SYSTEM AND SHALL ALLOW FOR EASY IDENTIFICATION OF INITIATING, INDICATING AND AUXILIARY CONTROLS CIRCUITS.
14. ALL STROBES SHALL BE SYNCHRONIZED AT END OF CONSTRUCTION.
15. ALL FIRE ALARM WIRING SHALL BE "CLASS A".
16. COORDINATE ALL WORK WITH BUILDING FIRE ALARM CONTRACTOR.



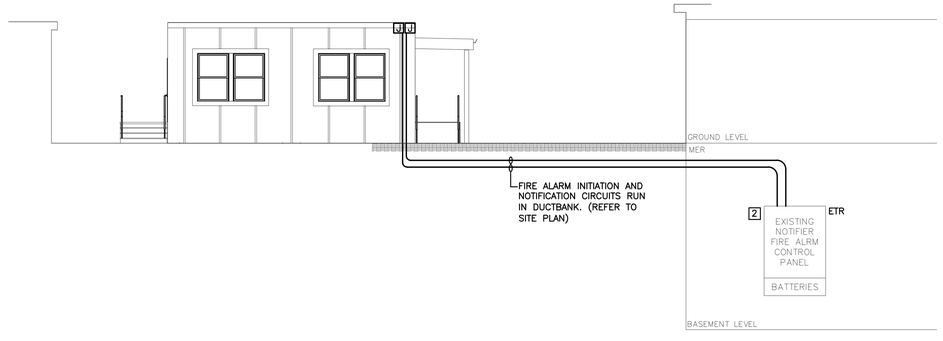
1 FIRE ALARM PLAN

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

ELECTRICAL KEYED NOTES:

[1] EXISTING FIRE ALARM DEVICES TO REMAIN AND BE REUSED. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND QUANTITIES OF DEVICES. DEVICES SHALL BE RELOCATED IF REQUIRED. DEVICES SHALL BE REWIRED BACK TO THE FACP LOCATED IN THE MAIN ELECTRIC ROOM.

[2] EXISTING TO REMAIN FIRE ALARM DEVICES SHALL BE WIRED BACK TO EXISTING ADDRESSABLE FIRE ALARM CONTROL PANEL. PROVIDE FIRE ALARM RATED CABLE. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION



2 PARTIAL FIRE ALARM RISER DIAGRAM

Scale: NTS

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FIRE ALARM PLAN

Revisions:

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E1.03

A. GENERAL

1. THE GENERAL CONDITIONS AS DESCRIBED IN DIVISION 1 SHALL APPLY TO WORK OF THIS SECTION. WHERE PARAGRAPHS OF THIS SECTION CONFLICT WITH SIMILAR PARAGRAPHS OF DIVISION 1, REQUIREMENTS OF THIS SECTION SHALL PREVAIL.

1A. THE BASE BUILDING STANDARDS AND SPECIFICATIONS SHALL APPLY TO WORK OF THIS SECTION. WHERE PARAGRAPHS OF THIS SECTION CONFLICT WITH SIMILAR PARAGRAPHS OF BASE BUILDING STANDARDS AND SPECIFICATIONS, THE BASE BUILDING STANDARDS AND SPECIFICATIONS SHALL PREVAIL.

2. THE SCOPE OF WORK UNDER THIS SECTION, WITHOUT LIMITING THE GENERALITY THEREOF, INCLUDES THE FURNISHING OF ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, AND INCIDENTALS NECESSARY TO COMPLETE ALL ELECTRICAL WORK IN ACCORDANCE WITH THE INTENT OF THE SPECIFICATIONS AND THE DRAWINGS. THE WORK SHALL CONSIST OF BUT NOT NECESSARILY BE LIMITED TO THE FOLLOWING:

a. TEMPORARY LIGHT AND POWER.

b. GROUNDING.

c. RACEWAY SYSTEM.

d. WIRE AND CABLE.

e. LIGHTING FIXTURES.

f. WIRING DEVICES AND PLATES.

g. FIRE ALARM SYSTEM.

h. MOTOR CONNECTIONS AND CONTROLS.

i. SAFETY SWITCHES.

j. POWER WIRING FOR HVAC EQUIPMENT.

k. TESTING.

l. OPERATING AND MAINTENANCE INSTRUCTION MANUALS

m. RECORD DRAWINGS.

3. RELATED WORK BY OTHERS AND INCLUDED UNDER OTHER SECTIONS OF THE SPECIFICATIONS:

a. CUTTING AND PATCHING, SPECIFIED IN UNIT MASONRY.

b. PAINTING, SPECIFIED IN PAINTING.

c. PLUMBING, SPECIFIED IN PLUMBING.

d. HVAC, SPECIFIED IN HVAC.

4. THE DRAWINGS ARE, DIAGRAMMATIC AND ARE INTENDED TO CONVEY THE SCOPE OF WORK; INDICATE THE GENERAL ARRANGEMENT OF EQUIPMENT, CONDUIT AND THE LIKE; AND SHOW THE APPROXIMATE SIZES OF EQUIPMENT. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS PRACTICAL IN LAYING OUT WORK AND VERIFY ALL SPACES IN WHICH THE WORK UNDER THIS SECTION IS TO BE INSTALLED.

a. IT IS THE INTENT OF THE CONTRACT DOCUMENTS TO PROVIDE COMPLETE OPERATING SYSTEMS. OMISSION FROM THE SPECIFICATIONS OR DRAWINGS OF ANY DETAILS OF CONSTRUCTION, INSTALLATION, MATERIALS OR SPECIALISTS NECESSARY FOR A SAFELY OPERABLE SYSTEM SHALL NOT RELIEVE THIS CONTRACTOR OF FURNISHING AND INSTALLING THE MATERIALS, FITTINGS OR ACCESSORIES REQUIRED FOR THE FURNISHING AND INSTALLATION OF COMPLETE AND OPERATIONAL SYSTEMS.

b. MODIFICATIONS OF CATALOG CUTS THAT MAY BE REQUIRED IN THE EVENT OF CONFLICTS BETWEEN THE PERFORMANCE AND DESCRIPTION OF EQUIPMENT OR MATERIAL AND THE IMPLICATION OF MANUFACTURER'S CATALOG NUMBER, THE PERFORMANCE AND DESCRIPTION SHALL GOVERN.

c. DISCREPANCIES BETWEEN THE DRAWINGS AND SPECIFICATIONS SHALL BE REFERRED TO THE ARCHITECT FOR INTERPRETATION BEFORE PROCEEDING WITH THE WORK. IF THIS CONTRACTOR PROCEEDS WITH THE WORK WITHOUT REFERRING DISCREPANCIES TO THE ARCHITECT FOR INTERPRETATION, HE SHALL DO SO AT HIS OWN RISK AND MAKE ALL CHANGES TO MEET THE ARCHITECT'S INTERPRETATION OF THE BID DOCUMENTS ABOUT REQUESTING ADDITIONAL COMPENSATION.

5. THE INSTALLATION SHALL COMPLY WITH THE REGULATIONS OF THE NATIONAL ELECTRICAL CODE, CITY BUILDING DEPARTMENT, NATIONAL ELECTRICAL SAFETY CODE, THE REQUIREMENTS OF THE CITY FIRE DEPARTMENT, AND WIRE INSPECTOR, AND ALL LEGALLY CONSTITUTED AUTHORITIES HAVING JURISDICTION. WHERE THE DRAWINGS AND/OR SPECIFICATION REQUIREMENTS EXCEED THE REQUIREMENTS OF THE APPLICABLE CODES THE REQUIREMENTS SPECIFIED IN THE CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE.

6. MATERIALS AND EQUIPMENT SHALL BE NEW AND COMPLY WITH THE APPLICABLE STANDARDS OF THE FOLLOWING AUTHORITIES, EXCEPT WHERE THE CONTRACT DOCUMENTS PRESCRIBE MORE RIGOROUS QUALIFICATIONS, THE DOCUMENTS SHALL GOVERN: UNDERWRITERS' LABORATORIES, INC. (UL) NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA) INSTITUTE OF ELECTRIC AND ELECTRONIC ENGINEERS (IEEE) AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM) AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA) OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AMERICANS WITH DISABILITIES ACT (ADA)

7. THE SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT THIS CONTRACTOR HAS VISITED THE SITE AND HAS MADE A THOROUGH EXAMINATION OF THE EXISTING CONDITIONS. CLAIMS FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED FOR DIFFICULTIES ENCOUNTERED SHALL BE BORNE BY THE BIDDER.

8. SHOP DRAWINGS SHALL BE SUBMITTED IN ACCORDANCE WITH THE REQUIREMENTS OF DIVISION 1.

a. LIST OF SHOP DRAWINGS REQUIRED:

1) WIRING DEVICES

2) LIGHTING FIXTURES

3) SAFETY SWITCHES

4) FIRE ALARM EQUIPMENT

5) WIRE AND CABLE

6) CERTIFIED TEST REPORTS

7) ITEMS NOT SPECIFICALLY LISTED ABOVE THAT MAY BE REQUESTED BY THE ARCHITECT PRIOR TO THE FORMAL SUBMISSION OF SHOP DRAWINGS.

9. GIVE ALL NOTICES, FILE ALL PLANS AND OBTAIN ALL NECESSARY APPROVALS FROM AUTHORITIES HAVING JURISDICTION REQUIRED FOR THE ELECTRICAL WORK AND FOR THE USE OF SAME BY THE ARCHITECT AT THE COMPLETION OF CONSTRUCTION. ALL CERTIFICATES OF INSPECTION, TEST RESULTS AND APPROVALS SHALL BE TURNED OVER TO THE OWNER AND ARCHITECT PRIOR TO THE FINAL ACCEPTANCE OF THE PROJECT BY THE ARCHITECT. SECURE AND PAY FOR ALL REQUIRED PERMITS, INSPECTIONS AND LICENSES NECESSARY FOR, AND INCIDENTAL TO THE INSTALLATION OF THE ELECTRICAL WORK AND THE USE OF SUCH WORK WHEN COMPLETED.

10. WHERE EQUIPMENT IS IDENTIFIED BY MANUFACTURER AND CATALOG NUMBER, IT SHALL BE CONSTRUED AS THE BARE OR REQUIREMENTS FOR QUALITY AND PERFORMANCE. WHERE MANUFACTURERS FOR EQUIPMENT ARE IDENTIFIED BY NAME, THE CONTRACTOR MAY SUBMIT FOR APPROVAL SIMILAR EQUIPMENT OF OTHER MANUFACTURERS AS SUBSTITUTION, PROVIDED HE COMPLIES WITH THE REQUIREMENTS OF DIVISION 1. THE ARCHITECT'S DECISION AS TO WHETHER THE SUBMITTED EQUIPMENT IS ACCEPTABLE SHALL BE FINAL AND BINDING. CHANGES NECESSARY TO ACCOMMODATE THE SUBSTITUTED EQUIPMENT SHALL BE MADE AT THIS CONTRACTOR'S EXPENSE, AND SHALL BE AS APPROVED BY THE ARCHITECT. DETAILED DRAWINGS INDICATING THE REQUIRED CHANGES SHALL BE SUBMITTED FOR APPROVAL AT THE TIME THE SUBSTITUTION IS REQUESTED.

11. SUBMIT SAMPLES AS REQUESTED BY THE ARCHITECT FOR HIS APPROVAL IN ACCORDANCE WITH THE PROVISIONS OF DIVISION 1.

12. ELECTRICAL EQUIPMENT SHALL BE MOUNTED AT THE FOLLOWING HEIGHTS UNLESS OTHERWISE NOTED OR DETAILED ON THE ELECTRICAL OR ARCHITECTURAL DRAWINGS. NOTES ON ARCHITECTURAL DRAWINGS SHALL SUPERSEDE THOSE NOTED ON OR DETAILED ON THE ELECTRICAL DRAWINGS. IF THE MOUNTING HEIGHT OF ANY ELECTRICAL COMPONENT IS QUESTIONABLE, OBTAIN CLARIFICATION FROM THE ARCHITECT BEFORE INSTALLATION.

a. LIGHT SWITCHES, PUSHBUTTON STATIONS, HOA SWITCHES, SELECTOR SWITCHES, AND ALL OTHER TOGGLE OR CONTROL SWITCHES -- 4 FEET ABOVE FINISHED FLOOR TO CENTERLINE.

b. FIRE ALARM PULL STATIONS - 4 FEET, 0 INCHES ABOVE FINISHED FLOOR.

c. FIRE ALARM HORN AND FLASHING LIGHT ASSEMBLY -- 6 FEET, 8 INCHES ABOVE FINISHED FLOOR TO THE BOTTOM

d. SAFETY SWITCHES, SERVICE SWITCHES AND INDIVIDUALLY MOUNTED STARTERS AND CONTACTORS FOR THE CONTROL, OPERATION OR ISOLATION OF MOTORIZED EQUIPMENT -- 5 FEET, 0 INCHES MINIMUM TO CENTERLINE ABOVE THE

FINISHED FLOOR UNLESS NOTED OTHERWISE ON THE DRAWINGS OR AS REQUIRED TO SUIT FIELD INSTALLATION CONDITIONS AND WITH THE PERMISSION OF THE ARCHITECT.

13. EXCHANGE OF INFORMATION:

a. ALL INFORMATION RELATIVE TO REQUIRED OPENINGS, EQUIPMENT SIZES, SEQUENCE OF INSTALLATION AND INTERFACING REQUIREMENTS WITH OTHER SECTIONS OF THE SPECIFICATIONS SHALL BE PROVIDED SUFFICIENTLY IN ADVANCE TO ALLOW FOR PROPER PLANNING IN THE OVERALL CONSTRUCTION SCHEDULE.

b. THE WORK MUST BE PERFORMED SO THAT THE PROGRESS OF THE ENTIRE CONSTRUCTION PROJECT INCLUDING THE WORK UNDER OTHER SECTIONS OF THE SPECIFICATION WILL NOT BE DELAYED OR INTERFERED WITH. MATERIALS AND EQUIPMENT SHALL BE INSTALLED AS FAST AS CONSTRUCTION CONDITIONS OF THE PROJECT WILL PERMIT AND SHALL BE INSTALLED PROMPTLY.

c. COORDINATE THE ROUTING AND TERMINATION POINTS OF ALL ELECTRICAL WORK WITH APPROVED SHOP DRAWINGS OF OTHER SECTIONS OF THE SPECIFICATIONS REQUIRING ELECTRICAL CONNECTIONS TO ALLOW FOR THE PROPER INTERFACING OF SAME.

d. THIS CONTRACTOR SHALL CONFORM AND COORDINATE THE LOCATIONS OF ALL MATERIALS AND EQUIPMENT SPECIFIED UNDER OTHER SECTIONS OF THE SPECIFICATION AS RELATED TO THE INSTALLATION OF THE ELECTRICAL SYSTEM UNDER THIS SECTION TO AVOID CONFLICTS.

e. ASCERTAIN FROM APPROVED SHOP DRAWINGS OF OTHER SECTIONS ALL INFORMATION RELATIVE TO ELECTRICAL WORK TO BE EXECUTED UNDER THIS SECTION FOR THE INSTALLATION AND OPERATION OF APPROVED ELECTRICAL EQUIPMENT.

14. EXAMINE THE ARCHITECTURAL DRAWINGS FOR THE LOCATIONS OF SUITABLE OPENINGS AND AISLES AVAILABLE FOR THE PASSAGE OF MATERIALS AND APPARATUS TO BE INSTALLED UNDER THIS SECTION. THIS SECTION SHALL INCLUDE THE RESPONSIBILITY FOR HAVING THE OPENINGS LEFT OPEN UNTIL THE EQUIPMENT HAS BEEN PROPERLY INSTALLED.

15. RECEIVE AND ACCEPT AT THE SITE, PROPERLY HANDLE, HOUSE AND PROTECT FROM INJURY AND THE WEATHER UNTIL READY FOR INSTALLATION. MATERIALS, EQUIPMENT AND APPARATUS FURNISHED UNDER THIS SECTION. ALSO, ELECTRICAL CONTROL EQUIPMENT FURNISHED UNDER OTHER SECTIONS OF THE SPECIFICATIONS AND TO BE INSTALLED UNDER THIS SECTION. EQUIPMENT DAMAGED IN THE COURSE OF HANDLING, INSTALLATION OR TEST SHALL BE REPLACED UNDER THIS SECTION OR REPAIRED TO THE SATISFACTION OF THE ARCHITECT WITHOUT ANY ADDITIONAL CHARGE.

16. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR FOR THE MAINTENANCE AND PROTECTION OF ALL MATERIALS AND EQUIPMENT PROVIDED DURING ALL PHASES OF CONSTRUCTION FROM LOSS DAMAGE OR DETERIORATION UNTIL FINAL ACCEPTANCE BY THE ARCHITECT.

17. THIS CONTRACTOR SHALL BE HELD RESPONSIBLE FOR AND SHALL PAY FOR ALL DAMAGE TO OTHER WORK CAUSED BY HIS WORK OR WORKMEN.

18. THE COMPLETION OF THE DAILY WORK, THIS CONTRACTOR SHALL REMOVE FROM THE PROPERTY ALL RUBBISH OR WASTE MATERIALS BELONGING TO HIM. KEEP THE JOB SITE FREE FROM ACCUMULATION OF WASTE MATERIALS AND RUBBISH.

19. WORK SHALL NOT BE PERMANENTLY CONCEALED BEFORE INSPECTION AND APPROVAL BY THE ARCHITECT, AND ALL INSPECTORS AND AUTHORITIES HAVING JURISDICTION.

20. UPON COMPLETION OF ALL WORK, FURNISH THE ARCHITECT, IN DUPLICATE, CERTIFICATES OF INSPECTION OR APPROVAL FROM STATE AND LOCAL INSPECTION AUTHORITIES HAVING JURISDICTION.

21. WORK UNDER THIS SECTION SHALL BE GUARANTEED FREE FROM DEFECTS AS REQUIRED UNDER DIVISION 1.

22. THE CONTRACTOR SHALL REFER TO DIVISION 1 OF THE SPECIFICATIONS FOR THE REQUIREMENTS AND PROCEDURES PERTAINING TO THE RECORD DOCUMENTS.

23. SAFETY REGULATIONS ESTABLISHED BY OSHA SHALL BE MAINTAINED THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT.

24. THE UNDERTAKING OF PERIODIC INSPECTIONS BY THE ARCHITECT OR ARCHITECT'S REPRESENTATIVE SHALL NOT BE CONSTRUED AS SUPERVISION OF ACTUAL CONSTRUCTION NOR MAKE EITHER OF THEM RESPONSIBLE FOR PROVIDING A SAFE PLACE FOR THE PERFORMANCE OF WORK BY THIS CONTRACTOR, FOR VISITORS TO THE SITE OR OCCUPANTS NOR MAKE THEM RESPONSIBLE FOR OMISSION OF ANY SAFETY DEVICE CALLED FOR BY CODES, ORDINANCES OR BY THE SPECIFICATIONS OF THE MANUFACTURERS OF THE EQUIPMENT SUPPLIED. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A SAFE PROJECT ELECTRICALLY FOR ALL WORKMAN, VISITORS AND OCCUPANTS UNTIL THE PROJECT HAS BEEN ACCEPTED BY THE OWNER.

25. ELECTRICAL EQUIPMENT SHALL OPERATE UNDER CONDITIONS OF LOAD WITHOUT SOUND OR VIBRATION WHICH IS ABNORMALLY OBJECTIONABLE FOR SUCH EQUIPMENT IN THE OPINION OF THE ARCHITECT. SOUND OR VIBRATION NOTICEABLE OUTSIDE OF THE ROOM IN WHICH IT IS INSTALLED, OR ANNOYINGLY NOTICEABLE INSIDE ITS OWN ROOM WILL BE CONSIDERED OBJECTIONABLE. SOUND OF VIBRATION CONDITIONS CONSIDERED OBJECTIONABLE SHALL BE CORRECTED IN APPROVED MANNER AT NO CHANGE IN CONTRACT AMOUNT.

26. AFTER INSTALLATION, EQUIPMENT AND ACCESSORIES WITH FACTORY PRIMED OR FINISHED PAINTED SURFACES SHALL BE CLEANED AND BARE OR MARRED SPOTS TOUCHED UP UNDER THIS SECTION WITH THE SAME GRADE AND COLOR PAINT AS APPLIED AT THE FACTORY.

27. PROVIDE TEMPORARY LIGHT AND POWER IN CONFORMANCE WITH THE REQUIREMENTS OF DIVISION 1. (IF REQUIRED)

28. IT IS THE INTENT OF THE ELECTRICAL SECTION OF THE SPECIFICATIONS AND THE ELECTRICAL DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION. ANY APPARATUS, APPLIANCE, MATERIAL OR WORK NOT SHOWN ON DRAWINGS BUT MENTIONED IN THE SPECIFICATION, OR VICE VERSA, OR ANY INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE ELECTRICAL INSTALLATION COMPLETE AND PERFECT IN ALL RESPECTS AND READY FOR OPERATION, EVEN IF NOT PARTICULARLY SPECIFIED, SHALL BE FURNISHED, DELIVERED AND INSTALLED UNDER THIS SECTION WITHOUT ADDITIONAL EXPENSE TO THE OWNER. DISCREPANCIES OR A QUESTION OF INTENT, SHALL BE REFERRED TO THE ARCHITECT FOR DECISION BEFORE ORDERING ANY MATERIALS OR EQUIPMENT, OR BEFORE THE START OF ANY RELATED WORK, AND THE INTERPRETATIONS OF THE ARCHITECT SHALL BE FINAL, CONCLUSIVE AND BINDING.

29. PRIOR TO COMPLETION OF THE CONTRACT, PROVIDE OPERATING INSTRUCTIONS TO THE OWNER'S DESIGNATED REPRESENTATIVE WITH RESPECT TO OPERATION FUNCTIONS AND MAINTENANCE PROCEDURES FOR ALL EQUIPMENT AND SYSTEMS INSTALLED. THOROUGHLY INSTRUCT THE OWNER'S REPRESENTATIVES IN THE OPERATION OF ALL ELECTRICAL SYSTEMS AND COMPONENTS TO THE COMPLETE SATISFACTION OF THE OWNER. ADVISE THE OWNER'S REPRESENTATIVES AS TO THE LOCATION OF ALL ELECTRICAL EQUIPMENT ASSOCIATED WITH THE VARIOUS SYSTEMS.

30. SUBMIT SIX (6) COPIES OF OPERATION AND MAINTENANCE DATA BOOKS TO THE ARCHITECT FOR APPROVAL. IF THE DATA BOOKS DO NOT MEET THE FOLLOWING REQUIREMENTS, THEY WILL BE REJECTED. DATA BOOKS THAT ARE REJECTED SHALL BE CORRECTED AND RESUBMITTED TO THE ARCHITECT.

a. PROVIDE DATA IN BOOK FORM WITH RIGID COVERS, 8-1/2 INCHES BY 11 INCHES, OR 11 INCHES BY 17 INCHES, AND A MAXIMUM OF 2-1/2 INCHES THICK.

b. PROVIDE DATA FOR PANELBOARDS, LIGHTING FIXTURES AND MOTOR CONTROLS AND OTHER ELECTRICAL SYSTEMS OR EQUIPMENT PROVIDED UNDER THIS CONTRACT.

c. PROVIDE INDEX AND THUMB TABS FOR EACH ITEM OR CLASS. GROUP MATERIALS FOR ANY ONE ITEM.

d. PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE:

1) IDENTIFYING NAME AND NUMBER.

2) COMPLETE NAMEPLATE DATA.

3) PERFORMANCE CURVES AND DATA.

4) AS-BUILT WIRING AND CONTROL DIAGRAMS.

5) MANUFACTURER'S OPERATING AND MAINTENANCE INSTRUCTIONS.

6) COMPLETE PARTS LIST WITH RECOMMENDATION FOR SPARE PARTS TO BE STOCKED BY THE OWNER.

7) NAME, ADDRESS AND TELEPHONE NUMBERS OF NEAREST PARTS SUPPLIER AND/OR SERVICE COMPANY.

8) ANY OTHER IMPORTANT INFORMATION AS PERTINENT TO THE PARTICULAR ITEM.

31. UPON COMPLETION OF ALL INSTRUCTION TO THE OWNER'S DESIGNATED REPRESENTATIVES SUBMIT TO THE ARCHITECT A COMPLETED "INSTRUCTIONS TO THE OWNER" FORM INCLUDING AL SIGNATURES, DATES AND OTHER PERTINENT INFORMATION. THE SUBMITTAL OF THIS FORM TO THE ARCHITECT IS THE PREREQUISITE TO FINAL PAYMENT.

32. AS USED IN THIS SECTION, THE FOLLOWING ITEMS ARE UNDERSTOOD TO HAVE THE FOLLOWING MEANINGS:

a. THE CONTRACTOR SHALL MEAN THE ELECTRICAL TRADE CONTRACTOR PERFORMING THE WORK UNDER THIS SECTION.

b. FURNISH SHALL MEAN PURCHASE AND DELIVER TO THE PROJECT SITE, COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT.

c. INSTALL SHALL MEAN UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM ALL WORK NECESSARY TO ESTABLISH SECURE MOUNTING AND PROPER OPERATION AT THE PROPER LOCATION IN THE PROJECT.

d. PROVIDE SHALL MEAN "FURNISH" AND "INSTALL".

e. WORK SHALL MEAN ALL LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES, AND ALL OTHER ITEMS REQUIRED FOR A PROPER AND COMPLETE INSTALLATION.

f. WORK BY OTHERS MEANS WORK NOT PROVIDED UNDER THIS SECTION OF THE SPECIFICATION BUT WORK FURNISHED AND/OR INSTALLED UNDER OTHER SECTIONS OF THE SPECIFICATIONS WITHIN THIS CONTRACT. B PRODUCTS

B. PRODUCTS

1. MATERIALS AND EQUIPMENT INCLUDED UNDER THIS PART AND REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE ELECTRICAL SYSTEM SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF PART A OF THIS SPECIFICATION.

2. RACEWAYS:

a. ELECTRIC METALLIC TUBING SHALL BE HOT DIPPED STEEL CONFORMING TO UL STANDARD NO. 797. TUBING SHALL BE AS MANUFACTURED BY REPUBLIC STEEL, ALLIED TUBE OR EQUAL.

b. FLEXIBLE METAL CONDUIT SHALL BE SINGLE STRIP, CONTINUOUS, FLEXIBLE, INTERLOCKED DOUBLE WRAPPED STEEL, GALVANIZED INSIDE AND OUTSIDE, FORMING SMOOTH WIRING CHANNEL. FLEXIBLE METAL CONDUIT SHALL BE AS MANUFACTURED BY PYLE-NATIONAL, AMERICAN FLEXIBLE CONDUIT OR EQUAL.

h. COUPLINGS AND CONNECTORS FOR ELECTRIC METALLIC TUBING SHALL BE GALVANIZED STEEL COMPRESSION TYPE AND SHALL BE AS MANUFACTURED BY O-Z/GEDNEY, THOMAS & BETTS OR EQUAL.

i. FITTINGS FOR FLEXIBLE METALLIC CONDUIT SHALL BE STEEL OR MALLEABLE IRON ZINC PLATED WITH CENTER STOP AND INSULATED THROAT AS MANUFACTURED BY O-Z/GEDNEY, THOMAS & BETTS OR EQUAL.

3. PULL, JUNCTION, OUTLET BOXES AND WIREWAYS:

a. EACH OUTLET, JUNCTION OR PULL BOX SHALL BE OF THE PROPER TYPE, CLASS AND CONSTRUCTION TO SUIT THE SPECIFIC CONDITIONS ENCOUNTERED.

b. PULL AND JUNCTION BOXES SHALL BE CODE GAUGE MINIMUM THICKNESS GALVANIZED STEEL WITH SCREW-ON COVERS, UNLESS OTHERWISE NOTED. PROVIDE CABLE SUPPORTS FOR THE SUPPORT OF ALL TIERS OF CABLES AND CONDUCTORS WITHIN THE PULL OR JUNCTION BOXES. PULL AND JUNCTION BOXES SHALL BE MANUFACTURED BY KEYSTONE-COLUMBIA, LEE PRODUCTS OR MCKINSTRY METAL WORKS.

c. INTERIOR OUTLET BOXES SHALL BE CODE GAUGE GALVANIZED STEEL AND SHALL BE OF THE SHAPES AND SIZES TO SUIT THEIR RESPECTIVE LOCATIONS AND INSTALLATIONS, AND SHALL BE PROVIDED WITH COVERS TO SUIT THEIR FUNCTION AND INSTALLATION. BOXES SHALL BE MIDLAND-ROSS, APPLETON ELECTRIC COMPANY OR RACO.

d. EXTERIOR SURFACE MOUNTED OUTLET AND JUNCTION BOXES SHALL BE OF CAST METAL WITH THREADED HUBS, NEMA TYPE 3R. KILLARK, PYLE-NATIONAL, O-Z/GEDNEY OR CROUSE-HINDS CONDULET TYPE. COVERS SHALL BE CAST METAL AND SHALL BE GASKETED RAINTIGHT EXTERIOR TYPE.

4. WIRE AND CABLE

a. ALL CONDUCTORS RATED FOR 600 VOLT FOR THE WIRING OF BRANCH CIRCUITS, MOTORIZED CIRCUITS, AUXILIARY SYSTEM WIRING AND DISTRIBUTION FEEDER CONDUCTORS SHALL BE SOFT DRAWN COPPER AND SHALL HAVE A CONDUCTIVITY OF NOT LESS THAN 98 PERCENT OF THE ANSI STANDARD ANNEALED COPPER. CONDUCTORS SHALL BEAR THE MARKINGS OF THE UNDERWRITERS' LABORATORIES, THE AWG SIZE, TYPE INSULATION, MAXIMUM PERMISSIBLE VOLTAGE, THE MANUFACTURER'S NAME AND TRADE MARK AND SHALL BE TAGGED FOR THE YEAR OF THE AWARDING OF THE CONTRACT. WIRING SHALL BE A MINIMUM OF #12 AWG SOLID, EXCEPT MOTOR CONTROL CIRCUIT WIRING AND FIRE ALARM SYSTEM WIRING MAY BE #14 AWG. WIRE SIZES #8 AWG AND LARGER SHALL BE STRANDED. WIRE OF SIZE SMALLER THAN #8 AWG SHALL BE SOLID. WIRE AND CABLE SHALL BE TYPE THWN-THHN BUILDING WIRE, 600V, RATED FOR 75 DEGREES C IN WET LOCATIONS AND 90 DEGREES C IN DRY LOCATIONS. WIRE AND CABLES SHALL BE UL LISTED, BEAR THE UL LABEL AND BE MANUFACTURED BY ROME CABLE CORPORATION, GENERAL CABLE CORPORATION OR TRIANGLE/PWC.

b. FIRE ALARM CONDUCTORS ARE TO BE COPPER CONDUCTORS IN EMT. CONDUCTORS ARE TO BE SOLID COPPER IN SIZES #18 THROUGH #14. INSULATION IS TO BE TYPE THHN RATED FOR 105 DEGREES C FOR A POWER LIMITED FIRE PROTECTIVE SIGNALING CABLE APPLICATIONS. PROVIDE AN INSULATED GROUND CONDUCTOR. CABLE TO BE RATED FOR 600V.

5. TOGGLE SWITCHES SHALL BE OF THE TOTALLY ENCLOSED, FLUSH TUMBLER TYPE AND SHALL BE SPECIFICATION GRADE RATED 20A, 120/277V. TOGGLE SWITCH FINISH SHALL BE AS SPECIFIED BY THE ARCHITECT, HOWEVER, WHEN NOT SPECIFIED BY THE ARCHITECT, BODIES SHALL BE OF THE WHITE PHENOLIC COMPOUND, QUIET INDICATING TYPE WITH SCREW TYPE TERMINALS. TOGGLE SWITCHES SHALL BE AS MANUFACTURED BY ARROW-HART, BRYANT, HUBBELL OR PASS & SEYMOUR.

6. PROVIDE SPECIFICATION GRADE DEVICE PLATES. FINISH OF THE DEVICE PLATES IS TO BE SPECIFIED BY THE ARCHITECT, HOWEVER, WHEN NOT SPECIFIED BY THE ARCHITECT, THE DEVICE PLATES ARE TO BE .040 INCH GAUGE, TYPE 302, HIGH NICKEL CONTENT STAINLESS STEEL, BRUSHED FINISH. PROVIDE .060 INCH GAUGE WHERE INSTALLATION REQUIRES MORE THAN ONE GANG. PLATES SHALL BE OF APPROPRIATE TYPE AND SIZE FOR WIRING AND CONTROL DEVICES, SIGNAL AND TELEPHONE OUTLETS. DEVICE PLATES SHALL BE BY THE SAME MANUFACTURER AS THE DEVICES.

7. WIRE AND CABLE CONNECTORS FOR #8 AWG AND SMALLER SHALL BE OF THE PRESSURE INDENT TYPE WITH AN INSULATING COVER EQUAL TO BUCHANAN ELECTRIC PRODUCTS. CONNECTIONS TO MOTOR LEADS SHALL BE MADE WITH SOLDERLESS LUGS SIMILAR TO BURNDY ENGINEERING COMPANY. WIRE AND CABLE CONNECTORS FOR #6 AWG AND LARGER SHALL BE OF THE BOLTED PRESSURE TYPE EQUAL TO O-Z/GEDNEY MANUFACTURING COMPANY OR BURNDY ENGINEERING COMPANY. COPPER CABLES #1/0 AWG AND LARGER SHALL BE FASTENED WITH A CONNECTOR REQUIRING TWO (2) BOLTS. JOINTS, TAPS AND SPLICES SHALL BE COVERED WITH SCOTCH BRAND TYPE #33 OR APPROVED EQUAL.

8. FIRE STOP SEALANTS USED TO SEAL ALL OPENINGS AROUND ELECTRICAL RACEWAY SYSTEMS PASSING THROUGH FLOORS AND FIRE RATED WALLS SHALL BE OF THE FIRE RETARDANT SILICONE FOAM TYPE. THE SEALANT SHALL BE PLIABLE IN CHARACTER CAPABLE OF ADHERING ITSELF TO THE SURROUNDING SURFACES WITHIN THE VOID BEING FILLED. THE SEALANT SHALL REMAIN IN THE PLIABLE STATE PERMITTING NORMAL BUILDING VIBRATION AND ALLOWING FOR MATERIAL EXPANSION AND CONTRACTION WITHOUT CRACKING OR CRUMBLING. FIRE STOP SEALANTS SHALL BE FLAME SAFE AS MANUFACTURED BY THOMAS & BETTS OR APPROVED EQUAL.

9 . SEALING COMPOUNDS FOR RACEWAYS, DUCTS AND FITTINGS SHALL BE PUTTY-LIKE CONSISTENCY WORKABLE WITH THE HANDS AND SHALL NOT HARDEN MATERIALLY WHEN EXPOSED TO AIR. THE SEALING COMPOUNDS SHALL BE MANUFACTURED BY MINNESOTA MINING, JOHNS-MANVILLE OR DOW CORNING. -SUPPORTS REQUIRED FOR THE PROPER INSTALLATION, MOUNTING AND SUPPORT OF ALL LIGHTING FIXTURES, AND ELECTRICAL EQUIPMENT TO BE INSTALLED UNDER THIS CONTRACT. SUPPLEMENTARY STEEL, CHANNELS AND SUPPORTS SHALL BE FURNISHED, INSTALLED AND SECURED WITH ALL FITTINGS, SUPPORT RODS AND APPURTENANCES REQUIRED FOR A COMPLETE SUPPORT OR MOUNTING SYSTEM AND SHALL BE UL LISTED, BE GALVANIZED STEEL, AND BE MANUFACTURED BY MIDLAND-ROSS, UNISTRUT, POWER-STRUT, T.J. COPE OR CHALFANT.

10. LIGHTING FIXTURES:

a. LIGHTING FIXTURES AND/OR LIGHTING EQUIPMENT SHALL CONSIST OF ALL NECESSARY PARTS, BALLASTS AND HARDWARE FACTORY ASSEMBLED TO PROVIDE A COMPLETE AND OPERABLE LUMINOUS ELEMENT TO MEET THE SPECIFICATIONS AND APPROVAL OF THE ARCHITECT.

b. LIGHTING FIXTURES (STANDARD AND SPECIAL) SHALL BE UL LISTED. NO EXCEPTIONS SHALL BE MADE. FIXTURE MANUFACTURER SHALL FURNISH TO THE ARCHITECT VIA THIS CONTRACTOR NOTARIZED LETTERS SUBSTANTIATING THE VALIDITY OF THE UL LABEL ON THEIR FIXTURE IF REQUIRED. THE LETTER SHALL INCLUDE THE UL TEST NUMBER AND DATE WHEN FIXTURE WAS ACCEPTED BY UL.

c. THE EXTERIOR FINISH COLOR) OF ALL LIGHTING FIXTURES DESIGNATED IN DRAWINGS AS HAVING A SHALL BE SELECTED BY CONSTRUCTION PERIOD AT REVIEW. (COLOR) OF ALL LIGHTING THE SPECIFICATIONS OR ON THE SPECIAL FINISH, THE COLOR THE ARCHITECT DURING THE TIME OF SHOP DRAWINGS.

d. LIGHTING FIXTURES SHALL BE AS SHOWN ON THE LIGHTING PLAN. THE FIXTURES LISTED UNDER EACH TYPE SHALL BE BY THE SAME MANUFACTURER. IF IT IS ELECTED TO FURNISH OTHER THAN THE FIXTURES MANUFACTURED BY THOSE SPECIFIED, THEN THE FIXTURE PROPOSED SHALL BE EQUAL, IN EVERY RESPECT, TO THE PRODUCT SPECIFIED, INCLUDING DIMENSIONS, FINISH, PHOTOMETRIC CURVES, MATERIAL AND OPERATING CHARACTERISTICS. PHOTOMETRIC CURVES OF LIGHTING FIXTURES SUBMITTED FOR APPROVAL SHALL BE FROM AN INDEPENDENT LABORATORY.

11. FIRE ALARM:

C. EXECUTION

1. IT IS THE INTENT OF THE FOLLOWING SUB-SECTIONS OF THIS PART TO DESCRIBE, IN GENERAL, THE INSTALLATION REQUIREMENTS AND THE QUALITY OF WORKMANSHIP REQUIRED BY THE INTENT OF THIS SPECIFICATION.

2. INTERIOR RACEWAY SYSTEMS:

a. PROVIDE THROUGHOUT THE BUILDING A COMPLETE RACEWAY SYSTEM FOR THE INSTALLATION OF BRANCH CIRCUITS, AUXILIARY SYSTEM WIRING REQUIRED FOR THE FUNCTION AND OPERATION OF ALL ELECTRICAL AND AUXILIARY SYSTEMS SPECIFIED. THE RACEWAY SYSTEMS SHALL BE COMPLETE IN EVERY DETAIL AND SHALL CONSIST OF ALL CONDUIT, OUTLETS, PULL AND JUNCTION BOXES, FITTINGS, HANGERS, SUPPORTS AND ALL APPURTENANCES REQUIRED TO COMPLY WITH THE INTENT OF THIS SPECIFICATION.

b. RACEWAYS SHALL BE THOROUGHLY GROUNDED AND BONDED IN COMMON -

c. RACEWAYS CONCEALED WITHIN FINISHED WALLS, CEILINGS AND FLOORS SHALL BE KEPT 6 INCHES FROM PARALLEL RUNS OF HOT WATER PIPES. EXPOSED RACEWAYS SHALL BE SUPPORTED AT INTERVALS OF NOT MORE THAN TEN FEET, AND CONDUIT RUNS ARE TO BE INSTALLED PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS, OR INTERSECTIONS OF VERTICAL PLANES AND CEILING.

d. TURNS, WHEREVER REQUIRED IN RACEWAYS, SHALL BE MADE BY THE USE OF FACTORY ELLS AND FITTINGS. HOWEVER, WHERE FIELD MADE BENDS ARE REQUIRED, DUE TO CONSTRUCTION CONDITIONS, THEY SHALL BE MADE WITH APPROVED HICKEY OR CONDUIT BENDING MACHINES. WHERE A MULTIPLICITY OF CONDUITS MAKE THE SAME TURN, A CODE GAUGE STEEL JUNCTION BOX WITH REMOVABLE COVER MAY BE USED. WHEN JUNCTION BOXES ACCOMMODATE MORE THAN TWO SEPARATE CIRCUITS, EACH CIRCUIT SHALL BE GROUPED AND BOUND WITH WIRE MANAGERS. EACH FEEDER, BRANCH CIRCUIT AND AUXILIARY SYSTEM CABLES SHALL BE TAGGED IN THE PULL AND JUNCTION BOXES. THE TAGS SHALL INDICATE THE POINT OF CABLE ORIGINATION AND TERMINATION AS WELL AS THE INTENDED PURPOSE.

e. EXPOSED RACEWAYS PASSING THROUGH WALLS OR CEILINGS SHALL BE FITTED WITH CHROMIUM PLATED, SPUN OR SPLIT TYPE ESCUTCHEONS. PIPE SLEEVES SHALL EXTEND 3/4 INCH ABOVE FINISHED FLOOR, AND BE FLUSH IN WALLS. ALL CONDUIT SLEEVES PASSING THROUGH FLOORS AND FIRE RATED WALLS SHALL BE RETURNED TO THE ORIGINAL FIRE RATING OF THE FLOOR OR WALL AFTER THE INSTALLATION OF RACEWAYS IN SAME BY MEANS OF FILLING THE OPENING WITH A FOAM SILICONE MATERIAL.

f. THE INCLUDED DRAWINGS ARE, FOR THE MOST PART, DIAGRAMMATIC AND, EXCEPT WHERE DEFINITELY DIMENSIONED, THE LOCATIONS OF RACEWAYS AND RACEWAY SYSTEMS SHALL BE DETERMINED IN THE FIELD.

g. CRUSHED OR DEFORMED RACEWAYS SHALL NOT BE INSTALLED. CARE SHALL BE TAKEN TO PREVENT THE LODGEMENT OF PLASTER, DIRT OR TRASH IN RACEWAYS, BOXES, FITTINGS, AND EQUIPMENT DURING THE COURSE OF CONSTRUCTION. CLOGGED RACEWAYS SHALL BE ENTIRELY FREE OF OBSTRUCTION OR SHALL BE REPLACED.

h. RACEWAYS SHALL BE SECURED BY PIPE STRAPS OR SHALL BE SUPPORTED BY WALL BRACKETS ON WOOD, TOGGLE BOLTS ON HOLLOW MASONRY UNITS, EXPANSION BOLTS ON CONCRETE OR BRICK, AND MACHINE SCREWS OR WELDED THREADED STUDS ON STEEL WORK. SECURING OF RACEWAYS TO HOLLOW TYPE STUD WALL OR FIBERBOARD CONSTRUCTION SHALL BE AVOIDED.

i. RACEWAYS IN HUNG CEILINGS SHALL BE RUN ON AND SECURED TO THE PRIMARY STRUCTURAL MEMBERS, NOT TO LATHING CHANNELS OR T-BARS, Z-BARS OR OTHER ELEMENTS WHICH ARE THE DIRECT SUPPORTS OF THE CEILING SYSTEM. SECURE CONDUIT FIRMLY TO STEEL BY CLIPS AND FITTINGS DESIGNED FOR THAT PURPOSE. MAINTAIN AT LEAST 1/4 INCH AIR SPACE BETWEEN CONDUITS AND SUPPORTING WALLS EACH CONDUIT IN A BANK OF CONDUITS SHALL BE SEPARATELY CLAMPED. SUPPORTS FOR LARGE BANKS OF CONDUITS SHALL BE CHANNEL IRON WITH U-CLAMPS.

j. WATERPROOF MEMBRANE OF THE STRUCTURAL FLOOR SLABS AND FOUNDATION WALLS OF THE BUILDING SHALL BE PENETRATED ONLY AT LOCATIONS APPROVED BY THE STRUCTURAL ENGINEER AND IN A MANNER ACCEPTABLE TO THE ARCHITECT. PROPOSED PENETRATION POINTS, SIZE OPENINGS AND METHOD TO BE USED SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL PRIOR TO THE INSTALLATION OF SAME.

k. WIRING SHALL NOT BE PULLED INTO THE RACEWAY SYSTEM UNTIL IT IS MECHANICALLY COMPLETE IN ALL DETAILS.

l. FURNISH AND INSTALL A 1/8 INCH NYLON PULL CORD IN ALL EMPTY RACEWAYS.

m. RACEWAYS INSTALLED EXPOSED IN FINISHED AREAS --SURFACE METAL RACEWAY.

n. CONNECTIONS TO PORTABLE EQUIPMENT FROM JUNCTION BOXES AND CONNECTION OF RACEWAYS TO MOTOR CONDUIT TERMINAL BOXES -- LIQUIDTIGHT FLEXIBLE METAL CONDUIT WITH A MAXIMUM LENGTH OF 6 FEET, 0 INCHES LONG AND A MINIMUM LENGTH OF 18 INCHES.

o. FLEXIBLE TAPS FROM JUNCTION BOXES ABOVE HUNG CEILINGS TO RECESSED FLUORESCENT LIGHTING FIXTURES SHALL BE IN FLEXIBLE METAL CONDUIT. LENGTH OF FLEXIBLE METAL CONDUIT FROM THE JUNCTION BOXES TO THE RECESSED LIGHTING FIXTURES SHALL BE A MAXIMUM OF 6 FEET, 0 INCHES LONG.

p. BRANCH CIRCUIT WIRING INSTALLED CONCEALED IN CEILINGS, FURRED OR STUD WALLS -- EMT OR METAL CLAD CABLE TYPE MC.

q. FIRE ALARM WHICH IS TO BE IN RIGID CONDUCT SYSTEM. TYPE OF CONDUCT SYSTEM TO BE AS REQUIRED BY LOCATIONS. CABLE INSTALLED CONCEALED IN CEILING IN WALLS IS TO BE TYPE MC FIRE ALARM CABLE.

3. EQUIPMENT AND SYSTEMS INSTALLED AND CONNECTED UNDER THIS CONTRACT SHALL BE BONDED AND GROUNDED IN ACCORDANCE WITH THE STANDARDS OF THE LATEST NATIONAL ELECTRICAL SAFETY CODE, THE NATIONAL ELECTRICAL CODE, AND ALL STATE AND LOCAL REGULATIONS AS A MINIMUM. GROUNDING AND BONDING REQUIREMENTS SPECIFIED OR INDICATED ON THE DRAWINGS THAT EXCEED THE REQUIREMENTS OF THE AGENCIES INDICATED ABOVE SHALL BE ADHERED TO.

4. THIS CONTRACTOR SHALL REMOVE THE TEMPORARY LIGHTING AND POWER SERVICES AND STRINGERS WHEN SO DIRECTED BY THE ARCHITECT. TEMPORARY LIGHTING STRINGERS SHALL BE REMOVED FROM CEILING PLENUM SPACES PRIOR TO THE CLOSING OF SAME.

5. UNLESS OTHERWISE SPECIFIED HEREIN, ALL CONDUITS PASSING THROUGH FLOORS, WALLS OR PARTITIONS SHALL BE PROVIDED WITH SLEEVES HAVING AN INTERNAL DIAMETER ONE INCH LARGER (MINIMUM) THAN THE OUTSIDE DIAMETER OF THE RACEWAYS PASSING THROUGH THEM. UNLESS OTHERWISE SPECIFIED, ALL SLEEVES SHALL BE SCHEDULE 40 BLACK STEEL PIPE, SET FLUSH WITH FINISHED WALL OR SET ONE INCH ABOVE FINISHED FLOOR SURFACES. THE SPACE BETWEEN SLEEVE AND CONDUIT SHALL BE PACKED WITH FIRE AND WATERPROOF FOAM SILICON.

6. CORE DRILLING, WHEN REQUIRED, SHALL BE PERFORMED UNDER THIS SECTION AFTER RECEIPT OF APPROVAL BY THE ARCHITECT AND HIS STRUCTURAL ENGINEER.

7. COLOR CODING SHALL BE MAINTAINED FOR ALL FEEDERS AND BRANCH CIRCUIT WIRING THROUGHOUT THE PROJECT. COLOR IMPREGNATE INSULATION SHALL BE USED FOR ALL CONDUCTORS UP TO AND INCLUDING NO. 6 AWG CONDUCTORS LARGER THAN NO. 6 SHALL BE IDENTIFIED BY COLOR BANDING TAPES AT ALL TERMINATION POINTS, JUNCTION PULL AND OUTLET BOXES.

a. PHASES, NEUTRAL AND GROUND CONDUCTORS FOR THE 208Y/120V SYSTEM SHALL BE COLOR CODED AS FOLLOWS:

208Y/120V PHASE A - BLACK
208Y/120V PHASE B - RED
208Y/120V PHASE C - BLUE
208Y/120V GROUNDED NEUTRAL - WHITE
EQUIPMENT GROUND CONDUCTOR - GREEN

8. PHASE ORIENTATION AND ROTATION SHALL BE VERIFIED PRIOR TO PLACING EQUIPMENT INTO OPERATION. ADJUSTMENTS SHALL BE MADE PRIOR TO THE COMPLETION OF THE WORK UNDER THIS CONTRACT. ALL MOTORS SHALL BE CHECKED FOR PROPER ROTATION WITH ADJUSTMENTS BEING MADE AS REQUIRED FOR THE PROPER OPERATION OF MOTORIZED EQUIPMENT.

9. TESTS:

a. THIS SECTION SHALL INCLUDE THE MAKING OF THE NECESSARY TESTS REFERRED TO HEREIN IN THE PRESENCE OF THE ARCHITECT TO SHOW THAT THE PARTICULAR SYSTEM OR EQUIPMENT HAS BEEN PROPERLY INSTALLED AND IS IN GOOD OPERATING CONDITION, AS HEREINAFTER SPECIFIED. THE ARCHITECT SHALL BE NOTIFIED TWO (2) WEEKS IN ADVANCE OF THE DATE FOR ALL TESTS SO THAT HE MAY BE PRESENT TO WITNESS THE TESTS.

b. COMPLETE TEST AND INSPECTION RECORDS SHALL BE MADE AND INCORPORATED INTO A REPORT FOR EACH PIECE OF EQUIPMENT TESTED. READINGS TAKEN SHALL BE RECORDED. SIX (6) COPIES SHALL BE SUBMITTED TO THE ARCHITECT FOR RECORD AND COMMENTS.

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ELECTRICAL SPECIFICATIONS

Revisions:

No.	Date	Description

Drawn By: RJA
Checked By: SA
Approved By: SA

Drawing Scale: NTS

Project Number: 16047

Date: July 21st, 2016

E1.04

C Piping Symbols

DESCRIPTION
WATER SUPPLY
WATER RETURN
TER SUPPLY
TER RETURN
EMPERATURE WATER SUPPLY (TWO PIPE SYSTEM)
EMPERATURE WATER RETURN (TWO PIPE SYSTEM)
SATE DRAIN
ON OF DOWNWARD PITCH 1/8"/FOOT
ON OF FLOW
TURNED DOWN
TURNED UP
LVE
AIN VALVE WITH HOSE BIB, CAP & CHAIN
LVE
VALVE (SHOWN IN SECTION DWGS)
VALVE (SHOWN ON DWG PLANS)
LY VALVE
VALVE
VALVE
Y AUTOMATIC CONTROL VALVE
WAY AUTOMATIC CONTROL VALVE
AIR VENT
IC AIR VENT WITH ISOLATION VALVE
METER
RE GAUGE WITH BALL VALVE
TURE/PRESSURE WELL ("PETE'S PLUG")
TION FLOW METER/BALANCE VALVE -OFF (CIRCUIT SETTER)
SCREWED
LANGE (END OF SYSTEM)
-SCREWED
E-OFF
TAKE-OFF
CONNECTION (SINGLE LINE PIPING)
CONNECTION (DOUBLE LINE PIPING)
N ISOLATORS FLOOR MOUNTED & TYPE

HVAC Equipment Designations

DESCRIPTION
NT TAG
ION
E HEXAGON SYMBOL SHALL BE R ALL EQUIPMENT CALLOUTS G ELECTRICAL POWER HOOK-UP.
NT TAG
ION/ACTIVE LENGTH FOR FIN-TUBE
E SQUARE SYMBOL SHALL BE R ALL EQUIPMENT CALLOUTS THAT REQUIRE ELECTRICAL POWER.

HVAC GENERAL NOTES

1. THE FOLLOWING NOTES ARE GENERAL IN NATURE. IF A CONFLICT OCCURS BETWEEN THESE NOTES AND THE SPECIFICATIONS, THE MORE STRINGENT SHALL APPLY.

2. EXAMINE ALL DRAWINGS AND THE SPECIFICATION FOR THE WORK REQUIREMENTS OF THIS SECTION.

3. HVAC WORK IS INDICATED DIAGRAMMATICALLY. EXACT LOCATIONS OF ALL COMPONENTS SHALL BE DETERMINED IN THE FIELD AND BY ACTUAL BUILDING CONDITIONS. EQUIPMENT OR DUCTS INTERFERING WITH OTHER INSTALLATIONS SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER. THERMOSTAT LOCATIONS SHALL BE APPROVED BY THE ARCHITECT BEFORE THE INSTALLATION.

4. ALL WORK SHALL MEET OR EXCEED THE LATEST REQUIREMENTS OF ALL NATIONAL, STATE, COUNTRY MUNICIPAL AND OTHER AUTHORITIES EXERCISING JURISDICTION OVER CONSTRUCTION WORK OF THE PROJECT. ALL REQUIRED PERMITS SHALL BE OBTAINED, PAID FOR, AND MADE AVAILABLE AT THE COMPLETION OF THE WORK.

5. INSTALLATION PROCEDURES, METHODS, AND CONDITIONS SHALL COMPLY WITH THE LATEST REQUIREMENTS OF THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).

6. THE HVAC CONTRACTOR SHALL GUARANTEE WORK IN WRITING FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE AGAINST DEFECTS IN MATERIALS, WORKMANSHIP AND INSTALLATION. THE HVAC CONTRACTOR SHALL CORRECT DEFECTIVE WORK AT NO ADDITIONAL COST TO THE OWNER AND PROVIDE EQUIPMENT WARRANTIES TO THE OWNER IN FULL FORCE. PROVIDE 5-YEAR WARRANTY ON COMPRESSORS.

7. PRIOR TO PURCHASING ANY EQUIPMENT OR MATERIALS, THE PRODUCT DATA SHALL BE SUBMITTED FOR REVIEW. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND WITHOUT BLEMISH OR DEFECT. SUBSTITUTED EQUIPMENT OR OPTIONAL EQUIPMENT WHERE PERMITTED AND APPROVED, MUST CONFORM TO SPACE REQUIREMENTS. ANY SUBSTITUTED EQUIPMENT THAT CANNOT MEET SPACE REQUIREMENTS, WHETHER APPROVED OR NOT, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

8. THE HEATING, VENTILATING AND AIR CONDITIONING TRADE IS REQUIRED TO SUPPLY ALL NECESSARY SUPERVISION AND COORDINATION INFORMATION TO ANY OTHER TRADES WHO ARE TO SUPPLY WORK TO ACCOMMODATE THE HEATING, VENTILATING AND AIR CONDITIONING INSTALLATIONS. WORK SHALL BE PERFORMED IN COOPERATION WITH OTHER TRADES ON THE PROJECT AND SO SCHEDULED AS TO ALLOW TIMELY AND EFFICIENT COMPLETION OF THE PROJECT.

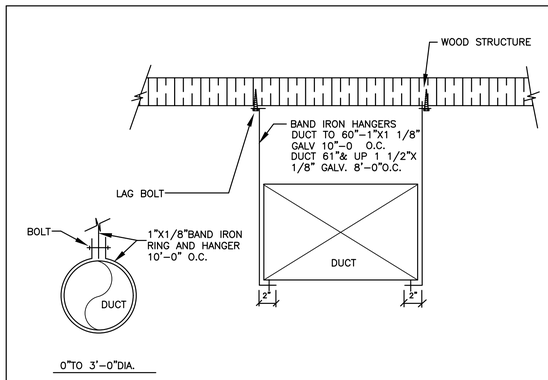
9. CUTTING, CORING, DRILLING AND PATCHING OF HOLES AND OPENINGS IN ALL THE STRUCTURAL WALLS FOR THE WORK OF SUB-TRADES SHALL BE PERFORMED BY THE PARTICULAR SUBCONTRACTOR WHEN THE LARGEST DIMENSION OF THE OPENING IS 6 INCHES OR LESS. IF THE LARGEST DIMENSION OF THE OPENING EXCEEDS 6 INCHES, THE GENERAL CONTRACTOR SHALL PERFORM THE CUTTING AND PATCHING FOR THE WORK OF THE SUBCONTRACTOR. ALL SUCH WORK SHALL BE COORDINATED WITH THE G.C.

10. ALL WORK SHALL BE INSTALLED SO THAT PARTS REQUIRING PERIODIC INSPECTION, OPERATION, MAINTENANCE AND REPAIR ARE READILY ACCESSIBLE. MINOR DEVIATION FROM THE DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES OF SUBSTANTIAL MAGNITUDE SHALL NOT BE MADE PRIOR TO WRITTEN APPROVAL FROM THE ENGINEER.

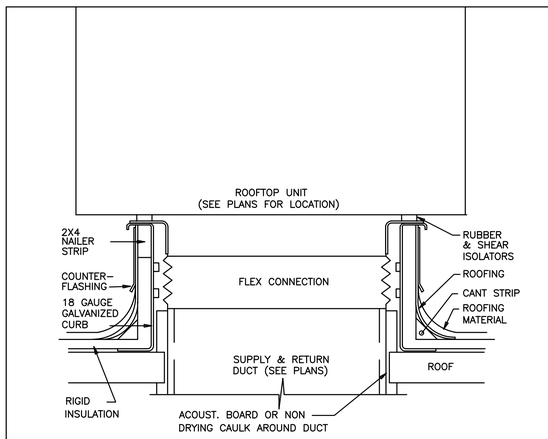
11. THE DRAWINGS ARE DIAGRAMMATIC. THE CONTRACTOR SHALL REVIEW EQUIPMENT INSTALLATION MANUAL TO UNDERSTAND THE EQUIPMENT SERVICE SPACE REQUIRED BEFORE WORK IS COMMENCED. THIS CONTRACTOR SHALL COORDINATE LOCATION OF ACCESS PANELS IN CEILINGS, WALLS, FLOORS ETC WITH GC. THE PANELS SHALL BE FURNISHED BY HVAC CONTRACTOR AND INSTALLED BY GC.

12. THIS TRADE SHALL COORDINATE DUCT AND EQUIPMENT INSTALLATION WITH EXISTING EQUIPMENT, DUCTS, AND PIPING. THIS TRADE SHALL COORDINATE ALL CONFLICTS WITH OTHER TRADES IN THE FIELD PRIOR TO INSTALLATION AT NO EXTRA COST TO THE OWNER.

CD-1	PRICE MODEL
-	6"/24"x24"/SCDA/3D/B12
	PROVIDE W/ OPPOSED BLADE DAMPER

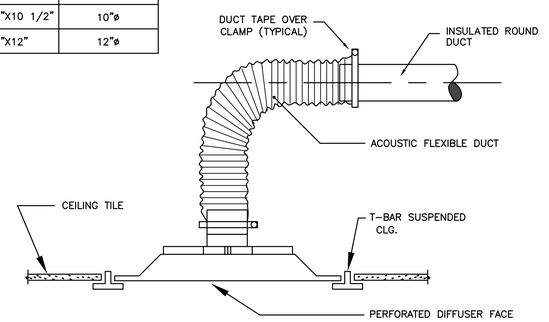


STANDARD HANGING DETAIL



ROOFTOP UNIT MOUNTING W/CURB

DIFFUSER NECK SIZE	ROUND DUCT SIZE
6"X6"	6"ø
7 1/2"X7 1/2"	7"ø
9"X9"	9"ø
10 1/2"X10 1/2"	10"ø
12"X12"	12"ø



11 TYPICAL SUPPLY DIFFUSER DETAIL

Scale: None

1

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121 Parkman Street
Suite 2
Penobscot, ME 04469

BROWN MODULAR BUILDINGS
125 MEADOWBROOK RD, NEWTON, 02459
MECHANICAL LEGEND, SYMBOLS, GENERAL NOTES & DETAILS

Revisions:

No.	Date	Description
1	7-27-16	ADD. HVAC

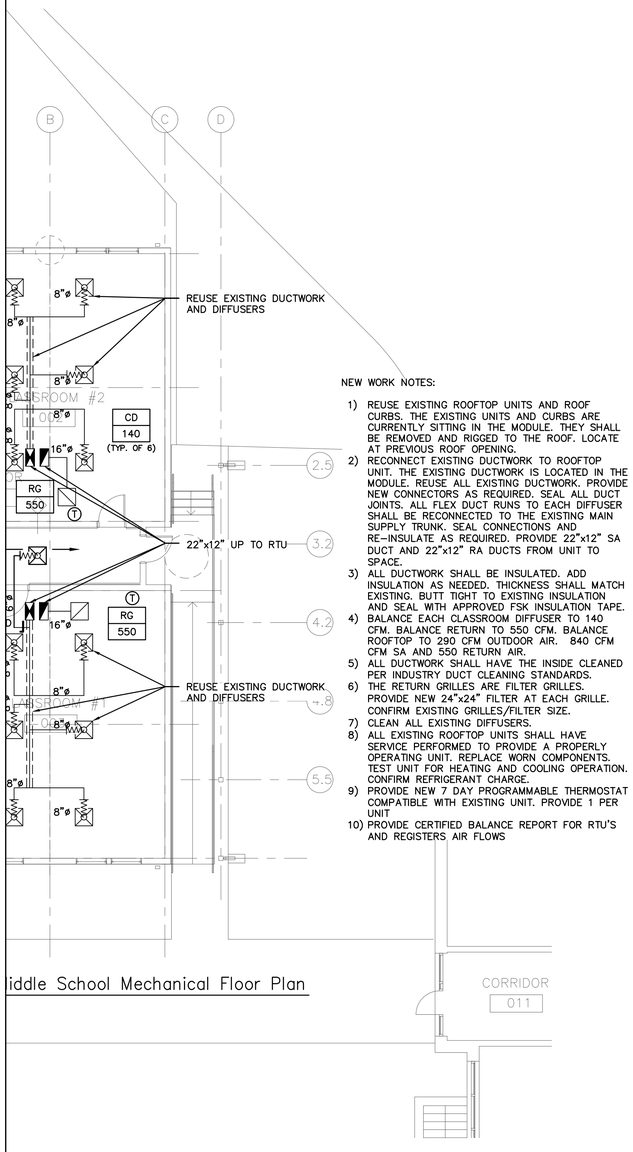
Drawn By: MAG
Checked By: SDW
Approved By: XXX

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

Project Number: 16047

Date: July 21st, 2016

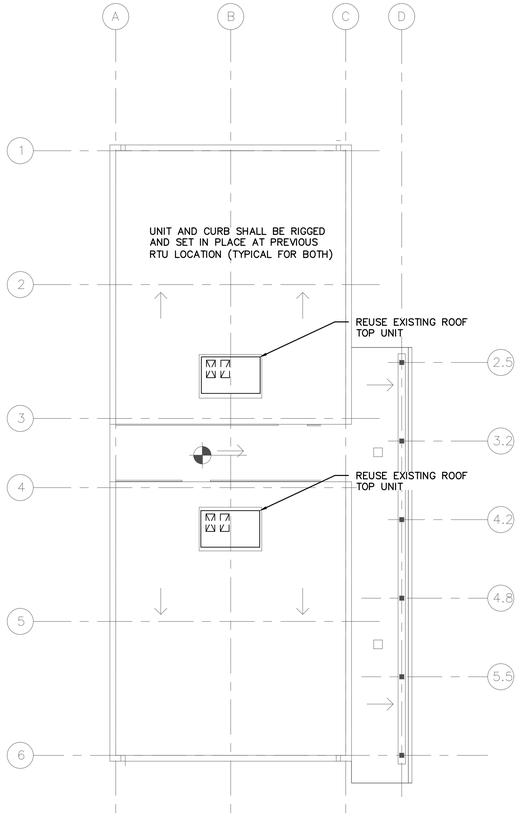
M0.0



NEW WORK NOTES:

1) REUSE EXISTING ROOFTOP UNITS AND ROOF CURBS. THE EXISTING UNITS AND CURBS ARE CURRENTLY SITTING IN THE MODULE. THEY SHALL BE REMOVED AND RIGGED TO THE ROOF. LOCATE AT PREVIOUS ROOF OPENING.
2) RECONNECT EXISTING DUCTWORK TO ROOFTOP UNIT. THE EXISTING DUCTWORK IS LOCATED IN THE MODULE. REUSE ALL EXISTING DUCTWORK. PROVIDE NEW CONNECTORS AS REQUIRED. SEAL ALL DUCT JOINTS. ALL FLEX DUCT RUNS TO EACH DIFFUSER SHALL BE RECONNECTED TO THE EXISTING MAIN SUPPLY TRUNK. SEAL CONNECTIONS AND RE-INSULATE AS REQUIRED. PROVIDE 22"x12" SA DUCT AND 22"x12" RA DUCTS FROM UNIT TO SPACE.
3) ALL DUCTWORK SHALL BE INSULATED. ADD INSULATION AS NEEDED. THICKNESS SHALL MATCH EXISTING. BUTT TIGHT TO EXISTING INSULATION AND SEAL WITH APPROVED FSK INSULATION TAPE.
4) BALANCE EACH CLASSROOM DIFFUSER TO 140 CFM. BALANCE RETURN TO 550 CFM. BALANCE ROOFTOP TO 290 CFM OUTDOOR AIR. 840 CFM CFM SA AND 550 RETURN AIR.
5) ALL DUCTWORK SHALL HAVE THE INSIDE CLEANED PER INDUSTRY DUCT CLEANING STANDARDS.
6) THE RETURN GRILLES ARE FILTER GRILLES. PROVIDE NEW 24"x24" FILTER AT EACH GRILLE. CONFIRM EXISTING GRILLES/FILTER SIZE.
7) CLEAN ALL EXISTING DIFFUSERS.
8) ALL EXISTING ROOFTOP UNITS SHALL HAVE SERVICE PERFORMED TO PROVIDE A PROPERLY OPERATING UNIT. REPLACE WORN COMPONENTS. TEST UNIT FOR HEATING AND COOLING OPERATION. CONFIRM REFRIGERANT CHARGE.
9) PROVIDE NEW 7 DAY PROGRAMMABLE THERMOSTAT COMPATIBLE WITH EXISTING UNIT. PROVIDE 1 PER UNIT
10) PROVIDE CERTIFIED BALANCE REPORT FOR RTU'S AND REGISTERS AIR FLOWS

iddle School Mechanical Floor Plan



2 Brown Middle School Mechanical Roof Plan
Scale: 1/8"=1'-0"

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www.wbaengineers.com
121 Exchange Street
Suite 201
Portsmouth, NH 03801

BROWN MODULAR BUILDINGS
125 MEADOWBROOK RD, NEWTON, 02459
MECHANICAL ROOF AND FLOOR PLAN

Revisions:

No.	Date	Description
1	7-27-16	ADD. HVAC

Drawn By: MAG
Checked By: SDW
Approved By: XXX
Drawing Scale: 1/8" = 1' - 0"
Project Number: 16047
Date: July 21st, 2016

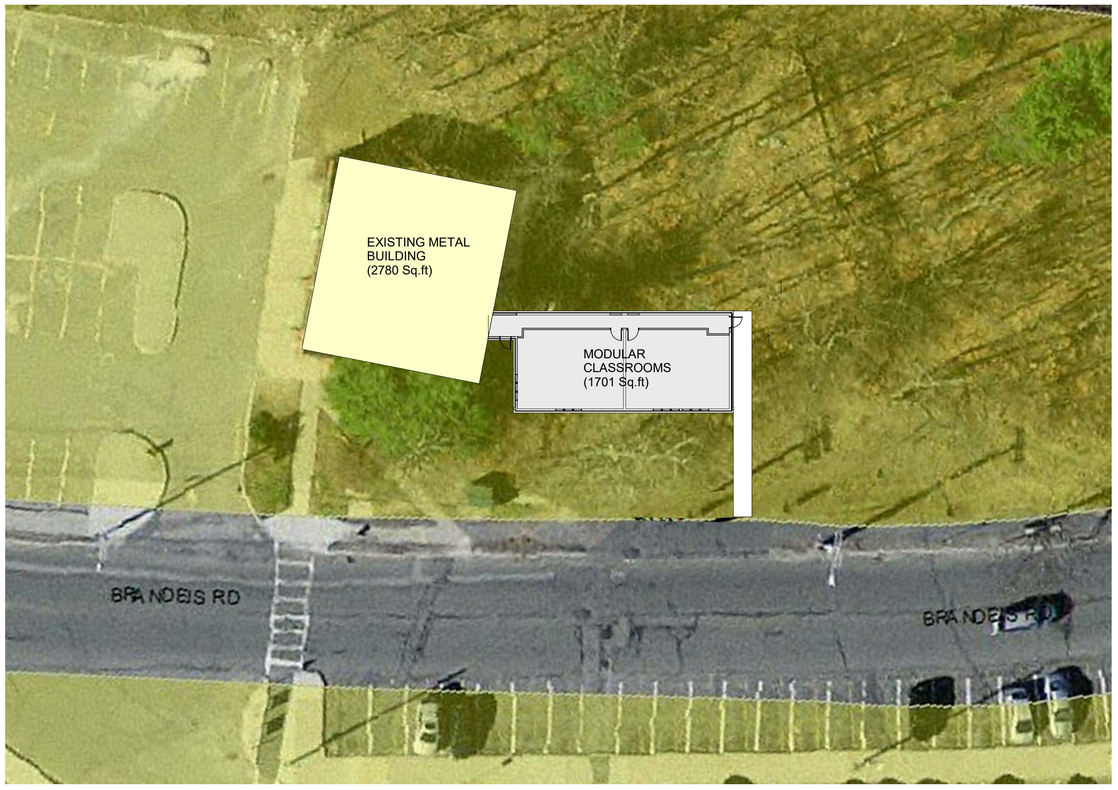
M1.0

MODULAR CLASSROOMS AT

NEWTON SOUTH HIGH SCHOOL

140 BRANDEIS RD. NEWTON, MA

REVIEW SET
AUGUST 25, 2016



LOCATION PLAN **NO SCALE**

DRAWING LIST

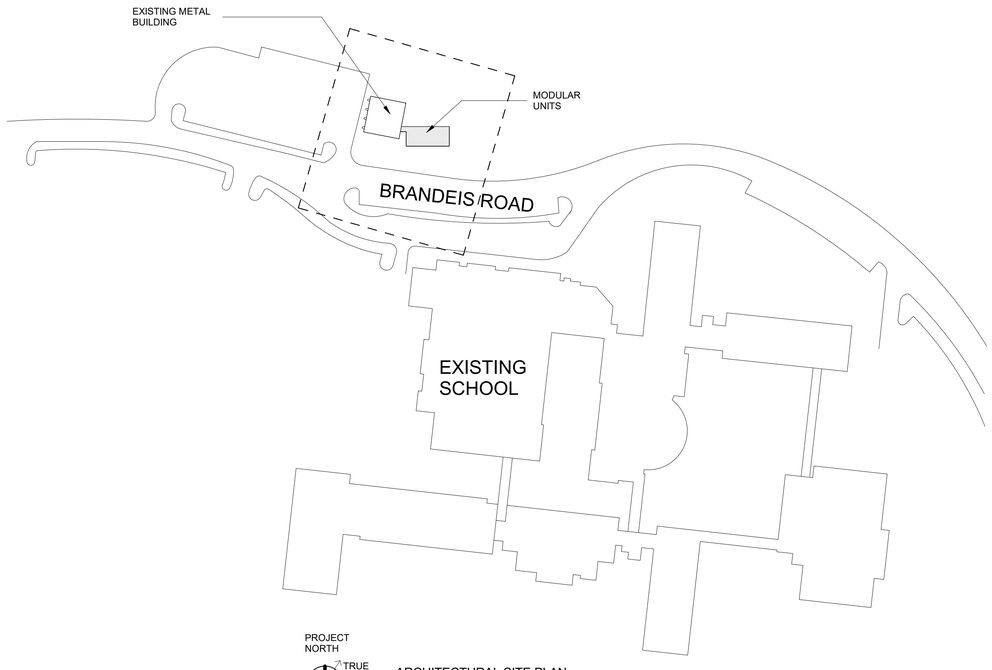
COVER SHEET
A0.1 SITE PLAN & DEMOLITION PLAN
A0.2 EXISTING PHOTOS
A1.00 FLOOR PLAN & REFLECTED CEILING PLAN
A2.00 ROOF PLAN
A3.00 EXTERIOR ELEVATIONS
A4.00 BUILDING SECTIONS
A4.10 WALL SECTIONS
A5.00 FOUNDATION PLAN
A6.00 DOOR SCHEDULE & HARDWARE
A6.01 SPECIFICATIONS
A6.02 SPECIFICATIONS

S0.01 GENERAL NOTES
S0.02 TYPICAL DETAILS
S1.01 FIRST FLOOR FOUNDATION PLAN

P2.00 LEGEND, NOTES AND FLOOR PLANS

M0.0 MECHANICAL LEGEND, SYMBOLS, GENERAL NOTES & DETAILS
M1.0 MECHANICAL ROOF & FLOOR PLAN

E0.01 LEGEND, NOTES & ABBREVIATIONS
E1.01 LIGHTING PLAN
E1.02 POWER PLAN
E1.03 FIRE ALARM PLAN
E1.04 ELECTRICAL SPECIFICATIONS



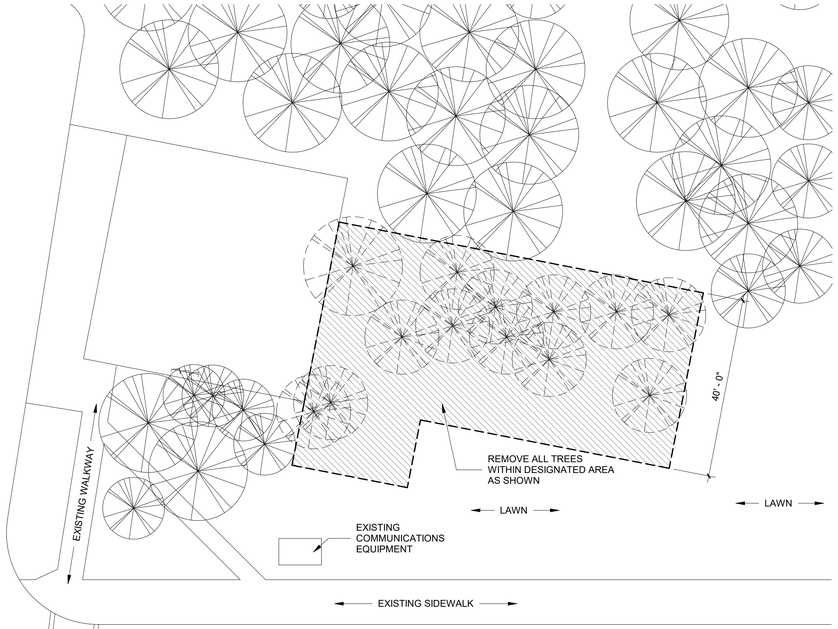
ARCHITECTURAL SITE PLAN

RAYMOND DESIGN ASSOCIATES, INC. ● ARCHITECT

60 LEDGEWOOD PLACE, ROCKLAND, MA 02370 TEL: 781. 421. 3480

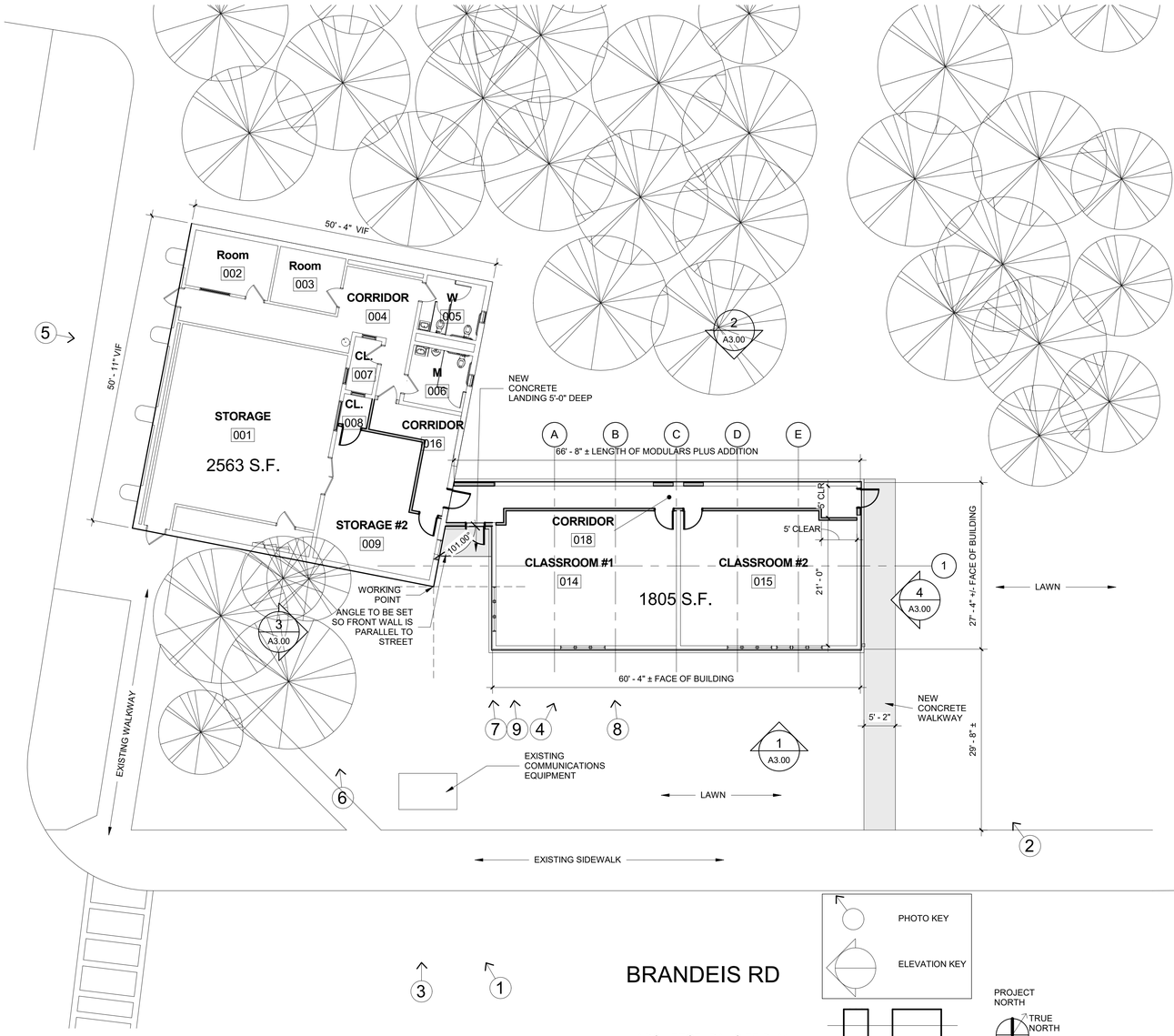
REVIEW SET
AUGUST 25, 2016

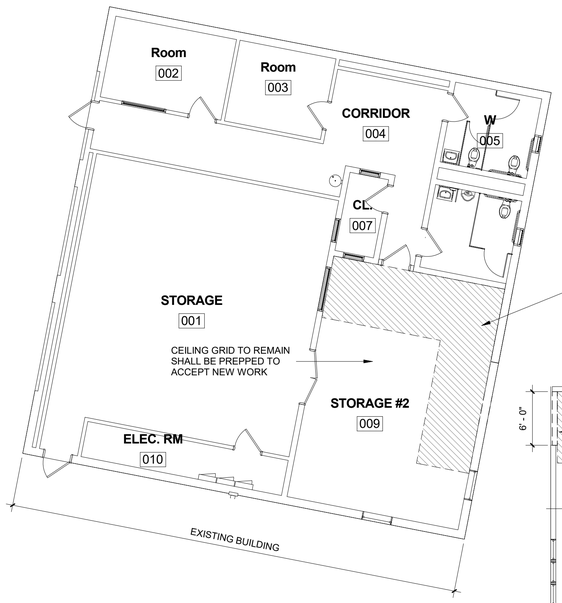
MODULAR CLASSROOMS AT
NEWTON SOUTH HIGH SCHOOL
140 BRANDEIS RD. NEWTON, MA

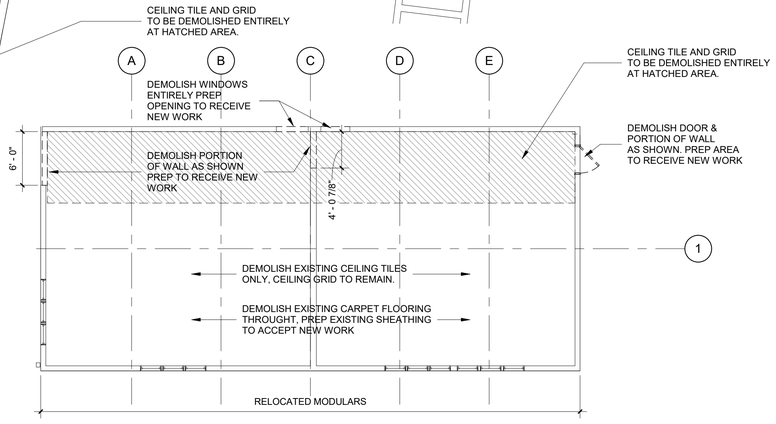


BRANDEIS RD

3 SITE DEMOLITION PLAN
1/16" = 1'-0"



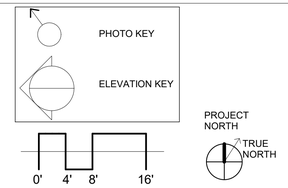




2 DEMOLITION PLAN
1/8" = 1'-0"

BRANDEIS RD

1 ARCHITECTURAL SITE PLAN
3/32" = 1'-0"



	EXISTING	NEW	TOTAL
USE GROUP	E	E	N/A
GROSS SQ.FT	2,563 S.F.	1,805 S.F.	4368 S.F.
CONSTRUCTION TYPE	IIB	VB	N/A
MAX ALLOWABLE	14,500 S.F.	9,500 S.F.	4,368 S.F. (PROPOSED)

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NEWTON SOUTH HIGH SCHOOL
140 BRANDEIS RD. NEWTON, MA
SITE PLAN & DEMOLITION PLAN

Revisions:

No.	Date	Description

Drawn By: Author
Checked By: Checker
Approved By: Approver
Drawing Scale: As indicated
Project Number: 000
Date: AUGUST 17, 2016

A0.1

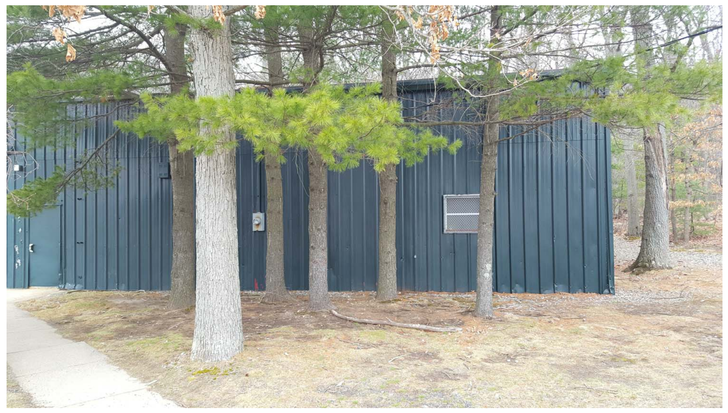
1 EXISTING PHOTO
NTS

2 EXISTING PHOTO
NTS

3 EXISTING PHOTO
NTS

4 EXISTING PHOTO
NTS

5 EXISTING PHOTO
NTS



6 EXISTING PHOTO
NTS

7 EXISTING PHOTO
NTS

8 EXISTING PHOTO
NTS

9 EXISTING PHOTO
NTS

10 EXISTING MODULAR CLASSROOM PHOTO
NTS

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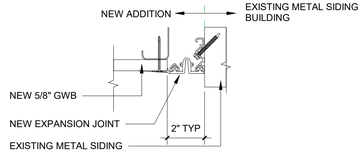
NEWTON SOUTH HIGH SCHOOL
140 BRANDEIS RD. NEWTON, MA
EXISTING PHOTOS

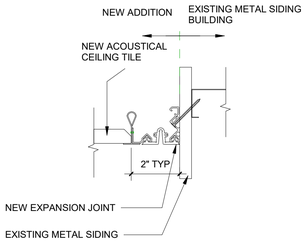
Revisions:

No.	Date	Description

Drawn By: Author
Checked By: Checker
Approved By: Approver
Drawing Scale: 1/4" = 1'-0"
Project Number: 000
Date: AUGUST 17, 2016

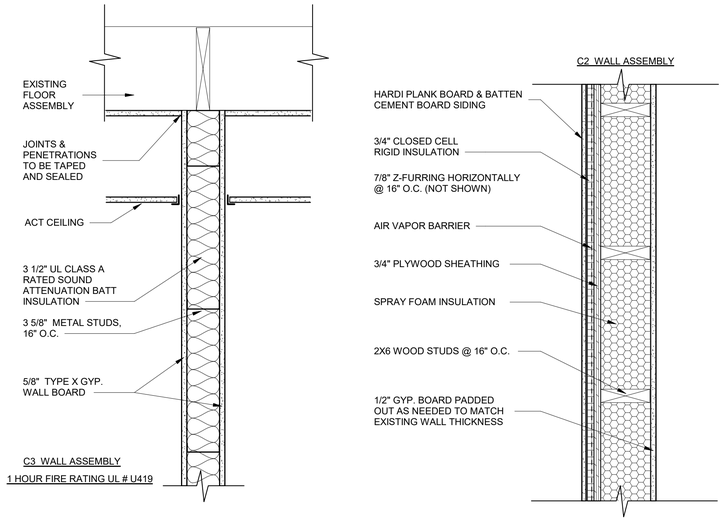
A0.2





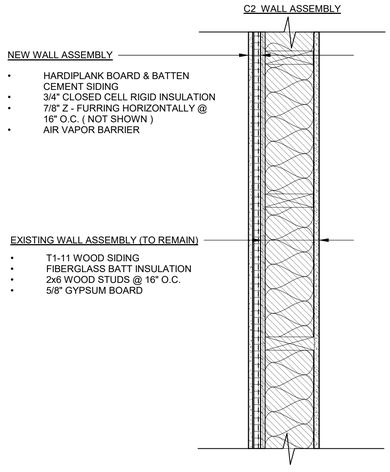
6 WALL EXP JOINT
3" = 1'-0"

5 CEILING EXPANSION JOINT
3" = 1'-0"

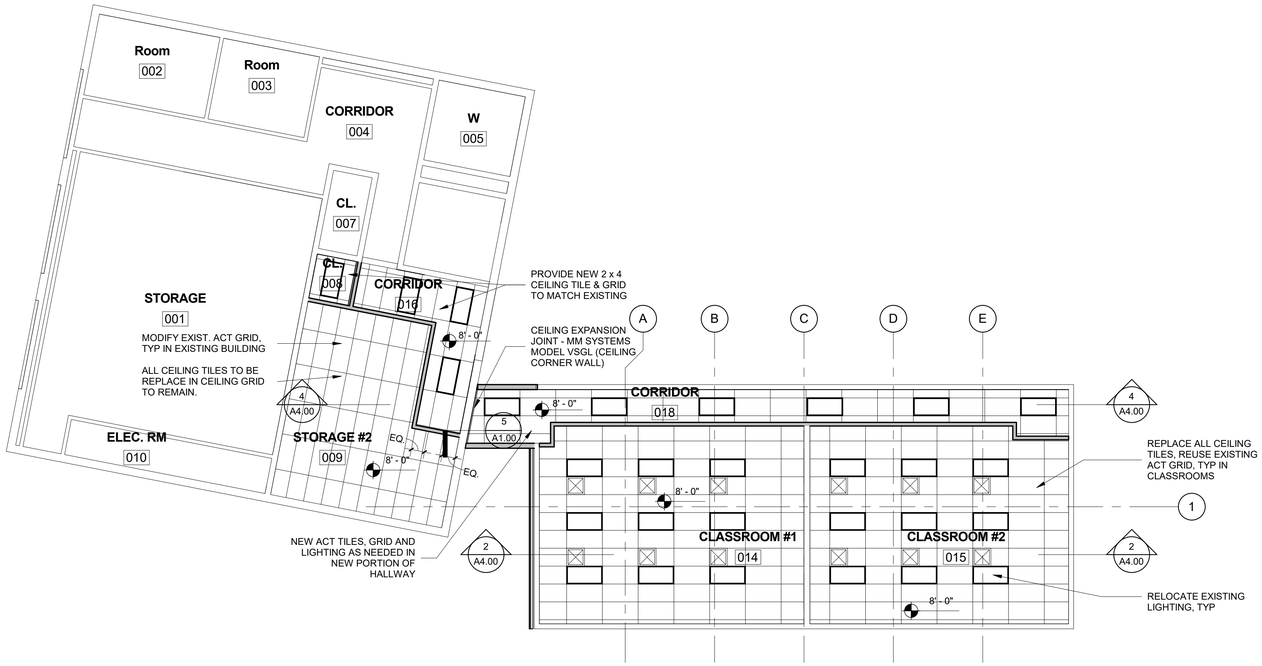


WALL TYPE C3
SCALE: 1 1/2" = 1'-0"

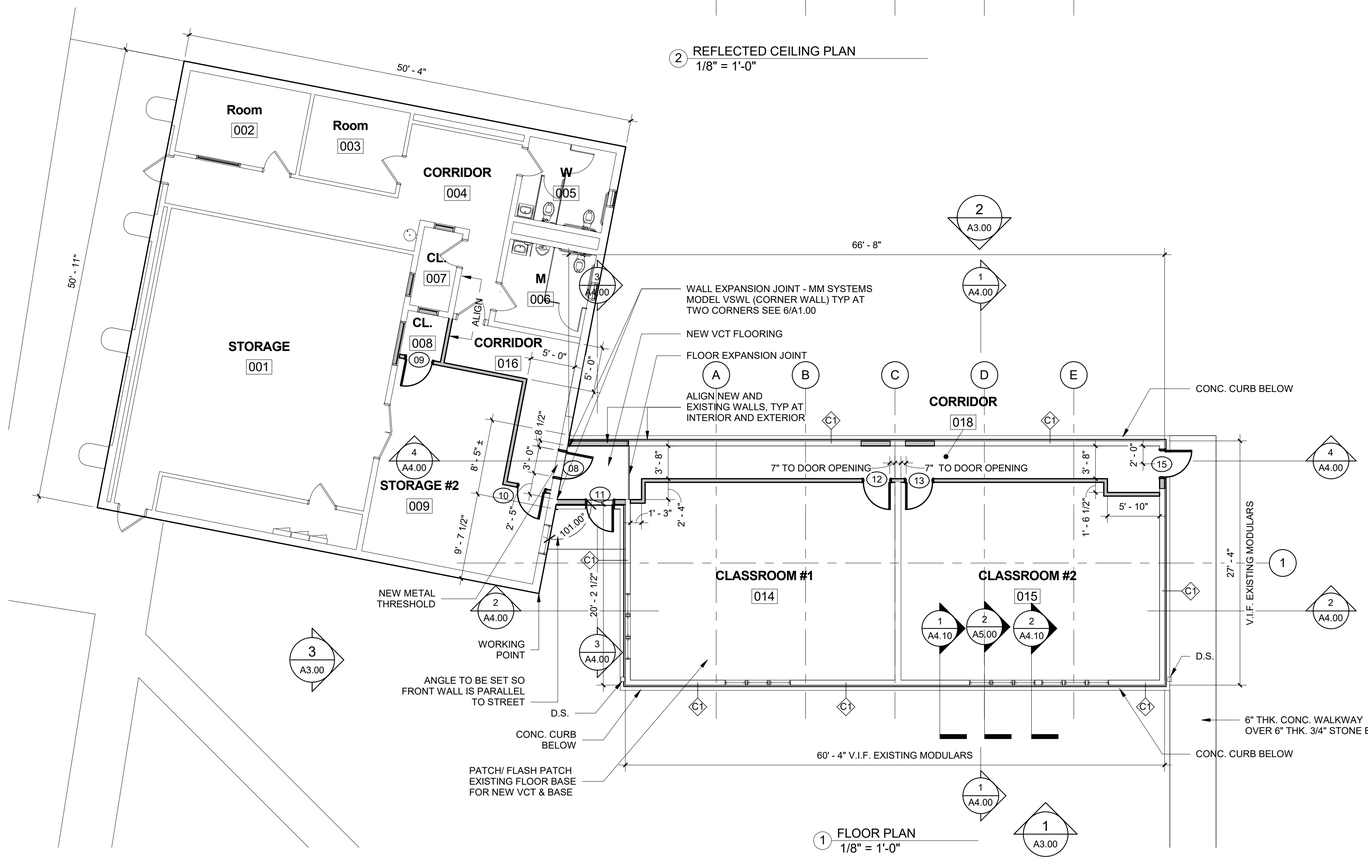
WALL TYPE C2
SCALE: 1 1/2" = 1'-0"



WALL TYPE C1
SCALE: 1 1/2" = 1'-0"



2 REFLECTED CEILING PLAN
1/8" = 1'-0"



1 FLOOR PLAN
1/8" = 1'-0"

0' 4' 8' 16' 32'

PROJECT NORTH
TRUE NORTH

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Rockland, MA 02370

NEWTON SOUTH HIGH SCHOOL
140 BRANDEIS RD. NEWTON, MA

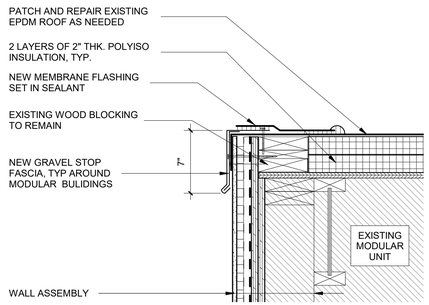
FLOOR PLAN & REFLECTED CEILING PLAN

Revisions:

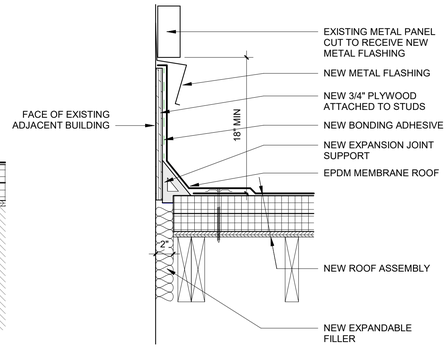
No.	Date	Description

Drawn By:	Author
Checked By:	Checker
Approved By:	Approver
Drawing Scale:	As indicated
Project Number:	000
Date:	AUGUST 17, 2016

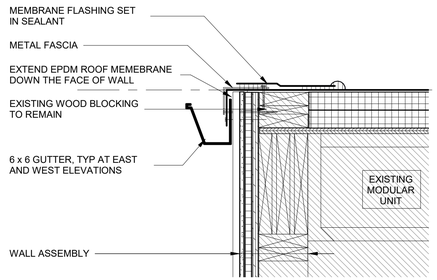
A1.00



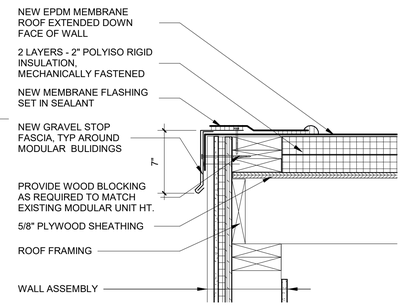
5 ROOF EDGE @ MODULAR UNIT
1 1/2" = 1'-0"



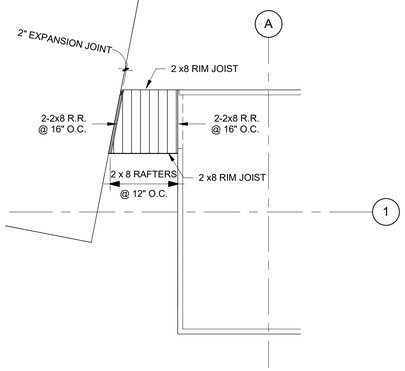
4 EXPANSION JOINT @ ROOF
1 1/2" = 1'-0"



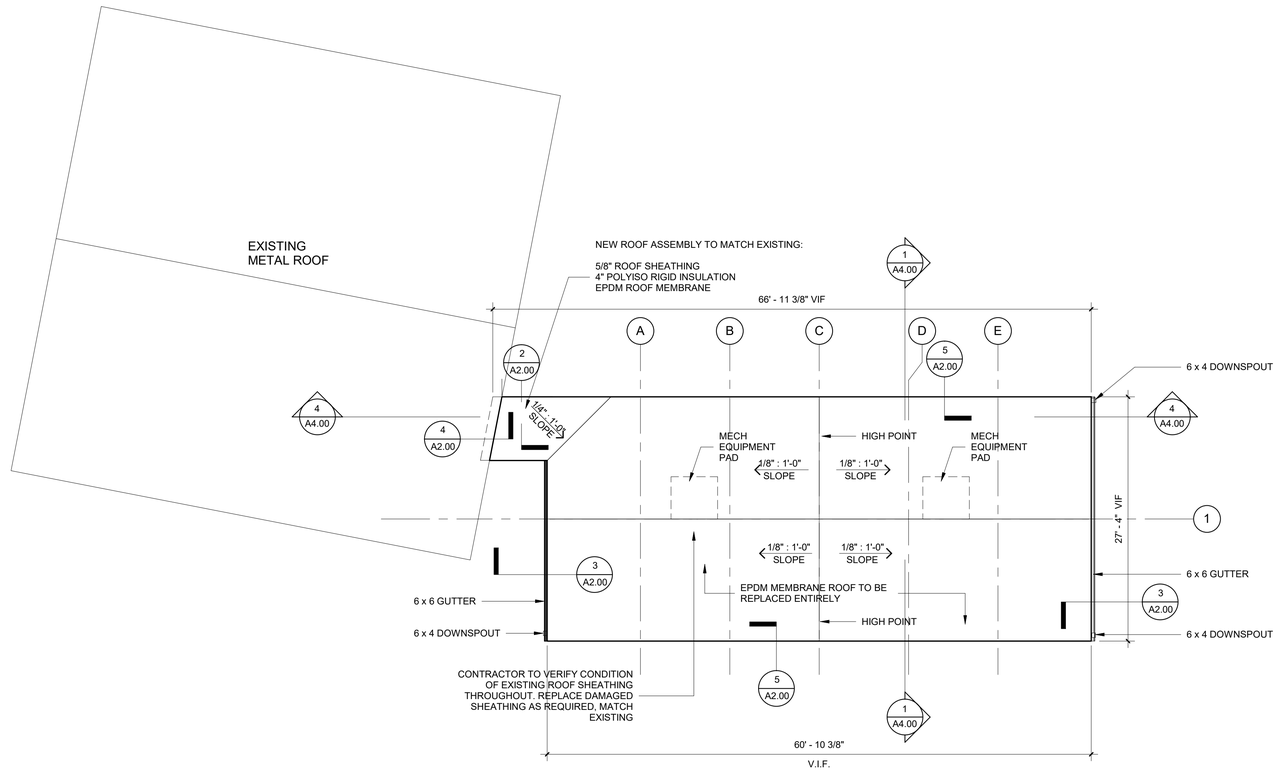
3 DETAIL AT GUTTER EDGE
1 1/2" = 1'-0"



2 ROOF EDGE @ STICK BUILT ADDITION
1 1/2" = 1'-0"



6 ROOF FRAMING PLAN
1/8" = 1'-0"



1 ROOF PLAN
1/8" = 1'-0"

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ROOF PLAN

Revisions:

No.	Date	Description

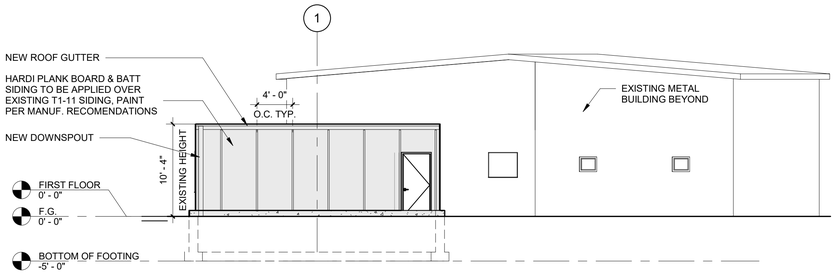
Drawn By: Author
Checked By: Checker
Approved By: Approver

Drawing Scale: As indicated

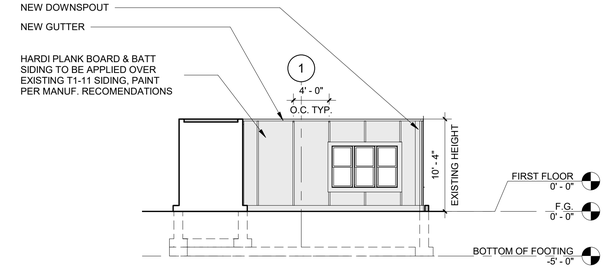
Project Number: 000

Date: AUGUST 17, 2016

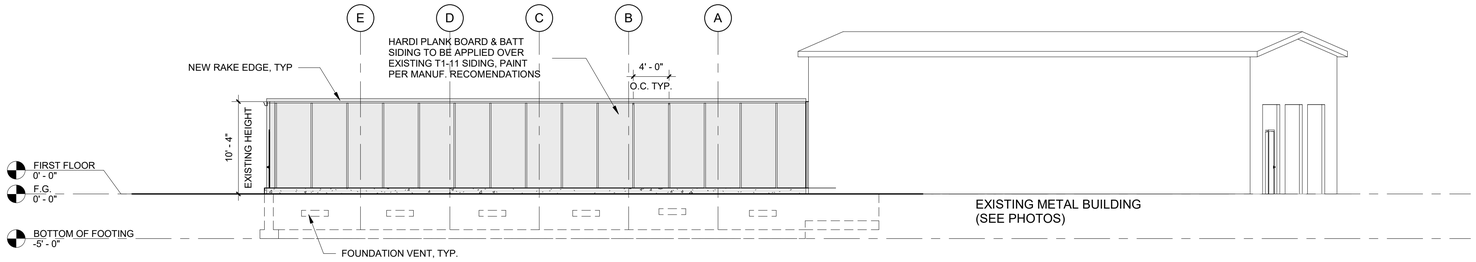
A2.00



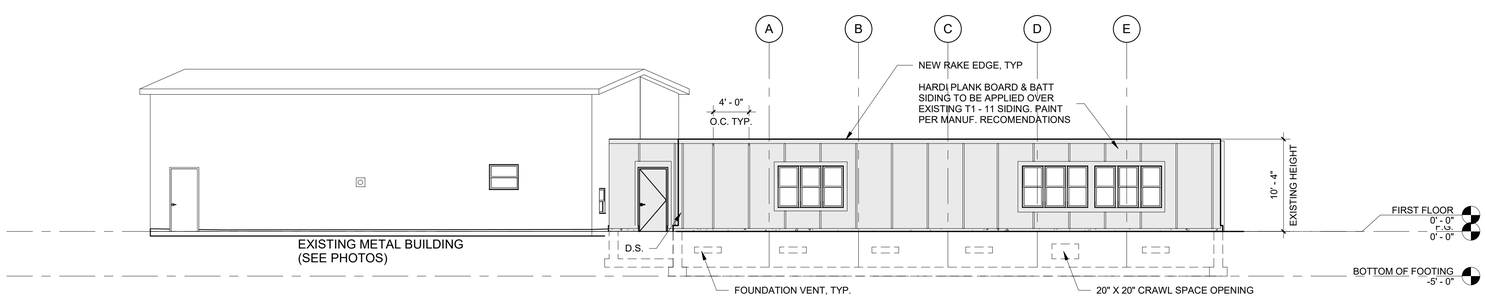
4 EAST ELEVATION
1/8" = 1'-0"



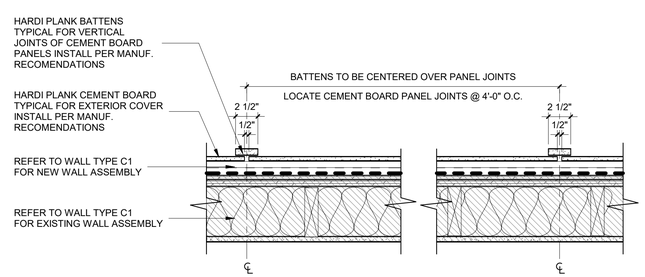
3 MODULAR WEST ELEVATION
1/8" = 1'-0"



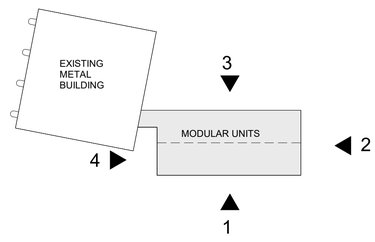
2 NORTH ELEVATION
1/8" = 1'-0"



1 SOUTH ELEVATION
1/8" = 1'-0"



5 BOARD & BATT SIDING DETAIL
1 1/2" = 1'-0"



KEY PLAN

PROJECT NORTH
TRUE NORTH

0' 4' 8' 16' 32'

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Architects & Planners
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Rockland, MA 02370

NEWTON SOUTH HIGH SCHOOL
140 BRANDEIS RD. NEWTON, MA

EXTERIOR ELEVATIONS

Revisions:

No.	Date	Description

Drawn By:	Author
Checked By:	Checker
Approved By:	Approver
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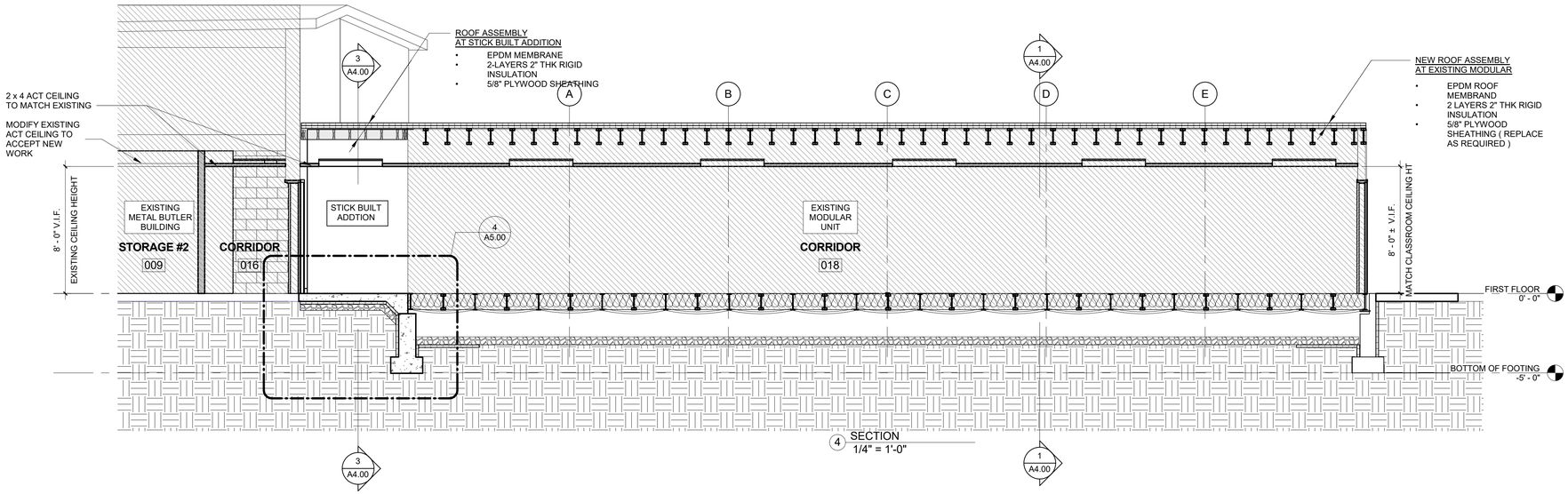
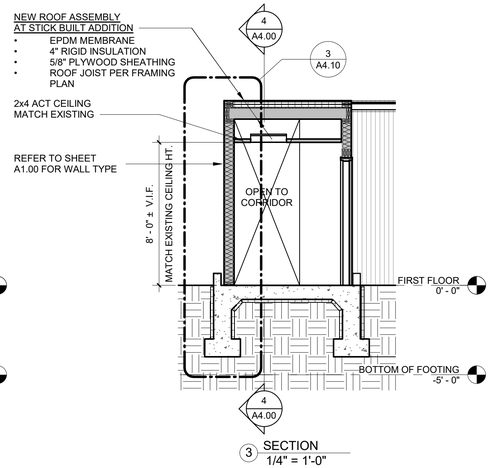
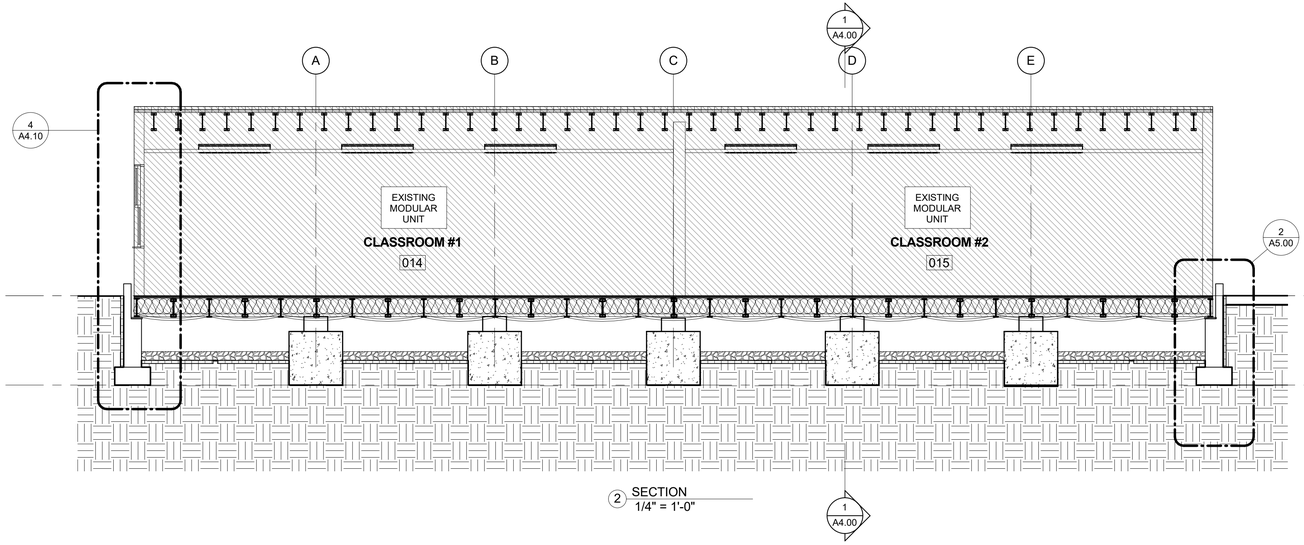
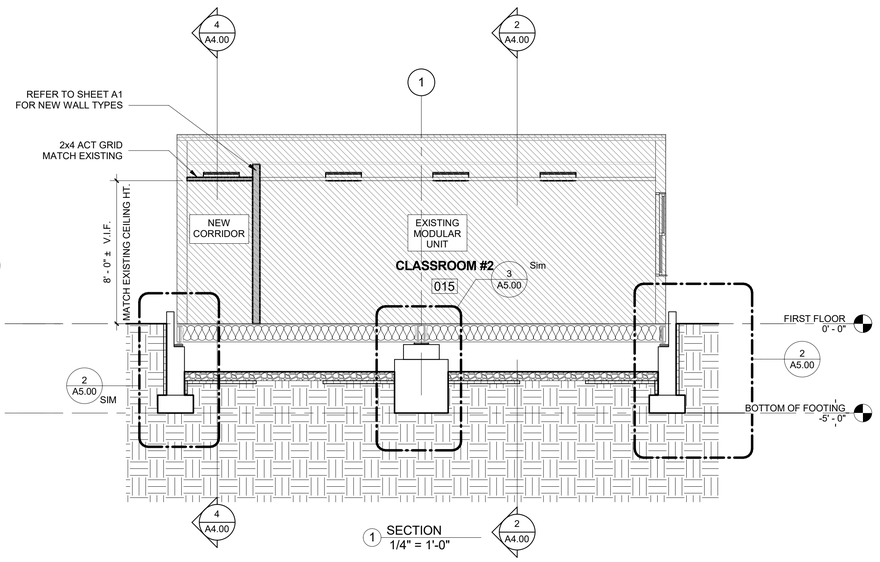
Project Number:	000
Date:	AUGUST 17, 2016

A3.00









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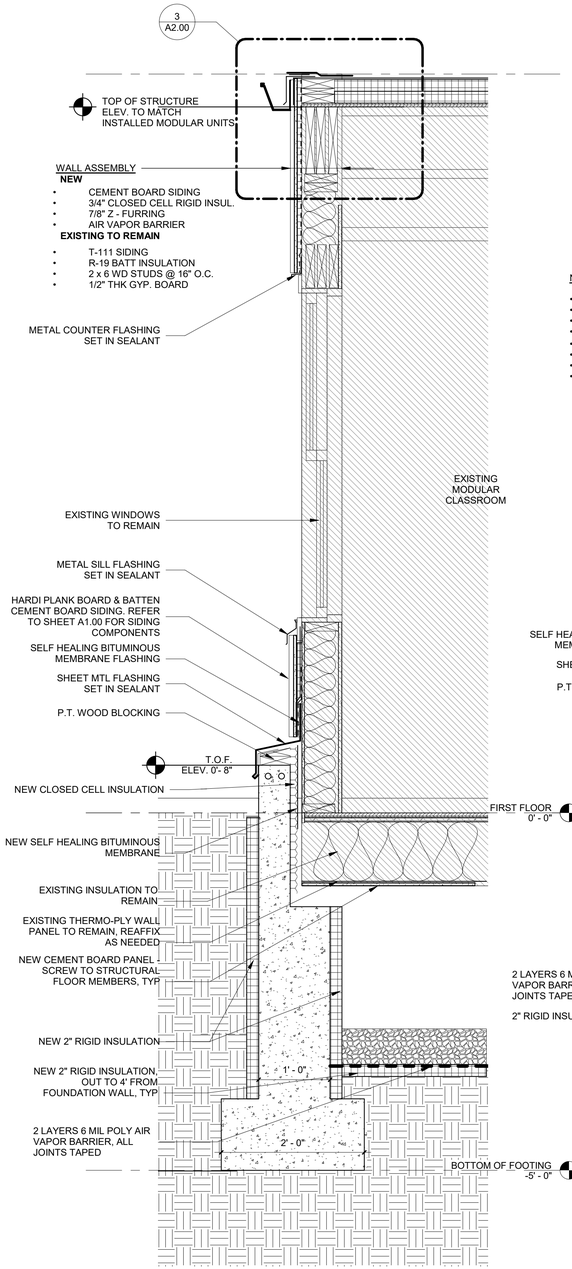
NEWTON SOUTH HIGH SCHOOL
140 BRANDEIS RD. NEWTON, MA
BUILDING SECTIONS

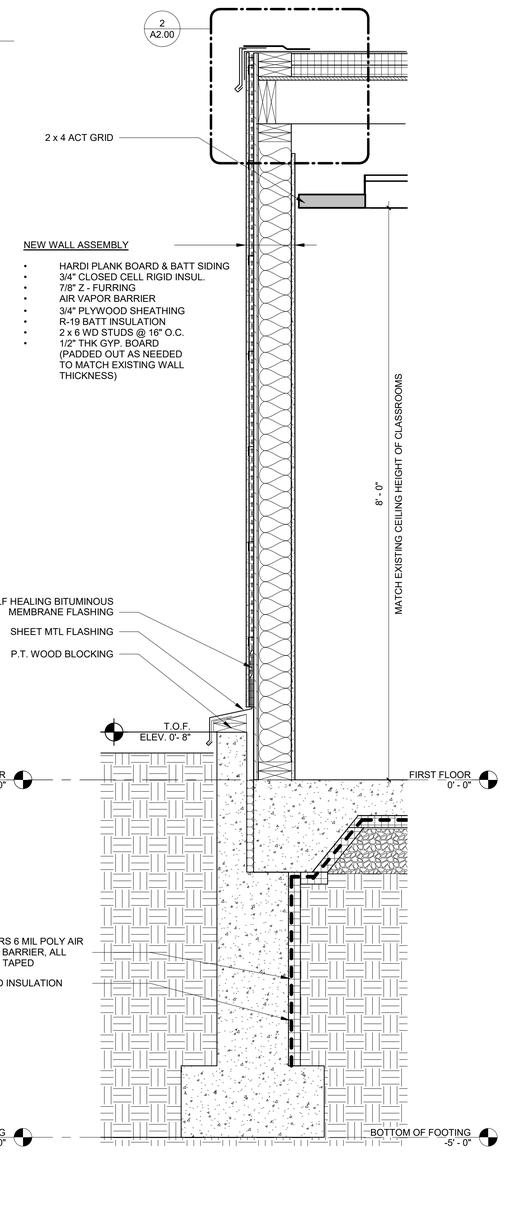
Revisions:		
No.	Date	Description

Drawn By:	Author
Checked By:	Checker
Approved By:	Approver
Drawing Scale:	1/4" = 1'-0"
Project Number:	000
Date:	AUGUST 17, 2016

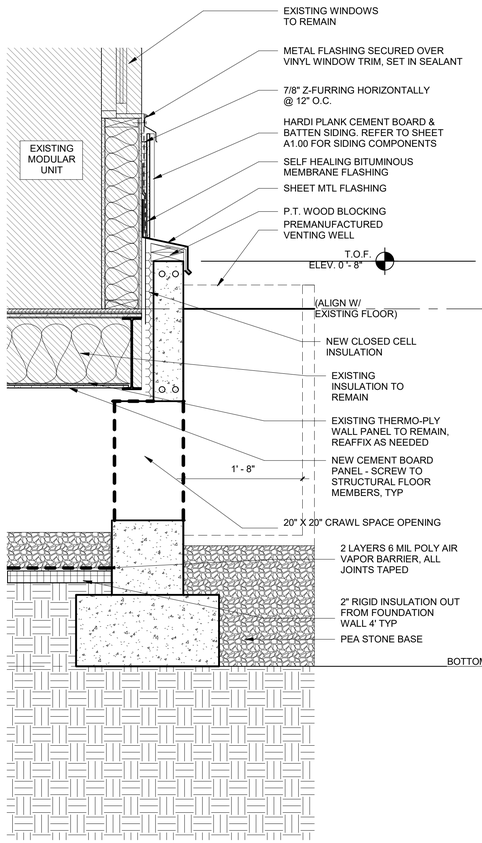
A4.00



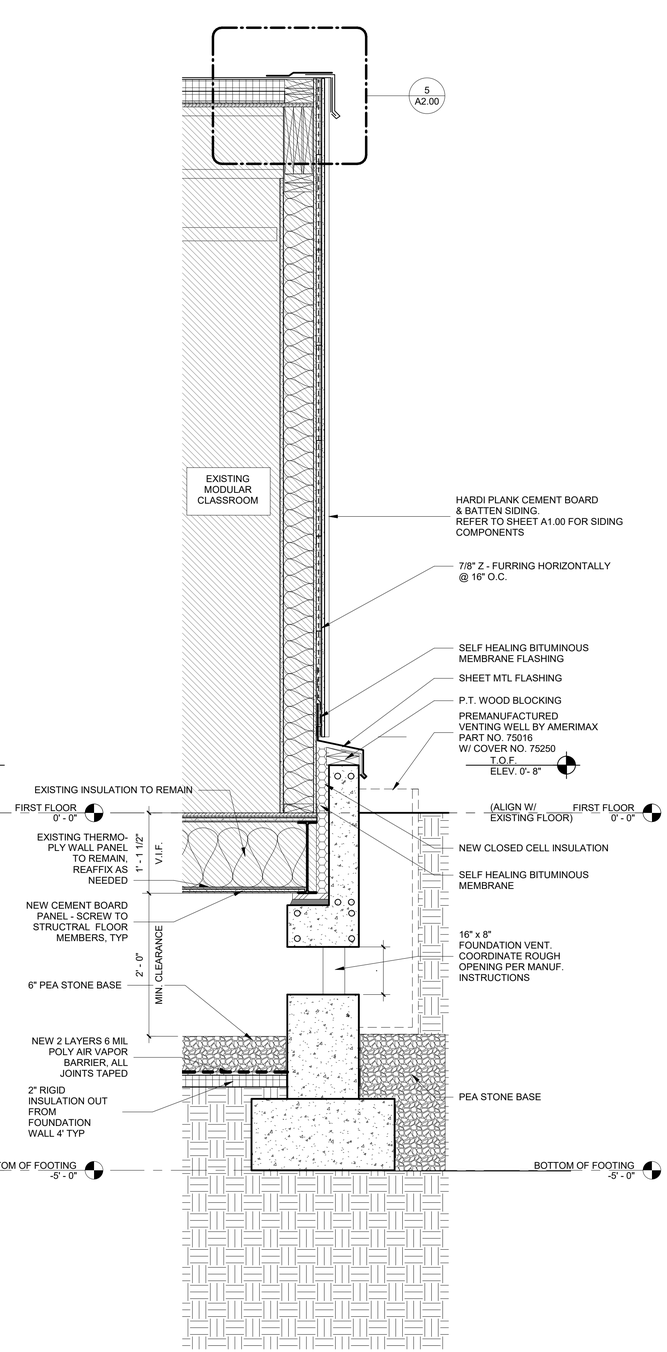
4 SECTION AT GUTTER EDGE
1" = 1'-0"



3 WALL SECTION @ NEW EXTERIOR WALL
1" = 1'-0"



2 WALL SECTION @ CRAWL SPACE
ACCESS
1" = 1'-0"



1 WALL SECTION @ FOUNDATION VENT
1" = 1'-0"

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WALL SECTIONS

Revisions:

No.	Date	Description

Drawn By:	Author
Checked By:	Checker
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Drawing Scale:	1" = 1'-0"
Project Number:	000
Date:	AUGUST 17, 2016

A4.10

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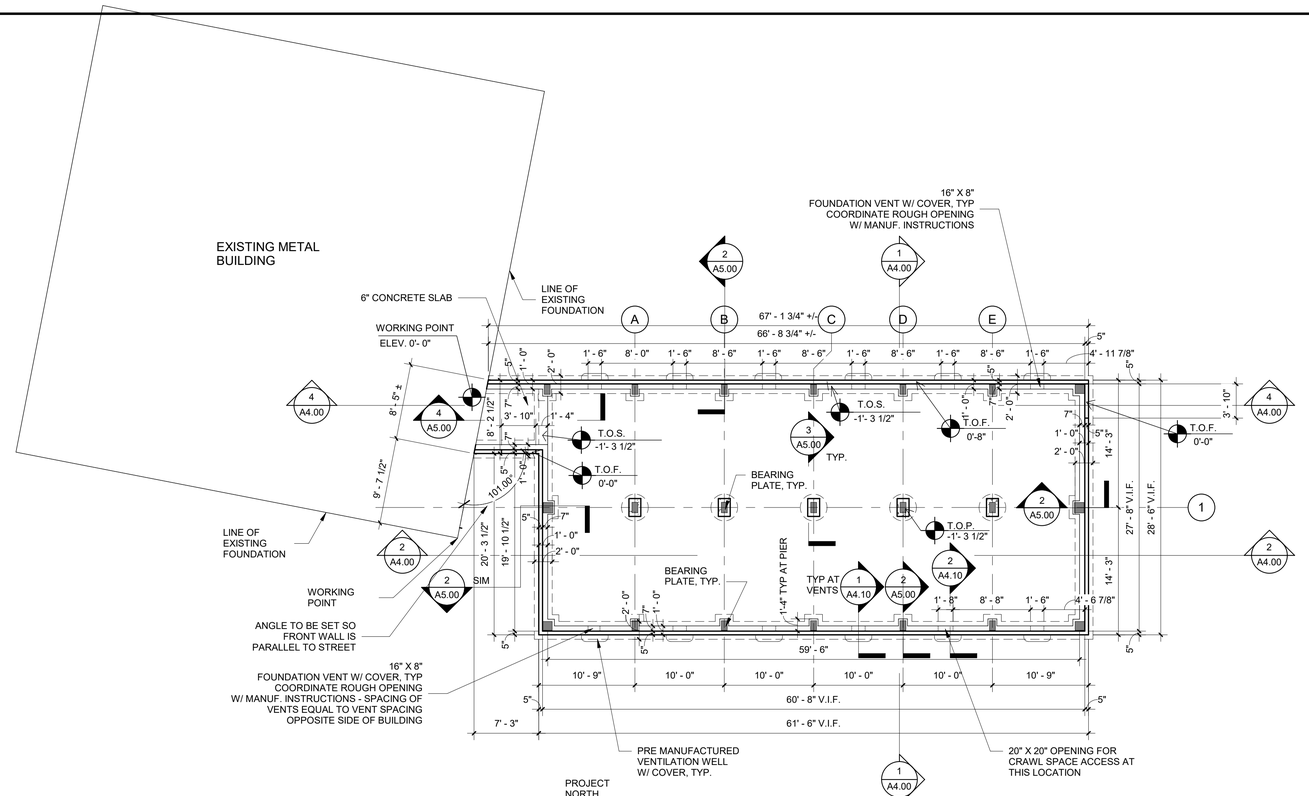
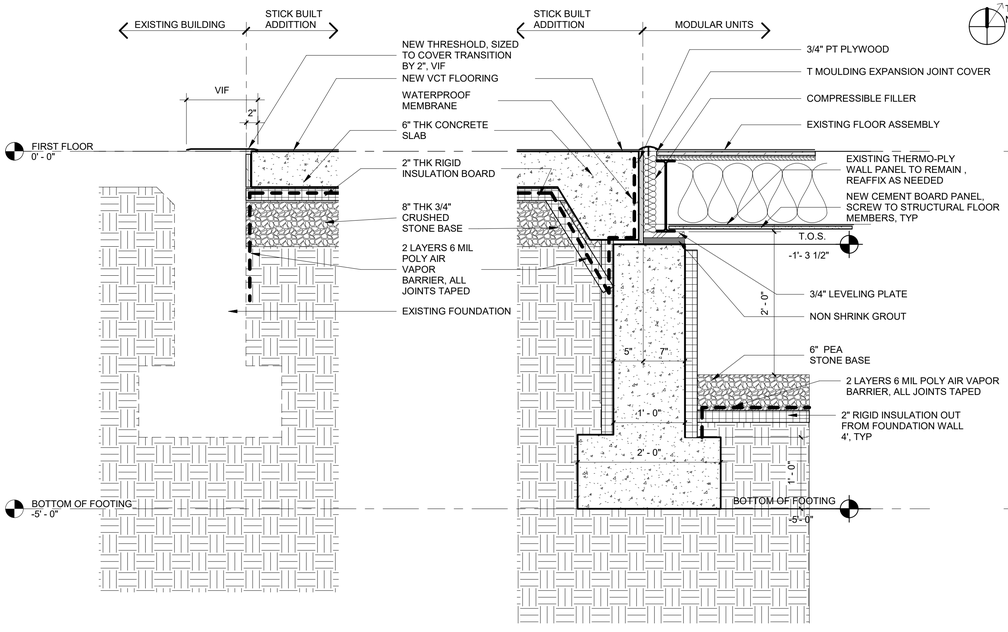


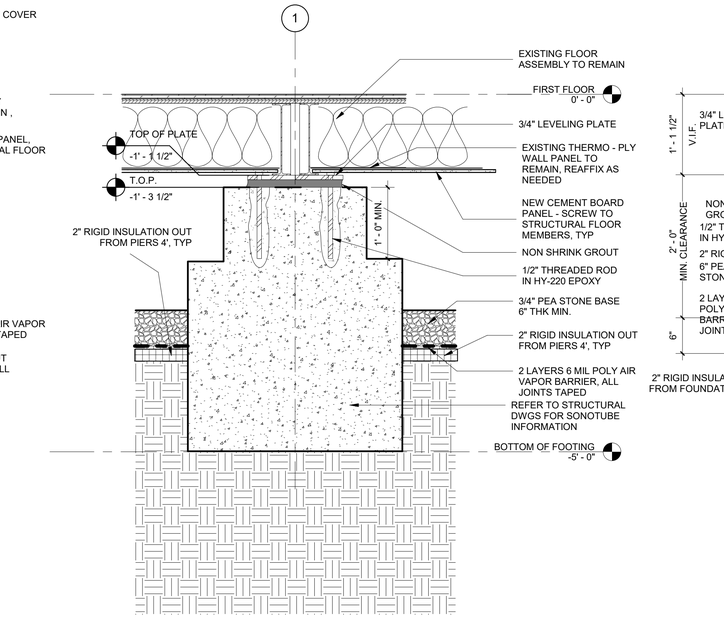
1 FOUNDATION PLAN
1/8" = 1'-0"

NOTE:

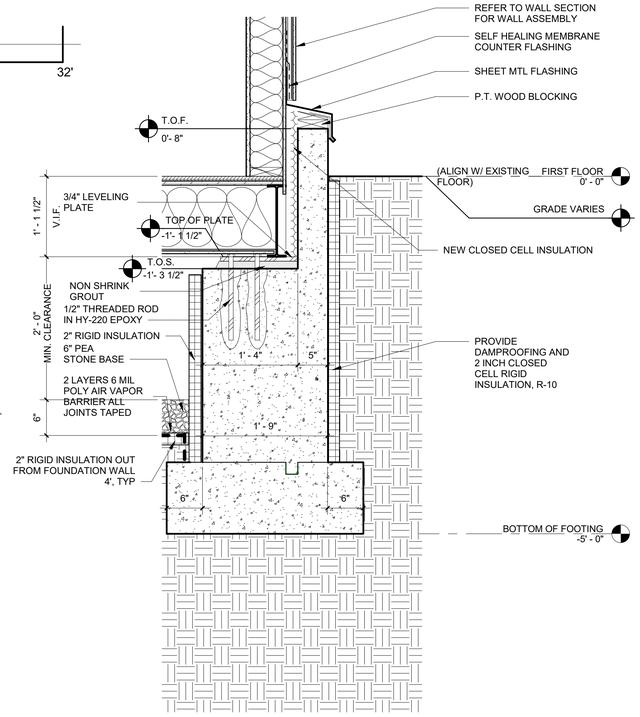
1. GENERAL CONTRACTOR MUST VERIFY OVERALL DIMENSIONS OF EXISTING MODULAR UNITS PRIOR TO LAYING OUT FOUNDATIONS
2. LOCATION VENT POCKETS A MIN OF 2' - 0" FROM BASE PLATES.
3. ON THIS DRAWING
   T.O.P. = TOP OF PIER
   T.O.S. = TOP OF SHELF
   T.O.F. = TOP OF FOOTING
4. — — — — DEPICTS FOUNDATION FOOTING



4 SLAB ON GRADE
1" = 1'-0"



3 SONOTUBE DETAIL
1" = 1'-0"



2 WALL SECTION @ MODULAR UNITS
1" = 1'-0"

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FOUNDATION PLAN

Revisions:

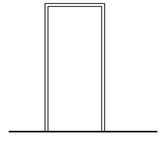
No.	Date	Description

Drawn By:	Author
Checked By:	Checker
Approved By:	Approver
Drawing Scale:	As indicated
Project Number:	000
Date:	AUGUST 17, 2016

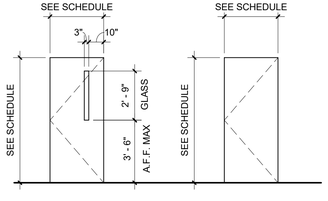
A5.00

DOOR SCHEDULE

LOCATION			FRAME				DOOR							RATING	HARDWARE	REMARKS
DOOR NO.	FROM ROOM	TO ROOM	MAT'L.	ELEV TYPE	DETAILS	FINISH	MAT'L	ELEV. TYPE		WIDTH	HEIGHT	THICK-NESS	FINISH	UL LABEL	SET NUMBER	
FIRST FLOOR																
08	016	018	EXIST	EXIST		EXIST	EXIST		SGL	3' - 0"	7' - 0"	0' - 1 3/4"	EXIST		1	Exist Door - New Hardware and Threshold only
09	008	009	PM	1		PAINT	HM	B	SGL	3' - 0"	7' - 0"	0' - 1 3/4"	T.F.		2	
10	016	009	PM	1		PAINT	HM	A	SGL	3' - 0"	7' - 0"	0' - 1 3/4"	T.F.	90 MIN	2	
11	018	EXT	PM	1		PAINT	HM	B	SGL	3' - 0"	7' - 0"	0' - 1 3/4"	PRE-FIN		1	
12	018	014	PM	1		PAINT	HM	A	SGL	3' - 0"	7' - 0"	0' - 1 3/4"	T.F.	90 MIN	2	
13	018	018	PM	1		PAINT	HM	A	SGL	3' - 0"	7' - 0"	0' - 1 3/4"	T.F.	90 MIN	2	
15	018	EXT	PM	1		PAINT	HM	B	SGL	3' - 0"	7' - 0"	0' - 1 3/4"	PRE-FIN		1	



TYPE 1
PRESSED METAL



TYPE A
NOTE: GLAZING LIMIT
IBC TABLE 715.4.3

TYPE B

ABBREVIATIONS:

P.M.	PRESSED METAL	EXT.	EXTERIOR
ALUM.	ALUMINUM	U.L.	UNDERWRITER'S LABORATORY
H.M.	HOLLOW METAL	NO.	NUMBER
PRE-FIN	PRE-FINISHED	MAT'L	MATERIAL
PR.	PAIR	ELEV.	ELEVATION
WD.	WOOD	HDWR.	HARDWARE
PAINT	PAINTED FINISH	SIM	SIMILAR
O.H.	ROLL-UP	CLOS.	CLOSET
C.R.	CARD READER	T.F.	TRANSPARENT FINISH

REMARKS KEY:

1. INSULATED DOOR
2. ELECTRONIC LATCH
3. PROVIDE 36" HIGH KICK PLATE, PUSH SIDE
4. INSULATED GLASS
5. PROVIDE 1-1/4" UNDERCUT @ BATHROOM DOORS, TYPICAL, UNLESS GRILL IS SPECIFIED
6. GASKETS
7. PACKAGE DOOR STC ASSEMBLY.
8. MAGNETIC HOLD OPENS
9. OPERABLE PARTITION. REFER TO SPECS.

GENERAL NOTES:

1. ALL WOOD AND PRESSED METAL DOORS TO RECEIVE KICK PLATE ON PUSH SIDE ONLY, UNLESS OTHERWISE NOTED.
2. PROVIDE SAFETY GLASS AT ALL INTERIOR GLAZING UNLESS OTHERWISE NOTED, REFER TO SPECIFICATIONS.
3. DOOR UNDERCUT IS 3/4" UNLESS OTHERWISE NOTED.
4. REFER TO SPECIFICATIONS FOR ADDITIONAL DOORS REQUIRING GASKETS.

HARDWARE SETS:

1. DOOR CLOSER, EXIT DEVICE W/ LEVER TRIM, 1 1/2 PAIR HINGES, PROTECTION PLATES, WEATHER STRIPPING, THRESHOLD
2. DOOR CLOSER, CYLINDRICAL LOCKSET W/ LEVER TRIM, 1 1/2 PAIR HINGES, PROTECTION PLATES, WALL/ FLOOR STOPS

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DOOR SCHEDULE AND TYPES

Revisions:

No.	Date	Description

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Drawing Scale: As indicated
Project Number: 000
Date: AUGUST 17, 2016

A6.00

C. Accessories

1. Adhesives:Water resistant, low VOC, acceptable to the resilient flooring manufacturer, for substrate conditions. Acceptable products include the following, or approved equal:
   a. Advanced Adhesive Technology, Inc, Dalton GA, product: "No. 432 Modified Acrylic Cove Base Adhesive".
2. Joint Sealer for between the top of wall base and irregular wall surfaces: Plastic filler as recommended by manufacturer.
3. Cleaning material: Domestic neutral floor detergent having a pH 7 or pH 8, as recommended by the flooring manufacturer.

VINYL FLOORING

A. Vinyl composition tile: 12 x 12 inch by 1/8 inch thick with solid color extending through thickness of tile; composed of vinyl resins, non-asbestos inorganic mineral fillers, and colorfast pigments complying with FS SS-T-312B(1), Type IV, Composition 1 and ASTM F1066 Composition 1, Class 2.
   1. Acceptable products include the following, or approved equal:
      a. Armstrong World Industries, Inc. product "Standard Excelon, Imperial Texture".
      b. Azrock product "Cortina Colors" and "Cortina Complements".
      c. Tarkett products "Expressions".
      d. Mannington Commercial Flooring, product "Essentials".
   2. Color: As selected by the Architect from the manufacturer's full range of available colors.

ACOUSTICAL INSULATION

A. Manufacturers

Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal: Fibrex Insulations Inc., Sarnia, Ontario

B. Materials

1. Acoustical batt insulation: Mineral wool fiber insulation batts, conforming to ASTM C665 Type 1, and ASTM C553 with a nominal density of 2.5 pounds per cubic foot, nominally 3-1/2 inches thick.
   a. Flame Spread Classification: Class A (less than 25, per testing by NFPA 255, ASTM E-84 or UL 723).
   b. Recycled content of slag in mineral wool insulation: Use maximum available percentage of material (slag). Mineral wool insulation products incorporated into the work shall contain not less than 75 percent of recycled material (slag) by weight.
   c. Acceptable products include: Fibrex Insulations Inc. product: "Fibrex Sound Attenuation Fire Batt (SAFB)"

C. Accessories

1. Staples, tape, adhesives and fasteners required for the proper and complete installation for work of this Section shall be as recommended by each respective manufacturers of each insulation type.

PAINTING

A. Preparation:
   1. Furnish and lay suitable drop cloths in all areas where coating work is being done to protect floors and all other surfaces from damage during the work. Protect adjoining surfaces with painters mask tape.
   2. Prior to preparing surfaces or finishing, remove all finish hardware for painting doors and frames, except hinges and locks on exterior door; remove electrical plates, light fixture trim and fittings. Re-install hardware and other removed items after painted surfaces are thoroughly dry.
   3. Gypsum Wallboard: Fill holes, dents, and similar flaws in gypsum wallboard with plaster of Paris or spackling compound. Cut out and fill cracks. Sand surface of patch smooth and flush with adjacent surfaces. Do not abrade adjacent surfaces. Patched areas shall not be detectable in finished work.
   4. Plaster: Fill holes, dents, and similar flaws in plaster with plaster of Paris or spackling compound. Cut out and fill cracks. Sand surface of patch smooth and flush with adjacent surfaces. Do not abrade adjacent surfaces. Patched areas shall not be detectable in finished work.
      a. Plaster Moisture Test: Before painting new plaster, test surfaces with a moisture detecting device, such as Kaydel Plaster Test, type CP-48, manufactured by Hard Moisture Gauges, Inc. Do not apply sealer or paint when moisture content of plaster exceeds 8%. Dry-brush plaster thoroughly prior to painting or sealing.
   5. Wood Trim and Windows: Fill holes, dents, and similar flaws in wood trim with paintable wood filler. Cut out and seal irregular joints. Sand surface of patched areas smooth and flush with
   6. Arch corner beads with 1-1/4 inch flanges, one flange slotted
      a. Plastic Components model number: 209A.
   7. Control joints: "V" type joint with nominal 3/16 inch reveal and removable temporary tape:
      a. Gold bond model "EZ Strip Expansion Joint".

D. Source Quality Control

1. Obtain gypsum board products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum boards.

ACOUSTICAL CEILINGS

A. Manufacturers

Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Acoustical ceiling panels:
   a. Armstrong World Industries, Inc., Lancaster, PA.
2. Field fabricated gypsum drywall ceiling panels:
   a. United States Gypsum Company, Chicago IL. (USG).
3. Suspension system:
   a. Armstrong World Industries, Inc., Lancaster PA.

B. Acoustical Ceiling Panels

1. Ceiling Type 1 ceiling panel (Typical, unless noted otherwise any ceiling not identified on the Drawings shall be considered Ceiling Type 1): Panel size: 24 by 24 inch by 3/4 inch thick.
   a. Acceptable products or approved equal: Armstrong product "Cirrus, Tegular" product number 584.
   b. Area where acoustical tile work is existing, match existing.

C. Ceiling Grid

1. Ceiling Types 1 ceiling grid: Fireguard exposed tee grid in white color. Acceptable products include the following, or approved equal: Armstrong; 15/16" Fireguard Exposed Tee System.

D. Accessories

1. Edge moldings: Standard edge trim: Grid system manufacturer's standard L-shape edge trim compatible with exposed grid system and color matched.
   a. Armstrong: Model 7800.
2. Hanger attachments: Of the most appropriate types for the specific receiving surfaces.
   a. Hangers: ASTM A641 Soft temper, pre-stretched galvanized carbon steel wire, with a yield stress of at least 3 times design load, but not less than 12 gage.
3. Joint Sealer: One component acrylic latex, permanently elastic, non-staining, non- shrinking, non-migrating and paintable.
   a. Tremco, Beachwood OH; product, "Acoustical Sealant".

RESILIENT BASE AND ACCESSORIES

A. Manufacturers

1. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
   a. Johnsonite, Middlefield OH.

B. Resilient Base

1. Rubber Base: 4 inches high as indicated on the Drawings, coved or straight, ribbed back, 1/8 inch thick, rounded top, complying with ASTM F-1861, Type TP, Thermoplastic Rubber (TBR). Colors shall be as selected. Rubber base shall be furnished in continuous lengths, approximately 100 feet long.
2. Base accessories: Premolded end stops of same material, size and color as base. Job-form all external and internal corners from base material, pre-molded corner pieces will not be acceptable.
   a. Manufacturer: To establish a standard of quality, design and function desired, Drawings and specifications have been based on Kinetics, Noise Control Inc., product, "IsoGrid Ceiling Hanger" as specified herein.
   b. Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal: Kinetics, Noise Control Inc., Dublin, OH.
4. Grid system for direct attachment of finish board: Comprised of double web main furring tees, 1 1/2 inches high by 1-3/8 inches flange face by 0.020 inch thick; double web cross tees, 1 1/2 inches high by 15/16 inch flange face by 0.020 inch thick; 0.020 inch thick wall channels, with 1-1/2 inches interior web height; and all splices, clips, and related items. Provide Underwriters Laboratories Label fire-rated assemblies for locations requiring fire-rated ceilings and soffits
   a. Chicago Metallic product "System 640 and System 650 Furring System"

E. Accessories

1. Metal sheet plate blocking and bracing, where indicated: galvanized sheet 0.0312 inch thickness (20 gage).
2. Fasteners:
   a. Expansion-type fasteners for securing vertical concrete and masonry surfaces.
   b. Concrete stub nails for securing runners to concrete.
   c. N°.7 by 7/16 inch Pan head self-drilling screw to attach metal framing components.
3. Reinforcing plates for blocking: 20 gage cold rolled sheet steel, provide minimum 6 inch width, or as otherwise indicated on the drawings.

GYPSUM BOARD

A. Manufacturers

Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Gypsum board products:
   a. United States Gypsum Company, Chicago, IL. (USG).
2. Polyvinyl chloride trim and accessories:
   b. Plastic Components, Inc., Miami, FL.
3. Polyvinyl chloride trim and accessories:
   a. Plastic Components, Inc., Miami, FL.
4. Joint Sealants:
   a. Tremco, Beachwood, OH.

The design and details as shown on the Drawings and the model numbers specified herein are to establish the standards of design and quality and not to limit competition.

B. Board Materials

1. Gypsum board, (typical): UL fire resistance rated, ASTM C 1396 'Type X' board, 5/8 inch thick, 48 inch width, of lengths to minimize end joints, with tapered edges.
   a. Acceptable products include the following, or approved equal: USG Sheetrock brand "Firecode Core".

C. Accessories

1. Gypsum board polyvinyl chloride trim accessories, conforming to ASTM D 1784 and C 1047.
2. J Bead: Edge trim with exposed 1/2 inch face cap, furnish trim model number corresponding to the board thickness where installed.
   a. Plastic Components model number: 200X-50 (for 1/2 inch thick board) or 200S-58 (for 5/8 inch thick board).
3. L-Bead with removable leg: Casing edge trim for joints at ceilings doors and windows, with removable leg strip, furnish trim model number corresponding to the board thickness where installed
   a. Plastic Components model number: 224-50 (for 1/2 inch thick board) or 224-58 (for 5/8 inch thick board).
4. L Bead: casing edge trim, furnish trim for edge conditions not covered by removable leg specified above; model number corresponding to the board thickness where installed
   a. Plastic Components model number: 221-50 (for 1/2 inch thick board) or 221-58 (for 5/8 inch thick board).
5. Corner beads, 90 degree with 1-1/4 inch flanges:
   a. Plastic Components model number: 209.

NON-STRUCTURAL METAL FRAMING

A. Manufacturers

Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Metal components and related items:
   a. Georgia Pacific Corporation, Gypsum Division, Atlanta, GA.
2. Suspended furring system for ceilings and soffits:
   a. Armstrong World Industries, Inc., Lancaster, PA.

The design and details as shown on the drawings and the model numbers specified herein are to establish the standards of design and quality and not to limit competition.

B. Framing Materials

3. Studs: 'C-shaped' screw studs, hot-dip galvanized steel complying to ASTM C 645, 18 gage (0.0329 inch [0.84 mm] minimum thickness), of widths indicated on the Drawings, or other gages as required under the specified standards to meet fire resistance ratings.
4. Runners for metal studs: 'U-shaped' hemmed, hot-dip galvanized steel track conforming to ASTM C645, of gage and width to match respective stud sizes, or heavier gage per design requirements, having 1-1/4 inch leg, provided at tops and bottoms of all studs and at heads of all openings in stud partitions.
5. Internal reinforcement for various stud conditions, and bracing as required: 10 gage, minimum, galvanized steel.
6. Furnish cross bracing and knee bracing, as required to assure a completely rigid assembly on metal stud partitions and furred areas.

C. Deflection Track Assemblies:

1. Non Fire-Rated Assemblies:
   a. Deflection Track: Manufacturer's standard top runner with extended flanges designed to prevent cracking of gypsum board applied to interior partitions resulting from deflection of the structure above fabricated from steel sheet complying with ASTM A 653 or ASTM A 568. Thickness as indicated for studs, and width to accommodate depth of studs, and the following configuration.
      i. Top runner with extended deep flanges that either have V-shaped offsets that compress; slots 1 inch o.c. that allow fasteners attached to studs through the slots; or 16 gage sliding clip assemblies attached to top track and clipped to stud
2. Fire-Rated Assemblies: Head of wall dynamic fire rated joint systems for head of wall assemblies in compliance with UL 2079 HW-D classified assemblies. Provide one of the following systems:
3. Deflection track / clip system: The Steel Network, Inc., product "VertiClip", including step bushings. Clips and track 20 gage, and of width to accommodate depth of studs indicated.
4. Deflection slip track System: Comply with requirements of ASTM C 645 except configuration, of thickness indicated for studs and width to accommodate depth of studs indicated with flanges offset to accommodate gypsum board thickness.
   a. Fire Trak Corp., Kimball, MN products:
      i. "Shadowline" at balanced and unbalanced fire-rated assembly partitions.
      ii. "Cavity Shadowline" at shaftwall and chase wall (double stud) partitions.
5. Coordination: Verify with partition schedule on the Drawings to ensure proper depth of flange offsets at various partitions types.

D. Ceiling And Soffit Suspension Materials

1. Hanger attachments: Galvanized steel hanger eyes, of size and capacity to safely sustain a live load of at least 150 pounds per hanger attachment.
2. Hangers: Soft temper, pre-stretched galvanized carbon steel wire, conforming with ASTM A641, with a yield stress load of at least three times design load, but not less than 12 gage.
3. Sound isolation hangers (Ceilings Type 10 and Type 12 as indicated on the Drawings): Pre-compressed neoprene rubber and spring isolation hanger designed for high frequency sound waves and low frequency vibrations. Size hangers as recommended by manufacturer for anticipated ceiling load.

SPECFICATIONS

FIRESTOPPING

A. Firestop mortar: asbestos free, cementitious mortar, U.L. classified as a "fill, void, or cavity material" for through penetration firestop system when tested in accordance with ASTM/UL1479.
   1. Acceptable products include the following, or approved equal:
      a. Hilti, Inc., product "CP 637 Firestop Mortar".

B. Silicone Firestop sealant: Single component, non-combustible silicone elastomer firestop sealant, U.L. classified as a "fill, void, or cavity material" for through penetration firestop system when tested in accordance with ASTM E-814/UL1479.
   1. Acceptable products include the following, or approved equal:
      a. Hilti, Inc., product "CP 601S Elastic Firestop Sealant".

HOLLOW METAL FRAMES

Manufacturers

A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
   1. Essex Industries, Inc. New Haven, CT.

Hollow Metal Frames

A. General: Match Existing for various types of frames, sizes, and profiles, UL fire-resistive Label frames, and other characteristics of frames and related items.
   1. Frame type: Shop welded frames with mitered joints arc-welded, reinforced and ground smooth.
   2. Frame size may limit full assembly in shop. Frames may be shipped to site in pieces to accommodate installation as required and approved by the Architect. All field assembled frames shall be field welded, ground smooth, filled sanded and field primed to receive paint finish specified under Section 09 91 00 - PAINTING.

B. Materials for frames, reinforcement, anchors, anchor clips and related items: commercial grade cold-rolled steel conforming to ASTM A109 or commercial grade hot-rolled and pickled steel conforming to ASTM A415.
   1. Frame gage:
      a. Interior frames: 16-gage, 0.053 inch thick (1.3 mm), except as otherwise required for specific U.L. Label.
   2. Splice plates or channels: same gage as door frame.
   3. Glazing stops: 16 gage, minimum 0.053 inch (1.3 mm) thick, except as otherwise required for specific U.L. Label.

C. Frame construction:
   1. Fire-rated frame assemblies: Modify specified construction to meet all construction requirements required for fire-resistive rating.
      a. Affix appropriate UL, FM or Warnock Hersey labels to each rated frame assembly, indicating applicable rating.
      b. All field construction joints shall be field welded, filled with metal paste filler and sanded. Mechanical joint fasteners are not acceptable.
         1) Metal paste filler shall consist of 2 component epoxy, high strength, structural adhesive as manufactured by, and consisting of the following or approved equal.
            a) Dynatron/Bondo Corp., Atlanta, GA, product: "Bondo Plastic Filler".
   2. Shop-fabricate frames as whole single units per door opening, except when frame size is too large to ship as a single unit. Oversized frames may be shipped in large sections as practicable for field assembly with concealed splice plates or channels.
   3. Frame corner construction: As specified in paragraph A, above.
   4. Reinforcements, stiffeners, and base angle clips: Welded to interior surfaces of frames to provide a stable base and so as to not interfere with installation of hardware.
   5. Provide mortar boxes, welded to frame, at back of hardware cut-outs where mortar or other materials may obstruct hardware operation.
   6. Appearance of finished frames: Strong, rigid, completely free from warp and buckle, with miters well-formed and in true alignment, and with surfaces smooth and free from defects of any kind.

D. Anchorage:
   1. Anchor clips for frames in metal stud partitions: 16-gage steel z-shaped clips, 1-1/2 inch upturned and downturned legs, or equivalent type standard with the manufacturer, contained within the frames, for screw attachment to metal studs under Section 09 22 16 - NON-STRUCTURAL METAL FRAMING.
   2. Anchors for fire-resistive rated frames: Conform to all UL requirements for the specific fire-resistive ratings.
   3. Typical frames: Provide not less than 3 anchors, clips, or bolts (as applicable), per jamb.

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140 Brandeis, Newton, Massachusetts

SPECIFICATIONS AND GENERAL NOTES

Revisions:

No.	Date	Description

Drawn By: AC
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Drawing Scale: AS NOTED

A6.1

b. Apply screen printing inks evenly without pinholes, scratches or orange- peeling.

6. Graphics: All text, symbols and graphics shall be reproduced utilizing computer generated digital art. All screen printed graphics shall utilize photographically prepared screens and shall be printed in accordance with industry standards. Hand-cut screens are not acceptable.

a. All edges and corners and letter forms shall be true and clean. Letterforms, color areas, or lines with rounded positive or negative corners, built-up edges, bleeding and spattering shall not be accepted.

b. Prepare artwork from typesetters reproduction of the test specified, minimum 1200 dpi resolution, camera ready artwork. All camera ready artwork and typesetting shall be no less than 75 percent of actual finished size.

7. Mounting: Surface applied by means of silastic adhesive mounting.

8. Sign colors: As selected by Architect from manufacturer's standard and standard special colors.

a. All signs shall be two color signs.

HVAC

A. Codes, Ordinances, And Permits

1. Perform all work in accordance with the requirements of Newton Building Department, State of Massachusetts Building Code, 8th Edition, and applicable State and Federal Laws. Give all requisite notices, file all requisite plans, and obtain all permits required to perform HVAC Work.

2. Permits: Be responsible for filing documents, and securing of inspection and approvals. Pay all local connection and permit fees.

3. All HVAC equipment shall be installed to meet all State, Local and Federal sound ordinances.

B. Mechanical Installations

1. Coordinate mechanical equipment and materials installation with other building components before installing.

2. Verify all dimensions by field measurements.

3. Arrange for chases, slots, and openings in other building components to allow for mechanical installations.

4. Coordinate the installation of required supporting devices and sleeves to be set in poured in place concrete and other structural components, as they are constructed.

5. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the work. Give particular attention to large equipment requiring positioning prior to closing-in the building.

6. Coordinate the cutting and patching of building components to accommodate the installation of mechanical equipment and materials.

7. Where mounting heights are not detailed or dimensioned, install mechanical services and overhead equipment to provide the maximum headroom possible.

8. Install mechanical equipment to facilitate maintenance and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.

9. Coordinate connection of mechanical system with overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.

C. Air Outlets And Inlets

1. Ceiling Registers and Grilles:

General: Except as otherwise indicated, provide manufacturer's standard "Egg-Crate" type registers and grilles where shown; of size, shape, capacity and type indicated; constructed of materials and components as indicated, and as required for complete installation.

Compatibility: Provide registers and ceiling grilles with border styles that are compatible with adjacent ceiling systems, and that are specifically manufactured to fit into ceiling construction with accurate fit and adequate support. Refer to general construction drawings and specifications for types of ceiling construction.

Manufacturer: Subject to compliance with requirements, provide registers and grilles by: Price Industries or approved equal.

adjacent surfaces. Do not abrade adjacent surfaces. Patched areas shall not be detectable in finished work.

B. Interior Gypsum Board (Drywall) Partitions:

1. One coat latex primer.

a. Sherwin-Williams: "Harmony Interior Latex Primer", B11W900 Series.

2. Two coats eggshell paint:

a. Sherwin-Williams: "Harmony Low Odor Interior Latex Egg-Shell", B9 Series".

C. Interior Gypsum Board (Drywall) Ceilings And Underside Of Soffits:

1. One coat latex primer.

a. Sherwin-Williams: "Harmony Interior Latex Primer", B11W900 Series.

2. Two coats flat paint:

a. Sherwin-Williams: "Harmony Low Odor Interior Latex Flat", B5 Series.

D. Interior Metal, Aluminum, shop primed and previously painted (includes metal vents, metal door frames):

1. Touch up bare metal with latex metal primer.

a. Sherwin-Williams: "DTM Acrylic Primer Finish", B66 W1 Series.

2. Two coats acrylic semi-gloss enamel:

a. Sherwin-Williams: "Sher-Cryl HPA Semi-Gloss", B66 Series.

E. Interior Wood Trim, shop primed, to receive painted (opaque) finish: Touch up bare wood with acrylic primer-sealer (undercoat).

1. Sherwin-Williams: "PrepRite Classic Latex Primer", B28W200 Series.

2. Two coats acrylic semi-gloss enamel: Sherwin-Williams: "ProClassic Waterborne", B31W20 Series.

E. Joint Sealer Type AP (Acrylic painters caulk): One component acrylic latex caulking compound, conforming to FS 19-TP-21M and ASTM C 834, paintable within 24 hours after application, with a minimum movement capability of ±12.5 percent, equal to one of the following:

1. Sonneborn, product, "Sonolac".

2. Tremco, product, "Tremflex 834".

3. Bostik, product, "Chem-Calk 600".

4. Pecora, product " AC-20+".

SIGNAGE

A. Manufacturers

1. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:

a. Apco New England, Franklin, MA.

B. Signage - General

1. General: Provide sign copy to comply with the requirements indicated in the Drawings, for sizes, styles, spacing, content, positions, materials, finishes and colors of letters.

a. All Signs shall conform to United States "*Americans with Disabilities Act*" and Commonwealth of Massachusetts Regulation 521 CMR: *Architectural Access Board*.

b. Final placing and sizing of lettering shall be done as part of the shop drawing approval process, at which time the manufacturer shall make recommendations for Architect's review. Lettering shall have stroke width to height ratio and width to height ratio in accordance with the Americans with Disabilities Act.

2. Installation of all signs shall be done by vandal-proof method, fully described on the shop drawings.

C. Interior Plaque Signage

1. Photopolymer plaque signage (general requirements): Identification signs with raised tactile graphics, text, and Grade 2 Braille. Signs shall consisting of 1/32 inch thick synthetic light sensitive photo emulsion permanently bonded to a rigid phenolic substrate, aluminum or acrylic plaque.

2. Raised lettering: Minimum above the surface of the sign 1/32", and be in compliance with Americans with Disabilities Act.

a. Bond photopolymer permanently to sign plaque, with appropriate laminating film, as recommend by the photopolymer manufacturer.

3. Lettering height: 2 inches

4. Lettering font: Arial

5. Screenprinting: All screen printing graphics, including raised areas of tactile plaques except Braille, shall be screen printed in a contrasting color so as to meet the color contrast requirements of Americans with Disabilities Act.

a. All non-tactile text shall be screen printed with catalyzed epoxy ink. Applied vinyl lettering and graphics is not acceptable.

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Revisions:

No.	Date	Description

Drawn By: AC
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Approved By: XXX

Date:

Drawing Scale: AS NOTED

A6.2

GENERAL NOTES

G1. THE FOUNDATION LAYOUT SHOWN IS SCHEMATIC ONLY AND APPROXIMATE LAYOUT FOR THE PIERS TO BE COORDINATED WITH THE MODULAR BUILDING STRUCTURE.

G2. THE SUPERSTRUCTURE HAS NOT BEEN EVALUATED OR DESIGNED TO MEET THE CODE FOR NEW CONSTRUCTION. THE FOUNDATION HAS BEEN DESIGNED PER THE REQUIREMENTS OF THE EIGHTH EDITION OF THE MASSACHUSETTS STATE BUILDING CODE .

G3. FOUNDATION SIZES SHOWN ARE BASED ON AN ASSUMED SOIL BEARING CAPACITY OF 4,000 POUNDS PER SQUARE FOOT.

G4. THE CONTRACTOR SHALL BE COMPLETELY RESPONSIBLE FOR THE SAFETY OF ADJACENT STRUCTURES, PROPERTY, AND THE PUBLIC. THE CONTRACTOR SHALL SHORE, BRACE, AND PROTECT THE EXISTING BUILDING AS REQUIRED FOR CONSTRUCTION OF NEW WORK.

G5. DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURE SHOWN ON STRUCTURAL DRAWINGS HAVE BEEN OBTAINED FROM EXISTING DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING WITH FIELD MEASUREMENTS OF ALL DIMENSIONS AND ELEVATIONS WHICH ARE REQUIRED FOR FABRICATION AND INSTALLATION OF ADDITIONS TO EXISTING STRUCTURE THAT ARE BEING MADE UNDER THIS CONTRACT.

FOUNDATION NOTES

F1. ALL BACKFILL UNDER STRUCTURAL SLABS, MATS, AND FOOTINGS WILL BE ENGINEERED STRUCTURAL FILL COMPACTED IN SPECIFIED LIFTS TO 95 PERCENT OF MAXIMUM DRY DENSITY, UNLESS OTHERWISE INDICATED OR SPECIFIED. REFER TO EARTHWORK SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

F2. FOUNDATIONS AND SLABS SHALL NOT BE POURED IN WATER OR ON FROZEN GROUND.

F3. THE OWNER AND ENGINEER ASSUME NO RESPONSIBILITY FOR THE VALIDITY OF THE SUBSURFACE CONDITIONS DESCRIBED ON THE DRAWINGS, SPECIFICATIONS, BORING LOGS, OR TEST PITS. THIS DATA IS INCLUDED ONLY TO ASSIST THE CONTRACTOR DURING BIDDING AND SUBSEQUENT CONSTRUCTION AND REPRESENT CONDITIONS ONLY OF THOSE SPECIFIED LOCATIONS AT THE PARTICULAR TIME THEY WERE MADE.

REINFORCED CONCRETE NOTES

R1. ALL CONCRETE WORK SHALL CONFORM TO ACI-318-08 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND TO THE EIGHTH EDITION OF THE MASSACHUSETTS STATE BUILDING CODE IN CASE OF CONFLICT, THE MASSACHUSETTS STATE BUILDING CODE SHALL GOVERN.

R2. ALL CONCRETE SHALL BE CONTROLLED, MIXED, AND PLACED UNDER THE SUPERVISION OF AN APPROVED CONCRETE TESTING AGENCY, PROVIDED BY OWNER.

R3. UNLESS OTHERWISE NOTED, ALL CONCRETE SHALL BE NORMAL WEIGHT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 POUNDS PER SQUARE INCH AT THE END OF 28 DAYS. CONCRETE SLABS ON GRADE AND SUPPORTED CONCRETE SLABS SHALL BE NORMAL WEIGHT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 POUNDS PER SQUARE INCH AT THE END OF 28 DAYS. CONCRETE SLABS ON STEEL DECK SHALL BE LIGHTWEIGHT CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT THE END OF 28 DAYS.

R4. CONCRETE SHALL REACH THE 40 PERCENT OF ITS 28 DAY COMPRESSIVE STRENGTH (fC) BEFORE FORMS OR SHORES FOR WALLS MAY BE REMOVED. NO FORMS CAN BE REMOVED UNLESS CONCRETE HAS ATTAINED SUFFICIENT STRENGTH TO SUPPORT ITS OWN WEIGHT.

R5. REINFORCING BARS SHALL CONFORM TO ASTM A615 WITH 60,000 POUNDS PER SQUARE INCH YIELD STRENGTH, AS INDICATED AND SHALL HAVE THE FOLLOWING CONCRETE COVER, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

A. SURFACES PLACED IN CONTACT WITH THE GROUND - 3"
B. FORMED SURFACE EXPOSED TO GROUND - 2"
C. INSIDE FACE OF FORMED WALL - 1 1/2"
D. WALL PIER TIES - 1 1/2"
E. SLAB REINFORCING - 3/4" TOP & BOTTOM

STRUCTURAL STEEL NOTES

S1. ALL STEEL WORK SHALL CONFORM TO THE 2005 SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION AND TO THE EIGHTH EDITION OF THE MASSACHUSETTS STATE BUILDING CODE IN CASE OF CONFLICT, THE MASSACHUSETTS STATE BUILDING CODE SHALL GOVERN.

S2. THE STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:

A. ALL STRUCTURAL WIDE FLANGE SHAPES: ASTM A992 FY = 50KSI, HAVING A MINIMUM YIELD STRENGTH OF 50 KSI, UNLESS OTHERWISE NOTED.
B. BARS, PLATES, CHANNELS, AND CONNECTION ANGLES: ASTM A36, UNLESS NOTED OTHERWISE.
C. STRUCTURAL TUBES: ASTM A500, GRADE B. FY = 46KSI.
D. STRUCTURAL PIPES: ASTM A53, GRADE B OR ASTM A501.
E. ALL ANCHOR BOLTS SHALL CONFORM TO ASTM F1554.

S3. ALL WELDING SHALL BE IN ACCORDANCE WITH THE AWS D1.1 STRUCTURAL WELDING CODE.

S4. DESIGN AND DETAIL OF ALL CONNECTIONS SHALL BE ACCORDING TO AISC.

S5. ALL CONNECTIONS SHALL BE DOUBLE ANGLE CONNECTORS DESIGNED FOR A BEAM REACTION "R" DETERMINED BY THE MEMBER CAPACITY AS SPECIFIED BY AISC EXCEPT COMPOSITE STRUCTURAL STEEL BEAMS AND GIRDERS WHICH SHALL BE DESIGNED USING THE REACTION "R" MODIFIED BY THE MAGNIFICATION FACTOR AS FOLLOWS:

FOR STEEL SECTION DEPTH = "D"
"RC" = REQUIRED CONNECTION CAPACITY FOR COMPOSITE BEAMS.

- FOR "D" GREATER THAN OR EQUAL TO 24", RC = 1.5R
- FOR "D" GREATER THAN OR EQUAL TO 21", BUT LESS THAN 24", RC = 1.75R
- FOR "D" GREATER THAN OR EQUAL TO 14", BUT LESS THAN 21", RC = 2.0R OR
- FOR "D" LESS THAN 14" RC = 2.25R

ADD TO "R" OR "RC" THE LOADS OR REACTIONS OF MEMBERS SUPPORTED BY THE BEAM NEAR SUPPORTS AND/OR VERTICAL COMPONENTS OF FORCE IN DIAGONAL BRACING MEMBERS FRAMING INTO THE MEMBER.

S6. PROVIDE 1/4" THICK LEVELING PLATES FOR USE IN ALIGNING AND SETTING ANCHOR BOLTS AND BASE PLATES.

S7. MOMENT CONNECTIONS BETWEEN BEAMS AND COLUMNS INDICATED ON THE DRAWINGS SHALL BE DESIGNED AND DETAILED FOR THE FULL MOMENT CAPACITY OF THE CONNECTING MEMBERS, UNLESS NOTED OTHERWISE.

S8. PROVIDE 1/4" THICK CLOSURE PLATES AT ALL OPEN ENDED TUBE STEEL MEMBERS.

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GENERAL NOTES

Revisions:

No.	Date	Description

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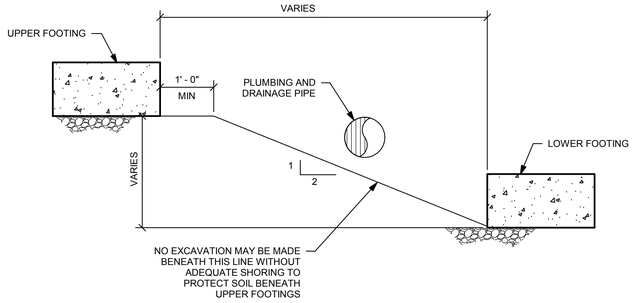
Checked By: CJO
Approved By: MVD

Drawing Scale: 3/4" = 1'-0"

Project Number:

Date: May 25, 2016

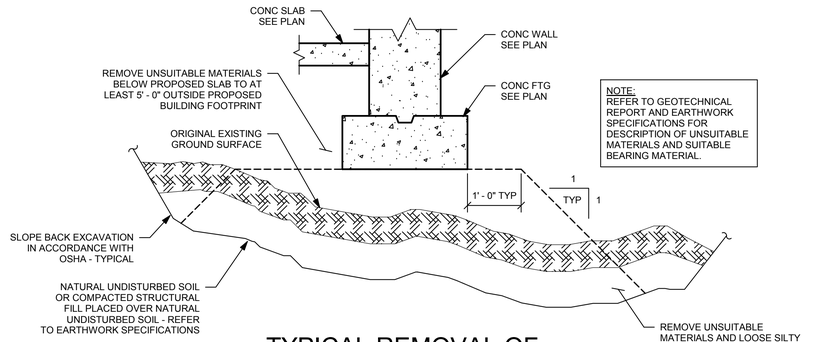
S0.01



TYPICAL SLOPE BETWEEN FOOTINGS DETAIL

1

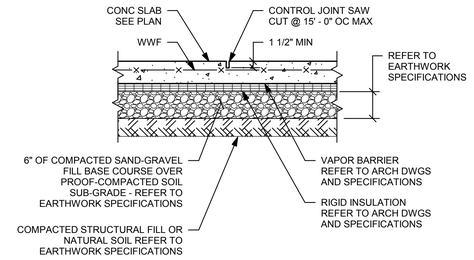
NO SCALE



TYPICAL REMOVAL OF UNSUITABLE MATERIALS DETAIL

2

NO SCALE

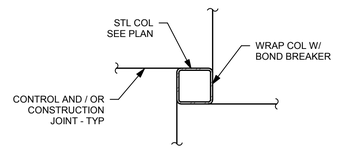


TYPICAL SLAB ON GRADE CONTROL JOINT DETAIL

NOTE:
SUBMIT A PLAN SHOWING PROPOSED LOCATIONS OF ALL THE CONTROL JOINTS AND CONSTRUCTION JOINTS FOR REVIEW BY THE ENGINEER PRIOR TO PLACEMENT OF CONCRETE FOR THE SLAB

3

NO SCALE



NOTES:

1.) SIMILAR AT EXTERIOR COLUMNS.

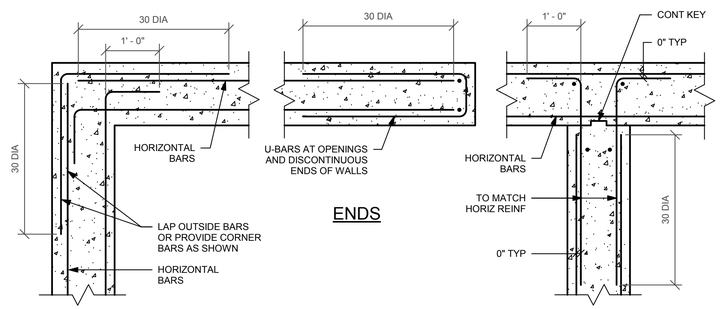
2.) CONTROL AND/OR CONSTRUCTION JOINTS SHALL EXTEND TO CORNER OF COLUMN. HAND CUTTING MAY BE REQUIRED.

3.) CARE SHALL BE TAKEN NOT TO DAMAGE COLUMN.

TYPICAL PLAN OF INTERIOR COLUMNS AT SLAB ON GRADE DETAIL

4

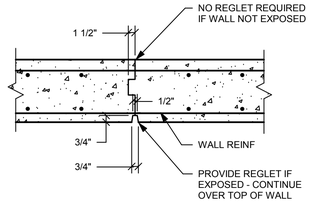
NO SCALE



TYPICAL PLAN OF HORIZONTAL REINFORCING OF CONCRETE WALLS DETAIL

5

NO SCALE

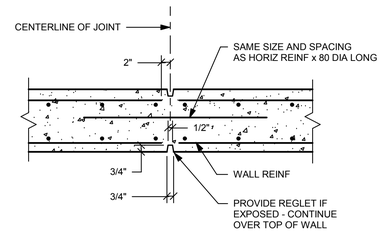


TYPICAL CONCRETE WALL CONSTRUCTION JOINT DETAIL

NOTE:
SPACE AT 60' - 0" CENTER TO CENTER MAX.

6

NO SCALE



TYPICAL CONCRETE WALL CONTROL JOINT DETAIL

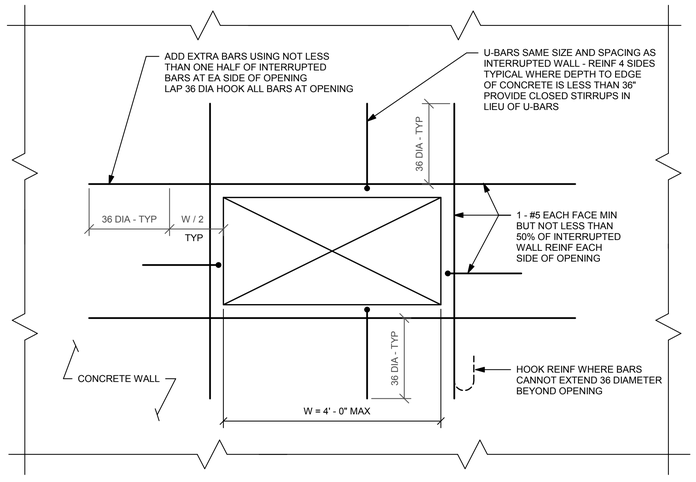
NOTES:

1.) SPACE AT 30' - 0" CENTER TO CENTER MAX.

2.) A CONSTRUCTION JOINT MAY BE SUBSTITUTED FOR A CONTROL JOINT, SEE CONSTRUCTION JOINT DETAIL.

7

NO SCALE



TYPICAL REINFORCEMENT AT OPENINGS IN REINFORCED CONCRETE WALLS DETAIL

NOTE:
FOR QUANTITY, LOCATION, AND SIZES REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS

8

NO SCALE

BAR SIZE	ℓd PER SPACING AND COVER CASE			
	CASE 1		CASE 2	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	22	17	32	25
#4	20	22	43	33
#5	36	28	54	41
#6	43	33	64	50
#7	63	48	94	72
#8	72	55	107	82
#9	81	62	121	93
#10	91	70	136	105
#11	101	78	151	116
#14	121	93	181	139
#18	161	124	241	186

TENSION DEVELOPMENT LENGTHS, ℓd (INCHES)
FOR GRADE 60 UNCOATED BARS
f'_C = 3000 psi; NORMAL-WEIGHT CONCRETE
BASED ON ACI 12.2.2

BAR SIZE	LAP CLASS	LAP LENGTH PER SPACING AND COVER CASE			
		CASE 1		CASE 2	
		TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	B	28	22	42	32
#4	B	37	29	56	43
#5	B	47	36	70	54
#6	B	56	43	84	64
#7	B	81	63	122	94
#8	B	93	72	139	107
#9	B	105	81	157	121
#10	B	118	91	177	136
#11	B	131	101	196	151

TENSION LAP SPLICE LENGTHS, ℓd (INCHES)
FOR GRADE 60 UNCOATED BARS
f'_C = 3000 psi; NORMAL-WEIGHT CONCRETE
BASED ON ACI 12.2.2

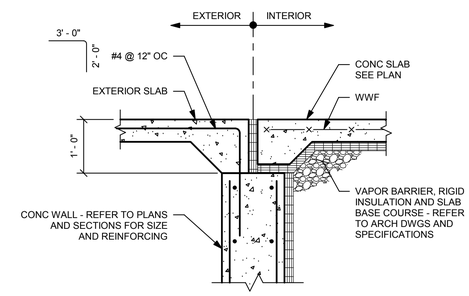
3,000 PSI NORMAL-WEIGHT CONCRETE

CASE 1 BEAMS AND COLUMNS: CONCRETE COVER $\geq d_b$, C,- C, BAR SPACING $\geq 2\,d_b$ AND WITH STIRRUPS OR TIES THROUGHOUT ℓd NOT LESS THAN THE CODE MINIMUM
OTHER MEMBERS: CONCRETE COVER $\geq d_b$ AND C,-C BAR SPACING $\geq 3\,d_b$

CASE 2 BEAMS AND COLUMNS: CONCRETE COVER $< d_b$ AND C,- C, BAR SPACING$< 2d_b$
OTHER MEMBERS: CONCRETE COVER $< d_b$ OR C,- C BAR SPACING $< 3\,d_b$

9

NO SCALE



NOTE:
REFER TO APPROPRIATE SECTIONS FOR ADDITIONAL INFORMATION.

TYPICAL DOOR THRESHOLD ENTRANCE DETAIL

10

NO SCALE

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NEWTON SOUTH HIGH SCHOOL
140 BRANDEIS RD. NEWTON, MA
TYPICAL DETAILS

Revisions:

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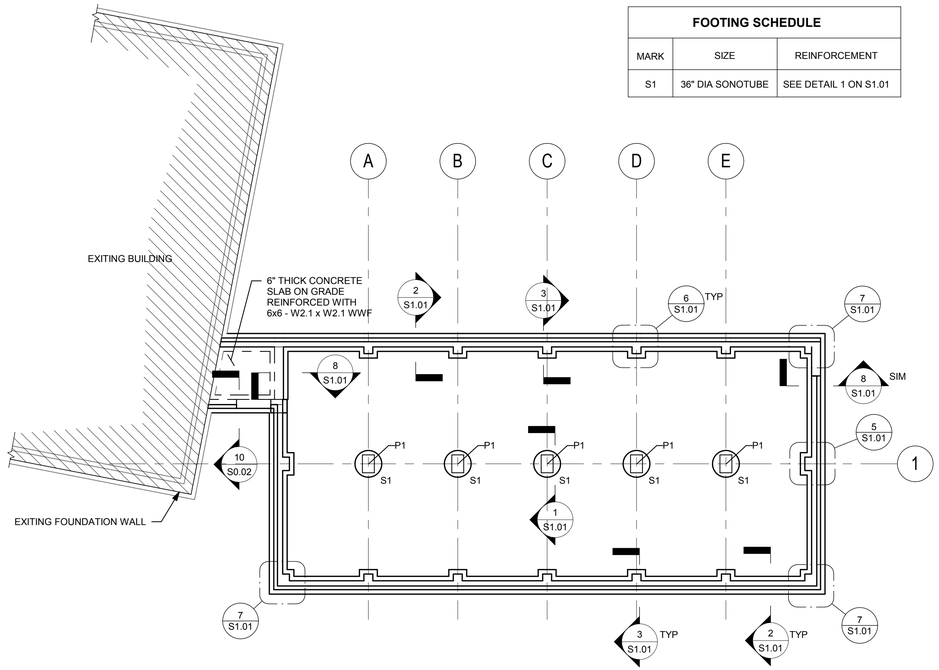
Project Number:

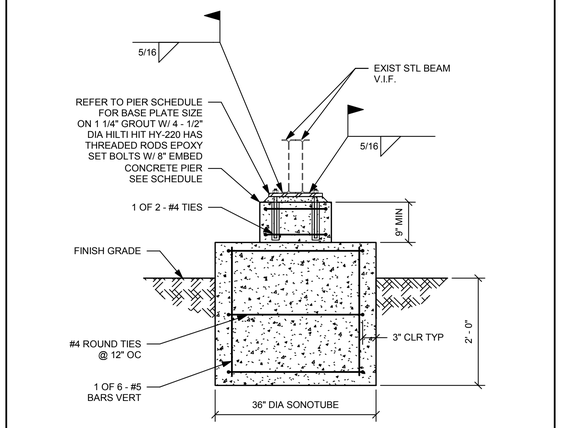
Date: May 25, 2016

S0.02

CONCRETE PIER SCHEDULE		
MARK	SIZE	STEEL BEARING PLATE SIZE
P1	16" x 24" x 12" MIN	REFER TO DETAIL 4 ON S1.01

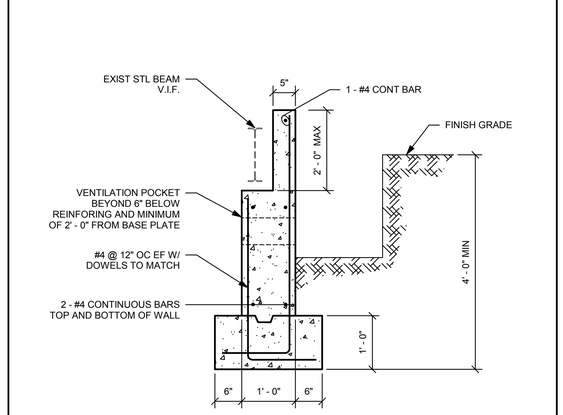
FOOTING SCHEDULE		
MARK	SIZE	REINFORCEMENT
S1	36" DIA SONOTUBE	SEE DETAIL 1 ON S1.01





1

3/4" = 1' - 0"



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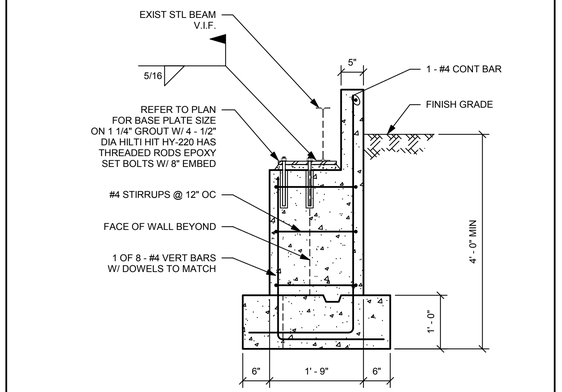
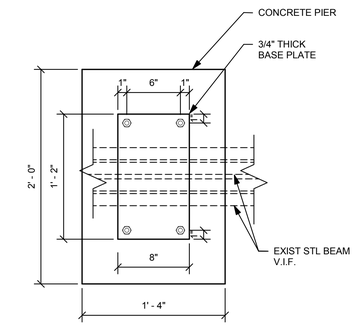


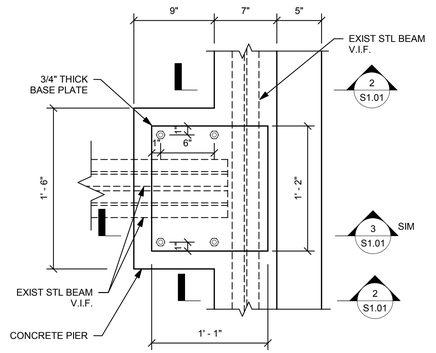
3

3/4" = 1' - 0"



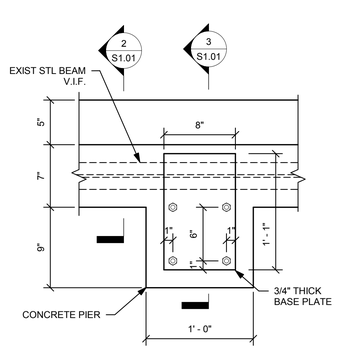
4

1 1/2" = 1' - 0"



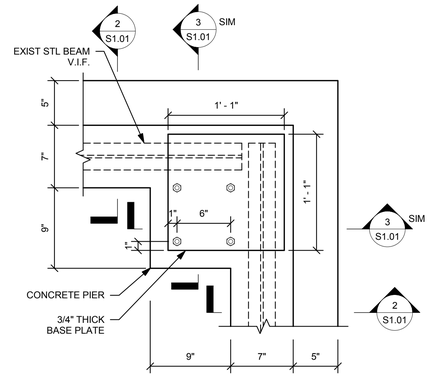
5

1 1/2" = 1' - 0"



6

1 1/2" = 1' - 0"



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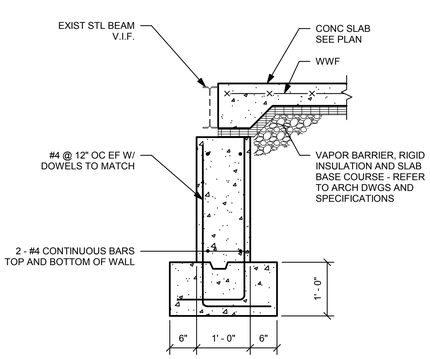
1 1/2" = 1' - 0"



8

3/4" = 1' - 0"

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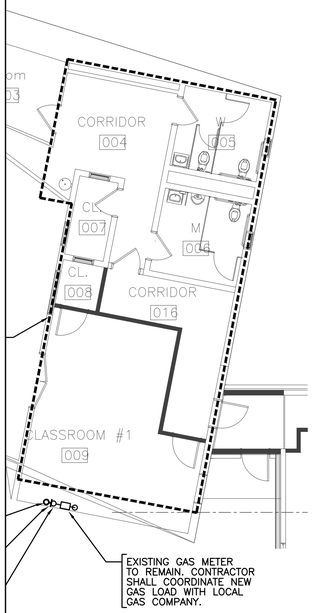
NEWTON SOUTH HIGH SCHOOL
140 BRANDEIS RD. NEWTON, MA
FIRST FLOOR FOUNDATION PLAN

Revisions:

No.	Date	Description

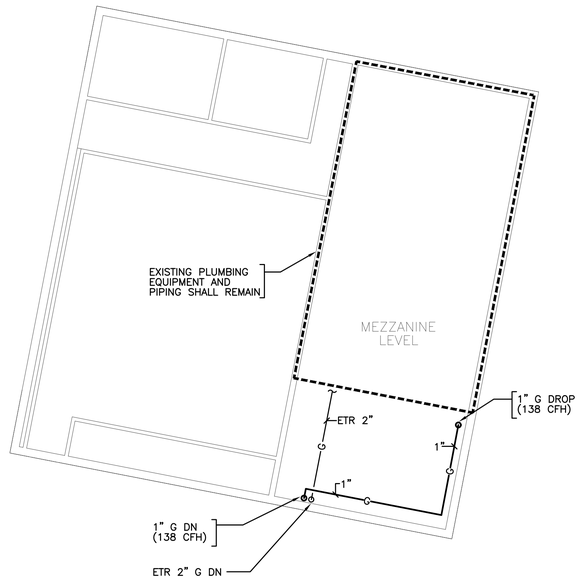
Drawn By:	DH
Checked By:	CJO
Approved By:	CJO
Drawing Scale:	As indicated
Project Number:	
Date:	May 25, 2016

S1.01



AN

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



2 MEZZANINE LEVEL PART PLAN

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

PLUMBING LEGEND

	NEW WORK INDICATED AS HEAVY LINEWORK
	EXISTING WORK INDICATED AS LIGHT LINEWORK
	ABOVE FLOOR PIPING (SINGLE LINEWORK)
	BELOW FLOOR PIPING (DOUBLE LINEWORK)
	SOIL (S) OR WASTE (W) PIPING
G	NATURAL GAS (G) PIPING
	UNION CONNECTION
	GAS VALVE
	EXISTING WORK TO BE REMOVED
	CUT & CAP EXISTING PIPING
	CONNECT TO EXISTING
	UP (PENETRATES LEVEL ABOVE)
	RISE (BUT DOES NOT PENETRATE LEVEL ABOVE)
	DOWN (PENETRATES LEVEL BELOW)
	DROP (BUT DOES NOT PENETRATE LEVEL BELOW)
VOD	VALVE ON DROP
RE	REMOVE EXISTING
ETR	EXISTING TO REMAIN
CTE	CONNECT TO EXISTING
C&C	CUT AND CAP

PLUMBING GENERAL NOTES:

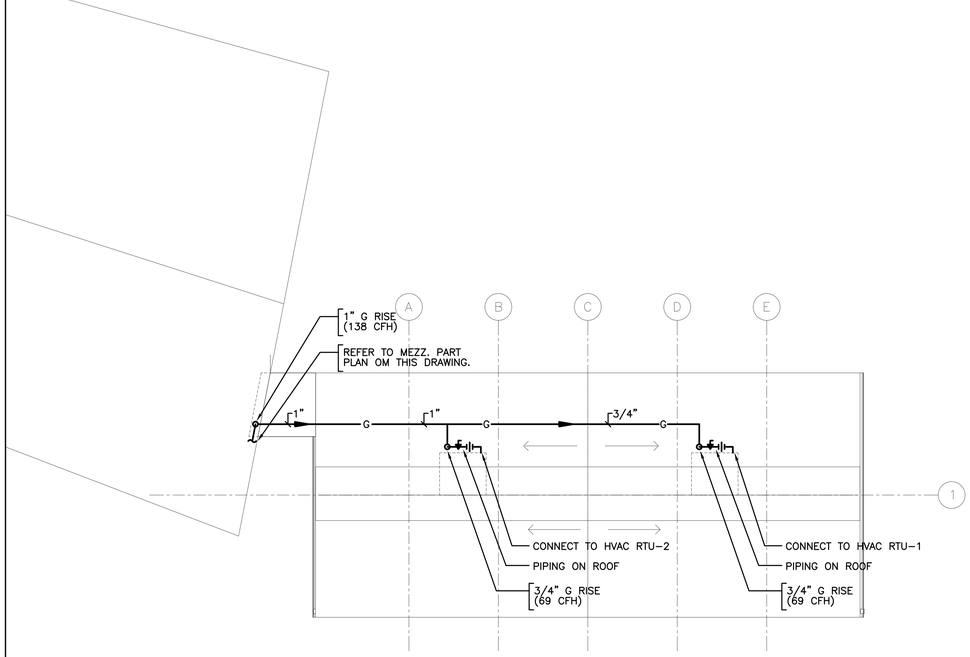
THE WORK CONSISTS OF FURNISHING ALL LABOR AND MATERIALS NECESSARY TO INSTALL A COMPLETE AND READY FOR CONTINUOUS OPERATION PLUMBING SYSTEM INCLUDING BUT NOT LIMITED TO APPARATUS AND EQUIPMENT FOR THIS PROJECT.

ALL EQUIPMENT AND MATERIALS FURNISHED UNDER THE PLUMBING SUB CONTRACT INCLUDING LABOR AND TESTING PERFORMED HEREIN SHALL BE IN ACCORDANCE WITH THE STATE BUILDING CODE, FUEL GAS AND PLUMBING CODE, ALL LOCAL CODES AND REGULATIONS, NATIONAL FIRE PROTECTION ASSOCIATION, INSURANCE REGULATIONS AND REQUIREMENTS GOVERNING SUCH WORK.

ANY AND ALL PERMITS REQUIRED FOR INSTALLATION OF ANY MATERIALS SHALL BE OBTAINED AS PART OF THE WORK OF THE DRAWINGS AND SPECIFICATIONS INCLUDING ALL FEES AND EXPENSES INCURRED.

REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL PLUMBING FIXTURES AND EQUIPMENT.

MISCELLANEOUS DISCREPANCIES OR OMISSIONS WHICH MIGHT APPEAR ON THE PLANS OR SPECIFICATIONS WILL NOT RELIEVE THE PLUMBING SUB CONTRACTOR OF CODE COMPLIANCE.



3 ROOF PLAN

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

ALL GAS PIPING INSTALLED ACROSS ROOF SHALL BE SUPPORTED ON E-Z SLEEPERS AND ROLLER EXTENSION KITS ALLOWING FOR PIPE EXPANSION AND CONTRACTION. SLEEPERS SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS. ALL EXPOSED GAS PIPING ON ROOF SHALL BE SEALED AND PAINTED.

PIPING AND FITTINGS SPECIFICATIONS

A.	SERVICE (OPTION 1):	NATURAL GAS (INCLUDING RELIEF VENTS) 2-1/2 INCH AND SMALLER
	PIPE MATERIAL:	SCHEDULE 40 BLACK STEEL
	FITTING MATERIAL:	VIEGA MEGAPRESS CARBON STEEL FITTINGS.
	PIPE JOINT:	VIEGA MEGAPRESS CARBON STEEL FITTINGS.
B.	SERVICE (OPTION 2):	NATURAL GAS (2 INCH AND SMALLER)
	PIPE MATERIAL:	CORRUGATED STAINLESS STEEL TUBING SYSTEM (CSST). WITH ALL REQUIRED BONDING, STRIKE PLATES, SUPPORTS, ETC. INSTALLED PER MANUFACTURER'S LISTING REQUIREMENTS AND ALL APPLICABLE CODE REQUIREMENTS.
C.	SERVICE:	NATURAL GAS (3 INCH AND LARGER)
	PIPE MATERIAL:	SCHEDULE 40 BLACK STEEL (ASTM A120).
	FITTING MATERIAL:	CARBON STEEL
	PIPE JOINT:	WELDED, FLANGE.

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NEWTON SOUTH HIGH SCHOOL
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LEGEN, NOTES AND FLOOR PLANS

Revisions:

No.	Date	Description

Drawn By:	RWF
Checked By:	JJD
Approved By:	GW
Drawing Scale:	As Noted
Project Number:	16047
Date:	July 21st, 2016

P2.00

C Piping Symbols

DESCRIPTION
WATER SUPPLY
WATER RETURN
TER SUPPLY
TER RETURN
EMPERATURE WATER SUPPLY (TWO PIPE SYSTEM)
EMPERATURE WATER RETURN (TWO PIPE SYSTEM)
SATE DRAIN
ON OF DOWNWARD PITCH 1/8"/FOOT
ON OF FLOW
TURNED DOWN
TURNED UP
LVE
AIN VALVE WITH HOSE BIB, CAP & CHAIN
LVE
VALVE (SHOWN IN SECTION DWGS)
VALVE (SHOWN ON DWG PLANS)
LY VALVE
VALVE
VALVE
Y AUTOMATIC CONTROL VALVE
WAY AUTOMATIC CONTROL VALVE
AIR VENT
TC AIR VENT WITH ISOLATION VALVE
METER
RE GAUGE WITH BALL VALVE
TURE/PRESSURE WELL ("PETE'S PLUG")
TION FLOW METER/BALANCE VALVE -OFF (CIRCUIT SETTER)
SCREWED
LANGE (END OF SYSTEM)
P-SCREWED
E-OFF
TAKE-OFF
CONNECTION (SINGLE LINE PIPING)
CONNECTION (DOUBLE LINE PIPING)
N ISOLATORS FLOOR MOUNTED & TYPE

HVAC Equipment Designations

DESCRIPTION
NT TAG
ION
E HEXAGON SYMBOL SHALL BE R ALL EQUIPMENT CALLOUTS G ELECTRICAL POWER HOOK-UP.
NT TAG
ION/ACTIVE LENGTH FOR FIN-TUBE
E SQUARE SYMBOL SHALL BE R ALL EQUIPMENT CALLOUTS THAT REQUIRE ELECTRICAL POWER.

HVAC GENERAL NOTES

1. THE FOLLOWING NOTES ARE GENERAL IN NATURE. IF A CONFLICT OCCURS BETWEEN THESE NOTES AND THE SPECIFICATIONS, THE MORE STRINGENT SHALL APPLY.

2. EXAMINE ALL DRAWINGS AND THE SPECIFICATION FOR THE WORK REQUIREMENTS OF THIS SECTION.

3. HVAC WORK IS INDICATED DIAGRAMMATICALLY. EXACT LOCATIONS OF ALL COMPONENTS SHALL BE DETERMINED IN THE FIELD AND BY ACTUAL BUILDING CONDITIONS. EQUIPMENT OR DUCTS INTERFERING WITH OTHER INSTALLATIONS SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER. THERMOSTAT LOCATIONS SHALL BE APPROVED BY THE ARCHITECT BEFORE THE INSTALLATION.

4. ALL WORK SHALL MEET OR EXCEED THE LATEST REQUIREMENTS OF ALL NATIONAL, STATE, COUNTRY MUNICIPAL AND OTHER AUTHORITIES EXERCISING JURISDICTION OVER CONSTRUCTION WORK OF THE PROJECT. ALL REQUIRED PERMITS SHALL BE OBTAINED, PAID FOR, AND MADE AVAILABLE AT THE COMPLETION OF THE WORK.

5. INSTALLATION PROCEDURES, METHODS, AND CONDITIONS SHALL COMPLY WITH THE LATEST REQUIREMENTS OF THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).

6. THE HVAC CONTRACTOR SHALL GUARANTEE WORK IN WRITING FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE AGAINST DEFECTS IN MATERIALS, WORKMANSHIP AND INSTALLATION. THE HVAC CONTRACTOR SHALL CORRECT DEFECTIVE WORK AT NO ADDITIONAL COST TO THE OWNER AND PROVIDE EQUIPMENT WARRANTIES TO THE OWNER IN FULL FORCE. PROVIDE 5-YEAR WARRANTY ON COMPRESSORS.

7. PRIOR TO PURCHASING ANY EQUIPMENT OR MATERIALS, THE PRODUCT DATA SHALL BE SUBMITTED FOR REVIEW. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND WITHOUT BLEMISH OR DEFECT. SUBSTITUTED EQUIPMENT OR OPTIONAL EQUIPMENT WHERE PERMITTED AND APPROVED, MUST CONFORM TO SPACE REQUIREMENTS. ANY SUBSTITUTED EQUIPMENT THAT CANNOT MEET SPACE REQUIREMENTS, WHETHER APPROVED OR NOT, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

8. THE HEATING, VENTILATING AND AIR CONDITIONING TRADE IS REQUIRED TO SUPPLY ALL NECESSARY SUPERVISION AND COORDINATION INFORMATION TO ANY OTHER TRADES WHO ARE TO SUPPLY WORK TO ACCOMMODATE THE HEATING, VENTILATING AND AIR CONDITIONING INSTALLATIONS. WORK SHALL BE PERFORMED IN COOPERATION WITH OTHER TRADES ON THE PROJECT AND SO SCHEDULED AS TO ALLOW TIMELY AND EFFICIENT COMPLETION OF THE PROJECT.

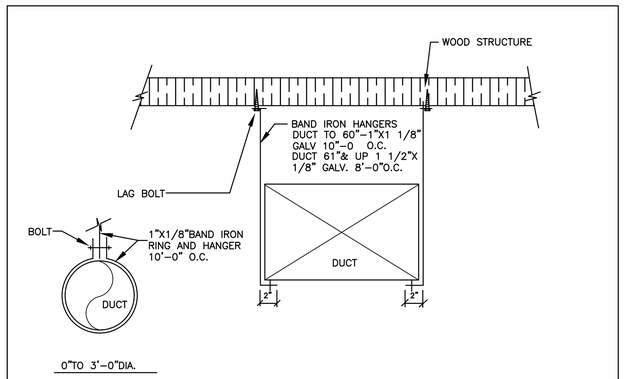
9. CUTTING, CORING, DRILLING AND PATCHING OF HOLES AND OPENINGS IN ALL THE STRUCTURAL WALLS FOR THE WORK OF SUB-TRADES SHALL BE PERFORMED BY THE PARTICULAR SUBCONTRACTOR WHEN THE LARGEST DIMENSION OF THE OPENING IS 6 INCHES OR LESS. IF THE LARGEST DIMENSION OF THE OPENING EXCEEDS 6 INCHES, THE GENERAL CONTRACTOR SHALL PERFORM THE CUTTING AND PATCHING FOR THE WORK OF THE SUBCONTRACTOR. ALL SUCH WORK SHALL BE COORDINATED WITH THE G.C.

10. ALL WORK SHALL BE INSTALLED SO THAT PARTS REQUIRING PERIODIC INSPECTION, OPERATION, MAINTENANCE AND REPAIR ARE READILY ACCESSIBLE. MINOR DEVIATION FROM THE DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES OF SUBSTANTIAL MAGNITUDE SHALL NOT BE MADE PRIOR TO WRITTEN APPROVAL FROM THE ENGINEER.

11. THE DRAWINGS ARE DIAGRAMMATIC. THE CONTRACTOR SHALL REVIEW EQUIPMENT INSTALLATION MANUAL TO UNDERSTAND THE EQUIPMENT SERVICE SPACE REQUIRED BEFORE WORK IS COMMENCED. THIS CONTRACTOR SHALL COORDINATE LOCATION OF ACCESS PANELS IN CEILINGS, WALLS, FLOORS ETC WITH GC. THE PANELS SHALL BE FURNISHED BY HVAC CONTRACTOR AND INSTALLED BY GC.

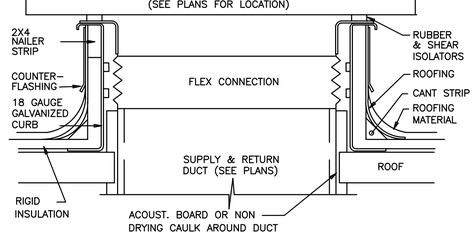
12. THIS TRADE SHALL COORDINATE DUCT AND EQUIPMENT INSTALLATION WITH EXISTING EQUIPMENT, DUCTS, AND PIPING. THIS TRADE SHALL COORDINATE ALL CONFLICTS WITH OTHER TRADES IN THE FIELD PRIOR TO INSTALLATION AT NO EXTRA COST TO THE OWNER.

CD-1	PRICE MODEL
–	6"/24"x24"/SCDA/3D/B12 PROVIDE W/ OPPOSED BLADE DAMPER



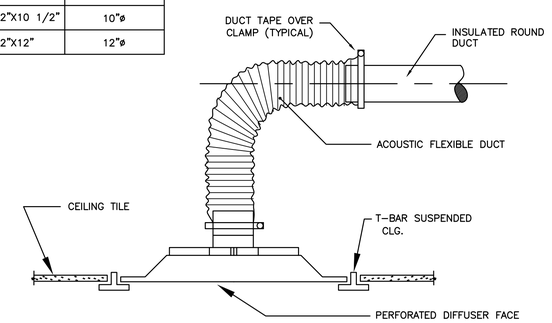
0"TO 3'-0"DIA.

STANDARD HANGING DETAIL



ROOFTOP UNIT MOUNTING W/CURB

DIFFUSER NECK SIZE	ROUND DUCT SIZE
6"X6"	6"ø
7 1/2"X7 1/2"	7"ø
9"X9"	9"ø
10 1/2"X10 1/2"	10"ø
12"X12"	12"ø



11 TYPICAL SUPPLY DIFFUSER DETAIL

Scale: None

1

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NEWTON SOUTH HIGH SCHOOL
140 BRANDIES RD, NEWTON, MA

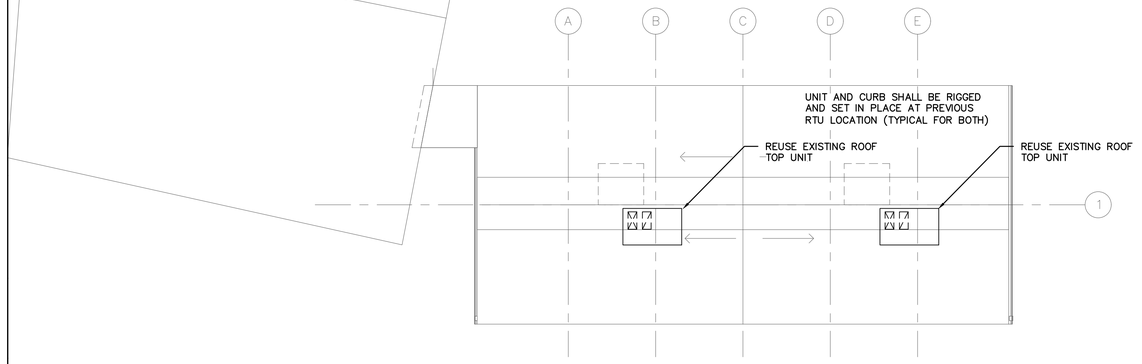
MECHANICAL LEGEND, SYMBOLS, GENERAL NOTES & DETAILS

Revisions:

No.	Date	Description
1	7-27-16	ADD. HVAC

Drawn By:	MAG
Checked By:	SDW
Approved By:	XXX
Drawing Scale:	1/8" = 1' - 0"
Project Number:	16047
Date:	July 21st, 2016

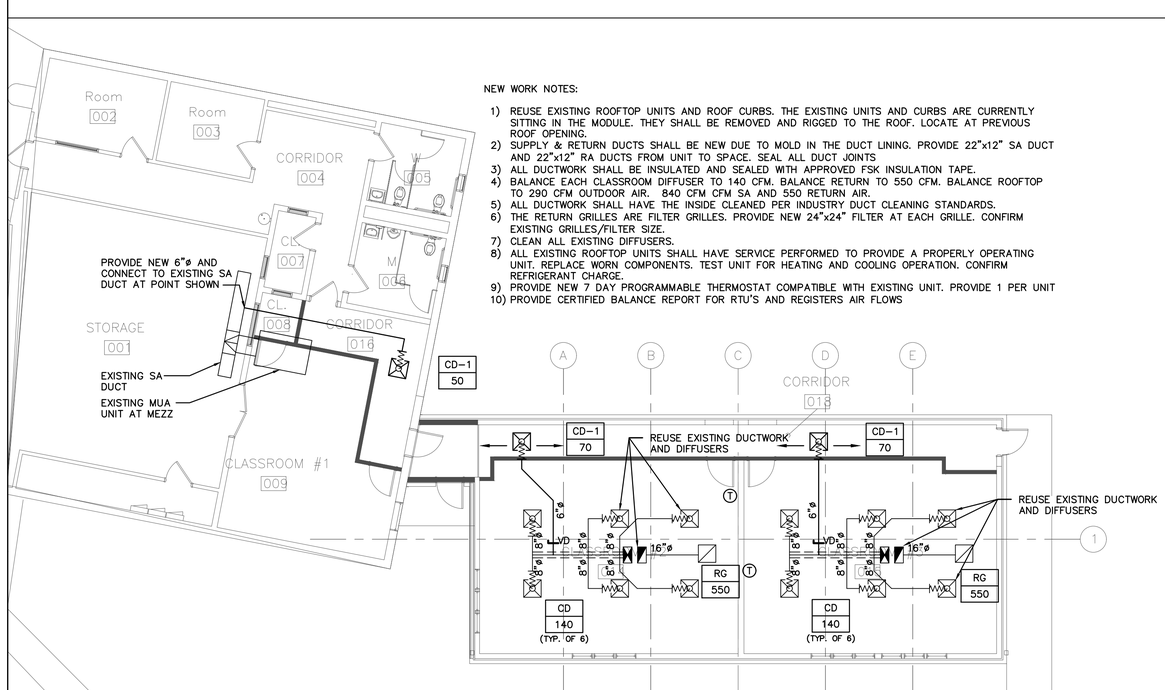
M0.0



2 Newton High School Mechanical Roof Plan
Scale: 1/8"=1'-0"

NEW WORK NOTES:

1) REUSE EXISTING ROOFTOP UNITS AND ROOF CURBS. THE EXISTING UNITS AND CURBS ARE CURRENTLY SITTING IN THE MODULE. THEY SHALL BE REMOVED AND RIGGED TO THE ROOF. LOCATE AT PREVIOUS ROOF OPENING.
2) SUPPLY & RETURN DUCTS SHALL BE NEW DUE TO MOLD IN THE DUCT LINING. PROVIDE 22"x12" SA DUCT AND 22"x12" RA DUCTS FROM UNIT TO SPACE. SEAL ALL DUCT JOINTS
3) ALL DUCTWORK SHALL BE INSULATED AND SEALED WITH APPROVED FSK INSULATION TAPE.
4) BALANCE EACH CLASSROOM DIFFUSER TO 140 CFM. BALANCE RETURN TO 550 CFM. BALANCE ROOFTOP TO 290 CFM OUTDOOR AIR. 840 CFM CFM SA AND 550 RETURN AIR.
5) ALL DUCTWORK SHALL HAVE THE INSIDE CLEANED PER INDUSTRY DUCT CLEANING STANDARDS.
6) THE RETURN GRILLES ARE FILTER GRILLES. PROVIDE NEW 24"x24" FILTER AT EACH GRILLE. CONFIRM EXISTING GRILLES/FILTER SIZE.
7) CLEAN ALL EXISTING DIFFUSERS.
8) ALL EXISTING ROOFTOP UNITS SHALL HAVE SERVICE PERFORMED TO PROVIDE A PROPERLY OPERATING UNIT. REPLACE WORN COMPONENTS. TEST UNIT FOR HEATING AND COOLING OPERATION. CONFIRM REFRIGERANT CHARGE.
9) PROVIDE NEW 7 DAY PROGRAMMABLE THERMOSTAT COMPATIBLE WITH EXISTING UNIT. PROVIDE 1 PER UNIT
10) PROVIDE CERTIFIED BALANCE REPORT FOR RTU'S AND REGISTERS AIR FLOWS



1 Newton High School Mechanical Plan
Scale: 1/8"=1'-0"

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NEWTON SOUTH HIGH SCHOOL
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MECHANICAL ROOF AND FLOOR PLAN

Revisions:

No.	Date	Description
1	7-27-16	ADD. HVAC

Drawn By:	MAG
Checked By:	SDW
Approved By:	XXX
Drawing Scale:	1/8" = 1' - 0"
Project Number:	16047
Date:	July 21st, 2016

M1.0

SYMBOL	DESCRIPTION	NOTES
LIGHTING FIXTURES		
FP 1a / FP 1a / FP 1a / FP 1a / FP 1a / FP 1a	WALL OR CEILING MOUNTED LIGHTING FIXTURE	UPPER CASE LETTERS INDICATE FIXTURE TYPE. REFER TO FIXTURE SCHEDULE FOR MANUFACTURER. SUBSCRIPT LOWER CASE LETTERS INDICATE SWITCH CONTROL ASSOCIATIONS (FR 1a, FP 1a). SHADING OF FIXTURES THUS: (FR, FP, FP, FP) INDICATES FIXTURE ON NIGHT/EMERGENCY CIRCUIT OR EMERGENCY BATTERY BACK UP BALLAST WHERE APPLICABLE, CONTRACTOR SHALL CONFIRM LOCATION OF REMOTE EMERGENCY BALLAST WITH ARCHITECT PRIOR TO PURCHASE AND INSTALLATION. EMERGENCY BALLAST SHALL BE SIMILAR TO BODINE B30ST OR B30 WITH INTEGRAL INDICATOR LIGHT TEST SWITCH. PROVIDE 2 LAMP APPLICATION WHERE APPLICABLE. CONTRACTOR SHALL PROVIDE ALL MOUNTING HARDWARE APPLICABLE TO CEILING, WALL, AND FLOOR TYPE INTO WHICH FIXTURE IS INSTALLED. CONTRACTOR SHALL COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL INTERIOR/EXTERIOR ELEVATIONS. CONTRACTOR SHALL COORDINATE AND CONFIRM K RATING OF LAMPS TO ACHIVE COLOR AS PER ARCHITECT. CONTRACTOR SHALL FURNISH AND SUPPLY ANY STEP DOWN TRANSFORMERS FOR ANY LOW VOLTAGE LIGHTING
	EXTERIOR POLE MOUNTED FIXTURE	
EMERGENCY LIGHTING		
EB	EMERGENCY LIGHTING WITH BATTERY UNIT	ALL EMERGENCY BATTERY PACKS SHALL HAVE REMOTE HEAD CAPABILITY UNLESS NOTED OTHERWISE
	DUAL REMOTE EMERGENCY LIGHTING HEAD	
	SINGLE REMOTE EMERGENCY LIGHTING HEAD	
EXIT SIGNS		
WP 1	CEILING MOUNTED EXIT SIGN	ALL EXIT SIGNS SHALL BE FURNISHED WITH INTERNAL, 90 MINUTE BATTERY UNLESS NOTED OTHERWISE. APPLICATION OF SHADED QUADRANTS AND ARROWS THUS: INDICATE LETTERED FACE AND DIRECTIONAL CHEVERONS AS REQUIRED. UPPER CASE LETTERS INDICATE REFERENCE TO LIGHTING FIXTURE SCHEDULE
WP 1	WALL MOUNTED EXIT SIGN	

SYMBOL	DESCRIPTION	NOTES	
WIRING DEVICES–SWITCHES			
S_{WP}	SINGLE POLE SWITCH	20A 120–277V AC "WP" – INDICATES WEATHER PROOF	SUBSCRIPT LOWER CASE LETTERS INDICATE SWITCH CONTROL ASSOCIATIONS. SUBSCRIPT UPPER CASE LETTERS DENOTE SWITCH TYPE AS LISTED IN NON-STANDARD SWITCHES. UNLESS NOTED OTHERWISE SWITCHES SHALL BE MOUNTED 48" TO CENTER LINE AFF
SP	SINGLE POLE SWITCH WITH PILOT LIGHT		
S2	DOUBLE POLE SWITCH		
S3	THREE–WAY SWITCH		
S4	FOUR–WAY SWITCH		
ST	SPRING WOUND INTERVAL TIME SWITCH	TORK OR EQUAL 30 MINUTE MAX	
D	LINEAR SLIDE BAR DIMMER SWITCH	1500W–120 VOLT RATING UNLESS NOTED OTHERWISE	
OS 1	CEILING MOUNTED CORRIDOR OCCUPANCY SENSOR (80' oc)	WATT STOPPER: W–2000H	CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY POWER PACKS, RELAYS, CABLES, AND CONTROL MODULES TO COMPLETE SYSTEM. SUBSCRIPT LOWER CASE LETTERS INDICATE SWITCH LEG CONTROL
OS 2	CEILING MOUNTED DUAL TECHNOLOGY SENSOR (1,600 sf)	WATT STOPPER: DT–300	
OS	WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR	WATT STOPPER: DW–100	
OS ab	WALL MOUNTED DUAL TECHNOLOGY DUAL RELAY SENSOR	WATT STOPPER: DW–200	
DS 1	CEILING MOUNTED ON/OFF DAYLIGHT SENSOR	WATT STOPPER: LMLS–105	

SYMBOL	DESCRIPTION	NOTES
LIGHTING CONTROL SYSTEM		
TC	7 DAY ASTRONOMICAL TIME CLOCK	TORK OR EQUAL
PC	WALL MOUNTED PHOTOCELL	
LC	LIGHTING CONTACTOR	
KS	KEY SWITCH LINE VOLTAGE	
MS	MASTER CONTROL SWITCH	
TELECOMMUNICATION SYSTEMS		
MHNC	MODULAR HOME NETWORK CENTER PROVIDE (1) DEDICATED 120V CIRCUIT & DOUBLE DUPLEX RECEPTACLE	MODULAR HOME NETWORKING PANEL SHALL BE LEVITON 47606–AHT IN 47605–140 ENCLOSURE OR EQUAL WITH 120V. RECEPTACLE
	WALL MOUNTED DATA OUTLET	4"x4" SQUARE OUTLET BOX WITH 1"C BACK TO TELEPHONE CLOSET. P – DENOTES PUBLIC PAY PHONE. W – DENOTES POWER FEED. F – DENOTES MODULAR FURNITURE BEZEL (2)VOICE,(2)DATA OUTLETS BY OTHERS
	WALL MOUNTED COMBINATION TEL/DATA OUTLET	
	WALL MOUNTED TEL OUTLET	
T	FIRE RATED FURNITURE FEED POKE THROUGH DEVICE FOR TEL/DATA CONNECTIONS TO ELECTRIFIED FURNITURE	
T	4" SQUARE OUTLET BOX WITH 1 1/2" GROMMETTED HOLE COVERPLATE FOR TEL/DATA CONNECTION TO ELECTRIFIED FURNITURE PARTITIONS, MOUNTED 8" AFF	
TV	WALL MOUNTED CABLE TV OUTLET	4"x4" SQUARE OUTLET BOX WITH 1" CONDUIT STUBBED 6" ABOVE ACCESSIBLE CEILING SEE ARCH PLAN FOR MOUNTING HEIGHT

SYMBOL	DESCRIPTION	NOTES
WIRING DEVICES – RECEPTACLES		
1	WALL DUPLEX CONVENIENCE OUTLET MTD 18" AFF	20A/125V, 2P, 3W, GNDG., NEMA 5–20R SHADING OF SYMBOL THUS: INDICATES RECEPTACLE WITH EACH HALF SEPARATELY WIRED. (HALF CONSTANT HALF SWITCH CONTROLLED.) "1"– INDICATES CIRCUIT NUMBER. SUBSCRIPT LOWER CASE LETTERS INDICATE SWITCH CONTROL ASSOCIATIONS. SHADING OF SYMBOL THUS: INDICATES RECEPTACLE MTD 6" ABOVE COUNTER TO CENTER LINE OR 48" AFF UNLESS NOTED OTHERWISE. 'WP' – INDICATES WEATHER PROOF. 'GFI' DENOTES GROUND FAULT INTERRUPTING TYPE RECEPTACLE. ALL POWER OUTLET FACEPLATES SHALL BE LABELED WITH CIRCUIT NUMBER AND PANEL DESIGNATION FEEDING OUTLET
	CEILING MOUNTED DUPLEX CONVENIENCE OUTLET	
IG	ISOLATED GROUND DUPLEX CONVENIENCE OUTLET	
	WALL DOUBLE DUPLEX CONVENIENCE OUTLET	
H	HOSPITAL GRADE DUPLEX CONVENIENCE OUTLET	
	WALL MTD SINGLE CONVENIENCE OUTLET	
9	WALL MOUNTED SPECIAL PURPOSE POWER RECEPTACLE	NUMERAL WITHIN SQUARE DENOTES RECEPTACLE TYPE AS LISTED IN SCHEDULE OF NON–STANDARD RECEPTACLES
P	FIRE RATED FURNITURE FEED POKE THRIUGH DEVICE FOR POWER CONNECTIONS TO ELECTRIFIED FURNITURE	
P	4" SQUARE OUTLET BOX TO OUTLETS LOCATED IN FURNITURE PARTITIONS (SEE FLOOR PLANS)	
WIRING DEVICES – MISCELLANEOUS		
PP	2 CHANNEL PWR/DATA POWER POLE WITH ELEC DEVICES AND PLATES	WIREMOLD AMDPT SERIES OR EQUAL
	2 PIECE SURFACE MTD RACEWAY WITH 20A DUPLEX RECEPTACLES SPACING AS SHOWN ON ELECTRICAL PLANS	WIREMOLD OR EQUAL
	2 PIECE MULTI–CHANNEL RACEWAY WITH 20A DUPLEX RECEPTACLES AND DATA OUTLETS SPACING AS SHOWN ON ELECTRICAL PLANS	WIREMOLD OR EQUAL
	FLUSH FLOOR MOUNTED POWER/DATA CONVIENCE RECEPTACLES	POKE THRU APPLICATION: 2 HOUR RATED. WIREMOLD RC SERIES OR EQUAL. COORDINATE FINAL POWER AND TEL/DATA TERMAINTIONS WITH TENANT. FLOOR TRENCH APPLICATION: DEEP RECTANGULAR CAST IRON BOX WIREMOLD OR EQUAL. PROVIDE 1"C FROM TEL/DATA TO 6" AFF. CONTRACTOR SHALL SUPPLY ALL COVERS AND FACE PLATES SPECIFIC TO SERIES
JUNCTION BOXES		
J	CEILING MOUNTED JUNCTION BOX	
J	WALL MOUNTED JUNCTION BOX	
J	SURFACE MOUNTED JUNCTION BOX	
J	FLUSH FLOOR MOUNTED JUNCTION BOX	
PB	PULL BOX	
J	JUNCTION BOX WITH FLEXIBLE CONNECTION TO EQUIPMENT	P – DENOTES POWER FEED. C – DENOTES COMMUNICATIONS FEED

SYMBOL	DESCRIPTION	NOTES	
MOTORS AND CONTROLS			
	MOTOR	COMPLETE INFO. FOR MOTOR IS INDICATED BY APPLICATION OF INDEXING SYMBOLS REFERENCE TO SCHEDULE OF MECHANICAL EQUIPMENT	
	MAGNETIC MOTOR STARTER COMPLETE W/ THERMAL OVERLOAD PROTECTION	SUBSCRIPT INDICATES NEMA SIZE	COMPLETE INFORMATION FOR CONTROL ITEMS IS INDICATED BY THE APPLICATION OF INDEXING SYMBOL REFERENCE APPLIED TO ASSOCIATED EQUIP.
$	MANUAL MOTOR STARTER (THERMAL OVERLOAD SWITCH)		
VFD	VARIABLE FREQUECY DRIVE	REFER TO HVAC SCHEDULE FOR MOTOR LOAD HORSEPOWER SIZE	
CP	CONTROL PANEL (MECHANICAL EQUIP)	FURNISHED AND INSTALLED BY OTHERS. WIRED BY THE ELECTRICAL CONTRACTOR	

SYMBOL	DESCRIPTION	NOTES
DISTRIBUTION EQUIPMENT		
	SURFACE MOUNTED PANEL	
	FLUSH MOUNTED PANEL	
TVSS	SURGE SUPPRESSION	PROVIDE PER SPECIFICATIONS
T	TRANSFORMER	SEE ELECTRICAL PLANS FOR KVA RATING
	GROUNDING PER SPECIFICATION	
M	METER SOCKET AND METER	METER SOCKET PROVIDED BY CONTRACTOR PROVIDED BY LOCAL UTILITY CO.
	OVERCURRENT AND/OR SWITCHING DEVICE "WP" – INDICATES WEATHER PROOF	COMPLETE INFORMATION FOR DEVICES IS INDICATED BY APPLICATION OF TAG SYMBOLS. 30: INDICATES UNFUSED SWITCH 30 – FRAME SIZE. 30/15: INDICATES FUSED SWITCH 30 – FRAME SIZE 15 – FUSE SIZE. CB: INDICATES ENCLOSED CIRCUIT BREAKER. 30/15: INDICATES COMBINATION FUSED SWITCH AND STARTER 30 – FRAME SIZE 15 – FUSE SIZE. CB: INDICATES COMBINATION ENCLOSED CIRCUIT BREAKER AND STARTER. INDICATES BY OTHERS
	WALL MOUNTED EMERGENCY POWER OFF BUTTON	

SYMBOL	DESCRIPTION	NOTES
BRANCH CIRCUITRY		
	LIGHTING AND APPLIANCE BRANCH CIRCUITRY CONCEALED ABOVE	ARROW HEAD INDICATES HOME RUN CIRCUITRY TO 20A–1P CIRCUIT BREAKER (UNLESS NOTED OTHERWISE) NUMBER OF ARROW HEADS INDICATE NUMBER OF BRANCH POLES REQUIRED IN PANEL. CROSS MARKS INDICATE NUMBER OR NO. 12 WIRES IN 3/4" CONDUIT PLUS GROUND. ABSENCE OF CROSSMARKS INDICATES 2#12, 1#12 GROUND. HOME RUNS ARE INDICATED THUS: LL2 – 1, 3, 5. "LL2" DENOTES PANEL DESIGNATION. "1,3,5" DENOTES CIRCUIT NO'S 1,3,5 CONTAINING 20A. 1P. CB'S IN PANELBOARD. CONDUIT RUNS REQUIRING CIRCUIT BREAKER GREATER THAN 20A–1P WIRE SIZE GREATER THAN NO. 12 AND CONDUIT SIZE GREATER THAN 3/4" ARE NOTED NOTED THUS: LL2–1, 3, 5 50A 3P 4 #4, 1 #8 GROUND 1–1/4" CONDUIT
	LIGHTING AND APPLIANCE BRANCH CIRCUITRY CONCEALED BELOW	
	LIGHTING AND APPLIANCE BRANCH RUN EXPOSED	
	INDIVIDUAL RUN TURNING UP	
	INDIVIDUAL RUN TURNING DOWN	
	INDIVIDUAL RUN TURNING UP&DOWN	
GENERAL CIRCUITRY		
	BUSWAY	
	CIRCUIT BREAKER BUS PLUG, BREAKERS AS INDICATED	
	BUSWAY FEED/ LUG CONNECTION	
PE	IDENTIFICATION OF INDIVIDUAL RUN OTHER THAN BRANCH CIRCUITRY OR SECONDARY FEEDERS	PE – PRIMARY ELECTRIC. SE – SECONDARY ELECTRIC. TEL – TELEPHONE. TV – TELEVISION. CATV – CABLE TELEVISION. E – EMERGENCY
SECONDARY FEEDERS		
	FEEDER RUN CONCEALED ABOVE	ARROW HEAD INDICATES HOME RUN TO PANEL BOARD
	FEEDER RUN CONCEALED BELOW	FEEDER SIZING SHOWN ON POWER RISER DIAGRAM
	FEEDER RUN AS PER SPECIFIC NOTATION	
TAG SYMBOLS		
	INDEX SYMBOL	HEXAGONAL SYMBOLS CONTAINING TWO UPPER CASE LETTERS INDICATE REFERENCE TO A SCHEDULE OF SPECIAL EQUIPMENT. HEXAGONAL SYMBOLS CONTAINING UPPER CASE LETTERS AND NUMERICALS INDICATE REFERENCE TO SCHEDULE OF MECHANICAL EQUIPMENT. HEXAGONAL SYMBOLS CONTAINING NUMERICALS ONLY INDICATE REFERENCE TO AN EXPLANATION OF ELECTRICAL WORK REQUIREMENT
	GANGING CROSS REFERENCE	THE NOTED INDICATION ADJACENT TO A DEVICE DENOTES THAT THE DEVICE IS TO BE GANGED IN A BOX WITH ANOTHER DEVICE SIMILARLY NOTED AT THE SAME LOCATION ON ANOTHER DRAWING
( )	SPECIAL MOUNTING HEIGHT INDICATIONS	DIMENSION NOTED IN PARENTHESIS ADJACENT TO ANY ITEM OF THE DRAWINGS INDICATES THE HEIGHT OF IT'S HORIZONTAL CENTERLINE ABOVE FINISHED FLOOR
*	MOUNTING HEIGHT REFERENCE TO ARCHITECTURAL DRAWINGS	
	LINE INDICATING PHYSICAL SIZE OF ELECTRICAL ITEMS	INDICATION USED CIRCUMSCRIBING OTHER SYMBOLS TO DELINEATE PHYSICAL SIZE
	DETAIL TITLE ANNOTATION INDICATING DETAIL NUMBER	
	WIRING DEVICE GANGING SYMBOL	GANGING SYMBOL SHOWN IN CIRCUITRY RUN IN COMBINATION WITH ANY WIRING DEVICE SYMBOL THUS: (S, S S) DENOTES WIRING DEVICES WHICH ARE TO BE GANGED IN A COMMON PLATE OUTLET

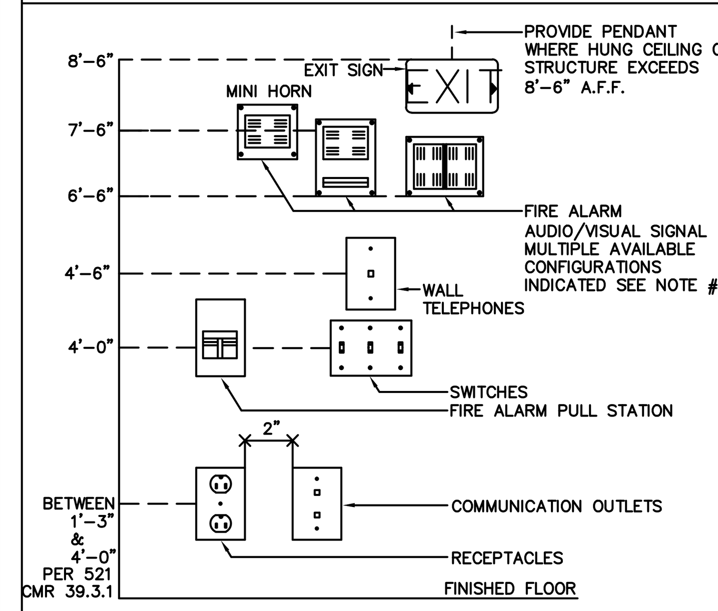
SYMBOL	DESCRIPTION	NOTES	SYMBOL	DESCRIPTION
FIRE ALARM SYSTEM				
F	MANUAL FIRE ALARM PULL STATION			
	FIRE FIGHTER FIRE EMERG PHONE			
	VISUAL ONLY FIRE ALARM DEVICE			
F	COMBINATION AUDIO AND VISUAL FIRE ALARM DEVICE			
F C	CEILING MOUNTED AUDIO AND VISUAL FIRE ALARM DEVICE			
S	WALL MOUNTED FIRE ALARM SPEAKER			
S	WALL MOUNTED FIRE ALARM SPEAKER AND STROBE			
M	WALL MOUNTED MINI–HORN			
M	WALL MOUNTED FIRE ALARM MINI–HORN & STROBE			
F	FIRE ALARM MASTER BOX			
K	KNOX BOX			
B	ROTATING FIRE ALARM BEACON LIGHT			
EB	ELECTRIC BELL PROVIDE (1) DEDICATED 120V CIRCUIT			
FACP	FIRE ALARM CONTROL PANEL		S	COMBINATION SMOKE DETECTOR/ VISUAL ALARM FOR HEARING IMPAIRED.
FAA	FIRE ALARM ANNUNCIATOR PANEL		H	COMBINATION HEAT DETECTOR/ VISUAL ALARM FOR HEARING IMPAIRED.
RTS	REMOTE TEST STATION		CO	CEILING MOUNTED CARBON MONOXIDE DETECTOR
RI	REMOTE INDICATOR ALARM DEVICE		CO	WALL MOUNTED CARBON MONOXIDE DETECTOR
S	SMOKE DETECTOR	DETECTOR TYPE SUBSCRIPT: L LOCAL 120V DETECTOR; R RECEIVER UNIT; T TRANSMITTER UNIT; D IN DUCT DETECTOR; E ELEVATOR RECALL; B BEAM TYPE PHOTOELECTRIC; SA SUPPLY AIR DUCT DETECTOR; RA RETURN AIR DUCT DETECTOR; CO COMBINATION SMOKE/CARBON MONOXIDE DETECTOR		
H	HEAT DETECTOR			
S / H	WALL MOUNTED SMOKE OR HEAT DETECTOR			
FS / TS / PS	SPRINKLER SYSTEM MONITOR: FS WATER FLOW; TS TAMPER SWITCH; PS DRY ALARM PRESSURE SWITCH	MONITOR TYPE: MM MONITORING MODULE; CM CONTROL MODULE		
DH	MAGNETIC DOOR HOLDER	PROVIDE CONNECTION TO DOOR HARDWARE INTEGRAL HOLDERS		
SK	SMOKE EXHAUST FAN KEY SWITCH			
I	ADDRESSABLE CONTROL OR MONITOR MODULE	MODULE SUBSCRIPT TYPE: C CONTROL MODULE; M MONITOR MODULE		

SYMBOL	DESCRIPTION	NOTES
EXISTING ELECTRICAL EQUIPMENT		
ETR	EXISTING TO REMAIN	ALL EXISTING TO REMAIN LIGHTING SHALL BE CLEANED AND RELAMPED. CONTRACTOR SHALL VERIFY THAT ALL EXISTING TO REMAIN ELECTRICAL DEVICES ARE OPERATIONAL & FUNCTIONAL. IF ETR DEVICES ARE NOT OPERATIONAL, IT SHALL BE REPLACED WITH A NEW DEVICE OF THAT TYPE. ALL REPLACED DEVICES SHALL MATCH EXISTING. CONTRACTOR SHALL EXTEND AND CONNECT EXISTING WIRING TO NEW LOCATION OF RELOCATED EQUIPMENT. CONTRACTOR SHALL REPLACE EXISTING WIRING BACK TO SOURCE IF NECESSARY IF EXISTING WIRING DOES NOT REACH RELOCATED EQUIPMENT. CONTRACTOR SHALL EVALUATE CONDITION OF EXISTING WIRING AND REPLACE IF NECESSARY.
X	EXISTING EQUIPMENT TO BE REMOVED	
XR	EXISTING EQUIPMENT TO BE REMOVED AND RELOCATED	
RX	NEW LOCATION OF RELOCATED EXISTING EQUIPMENT	
RR	REMOVE EXISTING DEVICE AND REINSTALL NEW DEVICE IN SAME LOCATION	
N	DENOTES NEW DEVICE	
F	DOTTED DENOTES EXISTING ELECTRICAL EQUIPMENT	

GENERAL NOTES

1. ALL CONDUITS AND EQUIPMENT SHALL BE INSTALLED AND GROUND IN ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF THE APPLICABLE LOCAL AND NATIONAL CODES.
2. CONDUIT RUNS ARE SHOWN DIAGRAMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARRALEL TO BEAMS AND WALLS. EMPTY CONDUITS SHALL HAVE NYLON PULL LINE
3. CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO MOTORS AND OTHER EQUIPMENT.
4. NO CONDUIT SMALLER THAN 3/4", NOR WIRE SIZE SMALLER THAN NO. 12 A.W.G. FOR POWER SHALL BE USED UNLESS OTHERWISE NOTED.
5. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF THE WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE CONSTRUCTION MANAGER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
6. SWITCHES SHALL BE MOUNTED 4'–0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. RECEPTACLES SHALL BE MOUNTED 18" AFF
7. ALL SURFACE MOUNTED PANELS AND PANELBOARDS ON THE INSIDE OF EXTERIOR WALLS ABOVE GRADE OR IN OTHER LOCATIONS CONSIDERED AS DAMP, SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4" AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
8. ALL PANELBOARDS SHALL BE MOUNTED SO THAT THE DISTANCE FROM THE TOP CIRCUIT BREAKER OPERATING HANDLE TO THE FLOOR SHALL NOT EXCEED 6'–6"
9. LIGHTING FIXTURES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS, WITH THE DISTANCE BEING MEASURED FROM THE BOTTOM OF THE LIGHTING FIXTURE TO THE FINISHED FLOOR.
10. FOR LOCATION OF HVAC, PLUMBING, FIRE PROTECTION, AND MISCELLANEOUS EQUIPMENT SEE RESPECTIVE TRADE DRAWINGS.
11. ALL CONDUIT RUNS CROSSING EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION AND DEFLECTION TYPE FITTINGS AS REQUIRED. FOR EXACT LOCATIONS OF EXPANSION JOINTS SEE STRUCTURAL DRAWINGS.
12. ALL MOTOR STARTER CONTROL TRANSFORMERS SHALL BE SIZED TO PROVIDE SUFFICIENT VOLT–AMPERE CAPACITY FOR OPERATING ALL ELECTRICAL DEVICES ASSOCIATED WITH CONTROL OF THE MOTOR, IN ADDITION TO THE STARTER COIL. IT SHALL INCLUDE RELAYS, TIMERS, MOTOR HEATERS, INDICATING LIGHTS, ETC.
13. CONDUIT AND WIRE (NOT SHOWN) FOR FIXTURES, SWITCHES AND/OR RECEPTACLES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AND SHALL BE:
    a. 3/4" (MIN.) CONDUIT RUN
    1. EXPOSED IN UNFINISHED AREAS.
    2. CONCEALED ABOVE HUNG CEILINGS AND IN WALLS IN FINISHED AREAS.
    b. NO.12 (MIN.) Cu WIRE (MIN.) TYPE "THWN/THHN" NO. OF WIRES AS REQUIRED.
14. FOR EQUIPMENT PAD CONSTRUCTION DETAILS SEE STRUCTURAL DRAWINGS.
15. ALL 120V BRANCH CIRCUITS GREATER THAN 100 LINEAR FEET SHALL BE #10AWG MIN.
16. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LAYOUTS FOR ALL ELECTRICAL ROOMS BASED ON ACTUAL EQUIPMENT OF MANUFACTURER SELECTED, SUBMIT FOR REVIEW PRIOR TO INSTALLATION.
17. PROVIDE ELECTRICAL OUTLET PLATE GASKET SEALS AT RECEPTACLES, SWITCHES AND OTHER ELECTRICAL BOXES ON EXTERIOR WALLS AND ON INTERIOR WALLS BETWEEN CONDITIONED AND NON–CONDITIONED SPACES.
18. THE ELECTRICAL CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL SHOWING ALL ELECTRICAL TELEPHONE, SECURITY, FIRE ALARM, COMMUNICATION AND OTHER SYSTEMS CONDUITS IN SLAB AND ABOVE CEILING ETC.. COORDINATE WITH OTHER TRADES AND BUILDING'S STRUCTURE TO AVOID ANY CONFLICT.
19. ALL TERMINATION LUGS SHALL BE SIZED ACCORDINGLY TO ACCOMMODATE INDICATED CONDUCTORS.
20. THE ELECTRICAL CONTRACTOR SHALL SUBMIT PLANS FOR APPROVAL SHOWING ALL COMMUNICATIONS EQUIPMENT AND DEVICES THROUGHOUT THE BUILDING. THE ELECTRICAL CONTRACTOR SHALL ALSO LABEL AND IDENTIFY ALL CONDUITS THAT SERVE DIFFERNT SYSTEMS.
21. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL LIGHT FIXTURES.
22. COORDINATE LOCATIONS OF ALL LIGHT FIXTURES IN MECHANICAL AND ELECTRICAL ROOMS WITH LAYOUT OF EQUIPMENT, PIPING AND DUCTWORK.
23. ALL EXIT SIGNS SHALL BE UNSWITCHED.
24. ALL SWITCHED LIGHT FIXTURES CIRCUITED TO A NORMAL/EMERGENCY CIRCUIT ARE TO BE WIRED WITH AN EMERGENCY BY–PASS RELAY.
25. ALL 20 AMPERE, SINGLE POLE CIRCUITS SHALL BE PROVIDED WITH A SEPARATE FULL SIZE NEUTRAL CONDUCTOR.
26. CONFIRM EXACT POWER REQUIREMENTS AND CONNECTION LOCATIONS FOR ALL EQUIPMENT WITH THE PLUMBING, FIRE PROTECTION, HVAC AND GENERAL CONTRACTOR
27. PROVIDE AN SOU KIT FOR ALL MECH EQUIPMENT RATED LESS THAN 1/2HP (TYP)
28. CERTAIN SYMBOLS IN THE SYMBOL LIST DO NOT APPEAR ELSEWHERE IN THE DRAWINGS. SUCH SYMBOLS ARE INCLUDED TO PERMIT INTERPRETATIONS TO BE MADE IN THE EVENT OF DESIGN CHANGES.
29. ELECTRICAL CONTRACTOR SHALL MAINTAIN RATING OF ANY CEILING, WALL, FLOOR OR ANY BUILDING STRUCTURE THAT ANY ELECTRICAL SYSTEM PENETRATES. SEE ARCHITECTURAL PLAN FOR RATINGS.

MOUNTING HEIGHTS



NOTES

1.) ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT EXIT SIGNS

2.) DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.

3.) ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.

4.) REFER TO THE ARCHITECTS ELEVATION DETAILS FOR EXACT HEIGHT AND LENGTH OF SURFACE RACEWAYS.

5.) WALL MOUNTED VISUAL APPLIANCE THE ENTIRE LENS OF A/V SIGNAL OR VISUAL–ONLY SIGNAL IS NOT LESS THAN 80" AND NOT GREATER THAN 96" A.F.F. CONTRACTOR SHALL CONTACT ENGINEER IF PERFORMANCE BASED ALTERNATIVE (NFPA 72 7.5.4.5) IS REQUIRED DUE TO CEILING HEIGHTS.

6.) ALL LOAD CENTERS LOCATED WITHIN GROUP I & GROUP II UNITS SHALL BE MOUNTED WITH BREAKER A MAXIMUM OF 54" A.F.F. AND 18" FROM INTERIOR CORNER.

7.) ALL WALL MOUNTED AUDIBLE NOTIFICATION APPLIANCES SHALL HAVE THEIR TOPS ABOVE THE FINISHED FLOORS AT HEIGHTS OF NOT LESS THAN 90" (7'6") AND BELOW THE FINISHED CEILINGS AT DISTANCES NOT LESS THAN 6".

ABBREVIATIONS

ABBR	ABBREVIATIONS
A/AMP	AMPERE
AC	ALTERNATING CURRENT
A/C	AIR CONDITIONING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ARCH	ARCHITECTURAL
ATC	AUTOMATIC TEMPERATURE CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
BAT	BATTERY
BIS	BYPASS ISOLATOR SWITCH
C	CONDUIT
CATV	CABLE TELEVISION
CAB	CABINET
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CL	CENTERLINE
CM	CENTIMETER
CLG	CEILING
CO	COMPANY
COL	COLUMN
C/T	CURRENT TRANSFORMER
CW	COOL WHITE
DET	DETAIL
DIA	DIAMETER
DISC	DISCONNECT
DN	DOWN
DP	DISTRIBUTION PANEL
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DT	DUST TIGHT
DWG	DRAWING
EA	EACH
EC	ELECTRICAL CONTRACTOR
EL	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATOR
ES	ENERGY SAVING
EX	EXISTING
FDR	FEEDER
FLR	FLOOR
FLUO	FLUORESCENT
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTOR
GND	GROUND
HC	HUNG CEILING
HGT	HEIGHT
HID	HIGH INTENSITY DISCHARGE LAMP
HO	HIGH OUTPUT
HP	HORSE POWER
HPS	HIGH PRESSURE SODIUM
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
HZ	HERTZ
HV	HIGH VOLTAGE
IN	INCHES
INCAND	INCANDESCENT
JB	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT–AMPERES
KW	KILOWATT
L	LENGTH
LA	LIGHTNING ARRESTOR
LP	LIGHTING PANEL
LTG	LIGHTING
LV	LOW VOLTAGE
M	METER
MM	MILLIMETER
MCB	MAIN CIRCUIT BREAKER
MEC	MASS ELECTRIC COMPANY
MECH	MECHANICAL
MFR	MANUFACTURER
MLO	MAIN LUG ONLY
MISC	MISCELLANEOUS
MTD	MOUNTED
N	NEUTRAL
N/C	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHTING CKT
N/O	NORMALLY OPEN
NO	NUMBER
OC	ON CENTER
O/C	OVERCURRENT
OL	OVERLOAD
PB	PULL BOX
PH	PHASE
PNL	PANEL
PP	PUMP
PRI	PRIMARY
P/T	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PWR	POWER
RECEPT	RECEPTACLE
REC	RECESSED
RPA	RELAY PANEL
SEC	SECONDARY
SP	SPARE
SPECS	SPECIFICATIONS
SPKLR	SPRINKLER
SW	SWITCH
TB	TERMINAL BOARD
TEL	TELEPHONE
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
V	VOLTS
VA	VOLT AMPERAGE
VAC	VACUUM
VENT	VENTILATING
VFD	VARIABLE FREQUENCY DRIVE
VT	VAPOR TIGHT
W	WATT ON WIRE
W/	WITH
WP	WEATHERPROOF

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NEWTON SOUTH HIGH SCHOOL
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LEGEND, NOTES & ABBREVIATIONS

Revisions:

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E0.01

LIGHTING FIXTURE SCHEDULE

MOUNTING	FLUORESCENT	INCANDESCENT/HID	EXIT	
RECESSED	FR	R	XR	
CEILING/SURFACE	FC	C	XC	
PENDANT/SUSPENDED	FP	P	XP	
WALL	FW	W	XW	
TRACK	FT	T		

TYPE	DESCRIPTION	MANUFACTURER & CATALOG NUMBER	LAMPS		INPUT		REMARKS
			NUMBER	TYPE	VOLTS	WATTS	
FR1	RECESSED 2'x4' FLUORESCENT LIGHT FIXTURE	COLUMBIA LIGHTING: 4VS24-328G-FSDR12-EU	3	T5/28	UNI	84	FIXTURE TO MATCH EXISTING
FS2	WALL MOUNTED EMERGENCY EXTERIOR FIXTURE	HUBBELL: PGN-Z	4	LED	120	55	EMERGENCY VOLTAGE 6-12V CONNECT TO NEAREST EBU
⊗	LED UNIVERSAL EXIT	DUAL LITE: LXURWE	1	LED	120/6	3	FIXTURE TO MATCH EXISTING SEE LIGHTING NOTE #9
EB	EMERGENCY BATTERY UNIT	DUAL LITE: EZ-2	2	6V5W MR16	120/6	11	FIXTURE TO MATCH EXISTING

ALTERNATE LIGHTING FIXTURE SCHEDULE

MOUNTING	FLUORESCENT	INCANDESCENT/HID	EXIT	
RECESSED	FR	R	XR	
CEILING/SURFACE	FC	C	XC	
PENDANT/SUSPENDED	FP	P	XP	
WALL	FW	W	XW	
TRACK	FT	T		

TYPE	DESCRIPTION	MANUFACTURER & CATALOG NUMBER	LAMPS		INPUT		REMARKS
			NUMBER	TYPE	VOLTS	WATTS	
FR1	RECESSED 2'x4' LED LIGHT FIXTURE	COLUMBIA LIGHTING: LTGR24-35MWG-R-ESDU	1	LED	UNI	47.7	FIXTURE TO MATCH EXISTING

GENERAL LIGHTING NOTES

1. FURNISH ALL LIGHTING FIXTURES COMPLETE WITH MOUNTING ACCESSORIES TO MEET JOB REQUIREMENTS VERIFY FIXTURE MOUNTING AND LOCATION AGAINST ARCHITECTS PLANS, ELEVATIONS AND DETAIL DRAWINGS. EXACT LOCATION OF ALL FIXTURES SHALL BE CONFIRMED WITH THE ARCHITECT PRIOR TO ROUGHING IN.
2. SERIES FIXTURES SHALL SATISFY LENGTHS AS SHOWN ON THE DRAWINGS.
3. FIXTURE LETTERS SHOWN ONCE ON A CONTINUOUS ROW OF FIXTURES SHALL BE TYPICAL FOR THAT ROW UNLESS OTHERWISE NOTED.
4. ALL FIXTURES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE, INDEPENDENT OF HUNG CEILING WITH ROD OR JACK CHAIN SUPPORT. STEM LENGTHS, STEM FINISHES AND STEM LOCATIONS OF ALL PENDANT FIXTURES TO BE VERIFIED AND CONFIRMED BY OWNER, ARCHITECT AND ENGINEER PRIOR TO ORDERING STEMS.
5. ALL INCANDESCENT LAMPS SHALL BE RATED 120 VOLTS UNLESS OTHERWISE SPECIFIED.
6. ALL FLUORESCENT TUBE LAMPS SHALL BE ENERGY SAVING TYPE. SYLVANIA FLUORESCENT "OCTRON" OR APPROVED EQUAL.
7. ALL FLUORESCENT BALLAST'S UNLESS NOTED OTHERWISE SHALL BE 120V ELECTRONIC TYPE, U.L. APPROVED AS A COMBINATION WITH OCTRON LAMPS. ALL T8, FLUORESCENT AND COMPACT FLUORESCENT BALLAST'S SHALL BE OF THE HPF ELECTRONIC TYPE WHERE THAT OPTION IS AVAILABLE. WHERE HPF ELECTRONIC BALLAST'S ARE NOT AVAILABLE, USE PREMIUM LOW ENERGY HPF MAGNETIC BALLAST'S.
8. "ALTERNATE MANUFACTURER" AND "OR APPROVED EQUAL" MEANS EQUIVALENT OR SUPERIOR IN PERFORMANCE, MATERIALS, WORKMANSHIP AND APPEARANCE TO THE SPECIFIED EQUIPMENT.
9. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRANSFORMERS AND/OR BALLAST'S REQUIRED TO OPERATE ALL LAMPS SPECIFIED, INCLUDING REMOTE BALLAST'S AND/OR TRANSFORMERS AND THE ENCLOSURES FOR SAME. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF COMPATIBILITY BETWEEN LAMPS SPECIFIED, BALLAST'S AND/OR TRANSFORMERS SPECIFIED, AND DIMMING AND OTHER CONTROL DEVICES SPECIFIED. NOTIFY ARCHITECT AND ENGINEER CONSULTANT OF ANY INCOMPATIBILITY PRIOR TO ORDERING EQUIPMENT.
10. ELECTRICAL SUBCONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE COORDINATION OF ALL LIGHTING EQUIPMENT AND CONTROL DEVICES WITH CEILING AND WALL TYPES SPECIFIED PRIOR TO ORDERING LIGHTING EQUIPMENT.
11. IN ADDITION TO ANY SUBMITTAL REQUIREMENTS STATED IN ELECTRICAL SPECIFICATIONS OF CONTRACT DOCUMENTS, SHOP DRAWINGS AND PRODUCT DATA SUBMITTALS SHALL INCLUDE PHYSICAL DIMENSIONS, PHOTOMETRICS, SPECIFIC LAMP TYPE AND MOUNTING DETAILS.
12. PRELIMINARY AIMING OF ALL ADJUSTABLE LIGHTING EQUIPMENT SHALL BE DONE DURING INSTALLATION BY THE ELECTRICAL CONTRACTOR AS INDICATED ON THE LIGHTING PLANS/AIMING DIAGRAM, WHERE SUCH A DIAGRAM IS INCLUDED IN CONTRACT DOCUMENTS OR AS AN ADDENDUM. FINAL AIMING OF ALL ADJUSTABLE LIGHTING EQUIPMENT SHALL BE DONE BY THE ELECTRICAL CONTRACTOR AS DIRECTED BY THE ARCHITECT.
13. IN ALL FIXTURES WITH ADJUSTABLE SOCKETS, SET SOCKETS DURING INSTALLATION TO LOCATE SPECIFIED LAMP IN CORRECT RELATIONSHIP TO REFLECTOR AS RECOMMENDED BY FIXTURE MANUFACTURER.
14. INSTALL CONES IN WALLWASHERS WITH CUTOUT(S) IN INNER REFLECTOR FACING WALL(S) TO BE LIT.
15. UNLESS NOTED TO THE CONTRARY PROVIDE WHITE CEILING TRIMS FOR ALL RECESSED LUMINARIES.
16. WHERE CONTROL DEVICES WITH FINNED HEAT SINKS, SUCH AS LUTON "NOVA" SERIES, ARE SPECIFIED, FINS SHALL NOT BE REMOVED TO MAKE DEVICES FIT BOXES MORE CONVENIENTLY. REFER TO MANUFACTURERS SPECIFICATIONS FOR THE NUMBER OF GANG BOXES REQUIRED TO ACCOMMODATE THE SPECIFIED EQUIPMENT WITHOUT BREAKING OFF FINS.
17. RELAYS USED FOR CONTROL OF LIGHTING (IF ANY) SHALL BE LOCATED AND THE LOCATION SOUNDPROOFED SO AS TO BE INAUDIBLE FROM NORMALLY OCCUPIED AREAS WHEN ACTIVATED.
18. TO ASSURE THE MINIMIZATION OF NOISE, FIXTURES MUST BE MOUNTED SECURELY TO THE SUPPORTING STRUCTURE, AND ALL LOOSE INTERNAL PARTS MUST BE SECURELY TIGHTENED BEFORE ACTIVATING CIRCUITS. WHERE TRANSFORMERS HAVE SELECTOR SWITCHES TO ALLOW USE OF VARIOUS WATTAGE LAMPS, THESE SWITCHES MUST BE SET TO THE WATTAGE OF THE SPECIFIED LAMP. ELECTRICAL CONTRACTOR SHALL PROVIDE DIRECTIONAL ARROWS ON EXIT SIGNS AS INDICATED ON LIGHTING FLOOR PLANS.
19. ALL EXIT SIGNS SHALL BE SUPPLIED WITH AN INTERNAL, 90 MINUTE, EMERGENCY BATTERY. THE ELECTRICAL CONTRACTOR SHALL FIELD INSTALL BODINE "B50" EMERGENCY BALLAST WITH REMOTE TEST SWITCH.
20. IN AN ACCESSIBLE LOCATION FOR 2-LAMP EMERGENCY OPERATION OF FIXTURE. COORDINATE LIGHTING FIXTURE MOUNTING HEIGHTS WITH ARCHITECTURAL CASEWORK OR INTERIOR ELEVATION DRAWINGS.
21. COORDINATE EXACT LIGHTING FIXTURE LOCATIONS AND LENGTHS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
22. PROVIDE "HOT" UNSWITCHED POWER AT ALL LIFE SAFETY BATTERY BALLASTS AND EXIT SIGNS.
23. BRANCH CIRCUITS SHALL BE 3 WIRE WHERE REQUIRED. ALL EXIT SIGNS SHALL BE SUPPLIED WITH INTERNAL, 90 MINUTE, EMERGENCY BATTERY. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ANY STEP DOWN TRANSFORMERS, WIRING, AND CONTROLS FOR LOW VOLTAGE LIGHTING WHERE NECESSARY.
24. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MOUNTING HARDWARE APPLICABLE TO CEILING TYPE INTO WHICH FIXTURE IS TO BE INSTALLED. REFER TO ARCHITECTS REFLECTED CEILING PLAN FOR CEILING MATERIALS.
25. ALL EMERGENCY BATTERY PACKS SHALL BE SUPPLIED WITH CONTACTS TO ACCEPT REMOTE EMERGENCY HEADS.
26. WHERE NECESSARY, WHERE LIGHT FIXTURES ARE INSTALLED IN RATED CEILING, THE CONTRACTOR SHALL PROVIDE HOUSING SUITABLE FOR THAT APPLICATION. UL LISTED FIRE RATED BOX ELCO FIRE BOX OR EQUAL.
27. COORDINATE WITH THE ARCHITECTURAL DRAWING THE CEILING TYPES AND PROVIDE IC RATINGS WERE REQUIRED.
28. ALL FIXTURES UTILIZING HID LAMPS SHALL MEET THE ENERGY INDEPENDENT AND SECURITY ACT "EISA".

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

LIGHTING NOTES:

1. SEE DRAWING E0.01 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. COORDINATE LIGHTING FIXTURE MOUNTING HEIGHTS WITH ARCHITECTURAL CASEWORK AND INTERIOR ELEVATION DRAWINGS.
3. COORDINATE EXACT LIGHTING FIXTURE LOCATIONS AND LENGTHS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
4. CIRCUIT NUMBER DESIGNATIONS ARE INTENDED TO ILLUSTRATE BRANCH WIRING CONFIGURATION ONLY.
5. ELECTRICAL CONTRACTOR SHALL COORDINATE AND CONFIRM K RATING (TEMPERATURE) OF FIXTURE LAMPS TO ACHIEVE COLOR AS PER ARCHITECT. LAMPS SHALL BE 3500K UNLESS NOTED OTHERWISE.
6. PROVIDE "HOT" UNSWITCHED POWER AT ALL LIFE SAFETY BATTERY BALLASTS AND EXIT SIGNS. BRANCH CIRCUITS SHALL BE 3 WIRE WHERE REQUIRED. ALL EXIT SIGNS SHALL BE SUPPLIED WITH INTERNAL, 90 MINUTE, EMERGENCY BATTERY.
7. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ANY STEP DOWN TRANSFORMERS, WIRING, AND CONTROLS FOR LOW VOLTAGE LIGHTING WHERE NECESSARY.
8. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MOUNTING HARDWARE APPLICABLE TO FIXTURE AND CEILINGS TYPE INTO WHICH FIXTURE IS TO BE INSTALLED. REFER TO ARCHITECTS REFLECTED CEILING PLAN FOR CEILING MATERIALS.
9. ALL EMERGENCY BATTERY PACKS SHALL BE SUPPLIED WITH CONTACTS TO ACCEPT REMOTE EMERGENCY HEADS.
10. CONTRACTOR SHALL COORDINATE ALL LIGHTING WITH NEW SYSTEMS ABOVE CEILING PRIOR TO INSTALLATION. CONTRACTOR SHALL RESOLVE ANY INSTALLATION CONFLICTS IN FIELD AND NOTIFY ARCHITECT AND ENGINEER OF CHANGE.
11. WHERE LIGHT FIXTURES ARE LOCATED WITHIN RATED CEILINGS OR WALLS, THE THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A UL APPROVED FIRE RATED ENCLOSURE. PROVIDE ELCO FIRE BOX OR APPROVED EQUAL.
12. COORDINATE WITH THE ARCHITECTURAL DRAWING THE CEILING TYPES AND PROVIDE IC RATINGS WERE REQUIRED.
13. ALL EXPOSED AND SURFACE MOUNTED RACEWAY SHALL BE WIREMOLD OR EQUAL. COORDINATE ROUTING WITH ARCHITECT.
14. ALL FIXTURES UTILIZING HID LAMPS SHALL MEET THE ENERGY INDEPENDENT AND SECURITY ACT "EISA"
15. ALL SWITCHED EMERGENCY LIGHTS SHALL HAVE EMERGENCY BYPASS RELAYS OR EQUIVALENT RELAYS PROVIDED WITH DIMMING CONTROLS SYSTEM TO BRING LIGHTS UP TO 100% LEVEL DURING A FIRE ALARM EVENT.
16. ALL FLOOR/CEILING CONNECTIONS SHALL BE FIRE STOPPED.
17. ALL EXISTING TO REMAIN LIGHT FIXTURES SHALL BE CLEANED AND RE-LAMPED. (TYPICAL)

ELECTRICAL KEYED NOTES:

1. EXISTING 2'x4' RECESSED LENS TYPE FIXTURES TO REMAIN/RELOCATED. ELECTRICAL CONTRACTOR SHALL CLEAN AND RE-LAMP. TYPICAL FOR ALL EXISTING (ETR) TO BE RE-USED LIGHT FIXTURES. REFER TO LIGHTING FIXTURE SCHEDULE FOR ALTERNATE 2'x4' LIGHT FIXTURE.
2. FURNISH AND INSTALL NEW DEVICES IN CORRIDOR 018. ALL DEVICES SHALL MATCH EXISTING BUILDING STANDARDS.
3. NEW 100A PANEL 'PP-1'. REFER TO POWER PLAN FOR ADDITIONAL INFORMATION.
4. EXISTING BATTERY UNITS SHALL BE CHARGED AND TESTED FOR COMPLIANCE. IF EBU'S CANNOT COMPLY WITH MINIMUM OF 90 MINUTES ON BATTERY OPERATION. EBU'S SHALL BE REPLACED WITH NEW. (TYP)
5. PROVIDE NEW LIGHT FIXTURES IN NEW CORRIDOR AS NOTED. RECONNECT TO EXISTING LIGHTING CIRCUIT.
6. EXISTING EXTERIOR WALL MOUNTED LIGHT FIXTURE SHALL BE REPLACED AND RELOCATED AS NOTED. REFER TO LIGHTING FIXTURE SCHEDULE.
7. NEW EXTERIOR WALL MOUNTED LIGHT FIXTURE. REFER TO LIGHTING FIXTURE SCHEDULE.

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LIGHTING PLAN

Revisions:

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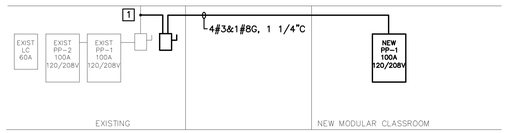
E1.01

NEW LOAD CENTER SCHEDULE													
PANEL: PP-1			WIRES: 3			MOUNTING: R			TOTAL POLES: 24				
PHASE: 3			VOLT: 120/208			AIC: 10K			MAINS: 100 MLO				
	DESCRIPTION OF LOAD	LOAD (KVA) A	LOAD (KVA) B	BREAKER TRIP	BREAKER POLE	BREAKER POLE	BREAKER TRIP	LOAD (KVA) A	LOAD (KVA) B	DESCRIPTION OF LOAD	
1	RECEPTACLES			20	1	1	20			LIGHTING	2
3	RECEPTACLES			20	1	1	20			LIGHTING	4
5	RTU			30	/	1	20			LIGHTING	6
7	"			/	2	1	20			RTU RECEPT.	8
9	RTU			30	/	/	20			SPARE	10
11	"			/	2	2	/				12
13	SPARE			20	1	1	20			RTU RECEPT.	14
15	SPARE			20	1	1	20			SPARE	16
17	SPARE			20	1	1	20			SPARE	18
19	SPACE									SPACE	20
21	SPACE									SPACE	22
23	SPACE									SPACE	24
	SUBTOTAL CONNECTED									SUBTOTAL CONNECTED	
SUBTOTAL CONNECTED KVA A =													
SUBTOTAL CONNECTED KVA B =													
TOTAL CONNECTED KVA =													

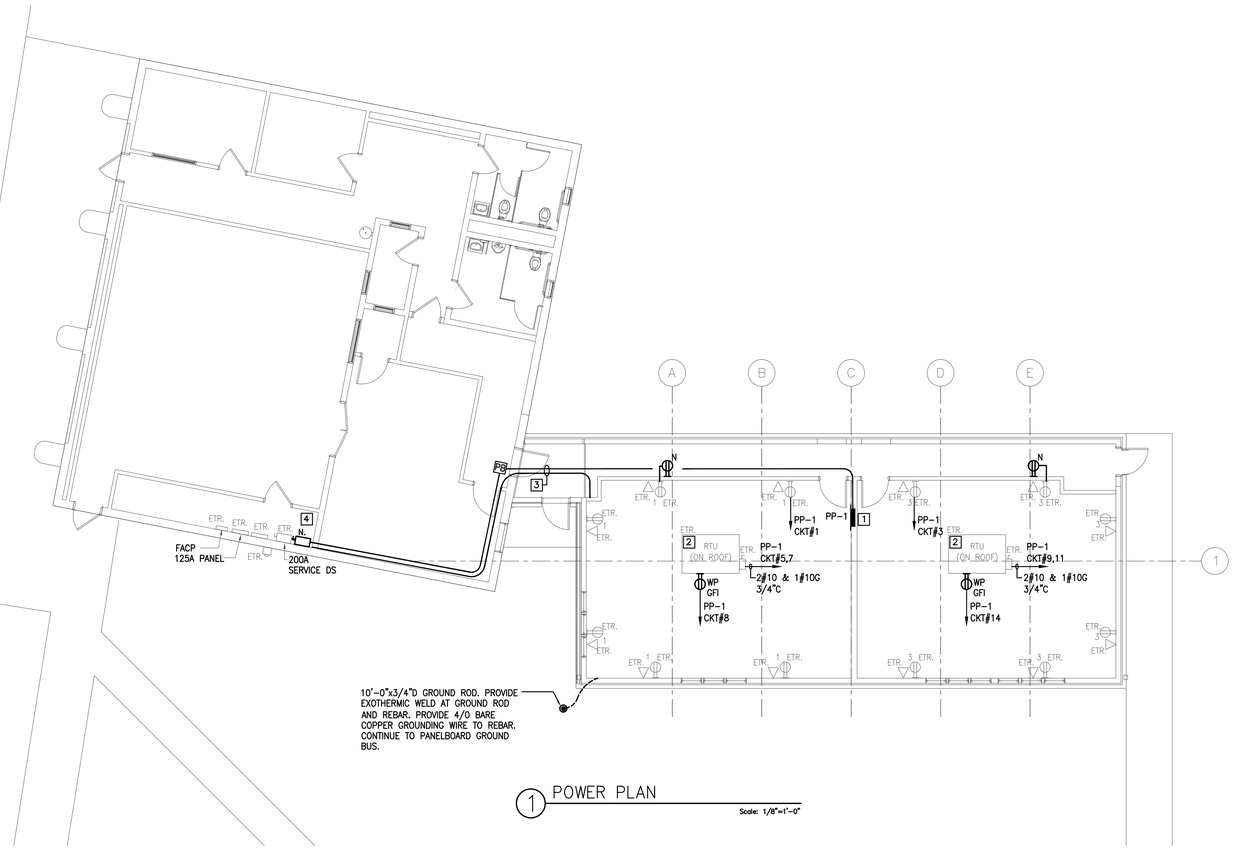


RISER KEYED NOTES:

1. E.C. SHALL TAP EXISTING SERVICE AS NOTED. PROVIDE DISCONNECT SWITCH TO SERVICE NEW PANEL PP-1

2 POWER RISER DIAGRAM

Scale: N.T.S.



1 POWER PLAN

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

POWER/COMM DRAWING NOTES:

1. SEE DRAWING E0.01 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. COORDINATE EXACT ELECTRICAL DEVICE MOUNTING HEIGHTS AND LOCATIONS WITH ARCHITECTURAL CASEWORK OR ARCHITECTURAL INTERIOR/EXTERIOR ELEVATION DRAWINGS.
3. COORDINATE COLOR OF RECEPTACLE FACEPLATES AND DEVICES WITH ARCHITECT PRIOR TO ORDERING EQUIPMENT.
4. ALL NEW EQUIPMENT SHALL MATCH BASE BUILDING STANDARDS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE.
5. CIRCUIT NUMBER DESIGNATIONS ARE INTENDED TO ILLUSTRATE BRANCH WIRING CONFIGURATION ONLY.
6. DEVICES SHALL BE COORDINATED WITH THE DEPTH OF NEW PARTITIONS.
7. ALL POWER/DATA OUTLET FACEPLATES SHALL BE LABELED WITH CIRCUIT NUMBER FEEDING OUTLET AND PANEL DESIGNATION. LABEL STYLE AND SIZE SHALL MATCH BASE BUILDING STANDARDS. CONTRACTOR SHALL COORDINATE COLOR, SIZE AND METHOD OF LABELING WITH ARCHITECT.
8. ALL EXPOSED AND SURFACE MOUNTED CONDUIT SHALL BE GALVANIZED RIGID STEEL.
9. IN ROOMS WITH CMU WALLS ALL NEW CONDUITS, OUTLETS AND PLUGMOLD ETC. SHALL BE SURFACE MOUNTED. (TYPICAL)

ELECTRICAL KEYED NOTES:

1. NEW PANELBOARD 'PP-1'. REFER TO PANELBOARD SCHEDULE FOR ADDITIONAL INFORMATION.
2. EXISTING RTU'S, REUSE EXISTING DISCONNECT SWITCH AND FEED FROM NEW PANELBOARD.
3. (2)2" CONDUITS RUN IN CEILING SPACE TO MODULAR CLASSROOMS. (1)2"C FOR POWER W/ 4#3,&1#8G TO PANEL PP-1. (1)2" COMMUNICATIONS CONDUIT. COORDINATE WITH NHS IT DEPARTMENT FOR WIRING REQUIREMENTS. COORDINATE EXACT CONDUIT ROUTING IN FIELD.
4. ELECTRICAL CONTRACTOR SHALL TAP EXISTING SERVICE AHEAD OF THE SERVICE DISCONNECT. PROVIDE SERVICE DISCONNECT TO FEED NEW PANEL 'PP-1'.

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POWER PLAN

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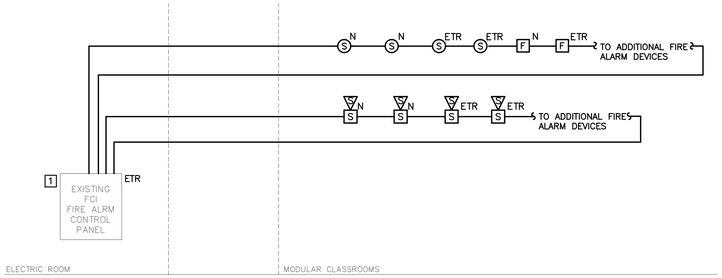
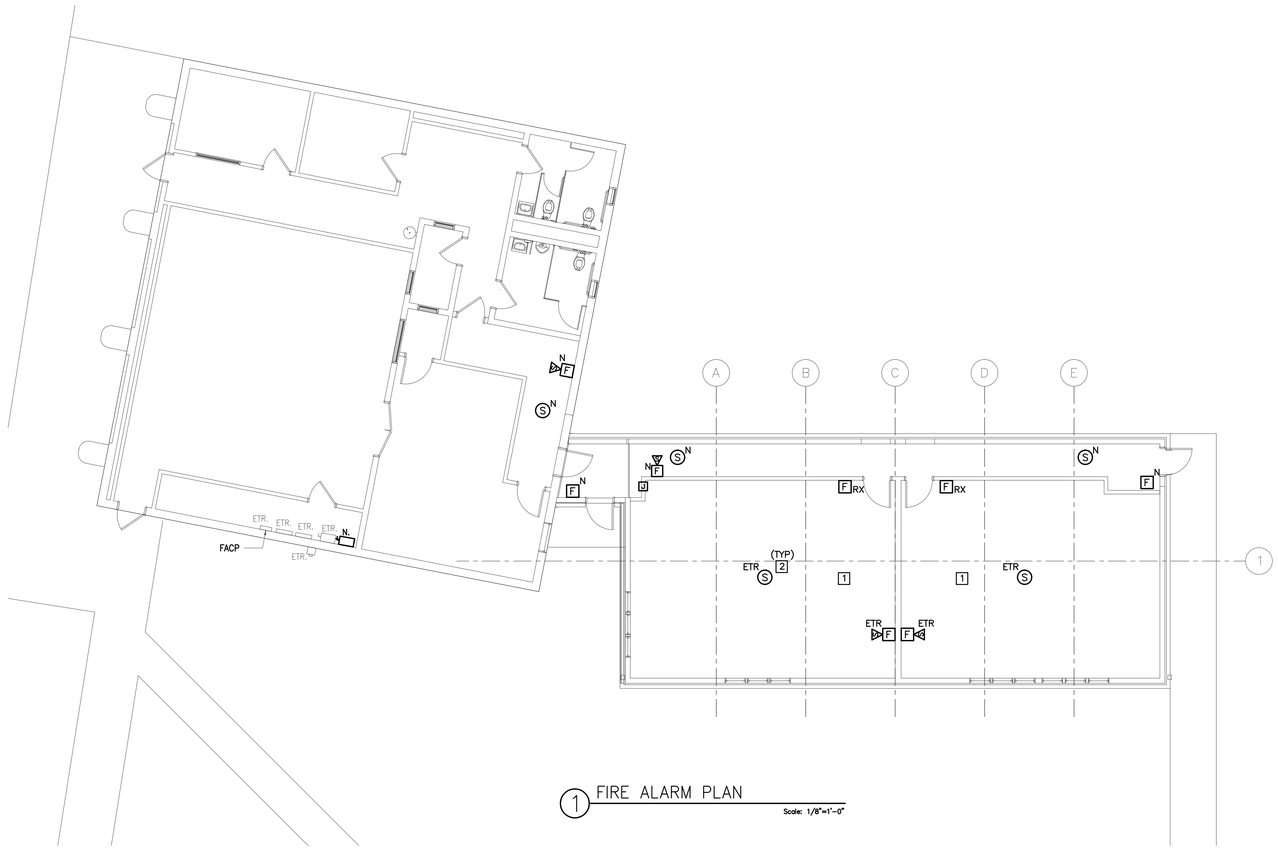


2 PARTIAL FIRE ALARM RISER DIAGRAM

Scale: NTS



1 FIRE ALARM PLAN

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

FIRE ALARM NOTES:

1. SEE DRAWING E0.01 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. COORDINATE EXACT ELECTRICAL DEVICE MOUNTING HEIGHTS AND LOCATIONS WITH ARCHITECTURAL CASEWORK OR ARCHITECTURAL INTERIOR/EXTERIOR ELEVATION DRAWINGS.
3. CIRCUIT NUMBER DESIGNATIONS ARE INTENDED TO ILLUSTRATE BRANCH WIRING CONFIGURATION ONLY.
4. DEVICES SHALL BE COORDINATED WITH THE DEPTH OF NEW PARTITIONS.
5. ALL EXPOSED AND SURFACE MOUNTED CONDUIT SHALL BE GALVANIZED RIGID STEEL.
6. REFER TO LOCAL FIRE PREVENTION RULES AND REGULATIONS FOR ADDITIONAL INFORMATION.
7. FIRE ALARM CABLE SHALL BE RED ARMORED CABLE.
8. FIRE ALARM DEVICES AND COMPONENTS SHALL BE WIRED BACK TO THE FIRE ALARM CONTROL PANEL. ALL FIRE ALARM STROBES TO BE SYNCHRONIZED. PROVIDE A COMPLETE TEST OF THE ENTIRE FIRE ALARM SYSTEM UPON COMPLETION OF THE INSTALLATION THE SYSTEM SHALL MEET ALL REQUIREMENTS OF THE NFPA AND LOCAL CODES. COORDINATE EXACT REQUIREMENTS WITH LOCAL FIRE DEPARTMENT PRIOR TO WORK BEING PERFORMED.

FIRE ALARM SYSTEM NOTES:

1. REFER TO FLOOR PLAN FOR EXACT LOCATIONS AND QUANTITIES OF ALL DEVICES. REFER TO DRAWING E0.01 FOR SYMBOLS, LEGENDS AND SCHEDULES
2. REFER TO THE SPECIFICATIONS FOR ADDITIONAL FIRE ALARM SYSTEM REQUIREMENTS.
3. ALL FIRE ALARM SYSTEM RACEWAY SIZES AND CIRCUITRY REQUIREMENTS SHALL BE IN ACCORDANCE WITH EQUIPMENT MANUFACTURERS RECOMMENDATIONS AND ALL CODES THAT MAY APPLY.
4. CABLING MUST BE UNIQUELY IDENTIFIED AND LABELED, AND A PERMANENT, ACCURATE RECORD OF THE IDENTIFICATION AND USE OF EACH CABLE MUST BE MADE AT THE TIME OF INSTALLATION. LABELING IS TO BE DONE WITH PERMANENT MARKERS ON CLEAR MYLAR TAPE. THE TAPE SHALL BE LONG ENOUGH SO WHEN WRAPPED AROUND THE CABLE IT WILL WRAP OVER ITSELF, PROTECTING THE WRITING.
5. SPACE DETECTORS IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDED DISTANCE. PROVIDE ADDITIONAL DETECTORS WHERE REQUIRED.
6. ALL LOW VOLTAGE FIRE ALARM CIRCUITS MAY OCCUPY A COMMON CONDUIT. RUN AC POWER AND CONTROL WIRING (FAN SHUTDOWN, ETC.) IN SEPARATE CONDUIT. DO NOT RUN WITH ANY OTHER FIRE ALARM SYSTEM WIRING IN A COMMON CONDUIT.
7. ALL CONDUIT, MOUNTING BOXES AND PANELS SHALL BE HUNG AND FASTENED WITH FITTINGS TO ENSURE POSITIVE GROUNDING THROUGHOUT THE ENTIRE SYSTEM.
8. TRANSPOSING OR CHANGING COLOR CODING OF WIRES IS NOT PERMITTED. ALL CONDUCTORS IN CONDUIT CONTAINING MORE THAN ONE WIRE SHALL BE LABELED ON EACH END WITH "E-Z MARKERS".
9. CONDUCTORS IN CABINETS SHALL BE FORMED AND HARNESSED SO THAT EACH DROPS OFF DIRECTLY OPPOSITE TO ITS TERMINAL.
10. ALL WIRING SHALL BE CHECKED AND TESTED TO ENSURE THAT THERE ARE NO GROUNDS, OPENS, OR SHORTS.
11. WIRING COLOR CODES SHALL BE CONSISTENT THROUGHOUT THE SYSTEM AND SHALL ALLOW FOR EASY IDENTIFICATION OF INITIATING, INDICATING AND AUXILIARY CONTROLS CIRCUITS.
12. ALL STROBES SHALL BE SYNCHRONIZED AT END OF CONSTRUCTION.
13. ALL FIRE ALARM WIRING SHALL BE "CLASS A".
14. COORDINATE ALL WORK WITH BUILDING FIRE ALARM CONTRACTOR.

ELECTRICAL KEYED NOTES:

1. EXISTING FIRE ALARM DEVICES TO REMAIN AND BE REUSED. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND QUANTITIES OF DEVICES. DEVICES SHALL BE RELOCATED IF REQUIRED. DEVICES SHALL BE REWIRED BACK TO THE FACP LOCATED IN THE MAIN ELECTRIC ROOM.
2. EXISTING TO REMAIN FIRE ALARM DEVICES SHALL BE WIRED BACK TO EXISTING FIRE ALARM CONTROL PANEL. PROVIDE AN INITIATION AND NOTIFICATION CIRCUIT. PROVIDE FIRE ALARM RATED CABLE. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION

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FIRE ALARM PLAN

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A. GENERAL

1. THE GENERAL CONDITIONS AS DESCRIBED IN DIVISION 1 SHALL APPLY TO WORK OF THIS SECTION. WHERE PARAGRAPHS OF THIS SECTION CONFLICT WITH SIMILAR PARAGRAPHS OF DIVISION 1, REQUIREMENTS OF THIS SECTION SHALL PREVAIL.

1A. THE BASE BUILDING STANDARDS AND SPECIFICATIONS SHALL APPLY TO WORK OF THIS SECTION. WHERE PARAGRAPHS OF THIS SECTION CONFLICT WITH SIMILAR PARAGRAPHS OF BASE BUILDING STANDARDS AND SPECIFICATIONS, THE BASE BUILDING STANDARDS AND SPECIFICATIONS SHALL PREVAIL.

2. THE SCOPE OF WORK UNDER THIS SECTION, WITHOUT LIMITING THE GENERALITY THEREOF, INCLUDES THE FURNISHING OF ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, AND INCIDENTALS NECESSARY TO COMPLETE ALL ELECTRICAL WORK IN ACCORDANCE WITH THE INTENT OF THE SPECIFICATIONS AND THE DRAWINGS. THE WORK SHALL CONSIST OF BUT NOT NECESSARILY BE LIMITED TO THE FOLLOWING:

a. TEMPORARY LIGHT AND POWER.

b. GROUNDING.

c. RACEWAY SYSTEM.

d. WIRE AND CABLE.

e. LIGHTING FIXTURES.

f. WIRING DEVICES AND PLATES.

g. FIRE ALARM SYSTEM.

h. MOTOR CONNECTIONS AND CONTROLS.

i. SAFETY SWITCHES.

j. POWER WIRING FOR HVAC EQUIPMENT.

k. TESTING.

l. OPERATING AND MAINTENANCE INSTRUCTION MANUALS

m. RECORD DRAWINGS.

3. RELATED WORK BY OTHERS AND INCLUDED UNDER OTHER SECTIONS OF THE SPECIFICATIONS:

a. CUTTING AND PATCHING, SPECIFIED IN UNIT MASONRY.

b. PAINTING, SPECIFIED IN PAINTING.

c. PLUMBING, SPECIFIED IN PLUMBING.

d. HVAC, SPECIFIED IN HVAC.

4. THE DRAWINGS ARE, DIAGRAMMATIC AND ARE INTENDED TO CONVEY THE SCOPE OF WORK; INDICATE THE GENERAL ARRANGEMENT OF EQUIPMENT, CONDUIT AND THE LIKE; AND SHOW THE APPROXIMATE SIZES OF EQUIPMENT. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS PRACTICAL IN LAYING OUT WORK AND VERIFY ALL SPACES IN WHICH THE WORK UNDER THIS SECTION IS TO BE INSTALLED.

a. IT IS THE INTENT OF THE CONTRACT DOCUMENTS TO PROVIDE COMPLETE OPERATING SYSTEMS. OMISSION FROM THE SPECIFICATIONS OR DRAWINGS OF ANY DETAILS OF CONSTRUCTION, INSTALLATION, MATERIALS OR SPECIALISTS NECESSARY FOR A SAFELY OPERABLE SYSTEM SHALL NOT RELIEVE THIS CONTRACTOR OF FURNISHING AND INSTALLING THE MATERIALS, FITTINGS OR ACCESSORIES REQUIRED FOR THE FURNISHING AND INSTALLATION OF COMPLETE AND OPERATIONAL SYSTEMS.

b. MODIFICATIONS OF CATALOG CUTS THAT MAY BE REQUIRED IN THE EVENT OF CONFLICTS BETWEEN THE PERFORMANCE AND DESCRIPTION OF EQUIPMENT OR MATERIAL AND THE IMPLICATION OF MANUFACTURER'S CATALOG NUMBER, THE PERFORMANCE AND DESCRIPTION SHALL GOVERN.

c. DISCREPANCIES BETWEEN THE DRAWINGS AND SPECIFICATIONS SHALL BE REFERRED TO THE ARCHITECT FOR INTERPRETATION BEFORE PROCEEDING WITH THE WORK. IF THIS CONTRACTOR PROCEEDS WITH THE WORK WITHOUT REFERRING DISCREPANCIES TO THE ARCHITECT FOR INTERPRETATION, HE SHALL DO SO AT HIS OWN RISK AND MAKE ALL CHANGES TO MEET THE ARCHITECT'S INTERPRETATION OF THE BID DOCUMENTS ABOUT REQUESTING ADDITIONAL COMPENSATION.

5. THE INSTALLATION SHALL COMPLY WITH THE REGULATIONS OF THE NATIONAL ELECTRICAL CODE, CITY BUILDING DEPARTMENT, NATIONAL ELECTRICAL SAFETY CODE, THE REQUIREMENTS OF THE CITY FIRE DEPARTMENT, AND WIRE INSPECTOR, AND ALL LEGALLY CONSTITUTED AUTHORITIES HAVING JURISDICTION. WHERE THE DRAWINGS AND/OR SPECIFICATION REQUIREMENTS EXCEED THE REQUIREMENTS OF THE APPLICABLE CODES THE REQUIREMENTS SPECIFIED IN THE CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE.

6. MATERIALS AND EQUIPMENT SHALL BE NEW AND COMPLY WITH THE APPLICABLE STANDARDS OF THE FOLLOWING AUTHORITIES, EXCEPT WHERE THE CONTRACT DOCUMENTS PRESCRIBE MORE RIGOROUS QUALIFICATIONS, THE DOCUMENTS SHALL GOVERN: UNDERWRITERS' LABORATORIES, INC. (UL) NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA) INSTITUTE OF ELECTRIC AND ELECTRONIC ENGINEERS (IEEE) AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM) AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA) OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AMERICANS WITH DISABILITIES ACT (ADA)

7. THE SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT THIS CONTRACTOR HAS VISITED THE SITE AND HAS MADE A THOROUGH EXAMINATION OF THE EXISTING CONDITIONS. CLAIMS FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED FOR DIFFICULTIES ENCOUNTERED SHALL BE BORNE BY THE BIDDER.

8. SHOP DRAWINGS SHALL BE SUBMITTED IN ACCORDANCE WITH THE REQUIREMENTS OF DIVISION 1.

a. LIST OF SHOP DRAWINGS REQUIRED:

1) WIRING DEVICES

2) LIGHTING FIXTURES

3) SAFETY SWITCHES

4) FIRE ALARM EQUIPMENT

5) WIRE AND CABLE

6) CERTIFIED TEST REPORTS

7) ITEMS NOT SPECIFICALLY LISTED ABOVE THAT MAY BE REQUESTED BY THE ARCHITECT PRIOR TO THE FORMAL SUBMISSION OF SHOP DRAWINGS.

9. GIVE ALL NOTICES, FILE ALL PLANS AND OBTAIN ALL NECESSARY APPROVALS FROM AUTHORITIES HAVING JURISDICTION REQUIRED FOR THE ELECTRICAL WORK AND FOR THE USE OF SAME BY THE ARCHITECT AT THE COMPLETION OF CONSTRUCTION. ALL CERTIFICATES OF INSPECTION, TEST RESULTS AND APPROVALS SHALL BE TURNED OVER TO THE OWNER AND ARCHITECT PRIOR TO THE FINAL ACCEPTANCE OF THE PROJECT BY THE ARCHITECT. SECURE AND PAY FOR ALL REQUIRED PERMITS, INSPECTIONS AND LICENSES NECESSARY FOR, AND INCIDENTAL TO THE INSTALLATION OF THE ELECTRICAL WORK AND THE USE OF SUCH WORK WHEN COMPLETED.

10. WHERE EQUIPMENT IS IDENTIFIED BY MANUFACTURER AND CATALOG NUMBER, IT SHALL BE CONSTRUED AS THE BARE OR REQUIREMENTS FOR QUALITY AND PERFORMANCE. WHERE MANUFACTURERS FOR EQUIPMENT ARE IDENTIFIED BY NAME, THE CONTRACTOR MAY SUBMIT FOR APPROVAL SIMILAR EQUIPMENT OF OTHER MANUFACTURERS AS SUBSTITUTION, PROVIDED HE COMPLIES WITH THE REQUIREMENTS OF DIVISION 1. THE ARCHITECT'S DECISION AS TO WHETHER THE SUBMITTED EQUIPMENT IS ACCEPTABLE SHALL BE FINAL AND BINDING. CHANGES NECESSARY TO ACCOMMODATE THE SUBSTITUTED EQUIPMENT SHALL BE MADE AT THIS CONTRACTOR'S EXPENSE, AND SHALL BE AS APPROVED BY THE ARCHITECT. DETAILED DRAWINGS INDICATING THE REQUIRED CHANGES SHALL BE SUBMITTED FOR APPROVAL AT THE TIME THE SUBSTITUTION IS REQUESTED.

11. SUBMIT SAMPLES AS REQUESTED BY THE ARCHITECT FOR HIS APPROVAL IN ACCORDANCE WITH THE PROVISIONS OF DIVISION 1.

12. ELECTRICAL EQUIPMENT SHALL BE MOUNTED AT THE FOLLOWING HEIGHTS UNLESS OTHERWISE NOTED OR DETAILED ON THE ELECTRICAL OR ARCHITECTURAL DRAWINGS. NOTES ON ARCHITECTURAL DRAWINGS SHALL SUPERSEDE THOSE NOTED ON OR DETAILED ON THE ELECTRICAL DRAWINGS. IF THE MOUNTING HEIGHT OF ANY ELECTRICAL COMPONENT IS QUESTIONABLE, OBTAIN CLARIFICATION FROM THE ARCHITECT BEFORE INSTALLATION.

a. LIGHT SWITCHES, PUSHBUTTON STATIONS, HOA SWITCHES, SELECTOR SWITCHES, AND ALL OTHER TOGGLE OR CONTROL SWITCHES -- 4 FEET ABOVE FINISHED FLOOR TO CENTERLINE.

b. FIRE ALARM PULL STATIONS - 4 FEET, 0 INCHES ABOVE FINISHED FLOOR.

c. FIRE ALARM HORN AND FLASHING LIGHT ASSEMBLY -- 6 FEET, 8 INCHES ABOVE FINISHED FLOOR TO THE BOTTOM

d. SAFETY SWITCHES, SERVICE SWITCHES AND INDIVIDUALLY MOUNTED STARTERS AND CONTACTORS FOR THE CONTROL, OPERATION OR ISOLATION OF MOTORIZED EQUIPMENT -- 5 FEET, 0 INCHES MINIMUM TO CENTERLINE ABOVE THE

FINISHED FLOOR UNLESS NOTED OTHERWISE ON THE DRAWINGS OR AS REQUIRED TO SUIT FIELD INSTALLATION CONDITIONS AND WITH THE PERMISSION OF THE ARCHITECT.

13. EXCHANGE OF INFORMATION:

a. ALL INFORMATION RELATIVE TO REQUIRED OPENINGS, EQUIPMENT SIZES, SEQUENCE OF INSTALLATION AND INTERFACING REQUIREMENTS WITH OTHER SECTIONS OF THE SPECIFICATIONS SHALL BE PROVIDED SUFFICIENTLY IN ADVANCE TO ALLOW FOR PROPER PLANNING IN THE OVERALL CONSTRUCTION SCHEDULE.

b. THE WORK MUST BE PERFORMED SO THAT THE PROGRESS OF THE ENTIRE CONSTRUCTION PROJECT INCLUDING THE WORK UNDER OTHER SECTIONS OF THE SPECIFICATION WILL NOT BE DELAYED OR INTERFERED WITH. MATERIALS AND EQUIPMENT SHALL BE INSTALLED AS FAST AS CONSTRUCTION CONDITIONS OF THE PROJECT WILL PERMIT AND SHALL BE INSTALLED PROMPTLY.

c. COORDINATE THE ROUTING AND TERMINATION POINTS OF ALL ELECTRICAL WORK WITH APPROVED SHOP DRAWINGS OF OTHER SECTIONS OF THE SPECIFICATIONS REQUIRING ELECTRICAL CONNECTIONS TO ALLOW FOR THE PROPER INTERFACING OF SAME.

d. THIS CONTRACTOR SHALL CONFORM AND COORDINATE THE LOCATIONS OF ALL MATERIALS AND EQUIPMENT SPECIFIED UNDER OTHER SECTIONS OF THE SPECIFICATION AS RELATED TO THE INSTALLATION OF THE ELECTRICAL SYSTEM UNDER THIS SECTION TO AVOID CONFLICTS.

e. ASCERTAIN FROM APPROVED SHOP DRAWINGS OF OTHER SECTIONS ALL INFORMATION RELATIVE TO ELECTRICAL WORK TO BE EXECUTED UNDER THIS SECTION FOR THE INSTALLATION AND OPERATION OF APPROVED ELECTRICAL EQUIPMENT.

14. EXAMINE THE ARCHITECTURAL DRAWINGS FOR THE LOCATIONS OF SUITABLE OPENINGS AND AISLES AVAILABLE FOR THE PASSAGE OF MATERIALS AND APPARATUS TO BE INSTALLED UNDER THIS SECTION. THIS SECTION SHALL INCLUDE THE RESPONSIBILITY FOR HAVING THE OPENINGS LEFT OPEN UNTIL THE EQUIPMENT HAS BEEN PROPERLY INSTALLED.

15. RECEIVE AND ACCEPT AT THE SITE, PROPERLY HANDLE, HOUSE AND PROTECT FROM INJURY AND THE WEATHER UNTIL READY FOR INSTALLATION. MATERIALS, EQUIPMENT AND APPARATUS FURNISHED UNDER THIS SECTION. ALSO, ELECTRICAL CONTROL EQUIPMENT FURNISHED UNDER OTHER SECTIONS OF THE SPECIFICATIONS AND TO BE INSTALLED UNDER THIS SECTION. EQUIPMENT DAMAGED IN THE COURSE OF HANDLING, INSTALLATION OR TEST SHALL BE REPLACED UNDER THIS SECTION OR REPAIRED TO THE SATISFACTION OF THE ARCHITECT WITHOUT ANY ADDITIONAL CHARGE.

16. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR FOR THE MAINTENANCE AND PROTECTION OF ALL MATERIALS AND EQUIPMENT PROVIDED DURING ALL PHASES OF CONSTRUCTION FROM LOSS DAMAGE OR DETERIORATION UNTIL FINAL ACCEPTANCE BY THE ARCHITECT.

17. THIS CONTRACTOR SHALL BE HELD RESPONSIBLE FOR AND SHALL PAY FOR ALL DAMAGE TO OTHER WORK CAUSED BY HIS WORK OR WORKMEN.

18. THE COMPLETION OF THE DAILY WORK, THIS CONTRACTOR SHALL REMOVE FROM THE PROPERTY ALL RUBBISH OR WASTE MATERIALS BELONGING TO HIM. KEEP THE JOB SITE FREE FROM ACCUMULATION OF WASTE MATERIALS AND RUBBISH.

19. WORK SHALL NOT BE PERMANENTLY CONCEALED BEFORE INSPECTION AND APPROVAL BY THE ARCHITECT, AND ALL INSPECTORS AND AUTHORITIES HAVING JURISDICTION.

20. UPON COMPLETION OF ALL WORK, FURNISH THE ARCHITECT, IN DUPLICATE, CERTIFICATES OF INSPECTION OR APPROVAL FROM STATE AND LOCAL INSPECTION AUTHORITIES HAVING JURISDICTION.

21. WORK UNDER THIS SECTION SHALL BE GUARANTEED FREE FROM DEFECTS AS REQUIRED UNDER DIVISION 1.

22. THE CONTRACTOR SHALL REFER TO DIVISION 1 OF THE SPECIFICATIONS FOR THE REQUIREMENTS AND PROCEDURES PERTAINING TO THE RECORD DOCUMENTS.

23. SAFETY REGULATIONS ESTABLISHED BY OSHA SHALL BE MAINTAINED THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT.

24. THE UNDERTAKING OF PERIODIC INSPECTIONS BY THE ARCHITECT OR ARCHITECT'S REPRESENTATIVE SHALL NOT BE CONSTRUED AS SUPERVISION OF ACTUAL CONSTRUCTION NOR MAKE EITHER OF THEM RESPONSIBLE FOR PROVIDING A SAFE PLACE FOR THE PERFORMANCE OF WORK BY THIS CONTRACTOR, FOR VISITORS TO THE SITE OR OCCUPANTS NOR MAKE THEM RESPONSIBLE FOR OMISSION OF ANY SAFETY DEVICE CALLED FOR BY CODES, ORDINANCES OR BY THE SPECIFICATIONS OF THE MANUFACTURERS OF THE EQUIPMENT SUPPLIED. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A SAFE PROJECT ELECTRICALLY FOR ALL WORKMAN, VISITORS AND OCCUPANTS UNTIL THE PROJECT HAS BEEN ACCEPTED BY THE OWNER.

25. ELECTRICAL EQUIPMENT SHALL OPERATE UNDER CONDITIONS OF LOAD WITHOUT SOUND OR VIBRATION WHICH IS ABNORMALLY OBJECTIONABLE FOR SUCH EQUIPMENT IN THE OPINION OF THE ARCHITECT. SOUND OR VIBRATION NOTICEABLE OUTSIDE OF THE ROOM IN WHICH IT IS INSTALLED, OR ANNOYINGLY NOTICEABLE INSIDE ITS OWN ROOM WILL BE CONSIDERED OBJECTIONABLE. SOUND OF VIBRATION CONDITIONS CONSIDERED OBJECTIONABLE SHALL BE CORRECTED IN APPROVED MANNER AT NO CHANGE IN CONTRACT AMOUNT.

26. AFTER INSTALLATION, EQUIPMENT AND ACCESSORIES WITH FACTORY PRIMED OR FINISHED PAINTED SURFACES SHALL BE CLEANED AND BARE OR MARRED SPOTS TOUCHED UP UNDER THIS SECTION WITH THE SAME GRADE AND COLOR PAINT AS APPLIED AT THE FACTORY.

27. PROVIDE TEMPORARY LIGHT AND POWER IN CONFORMANCE WITH THE REQUIREMENTS OF DIVISION 1. (IF REQUIRED)

28. IT IS THE INTENT OF THE ELECTRICAL SECTION OF THE SPECIFICATIONS AND THE ELECTRICAL DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION. ANY APPARATUS, APPLIANCE, MATERIAL OR WORK NOT SHOWN ON DRAWINGS BUT MENTIONED IN THE SPECIFICATION, OR VICE VERSA, OR ANY INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE ELECTRICAL INSTALLATION COMPLETE AND PERFECT IN ALL RESPECTS AND READY FOR OPERATION, EVEN IF NOT PARTICULARLY SPECIFIED, SHALL BE FURNISHED, DELIVERED AND INSTALLED UNDER THIS SECTION WITHOUT ADDITIONAL EXPENSE TO THE OWNER. DISCREPANCIES OR A QUESTION OF INTENT, SHALL BE REFERRED TO THE ARCHITECT FOR DECISION BEFORE ORDERING ANY MATERIALS OR EQUIPMENT, OR BEFORE THE START OF ANY RELATED WORK, AND THE INTERPRETATIONS OF THE ARCHITECT SHALL BE FINAL, CONCLUSIVE AND BINDING.

29. PRIOR TO COMPLETION OF THE CONTRACT, PROVIDE OPERATING INSTRUCTIONS TO THE OWNER'S DESIGNATED REPRESENTATIVE WITH RESPECT TO OPERATION FUNCTIONS AND MAINTENANCE PROCEDURES FOR ALL EQUIPMENT AND SYSTEMS INSTALLED. THOROUGHLY INSTRUCT THE OWNER'S REPRESENTATIVES IN THE OPERATION OF ALL ELECTRICAL SYSTEMS AND COMPONENTS TO THE COMPLETE SATISFACTION OF THE OWNER. ADVISE THE OWNER'S REPRESENTATIVES AS TO THE LOCATION OF ALL ELECTRICAL EQUIPMENT ASSOCIATED WITH THE VARIOUS SYSTEMS.

30. SUBMIT SIX (6) COPIES OF OPERATION AND MAINTENANCE DATA BOOKS TO THE ARCHITECT FOR APPROVAL. IF THE DATA BOOKS DO NOT MEET THE FOLLOWING REQUIREMENTS, THEY WILL BE REJECTED. DATA BOOKS THAT ARE REJECTED SHALL BE CORRECTED AND RESUBMITTED TO THE ARCHITECT.

a. PROVIDE DATA IN BOOK FORM WITH RIGID COVERS, 8-1/2 INCHES BY 11 INCHES, OR 11 INCHES BY 17 INCHES, AND A MAXIMUM OF 2-1/2 INCHES THICK.

b. PROVIDE DATA FOR PANELBOARDS, LIGHTING FIXTURES AND MOTOR CONTROLS AND OTHER ELECTRICAL SYSTEMS OR EQUIPMENT PROVIDED UNDER THIS CONTRACT.

c. PROVIDE INDEX AND THUMB TABS FOR EACH ITEM OR CLASS. GROUP MATERIALS FOR ANY ONE ITEM.

d. PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE:

1) IDENTIFYING NAME AND NUMBER.

2) COMPLETE NAMEPLATE DATA.

3) PERFORMANCE CURVES AND DATA.

4) AS-BUILT WIRING AND CONTROL DIAGRAMS.

5) MANUFACTURER'S OPERATING AND MAINTENANCE INSTRUCTIONS.

6) COMPLETE PARTS LIST WITH RECOMMENDATION FOR SPARE PARTS TO BE STOCKED BY THE OWNER.

7) NAME, ADDRESS AND TELEPHONE NUMBERS OF NEAREST PARTS SUPPLIER AND/OR SERVICE COMPANY.

8) ANY OTHER IMPORTANT INFORMATION AS PERTINENT TO THE PARTICULAR ITEM.

31. UPON COMPLETION OF ALL INSTRUCTION TO THE OWNER'S DESIGNATED REPRESENTATIVES SUBMIT TO THE ARCHITECT A COMPLETED "INSTRUCTIONS TO THE OWNER" FORM INCLUDING AL SIGNATURES, DATES AND OTHER PERTINENT INFORMATION. THE SUBMITTAL OF THIS FORM TO THE ARCHITECT IS THE PREREQUISITE TO FINAL PAYMENT.

32. AS USED IN THIS SECTION, THE FOLLOWING ITEMS ARE UNDERSTOOD TO HAVE THE FOLLOWING MEANINGS:

a. THE CONTRACTOR SHALL MEAN THE ELECTRICAL TRADE CONTRACTOR PERFORMING THE WORK UNDER THIS SECTION.

b. FURNISH SHALL MEAN PURCHASE AND DELIVER TO THE PROJECT SITE, COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT.

c. INSTALL SHALL MEAN UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM ALL WORK NECESSARY TO ESTABLISH SECURE MOUNTING AND PROPER OPERATION AT THE PROPER LOCATION IN THE PROJECT.

d. PROVIDE SHALL MEAN "FURNISH" AND "INSTALL".

e. WORK SHALL MEAN ALL LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES, AND ALL OTHER ITEMS REQUIRED FOR A PROPER AND COMPLETE INSTALLATION.

f. WORK BY OTHERS MEANS WORK NOT PROVIDED UNDER THIS SECTION OF THE SPECIFICATION BUT WORK FURNISHED AND/OR INSTALLED UNDER OTHER SECTIONS OF THE SPECIFICATIONS WITHIN THIS CONTRACT. B PRODUCTS

B. PRODUCTS

1. MATERIALS AND EQUIPMENT INCLUDED UNDER THIS PART AND REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE ELECTRICAL SYSTEM SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF PART A OF THIS SPECIFICATION.

2. RACEWAYS:

a. ELECTRIC METALLIC TUBING SHALL BE HOT DIPPED STEEL CONFORMING TO UL STANDARD NO. 797. TUBING SHALL BE AS MANUFACTURED BY REPUBLIC STEEL, ALLIED TUBE OR EQUAL.

b. FLEXIBLE METAL CONDUIT SHALL BE SINGLE STRIP, CONTINUOUS, FLEXIBLE, INTERLOCKED DOUBLE WRAPPED STEEL, GALVANIZED INSIDE AND OUTSIDE, FORMING SMOOTH WIRING CHANNEL. FLEXIBLE METAL CONDUIT SHALL BE AS MANUFACTURED BY PYLE-NATIONAL, AMERICAN FLEXIBLE CONDUIT OR EQUAL.

h. COUPLINGS AND CONNECTORS FOR ELECTRIC METALLIC TUBING SHALL BE GALVANIZED STEEL COMPRESSION TYPE AND SHALL BE AS MANUFACTURED BY O-Z/GEDNEY, THOMAS & BETTS OR EQUAL.

i. FITTINGS FOR FLEXIBLE METALLIC CONDUIT SHALL BE STEEL OR MALLEABLE IRON ZINC PLATED WITH CENTER STOP AND INSULATED THROAT AS MANUFACTURED BY O-Z/GEDNEY, THOMAS & BETTS OR EQUAL.

3. PULL, JUNCTION, OUTLET BOXES AND WIREWAYS:

a. EACH OUTLET, JUNCTION OR PULL BOX SHALL BE OF THE PROPER TYPE, CLASS AND CONSTRUCTION TO SUIT THE SPECIFIC CONDITIONS ENCOUNTERED.

b. PULL AND JUNCTION BOXES SHALL BE CODE GAUGE MINIMUM THICKNESS GALVANIZED STEEL WITH SCREW-ON COVERS, UNLESS OTHERWISE NOTED. PROVIDE CABLE SUPPORTS FOR THE SUPPORT OF ALL TIERS OF CABLES AND CONDUCTORS WITHIN THE PULL OR JUNCTION BOXES. PULL AND JUNCTION BOXES SHALL BE MANUFACTURED BY KEYSTONE-COLUMBIA, LEE PRODUCTS OR MCKINSTRY METAL WORKS.

c. INTERIOR OUTLET BOXES SHALL BE CODE GAUGE GALVANIZED STEEL AND SHALL BE OF THE SHAPES AND SIZES TO SUIT THEIR RESPECTIVE LOCATIONS AND INSTALLATIONS, AND SHALL BE PROVIDED WITH COVERS TO SUIT THEIR FUNCTION AND INSTALLATION. BOXES SHALL BE MIDLAND-ROSS, APPLETON ELECTRIC COMPANY OR RACO.

d. EXTERIOR SURFACE MOUNTED OUTLET AND JUNCTION BOXES SHALL BE OF CAST METAL WITH THREADED HUBS, NEMA TYPE 3R. KILLARK, PYLE-NATIONAL, O-Z/GEDNEY OR CROUSE-HINDS CONDULET TYPE. COVERS SHALL BE CAST METAL AND SHALL BE GASKETED RAINTIGHT EXTERIOR TYPE.

4. WIRE AND CABLE

a. ALL CONDUCTORS RATED FOR 600 VOLT FOR THE WIRING OF BRANCH CIRCUITS, MOTORIZED CIRCUITS, AUXILIARY SYSTEM WIRING AND DISTRIBUTION FEEDER CONDUCTORS SHALL BE SOFT DRAWN COPPER AND SHALL HAVE A CONDUCTIVITY OF NOT LESS THAN 98 PERCENT OF THE ANSI STANDARD ANNEALED COPPER. CONDUCTORS SHALL BEAR THE MARKINGS OF THE UNDERWRITERS' LABORATORIES, THE AWG SIZE, TYPE INSULATION, MAXIMUM PERMISSIBLE VOLTAGE, THE MANUFACTURER'S NAME AND TRADE MARK AND SHALL BE TAGGED FOR THE YEAR OF THE AWARDING OF THE CONTRACT. WIRING SHALL BE A MINIMUM OF #12 AWG SOLID, EXCEPT MOTOR CONTROL CIRCUIT WIRING AND FIRE ALARM SYSTEM WIRING MAY BE #14 AWG. WIRE SIZES #8 AWG AND LARGER SHALL BE STRANDED. WIRE OF SIZE SMALLER THAN #8 AWG SHALL BE SOLID. WIRE AND CABLE SHALL BE TYPE THWN-THHN BUILDING WIRE, 600V, RATED FOR 75 DEGREES C IN WET LOCATIONS AND 90 DEGREES C IN DRY LOCATIONS. WIRE AND CABLES SHALL BE UL LISTED, BEAR THE UL LABEL AND BE MANUFACTURED BY ROME CABLE CORPORATION, GENERAL CABLE CORPORATION OR TRIANGLE/PWC.

b. FIRE ALARM CONDUCTORS ARE TO BE COPPER CONDUCTORS IN EMT. CONDUCTORS ARE TO BE SOLID COPPER IN SIZES #18 THROUGH #14. INSULATION IS TO BE TYPE THHN RATED FOR 105 DEGREES C FOR A POWER LIMITED FIRE PROTECTIVE SIGNALING CABLE APPLICATIONS. PROVIDE AN INSULATED GROUND CONDUCTOR. CABLE TO BE RATED FOR 600V.

5. TOGGLE SWITCHES SHALL BE OF THE TOTALLY ENCLOSED, FLUSH TUMBLER TYPE AND SHALL BE SPECIFICATION GRADE RATED 20A, 120/277V. TOGGLE SWITCH FINISH SHALL BE AS SPECIFIED BY THE ARCHITECT, HOWEVER, WHEN NOT SPECIFIED BY THE ARCHITECT, BODIES SHALL BE OF THE WHITE PHENOLIC COMPOUND, QUIET INDICATING TYPE WITH SCREW TYPE TERMINALS. TOGGLE SWITCHES SHALL BE AS MANUFACTURED BY ARROW-HART, BRYANT, HUBBELL OR PASS & SEYMOUR.

6. PROVIDE SPECIFICATION GRADE DEVICE PLATES. FINISH OF THE DEVICE PLATES IS TO BE SPECIFIED BY THE ARCHITECT, HOWEVER, WHEN NOT SPECIFIED BY THE ARCHITECT, THE DEVICE PLATES ARE TO BE .040 INCH GAUGE, TYPE 302, HIGH NICKEL CONTENT STAINLESS STEEL, BRUSHED FINISH. PROVIDE .060 INCH GAUGE WHERE INSTALLATION REQUIRES MORE THAN ONE GANG. PLATES SHALL BE OF APPROPRIATE TYPE AND SIZE FOR WIRING AND CONTROL DEVICES, SIGNAL AND TELEPHONE OUTLETS. DEVICE PLATES SHALL BE BY THE SAME MANUFACTURER AS THE DEVICES.

7. WIRE AND CABLE CONNECTORS FOR #8 AWG AND SMALLER SHALL BE OF THE PRESSURE INDENT TYPE WITH AN INSULATING COVER EQUAL TO BUCHANAN ELECTRIC PRODUCTS. CONNECTIONS TO MOTOR LEADS SHALL BE MADE WITH SOLDERLESS LUGS SIMILAR TO BURNDY ENGINEERING COMPANY. WIRE AND CABLE CONNECTORS FOR #6 AWG AND LARGER SHALL BE OF THE BOLTED PRESSURE TYPE EQUAL TO O-Z/GEDNEY MANUFACTURING COMPANY OR BURNDY ENGINEERING COMPANY. COPPER CABLES #1/0 AWG AND LARGER SHALL BE FASTENED WITH A CONNECTOR REQUIRING TWO (2) BOLTS. JOINTS, TAPS AND SPLICES SHALL BE COVERED WITH SCOTCH BRAND TYPE #33 OR APPROVED EQUAL.

8. FIRE STOP SEALANTS USED TO SEAL ALL OPENINGS AROUND ELECTRICAL RACEWAY SYSTEMS PASSING THROUGH FLOORS AND FIRE RATED WALLS SHALL BE OF THE FIRE RETARDANT SILICONE FOAM TYPE. THE SEALANT SHALL BE PLIABLE IN CHARACTER CAPABLE OF ADHERING ITSELF TO THE SURROUNDING SURFACES WITHIN THE VOID BEING FILLED. THE SEALANT SHALL REMAIN IN THE PLIABLE STATE PERMITTING NORMAL BUILDING VIBRATION AND ALLOWING FOR MATERIAL EXPANSION AND CONTRACTION WITHOUT CRACKING OR CRUMBLING. FIRE STOP SEALANTS SHALL BE FLAME SAFE AS MANUFACTURED BY THOMAS & BETTS OR APPROVED EQUAL.

9 . SEALING COMPOUNDS FOR RACEWAYS, DUCTS AND FITTINGS SHALL BE PUTTY-LIKE CONSISTENCY WORKABLE WITH THE HANDS AND SHALL NOT HARDEN MATERIALLY WHEN EXPOSED TO AIR. THE SEALING COMPOUNDS SHALL BE MANUFACTURED BY MINNESOTA MINING, JOHNS-MANVILLE OR DOW CORNING. -SUPPORTS REQUIRED FOR THE PROPER INSTALLATION, MOUNTING AND SUPPORT OF ALL LIGHTING FIXTURES, AND ELECTRICAL EQUIPMENT TO BE INSTALLED UNDER THIS CONTRACT. SUPPLEMENTARY STEEL, CHANNELS AND SUPPORTS SHALL BE FURNISHED, INSTALLED AND SECURED WITH ALL FITTINGS, SUPPORT RODS AND APPURTENANCES REQUIRED FOR A COMPLETE SUPPORT OR MOUNTING SYSTEM AND SHALL BE UL LISTED, BE GALVANIZED STEEL, AND BE MANUFACTURED BY MIDLAND-ROSS, UNISTRUT, POWER-STRUT, T.J. COPE OR CHALFANT.

10. LIGHTING FIXTURES:

a. LIGHTING FIXTURES AND/OR LIGHTING EQUIPMENT SHALL CONSIST OF ALL NECESSARY PARTS, BALLASTS AND HARDWARE FACTORY ASSEMBLED TO PROVIDE A COMPLETE AND OPERABLE LUMINOUS ELEMENT TO MEET THE SPECIFICATIONS AND APPROVAL OF THE ARCHITECT.

b. LIGHTING FIXTURES (STANDARD AND SPECIAL) SHALL BE UL LISTED. NO EXCEPTIONS SHALL BE MADE. FIXTURE MANUFACTURER SHALL FURNISH TO THE ARCHITECT VIA THIS CONTRACTOR NOTARIZED LETTERS SUBSTANTIATING THE VALIDITY OF THE UL LABEL ON THEIR FIXTURE IF REQUIRED. THE LETTER SHALL INCLUDE THE UL TEST NUMBER AND DATE WHEN FIXTURE WAS ACCEPTED BY UL.

c. THE EXTERIOR FINISH COLOR) OF ALL LIGHTING FIXTURES DESIGNATED IN DRAWINGS AS HAVING A SHALL BE SELECTED BY CONSTRUCTION PERIOD AT REVIEW. (COLOR) OF ALL LIGHTING THE SPECIFICATIONS OR ON THE SPECIAL FINISH, THE COLOR THE ARCHITECT DURING THE TIME OF SHOP DRAWINGS.

d. LIGHTING FIXTURES SHALL BE AS SHOWN ON THE LIGHTING PLAN. THE FIXTURES LISTED UNDER EACH TYPE SHALL BE BY THE SAME MANUFACTURER. IF IT IS ELECTED TO FURNISH OTHER THAN THE FIXTURES MANUFACTURED BY THOSE SPECIFIED, THEN THE FIXTURE PROPOSED SHALL BE EQUAL, IN EVERY RESPECT, TO THE PRODUCT SPECIFIED, INCLUDING DIMENSIONS, FINISH, PHOTOMETRIC CURVES, MATERIAL AND OPERATING CHARACTERISTICS. PHOTOMETRIC CURVES OF LIGHTING FIXTURES SUBMITTED FOR APPROVAL SHALL BE FROM AN INDEPENDENT LABORATORY.

11. FIRE ALARM:

C. EXECUTION

1. IT IS THE INTENT OF THE FOLLOWING SUB-SECTIONS OF THIS PART TO DESCRIBE, IN GENERAL, THE INSTALLATION REQUIREMENTS AND THE QUALITY OF WORKMANSHIP REQUIRED BY THE INTENT OF THIS SPECIFICATION.

2. INTERIOR RACEWAY SYSTEMS:

a. PROVIDE THROUGHOUT THE BUILDING A COMPLETE RACEWAY SYSTEM FOR THE INSTALLATION OF BRANCH CIRCUITS, AUXILIARY SYSTEM WIRING REQUIRED FOR THE FUNCTION AND OPERATION OF ALL ELECTRICAL AND AUXILIARY SYSTEMS SPECIFIED. THE RACEWAY SYSTEMS SHALL BE COMPLETE IN EVERY DETAIL AND SHALL CONSIST OF ALL CONDUIT, OUTLETS, PULL AND JUNCTION BOXES, FITTINGS, HANGERS, SUPPORTS AND ALL APPURTENANCES REQUIRED TO COMPLY WITH THE INTENT OF THIS SPECIFICATION.

b. RACEWAYS SHALL BE THOROUGHLY GROUNDED AND BONDED IN COMMON -

c. RACEWAYS CONCEALED WITHIN FINISHED WALLS, CEILINGS AND FLOORS SHALL BE KEPT 6 INCHES FROM PARALLEL RUNS OF HOT WATER PIPES. EXPOSED RACEWAYS SHALL BE SUPPORTED AT INTERVALS OF NOT MORE THAN TEN FEET, AND CONDUIT RUNS ARE TO BE INSTALLED PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS, OR INTERSECTIONS OF VERTICAL PLANES AND CEILING.

d. TURNS, WHEREVER REQUIRED IN RACEWAYS, SHALL BE MADE BY THE USE OF FACTORY ELLS AND FITTINGS. HOWEVER, WHERE FIELD MADE BENDS ARE REQUIRED, DUE TO CONSTRUCTION CONDITIONS, THEY SHALL BE MADE WITH APPROVED HICKEY OR CONDUIT BENDING MACHINES. WHERE A MULTIPLICITY OF CONDUITS MAKE THE SAME TURN, A CODE GAUGE STEEL JUNCTION BOX WITH REMOVABLE COVER MAY BE USED. WHEN JUNCTION BOXES ACCOMMODATE MORE THAN TWO SEPARATE CIRCUITS, EACH CIRCUIT SHALL BE GROUPED AND BOUND WITH WIRE MANAGERS. EACH FEEDER, BRANCH CIRCUIT AND AUXILIARY SYSTEM CABLES SHALL BE TAGGED IN THE PULL AND JUNCTION BOXES. THE TAGS SHALL INDICATE THE POINT OF CABLE ORIGINATION AND TERMINATION AS WELL AS THE INTENDED PURPOSE.

e. EXPOSED RACEWAYS PASSING THROUGH WALLS OR CEILINGS SHALL BE FITTED WITH CHROMIUM PLATED, SPUN OR SPLIT TYPE ESCUTCHEONS. PIPE SLEEVES SHALL EXTEND 3/4 INCH ABOVE FINISHED FLOOR, AND BE FLUSH IN WALLS. ALL CONDUIT SLEEVES PASSING THROUGH FLOORS AND FIRE RATED WALLS SHALL BE RETURNED TO THE ORIGINAL FIRE RATING OF THE FLOOR OR WALL AFTER THE INSTALLATION OF RACEWAYS IN SAME BY MEANS OF FILLING THE OPENING WITH A FOAM SILICONE MATERIAL.

f. THE INCLUDED DRAWINGS ARE, FOR THE MOST PART, DIAGRAMMATIC AND, EXCEPT WHERE DEFINITELY DIMENSIONED, THE LOCATIONS OF RACEWAYS AND RACEWAY SYSTEMS SHALL BE DETERMINED IN THE FIELD.

g. CRUSHED OR DEFORMED RACEWAYS SHALL NOT BE INSTALLED. CARE SHALL BE TAKEN TO PREVENT THE LODGEMENT OF PLASTER, DIRT OR TRASH IN RACEWAYS, BOXES, FITTINGS, AND EQUIPMENT DURING THE COURSE OF CONSTRUCTION. CLOGGED RACEWAYS SHALL BE ENTIRELY FREE OF OBSTRUCTION OR SHALL BE REPLACED.

h. RACEWAYS SHALL BE SECURED BY PIPE STRAPS OR SHALL BE SUPPORTED BY WALL BRACKETS ON WOOD, TOGGLE BOLTS ON HOLLOW MASONRY UNITS, EXPANSION BOLTS ON CONCRETE OR BRICK, AND MACHINE SCREWS OR WELDED THREADED STUDS ON STEEL WORK. SECURING OF RACEWAYS TO HOLLOW TYPE STUD WALL OR FIBERBOARD CONSTRUCTION SHALL BE AVOIDED.

i. RACEWAYS IN HUNG CEILINGS SHALL BE RUN ON AND SECURED TO THE PRIMARY STRUCTURAL MEMBERS, NOT TO LATHING CHANNELS OR T-BARS, Z-BARS OR OTHER ELEMENTS WHICH ARE THE DIRECT SUPPORTS OF THE CEILING SYSTEM. SECURE CONDUIT FIRMLY TO STEEL BY CLIPS AND FITTINGS DESIGNED FOR THAT PURPOSE. MAINTAIN AT LEAST 1/4 INCH AIR SPACE BETWEEN CONDUITS AND SUPPORTING WALLS EACH CONDUIT IN A BANK OF CONDUITS SHALL BE SEPARATELY CLAMPED. SUPPORTS FOR LARGE BANKS OF CONDUITS SHALL BE CHANNEL IRON WITH U-CLAMPS.

j. WATERPROOF MEMBRANE OF THE STRUCTURAL FLOOR SLABS AND FOUNDATION WALLS OF THE BUILDING SHALL BE PENETRATED ONLY AT LOCATIONS APPROVED BY THE STRUCTURAL ENGINEER AND IN A MANNER ACCEPTABLE TO THE ARCHITECT. PROPOSED PENETRATION POINTS, SIZE OPENINGS AND METHOD TO BE USED SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL PRIOR TO THE INSTALLATION OF SAME.

k. WIRING SHALL NOT BE PULLED INTO THE RACEWAY SYSTEM UNTIL IT IS MECHANICALLY COMPLETE IN ALL DETAILS.

l. FURNISH AND INSTALL A 1/8 INCH NYLON PULL CORD IN ALL EMPTY RACEWAYS.

m. RACEWAYS INSTALLED EXPOSED IN FINISHED AREAS --SURFACE METAL RACEWAY.

n. CONNECTIONS TO PORTABLE EQUIPMENT FROM JUNCTION BOXES AND CONNECTION OF RACEWAYS TO MOTOR CONDUIT TERMINAL BOXES -- LIQUIDTIGHT FLEXIBLE METAL CONDUIT WITH A MAXIMUM LENGTH OF 6 FEET, 0 INCHES LONG AND A MINIMUM LENGTH OF 18 INCHES.

o. FLEXIBLE TAPS FROM JUNCTION BOXES ABOVE HUNG CEILINGS TO RECESSED FLUORESCENT LIGHTING FIXTURES SHALL BE IN FLEXIBLE METAL CONDUIT. LENGTH OF FLEXIBLE METAL CONDUIT FROM THE JUNCTION BOXES TO THE RECESSED LIGHTING FIXTURES SHALL BE A MAXIMUM OF 6 FEET, 0 INCHES LONG.

p. BRANCH CIRCUIT WIRING INSTALLED CONCEALED IN CEILINGS, FURRED OR STUD WALLS -- EMT OR METAL CLAD CABLE TYPE MC.

q. FIRE ALARM WHICH IS TO BE IN RIGID CONDUCT SYSTEM. TYPE OF CONDUCT SYSTEM TO BE AS REQUIRED BY LOCATIONS. CABLE INSTALLED CONCEALED IN CEILING IN WALLS IS TO BE TYPE MC FIRE ALARM CABLE.

3. EQUIPMENT AND SYSTEMS INSTALLED AND CONNECTED UNDER THIS CONTRACT SHALL BE BONDED AND GROUNDED IN ACCORDANCE WITH THE STANDARDS OF THE LATEST NATIONAL ELECTRICAL SAFETY CODE, THE NATIONAL ELECTRICAL CODE, AND ALL STATE AND LOCAL REGULATIONS AS A MINIMUM. GROUNDING AND BONDING REQUIREMENTS SPECIFIED OR INDICATED ON THE DRAWINGS THAT EXCEED THE REQUIREMENTS OF THE AGENCIES INDICATED ABOVE SHALL BE ADHERED TO.

4. THIS CONTRACTOR SHALL REMOVE THE TEMPORARY LIGHTING AND POWER SERVICES AND STRINGERS WHEN SO DIRECTED BY THE ARCHITECT. TEMPORARY LIGHTING STRINGERS SHALL BE REMOVED FROM CEILING PLENUM SPACES PRIOR TO THE CLOSING OF SAME.

5. UNLESS OTHERWISE SPECIFIED HEREIN, ALL CONDUITS PASSING THROUGH FLOORS, WALLS OR PARTITIONS SHALL BE PROVIDED WITH SLEEVES HAVING AN INTERNAL DIAMETER ONE INCH LARGER (MINIMUM) THAN THE OUTSIDE DIAMETER OF THE RACEWAYS PASSING THROUGH THEM. UNLESS OTHERWISE SPECIFIED, ALL SLEEVES SHALL BE SCHEDULE 40 BLACK STEEL PIPE, SET FLUSH WITH FINISHED WALL OR SET ONE INCH ABOVE FINISHED FLOOR SURFACES. THE SPACE BETWEEN SLEEVE AND CONDUIT SHALL BE PACKED WITH FIRE AND WATERPROOF FOAM SILICON.

6. CORE DRILLING, WHEN REQUIRED, SHALL BE PERFORMED UNDER THIS SECTION AFTER RECEIPT OF APPROVAL BY THE ARCHITECT AND HIS STRUCTURAL ENGINEER.

7. COLOR CODING SHALL BE MAINTAINED FOR ALL FEEDERS AND BRANCH CIRCUIT WIRING THROUGHOUT THE PROJECT. COLOR IMPREGNATE INSULATION SHALL BE USED FOR ALL CONDUCTORS UP TO AND INCLUDING NO. 6 AWG CONDUCTORS LARGER THAN NO. 6 SHALL BE IDENTIFIED BY COLOR BANDING TAPES AT ALL TERMINATION POINTS, JUNCTION PULL AND OUTLET BOXES.

a. PHASES, NEUTRAL AND GROUND CONDUCTORS FOR THE 208Y/120V SYSTEM SHALL BE COLOR CODED AS FOLLOWS:

208Y/120V PHASE A - BLACK
208Y/120V PHASE B - RED
208Y/120V PHASE C - BLUE
208Y/120V GROUNDED NEUTRAL - WHITE
EQUIPMENT GROUND CONDUCTOR - GREEN

8. PHASE ORIENTATION AND ROTATION SHALL BE VERIFIED PRIOR TO PLACING EQUIPMENT INTO OPERATION. ADJUSTMENTS SHALL BE MADE PRIOR TO THE COMPLETION OF THE WORK UNDER THIS CONTRACT. ALL MOTORS SHALL BE CHECKED FOR PROPER ROTATION WITH ADJUSTMENTS BEING MADE AS REQUIRED FOR THE PROPER OPERATION OF MOTORIZED EQUIPMENT.

9. TESTS:

a. THIS SECTION SHALL INCLUDE THE MAKING OF THE NECESSARY TESTS REFERRED TO HEREIN IN THE PRESENCE OF THE ARCHITECT TO SHOW THAT THE PARTICULAR SYSTEM OR EQUIPMENT HAS BEEN PROPERLY INSTALLED AND IS IN GOOD OPERATING CONDITION, AS HEREINAFTER SPECIFIED. THE ARCHITECT SHALL BE NOTIFIED TWO (2) WEEKS IN ADVANCE OF THE DATE FOR ALL TESTS SO THAT HE MAY BE PRESENT TO WITNESS THE TESTS.

b. COMPLETE TEST AND INSPECTION RECORDS SHALL BE MADE AND INCORPORATED INTO A REPORT FOR EACH PIECE OF EQUIPMENT TESTED. READINGS TAKEN SHALL BE RECORDED. SIX (6) COPIES SHALL BE SUBMITTED TO THE ARCHITECT FOR RECORD AND COMMENTS.

RDA
Raymond Design Associates, Inc.
Architects & Planners
60 Ledgewood Place
Rockland, MA 02370

Wozny/Barbar & Associates, Inc.
CONSULTING ENGINEERS
1076 Washington Street, Hanover, MA 02339, Tel: (781) 826-4144, Fax: (781) 924-5792, www.wbaengineers.com
161 Exchange Street, 3rd Floor, Pawtucket, RI 02860

NEWTON SOUTH HIGH SCHOOL
140 BRANDIES RD, NEWTON, MA

ELECTRICAL SPECIFICATIONS

Revisions:

No.	Date	Description

Drawn By: RJA
Checked By: SA
Approved By: SA

Drawing Scale: NTS

Project Number: 16047

Date: July 21st, 2016

E1.04

281-16

ELIZABETH F. MASON
Direct Dial: 781.904.2668
Email: elizabeth.mason@mclane.com
Admitted in MA
300 TradeCenter, Suite 7000
Newton, MA 01801-7419
T 781.904.2700
F 781.904.2701

MCLANE MIDDLETON

July 19, 2016

RECEIVED
Newton City Clerk
2016 JUL 20 AM 11:18
David A. Olson, CMC
Newton, MA 02459

VIA OVERNIGHT MAIL AND EMAIL *(dolson@newtonma.gov)*

Office of the City Council
Newton City Hall, Room 105
1000 Commonwealth Avenue
Newton, MA 02459

Re: **Petition for Grant of Location to Attach Small Cell Antenna and Supporting Equipment to Existing Non-Municipal Utility Pole**

Applicant: **Cellco Partnership d/b/a Verizon Wireless ("Verizon Wireless")**

Address: **Utility Pole #20-20 located in public right of way on Sargent Street (near the corner of Sargent and Centre Streets), Newton**

Dear Office of the City Council:

In accordance with Chapter 166, Section 22 of the Massachusetts General Laws and City of Newton requirements, Verizon Wireless is submitting herewith the enclosed Petition for Grant of Location so that it may install, operate and maintain a single "Small Cell" wireless communication antenna and supporting equipment to be mounted to the above-described Verizon Telephone/Eversource-owned utility pole.

As described below, the proposed installation will provide capacity relief and improve network service throughout Newton, particularly in the identified area of dense demand for Verizon Wireless's Long Term Evolution ("LTE" or "4G") voice and data services. Specifically, this installation would replace (that is, be installed instead of) the Small Cell antenna and supporting equipment approved by the City Council on April 19, 2016 to be installed in the public right of way on Cabot Street (near the corner of Cabot and Centre Streets) at Utility Pole #60.

PETITIONER INFORMATION

Verizon Wireless is one of the nation's leading FCC-licensed providers of wireless telecommunications services, extending coverage to almost all of the top 100 markets in the United States. It has developed one of the largest and most reliable national networks to provide wireless voice and data services to an ever-growing customer base, last counted at over 135 million. Verizon Wireless continuously works to enhance and improve its wireless network

through the deployment of its voice, data, LTE and Advanced Wireless Services ("AWS") communications services. One of the key design objectives of Verizon Wireless's system is to provide seamless and reliable coverage without significant gaps or dead spots or the inability to handle and off-load voice and data traffic, particularly in areas of high data demand.

"SMALL CELL" TECHNOLOGY

The strategic integration of Small Cell antenna technology is a surgical approach to the continued deployment of Verizon Wireless's LTE and AWS networks in Newton and throughout Massachusetts, particularly in those areas of high data traffic. When Small Cell antennas are strategically placed throughout a targeted geographic area, the end result is an overall increase in performance and efficiency, both within the target area and the network as a whole. Practically speaking, cellular signals from Small Cells are transmitted from antennas throughout high traffic areas at elevations lower than those from traditional wireless communications facilities ("WCFs") such as towers and monopoles. Here, the Small Cell antennas will be placed on existing utility poles. Verizon Wireless will be relying on Small Cell technology as it continues to deploy its network in Newton in the months to come.

ORDER FOR GRANT OF LOCATION

Federal and state law provide a legal framework allowing—and in fact mandating—the installation of this stealth antenna technology on utility poles. At the federal level, the Pole Attachment Act (47 U.S.C. § 224) mandates that utility pole owners grant nondiscriminatory access to their poles for attachments by cable television systems and telecommunication carriers. At the state level, the Massachusetts Pole Attachment Act (M.G.L. c. 166, § 25A) specifically addresses wireless communications-related pole attachments, providing that "utilities shall provide wireless providers with nondiscriminatory access to any pole or right of way ... for the purpose of installing a wireless attachment."

VERIZON WIRELESS'S PROPOSAL

With the aim of rapidly deploying Small Cell technology throughout Massachusetts, Verizon Wireless has entered into pole attachment licensing agreements with utility providers, including Eversource Energy and Verizon Telephone, among others, which allow for the installation of compact Small Cell canister antennas on existing utility poles throughout the Commonwealth.

The installation on Sargent Street will primarily consist of a 38.7" tall by 12" wide canister antenna that will be mounted to the side of the utility pole. The antenna will resemble a traditional electric transformer and be virtually indistinguishable from such transformers already located on utility poles throughout the area. Additional supporting equipment—a remote radio head, electrical junction box and meter, and fiberoptic and power connections—will be mounted to the exterior of the pole, resulting in a self-contained antenna facility without the need for further infrastructure. With respect to visual impacts, this equipment is substantially similar to the equipment of electric, telephone and cable utility providers.

Following installation, Verizon Wireless technicians will monitor and occasionally visit the pole site for maintenance purposes. Except for standard electrical service, the installation will not impact utilities, schools, traffic or other municipal resources. A key component of this technology, from Verizon Wireless's perspective, is the ability to deploy this equipment quickly, without the arduous processes involved in typical WCF permitting.

MATERIALS ENCLOSED

We have enclosed the following materials for your review and consideration:

1. Petition for Grant of Location for the proposed installation;

2. Proposed Order for Grant of Location for the proposed installation; and

3. Ten (10) sets of 11"x17" plans detailing the specifics of the proposed installation.

We will provide copies of the pole attachment licenses issued to Verizon by Verizon Telephone and Eversource for the installation under separate cover. In addition, we will deliver a check payable to the City of Newton in the amount the City indicates is appropriate to cover the petition fee.

CONCLUSION

The proposed Small Cell antenna is by far the least intrusive means available to address gaps in coverage in those areas of dense demand for Verizon Wireless's LTE voice and data services that exist in Newton. The equipment as proposed will provide enhanced service to areas of concentrated demand, while avoiding the aesthetic impacts of traditional wireless facilities.

Thank you for your timely attention to this matter. If you should have any questions regarding the enclosed application, please do not hesitate to contact me directly.

Very truly yours,

Elizabeth F. Mason

ec. C. Webberly, SCG (w/o enc.)
M. Frankel, SCG (w/o enc.)
T. Hildreth, MM (w/o enc.)

103629\10934731

ORDER FOR GRANT OF LOCATION
UNDER MGL c. 166, §§ 22 and 25A

In the City of Newton, Massachusetts
Notice having been given and public hearing held, as provided by law

IT IS HEREBY ORDERED:

that Cellco Partnership d/b/a Verizon Wireless be and it is hereby granted a location for and permission to install on an existing pole and maintain pole and wires to be placed thereon, together with such sustaining and protecting fixtures as said Company may deem necessary, in the public way or ways hereinafter referred to, as requested in petition of said Company dated the 19th day of July, 2016.

All construction under this order shall be in accordance with the following conditions:

Plan name: **Newton 7 MA, dated June 13, 2016**, filed with this order.

There may be attached to said pole antenna, radio unit, meter, AC/DC converter, 60A disc., RGS conduit, ground rod, power and fiber and fixtures as needed in their business and all of said wires and cables.

The following are the public ways or part of ways along which the poles above referred to may be erected, and the number of poles which may be erected thereon under this order:

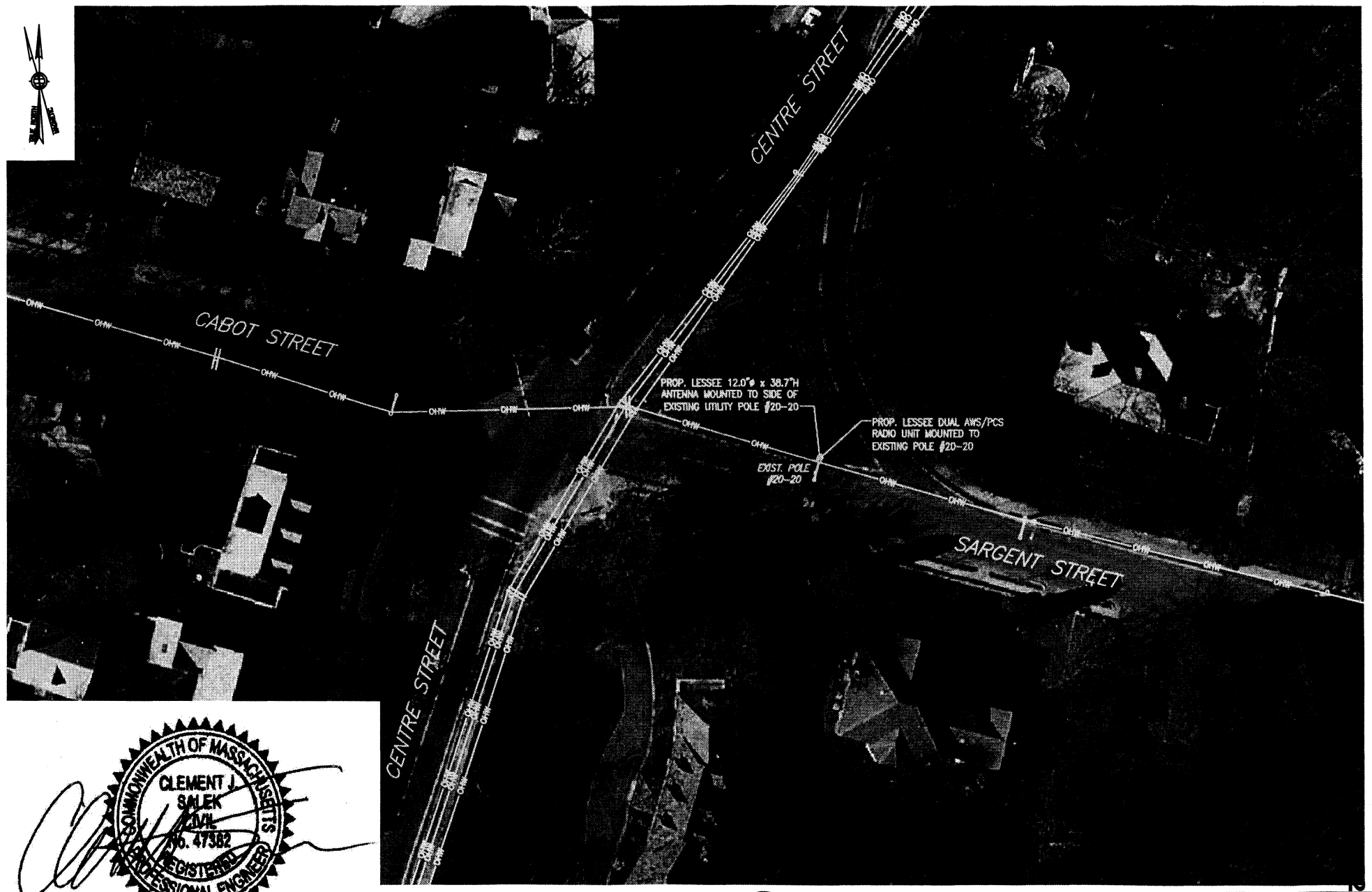
Sargent Street, one pole, number 20-20.

I hereby certify that the foregoing order was adopted at a meeting of the City Council of the City of Newton, Massachusetts held on the _____ day of _____, 2016 .

City Clerk
Newton, Massachusetts

Received and entered in the records of location orders of the City of Newton at Book _____, Page _____.

Attest: _____
Newton City Clerk



COMMONWEALTH OF MASSACHUSETTS
CLEMENT J. SALEK
CIVIL
NO. 47382
REGISTERED PROFESSIONAL ENGINEER

AREA PLAN

SCALE: 1" = 60'-0"

1
L-1

SITE CONTROL POINT
℄ EXISTING POLE #20-20
NAD 83 LATITUDE: N42° 20' 49.18"
NAD 83 LONGITUDE: W71° 11' 18.26"

281-16

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/13/16	LEASE EXHIBIT	JRV	CJS	CJS
0	05/19/16	LEASE EXHIBIT	JRV	CJS	CJS
A	03/21/16	DRAFT LEASE EXHIBIT	JRV	CJS	CJS

NOT TO SCALE | DESIGNED BY: CJS | DRAWN BY: JRV

NEWTON 7 MA

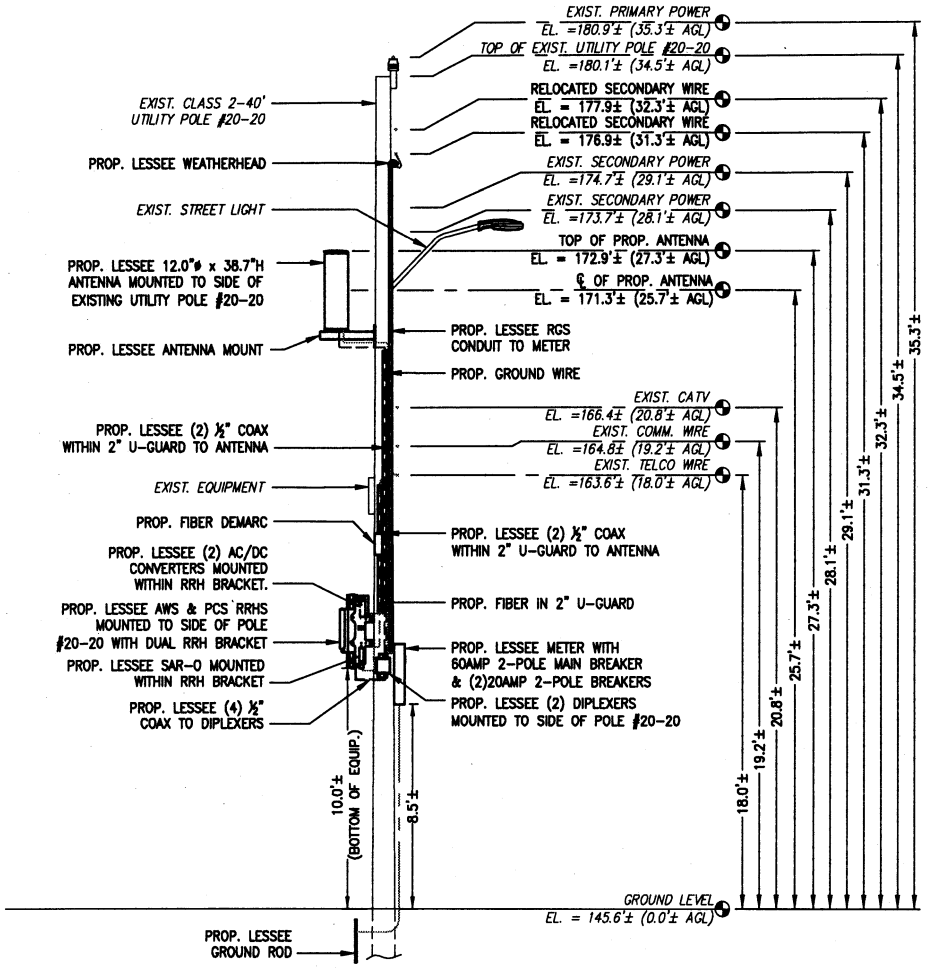
LEASE EXHIBIT
NOT FOR CONSTRUCTION

SITE ADDRESS

POLE #20-20
SARGENT STREET
NEWTON, MA 02458

AREA PLAN

PROJECT NO.	DRAWING NAME	DATE	LOC. CODE	REV
1460.177	L-1	06/13/16	272535	1



ELEVATION

SCALE: 1" = 8'-0" (1 / L-2)

ELEVATION PHOTO

SCALE: N.T.S. (1 / L-2)

COMMONWEALTH OF MASSACHUSETTS
CLEMENT J. SALEK
No. 47382
REGISTERED PROFESSIONAL ENGINEER

NOTE:

THE PROPOSED COMMUNICATIONS FACILITY DEPICTED HEREIN IS SUBJECT TO APPROVALS BY THE STRUCTURE OWNER INCLUDING, BUT NOT LIMITED TO, NESC CAPACITY AND CLEARANCE REQUIREMENTS.

ANTENNA TO BE SECURED TO EXISTING STRUCTURE USING ANTENNA MANUFACTURER'S RECOMMENDED MOUNTS AND HARDWARE. CONTRACTOR TO COORDINATE WITH CHAPPELL ENGINEERING FOR APPROVAL OF SITE-SPECIFIC MOUNTS PRIOR TO INSTALLATION.

281-16

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying

NO.	DATE	REVISIONS	BY	CHK	APP'D
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0	05/19/16	LEASE EXHIBIT	JRV	CJS	CJS
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NOT TO SCALE | DESIGNED BY: CJS | DRAWN BY: JRV

NEWTON 7 MA

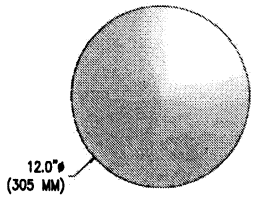
LEASE EXHIBIT
NOT FOR CONSTRUCTION

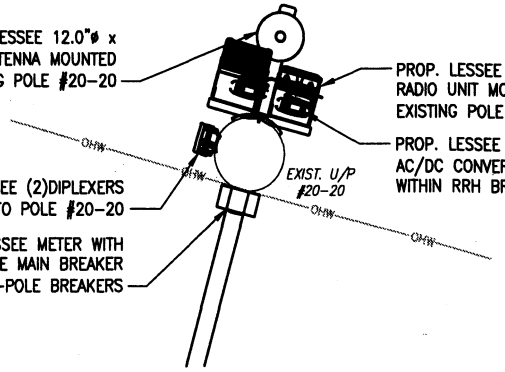
SITE ADDRESS

POLE #20-20
SARGENT STREET
NEWTON, MA 02458

ELEVATION PLAN

PROJECT NO.	DRAWING NAME	DATE	LOC. CODE	REV
1460.177	L-2	06/13/16	272535	1

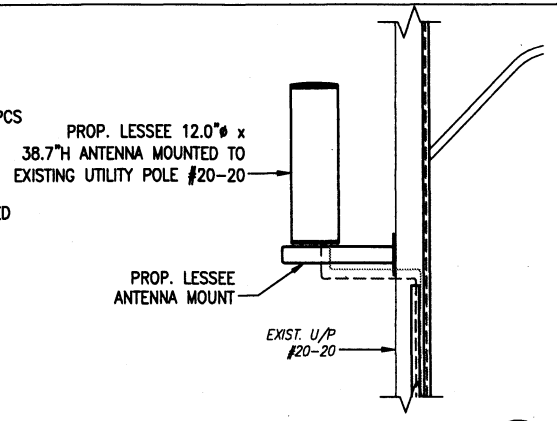




ANTENNA PLAN

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

3 / L-3



ANTENNA MOUNTING DETAIL

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

4 / L-3

NOTE:

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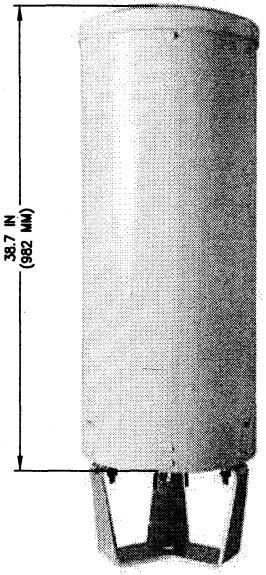
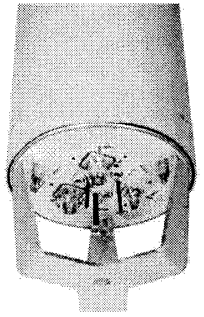


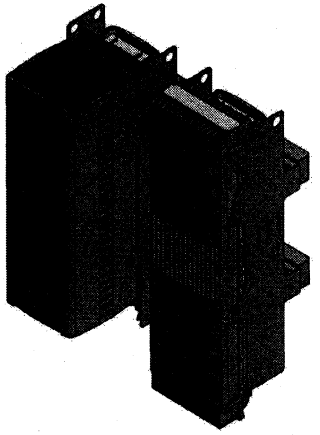


SMALL CELL CANTENNA	
DIMENSIONS:	12.0"ø x 38.7"
WEIGHT:	33.7 LBS

ANTENNA DETAIL

SCALE: N.T.S.

1 / L-3

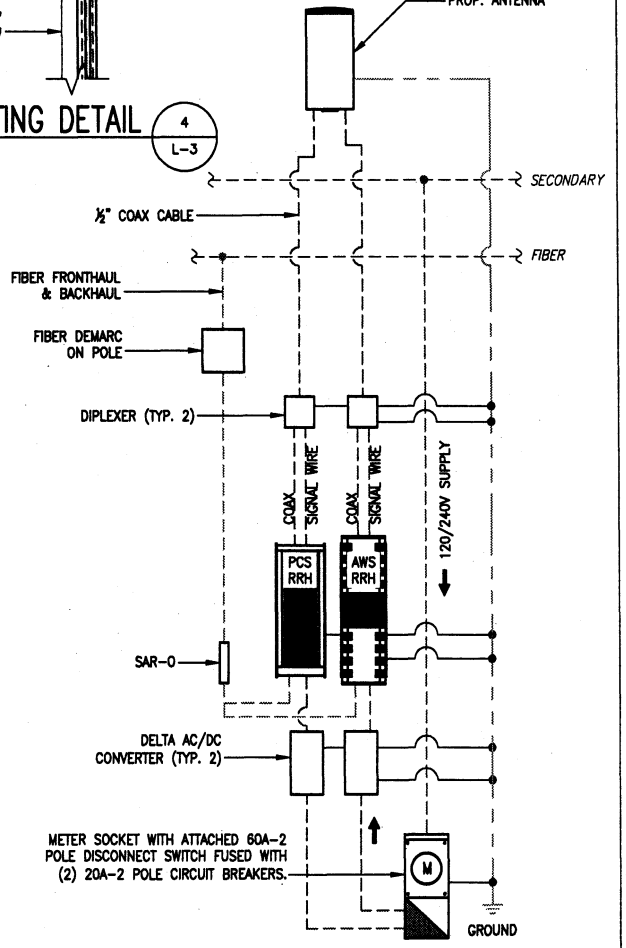


DUAL RADIO UNIT	
PCS:	
DIMENSIONS:	21.4"H x 12"W x 7.2"D
WEIGHT:	51 LBS
AWS:	
DIMENSIONS:	36.7"H x 10.6"W x 5.8"D
WEIGHT:	55 LBS

RADIO DETAIL

SCALE: N.T.S.

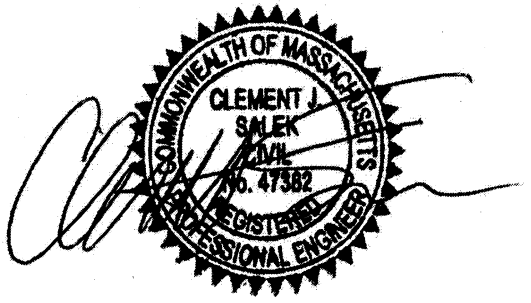
2 / L-3



GENERAL WIRING DIAGRAM

SCALE: N.T.S.

L-3



CHAPPELL ENGINEERING ASSOCIATES, LLC

Civil · Structural · Land Surveying

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/13/16	LEASE EXHIBIT	JRV	CJS	CJS
0	05/19/16	LEASE EXHIBIT	JRV	CJS	CJS
A	03/21/16	DRAFT LEASE EXHIBIT	JRV	CJS	CJS

NOT TO SCALE | DESIGNED BY: CJS | DRAWN BY: JRV

NEWTON 7 MA

LEASE EXHIBIT
NOT FOR CONSTRUCTION

SITE ADDRESS

POLE #20-20
SARGENT STREET
NEWTON, MA 02458

EQUIPMENT PLAN

PROJECT NO.	DRAWING NAME	DATE	LOC. CODE	REV
1480.177	L-3	06/13/16	272535	1

2 of 6

CITY OF NEWTON
MASSACHUSETTS

PETITION for GRANT OF LOCATION

To the Petitioner:

City of Newton Ordinance Section 23-52 requires that each petition for grant of location be submitted to the City Council before it is sent to the Public Works Department for a preliminary review. The comments of the Public Works Commissioner will be part of the record submitted to the City Council. Upon filing with the City Council, the petition will be scheduled for a public hearing before the Public Facilities Committee of the City Council. **The petitioner is responsible for insuring that the petition is complete and all required materials are in order for review.** Attached please find the City Engineer's Standard Requirements for Plans and the Department of Public Works Permit Processing brochure.

Grant of Location Process:

1. Applicant submits completed Petition Form and required materials to the City Council
2. Public Works Department conducts preliminary review and gives written comments to the applicant
3. Engineering Division files Petition Form with comments with the Clerk of the City Council
4. City Council schedules petition for a public hearing before the Public Facilities Committee of the City Council
5. Public Facilities Committee recommendations are forwarded to the City Council for a final decision

Questions my be directed to:

Lou Taverna, City Engineer, 617-796-1020
City Council Office, 617-796-1210

I. IDENTIFICATION (Please Type or Print Clearly)

Company Name_____

Address_____

_____

Phone Number _____ Fax Number _____

Contact Person _____ Title _____

Signature _____ Date _____
Person filing application

If a telecommunications company, indicate how certified by the Department of Telecommunications and Energy:

II. DESCRIPTION OF PROJECT: to be completed by petitioner

A. Write here or attach a description of the project including, location, proposed time frame for completion, type of materials to be used, benefit provided to the City, project mitigation plan as applicable, street reconstruction plan including timetable for completion.

B. Include or attach a sketch to provide a visual description of the project. If plans are attached, provide:
Title of Plan _____ Date of plan _____

III. PUBLIC WORKS DEPARTMENT REVIEW

Date received by Public Works Department _____

Check One:
Minor Project ☐ Major Project ☐ Lateral ☐

(Refer to City Engineer Standard Requirements for Plans for definition of minor and major project)

Plans Submitted:
Certified Plot Plan ☐ Stamped Plans ☐

DATE AND COMMENTS:	RECOMMENDATIONS:
Aug 24th. 2016	
Neighboring tree may need a branch or two to be trimmed	
John Duphe Associate City Engineer	

V. RECOMMENDATION TO PUBLIC FACILITIES COMMITTEE:

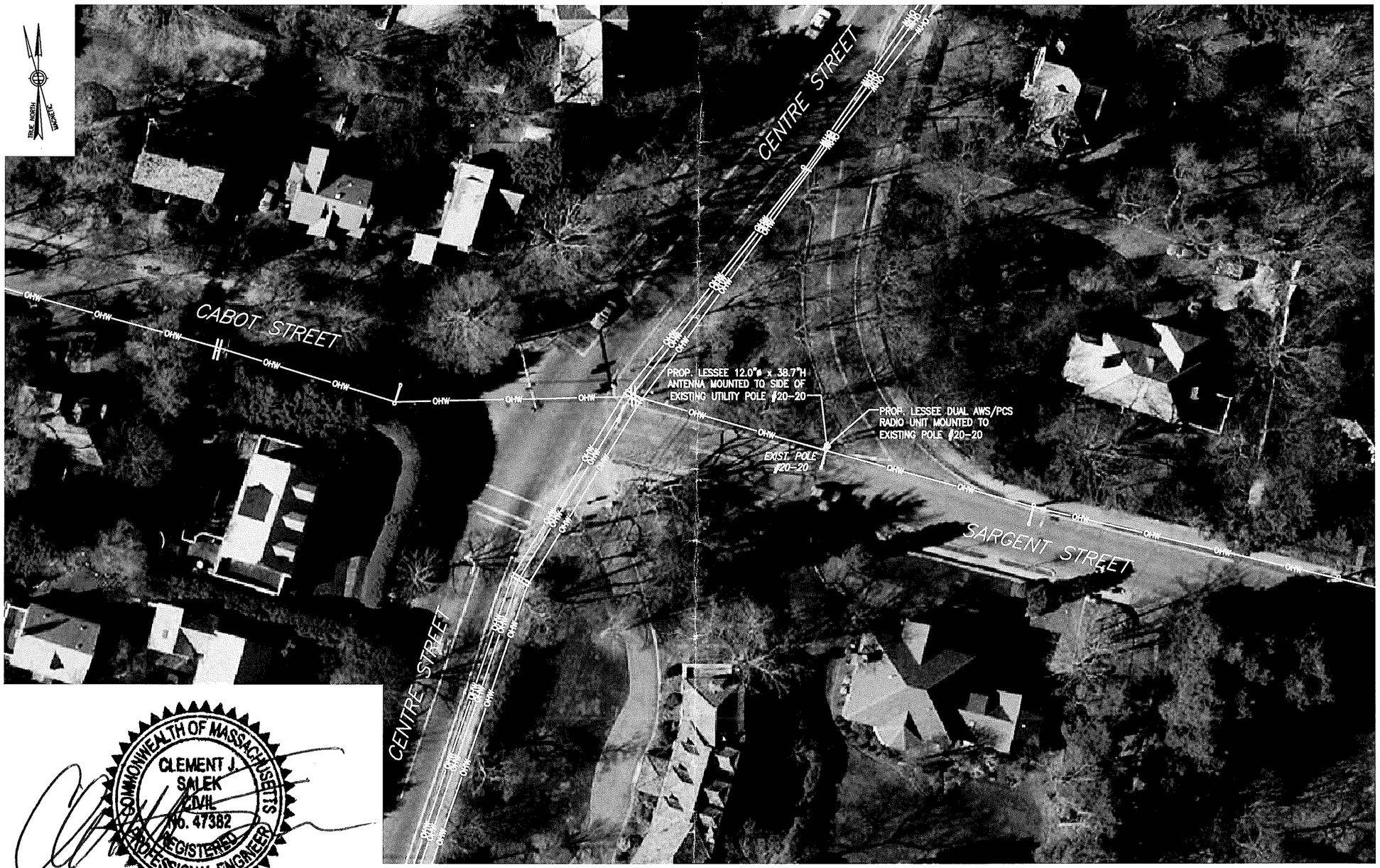
Commissioner, Public Works

8/24/16
Date

Final Label Report

#281-16

SBL	Owner	Number	Street	Unit
13013 0001	SOULIOTIS T PAUL & GEORGE	693	CENTRE ST	
72026 0014	CRONIN CYNTHIA	704	CENTRE ST	
13015 0023	FORD MARK S & GREG M	709	CENTRE ST	
13015 0001	BIBULD DOUGLASS L	717	CENTRE ST	
13016 0008	VILLAPIANO ALBERT J & MONA H TRS	727	CENTRE ST	
73001 0002	LIEBERMAN CARL & KARIN	734	CENTRE ST	
13016 0009	STOIA DAVID J	735	CENTRE ST	
73001 0003A	STEFCO HOLDINGS LLC		SARGENT ST	
73001 0003	KUSHNER EVAN M	160	SARGENT ST	
72026 0013	MCGARRY NANCY	171	SARGENT ST	
73001 0002B	GOLSHAN MEHRA	186	SARGENT ST	
72026 0015	GREENBERG WILLIAM E	187	SARGENT ST	



COMMONWEALTH OF MASSACHUSETTS
CLEMENT J. SALEK
CIVIL
NO. 47382
REGISTERED PROFESSIONAL ENGINEER

AREA PLAN
SCALE: 1" = 60'-0"

1
L-1

SITE CONTROL POINT
℄ EXISTING POLE #20-20
NAD 83 LATITUDE: N42° 20' 49.13"
NAD 83 LONGITUDE: W71° 11' 19.23"

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying

NO.	DATE	REVISIONS	BY	CHK	APP'D
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A	03/21/16	DRAFT LEASE EXHIBIT	JRV	CJS	CJS

NOT TO SCALE | DESIGNED BY: CJS | DRAWN BY: JRV

NEWTON 7 MA

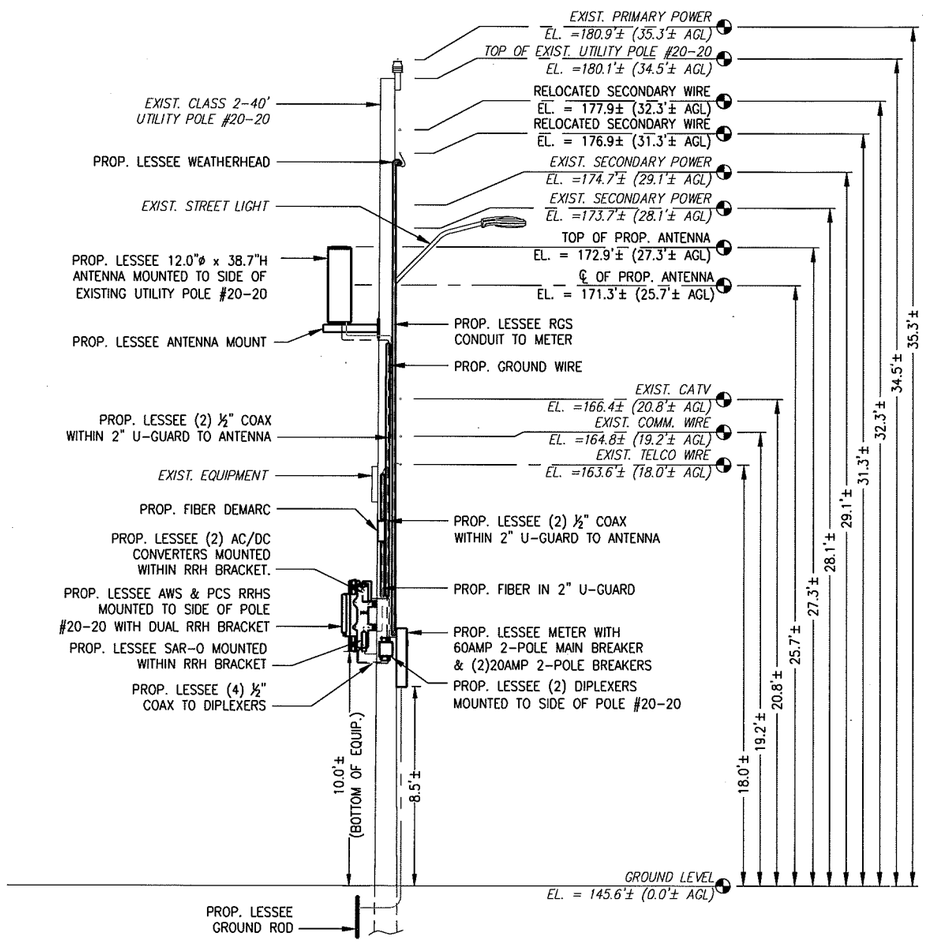
LEASE EXHIBIT
NOT FOR CONSTRUCTION

SITE ADDRESS

POLE #20-20
SARGENT STREET
NEWTON, MA 02458

AREA PLAN

PROJECT NO.	DRAWING NAME	DATE	LOC. CODE	REV
1460.177	L-1	06/13/16	272535	1



ELEVATION
SCALE: 1" = 8'-0"
1
L-2

ELEVATION PHOTO
SCALE: N.T.S.
1
L-2

COMMONWEALTH OF MASSACHUSETTS
CLEMENT J. SALEK
CIVIL
No. 47382
REGISTERED PROFESSIONAL ENGINEER

NOTE:

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ANTENNA TO BE SECURED TO EXISTING STRUCTURE USING ANTENNA MANUFACTURER'S RECOMMENDED MOUNTS AND HARDWARE. CONTRACTOR TO COORDINATE WITH CHAPPELL ENGINEERING FOR APPROVAL OF SITE-SPECIFIC MOUNTS PRIOR TO INSTALLATION.

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying

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NOT TO SCALE | DESIGNED BY: CJS | DRAWN BY: JRV

NEWTON 7 MA

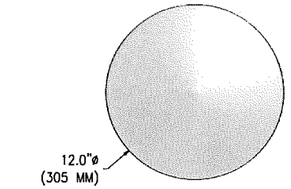
LEASE EXHIBIT
NOT FOR CONSTRUCTION

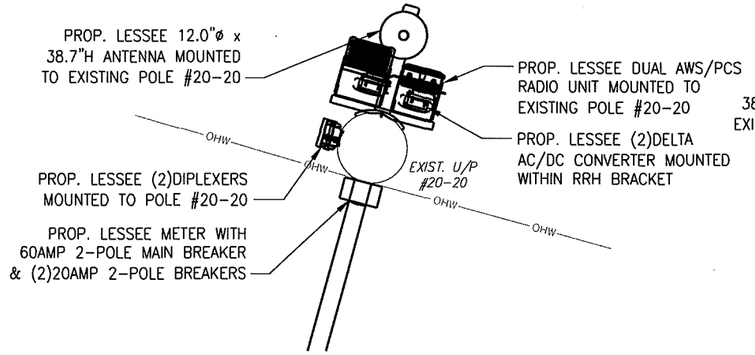
SITE ADDRESS

POLE #20-20
SARGENT STREET
NEWTON, MA 02458

ELEVATION PLAN

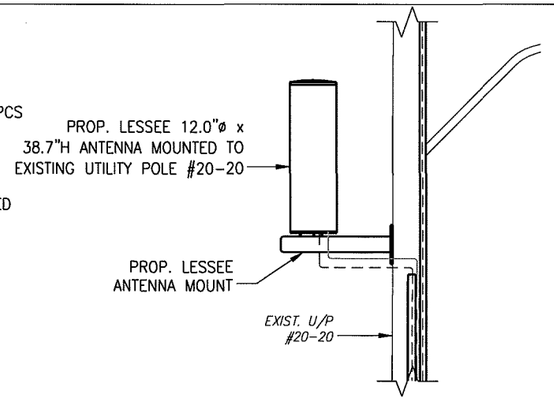
PROJECT NO.	DRAWING NAME	DATE	LOC. CODE	REV
1460.177	L-2	06/13/16	272535	1





ANTENNA PLAN (3 / L-3)

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



ANTENNA MOUNTING DETAIL (4 / L-3)

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

NOTE:

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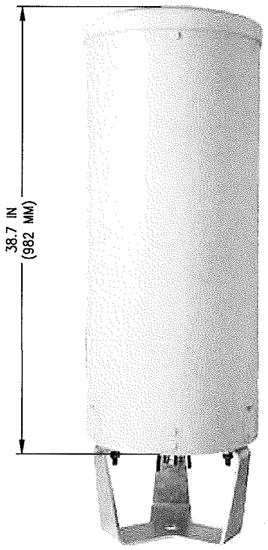
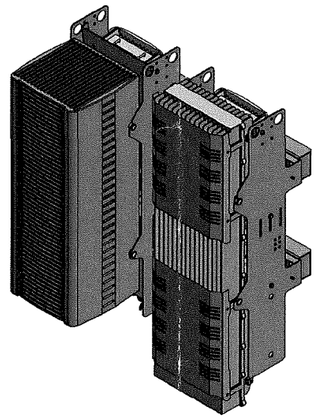


SMALL CELL CANTENNA	
DIMENSIONS:	12.0"ø x 38.7"
WEIGHT:	33.7 LBS

ANTENNA DETAIL (1 / L-3)

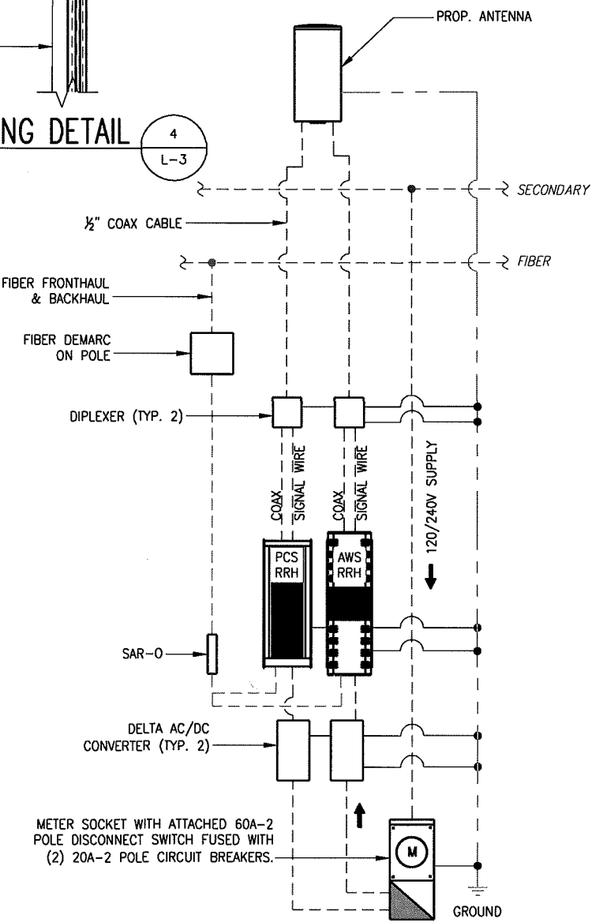
SCALE: N.T.S.



DUAL RADIO UNIT	
PCS:	
DIMENSIONS:	21.4"H x 12"W x 7.2"D
WEIGHT:	51 LBS
AWS:	
DIMENSIONS:	36.7"H x 10.6"W x 5.8"D
WEIGHT:	55 LBS

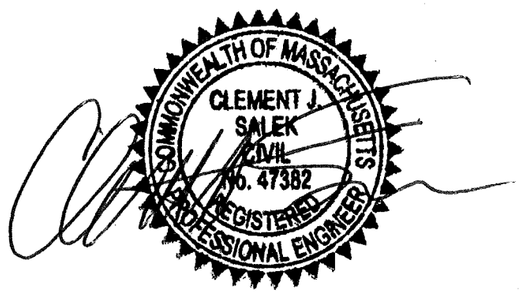
RADIO DETAIL (2 / L-3)

SCALE: N.T.S.



GENERAL WIRING DIAGRAM (5 / L-3)

SCALE: N.T.S.



CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/13/16	LEASE EXHIBIT	JRV	CJS	CJS
0	05/19/16	LEASE EXHIBIT	JRV	CJS	CJS
A	03/21/16	DRAFT LEASE EXHIBIT	JRV	CJS	CJS

NOT TO SCALE | DESIGNED BY: CJS | DRAWN BY: JRV

NEWTON 7 MA

LEASE EXHIBIT
NOT FOR CONSTRUCTION

SITE ADDRESS

POLE #20-20
SARGENT STREET
NEWTON, MA 02458

EQUIPMENT PLAN

PROJECT NO.	DRAWING NAME	DATE	LOC. CODE	REV
1460.177	L-3	06/13/16	272535	1

verizon

385 Myles Standish Boulevard
Taunton, MA 02780

Paul A. Schneider
MA-RI OSP Center Engineering

Phone 774-409-3152
Fax 774-409-3930
paul.a.schneider@verizon.com

RECEIVED
Newton City Clerk
2016 AUG 25 AM 8:45
David A. Olson, CMC
Newton, MA 02459

July 25, 2016

Newton City Council
Newton City Hall, Room 105
1000 Commonwealth Avenue
Newton, MA 02459

RE: Petition for Verizon job #4A0N7PN
Greenwood Street, Newton, MA

Dear Honorable City Council:

Enclosed please find a petition on behalf of Verizon New England Inc. and NStar Electric Company d/b/a Eversource Energy to relocate one pole on the southeasterly side of Greenwood Street.

The pole relocation is necessary in order to accommodate a new driveway at #56 Greenwood Street.

A Public Hearing and notice to abutters is required. A Verizon representative will attend the Public Hearing. Should any questions or comments arise concerning this matter prior to the hearing, please contact me at 774-409-3152. Your assistance is greatly appreciated.

Sincerely,

Paul A. Schneider
MA-RI OSP Center Engineering

Enc

CITY OF NEWTON
MASSACHUSETTS

PETITION for GRANT OF LOCATION

To the Petitioner:

City of Newton Ordinance Section 23-52 requires that each petition for grant of location be submitted to the Board of Aldermen before it is sent to the Public Works Department for a preliminary review. The comments of the Public Works Commissioner will be part of the record submitted to the Board of Aldermen. Upon filing with the Board of Aldermen, the petition will be scheduled for a public hearing before the Public Facilities Committee of the Board of Aldermen. **The petitioner is responsible for insuring that the petition is complete and all required materials are in order for review.** Attached please find the City Engineer's Standard Requirements for Plans and the Department of Public Works Permit Processing brochure.

Grant of Location Process:

1. Applicant submits completed Petition Form and required materials to the Board of Aldermen
2. Public Works Department conducts preliminary review and gives written comments to the applicant
3. Engineering Division files Petition Form with comments with the Clerk of the Board of Aldermen
4. Board of Aldermen schedules petition for a public hearing before the Public Facilities Committee of the Board of Aldermen
5. Public Facilities Committee recommendations are forwarded to the Board of Aldermen for a final decision

Questions my be directed to:

Lou Taverna, City Engineer, 617-796-1020
Shawna Sullivan, Clerk of the Board of Aldermen, 617-796-1213

I. IDENTIFICATION (Please Type or Print Clearly)

Company Name Verizon

Address 385 Myles Standish Blvd
Taunton, MA 02780

Phone Number 774-409-3152 Fax Number 774-409-3926

Contact Person Paul Schneider Title Right of Way Manager

Signature Paul A Schneider Digitally signed by Paul A Schneider DN: cn=Paul A Schneider, o=Verizon, ou=ROW, email=paul.a.schneider@verizon.com, c=US Date: 2016.08.22 10:07:04 -04'00' Date 8/22/2016

Person filing application

If a telecommunications company, indicate how certified by the Department of Telecommunications and Energy:

II. DESCRIPTION OF PROJECT: to be completed by petitioner

A. Write here or attach a description of the project including, location, proposed time frame for completion, type of materials to be used, benefit provided to the City, project mitigation plan as applicable, street reconstruction plan including timetable for completion.

Relocate utility pole #6 Greenwood Street approximately 19' southeast from its current position to accommodate a new driveway into house #56.

See attached plan.

B. Include or attach a sketch to provide a visual description of the project. If plans are attached, provide:
Title of Plan 4A0N7PN Date of plan July 25, 2016

III. PUBLIC WORKS DEPARTMENT REVIEW

Date received by Public Works Department _____

Check One:
Minor Project ☐ Major Project ☐ Lateral ☐

(Refer to City Engineer Standard Requirements for Plans for definition of minor and major project)

Plans Submitted:
Certified Plot Plan ☐ Stamped Plans ■

DATE AND COMMENTS:	RECOMMENDATIONS:
Any damage to curbing or Side walk shall be restored to City Standards John Doghran Associate City Engineer Sept. 2, 2016	

V. RECOMMENDATION TO PUBLIC FACILITIES COMMITTEE:

Commissioner, Public Works

9/2/16
Date

PETITION FOR JOINT OR IDENTICAL POLE LOCATIONS

To the City Council

Of **NEWTON**, Massachusetts

VERIZON NEW ENGLAND INC. and **NSTAR ELECTRIC COMPANY D/B/A EVERSOURCE ENERGY** request permission to locate poles, wires, cables and fixtures including the necessary anchors, guys and other such sustaining and protecting fixtures to be owned and used in common by your petitioners, along and across the following public way or ways:

GREENWOOD STREET:

Relocate one jointly owned Pole, P.6, on the southeasterly side of Greenwood Street to a point approximately 29' southwesterly from its current location, said point being approximately 135'southwesterly from existing pole P.5, and approximately 118' northeasterly from existing pole P.7

Wherefore they pray that after due notice and hearing as provided by law, they be granted joint or identical locations for and permission to erect and maintain poles, wires and cables, together with anchors, guys and other such sustaining and protecting fixtures as they may find necessary, said poles to be erected substantially in accordance with the plan filed herewith marked - **VERIZON No. 4A0N7PN,** Dated July 25, 2016.

Also for permission to lay and maintain underground laterals, cables and wires in the above or intersecting public ways for the purpose of making connections with such poles and buildings as each of said petitioners may desire for distributing purposes.

Your petitioners agree that space shall be reserved and maintained for the limited purpose of attaching one-way low voltage fire and police signaling wires owned by the municipality or governmental entity for public safety purposes only.

VERIZON NEW ENGLAND INC.

By Paul Schneider

Name/Title: ROW MANAGER

NSTAR ELECTRIC COMPANY D/B/A EVERSOURCE ENERGY

By

Name/Title: STEVEN M. OWENS / SUPERVISOR

ORDER FOR JOINT POLE LOCATION

The City Council of the City of Newton, Massachusetts **ORDERED:**

That permission be and is hereby granted **VERIZON NEW ENGLAND INC. and NStar Electric Company d/b/a Eversource Energy** joint or identical locations for and permission to erect and maintain poles and their respective wires and cables to be placed thereon, together with anchors, guys and other sustaining and protecting fixtures as said Companies may deem necessary, in the public way or ways as requested in petition of said Company dated the 25th day of July, 2016.

GREENWOOD STREET:

Relocate one jointly owned Pole, P.6, on the southeasterly side of Greenwood Street to a point approximately 29' southwesterly from its current location, said point being approximately 135'southwesterly from existing pole P.5, and approximately 118' northeasterly from existing pole P.7

All construction under this order shall be in accordance with the following conditions:

Poles shall be of sound timber, and reasonably straight, and shall be set substantially at the points indicated upon the plan marked – **VERIZON No. 4A0N7PN**, Dated July 25, 2016 filed with said petition.

There may be attached to said poles by Verizon New England Inc. not to exceed 20 wires and 5 cables and by said NStar Electric Company d/b/a Eversource Energy such wires, cables and fixtures as are necessary in its business and all of said wires and cables shall be placed at a height in compliance with the National Electrical Safety Code.

Also that permission be and hereby is granted said VERIZON NEW ENGLAND INC. and NStar Electric Company d/b/a Eversource Energy to lay and maintain underground laterals, cables and wires in the above or intersecting public ways for the purpose of making connections with such poles and buildings as it may desire for distributing purposes.

I hereby certify that the foregoing order was adopted at a meeting of the City Council of the City of Newton, Massachusetts, held on the _____ day of _____, 2016.

_____

City Clerk

We hereby certify that on _____, 201___, at _____ o'clock ___ M., at Swampscott, Massachusetts, a public hearing was held on the petition of **VERIZON NEW ENGLAND INC. and NStar Electric Company d/b/a Eversource Energy** for permission to erect the line of wires, cables, poles fixtures and connection described in the order herewith recorded, and that we mailed at least seven days before said hearing a written notice of the time and place of said hearing to each of the owners of real estate (as determined by the last preceding assessment for taxation) along the ways or parts of ways upon which said Company is permitted to construct the lines of said Company under said order. And that thereupon said order was duly adopted.

_____

_____

_____

_____

_____

City Council of
Newton, Massachusetts

CERTIFICATE

I Hereby certify that the foregoing is a true copy of a location order, and certificate of hearing with notice adopted by the City Council of the City of Newton, Massachusetts, on the _____ day of _____, 2016 and recorded with the records of location orders of said City, Book _____, Page _____. This certified copy is made under the provisions of Chapter 166 of General Laws and any additions thereto or amendments thereof.

Attest:

_____
City Clerk

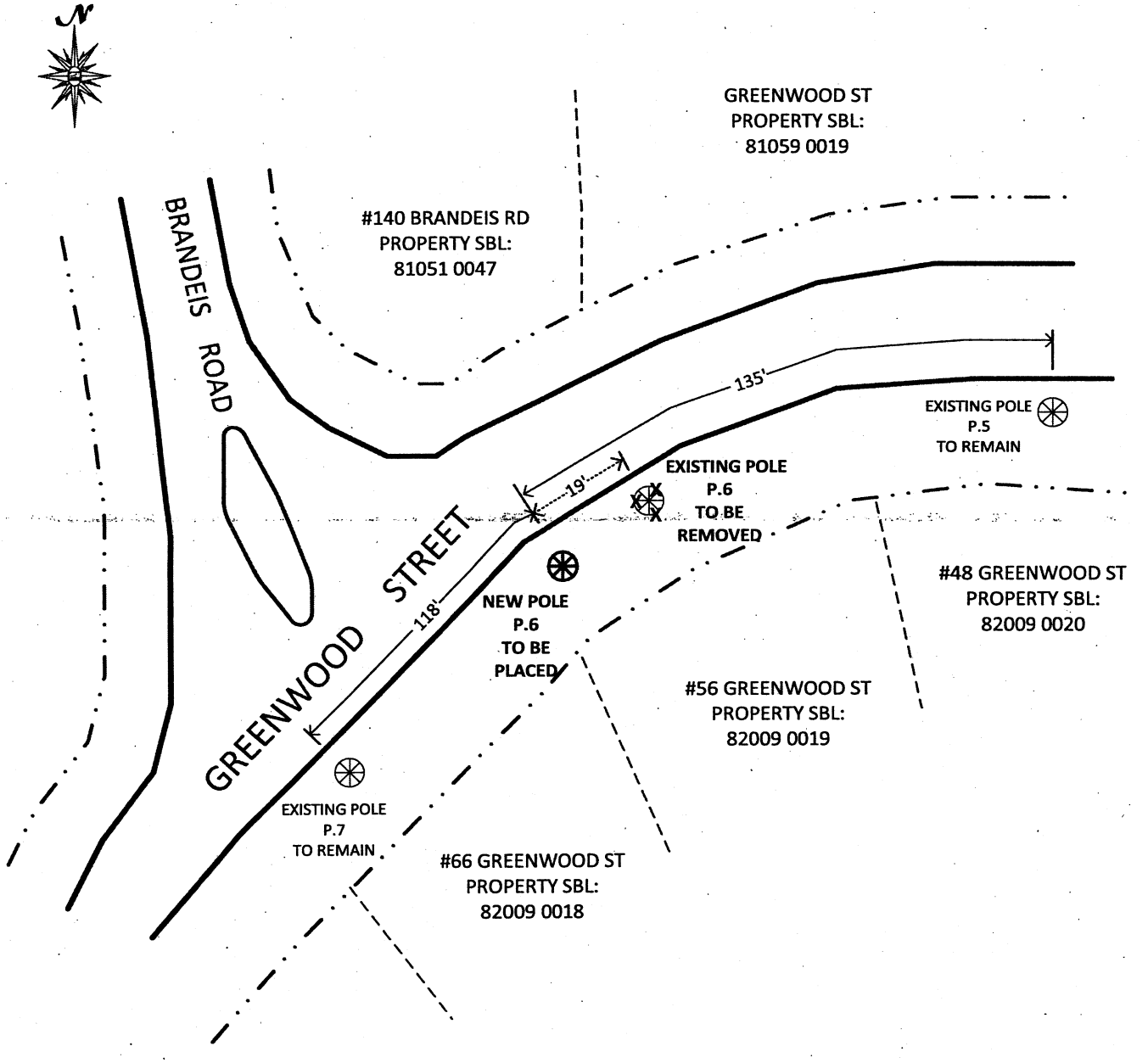
PETITION PLAN

verizon

MUNICIPALITY NEWTON NO. 4A0N7PN

VERIZON NEW ENGLAND, INC and
NSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY DATE : JULY 25, 2016

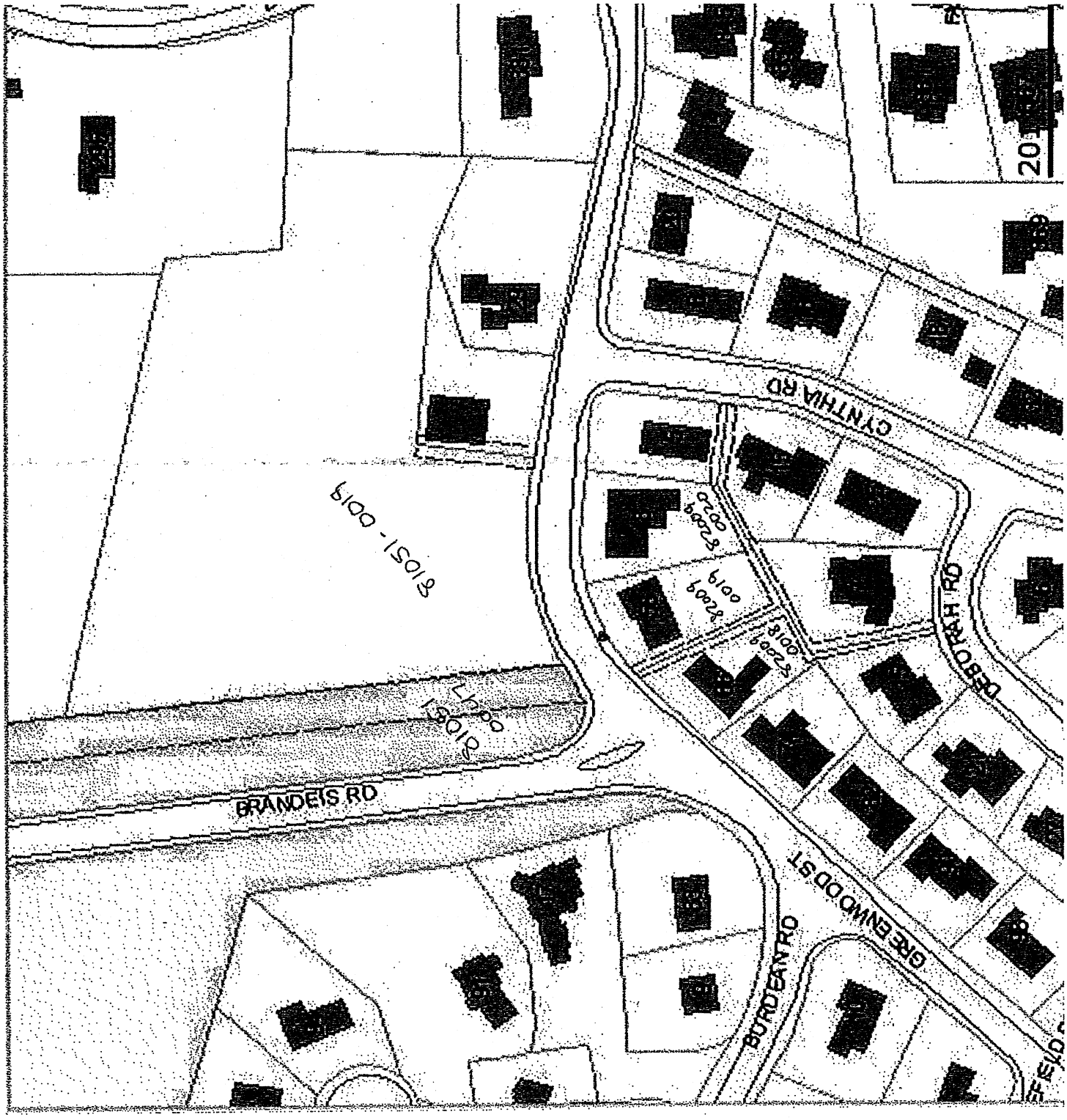
SHOWING PROPOSED RELOCATION ONE POLE ON GREENWOOD STREET



NOT TO SCALE

LEGEND

- EXISTING JOINTLY OWNED POLE TO REMAIN
- EXISTING JOINTLY OWNED POLE TO BE REMOVED
- PROPOSED JOINTLY OWNED POLE TO BE PLACED
- EDGE OF PAVEMENT
- EDGE OF ROADWAY
- PROPERTY LINE


CYNTHIA RD
DEBORAH RD
GREENWOOD ST
BURDEAN RD
BRANDEIS RD
20

Property SBL	82009 0020	**Tax Bill Number**	2701084
Property Address	48 GREENWOOD ST	**Zoning ****	SR2
Land Use *	101	**Map ID**	140SE
Land Use Descr *	SINGLE FAMILY	**Neighborhood**	4B

Sale Date	8/1/1984	**Prior Sale Date**	
Sale Price	$148,000	**Prior Sale Price**	
Legal Reference	000987/0025	**Prior Legal Reference**	
Current Owner		**Prior Owner**	

ASH PAUL B & BEVERLY

48 GREENWOOD ST
NEWTON, MA 02459

Residential Information

Style	Split-Level	**Rooms**	11	**Finished Attic Area**	
Story Height	1	**Bedrooms**	3	**Unfinished Attic Area**	
Year Built	1955	**Baths**	2	**Basement Area**	2,102 sq ft
Exterior Walls	Wood Shingle	**Half Baths**	1	**Finished Basement Area**	799 sq ft
Masonry Trim	None	**Heat Type**	Hot Water	**Recent Field Visit**	9/3/2004
Foundation	Concrete	**Fuel Type**	Oil	**Prior Field Visit**	11/10/1997
Roof Type	Hip	**Air Conditioning**	Central		
Roof Material	Asphalt Shingl	**Fireplaces**	2		
Attached Garage		**Kitchen Quality**	Average		
Carport Area		**Bath Quality**	Average		
Deck Area		**Interior Condition**	Average		
Porch Area	235 sq ft	**House Size**	2,327 sq ft		
Enclosed Porch					
Basement Garage					

Assessment History

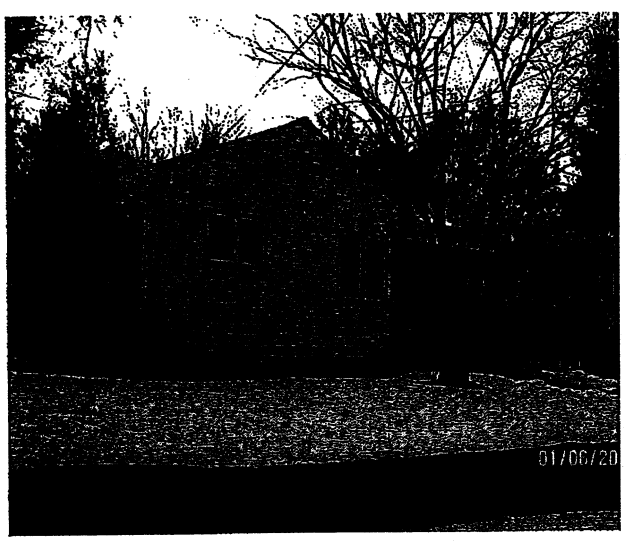
FY 2016	$757,600
FY 2015	$708,000
FY 2014	$680,300
FY 2013	$680,300
FY 2012	$680,300
FY 2011	$686,700
FY 2010	$700,700
FY 2009	$715,000
FY 2008	$715,000
FY 2007	$759,400
FY 2006	$737,300
FY 2005	$702,200
FY 2004	$657,400
FY 2003	$587,000
FY 2002	$587,000
FY 2001	$479,000
FY 2000	$437,400
FY 1999	$398,000

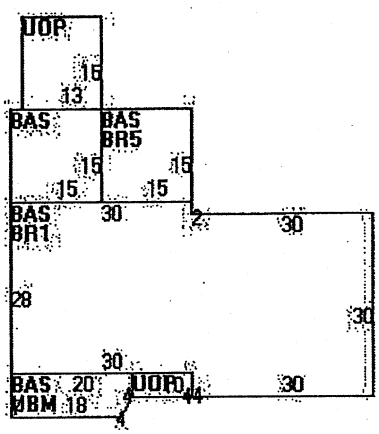
Land Information

Lot Size	11,407 sq ft
Frontage	105 ft
Zoning	SR2

Detached Structures (Data to right of category)

Detached Garage Area	
Living Space in Garage	
Shed Area	
Tennis Courts	
Swimming Pool	
Cabana Area	





* The land use and description listed here are for Assessing Department purposes based on historical records in the Assessing Department.
For an official ruling on the legal use of the property pursuant to the state building code and/or Newton Zoning Ordinances, contact the Inspectional Services Department.
** For reference purposes only. Please check with Engineering Department for official zoning designation.

Date Printed Friday, July 22, 2016 City of Newton Assessing Department Property Record Card
Fiscal Year 2016 Tax Rates: Residential: $11.38 Commercial: $21.94

82009 0019 | 56 GREENWOOD ST | 82009 0019

Property SBL	82009 0019	Tax Bill Number	2724009
Property Address	56 GREENWOOD ST	Zoning **	SR2
Land Use *	101	Map ID	140SE
Land Use Descr *	SINGLE FAMILY	Neighborhood	4B

Sale Date	9/1/1986	Prior Sale Date	
Sale Price	$282,000	Prior Sale Price	
Legal Reference	001029/0186	Prior Legal Reference	
Current Owner		Prior Owner	

SPIVAK GENE & RITA

56 GREENWOOD ST
NEWTON CENTRE, MA 02459

Residential Information

Style	Split-Level	Rooms	8	Finished Attic Area	
Story Height	1	Bedrooms	3	Unfinished Attic Area	
Year Built	1951	Baths	3	Basement Area	1,918 sq ft
Exterior Walls	Clapboard	Half Baths	1	Finished Basement Area	480 sq ft
Masonry Trim	Half Wall	Heat Type	Hot Water	Recent Field Visit	9/3/2004
Foundation	Concrete	Fuel Type	Oil	Prior Field Visit	3/29/1985
Roof Type	Gable	Air Conditioning	Unit/AC		
Roof Material	Asphalt Shingl	Fireplaces	2		
Attached Garage		Kitchen Quality	Above Average		
Carport Area		Bath Quality	Good		
Deck Area	320 sq ft	Interior Condition	Good		
Porch Area		House Size	1,934 sq ft		
Enclosed Porch					
Basement Garage					

Assessment History

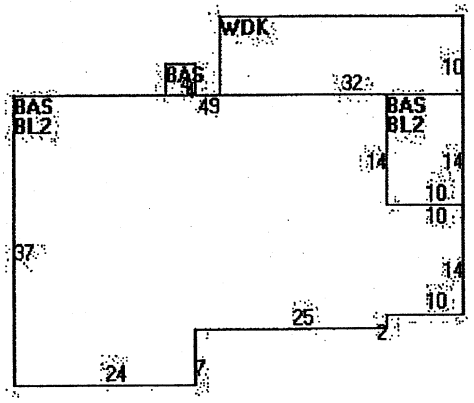
FY 2016	$955,100
FY 2015	$892,600
FY 2014	$852,700
FY 2013	$852,700
FY 2012	$852,700
FY 2011	$853,400
FY 2010	$870,800
FY 2009	$888,600
FY 2008	$888,800
FY 2007	$932,900
FY 2006	$905,700
FY 2005	$862,600
FY 2004	$802,500
FY 2003	$716,500
FY 2002	$716,500
FY 2001	$606,500
FY 2000	$553,900
FY 1999	$504,000

Land Information

Lot Size	12,410 sq ft
Frontage	91 ft
Zoning	SR2

Detached Structures (Data to right of category)

Detached Garage Area	
Living Space in Garage	
Shed Area	
Tennis Courts	
Swimming Pool	
Cabana Area	



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Date Printed Friday, July 22, 2016
Fiscal Year 2016 Tax Rates: Residential: $11.38 Commercial: $21.94

82009 0018 66 GREENWOOD ST 82009 0018

Property SBL	82009 0018	Tax Bill Number	2722836
Property Address	66 GREENWOOD ST	Zoning **	SR2
Land Use *	101	Map ID	140SE
Land Use Descr *	SINGLE FAMILY	Neighborhood	4B

Sale Date	7/16/2012	Prior Sale Date	5/1/1987
Sale Price	$855,000	Prior Sale Price	$345,000
Legal Reference	001419/0106	Prior Legal Reference	001030/0100
Current Owner		Prior Owner	
SHAHRAZ SAEID		ATHAN HARRY & ELEFTHERIA	
GHAZIANI TAHEREH			
66 GREENWOOD ST			
NEWTON, MA 02459			

Residential Information

Style	Split-Level	Rooms	7	Finished Attic Area	
Story Height	1	Bedrooms	3	Unfinished Attic Area	
Year Built	1957	Baths	3	Basement Area	1,400 sq ft
Exterior Walls	Wood on Sheath	Half Baths		Finished Basement Area	466 sq ft
Masonry Trim	Half Wall	Heat Type	Hot Wtr Radiat	Recent Field Visit	9/3/2004
Foundation	Concrete	Fuel Type	Gas	Prior Field Visit	8/19/1995
Roof Type	Gable	Air Conditioning	Central		
Roof Material	Asphalt Shingl	Fireplaces	2		
Attached Garage		Kitchen Quality	Above Average		
Carport Area		Bath Quality	Above Average		
Deck Area	252 sq ft	Interior Condition	Good		
Porch Area	24 sq ft	House Size	1,805 sq ft		
Enclosed Porch					
Basement Garage					

Assessment History

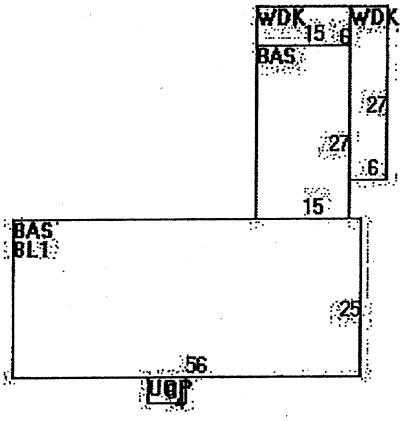
FY 2016	$872,700
FY 2015	$815,600
FY 2014	$775,900
FY 2013	$775,900
FY 2012	$656,400
FY 2011	$654,900
FY 2010	$668,300
FY 2009	$681,900
FY 2008	$681,900
FY 2007	$728,700
FY 2006	$707,500
FY 2005	$673,800
FY 2004	$620,600
FY 2003	$554,100
FY 2002	$554,100
FY 2001	$458,400
FY 2000	$418,600
FY 1999	$380,900

Land Information

Lot Size	10,944 sq ft
Frontage	100 ft
Zoning	SR2

Detached Structures (Data to right of category)

Detached Garage Area	
Living Space in Garage	
Shed Area	
Tennis Courts	
Swimming Pool	
Cabana Area	



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** For reference purposes only. Please check with Engineering Department for official zoning designation.

81051 0047 | 140 BRANDEIS RD | 81051 0047

Property SBL	81051 0047	Tax Bill Number	2704990
Property Address	140 BRANDEIS RD	Zoning **	PUB
Land Use *	934	Map ID	131SW
Land Use Descr *	MUNICIPAL IMPROVED EDUCATION	Neighborhood	3

Sale Date	Prior Sale Date
Sale Price	Prior Sale Price
Legal Reference	Prior Legal Reference
Current Owner	Prior Owner

CITY OF NEWTON
SCHOOL DEPT-NEWTON SOUTH HIGH

1000 COMM AVE
NEWTON, MA 02459

Commercial Information

Style	School
Story Height	2
Year Built	1959
Recent Field Visit	7/2/2013
Prior Field Visit	7/26/2012

Commercial Information

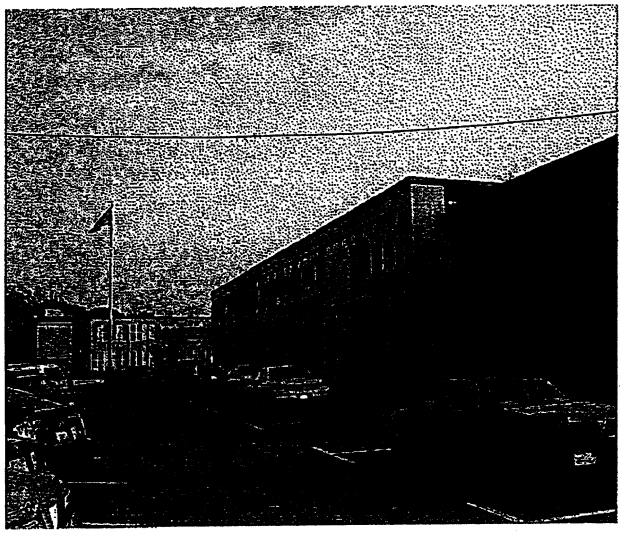
Gross Bldg Area	375,997 sq ft
Effective Area	371,221 sq ft
Bldg Area	337,401 sq ft
Total Apartments	0

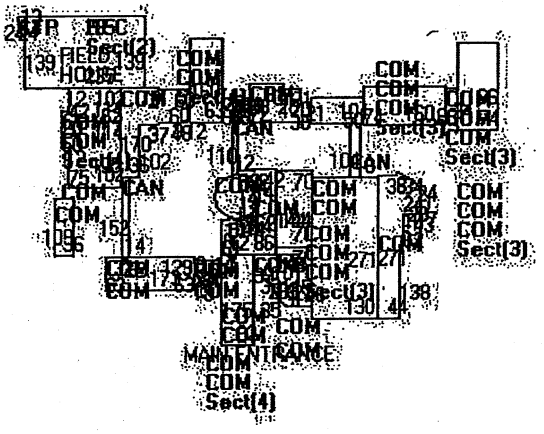
Assessment History

FY 2016	$105,073,300
FY 2015	$105,073,300
FY 2014	$102,655,500
FY 2013	$102,607,800
FY 2012	$89,897,100
FY 2011	$89,897,100
FY 2010	$84,146,600
FY 2009	$84,146,600
FY 2008	$84,146,600
FY 2007	$0
FY 2006	$0
FY 2005	$0
FY 2004	$0
FY 2003	
FY 2002	
FY 2001	
FY 2000	
FY 1999	

Land Information

Lot Size	1,458,270 sq ft
Frontage	
Zoning	PUB





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** For reference purposes only. Please check with Engineering Department for official zoning designation.

Date Printed Friday, July 22, 2016
Fiscal Year 2016 Tax Rates: Residential: $11.38 Commercial: $21.94

Property SBL	81051 0019	Tax Bill Number	2717895
Property Address	GREENWOOD ST	Zoning **	SR1
Land Use *	132	Map ID	140NE
Land Use Descr *	UNDEVELOPABLE LAND	Neighborhood	4B

Sale Date	2/27/1989	Prior Sale Date	
Sale Price	$1	Prior Sale Price	
Legal Reference	019868/0068	Prior Legal Reference	
Current Owner		Prior Owner	

MOSKOW MICHAEL B TR
PACKET RLTY TRUST

2 PARK PLAZA SUITE 407
BOSTON, MA 02116

Residential Information

Style		Rooms		Finished Attic Area	
Story Height		Bedrooms		Unfinished Attic Area	
Year Built		Baths		Basement Area	
Exterior Walls		Half Baths		Finished Basement Area	
Masonry/Trim		Heat Type		Recent Field Visit	5/1/2009
Foundation		Fuel Type		Prior Field Visit	
Roof Type		Air Conditioning			
Roof Material		Fireplaces			
Attached Garage		Kitchen Quality			
Carport Area		Bath Quality			
Deck Area		Interior Condition			
Porch Area		House Size			
Enclosed Porch					
Basement Garage					

Commercial Information

Gross Bldg Area	
Effective Area	
Bldg Area	
Total Apartments	0

Assessment History

FY 2016	$185,000
FY 2015	$181,400
FY 2014	$167,100
FY 2013	$167,100
FY 2012	$167,100
FY 2011	$172,000
FY 2010	$172,000
FY 2009	$172,000
FY 2008	$172,000
FY 2007	$179,900
FY 2006	$179,900
FY 2005	$179,900
FY 2004	$50,100
FY 2003	$50,100
FY 2002	$50,100
FY 2001	$50,100
FY 2000	$50,100
FY 1999	$50,100

Land Information

Lot Size	171,000 sq ft
Frontage	90 ft
Zoning	SR1

Detached Structures (Data to right of category)

Detached Garage Area	
Living Space in Garage	
Shed Area	
Tennis Courts	
Swimming Pool	
Cabana Area	

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Date Printed Friday, July 22, 2016 City of Newton Assessing Department Property Record Card
Fiscal Year 2016 Tax Rates: Residential: $11.38 Commercial: $21.94

ABUTTERS LIST

PROPERTY SBL: 82009 0020
48 Greenwood Street

ASH PAUL B & BEVERLY
48 Greenwood Street
Newton, MA 02459

PROPERTY SBL: 82009 0019
56 Greenwood Street

SPIVAK GENE & RITA
56Greenwood Street
Newton Centre, MA 02459

PROPERTY SBL: 82009 0018
66 Greenwood Street

SHAHRAZ SAEID
GHAZIANI TAHEREH
66 Greenwood Street
Newton, MA 02459

PROPERTY SBL: 81051 0047
140 Brandeis Road

CITY OF NEWTON
SCHOOL DEPT – NEWTON SOUTH HIGH
100 Comm Ave
Newton, MA 02459

PROPERTY SBL: 81051 0019
Greenwood Street

MOSKOW MICHAEL B TR
PACKET RLTY TRUST
2 Park Plaza Suite 407
Boston, MA 02116

Final Label Report

#304-16

SBL	Owner	Number	Street	Unit
81051 0021	HAMBLIN ELIZABETH	9	BURDEAN RD	
82009 0021	KEEZER MARY JANE	5	CYNTHIA RD	
81051 0018	TWENTY-NINE GREENWOOD LLC		GREENWOOD ST	
81051 0019	MOSKOW MICHAEL B TR		GREENWOOD ST	
82009 0020	ASH PAUL B & BEVERLY	48	GREENWOOD ST	
82009 0019	SPIVAK GENE & RITA	56	GREENWOOD ST	
82009 0018	SHAHRAZ SAEID	66	GREENWOOD ST	
82009 0017	SCHNEIDER CRAIG D & TAMAR K	74	GREENWOOD ST	
82009 0016	SADEGH MARJAN	82	GREENWOOD ST	
81051 0020	BIKOFSKY DAVID R & KAREN S	83	GREENWOOD ST	

City of Newton

DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER
1000 Commonwealth Avenue
Newton Centre, MA 02459-1449

Setti D. Warren
Mayor

August 25, 2016

RECEIVED
Newton City Clerk
2016 AUG 25 PM 1:51
David A. Olson, CMC
Newton, MA 02459

To: Maureen Lemieux, Chief Financial Officer

From: James McGonagle, Commissioner Public Works

Subject: Construction of Concord St Traffic Calming Islands Using Mitigation Funds

Public Works proposes to construct four traffic islands (torpedo islands) on Concord St in Lower Falls using mitigation funds. The traffic islands will be installed between Hagar Street and St. Mary's Street (see plan attached). A crosswalk will be striped at the old railroad bed easement. Construction is scheduled for fall 2016.

Public Works performed a trial of one traffic island near St. Mary's Street this summer. The trial showed that the traffic islands do have an effect on traffic calming. The roadway narrowing does prevent vehicles and bicycles from both traveling through the traffic islands at the same time, thereby slowing vehicular traffic. Lower Falls residents are generally in favor of the installation, provided that existing driveway aprons are not blocked by the traffic islands. Public Works will make field adjustments to the traffic islands to accommodate driveways and walking paths.

Please forward this request as a docket item to the Honorable City Council for their approval.

Sincerely,

James McGonagle
Commissioner

Cc: Shane L. Mark, Director of DPW Operations
Louis M. Taverna, P.E., City Engineer
David Wilkinson, Comptroller

Telephone: 617-796-1009 • Fax: 617-796-1050 • jmcgonagle@newtonma.gov

#273-16

SETTI D. WARREN
MAYOR

City of Newton, Massachusetts
Office of the Mayor

Telephone
(617) 796-1100

Facsimile
(617) 796-1113

TDD/TTY
(617) 796-1089

E-mail
swarren@newtonma.gov

RECEIVED
NEWTON CITY CLERK
2016 AUG -1 PM 12:50
DAVID A. OLSON, ESQ.
Newton, MA 02460

August 1, 2016

Honorable City Council
Newton City Hall
1000 Commonwealth Avenue
Newton Centre, MA 02459

Ladies and Gentlemen:

I write to request that your Honorable Board docket for consideration a request to authorize the appropriation of the sum of $216,000 and authorize a general obligation borrowing of an equal amount for the purchase of a new 2016 New Elgin Pelican NP dual street sweeper.

Thank you for your consideration of this matter.

Sincerely,

Setti D. Warren
Mayor

#275-16

City of Newton, Massachusetts
Office of the Mayor

SETTI D. WARREN
MAYOR

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(617) 796-1100

Facsimile
(617) 796-1113

TDD/TTY
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E-mail
swarren@newtonma.gov

RECEIVED
Newton, MA 02459
2016 AUG -1 PM 12:49
David A. Olson, CMC
Newton, MA 02459

August 1, 2016

Honorable City Council
Newton City Hall
1000 Commonwealth Avenue
Newton Centre, MA 02459

Ladies and Gentlemen:

I write to request that your Honorable Council docket for consideration a request to authorize the borrowing of up to $4,000,000 in interest free loans from the Massachusetts Water Resources Authority (MWRA). This proposed borrowing will allow Public Works to implement the proposed lead service line replacement program.

Thank you for your consideration of this matter.

Sincerely,

Setti D. Warren
Mayor