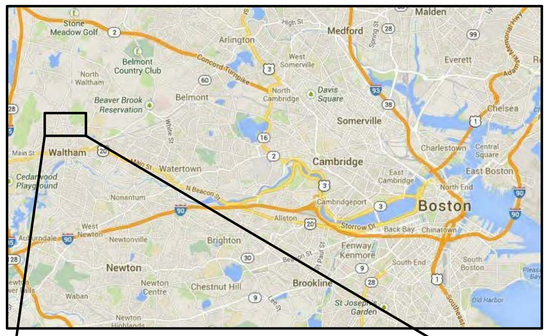
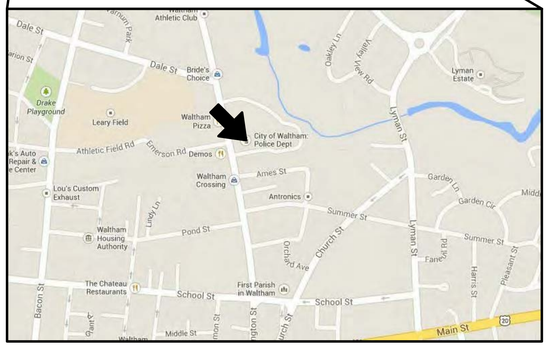
Waltham Police Station

Renovation

155 Lexington Street
Waltham, MA 02452



VICINITY MAP



LOCUS MAP

CDR MAGUIRE

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211 Congress Street, 11th Floor
Boston, Massachusetts 02110

ISSUED FOR BID
July 11, 2014

LIST OF DRAWINGS

19401.01 - WALTHAM POLICE STATION RENOVATION

REVIEWED BY: CIVIL: INITIAL &DATE ARCH: INITIAL &DATE STRU: INITIAL &DATE PLUM: INITIAL &DATE FIRE: INITIAL &DATE MECH: INITIAL &DATE ELEC: INITIAL &DATE

SAWCUT & MATCH EXISTING PAVEMENT

REMOVE AND REPLACE EXISTING FENCE

REMOVE AND REPLACE EXISTING GENERATOR AND ASSOCIATED CONCRETE PAD

97.70 97.31 97.40 97.66 97.63 97.37 97.55 97.78

TC 97.98
BC 97.56

TC 98.30
BC 97.68

R & D EXISTING ASPHALT

GS 97.81

TC 98.13
BC 97.80

R & D CURBING TO SAWCUT LINE

98.32

98.10

R & D CONCRETE WALK

SAWCUT & MATCH EXISTING PAVEMENT

99.15 99.09 99.05 99.55 99.20 99.23

100.19

R & D EXISTING ASPHALT

99.40

R & D EXISTING CONCRETE SIDEWALK

DMH

CB

HYD

WV

SMH

CB

R51-2-18
#155 – 175
N/F
CITY OF WALTHAM

NOTE: REMOVE & DISPOSE OF ALL VEGETATION ATTACHED TO THE EXISTING BUILDING

R&D EXISTING RAILING

R & D EXISTING CONCRETE SIDEWALK

100.02 +100.00 ASSUMED 100.02

99.33 99.37 99.59 99.91 99.94 99.29 99.21 99.40 99.10 99.09 99.12

TRENCH FOR PROPOSED UTILITES

REMOVE & RESET EXISTING CURBING

SAWCUT EXISTING CONCRETE SIDEWALK

SAWCUT EXISTING CONCRETE SIDEWALK

SAWCUT EXISTING CONCRETE SIDEWALK

99.91

99.20 99.14

REMOVE & RESET EXISTING CURBING

EXCAVATE FOR PROPOSED UTILITES

TRENCH FOR PROPOSED UTILITES

TC 98.30
BC 97.96

TC 98.20
BC 97.92

LP

REMOVE & RESET EXISTING CURBING

REMOVE & RESET EXISTING CURBING

TRENCH FOR PROPOSED UTILITES

SMH

18" CONC.

24" SEWER

TMH

LEXINGTON STREET

SCALE IN FEET
0 10' 20'

DRAWING FILE: N:\PROJECTS\19401.01-Waltham_Police_Station_Renovation\ACAD\CIVIL\SiteBase.dwg PLOTTED: Jul 14,2014-5:39pm BY: megan.rogoff

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REVISIONS

Number	Description	Date

ISSUED FOR
BID

WALTHAM
POLICE STATION
RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SITE DEMOLITION PLAN

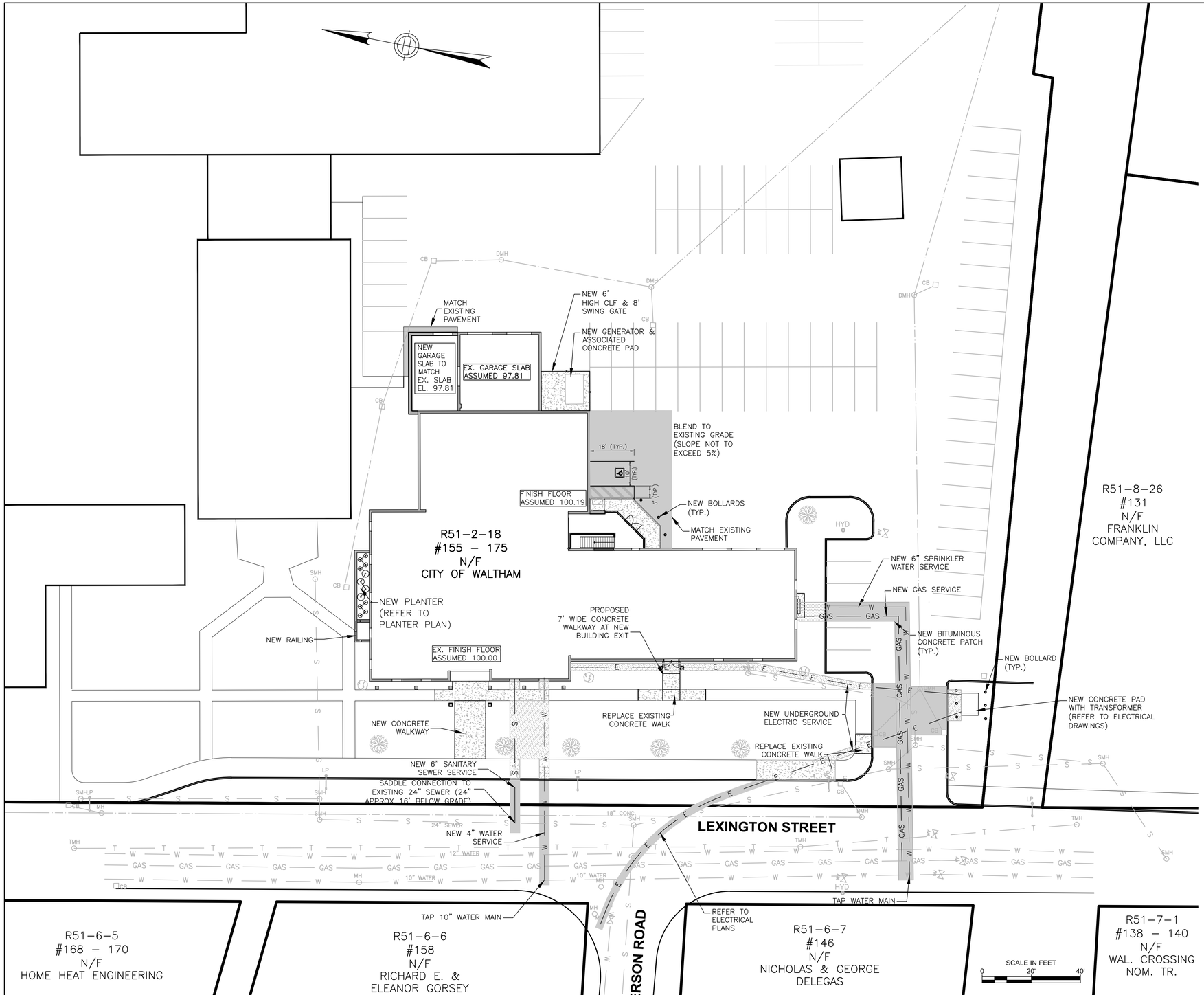
PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: RED
CHECKED BY:
DATE: JULY 11, 2014
SCALE: AS NOTED

SHEET NUMBER:

CD100

SHEET 1 OF 157

REVIEWED BY: CIVIL: INITIAL&DATE ARCH: INITIAL&DATE STRU: INITIAL&DATE PLUM: INITIAL&DATE FIRE: INITIAL&DATE MECH: INITIAL&DATE ELEC: INITIAL&DATE



EROSION & SEDIMENT CONTROL NOTES

1. ALL SEDIMENTS SPILLED, DROPPED, WASHED OR TRACKED ONTO THE PUBLIC RIGHT OF WAY MUST BE CLEANED UP/REMOVED PRIOR TO THE END OF THE WORK DAY.
2. EXPOSED AREAS SHALL NOT BE LEFT UNATTENDED OR EXPOSED IN AREAS WHERE WORK IS TO CEASE FOR A PERIOD OF 14 DAYS OR GREATER OR DURING THE INACTIVE WINTER SEASON. AREAS EXPOSED FOR THE DESCRIBED PERIODS SHALL RECEIVE TEMPORARY VEGETATIVE COVER AND BE COMPLETELY COVERED WITH LOOSE HAY MULCH.
3. TEMPORARY TREATMENTS SHALL CONSIST OF A HAY, STRAW, OR FIBER MULCH OR PROTECTIVE COVERS SUCH AS A MAT OR FIBER LINING (BURLAP, JUTE, FIBERGLASS NETTING, EXCELSIOR BLANKETS). THEY SHALL BE INCORPORATED INTO THE WORK AS WARRANTED OR AS ORDERED BY THE ENGINEER.
4. GRASS AREAS DISTURBED DURING CONSTRUCTION ACTIVITIES WHICH ARE NOT DESIGNATED TO HAVE ASPHALT OR CONCRETE INSTALLED SHALL RECEIVE PERMANENT LOAM AND SEED AS REQUIRED IMMEDIATELY AFTER THE COMPLETION OF CONSTRUCTION ACTIVITIES IN THE AREA.

GENERAL NOTES

1. EXISTING CONDITIONS INFORMATION WAS COMPILED WITH INFORMATION OBTAINED FROM MASS GIS SUPPLEMENTED BY SITE INVESTIGATION.
2. EXISTING SPOT GRADES AND LOCATION OF WATER GATES WERE OBTAINED IN THE FIELD ON JUNE 19, 2014.
3. THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF THE LOCATION OF EXISTING UTILITIES. THE CONTRACTOR SHALL CONTACT THE ENGINEER IF CONDITIONS ARE ENCOUNTERED IN THE FIELD WHICH IMPACT OR INTERFERE WITH THE PROPOSED CONSTRUCTION.
4. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS AS DIRECTED BY THE CONTRACT DOCUMENTS.
5. THE CONTRACTOR SHALL GIVE NOTICES AND COMPLY WITH ALL PERMITS, LAWS, ORDINANCES, RULES AND REGULATIONS BEARING ON THE CONDUCT OF THE WORK AS DRAWN AND SPECIFIED.
6. THE CONTRACTOR'S WORK SHALL BE SUBJECT TO INSPECTION BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
7. THE LIMIT OF DISTURBANCE WILL BE KEPT TO A MINIMUM.
8. ASPHALT AND CONCRETE REMOVED DURING THE DEMOLITION PROCESS SHALL BE DISPOSED OF OFF SITE IN ACCORDANCE WITH APPLICABLE REGULATIONS AND THE CONTRACT DOCUMENTS.
9. THE CONTRACTOR SHALL SATISFY HIMSELF/HERSELF AS TO THE EXTENT, DEPTH, TYPE AND LOCATION OF ALL ASPHALT AREAS, CONCRETE AREAS, WALLS AND UNDERGROUND UTILITIES, ETC. WHICH MAY BE ENCOUNTERED DURING THE DEMOLITION AND/OR CONSTRUCTION ACTIVITIES. INFORMATION ON THE PLANS IS GENERAL AND SHALL NOT RELIEVE THE CONTRACTOR OF FAMILIARIZING HIMSELF/HERSELF WITH THE EXISTING CONDITIONS.
10. THE COST INCURRED BY DAMAGE TO ANY UTILITIES, INCLUDING THOSE NOT SHOWN SHALL BE BORNE BY THE CONTRACTOR.
11. SAFE ACCESS TO THE BUILDING SHALL BE PROVIDED DURING THE CONSTRUCTION ACTIVITIES.
12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL CONSTRUCTION ACTIVITIES FOLLOW OSHA SAFETY RULES AND GUIDELINES AS APPROPRIATE.
13. THE CONTRACTOR SHALL CONTACT DIG SAFE AT 888-DIG-SAFE A MINIMUM OF 72 HOURS PRIOR TO THE START OF CONSTRUCTION.
14. GRAVEL AND BITUMINOUS CONCRETE GRADATIONS AS SHOWN ABOVE WERE OBTAINED FROM THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATION FOR HIGHWAYS AND BRIDGES"

SITE LEGEND

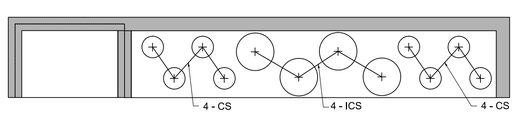
EXISTING		PROPOSED
	APPROX. TREE/SHRUB	
99.09 ×	SPOT GRADE	99.13 +
TC 98.30	GRADE TOP OF CURB	
BC 97.96	GRADE BOTTOM OF CURB	
HYD	HYDRANT	
WV	WATER GATE	
W	WATER LINE	W
S	SEWER LINE	
E	ELECTRIC	
SMH	SEWER MANHOLE	
DMH	DRAINAGE MANHOLE	
CB	CATCH BASIN	
MH	MANHOLE	
D	DRAIN LINE	
LP	APPROX. UTILITY POLE W/LIGHT	
R&D	REMOVE & DISPOSE	
	SAWCUT	
	AREA TO BE REMOVED	
	BITUMINOUS CONCRETE	
	CEMENT CONCRETE	

PLANTING NOTES

1. ALL PLANT MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY "THE AMERICAN STANDARD NURSERY STOCK," PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
2. ALL DECIDUOUS SHRUBS SHALL HAVE AT LEAST THE MINIMUM NUMBER OF CANES SPECIFIED IN ANSI Z60.1 (CURRENT RELEASE) FOR THE PARTICULAR NURSERY STOCK.
3. FOR SHRUB AND TREE PLANTINGS, THE DEPTH OF PLANT MIX SHALL BE EQUAL TO THE DEPTH OF THE PLANT MATERIAL'S ROOTBALL. ROOTBALL DEPTHS SHALL MEET THE ANSI Z60.1 GUIDELINES (CURRENT RELEASE) FOR NURSERY STOCK.
4. ALL PLANTS TO BE APPROVED BY THE PROJECT LANDSCAPE ARCHITECT PRIOR TO ARRIVAL AT THE SITE.
5. STAKE LOCATION OF ALL PROPOSED PLANT MATERIAL FOR THE APPROVAL OF THE PROJECT LANDSCAPE ARCHITECT PRIOR TO THE BEGINNING OF PLANTING.

PLANT LIST

SYM	QTY.	BOTANICAL NAME	COMMON NAME	COMMENTS
SHRUBS/GROUNDCOVER				
CS	91	CORNUS SERICEA 'KELSEYI'	KELSEY'S DWARF REDTWIG DOGWOOD	5 GAL. CONT., 3' O.C.
ICS	9	ILEX CRENATA 'STEEDS'	STEEDS JAPANESE HOLLY	5 GAL. CONT., 3' O.C.



PLANTER PLAN
NOT TO SCALE

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TEL. (617) 778-1440
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REVISIONS

Number	Description	Date

ISSUED FOR
BID

WALTHAM
POLICE STATION
RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SITE PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: RED
CHECKED BY:
DATE: JULY 11, 2014
SCALE: AS NOTED

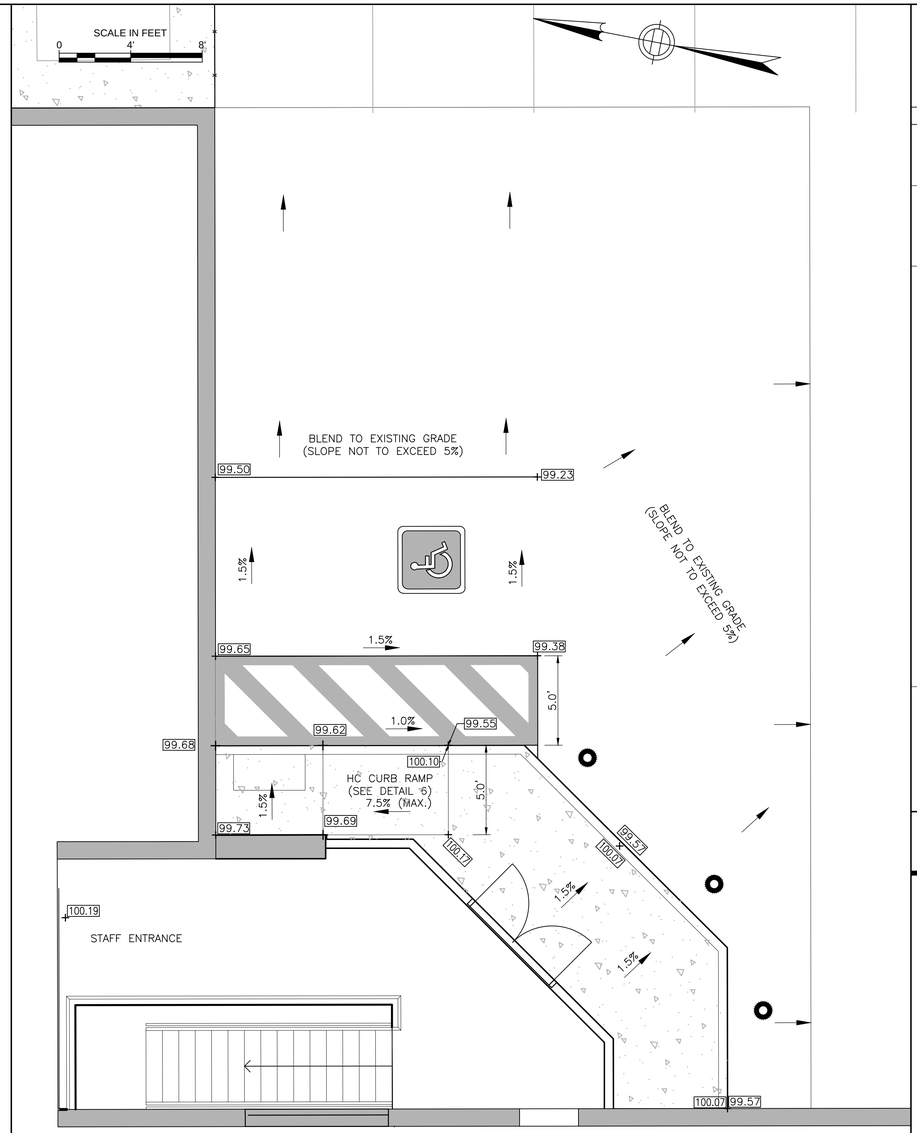
SHEET NUMBER:

C101

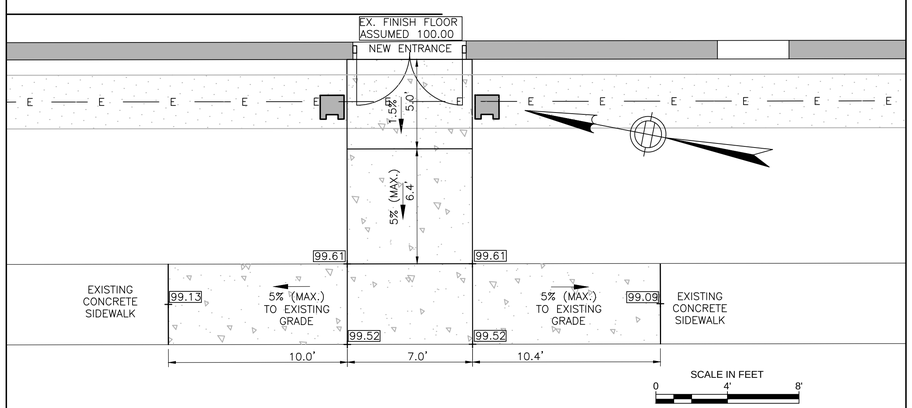
SHEET 2 OF 157

DRAWING FILE: N:\PROJECTS\19401.01-Waltham_Police_Station_Renovation\ACAD\Civil\SiteBase.dwg PLOTTED: Jul 14,2014-5:39pm BY: megan.rogoff

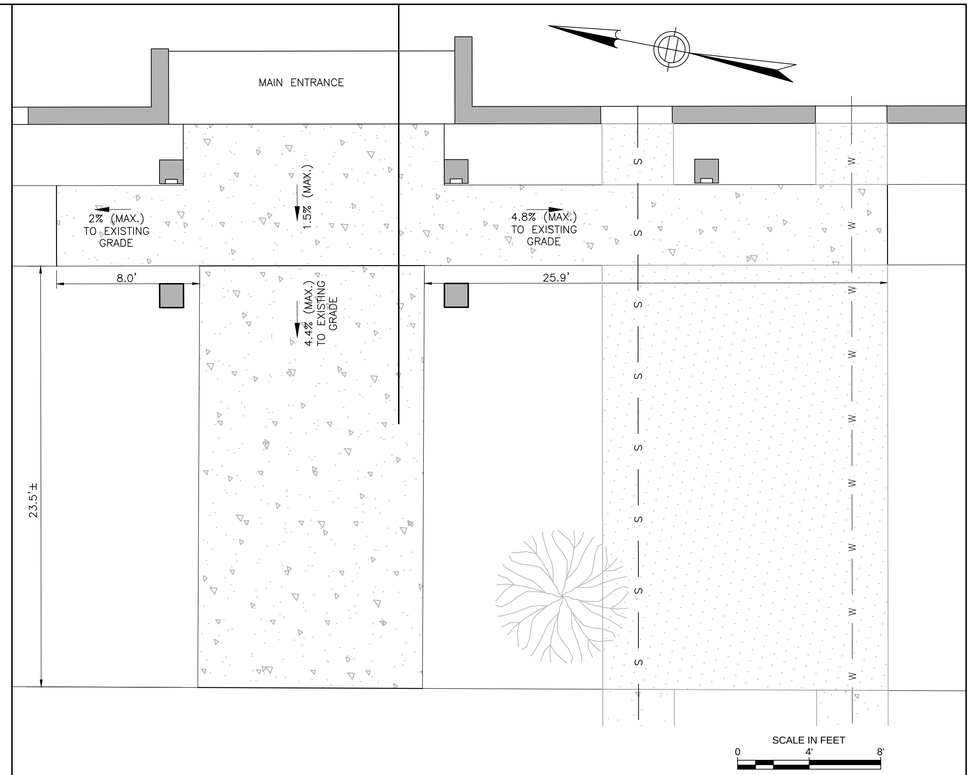
REVIEWED BY: CIVIL: INITIAL &DATE ARCH: INITIAL &DATE STRU: INITIAL &DATE PLUM: INITIAL &DATE FIRE: INITIAL &DATE MECH: INITIAL &DATE ELEC: INITIAL &DATE



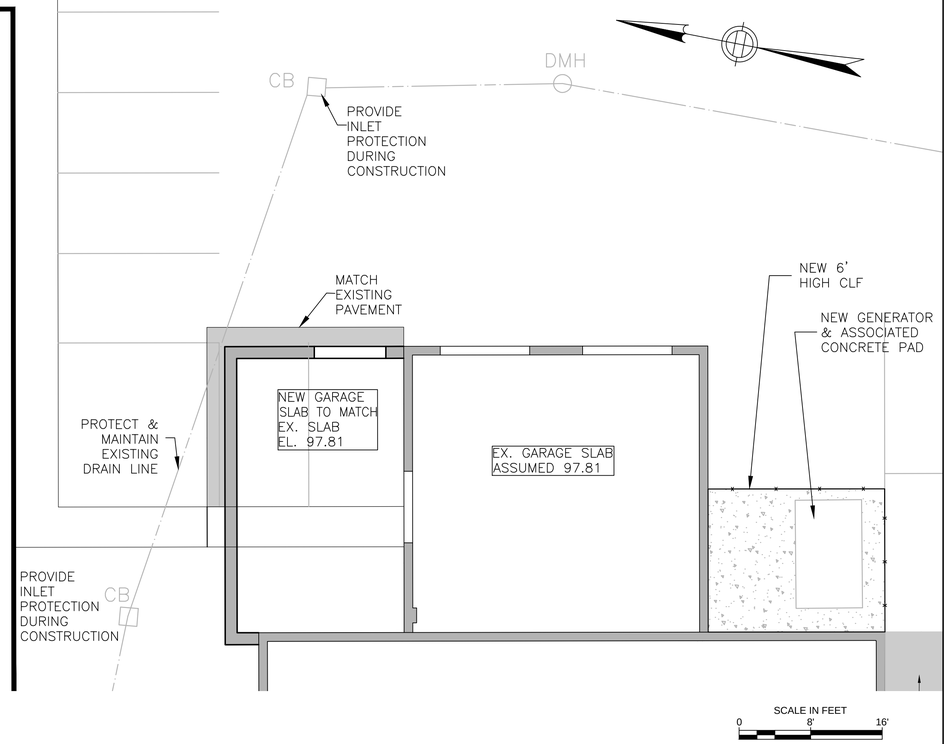
STAFF ENTRANCE



NEW FRONT ENTRANCE



MAIN ENTRANCE



NEW GARAGE

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REVISIONS

Number	Description	Date

ISSUED FOR
BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

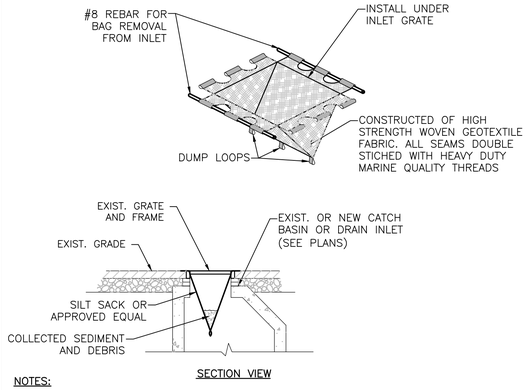
SITE DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: RED
CHECKED BY:
DATE: JULY 11, 2014
SCALE: AS NOTED

SHEET NUMBER:

C102

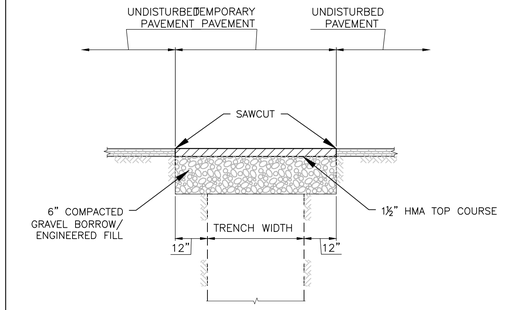
DRAWING FILE: N:\PROJECTS\19401.01-Waltham_Police_Station_Renovation\CAD\CIVIL\SiteBase.dwg PLOTTED: Jul 14,2014-5:38pm BY: megan.rogoff



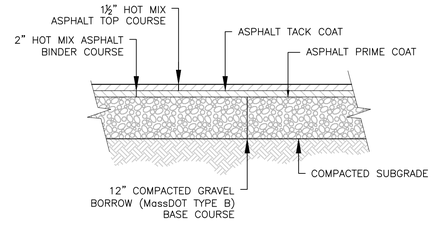
NOTES:

1. PRIOR TO FINAL GRADING AND PAVING OPERATIONS BEGIN A CATCH BASIN INSERT (SUCH AS A SILT SACK OR A DANDY BAG II) MUST BE INSTALLED IN EACH BASIN PER MANUFACTURES INSTRUCTIONS. INLET PROTECTION/ SILT FENCE SHOULD BE REMOVED ONCE INSERTS ARE INSTALLED.

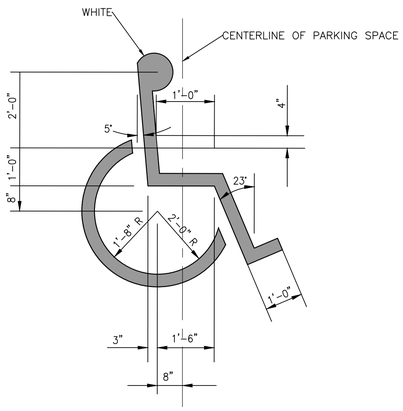
1 INLET PROTECTION DETAIL
N.T.S.



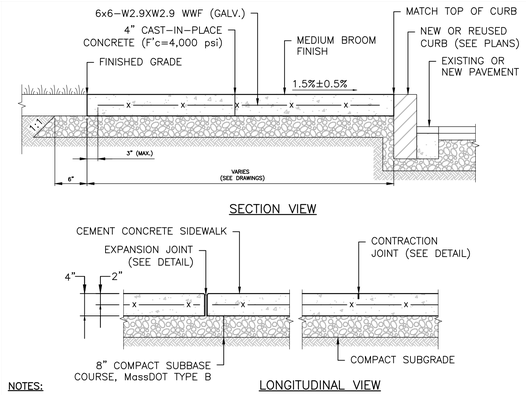
5 TEMPORARY PAVEMENT RESTORATION DETAIL
N.T.S.



5 HOT MIX ASPHALT PAVEMENT
N.T.S.



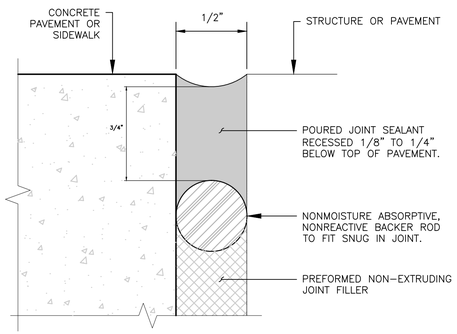
5 INTERNATIONAL SYMBOL OF ACCESSIBLITY DETAIL
N.T.S.



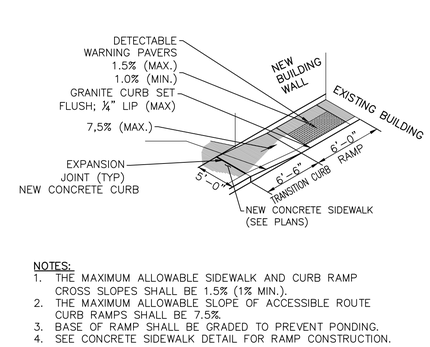
NOTES:

1. PROVIDE CONTROL JOINTS AT 5' O.C. (6' MAX) UNLESS SHOWN OTHERWISE.
2. CONSTRUCT FULL–DEPTH EXPANSION JOINTS AT 25' O.C. (30' MAX) OR AS SHOWN ON THE DRAWINGS.

5 CONCRETE SIDEWALK DETAIL
N.T.S.



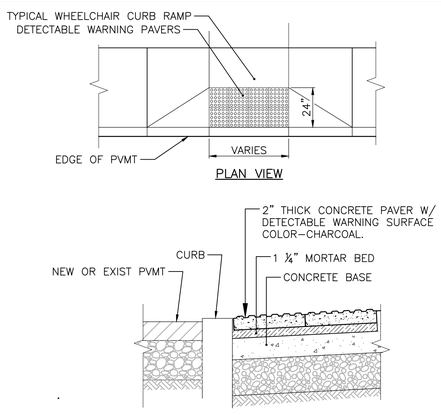
5 EXPANSION JOINT (EJ) DETAIL
N.T.S.



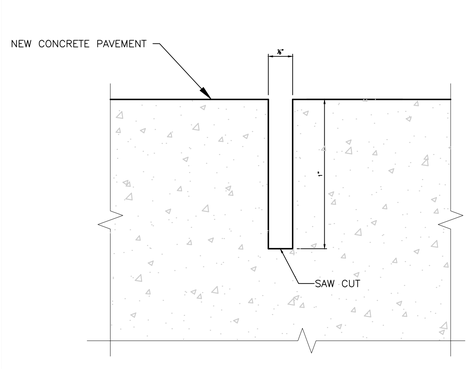
NOTES:

1. THE MAXIMUM ALLOWABLE SIDEWALK AND CURB RAMP CROSS SLOPES SHALL BE 1.5% (1% MIN.).
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE CURB RAMPS SHALL BE 7.5%.
3. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
4. SEE CONCRETE SIDEWALK DETAIL FOR RAMP CONSTRUCTION.

5 WHEELCHAIR RAMP TYPE "F"
N.T.S.



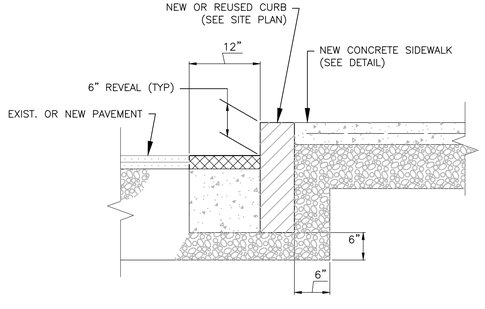
5 PRECAST DETECTABLE WARNING PAVERS
N.T.S.



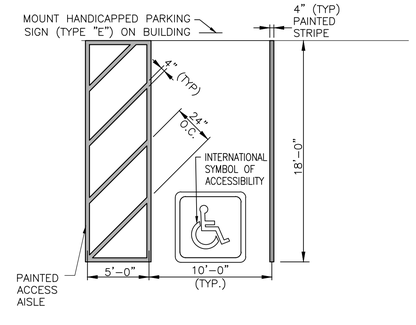
NOTE:

1. JOINTS SHALL BE SAW CUT 4 TO 12 HOURS AFTER CONCRETE HAS BEEN FINISHED.

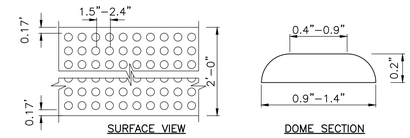
5 CONTRACTION JOINT (CJ) DETAIL
N.T.S.



5 CURB SETTING DETAIL
N.T.S.



5 HANDICAPPED PARKING DETAIL
N.T.S.



5 DETECTABLE WARNING SURFACE DETAIL
NOT TO SCALE

5 DETECTABLE WARNING SURFACE DETAIL
N.T.S.

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REVISIONS

Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SITE DETAILS - 2

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: RED
CHECKED BY:
DATE: JULY 11, 2014
SCALE: AS NOTED

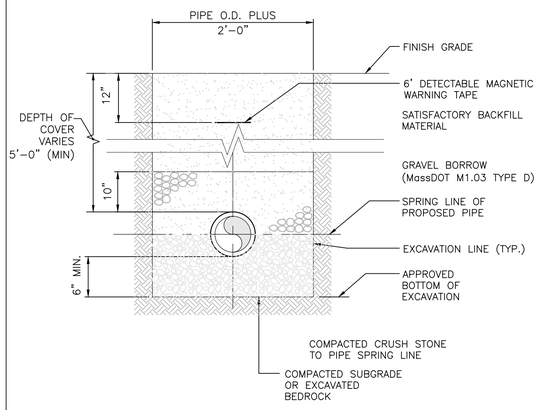
SHEET NUMBER:

C103

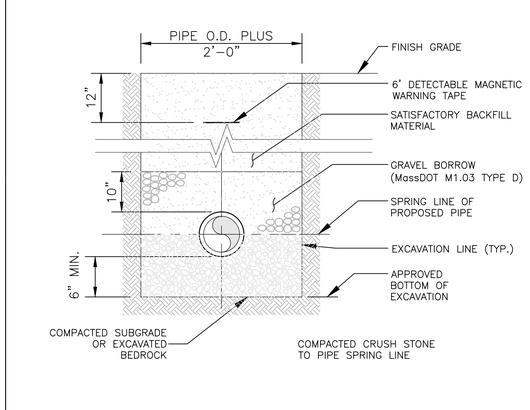
SHEET 4 OF 157

REVIEWED BY: CIVIL: INITIAL &DATE ARCH: INITIAL &DATE STRU: INITIAL &DATE PLUM: INITIAL &DATE FIRE: INITIAL &DATE MECH: INITIAL &DATE ELEC: INITIAL &DATE

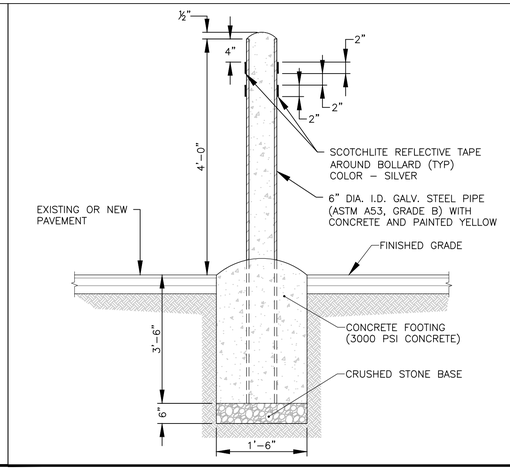
DRAWING FILE: N:\PROJECTS\19401.01–Waltham_Police_Station_Renovation\ACAD\Civil\SiteBase.dwg PLOTTED: Jul 14,2014–5:38pm BY: megan.rogoff



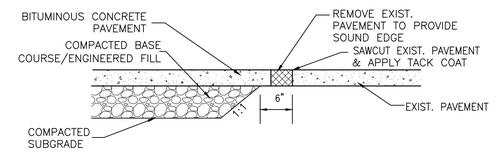
1 WATER PIPE TRENCH DETAIL
N.T.S.



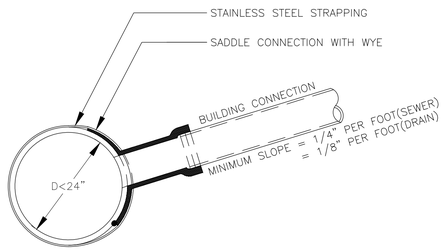
5 DRAIN & SEWER PIPE TRENCH DETAIL
N.T.S.



5 EXTERIOR BOLLARD DETAIL
N.T.S.



5 PAVEMENT MATCH DETAIL
N.T.S.

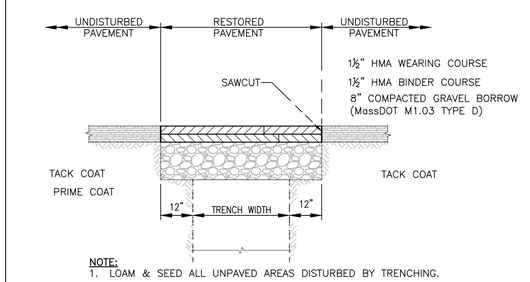


EXISTING SEWER OR DRAIN PIPE

NOTES:

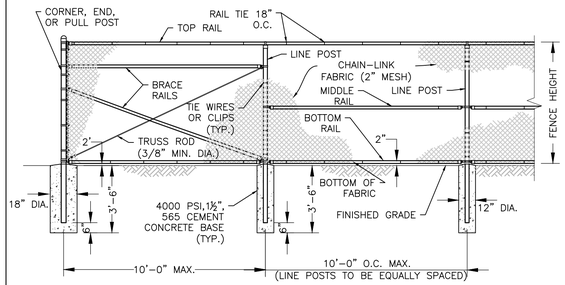
1. FULL PVC OR IRON SADDLE MAY BE USED TO CONNECT TO EXISTING PVC, CLAY, CONCRETE, OR IRON PIPE.
2. SADDLES MUST HAVE RUBBER GASKETS AND SHALL BE TIGHTENED WITH STRAPS. SADDLES WILL NOT BE CEMENTED ONTO THE PIPE.
3. FULL WYE CONNECTION FITTINGS MAY BE USED
4. PIPE SHALL BE CUT TO CONFORM TO THE OPENING IN THE SADDLE.
5. CONNECTIONS DIRECTLY INTO THE EXISTING PIPE WITHOUT A SADDLE OR A FULL WYE FITTING ARE NOT ALLOWED.

5 SEWER SERVICE CONNECTION DETAIL
N.T.S.



NOTE:
1. LOAM & SEED ALL UNPAVED AREAS DISTURBED BY TRENCHING.

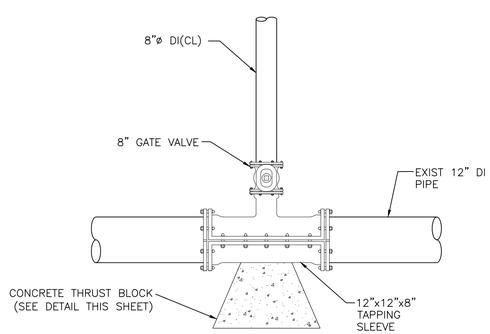
5 TRENCH RESTORATION DETAIL
N.T.S.



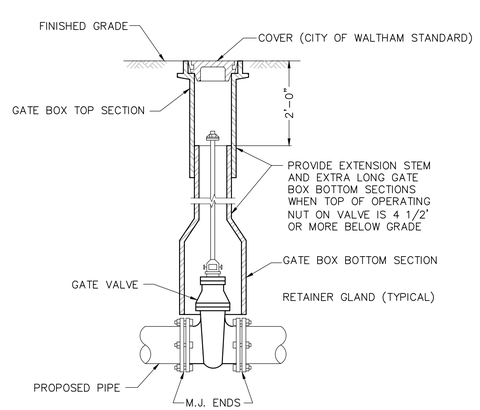
FENCE POST & RAIL SCHEDULE			
POST OR RAIL	MINIMUM OUTSIDE DIMENSIONS (NOMINAL)		
	FENCE HEIGHT 72" OR LESS	FENCE HEIGHT 84" TO 96"	FENCE HEIGHT 108" AND OVER
CORNER, END & PULL POSTS	2.375 O.D.	2.875" O.D.	4.00" O.D.
LINE POSTS	1.90" O.D.	2.375" O.D.	2.875" O.D.
TOP, MIDDLE, BOTTOM & BRACE RAILS	1.66" O.D.		

NOTES:
1. ALL CORNER AND ANCHOR POSTS SHALL BE BRACED TO BOTH ADJACENT POSTS.
2. CHAIN LINK MESH SHALL BE VINYL COATED – COLOR BLACK.
3. ALL POST SHALL BE GALVANIZED STEEL AND PAINTED – COLOR BLACK.

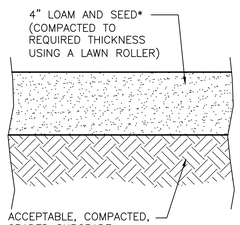
5 CHAIN LINK FENCE DETAIL
N.T.S.



5 TAPPING SLEEVE & VALVE DETAIL
N.T.S.



5 TYPICAL GATE VALVE AND VALVE BOX DETAIL
N.T.S.



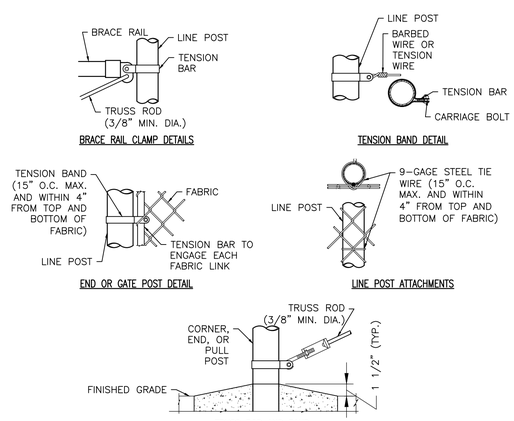
COVER–ALL SEED MIXTURE

25% PERENNIAL RYEGRASS
25% CREEPING RED FESCUE
25% ANNUAL RYEGRASS
18% TALL FESCUE
5% KENTUCKY BLUEGRASS
1% COLONIAL BENTGRASS
1% RED TOP

SEEDING RATE: 150 LBS. PER ACRE

* SEED MIXTURE TO BE USED UNLESS OTHERWISE DIRECTED BY ENGINEER

5 LOAM AND SEED DETAIL
N.T.S.



5 CHAINLINK FASTENING DETAIL
N.T.S.

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REVISIONS

Number	Description	Date

ISSUED FOR
BID

WALTHAM
POLICE STATION
RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SITE DETAILS - 3

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: RED
CHECKED BY:
DATE: JULY 11, 2014
SCALE: AS NOTED

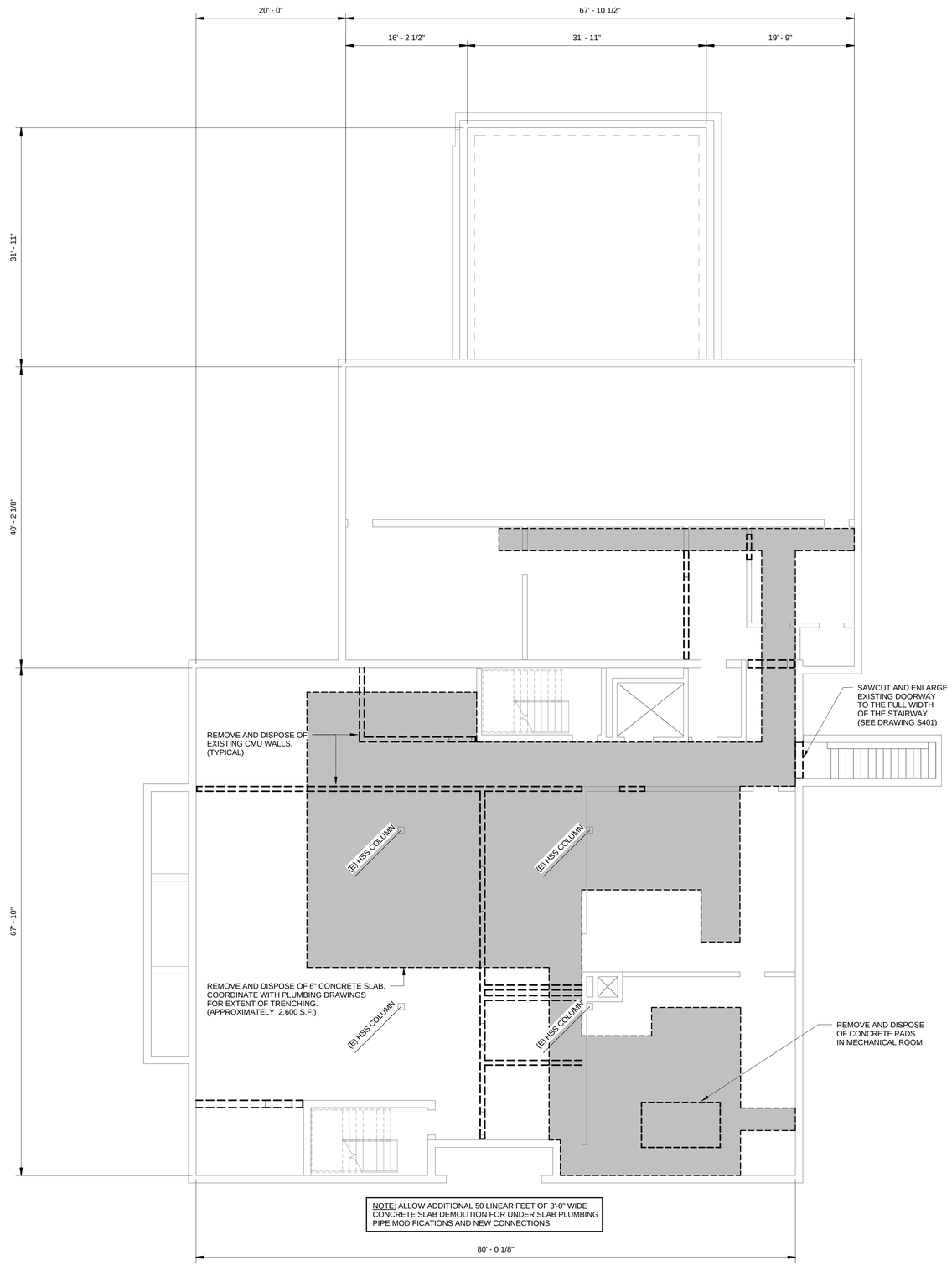
SHEET NUMBER:

C104

SHEET 5 OF 157

REVIEWED BY: CIVIL: INITIAL &DATE ARCH: INITIAL &DATE STRU: INITIAL &DATE PLUM: INITIAL &DATE FIRE: INITIAL &DATE MECH: INITIAL &DATE ELEC: INITIAL &DATE

DRAWING FILE: N:\PROJECTS\19401.01–Waltham_Police_Station_Renovation\ACAD\CIVIL\SiteBase.dwg PLOTTED: Jul 14,2014–5:38pm BY: megan.rogoff



1 **DEMOLITION - BASEMENT PLAN**
SCALE: 1/8" = 1'-0"

SHEET NOTES:

1. ALL SAFETY REGULATIONS TO BE FOLLOWED STRICTLY. METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIALS IS CONTRACTOR'S RESPONSIBILITY.
2. EXISTING DIMENSIONS AND CONDITIONS MUST BE VERIFIED OR DETERMINED IN THE FIELD BY THE CONTRACTOR. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.
3. PERFORM ALL DEMOLITION PROCEDURES WITH CARE TO AVOID DAMAGE TO ADJACENT STRUCTURES AND FINISHES. PATCH ANY DAMAGE TO MATCH EXISTING.
4. PROVIDE SHORING UNDER THE EXISTING JOISTS PRIOR TO CUTTING OR REMOVING OF ANY PORTION OF THE JOIST UNTIL STRUCTURAL RE-FRAMING IS COMPLETE.
5. THE CONTRACTOR SHALL DESIGN AND CONSTRUCT SHORING AND TEMPORARY WALLS AS REQUIRED TO PROTECT EXISTING AND NEW WORK.
6. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR EXTENT OF CMU WALL DEMOLITION.
7. COORDINATE WITH ARCHITECTURAL, HVAC, ELECTRICAL AND PLUMBING DRAWINGS FOR ANY ADDITIONAL OPENINGS THAT MAY NEED TO BE PROVIDED OR FILLED IN.

LEGEND:

(E) INDICATES EXISTING MEMBER.

INDICATES ELEMENTS TO BE REMOVED AND DISPOSED OF. UNLESS NOTED OTHERWISE.

0' 4' 8' 16'

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

BASEMENT DEMOLITION PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

SD101

SHEET 6 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:34:48 PM

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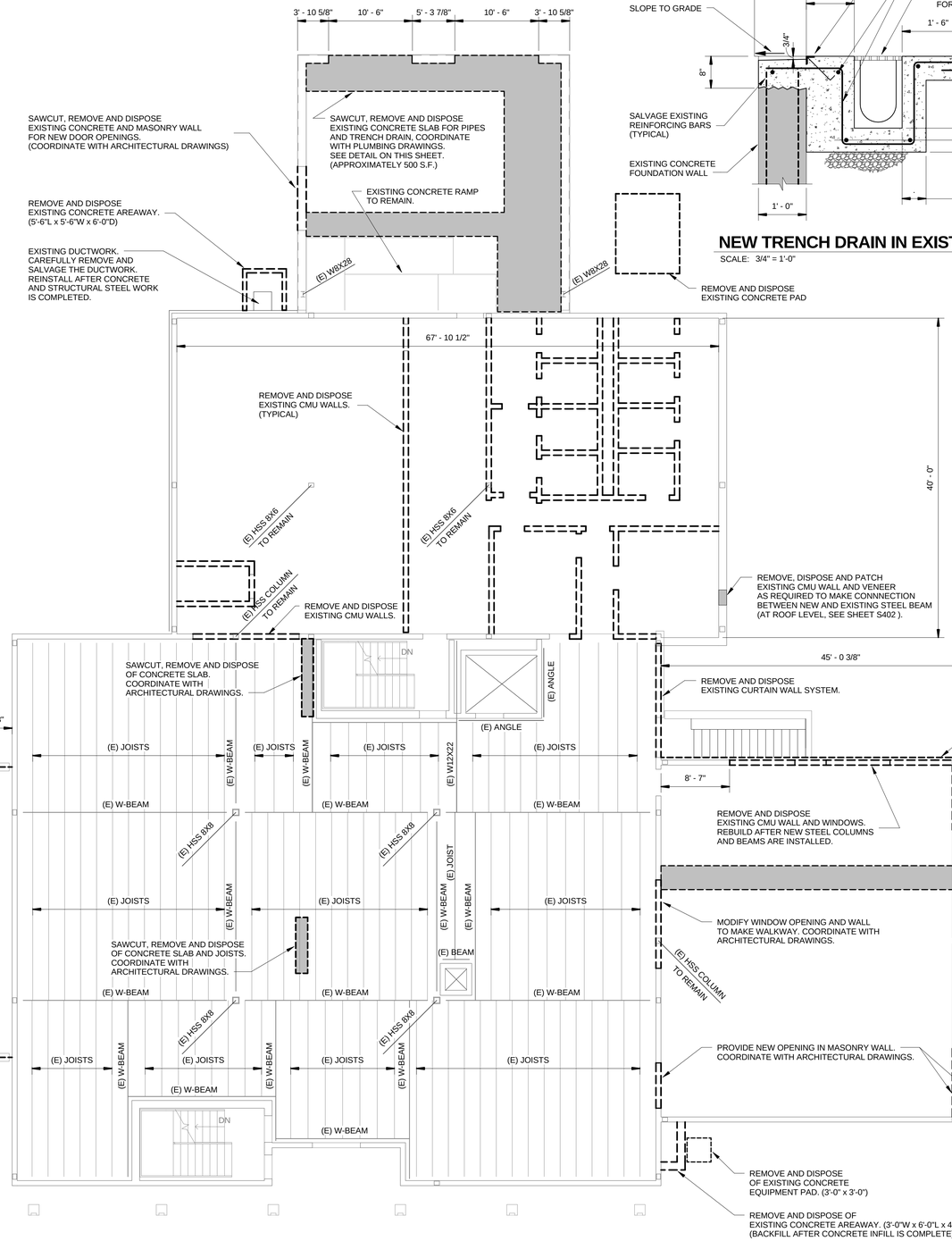
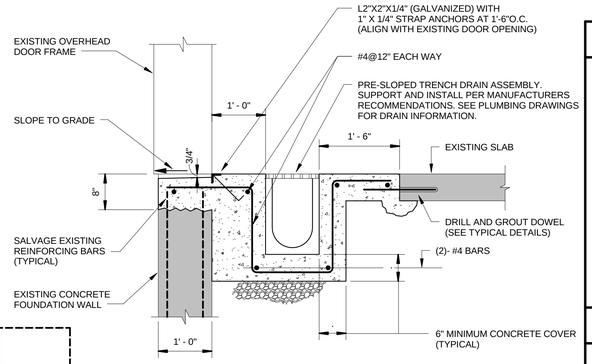


1 DEMOLITION - FIRST FLOOR FRAMING PLAN

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



NEW TRENCH DRAIN IN EXISTING SLAB

SCALE: 3/4" = 1'-0"

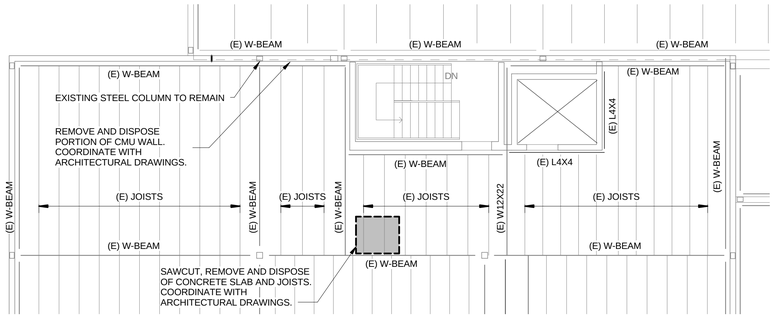
SHEET NOTES:

1. ALL SAFETY REGULATIONS TO BE FOLLOWED STRICTLY. METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIALS IS CONTRACTOR'S RESPONSIBILITY.
2. EXISTING DIMENSIONS AND CONDITIONS MUST BE VERIFIED OR DETERMINED IN THE FIELD BY THE CONTRACTOR. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.
3. PERFORM ALL DEMOLITION PROCEDURES WITH CARE TO AVOID DAMAGE TO ADJACENT STRUCTURES AND FINISHES. PATCH ANY DAMAGE TO MATCH EXISTING.
4. PROVIDE SHORING UNDER THE EXISTING JOISTS PRIOR TO CUTTING OR REMOVING OF ANY PORTION OF THE JOIST UNTIL STRUCTURAL RE-FRAMING IS COMPLETE.
5. THE CONTRACTOR SHALL DESIGN AND CONSTRUCT SHORING AND TEMPORARY WALLS AS REQUIRED TO PROTECT EXISTING AND NEW WORK.
6. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR EXTENT OF CMU WALL DEMOLITION.
7. COORDINATE WITH ARCHITECTURAL, HVAC, ELECTRICAL AND PLUMBING DRAWINGS FOR ANY ADDITIONAL OPENINGS THAT MAY NEED TO BE PROVIDED OR FILLED IN.

LEGEND:

(E) INDICATES EXISTING MEMBER.

INDICATES ELEMENTS TO BE REMOVED AND DISPOSED OF. UNLESS NOTED OTHERWISE.



2 DEMOLITION - PARTIAL SECOND FLOOR FRAMING PLAN

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

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

FIRST/SECOND FLOOR DEMOLITION PLANS

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

SD102

SHEET 7 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

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GENERAL

1. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH MECHANICAL, ARCHITECTURAL, ELECTRICAL, AND CIVIL DRAWINGS AND PROJECT SPECIFICATIONS.

2. CODES AND STANDARDS:
   A. MASSACHUSETTS STATE BUILDING CODE 8th EDITION
   B. ACI 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
   C. AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.
   D. ASCE 7-05 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.

3. ALL SAFETY REGULATIONS SHALL BE FOLLOWED STRICTLY. METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIALS IS CONTRACTOR'S RESPONSIBILITY.

4. UNLESS OTHERWISE NOTED, DETAILS SHOWN ON ANY DRAWING ARE TO BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.

5. EXISTING DIMENSIONS AND CONDITIONS MUST BE VERIFIED OR DETERMINED IN THE FIELD BY THE GENERAL CONTRACTOR. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.

6. THE CONTRACTOR SHALL PROVIDE A FIRE WATCH AT ALL TIMES AT AREAS WHERE FIELD WELDING AND/OR BURNING OPERATIONS ARE BEING DONE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY FIRE.

DESIGN CRITERIA

1. SNOW LOAD:

GROUND SNOW LOAD	Pg = 40 PSF
SNOW EXPOSURE FACTOR	Ce = 1.0
SNOW IMPORTANCE FACTOR	Is = 1.2
SNOW THERMAL FACTOR	Ct = 1.0
DESIGN ROOF SNOW LOAD	Pf = 34 PSF

2. WIND LOAD:

BASIC WIND SPEED:	105 MPH
WIND IMPORTANCE FACTOR:	Iw = 1.15
WIND EXPOSURE CATEGORY:	B
BUILDING ENCLOSURE:	ENCLOSED

3. EARTHQUAKE DESIGN DATA:
   MAPPED SPECTRAL RESPONSE ACCELERATION: Ss = 0.28, S1 = 0.069

SITE CLASS:	C
SEISMIC DESIGN CATEGORY:	C
ANALYSIS PROCEDURE USED:	EQUIVALENT LATERAL FORCE
EXISTING BUILDING FRAME SYSTEM:	ORDINARY STEEL MOMENT FRAMES

FOUNDATIONS

1. ALLOWABLE BEARING CAPACITY, 2.0 KSF.

2. ALL EXTERIOR BUILDING FOUNDATION INVERTS SHALL BE A MINIMUM OF 4'-0" BELOW FINISHED GRADE FOR FROST PROTECTION, UNLESS OTHERWISE SHOWN.

3. COMPLETELY REMOVE ALL UNSUITABLE AND UNSATISFACTORY MATERIALS FROM BENEATH SLABS-ON-GRADE, FOOTINGS, FOUNDATIONS AND UTILITIES. REFER TO SPECIFICATION SECTION 312000.

4. REFILL ALL EXCAVATIONS FOR SLABS-ON-GRADE, FOOTINGS AND FOUNDATIONS WITH ENGINEERED FILL OR SOIL MATERIAL FROM ON-SITE SOURCES MEETING THE REQUIREMENTS FOR ENGINEERED FILL. REFER TO SPECIFICATION SECTION 312000.

5. ALL FILL MATERIALS WITHIN THE BUILDING AREA SHALL BE COMPACTED TO NOT LESS THAN 95-PERCENT OF THE ASTM 1557 MAXIMUM DRY DENSITY.

6. A MINIMUM OF 12 INCHES OF COMPACTED ENGINEERED FILL SHALL BE PLACED BENEATH ALL FOUNDATION WALLS, FOOTINGS AND SLAB-ON-GRADE ELEMENTS, UNLESS OTHERWISE SHOWN. THE 12 INCH ENGINEERED FILL LAYER DIRECTLY BENEATH NEW FOOTINGS AND SLABS SHALL BE PLACED AND COMPACTED IN TWO LIFTS OF EQUAL THICKNESS. THE EXPOSED FINAL SUBGRADE SURFACE SHALL BE PROOF COMPACTED BY AN OBSERVED 4 TO 6 PASSES WITH APPROVED VIBRATORY COMPACTION EQUIPMENT. ANY LOOSE OR UNSUITABLE SOILS SHALL BE REMOVED AND REPLACED WITH COMPACTED ENGINEERED FILL. SUBGRADE AND ENGINEERED FILL COMPACTION IN/AROUND FOOTING INVERT ELEVATION SHALL BE SUBJECT TO GOOD ENGINEERING JUDGEMENT RELATIVE TO EXISTING SOIL AND GROUND WATER CONDITIONS.

7. FINAL FOOTING EARTHWORK, FINAL FOOTING EXCAVATION, SUBGRADE PROOF COMPACTION AND MINIMUM 12 INCH LAYER OF COMPACTED ENGINEERED FILL PLACEMENT FOR AN INDIVIDUAL COLUMN FOOTING SHALL BE INITIATED/COMPLETED IN ONE WORKING DAY. PARTICULAR ATTENTION SHALL BE DIRECTED TO EARTHWORK PERFORMED ADJACENT TO AND BELOW EXISTING FOOTING INVERT ELEVATION. IF SIGNIFICANT UNDERMINING OF EXISTING FOOTINGS IS OBSERVED AS A RESULT OF NEW FOOTING EARTHWORK, THE CONTRACTOR SHALL STOP WORK AND PROPOSE TO THE ENGINEER ALTERNATIVE MEANS AND METHODS.

8. GROUNDWATER LEVELS SHALL BE MAINTAINED A MINIMUM OF 2'-0" BELOW THE DEEPEST EXCAVATION ELEVATION.

9. ALL WALLS RETAINING EARTH SHALL BE SHORED AGAINST LATERAL EARTH PRESSURE UNTIL FLOOR SLABS AND WALLS ABOVE ARE IN PLACE AND CONCRETE HAS ATTAINED ITS 28 DAY COMPRESSIVE STRENGTH.

10. DO NOT PLACE CONCRETE ON FROZEN GROUND OR IN WATER. FOUNDATIONS SHALL NOT BE PARTLY SUPPORTED ON ROCK AND PARTLY ON SOIL. ALL NEW FOOTINGS SHALL BE SUPPORTED ON A MINIMUM 6 INCH LAYER OF COMPACTED ENGINEERED FILL.

11. DO NOT PLACE BACKFILL UNBALANCED BY MORE THAN 2'-0" ON EITHER SIDE OF FOUNDATION WALLS AND PIERS, OR BY THE AMOUNT OF FINISH GRADE DIFFERENTIAL.

12. PROVIDE TEMPORARY OR PERMANENT SUPPORTS TO PREVENT HORIZONTAL MOVEMENT OR VERTICAL SETTLEMENT OF EXISTING STRUCTURES, STREETS, SOIL OR UTILITIES ADJACENT TO OR ON THE PROJECT SITE. DESIGN OF SUCH SUPPORT IS THE RESPONSIBILITY OF THE CONTRACTOR.

13. PROVIDE CONTINUOUS CONTROL OF SURFACE AND SUBSURFACE WATER DURING CONSTRUCTION AS NECESSARY TO PERFORM FOUNDATION WORK IN THE DRY AND ON UNDISTURBED SUBGRADE MATERIAL.

14. PROTECT FOUNDATIONS AND SLABS FROM FROST FOR A MINIMUM OF 28 DAYS.

15. FOUNDATION CONSTRUCTION SHALL COMPLY WITH ALL OSHA REGULATIONS.

DEMOLITION

1. PERFORM ALL DEMOLITION PROCEDURES WITH CARE TO AVOID DAMAGE TO ADJACENT STRUCTURAL ELEMENTS & FINISHES.

2. A SAW-CUT TO A MAXIMUM DEPTH OF 1/2-INCH SHALL BE MADE ALONG ALL BOUNDARIES OF CONCRETE TO BE DEMOLISHED.

3. CONCRETE AND REINFORCING STEEL SURFACES EXPOSED BY DEMOLITION SHALL BE FREE OF RUST, OIL SOLVENTS, GREASE, DIRT, DUST, BITUMEN, LOOSE PARTICLES, AND OTHER FOREIGN MATTER.

4. WHERE NEW CONCRETE IS TO BE PLACED AGAINST EXISTING SURFACES, ANY EXPOSED REINFORCING BARS AND NEWLY EXPOSED CONCRETE SURFACES SHALL BE THOROUGHLY CLEANED BY GRIT BLASTING OR OTHER MECHANICAL ABRASION METHODS AS APPROVED BY THE ENGINEER.

5. PROVIDE ANY SHORING NECESSARY FOR SAFETY AND PROTECTION OF EXISTING ELEMENTS TO REMAIN IN ORDER TO MAINTAIN LATERAL STABILITY OF THE BUILDING UNTIL ALL PERMANENT SHEARWALLS AND LATERAL BRACING ARE INSTALLED. CONTRACTOR IS RESPONSIBLE TO DESIGN AND PROVIDE ANY NECESSARY SHORING.

CONCRETE

1. ALL CONCRETE SHALL HAVE ULTIMATE COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS, UNLESS OTHERWISE NOTED.

2. ALL CONCRETE WORK SHALL CONFORM TO THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318) AND TO "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301).

3. ALL CONCRETE SUBJECT TO FREEZE-THAW SHALL BE AIR-ENTRAINED. VERIFY AIR CONTENT BEFORE PLACEMENT OF ALL CONCRETE.

4. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60 (UNLESS OTHERWISE NOTED), OR ASTM A706 WHERE DOWELS ARE INDICATED TO BE WELDED.

5. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.

6. MINIMUM CONCRETE COVER FROM FACE OF CONCRETE TO MAIN REINFORCING SHALL BE AS FOLLOWS UNLESS SHOWN OTHERWISE:
   SLABS AND WALLS
   (NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND).....1"
   FACE OF WALLS AND TOP OF SLABS
   EXPOSED TO EARTH, WEATHER, OR IMMERSED.....2"
   FOOTINGS, BOTTOM OF WALLS AND STRUCTURAL SLABS
   CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3"

7. BAR PLACING SHALL CONFORM TO CONCRETE REINFORCING STEEL INSTITUTE'S "RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS".

8. REINFORCING BARS SHALL BE DETAILED IN ACCORDANCE WITH LATEST ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (ACI 315)

9. UNLESS INDICATED OTHERWISE ON THE DRAWINGS, REBAR SPLICES SHALL BE STAGGERED WITH NOT MORE THAN 50 PERCENT OF THE REBARS SPLICED WITHIN A REQUIRED LAP LENGTH. LOCATIONS OF ALL SPLICES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

10. REINFORCING BARS SHALL BE LAPPED ACCORDING TO SCHEDULE BELOW UNLESS INDICATED OTHERWISE ON THE DRAWINGS.

CONCRETE COVER		1"		2" OR MORE	
CONCRETE (PSI)		3000	4000	3000	4000
BAR SIZE	#4	22"	19"	22"	19"
	#5	34"	29"	27"	23"
	#6	44"	37"	32"	28"
	#7	54"	54"	42"	35"

NOTES:
a. LENGTHS ARE BASED ON fy = 60 KSI, NORMAL WEIGHT CONCRETE, UNCOATED BARS, WITH SPACING OVER 6 BAR DIAMETERS.

b. LAP SPLICE LENGTHS ARE FOR CLASS "B" SPLICES. CLASS "A" SPLICES (77% OF THE TABLE VALUES) MAY BE USED WHERE APPROVED BY THE ENGINEER.

c. BARS THAT HAVE OVER 12" OF FRESH CONCRETE PLACED BELOW THE LAPS SHALL HAVE THEIR SPLICE AND DEVELOPMENT LENGTHS MULTIPLIED BY 1.3.

d. MINIMUM DEVELOPMENT LENGTHS ARE 77% OF THE TABLE VALUES.

11. WELDED WIRE FABRIC SHALL BE LAPPED 2 MESHES AT SIDES AND ENDS.

12. ALL EXPOSED CORNERS OF CONCRETE SHALL HAVE A 3/4" x 45 DEGREE CHAMFER, UNLESS OTHERWISE NOTED.

13. PROVIDE WELDED WIRE FABRIC IN ALL SLABS-ON-GRADE, CONCRETE SIDEWALKS AND RAMPS AS FOLLOWS UNLESS SHOWN OTHERWISE:
   4" SLABS-ON-GRADE 6x6-W1.4xW1.4
   5" SLABS-ON-GRADE 6x6-W2.9xW2.9

14. SLABS-ON-GRADE SHALL BE PLACED IN ALTERNATE STRIPS BOUNDED BY CONSTRUCTION AND CONTROL JOINTS. ALLOW 72 HOURS TO ELAPSE BETWEEN ADJACENT CONCRETE PLACEMENTS.

15. MAXIMUM LENGTH OF CONCRETE WALL POUR SHALL BE 40 FEET. CONSTRUCTION JOINTS SHALL NOT BE LOCATED AT ANY CORNER OF WALLS. CONCRETE SHALL BE POURED IN LEVEL COURSES FULL HEIGHT. CONCRETE WALLS SHALL BE PLACED IN ALTERNATE SECTIONS BETWEEN VERTICAL CONSTRUCTION JOINTS.

16. FOR LOCATIONS OF VENTS, PIPES, OPENINGS, INSERTS, HANGERS, EQUIPMENT PADS, SUPPORTS, AND FLOOR DRAINS, CONSULT MECHANICAL DRAWINGS.

17. CUT NO BARS AND OMIT NO BARS BECAUSE OF SLEEVE OR DUCT OPENINGS IN FLOORS OR WALLS. BARS MAY BE MOVED ASIDE WITHOUT CHANGING THE DISTANCE FROM THE FACE OF CONCRETE. BEND NO BARS IN FIELD WITHOUT APPROVAL OF THE ENGINEER.

18. CONCRETE SLABS, INCLUDING CONCRETE PLACED ON STEEL DECK, SHALL BE PLACED SO THAT THE SLAB THICKNESS IS AT NO POINT LESS THAN THAT INDICATED ON THE DRAWINGS. THIS WILL REQUIRE THAT THE SLAB NOT BE CAST DEAD LEVEL WHERE SUPPORTING BEAMS, GIRDERS, OR TRUSSES HAVE AN UPWARD CAMBER. PROVIDE ADDITIONAL CONCRETE AS REQUIRED TO COMPENSATE FOR DEFLECTIONS OF STEEL BEAMS AND DECK.

19. PROVIDE THE NECESSARY ACCESSORIES TO HOLD REINFORCEMENT SECURELY IN POSITION. MINIMUM REQUIREMENTS SHALL BE: HIGH CHAIRS, 4'-0" O.C. WITH CONTINUOUS #5 SUPPORT BAR; SLAB BOLSTERS, CONTINUOUS AND 3'-6" O.C.; BEAM BOLSTERS, 5'-0" O.C.

20. WHERE REINFORCEMENT IS NOT SHOWN ON DRAWINGS, PROVIDE REINFORCEMENT IN ACCORDANCE WITH THE NEAREST APPLICABLE DETAILS AS DETERMINED BY THE ENGINEER. IN NO CASE SHALL REINFORCEMENT BE LESS THAN THE MINIMUM REINFORCEMENT PERMITTED BY THE APPLICABLE CODES, AND NOT LESS THAN THE FOLLOWING:
   (A) BEAM STIRRUPS: #3 @ 12" O.C.
   (B) BEAM STIRRUPS SUPPORTS: (1)- #5 @ EACH STIRRUP BEND
   (C) FACE REINFORCEMENT IN BEAMS OR PORTIONS OF BEAMS: #4@12" EACH FACE
   (D) STRUCTURAL SLABS: 0.0020 x GROSS CONCRETE AREA IN EACH DIRECTION
   (E) CONCRETE WALLS: 0.0025 x GROSS CONCRETE AREA IN EACH DIRECTION

21. DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN BARS, UNLESS OTHERWISE NOTED.

22. NO PIPES, CONDUITS OR SIMILAR NON-STRUCTURAL ELEMENTS SHALL BE EMBEDDED IN THE SLAB WITHOUT APPROVAL OF THE ENGINEER.

MASONRY

1. ALL MASONRY CONSTRUCTION SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" (ACI 530) AND TO "SPECIFICATIONS FOR MASONRY STRUCTURES" (ACI 530.1)

2. ALL MASONRY UNITS SHALL CONFORM TO ASTM C90 TYPE 1, MINIMUM F'm = 2000 PSI.

3. ALL GROUT SHALL CONFORM TO ASTM C476, FINE OR COARSE GROUT, MINIMUM COMPRESSIVE STRENGTH, 3000 PSI.

4. ALL MORTAR FOR CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C270, TYPE S.

5. MORTAR FOR BRICK VENEER SHALL CONFORM TO ASTM C270, TYPE N.

6. REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60, DEFORMED.

7. ALL CORES OF MASONRY CONTAINING REINFORCING BARS AND ALL BOND BEAMS SHALL BE FILLED SOLID WITH GROUT. VERTICAL BARS SHALL BE LOCATED AT THE CENTER OF WALL. FILLING CORES AND BOND BEAMS WITH MORTAR IS STRICTLY PROHIBITED. EXERCISE CARE TO KEEP CORES FREE FROM MORTAR DROPPINGS.

8. VERTICAL AND HORIZONTAL REINFORCING SHALL BE SECURELY HELD IN PROPER ALIGNMENT AND POSITION DURING GROUTING OPERATIONS BY USING HOT-DIPPED GALVANIZED REBAR POSITIONERS.

9. GROUT SHALL BE PLACED USING LOW-LIFT GROUTING PROCEDURES CONFORMING TO ACI 530 REQUIREMENTS. THE MAXIMUM GROUT LIFT SHALL NOT EXCEED 4'-8". ALTERNATE GROUT POURS 1 1/2" BELOW TOP COURSE OF POUR. REINFORCING SHALL BE SPLICED A MINIMUM OF 48 BAR DIAMETERS.

10. REINFORCEMENT FOR CONCRETE MASONRY BOND BEAMS SHALL BE (2)- #5 BARS CONTINUOUS, UNLESS OTHERWISE NOTED.

11. WHERE STEEL BEAMS, STEEL JOISTS, OR LINTELS ARE SUPPORTED ON CONCRETE MASONRY, THE MASONRY SHALL BE FILLED SOLID WITH GROUT CONTINUOUSLY FOR TWO COURSES UNDER BEAM, JOIST, OR LINTEL. FILL AFTER STEEL HAS BEEN ERECTED AND PLUMBED.

12. ALL BEAMS SUPPORTED ON MASONRY SHALL BEAR ON A BEARING PLATE 6 INCHES x 1/2 INCH x (FLANGE WIDTH PLUS 4 INCHES) WITH (2)- 1/2" DIAMETER HEADED ANCHOR RODS, UNLESS SHOWN OTHERWISE.

13. WHEN STEEL BEAMS RUN INSIDE MASONRY WALLS, THE BEAMS SHALL BE INSTALLED FIRST, FOLLOWED BY MASONRY INSTALLATION FROM THE BOTTOM UP (THE WALL AT THE LOWER FLOOR INSTALLED BEFORE THE WALL ABOVE).

14. MINIMUM VERTICAL WALL REINFORCEMENT SHALL BE, UNLESS OTHERWISE NOTED:
   6" CMU: #4 @ 32" ON CENTER
   8" CMU UP TO 10'-0" UNSUPPORTED LENGTH: #5 @ 32" ON CENTER
   8" CMU UP TO 20'-0" UNSUPPORTED LENGTH: #5 @ 16" ON CENTER
   12" CMU: #6 @ 8" ON CENTER
   PROVIDE ADDED BARS AT WALL ENDS, AND CORNERS AS SHOWN.
   PROVIDE MATCHING DOWELS, LAP 40 BAR DIAMETERS TO VERTICAL BARS.

15. PROVIDE CUT OUTS IN EXISTING MASONRY WALL FOR THE NEW DUCT WORK. COORDINATE WITH MECHANICAL AND PLUMBING DRAWINGS.

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL CONFORM TO "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" (AISC); "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS & BRIDGES" (AISC); AND "STRUCTURAL WELDING CODE - STEEL" (AWS D1.1).

2. STRUCTURAL STEEL SHALL BE DETAILED IN ACCORDANCE WITH "DETAILING FOR STEEL CONSTRUCTION" (AISC).

3. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:

   (A) ROLLED BEAM SHAPES.....ASTM A992 GRADE 50 (Fy=50 KSI)
   (B) ANGLES AND PLATES.....ASTM A36 (Fy = 36 KSI)
   (C) TUBES.....ASTM A500 GRADE B (Fy = 46 KSI)
   (D) PIPES.....ASTM A501; OR ASTM A53, TYPE E OR S GRADE B
   (E) ANCHOR RODS.....ASTM F1554-99 (36 KSI MIN.)
   (F) HIGH STRENGTH BOLTS.....ASTM A325
   (G) THREADED ROD.....ASTM A449 GRADE 81 FOR 1"Ø AND UNDER
   ASTM A449 GRADE 92 FOR OVER 1"Ø

4. ANCHOR BOLTS, LEVELING PLATES, AND BEARING PLATES SHALL BE SET BY TEMPLATES.

5. BOLTED CONNECTIONS SHALL BE AS FOLLOWS:

   (A) MINIMUM BOLT DIAMETER - 3/4"; TWO BOLTS, MINIMUM.
   (B) STANDARD, OVERSIZED, OR HORIZONTAL SHORT SLOTTED HOLES IN WEBS OF BEAMS.
   (C) SHEAR CONNECTIONS FOR MOMENT CONNECTED MEMBERS - FRICTION TYPE HIGH STRENGTH BOLTS IN SINGLE SHEAR.
   (D) SHEAR CONNECTIONS FOR OTHER MEMBERS - SIMPLE SHEAR CONNECTIONS WITH EITHER FRICTION TYPE HIGH STRENGTH BOLTS IN SINGLE SHEAR OR BEARING TYPE HIGH STRENGTH BOLTS (THREADS INCLUDED IN SHEAR PLANE) IN SINGLE OR DOUBLE SHEAR.
   (E) SIMPLE SHEAR CONNECTIONS SHALL BE CAPABLE OF END ROTATION PER AISC REQUIREMENTS FOR "UNRESTRAINED MEMBERS."

6. BEAM CONNECTIONS, UNLESS NOTED OTHERWISE, SHALL PROVIDE CONNECTION CAPACITY AS FOLLOWS:

   (A) NON-COMPOSITE BEAMS: SUPPORT A REACTION "R" EQUAL TO 1/2 THE TOTAL UNIFORM LOAD CAPACITY OF BEAM FOR A GIVEN SHAPE, SPAN, AND GRADE OF STEEL PER "ALLOWABLE LOADS ON BEAMS" PART 2 AISC MANUAL OF STEEL CONSTRUCTION, 9TH EDITION.

   (B) ADD TO "R" THE LOADS OR REACTIONS OF MEMBERS SUPPORTED BY THE BEAM NEAR SUPPORTS AND FORCES FROM LATERAL BRACING MEMBERS.

7. WELDED CONNECTIONS SHALL BE MADE BY AWS CERTIFIED WELDERS USING FILLER METAL CONFORMING TO E70XX WITH LOW HYDROGEN.

8. STRUCTURAL STEEL ENCASED IN MASONRY SHALL BE COVERED WITH MASTIC COATING PER SPECIFICATIONS.

9. NO FIELD CUTTING OF STRUCTURAL STEEL OR FIELD MODIFICATIONS OF STRUCTURAL STEEL SHALL BE DONE WITHOUT PRIOR WRITTEN APPROVAL BY ENGINEER FOR EACH SPECIFIC CASE.

10. MOMENT CONNECTIONS INDICATED IN PLANS SHALL BE DESIGNED FOR FULL MOMENT CAPACITY OF MEMBER PER ASCE-7 AND AISC, (INCLUDE SEISMIC PROVISION). STEEL FABRICATOR MUST PROVIDE CALCULATIONS AND SHOP DETAILS FOR APPROVAL PREPARED AND SIGNED BY A STRUCTURAL ENGINEER REGISTERED IN MASSACHUSETTS.

11. GENERAL CONTRACTOR SHALL COAT ALL STEEL COLUMNS AND BASE PLATES BELOW TOP OF SLABS WITH ASPHALTIC PAINT. PRIOR TO POURING BOX OUT CONCRETE.

12. ALL EXPOSED EXTERIOR STEEL FRAMING SHALL BE HOT DIP GALVANIZED PER ASTM A123.

METAL DECK

1. STEEL DECK SHALL BE FORMED FROM STEEL SHEETS CONFORMING TO ASTM A653, GRADE 33 OR HIGHER, TYPE B. BEFORE FORMING, SHEETS SHALL BE COATED WITH ZINC COATING CONFORMING TO ASTM A653, G-90 COATING.

2. BEAR DECK A MINIMUM OF 2" ON STEEL FRAMING AND 4" ON MASONRY. WHEN TWO UNITS ABUT, WELD BOTH TO THE SUPPORT.

3. STEEL DECK UNITS SHALL SPAN THREE OR MORE SUPPORTS WHERE POSSIBLE. SINGLE SPAN DECK UNITS ARE NOT ACCEPTABLE.

4. ROOF DECK UNITS SHALL BE WELDED AT ALL SUPPORTS WITH 5/8" DIAMETER FUSION WELDS AT EACH DECK VALLEY (6" O.C. MAX.). SIDE LAPS SHALL BE FASTENED IN THE FIELD WITH #10 TEK SCREWS AT 12" O.C. MAXIMUM AND 6" O.C. IN THE CORNERS AND EDGE STRIP ZONE. (EDGE STRIP ZONE IS DEFINED AS EDGE STRIP AREA WITH A WIDTH OF 10 PERCENT OF LEAST HORIZONTAL DIMENSION OR 40 PERCENT OF EAVE HEIGHT, WHICH EVER IS SMALLER, BUT NOT LESS THAN 4 PERCENT OF LEAST HORIZONTAL DIMENSION OR 3 FEET)

5. FLOOR DECK UNITS SHALL BE WELDED AT ALL SUPPORTS WITH 5/8" DIAMETER FUSION WELDS SPACED AT EACH DECK VALLEY. SIDE LAPS SHALL BE FASTENED WITH #10 TEK SCREWS AT 2'-0" O.C. MAXIMUM.

6. NOTHING SHALL BE HUNG FROM THE METAL DECK, UNLESS APPROVED BY THE ENGINEER.

7. ALL OPENINGS IN METAL DECK WILL REQUIRE ADDITIONAL FRAMING AS SHOWN ON THE DRAWINGS.

8. FOR DECK OPENINGS OF 13" OR LESS, NOT ADJACENT TO SUPPORTS, PLACE A 14 GAGE SHEET ON TOP OF THE DECK (OVERLAP THE OPENING A MINIMUM OF 6 INCHES ON ALL SIDES). SCREW OR WELD ALL AROUND TO EACH CELL.

MECHANICAL EQUIPMENT SUPPORTS

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL INDICATING LOCATION, FRAMING, AND SUPPORT DETAILS OF ALL EQUIPMENT, INCLUDING DIMENSIONS, DETAILS, AND OPERATING AND DESIGN LOADS. NO EQUIPMENT SHALL BE SET IN PLACE WITHOUT SUCH APPROVAL.

STEEL JOISTS

1. GRADE OF STEEL, DESIGN, FABRICATION, AND ERECTION OF K-SERIES STEEL JOISTS SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR OPEN WEB STEEL JOISTS, K-SERIES" AND "RECOMMENDED CODE OF STANDARD PRACTICE FOR STEEL JOISTS", BOTH ADOPTED BY STEEL JOIST INSTITUTE.

2. GRADE OF STEEL, DESIGN, FABRICATION, AND ERECTION OF LH-SERIES AND DLH-SERIES STEEL JOISTS SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR OPEN WEB STEEL JOISTS, LH-SERIES AND DEEP LONGSPAN STEEL JOISTS, DLH-SERIES, AND "RECOMMENDED CODE OF STANDARD PRACTICE FOR STEEL JOISTS," BOTH ADOPTED BY STEEL JOIST INSTITUTE.

3. WELD JOISTS TO STRUCTURAL STEEL SHAPE AND PLATE SUPPORTS WITH 2" OF 1/8" FILLET WELDS EACH SIDE OF JOISTS, UNLESS NOTED OTHERWISE.

4. ROOF JOISTS AND THEIR CONNECTIONS SHALL BE DESIGNED FOR A NET UPLIFT LOAD OF 25 LBS. PER SQUARE FOOT. PROVIDE UPLIFT BRIDGING AT FIRST PANEL POINT OF ALL ROOF JOISTS.

5. ROOF JOISTS SHALL SUPPORT AN ADDITIONAL 300 LB CONCENTRATED LOAD CONCURRENT WITH LIVE LOAD AT ANY PANEL POINT. THE CONTRACTOR SHALL REINFORCE THE JOIST FOR ANY CONCENTRATED LOAD OF MORE THAN 100 POUNDS PER THE TYPICAL DETAILS.

6. ROOF JOIST CONNECTIONS SHALL BE DESIGNED TO TAKE AND TRANSFER 6OO LBS. LATERAL FORCE PER CONNECTION. (PERPENDICULAR TO LENGTH OF JOIST)

LINTELS AT DOORS AND WINDOWS

1. FOR ALL OPENINGS IN INTERIOR AND EXTERIOR CMU WALLS UP TO 6'-4" WIDE, CMU LINTEL BEAMS WITH (2)- #5 BARS AND 8" MINIMUM END BEARING SHALL BE USED, UNLESS OTHERWISE NOTED.

2. FOR ALL OPENINGS IN INTERIOR AND EXTERIOR BRICK WALLS, PROVIDE LINTEL ANGLES FOR EACH 4 INCH WALL THICKNESS AS FOLLOWS: (LINTELS CONSISTING OF MORE THAN ONE ANGLE SHALL BE BOLTED OR WELDED TOGETHER)

SPANS UP TO 5'-0"	L4" X 3 1/2" X 5/16" WITH 6" END BEARING
SPANS 5'-1" TO 7'-0"	L5" X 3 1/2" X 5/16" WITH 8" END BEARING
SPANS 7'-1" TO 8'-0"	L6" X 4" X 3/8" WITH 10" END BEARING
SPANS 8'-1" AND LARGER	W8X24 & 5/16" PLATE WELDED TOGETHER WITH 10" END BEARING

3. ALL STEEL LINTELS EXPOSED TO WEATHER SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.

POST INSTALLED ANCHORS

1. POST-INSTALLED ANCHORS SHALL BE OF THE TYPE AND SIZE SHOWN ON THE DRAWINGS, OR APPROVED EQUAL.

2. INSTALL ANCHORS ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS, PAYING SPECIAL ATTENTION TO CLEANING OF HOLES TO ASSURE DEVELOPMENT OF ANCHOR STRENGTH.

3. CONTRACTOR SHALL ARRANGE FOR SITE VISITS BY THE ANCHOR MANUFACTURER BEFORE AND PERIODICALLY DURING CONSTRUCTION TO REVIEW INSTALLATION PRACTICES.

4. USE HILTI RE-500 FOR ALL POST-INSTALLED ANCHORS IN CONCRETE/SOLID CMU AND HILTI HIT HY-70 IN OLLOW CMU, UNLESS NOTED OTHERWISE. DO NOT LOAD OR DISTURB POST-INSTALLED ANCHORS UNTIL EPOXY GROUT IS FULLY CURED.

5. EMBED ANCHORS TO THE PROPER "STANDARD" EMBEDMENT DEPTH AS PUBLISHED BY THE MANUFACTURER'S LITERATURE EXCEPT AS SHOWN OTHERWISE ON THE DRAWINGS.

6. EMBED REBAR DOWELS TO THE FOLLOWING DEPTHS UNLESS SHOWN OTHERWISE ON THE DRAWINGS:

BAR SIZE	MINIMUM EMBEDMENT DEPTH
#4	6"
#5	9"
#6	9 1/2"

7. POST-INSTALLED ANCHORS SHALL BE FIELD TESTED AS FOLLOWS:

   a) BOLTS: LOAD TEST TO 150% OF ALLOWABLE CAPACITY
   b) REBAR: LOAD TEST TO 150% OF YIELD STRENGTH
   c) LOAD TEST 10% OF POST-INSTALLED ANCHORS IN LOCATIONS DIRECTED BY THE ENGINEER.

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Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

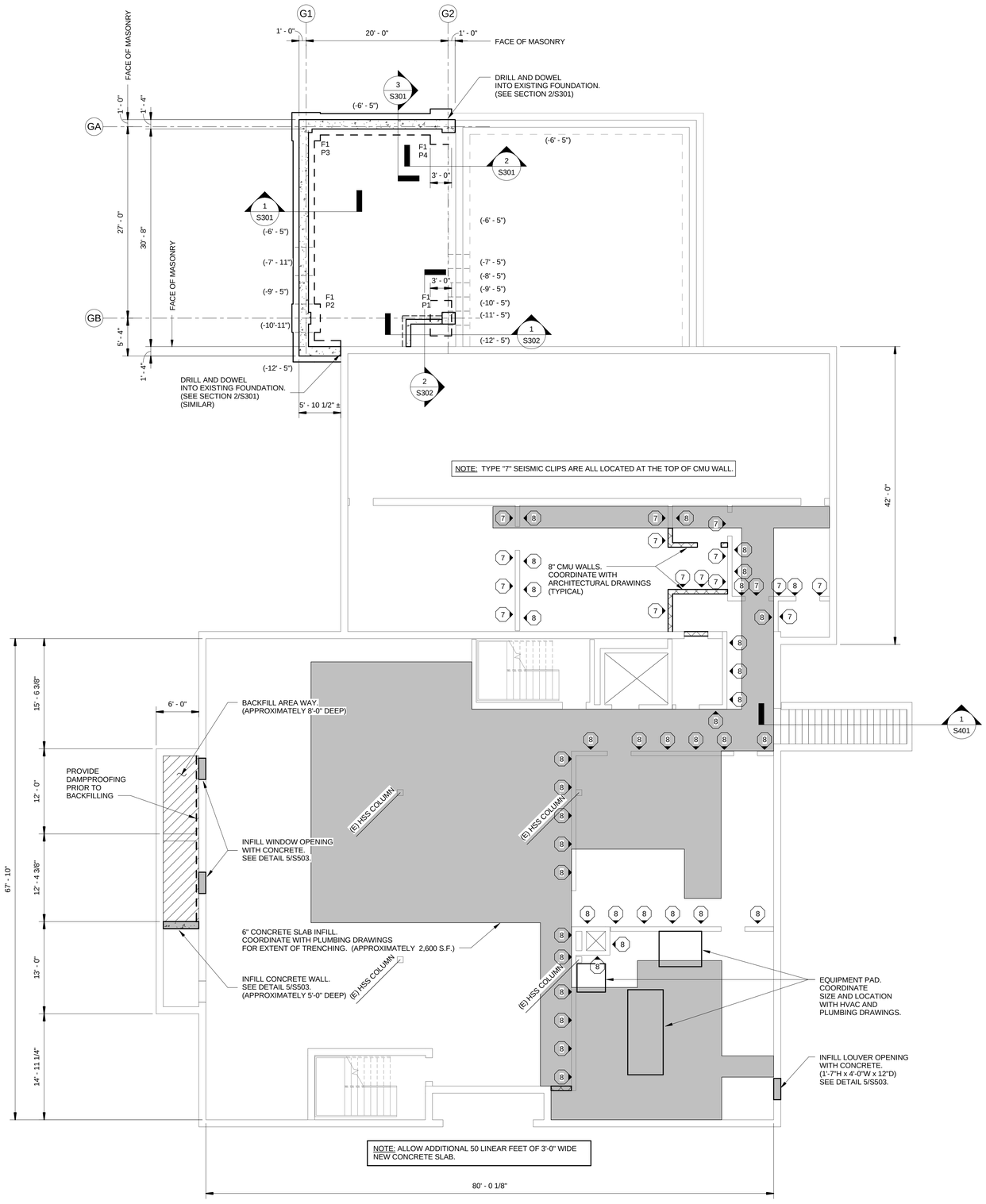
GENERAL NOTES

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: 12" = 1'-0"

SHEET NUMBER:

S001

SHEET 8 **OF** 157



1 **BASEMENT PLAN**
SCALE: 1/8" = 1'-0"

0' 4' 8' 16'

SHEET NOTES:

1. FOR GENERAL NOTES, SEE DRAWING S001.
2. FOR TYPICAL DETAILS, SEE DRAWINGS S501 - S506.
3. EXISTING DIMENSIONS AND CONDITIONS MUST BE VERIFIED OR DETERMINED IN THE FIELD BY THE CONTRACTOR. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.
4. UNLESS OTHERWISE NOTED, DETAILS SHOWN ON ANY DRAWING ARE TO BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.
5. COORDINATE WITH ARCHITECTURAL, HVAC, ELECTRICAL AND PLUMBING DRAWINGS FOR ANY OPENINGS THAT MAY BE REQUIRED.
6. COORDINATE ALL CMU WALL LOCATIONS WITH ARCHITECTURAL DRAWINGS.

LEGEND:

(E)	INDICATES EXISTING MEMBER.
Fx	INDICATES FOOTING TYPE, SEE FOOTING SCHEDULE ON DRAWING S102.
Px	INDICATES PIER TYPE, SEE DRAWINGS S601.
(-X' - XX")	INDICATES BOTTOM OF FOOTING ELEVATION.
	INDICATES SPAN DIRECTION.
X	INDICATES SEISMIC CLIP. SEE DRAWING S502 FOR CLIP TYPE.

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

BASEMENT PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

S101

SHEET 9 **OF** 157

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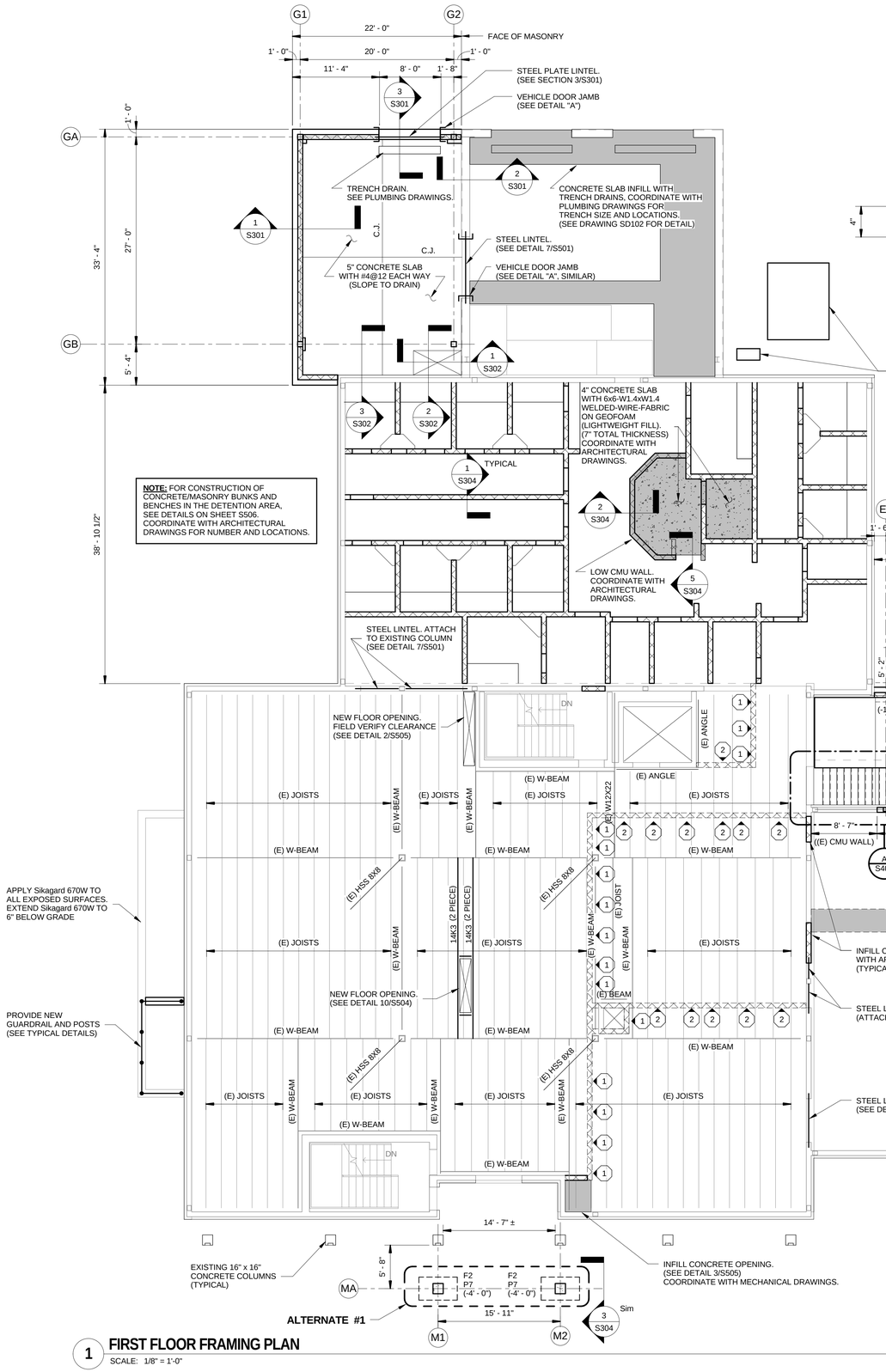
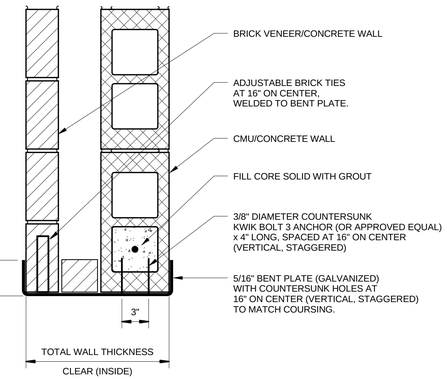


1 **FIRST FLOOR FRAMING PLAN**
SCALE: 1/8" = 1'-0"



A **VEHICLE DOOR JAMB DETAIL**
SCALE: 1 1/2" = 1'-0"

SHEET NOTES:

1. FOR GENERAL NOTES, SEE DRAWING S001.
2. FOR TYPICAL DETAILS, SEE DRAWINGS S501 - S506.
3. EXISTING DIMENSIONS AND CONDITIONS MUST BE VERIFIED OR DETERMINED IN THE FIELD BY THE CONTRACTOR. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.
4. UNLESS OTHERWISE NOTED, DETAILS SHOWN ON ANY DRAWING ARE TO BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.
5. COORDINATE WITH ARCHITECTURAL, HVAC, ELECTRICAL AND PLUMBING DRAWINGS FOR ANY ADDITIONAL OPENINGS THAT MAY NEED TO BE PROVIDE OR FILLED IN.
6. COORDINATE ALL CMU WALL LOCATIONS WITH ARCHITECTURAL DRAWINGS.

LEGEND:

(E)	INDICATES EXISTING MEMBER.
Fx	INDICATES FOOTING TYPE, SEE FOOTING SCHEDULE.
Px	INDICATES PIER TYPE, SEE DRAWINGS S601.
(-X' - XX")	INDICATES BOTTOM OF FOOTING ELEVATION.
C.J.	INDICATES CONTRACTION JOINT
	INDICATES SPAN DIRECTION.
X	INDICATES SEISMIC CLIP. SEE DRAWING S502 FOR CLIP TYPE.

ALTERNATE #1 - SEE ARCHITECTURAL DRAWINGS.

FOOTING SCHEDULE

MARK	SIZE	REINFORCING
F1	4' - 0" x 4' - 0" x 1' - 0"	(5)- #6 EACH WAY (BOTTOM)
F2	5' - 0" x 3' - 0" x 1' - 0"	(4)- #4 (LONG WAY) (6)- #4 (SHORT WAY)

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

FIRST FLOOR FRAMING PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER: S102

SHEET 10 **OF** 157

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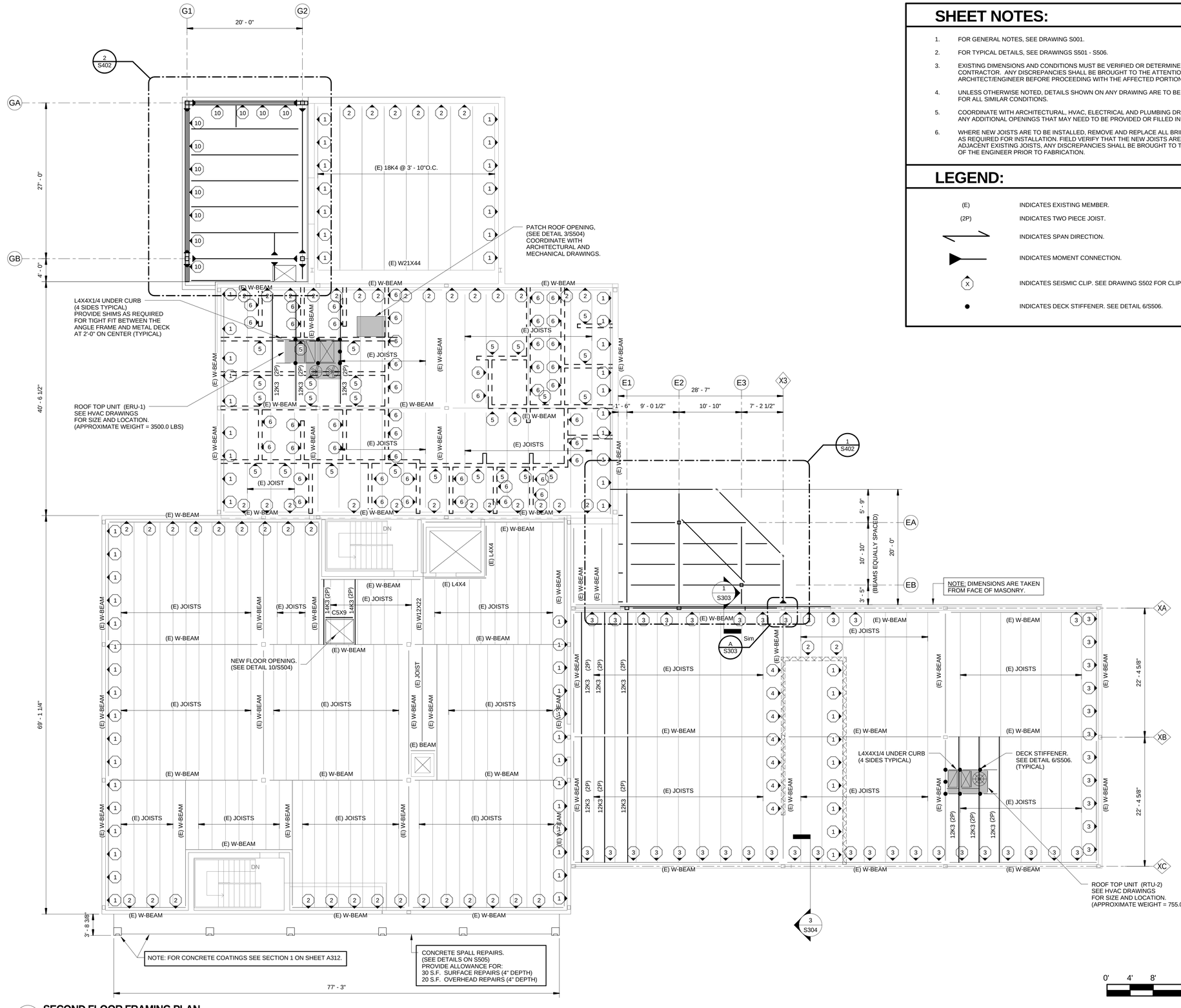

1 **SECOND FLOOR FRAMING PLAN**
SCALE: 1/8" = 1'-0"

SHEET NOTES:

1. FOR GENERAL NOTES, SEE DRAWING S001.
2. FOR TYPICAL DETAILS, SEE DRAWINGS S501 - S506.
3. EXISTING DIMENSIONS AND CONDITIONS MUST BE VERIFIED OR DETERMINED IN THE FIELD BY THE CONTRACTOR. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.
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5. COORDINATE WITH ARCHITECTURAL, HVAC, ELECTRICAL AND PLUMBING DRAWINGS FOR ANY ADDITIONAL OPENINGS THAT MAY NEED TO BE PROVIDED OR FILLED IN.
6. WHERE NEW JOISTS ARE TO BE INSTALLED, REMOVE AND REPLACE ALL BRIDGING AND OR BRACING AS REQUIRED FOR INSTALLATION. FIELD VERIFY THAT THE NEW JOISTS ARE THE SAME DEPTH AS ADJACENT EXISTING JOISTS, ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO FABRICATION.

LEGEND:

(E)	INDICATES EXISTING MEMBER.
(2P)	INDICATES TWO PIECE JOIST.
	INDICATES SPAN DIRECTION.
	INDICATES MOMENT CONNECTION.
X	INDICATES SEISMIC CLIP. SEE DRAWING S502 FOR CLIP TYPE.
●	INDICATES DECK STIFFENER. SEE DETAIL 6/S506.

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECOND FLOOR FRAMING PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

S103

SHEET 11 **OF** 157

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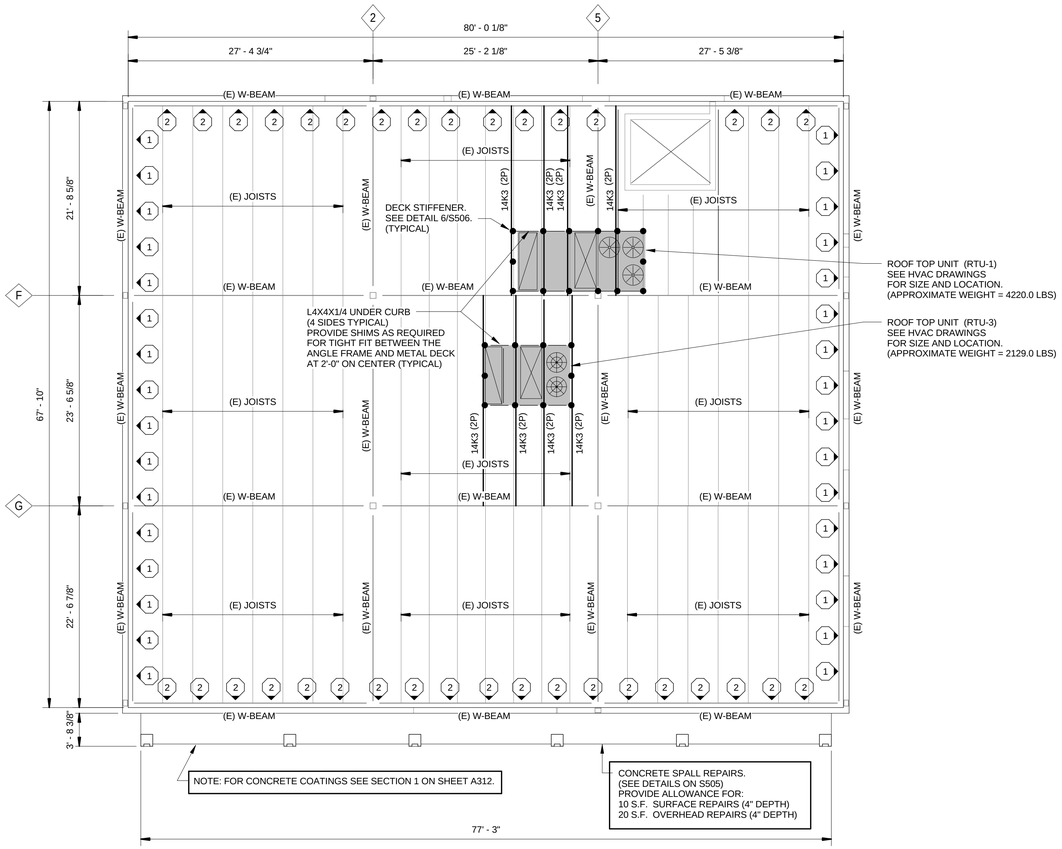

1 **ROOF FRAMING PLAN**
SCALE: 1/8" = 1'-0"

SHEET NOTES:

1. FOR GENERAL NOTES, SEE DRAWING S001.
2. FOR TYPICAL DETAILS, SEE DRAWINGS S501 - S506.
3. EXISTING DIMENSIONS AND CONDITIONS MUST BE VERIFIED OR DETERMINED IN THE FIELD BY THE CONTRACTOR. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.
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6. WHERE NEW JOISTS ARE TO BE INSTALLED, REMOVE AND REPLACE ALL BRIDGING AND OR BRACING AS REQUIRED FOR INSTALLATION. FIELD VERIFY THAT THE NEW JOISTS ARE THE SAME DEPTH AS ADJACENT EXISTING JOISTS, ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO FABRICATION.

LEGEND:

(E)	INDICATES EXISTING MEMBER.
(2P)	INDICATES TWO PIECE JOIST.
	INDICATES SPAN DIRECTION.
X	INDICATES SEISMIC CLIP. SEE DRAWING S502 FOR CLIP TYPE.
●	INDICATES DECK STIFFENER. SEE DETAIL 6/S506.

0' 4' 8' 16'

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ROOF FRAMING PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
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DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

S104

SHEET 12 **OF** 157

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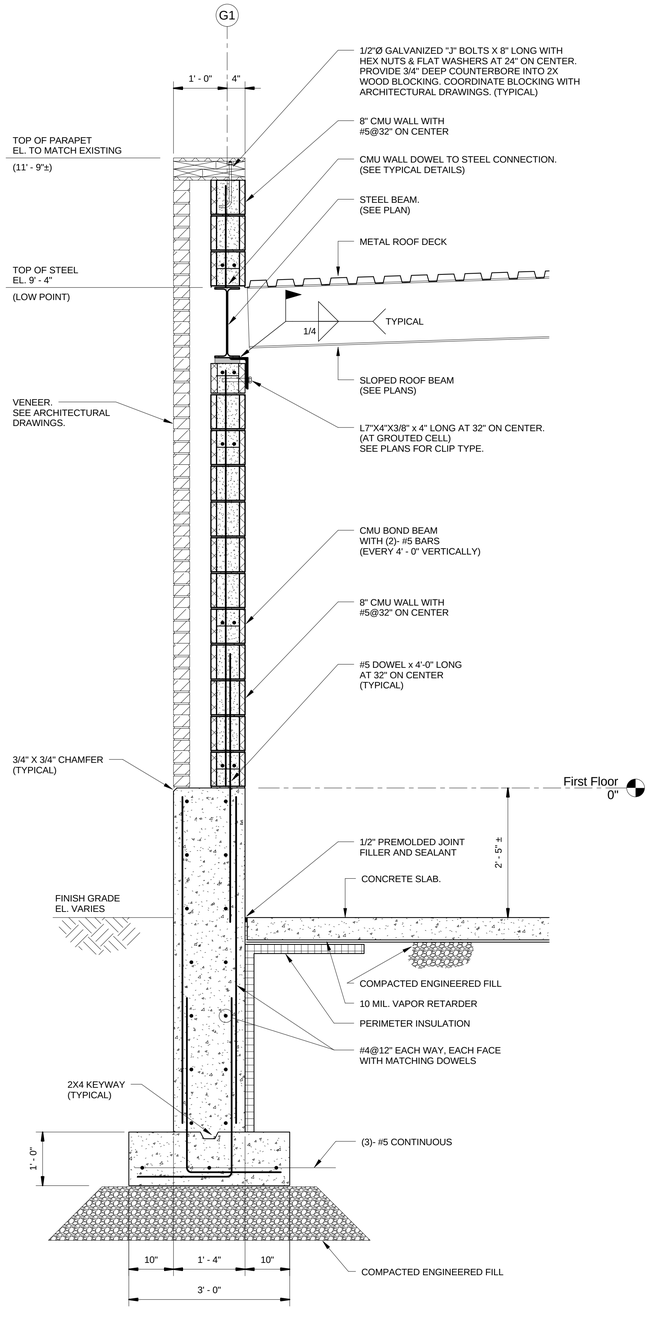

1 S101 **SECTION**
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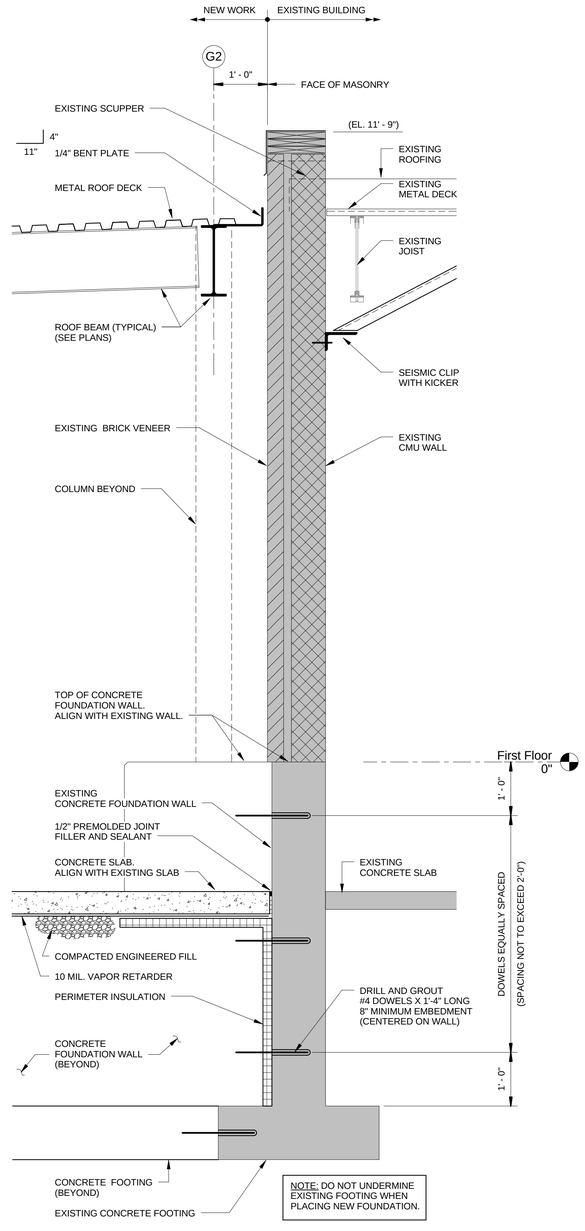

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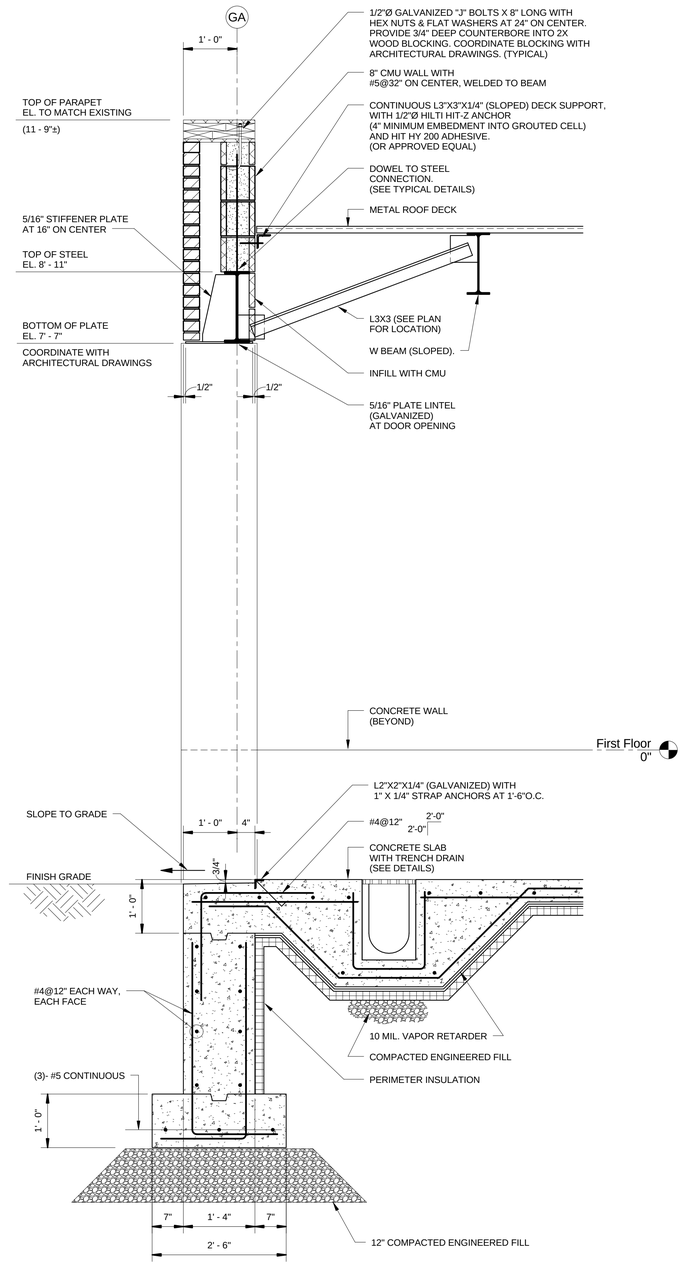

3 S101 **SECTION**
SCALE: 3/4" = 1'-0"

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WALTHAM POLICE STATION RENOVATION

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WALTHAM, MASSACHUSETTS

SECTION AND DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: 3/4" = 1'-0"

SHEET NUMBER:

S301

SHEET 13 **OF** 157

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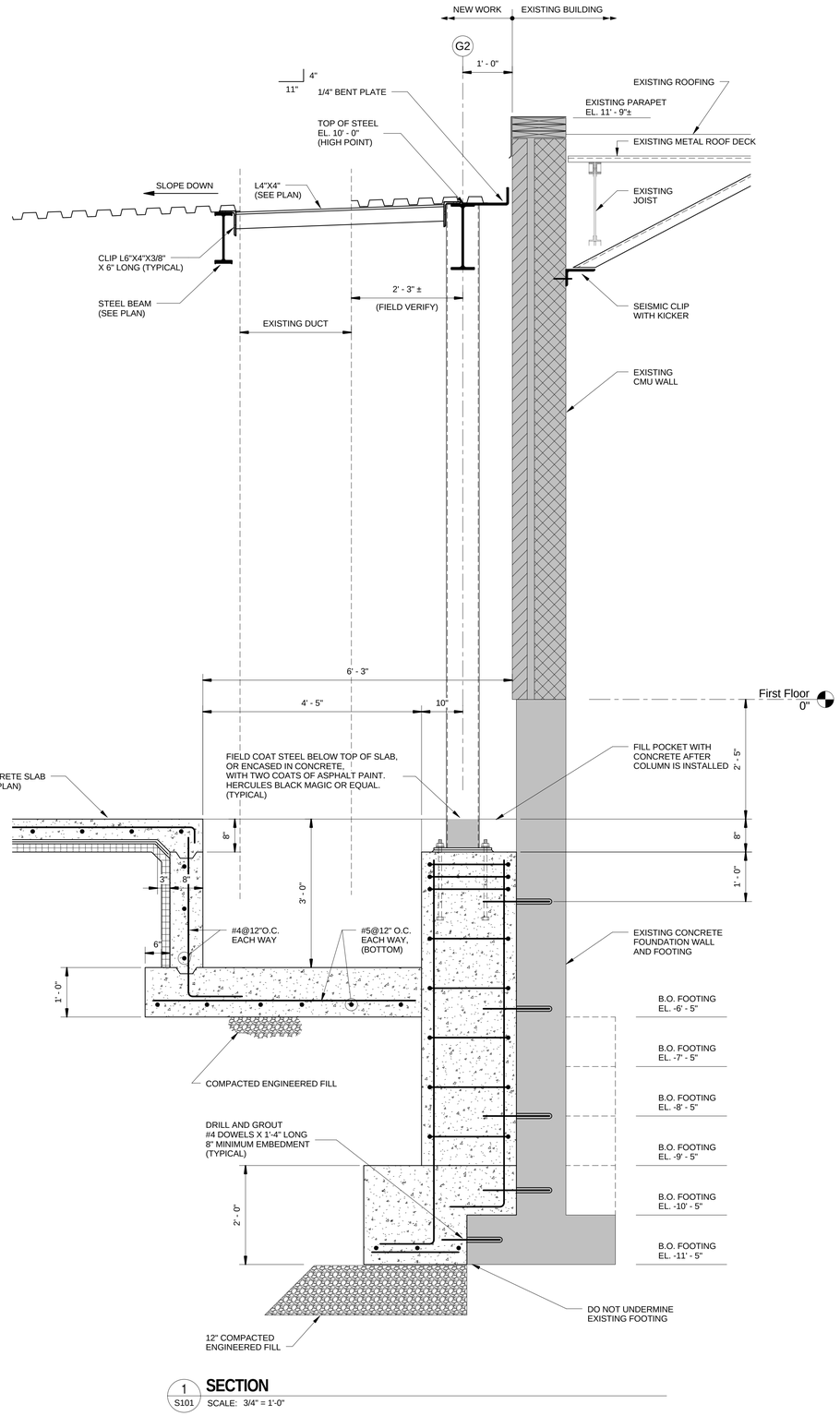

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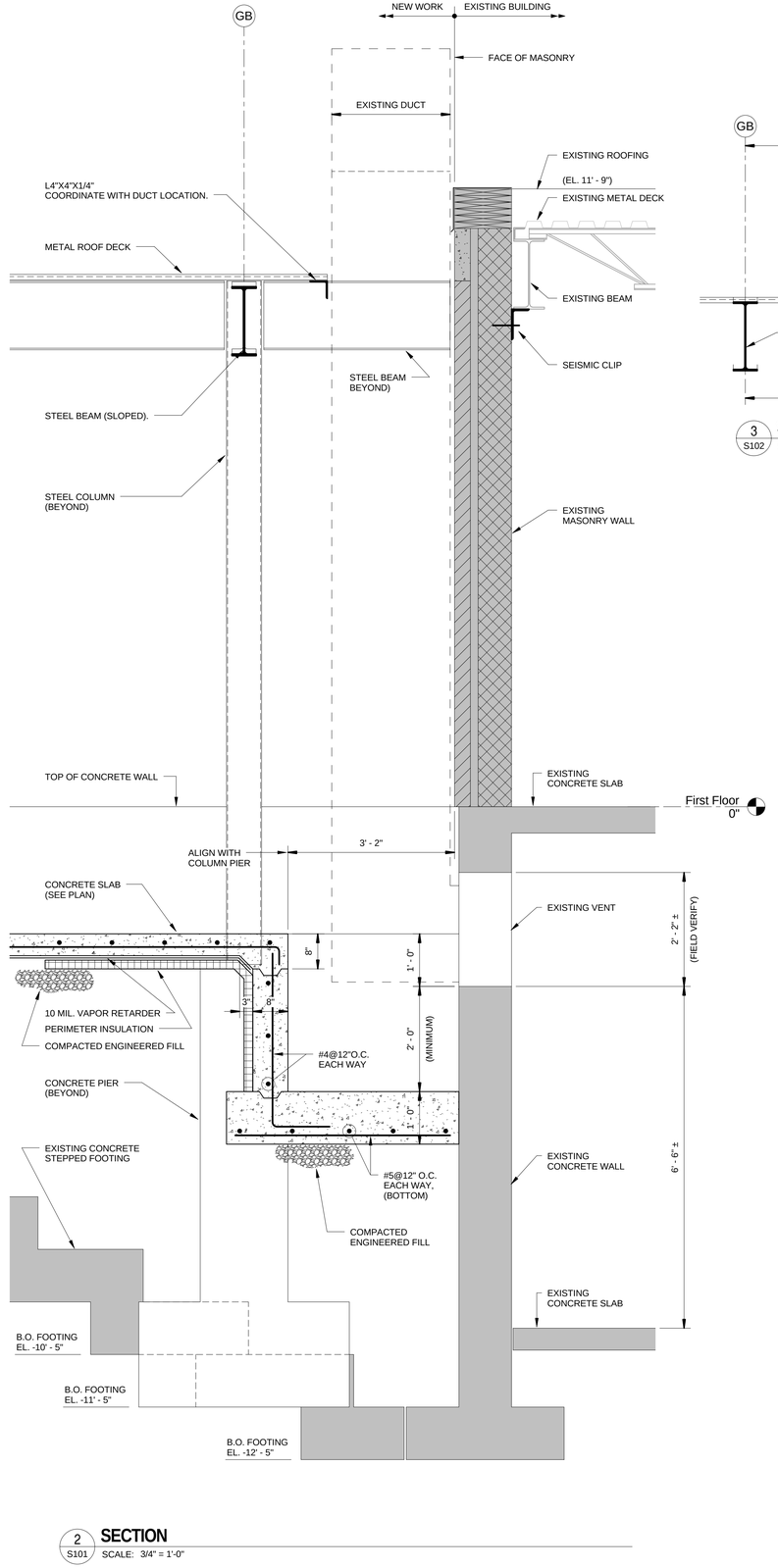

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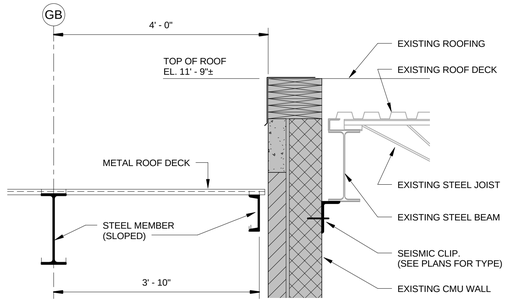

3 S102 **SECTION**
SCALE: 3/4" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECTIONS AND DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: 3/4" = 1'-0"

SHEET NUMBER:

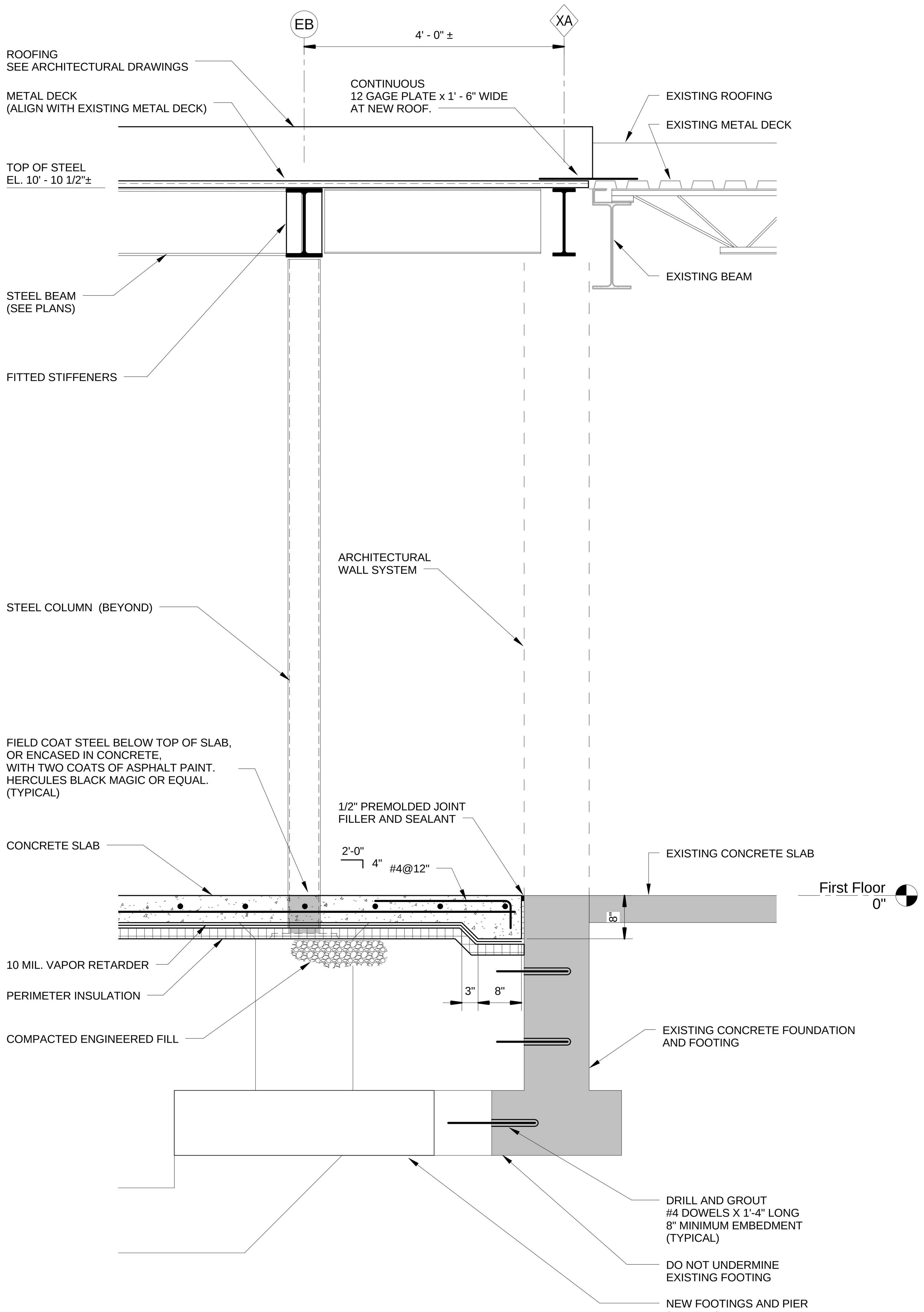
S302

SHEET 14 **OF** 157

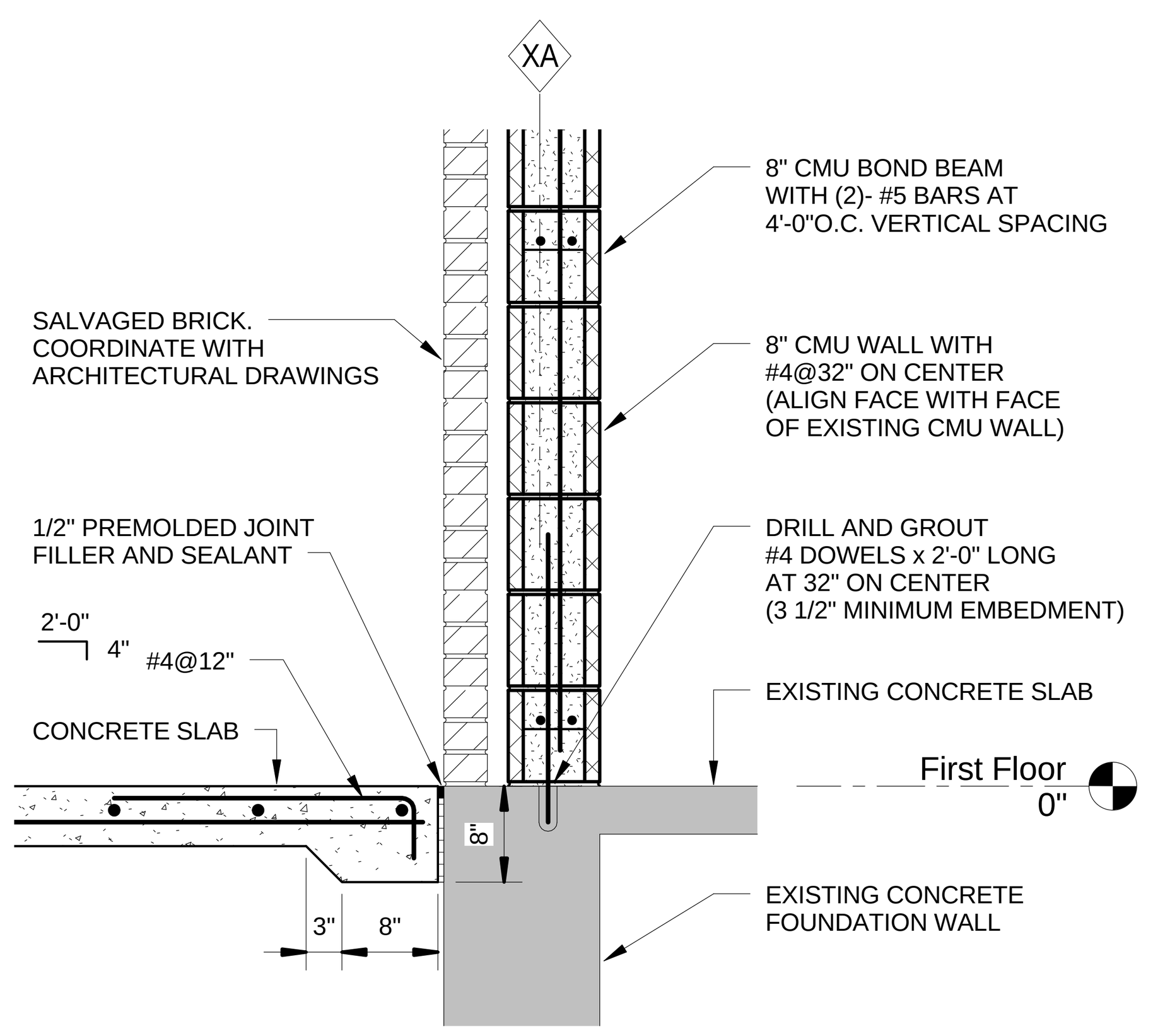
ELEC:
MECH:
FIRE:
PLUM:
STRU:
ARCH:
CIVIL:
REVIEWED BY:

PLOTTED: 7/14/2014 5:34:31 PM

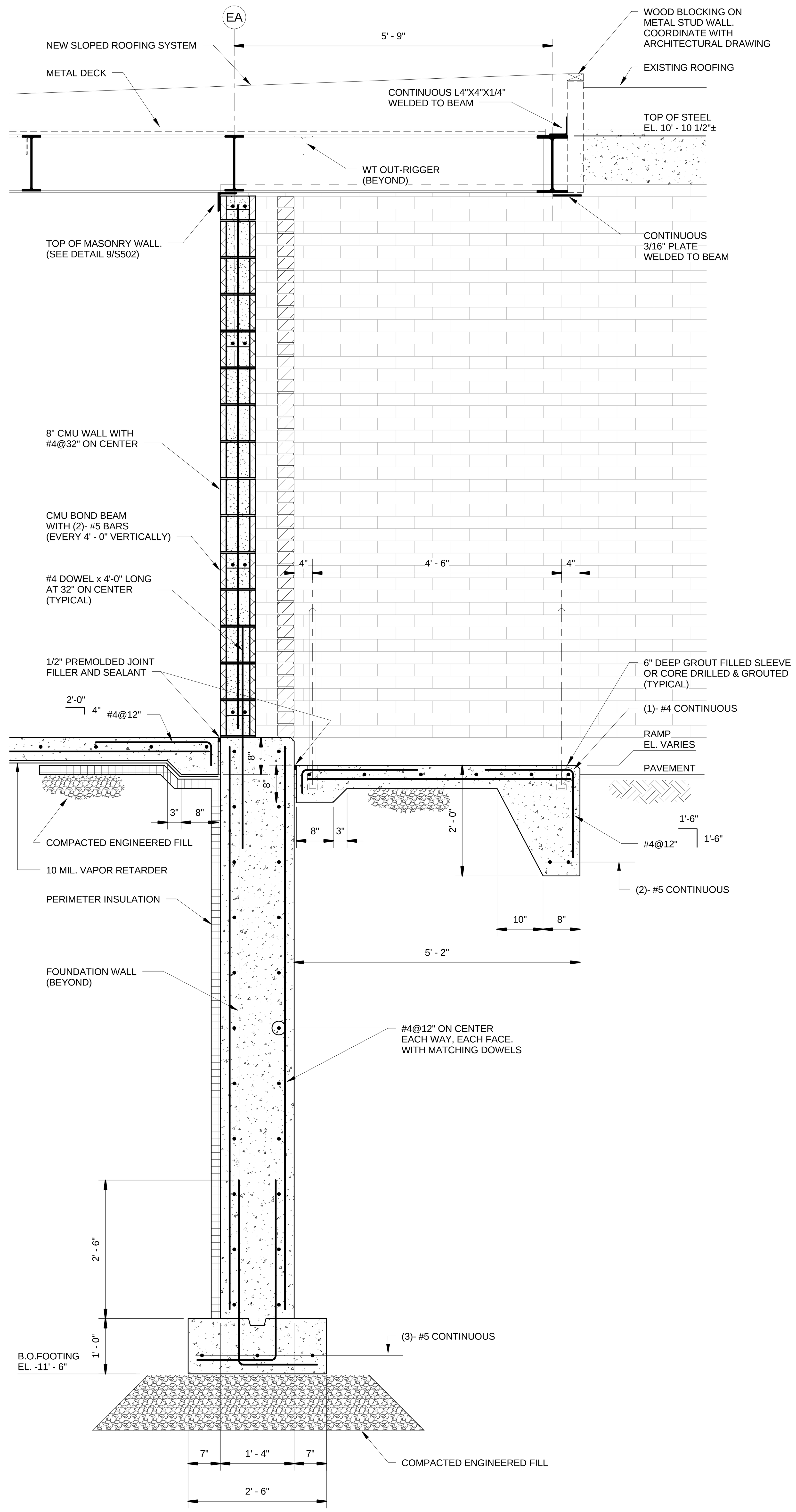
PROJECT FILE: C:\Users\MRogoff\Documents\19401-Waltham Police Station-STRUCTURAL_MRogoff.rvt



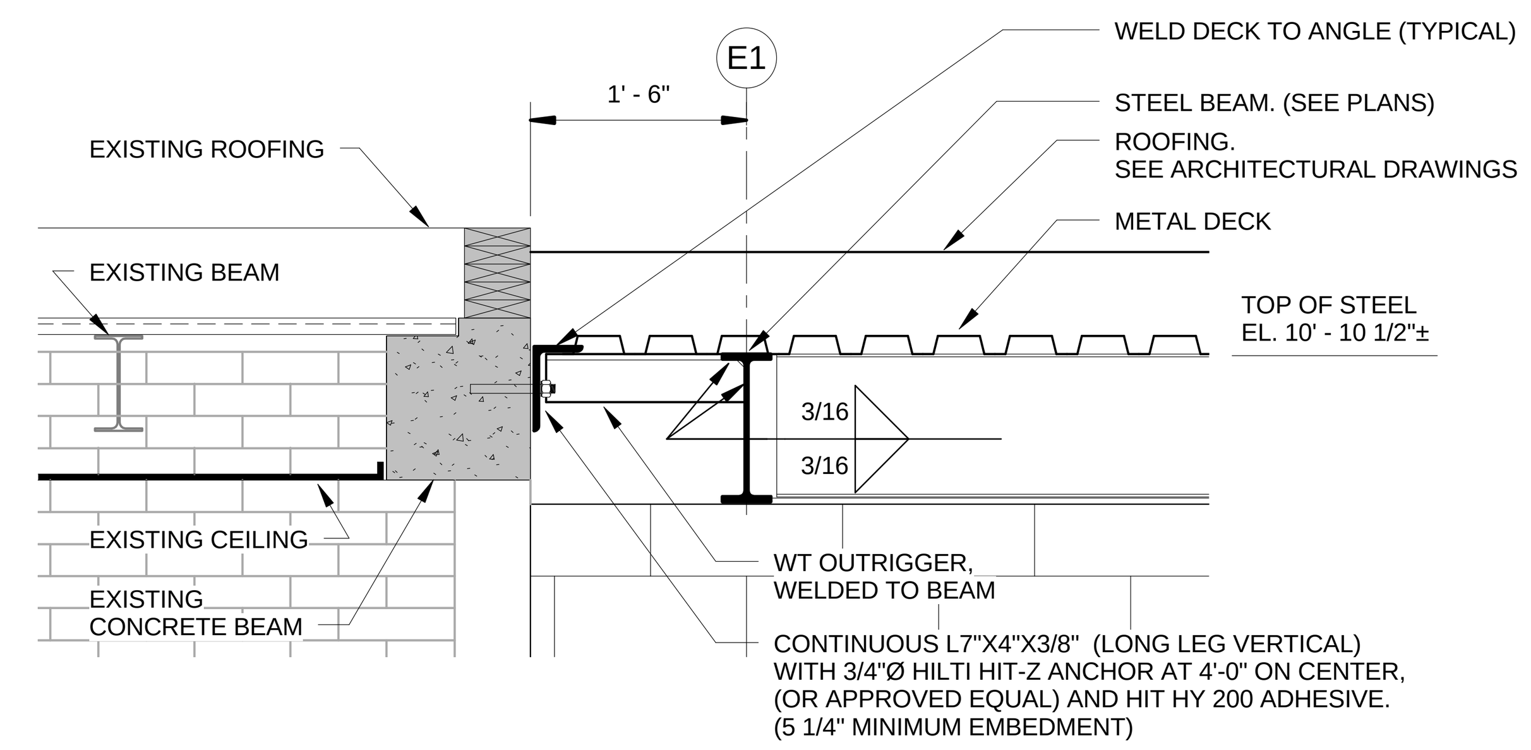
1 SECTION
S102 SCALE: 3/4" = 1'-0"



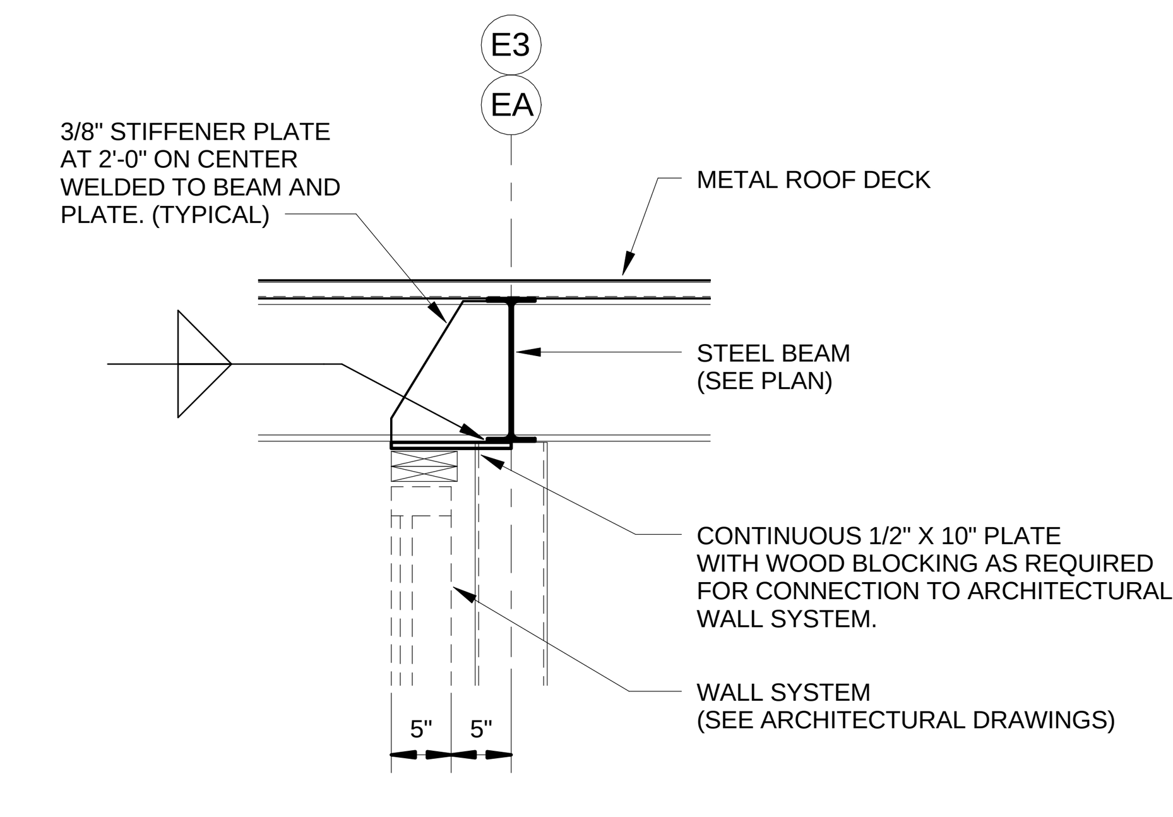
5 SECTION
SCALE: 3/4" = 1'-0"



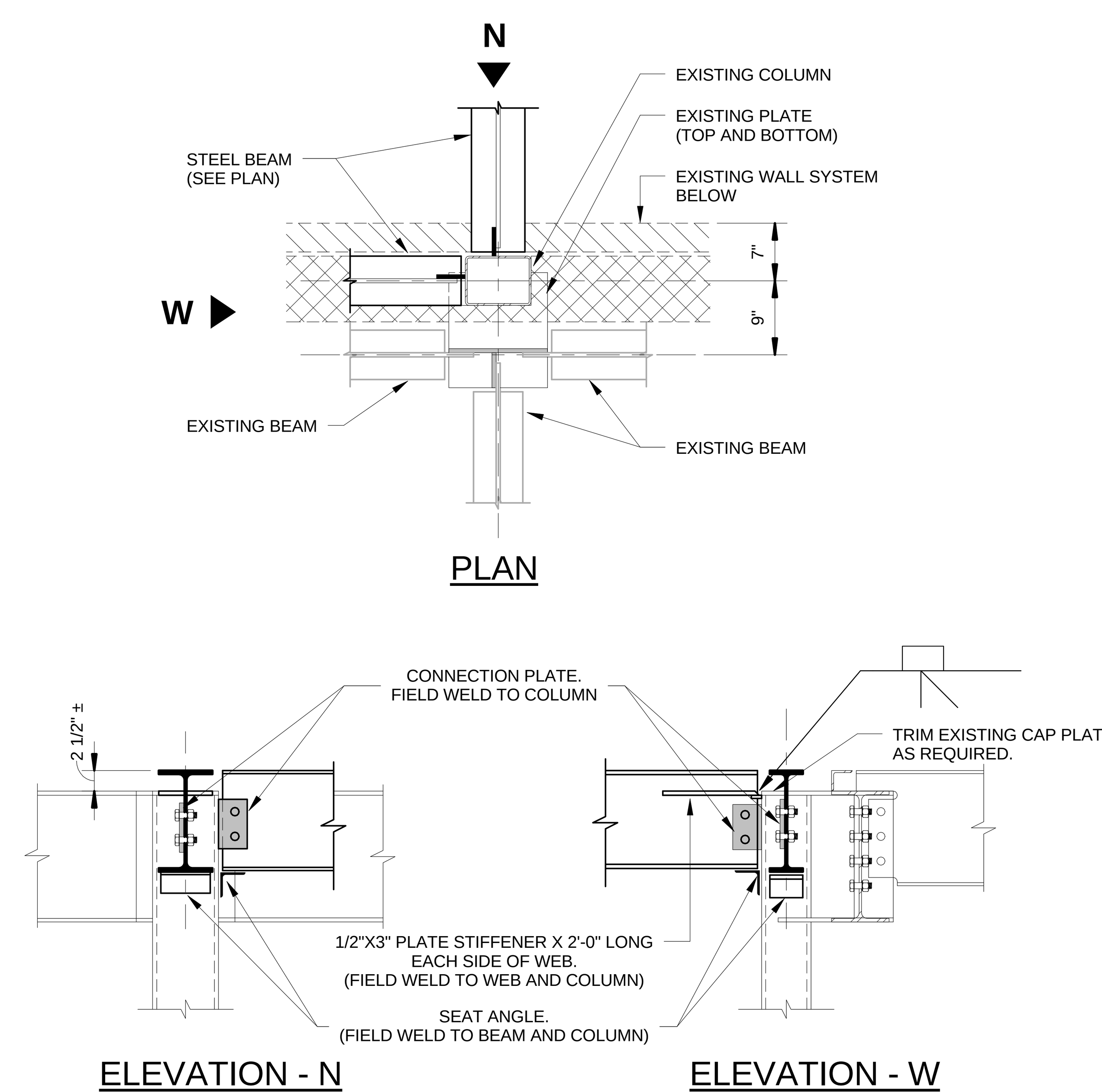
2 SECTION
S102 SCALE: 3/4" = 1'-0"



3 SECTION
S402 SCALE: 3/4" = 1'-0"



4 SECTION
S402 SCALE: 3/4" = 1'-0"



NOTE: FIELD VERIFY EXISTING CONDITIONS AFTER DEMOLITION,
TO VERIFY CONNECTIONS CAN BE MADE. (PRIOR TO FABRICATION)

A NEW BEAM CONNECTION TO EXISTING COLUMN
S103 SCALE: 3/4" = 1'-0"

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

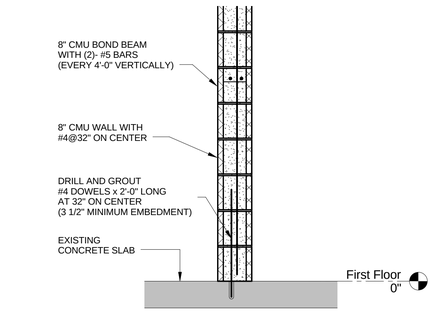
SECTIONS AND DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: 3/4" = 1'-0"
SHEET NUMBER:
S303

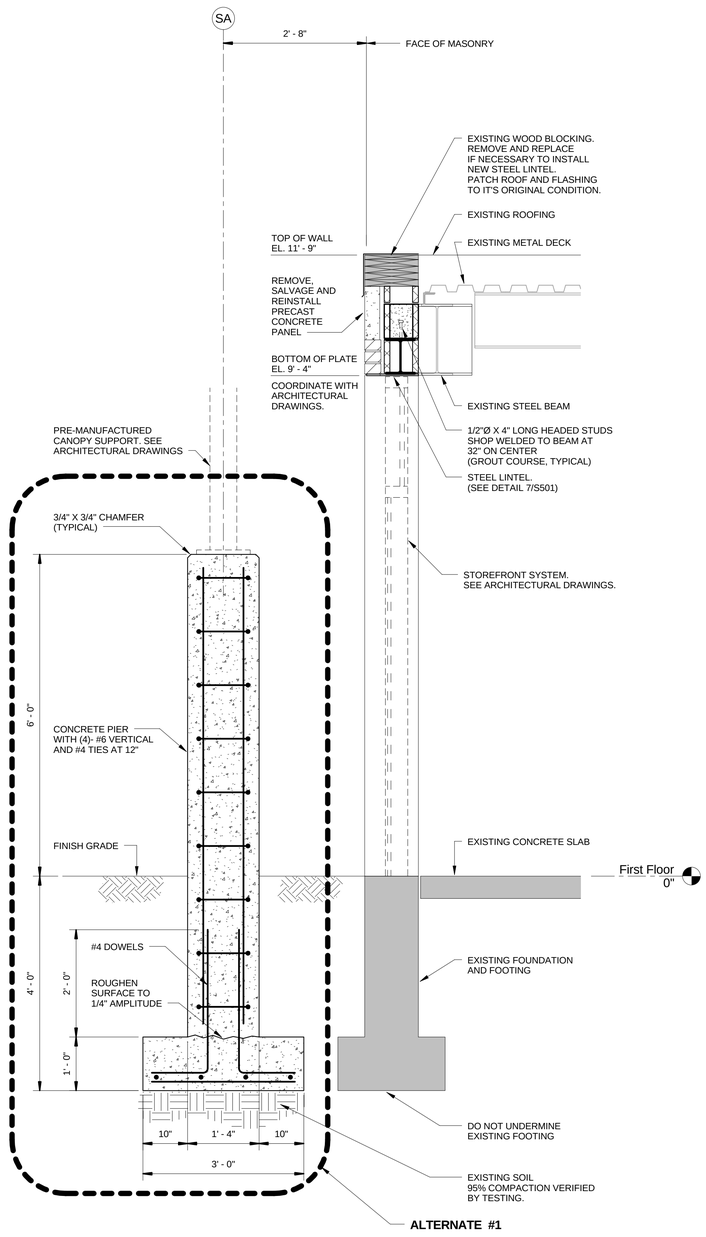
SHEET 15 OF 157

ELEC: MECH: FIRE: PLUMB: STRU: ARCH: CIVIL: REVIEWED BY:
PLOTTED: 7/14/2014 5:34:34 PM
PROJECT FILE:

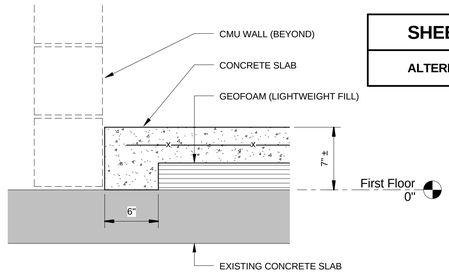
2 SECTION
S102 SCALE: 3/4" = 1'-0"



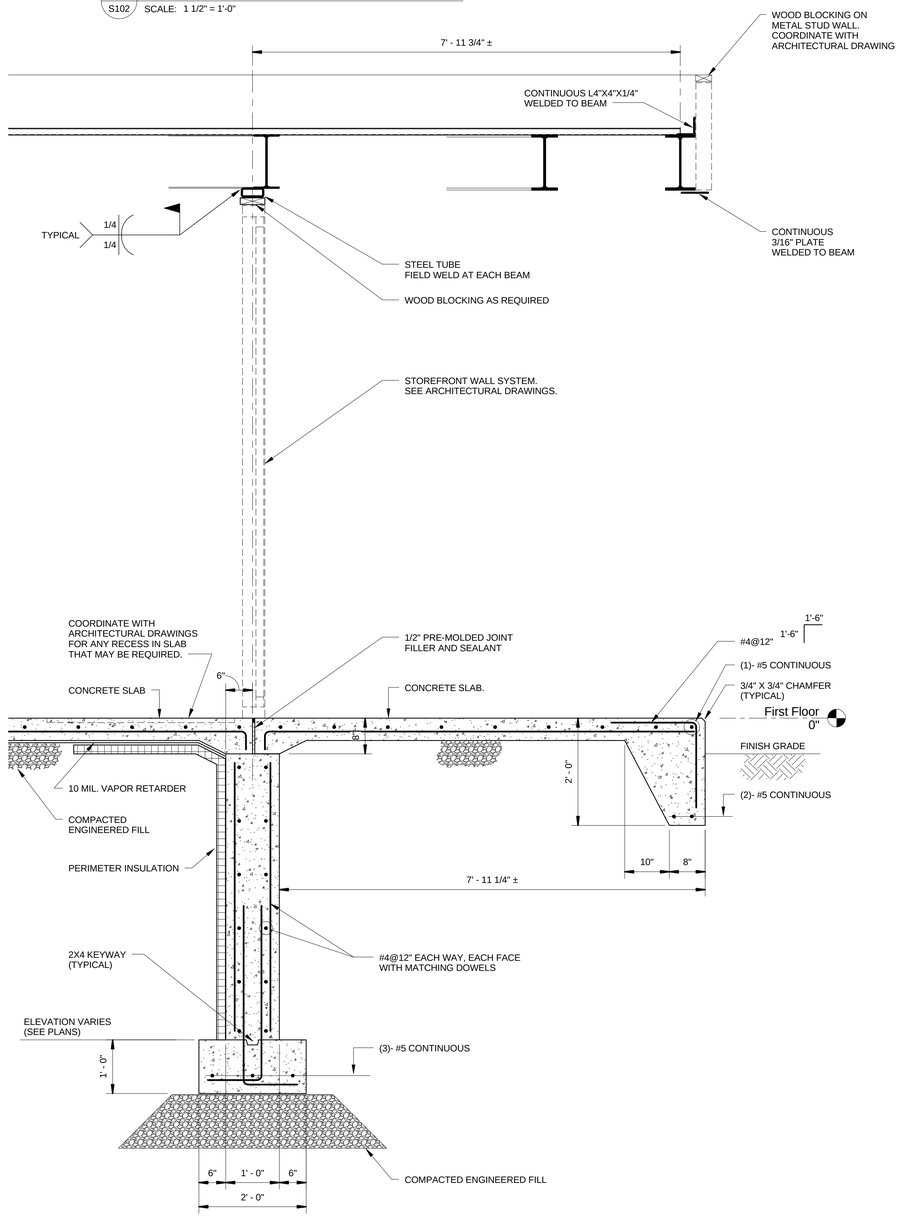
1 SECTION
S102 SCALE: 3/4" = 1'-0"



3 SECTION
S102 SCALE: 3/4" = 1'-0"



5 SECTION
S102 SCALE: 1 1/2" = 1'-0"



4 SECTION
S102 SCALE: 3/4" = 1'-0"

SHEET NOTES:

ALTERNATE #1 - SEE ARCHITECTURAL DRAWINGS.

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ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

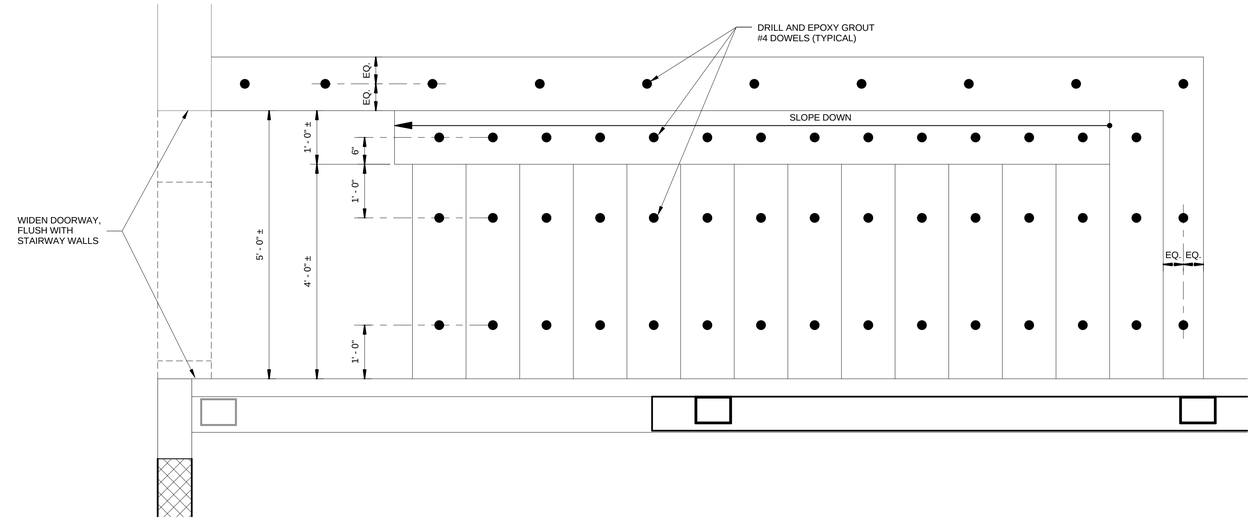
155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECTIONS AND DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: As indicated

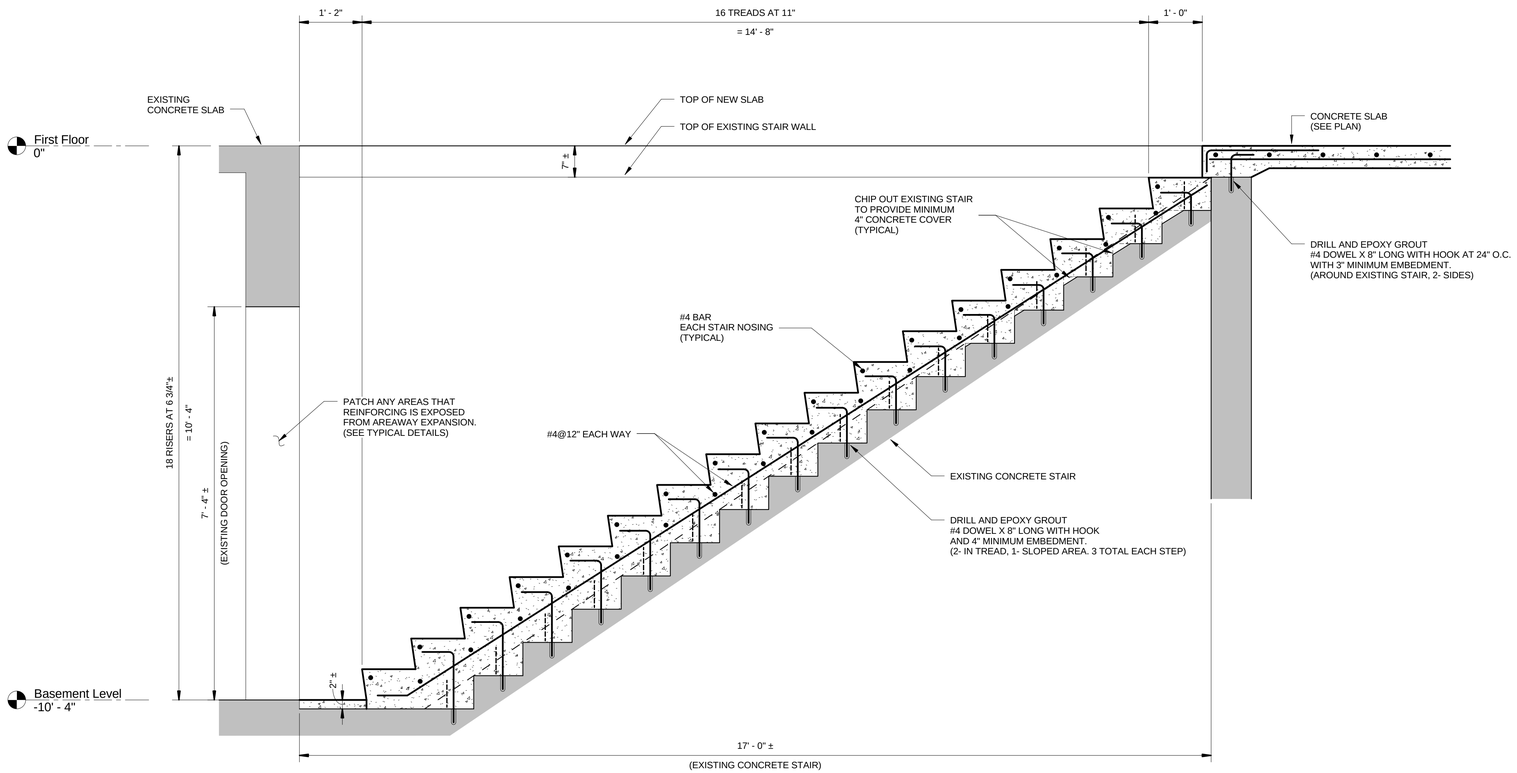
SHEET NUMBER:

S304



A EXISTING STAIR PLAN

SCALE: 3/4" = 1'-0"



1 SECTION

SCALE: 3/4" = 1'-0"

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

STAIR PLAN AND SECTION

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: 3/4" = 1'-0"

SHEET NUMBER:

S401

SHEET 17 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:34:37 PM

PROJECT FILE: C:\Users\MRogol\Documents\19401-Waltham Police Station-STRUCTURAL_MRogol.rvt

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:34:37 PM

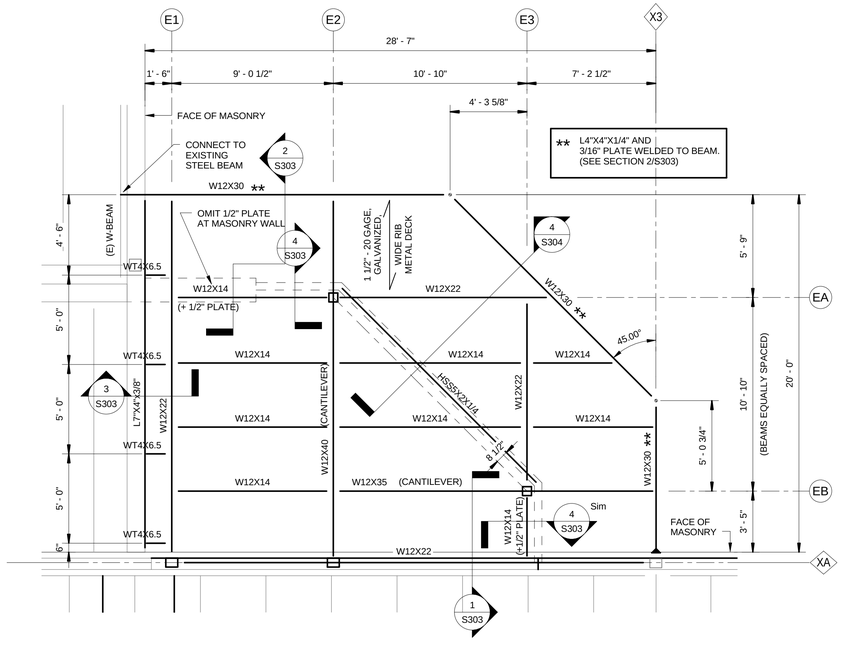
PROJECT FILE: C:\Users\MRogol\Documents\19401-Waltham Police Station-STRUCTURAL_MRogol.rvt

SHEET NOTES:

1. FOR GENERAL NOTES, SEE DRAWING S001.
2. FOR TYPICAL DETAILS, SEE DRAWINGS S501 - S506.
3. EXISTING DIMENSIONS AND CONDITIONS MUST BE VERIFIED OR DETERMINED IN THE FIELD BY THE CONTRACTOR. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.
4. UNLESS OTHERWISE NOTED, DETAILS SHOWN ON ANY DRAWING ARE TO BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.
5. COORDINATE WITH ARCHITECTURAL, HVAC, ELECTRICAL AND PLUMBING DRAWINGS FOR ANY ADDITIONAL OPENINGS THAT MAY NEED TO BE PROVIDED OR FILLED IN.
6. WHERE NEW JOISTS ARE TO BE INSTALLED, REMOVE AND REPLACE ALL BRIDGING AND OR BRACING AS REQUIRED FOR INSTALLATION. FIELD VERIFY THAT THE NEW JOISTS ARE THE SAME DEPTH AS ADJACENT EXISTING JOISTS, ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO FABRICATION.

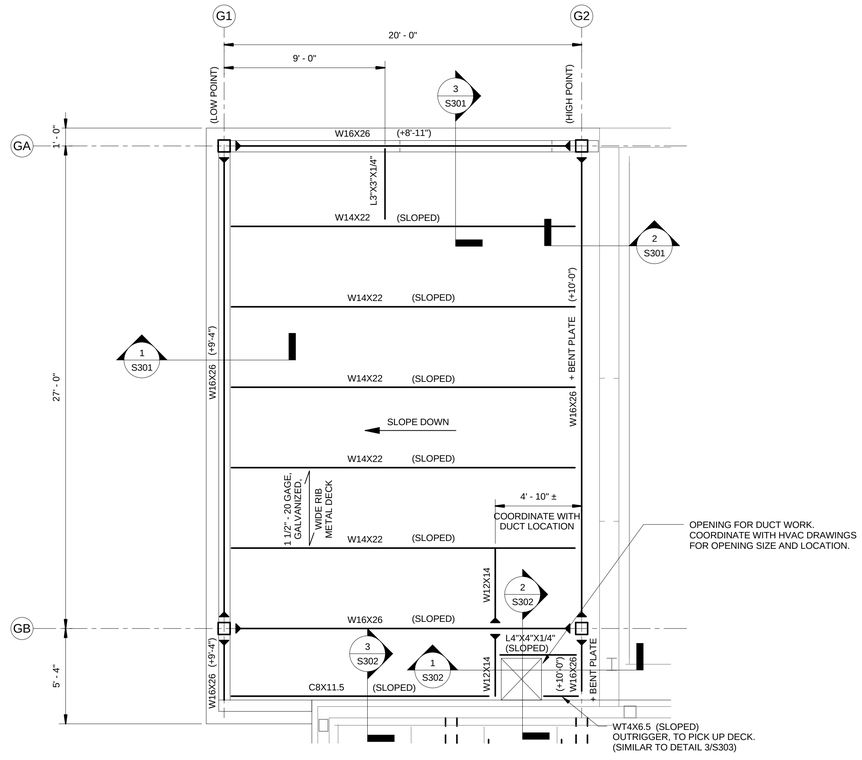
LEGEND:

(E)	INDICATES EXISTING MEMBER.
(2P)	INDICATES TWO PIECE JOIST.
	INDICATES SPAN DIRECTION.
	INDICATES MOMENT CONNECTION.
X	INDICATES SEISMIC CLIP. SEE DRAWING S502 FOR CLIP TYPE.
	INDICATES DECK STIFFENER. SEE DETAIL 6/SS06.



1 ROOF FRAMING PLAN (Staff Entry)

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



2 ROOF FRAMING PLAN (Motorcycle/Bike Storage)

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

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

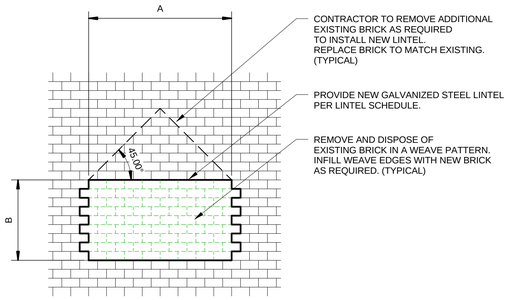
ENLARGED FRAMING PLANS

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

S402

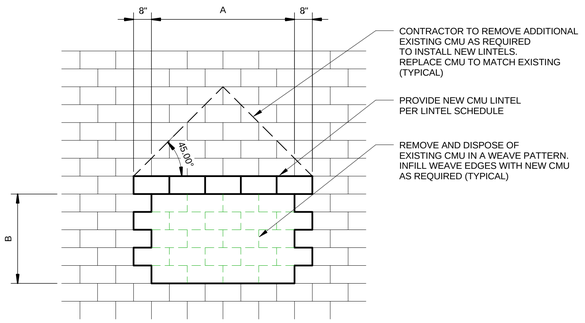
SHEET 18 **OF** 157



NOTE: FOR OPENING LOCATIONS AND SIZES, (A X B), SEE STRUCTURAL PLANS AND MECHANICAL DRAWINGS.

1 BRICK REMOVAL FOR NEW OPENING IN EXISTING WALL

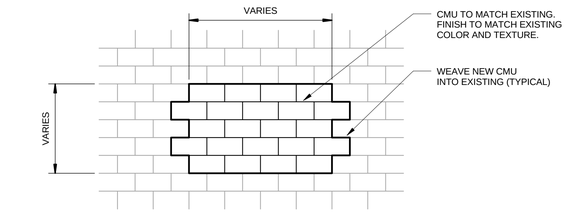
SCALE: 3/4" = 1'-0"



NOTE: FOR OPENING LOCATIONS AND SIZES, (A X B), SEE STRUCTURAL PLANS AND MECHANICAL DRAWINGS.

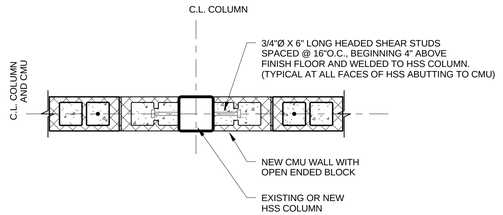
2 CMU REMOVAL FOR NEW OPENING IN EXISTING WALL

SCALE: 3/4" = 1'-0"



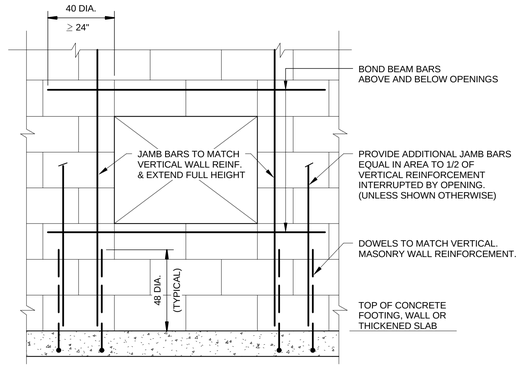
3 INFILL AT OPENINGS IN EXISTING CMU

SCALE: 3/4" = 1'-0"



4 CMU CONNECTION TO HSS COLUMN DETAIL

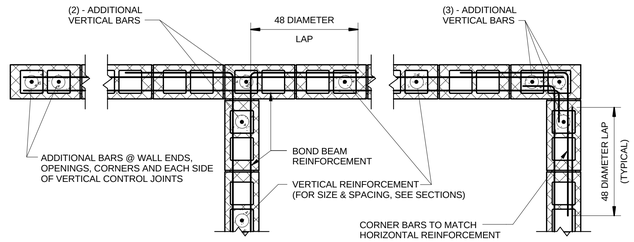
SCALE: 3/4" = 1'-0"



NOTE: WINDOW OPENING SHOWN, DOOR OPENING SIMILAR.

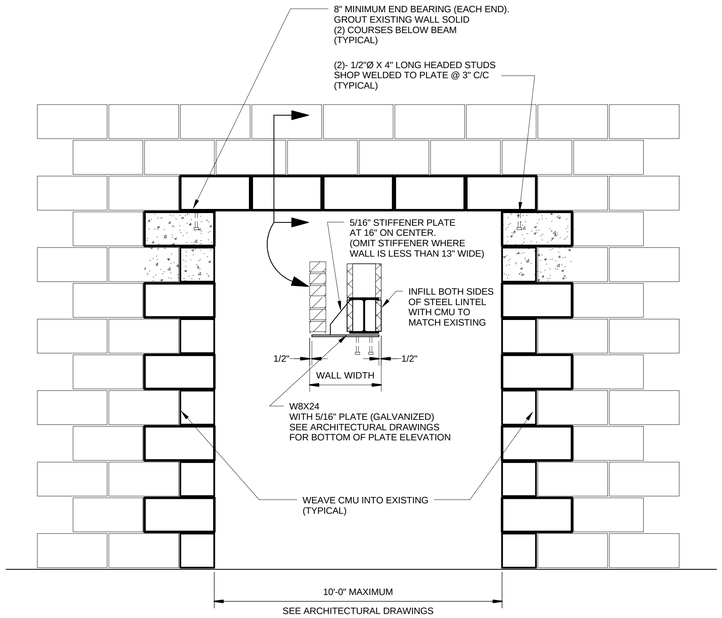
5 REINFORCING AT MASONRY WALL OPENINGS

SCALE: 3/4" = 1'-0"



6 MASONRY WALL REINFORCING END, INTERSECTION & CORNER DETAIL

SCALE: 3/4" = 1'-0"

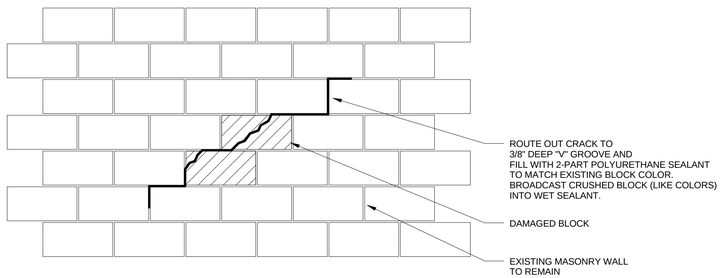


NOTES:

1. CONTRACTOR SHALL PROVIDE SHORING AS REQUIRED FOR EXISTING WALL DURING ENLARGEMENT OF NEW OPENING AND LINTEL INSTALLATION.
2. CMU LINTEL BLOCKS WITH (2)- #5 BARS MAY BE SUBSTITUTED FOR W8 BEAM AND PLATE LINTEL AT OPENINGS 6' - 4" WIDE AND UNDER. PROVIDE MINIMUM 16" END BEARING EACH END.
3. WHERE STEEL COLUMN OCCURS AT THE LINTEL END, PROVIDE CONNECTION BETWEEN THE LINTEL AND STEEL COLUMN; CONNECTION TO STEEL COLUMN BY MISCELLANEOUS METAL FABRICATOR.
4. BRICK IS ONLY REQUIRED WHERE SHOWN ON ARCHITECTURAL.
5. ALL STEEL LINTELS TO BE SUPPLIED BY THE MISCELLANEOUS METAL FABRICATOR AND INSTALLED BY THE MASONRY SUB CONTRACTOR.

7 ENLARGEMENT/ NEW MASONRY OPENING IN EXISTING MASONRY WALL

SCALE: 3/4" = 1'-0"



PROJECT ALLOWANCE:

CRACK REPAIR	=	250 LINEAR FEET
REMOVE AND REPLACE BLOCK (8" CMU)	=	50 BLOCKS

8 CMU CRACK REPAIR DETAIL

SCALE: 3/4" = 1'-0"

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ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

TYPICAL DETAILS

PROJECT NUMBER:	19401.01
DESIGNED BY:	JS
DRAWN BY:	KC
CHECKED BY:	JS
DATE:	July 11, 2014
SCALE:	3/4" = 1'-0"

SHEET NUMBER:

S501

SHEET 19 OF 157

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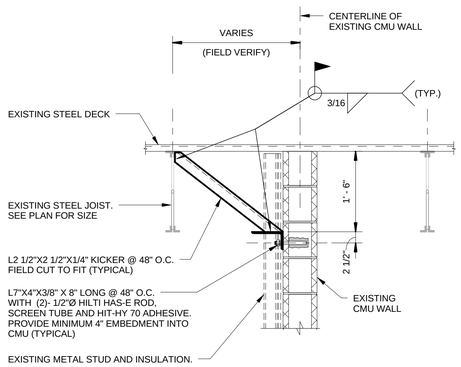
PLOTTED: 7/14/2014 5:34:38 PM

PROJECT FILE: C:\Users\MRogoff\Documents\19401-Waltham Police Station-STRUCTURAL_MRogoff.rvt

SHEET NOTES:

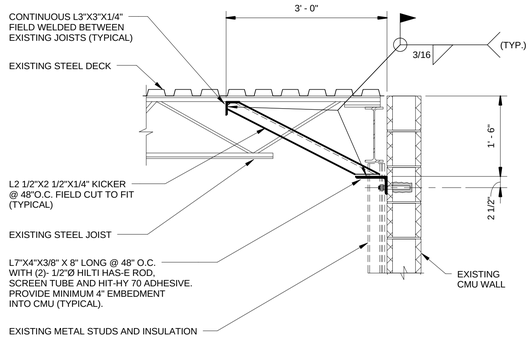
1. ALL SEISMIC CLIPS, KICKERS, AND POST-INSTALLED ANCHORS SHALL BE FURNISHED AND INSTALLED BY THE STRUCTURAL STEEL SUB-CONTRACTOR, UNLESS OTHERWISE NOTED.
2. ALL SEISMIC CLIPS MAY NOT BE SHOWN ON PLANS DUE TO EXISTING INFORMATION AND CONDITIONS. SEISMIC CLIPS SHALL BE PROVIDE AT ALL CMU WALLS, BASED ON DETAILS PROVIDED ON THIS SHEET.



NOTE: REMOVE AND REPLACE INSULATION BETWEEN METAL STUDS AS REQUIRED TO INSTALL ANGLE.

1 EXISTING PARTITION SUPPORTS, PARALLEL TO JOISTS

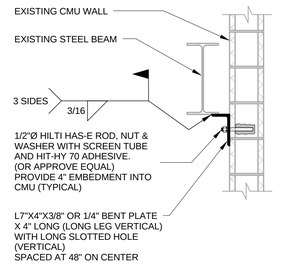
SCALE: 3/4" = 1'-0"



NOTE: REMOVE AND REPLACE INSULATION BETWEEN METAL STUDS AS REQUIRED TO INSTALL ANGLE.

2 EXISTING PARTITION SUPPORTS, PERPENDICULAR TO JOISTS

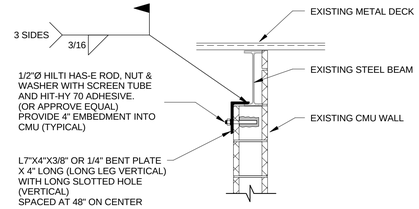
SCALE: 3/4" = 1'-0"



NOTE: NUT TO BE FINGER TIGHTENED TO ALLOW FOR MOVEMENT.

3 SEISMIC CLIP

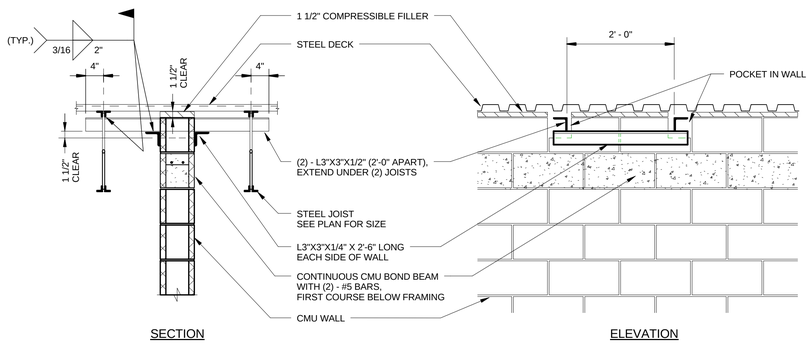
SCALE: 3/4" = 1'-0"



NOTE: NUT TO BE FINGER TIGHTENED TO ALLOW FOR MOVEMENT.

4 SEISMIC CLIP

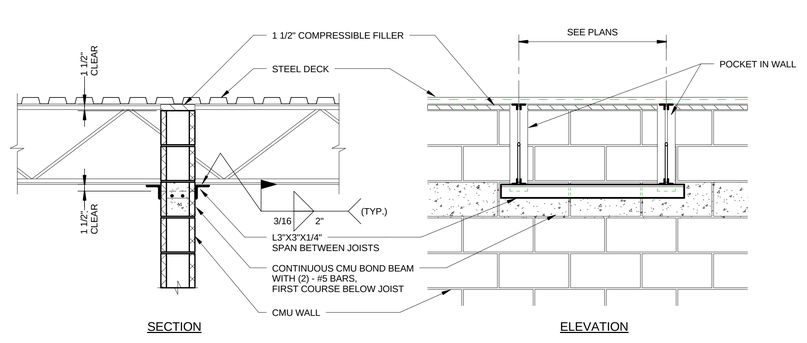
SCALE: 3/4" = 1'-0"



NOTE: SPACE AT A MAXIMUM OF 8'-0" O.C. USING A MINIMUM OF TWO PER WALL IN ANY ONE DIRECTION.

5 PARTITION SUPPORTS, PARALLEL TO JOISTS.

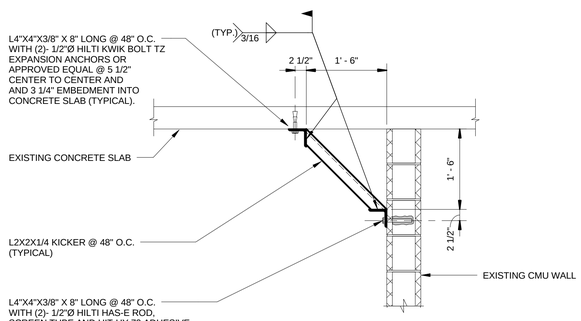
SCALE: 3/4" = 1'-0"



NOTE: SPACE AT A MAXIMUM OF 8'-0" O.C. USING A MINIMUM OF TWO PER WALL IN ANY ONE DIRECTION.

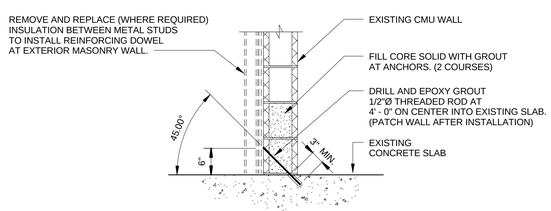
6 PARTITION SUPPORTS, PERPENDICULAR TO JOISTS.

SCALE: 3/4" = 1'-0"



7 EXISTING PARTITION SUPPORTS, AT CONCRETE SLAB

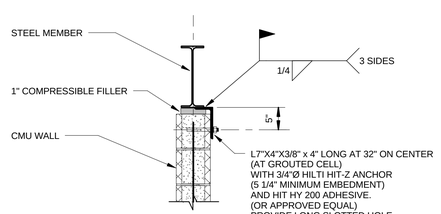
SCALE: 3/4" = 1'-0"



8 DETAIL AT BOTTOM OF EXISTING MASONRY WALLS

SCALE: 3/4" = 1'-0"

(ALL WORK SHOWN IN THIS DETAIL INCLUDING EPOXY AND ANCHORS BY THE MASONRY CONTRACTOR)



NOTE: NUT TO BE FINGER TIGHTENED TO ALLOW FOR MOVEMENT.

9 SEISMIC CLIP

SCALE: 3/4" = 1'-0"

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

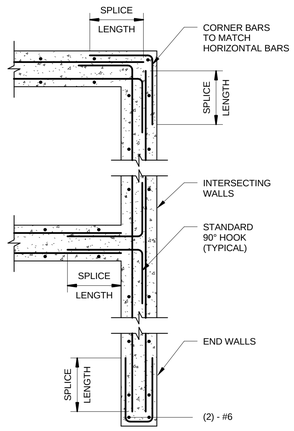
TYPICAL DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

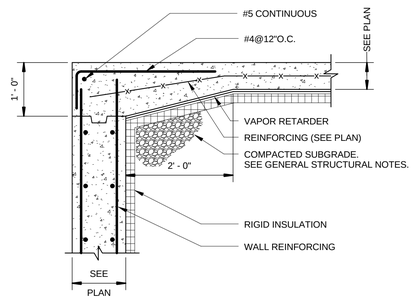
S502

SHEET 20 **OF** 157



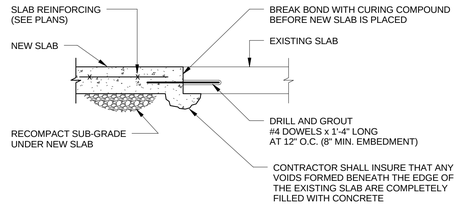
1 WALL REINFORCING DETAIL

SCALE: 3/4" = 1'-0"



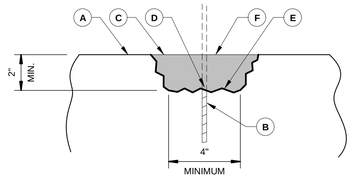
2 TYPICAL SECTION AT DOOR SILL

SCALE: 3/4" = 1'-0"



3 NEW SLAB TO EXISTING SLAB DETAIL

SCALE: 3/4" = 1'-0"



A EXISTING CONCRETE SURFACE.

B EXISTING REINFORCING.

C CHIP POCKET IN EXISTING CONCRETE.

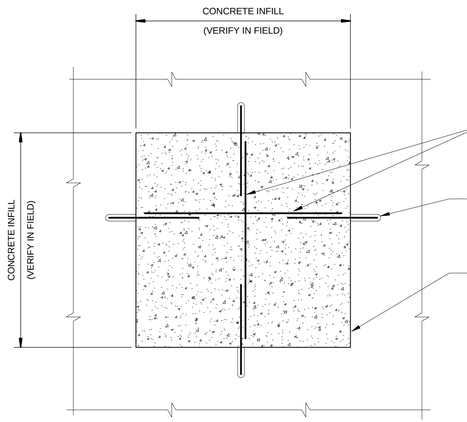
D CUT REINFORCING AT BOTTOM OF RECESS.

E COAT WITH CORROSION-PROTECTION EPOXY BONDING AGENT (Sika Armatec 110 EpoCem) OR APPROVE EQUAL.

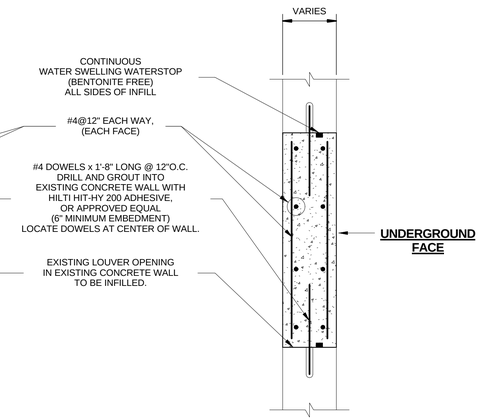
F FILL HOLE WITH PATCHING MORTAR (SikaRepair 223) OR APPROVED EQUAL.

4 TYPICAL REINFORCING PATCH DETAIL

SCALE: 3" = 1'-0"



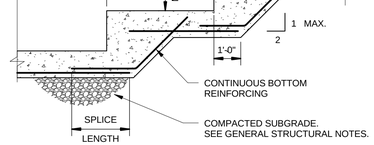
ELEVATION



SECTION

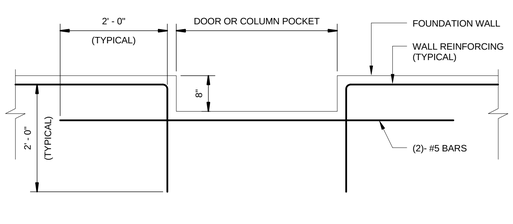
5 CONCRETE INFILL DETAIL

SCALE: 3/4" = 1'-0"



6 STEPPED FOOTING DETIAL

SCALE: N.T.S.



7 TYPICAL ELEVATION AT DOORS AND COLUMN POCKET

SCALE: 3/4" = 1'-0"

NOTE: LOCATION, SIZE OF PAD (A, B & C DIMENSIONS) AND ANCHOR RODS AS REQUIRED BY EQUIPMENT MANUFACTURER. DRILLED IN EPOXY ANCHORS MAY BE SUBSTITUTED AT CONTRACTOR'S OPTION. (ANCHOR RODS TO BE SUPPLIED BY MISCELLANEOUS METAL SUB-CONTRACTOR AND INSTALLED BY CONCRETE CONTRACTOR)

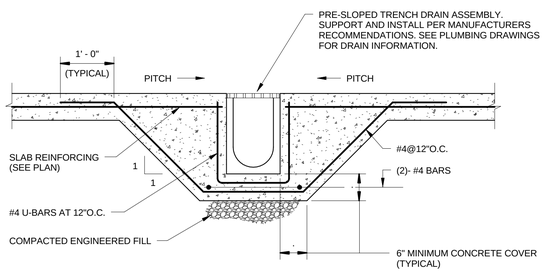
8 EQUIPMENT PAD ON EXISTING SLAB DETAIL

SCALE: 3/4" = 1'-0"

NOTE: LOCATION, SIZE OF PAD (A, B & C DIMENSIONS) AND ANCHOR BOLTS AS REQUIRED BY EQUIPMENT MANUFACTURER. DRILLED IN EPOXY ANCHORS MAY BE SUBSTITUTED AT CONTRACTOR'S OPTION. (ANCHOR BOLTS TO BE SUPPLIED BY MISCELLANEOUS METAL SUB-CONTRACTOR AND INSTALLED BY CONCRETE CONTRACTOR)

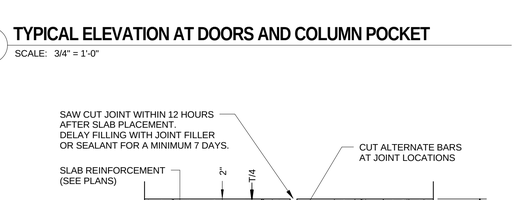
9 EXTERIOR EQUIPMENT PAD DETAIL

SCALE: 3/4" = 1'-0"



10 TRENCH DRAIN DETAIL

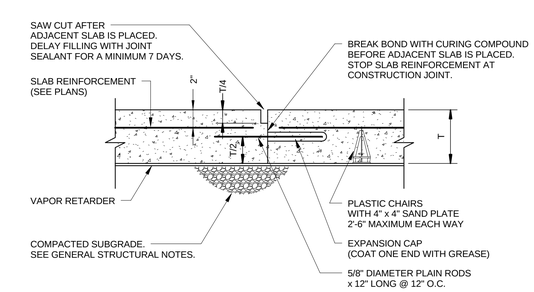
SCALE: 3/4" = 1'-0"



NOTE: CONTRACTION JOINTS TO BE SPACED @ 15'-0" O.C. (MAXIMUM) IN BOTH DIRECTIONS, UNLESS OTHERWISE NOTED.

11 CONTRACTION JOINT DETAIL

SCALE: 3/4" = 1'-0"



12 CONSTRUCTION JOINT DETAIL

SCALE: 3/4" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

TYPICAL DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

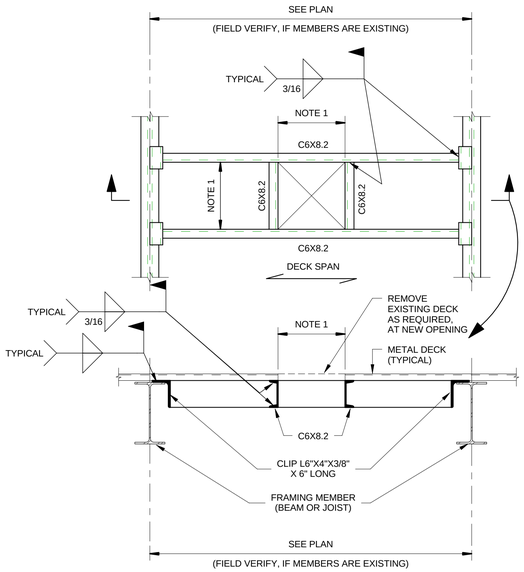
S503

SHEET 21 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:34:42 PM

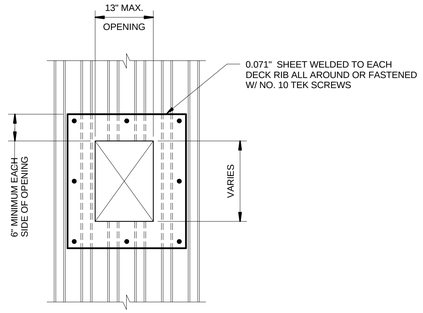
PROJECT FILE: C:\Users\MRogoff\Documents\19401-Waltham Police Station-STRUCTURAL_MRogoff.rvt



NOTES:
1. OPENING TO SUIT EQUIPMENT PURCHASED, SEE PLANS FOR LOCATION AND SIZE.
2. ALL SUPPORT FRAMES ARE TO BE ALL WELDED CONSTRUCTION.

1 TYPICAL OPENING IN ROOF FRAMING

SCALE: 3/4" = 1'-0"

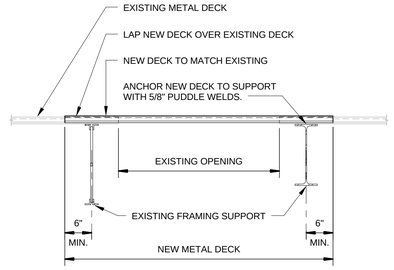


NOTE:

NO REINFORCEMENT REQUIRED FOR HOLES 6" OR LESS LOCATED SO THAT ONLY ONE DECK RIB IS AFFECTED. HOLES AFFECTING MORE THAN ONE DECK RIB SHALL BE REINFORCED AS INDICATED ABOVE.

2 METAL DECK PENETRATION DETAIL

SCALE: 3/4" = 1'-0"

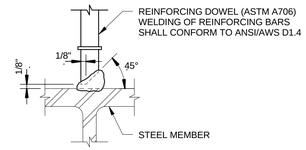


NOTES: FOR NEW DECK OVER EXISTING OPENING:

1. REMOVE EXISTING TOPPING, AS REQUIRED, TO EXPOSE METAL DECK. (TAKE CARE NOT TO DAMAGE EXISTING METAL DECK)
2. INSTALL NEW GALVANIZED METAL DECK, TO MATCH EXISTING DECK IN TYPE AND THICKNESS, OVER ADJACENT SUPPORTS. (NEW DECK SHALL HAVE A MINIMUM 6" OVERLAP ON ALL SIDES OF EXISTING OPENING)
3. REPLACE TOPPING, AS REQUIRED, TO MATCH EXISTING.

3 NEW DECK OVER EXISTING OPENING DETAIL

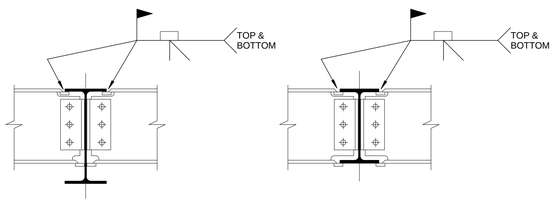
SCALE: 3/4" = 1'-0"



NOTE: REINFORCING DOWEL AND WELDING BY MASONRY CONTRACTOR.

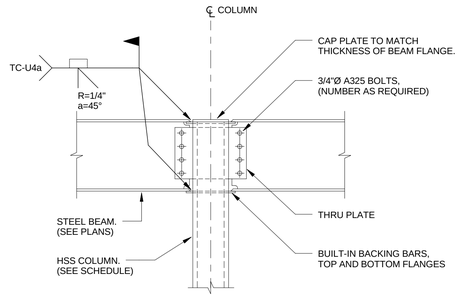
4 DOWEL WELDED TO STEEL MEMBER

SCALE: N.T.S.



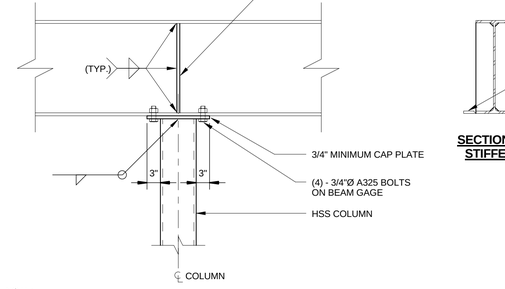
5 MOMENT CONNECTION - BEAM TO BEAM

SCALE: 1" = 1'-0"

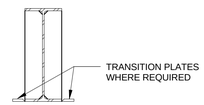


6 MOMENT CONNECTION - BEAM TO COLUMN

SCALE: 3/4" = 1'-0"



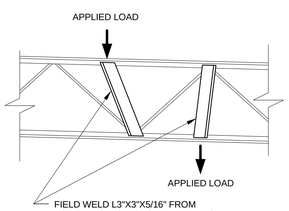
NOTE:
FOR COLUMNS WIDER THAN THE BEAM FLANGE, PROVIDE FLANGE EXTENDER PLATES (SAME THICKNESS AS FLANGE AND WIDE ENOUGH TO COVER COLUMN BASE PLATE, WITH 4:1 TRANSITION TO FLANGE) FULL-PENETRATION WELDED TO FLANGE AND GRIND BOTTOM SURFACE SMOOTH.



SECTION THRU STIFFENERS

7 COLUMN UNDER CANTILEVERED BEAM

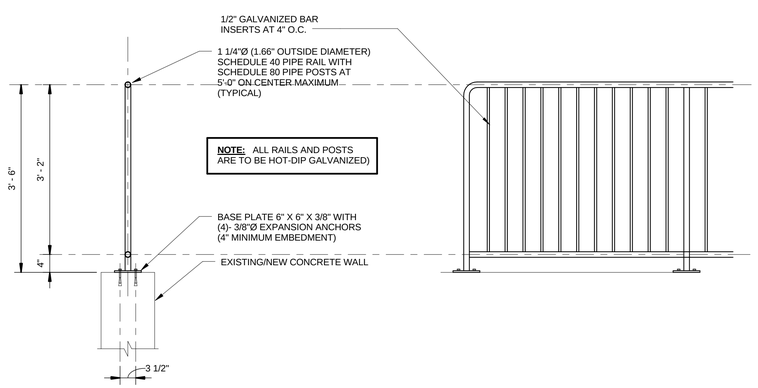
SCALE: 3/4" = 1'-0"



NOTE: TYPICAL FOR ALL JOISTS SUPPORTING ANY LOAD FROM TOP OR BOTTOM CHORD BETWEEN PANEL POINTS. VERIFY LOCATION AND NUMBER OF LOADS WITH MECHANICAL, ARCHITECTURAL AND ELECTRICAL DRAWINGS.

8 JOIST MODIFICATION AT CONCENTRATED LOAD

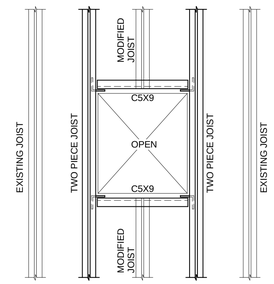
SCALE: 3/4" = 1'-0"



SECTION ELEVATION

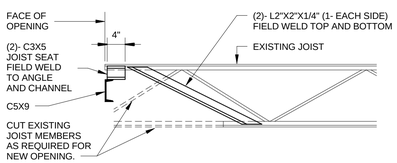
9 TYPICAL GUARDRAIL DETAIL

SCALE: 3/4" = 1'-0"

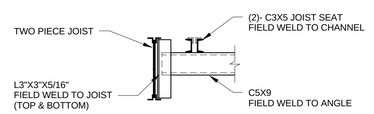


PLAN

NOTES:
1. PROVIDE SHORING AS REQUIRED FOR JOIST MODIFICATION.
2. SIZE OF NEW TWO PIECE JOIST, TO MATCH THE SIZE OF THE EXISTING JOIST TO BE MODIFIED.
3. IF MODIFIED JOIST IS LESS THAN 10'-0" IN LENGTH, IT MAY BE REMOVED AND REPLACED WITH 2.5K3 JOIST.



SECTION AT EXISTING JOIST



SECTION AT NEW JOIST

10 TYPICAL JOIST MODIFICATION DETAIL

SCALE: 3/4" = 1'-0"

(AT NEW FLOOR OPENINGS)

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

TYPICAL DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

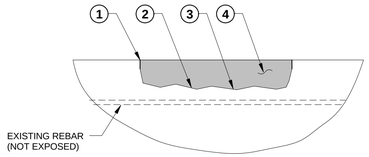
S504

SHEET 22 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:34:43 PM

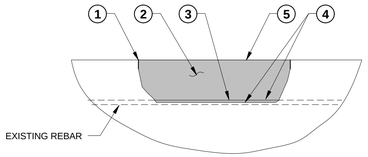
PROJECT FILE: C:\Users\MRoyal\Documents\19401-Waltham Police Station-STRUCTURAL_MRoyal.rvt



1. SAW CUT TO 1/2" MAXIMUM DEPTH AROUND PERIMETER OF DETERIORATED CONCRETE TO BE REMOVED.
2. REMOVE ALL LOOSE AND DETERIORATED CONCRETE BY MECHANICAL MEANS.
3. REMOVE ADDITIONAL CONCRETE, AS NECESSARY, TO PROVIDE A DEPTH OF AT LEAST 1-INCH OVER ENTIRE REMOVAL AREA. APPLY Sikaquick Slurry, OR APPROVED EQUAL, TO EXPOSED SUBSTRATE.
4. POUR SikaQuick 1000, OR APPROVED EQUAL, INTO REPAIR AREA.

NOTES:
1. INSTALL ALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S PRINTED RECOMMENDATIONS.

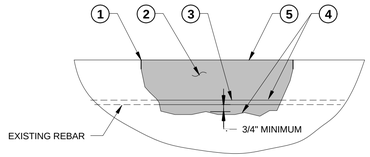
REINFORCEMENT NOT EXPOSED



1. SAW CUT TO 1/2" MAXIMUM DEPTH AROUND PERIMETER OF DETERIORATED CONCRETE TO BE REMOVED.
2. REMOVE ALL LOOSE AND DETERIORATED CONCRETE BY MECHANICAL MEANS.
3. MECHANICALLY CLEAN REINFORCING STEEL TO REMOVE ALL CONTAMINANTS AND RUST; APPLY Sika Armatec 110 EpoCem, OR APPROVED EQUAL, TO ALL EXPOSED REINFORCING BARS (1ST COAT).
4. APPLY SikaQuick 1000 SLURRY, OR APPROVED EQUAL, TO EXPOSED SUBSTRATE AND APPLY Sika Armatec 110 EpoCem, OR APPROVED EQUAL, TO EXPOSED REINFORCING BARS (2ND COAT).
5. POUR SikaQuick 1000, OR APPROVED EQUAL, INTO REPAIR AREA.

NOTES:
1. INSTALL ALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S PRINTED RECOMMENDATIONS.

REINFORCEMENT EXPOSED LESS THAN 1/2 BAR DEPTH.

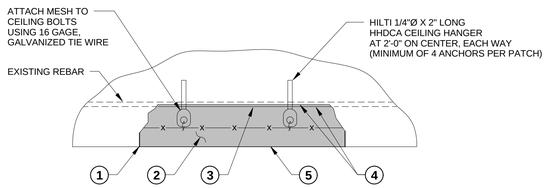


1. SAW CUT TO 1/2" MAXIMUM DEPTH AROUND PERIMETER OF DETERIORATED CONCRETE TO BE REMOVED.
2. REMOVE ALL LOOSE AND DETERIORATED CONCRETE BY MECHANICAL MEANS.
3. IF MORE THAN 1/2 OF THE EXISTING REINFORCING BAR IS EXPOSED CHIP AROUND THE REINFORCING BAR TO OBTAIN A MINIMUM OF 3/4" CLEAR BELOW BAR; APPLY Sika Armatec 110 EpoCem, OR APPROVED EQUAL, TO ALL EXPOSED REINFORCING BARS (1ST COAT).
4. APPLY SikaQuick 1000 SLURRY, OR APPROVED EQUAL, TO EXPOSED SUBSTRATE AND APPLY Sika Armatec 110 EpoCem, OR APPROVED EQUAL, TO EXPOSED REINFORCING BARS (2ND COAT).
5. POUR SikaQuick 1000, OR APPROVED EQUAL, INTO REPAIR AREA.

NOTES:
1. INSTALL ALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S PRINTED RECOMMENDATIONS.
2. IF MORE THAN 25% OF EXISTING REINFORCEMENT IS DETERIORATED, CONTACT ENGINEER BEFORE CONTINUING.

REINFORCEMENT EXPOSED MORE THAN 1/2 BAR DEPTH.

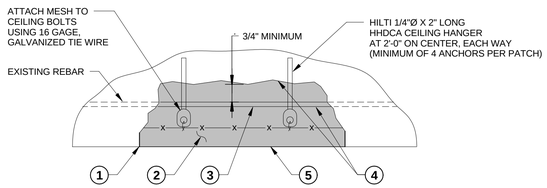
CONCRETE SURFACE REPAIR DETAIL



1. SAW CUT TO 1/2" MAXIMUM DEPTH AROUND PERIMETER OF DETERIORATED CONCRETE TO BE REMOVED.
2. REMOVE ALL LOOSE AND DETERIORATED CONCRETE BY MECHANICAL MEANS.
3. MECHANICALLY CLEAN REINFORCING STEEL TO REMOVE ALL CONTAMINANTS AND RUST; APPLY Sika Armatec 110 EpoCem, OR APPROVED EQUAL, TO ALL EXPOSED REINFORCING BARS (1ST COAT).
4. APPLY Sika Armatec 110 BONDING BRIDGE, OR APPROVE EQUAL, TO EXPOSED SUBSTRATE AND APPLY Sika Armatec EpoCem, OR APPROVED EQUAL, TO EXPOSED REINFORCING BARS (2ND COAT).
5. INSTALL PATCHING MATERIAL SikaTop 123 PLUS, OR APPROVED EQUAL, IN 1 1/2" LIFTS. INSTALL 2"X2" X 16 GAGE MESH IN THE CENTER OF THE FINAL LIFT USING GALVANIZED TIE WIRE & HILTI BOLTS.

NOTES:
1. INSTALL ALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S PRINTED RECOMMENDATIONS.

REINFORCEMENT EXPOSED LESS THAN 1/2 BAR DEPTH.



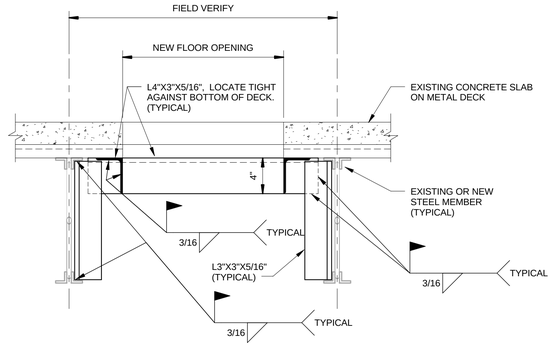
1. SAW CUT TO 1/2" MAXIMUM DEPTH AROUND PERIMETER OF DETERIORATED CONCRETE TO BE REMOVED.
2. REMOVE ALL LOOSE AND DETERIORATED CONCRETE BY MECHANICAL MEANS.
3. IF MORE THAN 1/2 OF THE EXISTING REINFORCING BAR IS EXPOSED CHIP AROUND THE REINFORCING BAR TO OBTAIN A MINIMUM OF 3/4" CLEAR BELOW BAR; APPLY Sika Armatec 110 EpoCem, OR APPROVED EQUAL, TO ALL EXPOSED REINFORCING BARS (1ST COAT).
4. APPLY Sika Armatec 110 BONDING BRIDGE, OR APPROVE EQUAL, TO EXPOSED SUBSTRATE AND APPLY Sika Armatec EpoCem, OR APPROVED EQUAL, TO EXPOSED REINFORCING BARS (2ND COAT).
5. INSTALL PATCHING MATERIAL SikaTop 123 PLUS, OR APPROVED EQUAL, IN 1 1/2" LIFTS. INSTALL 2"X2" X 16 GAGE MESH IN THE CENTER OF THE FINAL LIFT USING GALVANIZED TIE WIRE & HILTI BOLTS.

NOTES:
1. INSTALL ALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S PRINTED RECOMMENDATIONS.
2. IF MORE THAN 25% OF EXISTING REINFORCEMENT IS DETERIORATED, CONTACT ENGINEER BEFORE CONTINUING.

REINFORCEMENT EXPOSED MORE THAN 1/2 BAR DEPTH.

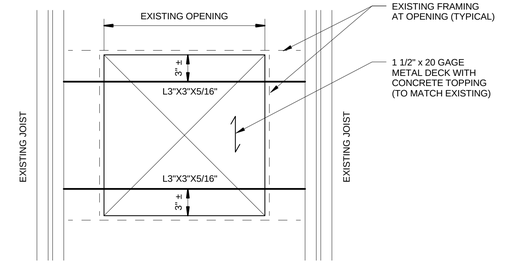
CONCRETE OVERHEAD REPAIR DETAIL

1 CONCRETE SPALL REPAIR DETAILS
SCALE: 3/4" = 1'-0"

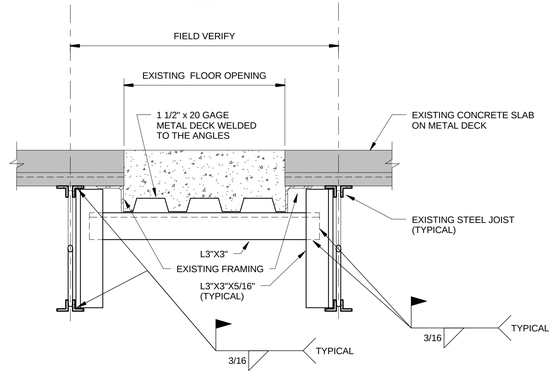


NOTE: LOCATE L4X3 AT BOTTOM OF DECK FLUTE.

2 DETAIL AT NEW CONCRETE FLOOR OPENING
SCALE: 1 1/2" = 1'-0"



PLAN



ELEVATION

NOTE: FIELD VERIFY EXISTING FRAMING AROUND THE OPENING PRIOR TO FABRICATION.

3 DETAIL AT CONCRETE FLOOR INFILL (LARGE OPENING)
SCALE: 1 1/2" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

TYPICAL DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

S505

SHEET 23 **OF** 157

ELEC: MECH: FIRE: PLUM: STRU: ARCH: CIVIL: REVIEWD BY:

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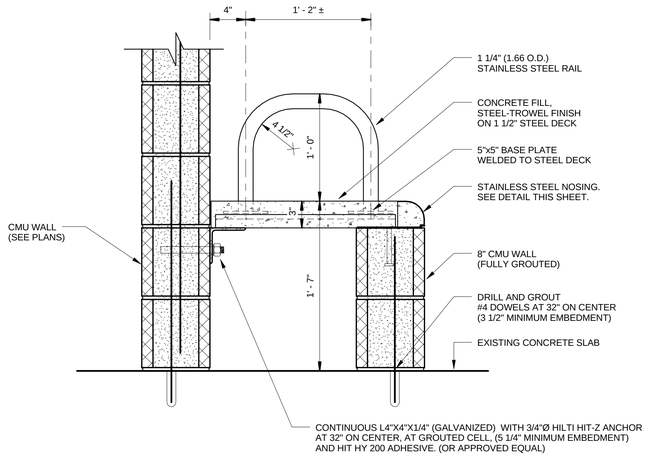
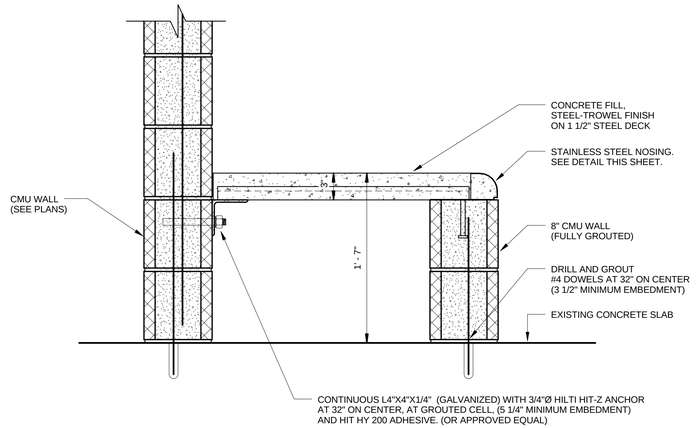


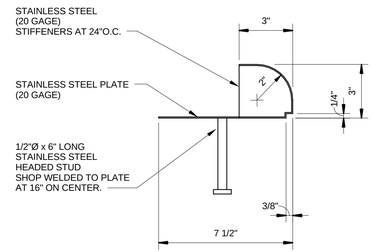
1 DETAIL AT BENCH

SCALE: 1 1/2" = 1'-0"



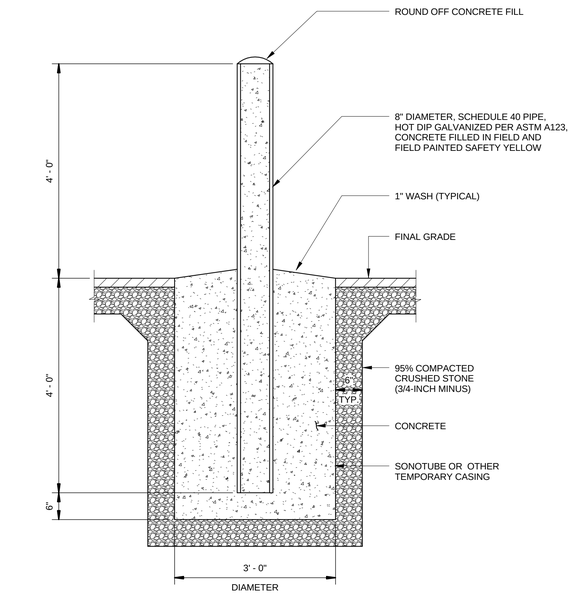
2 DETAIL AT BUNK

SCALE: 1 1/2" = 1'-0"



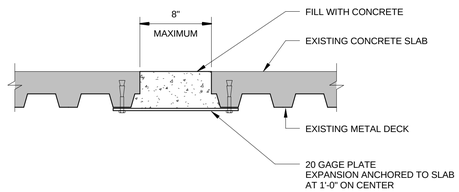
A STAINLESS STEEL NOSING DETAIL

SCALE: 3" = 1'-0"



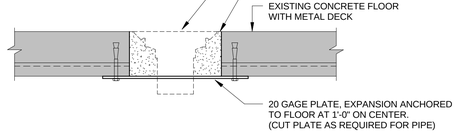
3 EXTERIOR BOLLARD DETAIL

SCALE: 3/4" = 1'-0"



4 DETAIL AT CONCRETE FLOOR INFILL (SMALL OPENING)

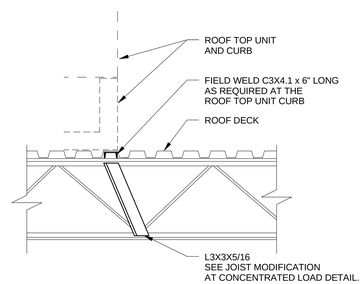
SCALE: 1 1/2" = 1'-0"



NOTE: SEE PLUMBING DRAWINGS FOR DRAIN LOCATIONS.

5 DETAIL AT NEW DRAIN IN EXISTING CONCRETE FLOOR

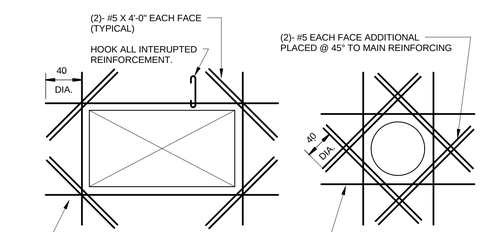
SCALE: 1 1/2" = 1'-0"



NOTE: WHEN ROOF TOP UNIT LOADS DO NOT OCCUR AT A PANEL POINT, STRUTS SHALL BE PROVIDED AND INSTALLED IN THE FIELD TO CARRY THE LOAD TO AN OPPOSITE PANEL POINT AS SHOWN.

6 DECK STIFFENER DETAIL

SCALE: 3/4" = 1'-0"



7 REINFORCING AT SLAB AND WALL OPENINGS

SCALE: 3/4" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

TYPICAL DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

S506

SHEET 24 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:34:46 PM

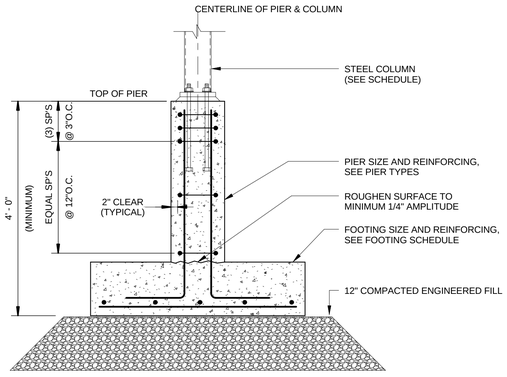
PROJECT FILE: C:\Users\MRoger\Documents\19401-Waltham Police Station-STRUCTURAL_MRoger.rvt

COLUMN SCHEDULE

Roof									Roof
24' - 0"									24' - 0"
Second Floor									Second Floor
12' - 8"	HSS8X6X1/4	HSS6X6X5/16	HSS8X6X1/4	HSS6X6X5/16	HSS8X8X1/4	HSS8X8X1/4	HSS8X6X1/4	HSS8X6X1/4	12' - 8"
First Floor									First Floor
0"									0"
Bottom of Base Plate Elevation:	1"	-7"	1"	-7"	1"	1"	1"	-3' - 0"	
Base Plate Type:	F	E	F	E	B	C	D	A	
Anchor Rod:	(4)- 3/4" DIA. EPOXY ANCHORS	(4)- 3/4" DIA.	(4)- 3/4" DIA. EPOXY ANCHORS	(4)- 3/4" DIA.	(4)- 3/4" DIA.	(4)- 3/4" DIA.	(4)- 3/4" DIA.	(4)- 3/4" DIA.	
Column Locations	E1-XA	E2-EA	E2-XA	E3-EB	G1-GA	G1-GB	G2-GA	G2-GB	

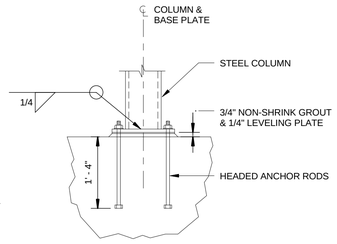
COLUMN NOTES:

1. ALL COLUMN MATERIAL ASTM A500 GRADE B.
2. ALL BASE PLATE MATERIAL ASTM A572 GRADE 50.

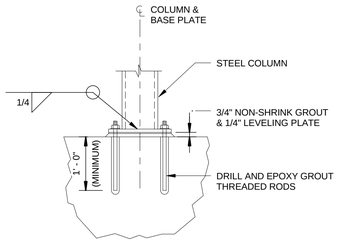


TYPICAL PIER DETAIL

SCALE: 3/4" = 1'-0"



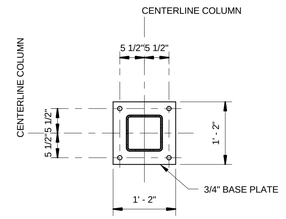
NEW CONCRETE



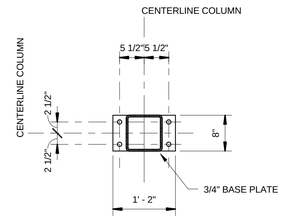
EXISTING CONCRETE

COLUMN BASE PLATE DETAIL

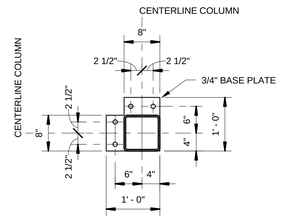
SCALE: 3/4" = 1'-0"



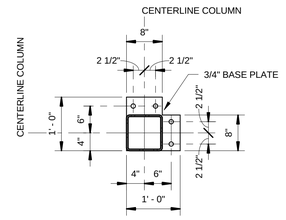
TYPE - A



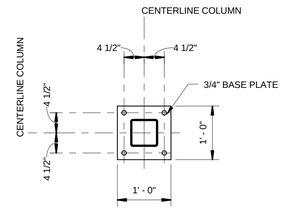
TYPE - B



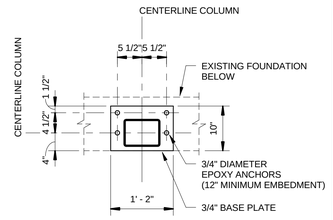
TYPE - C



TYPE - D



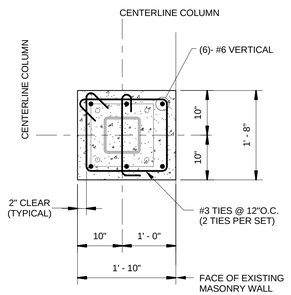
TYPE - E



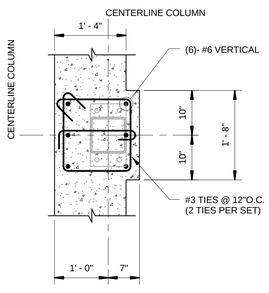
TYPE - F

BASE PLATE TYPES

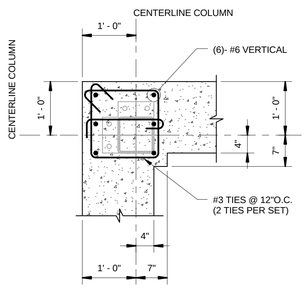
SCALE: 3/4" = 1'-0"



PIER TYPE "P1"



PIER TYPE "P2"



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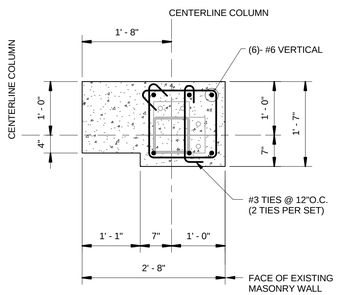

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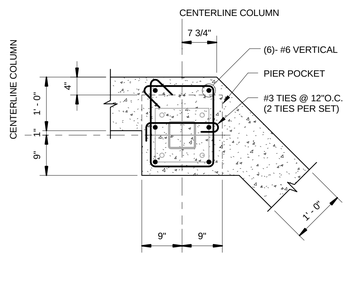
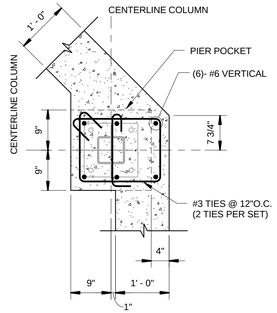


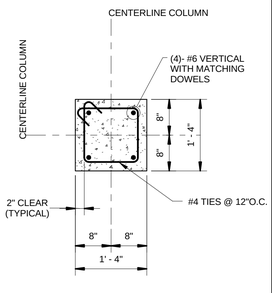
PIER TYPE "P5"

TOP OF PIER POCKET (-8")



PIER TYPE "P6"

TOP OF PIER POCKET (-8")



PIER TYPE "P7"

PIER TYPES

SCALE: 3/4" = 1'-0"

NOTE: WALL REINFORCING TO BE CONTINUOUS THROUGH PIERS.

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

COLUMN SCHEDULE, BASE PLATE AND PIER DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: JS
DRAWN BY: KC
CHECKED BY: JS
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

S601

SHEET 25 OF 157

ELEC: MECH: FIRE: PLUM: STRU: ARCH: CIVIL: REVIEWD BY:

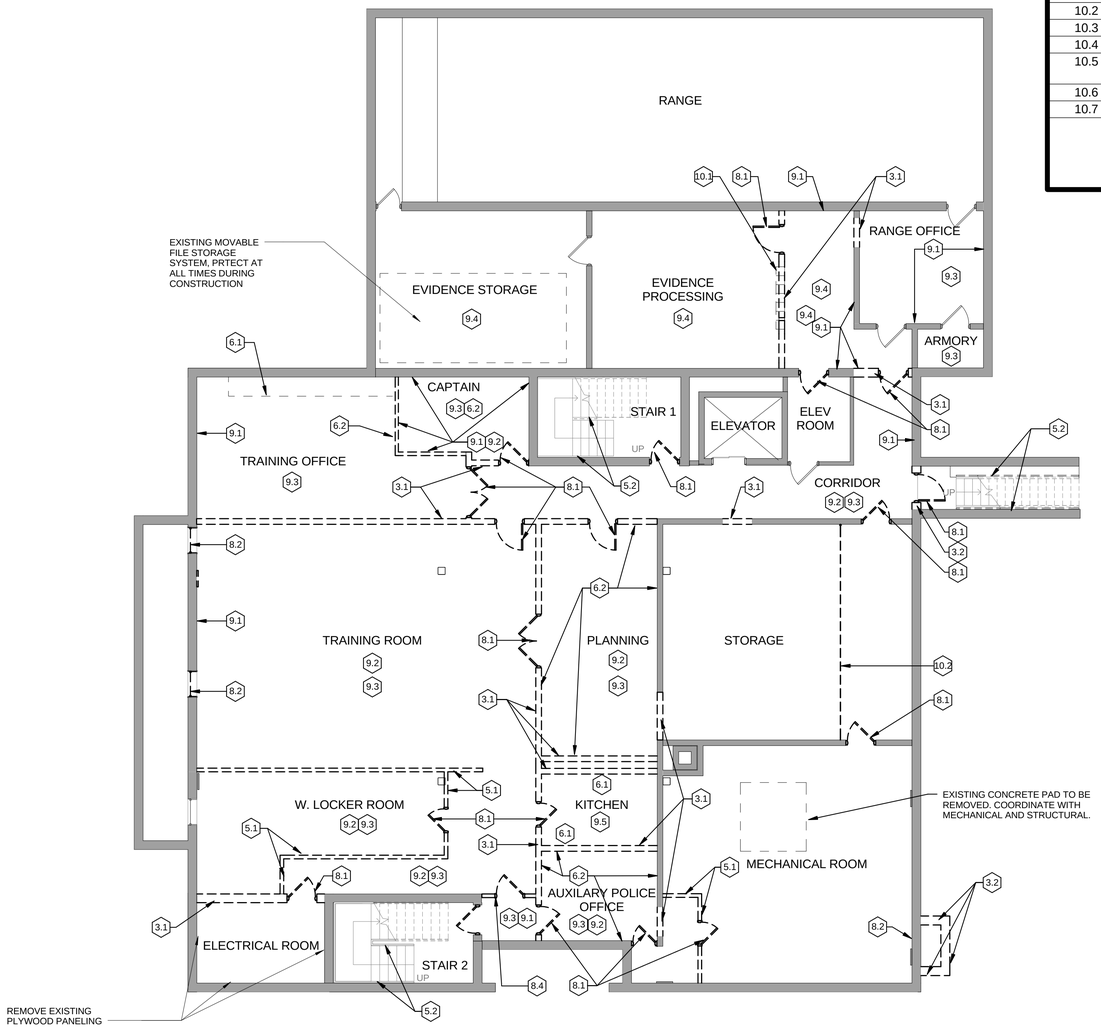
PLOTTED: 7/14/2014 5:34:47 PM

PROJECT FILE: C:\Users\MRogoff\Documents\19401-Waltham Police Station-STRUCTURAL_MRogoff.rvt

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:23:30 PM

PROJECT FILE: C:\Users\MRogoff\Documents\19401-Waltham Police Station-ARCHITECTURE_MRogoff.rvt



1 BASEMENT DEMOLITION PLAN

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

KEYED DEMO PLAN WORK NOTES

3.1	REMOVE PORTION OF EXISTING CMU
3.2	REMOVE PORTION OF EXISTING CONCRETE WALL
3.3	REMOVE PORTION OF EXISTING EXTERIOR CMU, BRICK VENEER WALL
3.4	REMOVE PORTION OF EXISTING AIRWAY
5.1	REMOVE EXISTING METAL STUD WALL AND GYPSUM WALL BOARD FINISH
5.2	REMOVE EXISTING STAIR GUARD RAILS & RAILINGS
6.1	REMOVE EXISTING WOOD MILLWORK IN ITS ENTIRETY
6.2	REMOVE WOOD WAINSCOTING IN ITS ENTIRETY
6.3	REMOVE EXISTING BUILT UP RAMP
6.4	REMOVE EXISTING WOOD PARTITION WALL
8.1	REMOVE EXISTING DOOR & FRAMES
8.2	REMOVE EXISTING EXTERIOR WINDOW/LOUVER/ALUM STOREFRONT
8.3	REMOVE EXISTING INTERIOR WINDOW
8.4	REMOVE EXISTING STOREFRONT DOOR SIDELIGHTS & FRAMES
9.1	REMOVE GYPSUM WALL BOARD FINISH AND FURRING IN ITS ENTIRETY
9.2	REMOVE EXISTING CARPET FLOORING IN ITS ENTIRETY
9.3	REMOVE EXISTING VAT IN ITS ENTIRETY
9.4	REMOVE EXISTING VCT FLOORING IN ITS ENTIRETY
9.5	REMOVE EXISTING TILE FLOORING IN ITS ENTIRETY
9.6	REMOVE EXISTING TILE WALL FINISH IN ITS ENTIRETY
9.8	PORTION OF EXISTING KITCHEN CHASE FLOOR TO BE CUT OPEN. REFER TO MECHANICAL AND STRUCTURAL DRAWINGS.
10.1	REMOVE EXISTING EVIDENCE LOCKERS
10.2	REMOVE EXISTING WOOD FRAME AND METAL FENCE WALL IN ITS ENTIRETY
10.3	REMOVE EXISTING BATHROOM STALL PARTITIONS
10.4	REMOVE EXISTING TRANSACTION COUNTERS
10.5	REMOVE EXISTING DETENTION CELL UNITS (WALL, SLIDING DOOR AND BENCH) IN ITS ENTIRETY
10.6	REMOVE EXISTING CANOPY ABOVE DOOR
10.7	REMOVE AND RELOCATE EXISTING PISTOL LOCKER

* PLEASE NOTE: NOT ALL WORK NOTES LISTED APPEAR ON THIS SHEET.

GENERAL DEMO NOTES

1. REMOVAL OF ANY WORK OR ITEM SHALL INCLUDE LEGAL DISPOSAL OF SAME UNLESS INDICATED TO BE SALVAGED. ALL REMOVAL AND DISPOSAL WORK SHALL BE PERFORMED IN A SAFE AND LEGAL MANNER. DOCUMENTATION OF RECYCLED WASTE IS REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD PRIOR TO COMMENCEMENT OF DEMOLITION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S ARCHITECT IN WRITING IMMEDIATELY UPON DISCOVERY.
3. DRAWINGS MAY NOT FULLY SHOW EVERY DETAIL OR CONDITION. CONTRACTOR SHALL COORDINATE WITH NEW CONSTRUCTION WORK TO PROVIDE ALL DEMOLITION WORK REQUIRED TO MEET NEW DESIGN BASED ON ALL INFORMATION PROVIDED.
4. CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL STRUCTURAL MEMBERS PRIOR TO DEMOLITION AND SHALL PROVIDE ALL NECESSARY SHORING, BRACING AND TEMPORARY SUPPORTS REQUIRED TO ENSURE STRUCTURAL STABILITY AND PREVENT COLLAPSE OF EXISTING STRUCTURE AND CONSTRUCTION TO REMAIN.
5. CONTRACTOR SHALL PROTECT ALL ADJACENT CONSTRUCTION THAT IS TO REMAIN AND SHALL REPAIR AND PATCH ANY EXISTING TO REMAIN CONSTRUCTION THAT IS DAMAGED DURING DEMOLITION OPERATIONS. REPAIRS SHALL MATCH EXISTING IN APPEARANCE AND INTEGRITY.
6. REFER TO THE MECHANICAL, PLUMBING, FIRE PROTECTION AND ELECTRICAL NOTES FOR REMOVAL AND DISPOSAL OF EQUIPMENT, PIPES, CONDUITS, WIRING OR OTHER ITEMS THAT ARE INCLUDED AS PART OF THE SCOPE OF DEMOLITION WORK IN THIS CONTRACT.
7. REFER TO STRUCTURAL DRAWINGS FOR CUTTING OF EXISTING CONCRETE SLAB. COORDINATE EXTENT WITH PLUMBING CONTRACTORS.
8. PATCH ALL ROOF PENETRATIONS FROM REMOVED EQUIPMENT

DEMOLITION PLAN LEGEND

- EXISTING CONSTRUCTION TO REMAIN
- EXISTING CONSTRUCTION TO BE DEMOLISHED

0' 4' 8' 16'

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

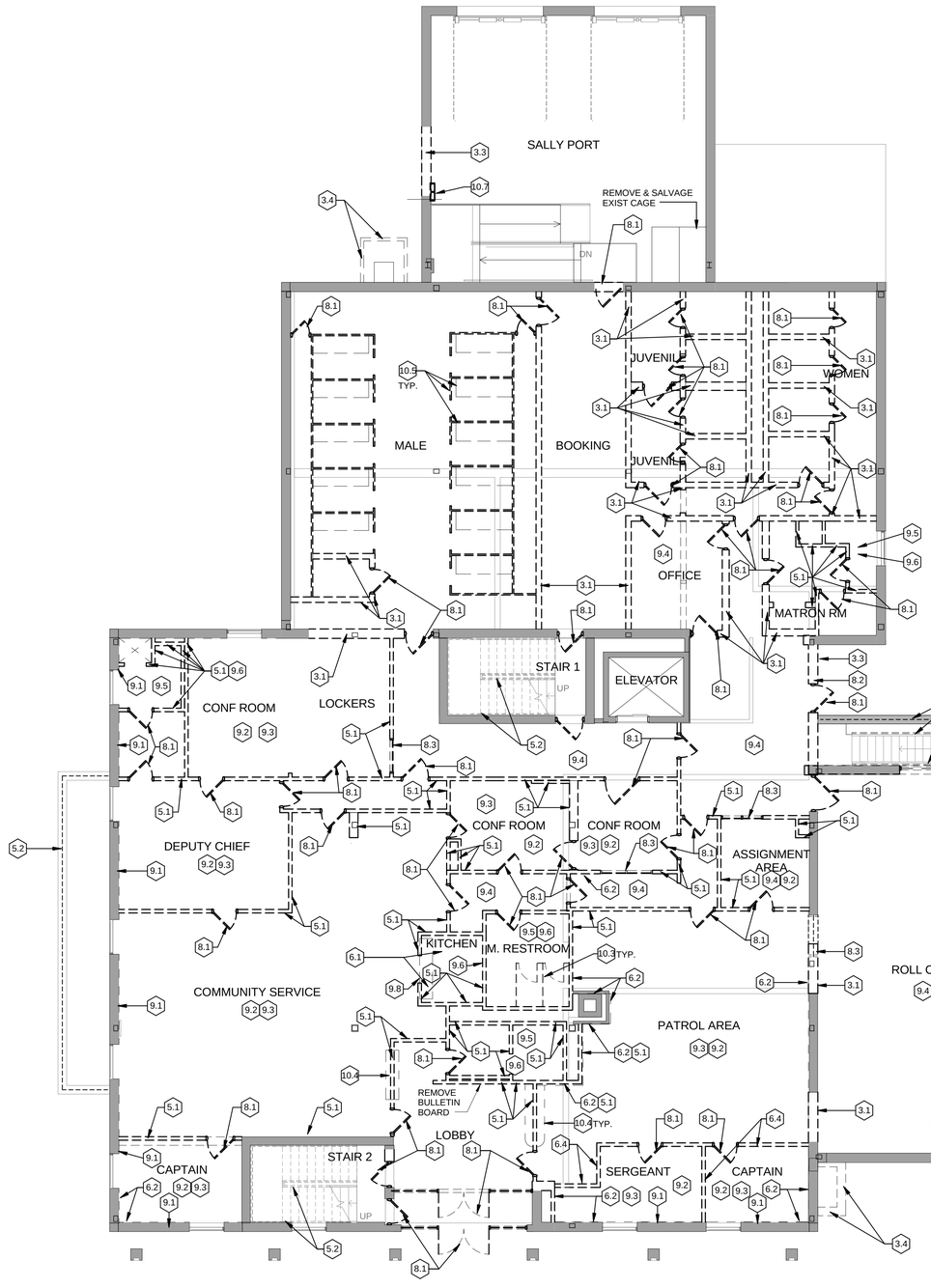
BASEMENT DEMOLITION PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

AD101

SHEET 26 OF 157



1 **FIRST FLOOR DEMOLITION PLAN**
SCALE: 1/8" = 1'-0"

KEYED DEMO PLAN WORK NOTES

3.1	REMOVE PORTION OF EXISTING CMU
3.2	REMOVE PORTION OF EXISTING CONCRETE WALL
3.3	REMOVE PORTION OF EXISTING EXTERIOR CMU, BRICK VENEER WALL
3.4	REMOVE PORTION OF EXISTING AIRWAY
5.1	REMOVE EXISTING METAL STUD WALL AND GYPSUM WALL BOARD FINISH
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6.1	REMOVE EXISTING WOOD MILLWORK IN ITS ENTIRETY
6.2	REMOVE WOOD WAINSCOTING IN ITS ENTIRETY
6.3	REMOVE EXISTING BUILT UP RAMP
6.4	REMOVE EXISTING WOOD PARTITION WALL
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* PLEASE NOTE: NOT ALL WORK NOTES LISTED APPEAR ON THIS SHEET.

GENERAL DEMO NOTES

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3. DRAWINGS MAY NOT FULLY SHOW EVERY DETAIL OR CONDITION. CONTRACTOR SHALL COORDINATE WITH NEW CONSTRUCTION WORK TO PROVIDE ALL DEMOLITION WORK REQUIRED TO MEET NEW DESIGN BASED ON ALL INFORMATION PROVIDED.
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5. CONTRACTOR SHALL PROTECT ALL ADJACENT CONSTRUCTION THAT IS TO REMAIN AND SHALL REPAIR AND PATCH ANY EXISTING TO REMAIN CONSTRUCTION THAT IS DAMAGED DURING DEMOLITION OPERATIONS. REPAIRS SHALL MATCH EXISTING IN APPEARANCE AND INTEGRITY.
6. REFER TO THE MECHANICAL, PLUMBING, FIRE PROTECTION AND ELECTRICAL NOTES FOR REMOVAL AND DISPOSAL OF EQUIPMENT, PIPES, CONDUITS, WIRING OR OTHER ITEMS THAT ARE INCLUDED AS PART OF THE SCOPE OF DEMOLITION WORK IN THIS CONTRACT.
7. REFER TO STRUCTURAL DRAWINGS FOR CUTTING OF EXISTING CONCRETE SLAB. COORDINATE EXTENT WITH PLUMBING CONTRACTORS.
8. PATCH ALL ROOF PENETRATIONS FROM REMOVED EQUIPMENT

DEMOLITION PLAN LEGEND
- EXISTING CONSTRUCTION TO REMAIN
- EXISTING CONSTRUCTION TO BE DEMOLISHED

0' 4' 8' 16'

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

FIRST FLOOR DEMOLITION PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER: AD102

SHEET 27 OF 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:23:33 PM

PROJECT FILE: C:\Users\MRogol\Documents\19401-Waltham Police Station-ARCHITECTURE_MRogol.rvt

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:23:14 PM

PROJECT FILE: C:\Users\MMcgoff\Documents\19401-Waltham Police Station-ARCHITECTURE_MMcgoff.rvt

KEYED DEMO PLAN WORK NOTES

3.1	REMOVE PORTION OF EXISTING CMU
3.2	REMOVE PORTION OF EXISTING CONCRETE WALL
3.3	REMOVE PORTION OF EXISTING EXTERIOR CMU, BRICK VENEER WALL
3.4	REMOVE PORTION OF EXISTING AIRWAY
5.1	REMOVE EXISTING METAL STUD WALL AND GYPSUM WALL BOARD FINISH
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9.3	REMOVE EXISTING VAT IN ITS ENTIRETY
9.4	REMOVE EXISTING VCT FLOORING IN ITS ENTIRETY
9.5	REMOVE EXISTING TILE FLOORING IN ITS ENTIRETY
9.6	REMOVE EXISTING TILE WALL FINISH IN ITS ENTIRETY
9.8	PORTION OF EXISTING KITCHEN CHASE FLOOR TO BE CUT OPEN. REFER TO MECHANICAL AND STRUCTURAL DRAWINGS.
10.1	REMOVE EXISTING EVIDENCE LOCKERS
10.2	REMOVE EXISTING WOOD FRAME AND METAL FENCE WALL IN ITS ENTIRETY
10.3	REMOVE EXISTING BATHROOM STALL PARTITIONS
10.4	REMOVE EXISTING TRANSACTION COUNTERS
10.5	REMOVE EXISTING DETENTION CELL UNITS (WALL, SLIDING DOOR AND BENCH) IN ITS ENTIRETY
10.6	REMOVE EXISTING CANOPY ABOVE DOOR
10.7	REMOVE AND RELOCATE EXISTING PISTOL LOCKER

*NOTE: NOT ALL WORK NOTES LISTED APPEAR ON THIS SHEET

GENERAL DEMO NOTES

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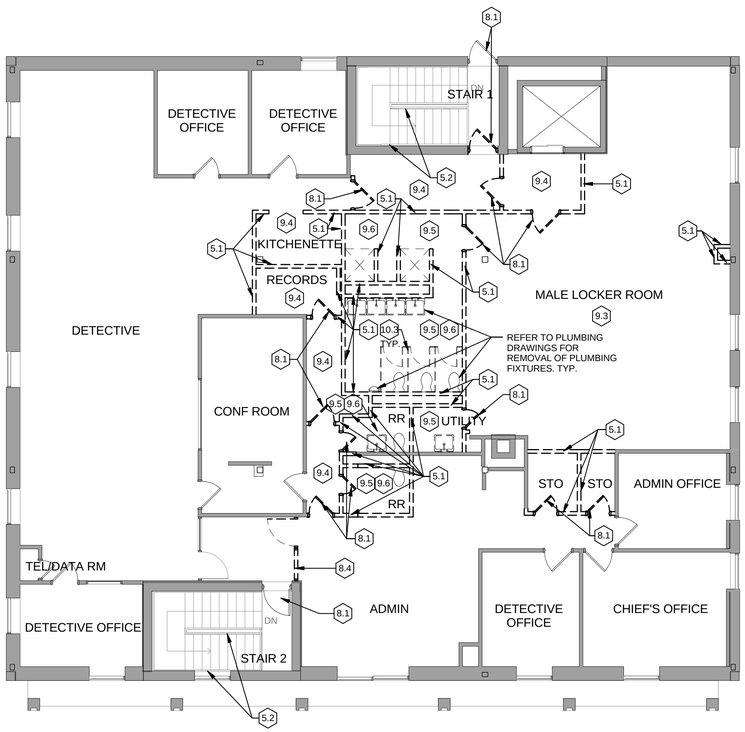
8. PATCH ALL ROOF PENETRATIONS FROM REMOVED EQUIPMENT



1 **SECOND FLOOR DEMOLITION PLAN**
SCALE: 1/8" = 1'-0"

DEMOLITION PLAN LEGEND
- EXISTING CONSTRUCTION TO REMAIN
- EXISTING CONSTRUCTION TO BE DEMOLISHED

0' 4' 8' 16'

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Number	Description	Date

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WALTHAM POLICE STATION RENOVATION

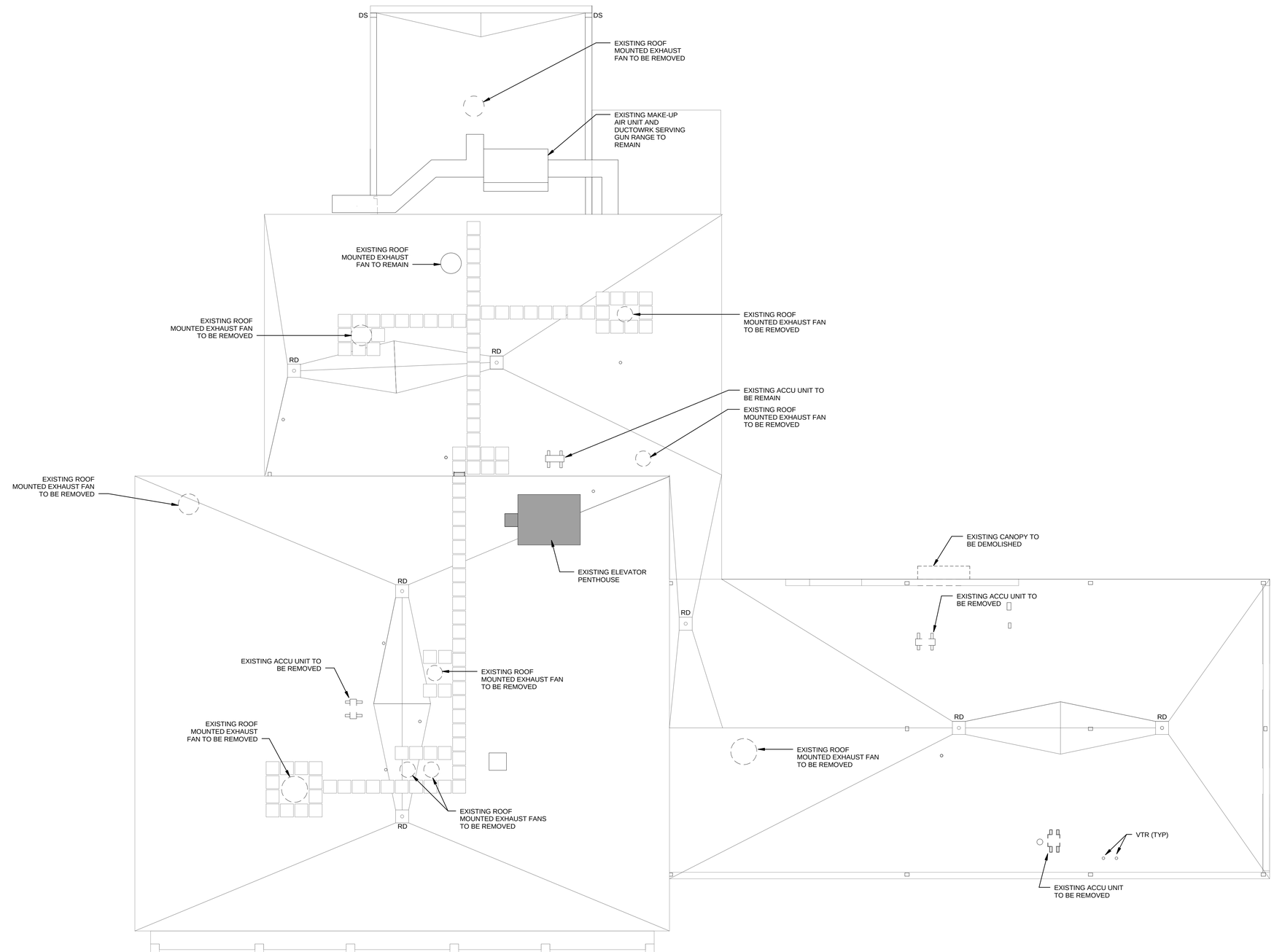
155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECOND FLOOR DEMOLITION PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

AD103



1 ROOF DEMOLITION PLAN

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

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8. PATCH ALL ROOF PENETRATIONS FROM REMOVED EQUIPMENT

DEMOLITION PLAN LEGEND	
	EXISTING CONSTRUCTION TO REMAIN
	EXISTING CONSTRUCTION TO BE DEMOLISHED

0' 4' 8' 16'

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ROOF DEMOLITION PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: Author
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

AD104

SHEET 29 **OF** 157

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PROJECT FILE: C:\Users\MMogolf\Documents\19401-Waltham Police Station-ARCHITECTURE_MMogolf.rvt

1 **BASEMENT RCP DEMOLITION**
SCALE: 1/8" = 1'-0"

GENERAL DEMO NOTES

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RCP DEMOLITION LEGEND

- EXIST'G CEILING COMPONENT TO BE DEMOLISHED (REFER TO MEP PLANS FOR MEP DEMOLITION)
- EXIST'G CEILING COMPONENT TO BE DEMOLISHED (REFER TO MEP PLANS FOR MEP DEMOLITION)
- EXIST'G CONSTRUCTION TO REMAIN

KEYED RCP DEMO WORK NOTES

- A DEMOLISH EXISTING ACOUSTICAL CEILING & ASSOCIATED COMPONENTS
- B DEMOLISH EXISTING GYP BOARD CEILING & ASSOCIATED FRAMING
- C DEMOLISH EXISTING STEEL PLATE DETENTION CEILING & ASSOCIATED COMPONENTS
- D DEMOLISH EXIST PLASTER CEILING CONTAINING ASBESTOS (REFER TO HAZMAT DEMO DRAWINGS)
- E DEMOLISH EXISTING GYPSUM BOARD SOFFIT
- F DEMOLISH EXISTING SKYLIGHT SHAFTS

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0' 4' 8' 16'

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

BASEMENT DEMOLITION RCP

PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: Author
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: As indicated

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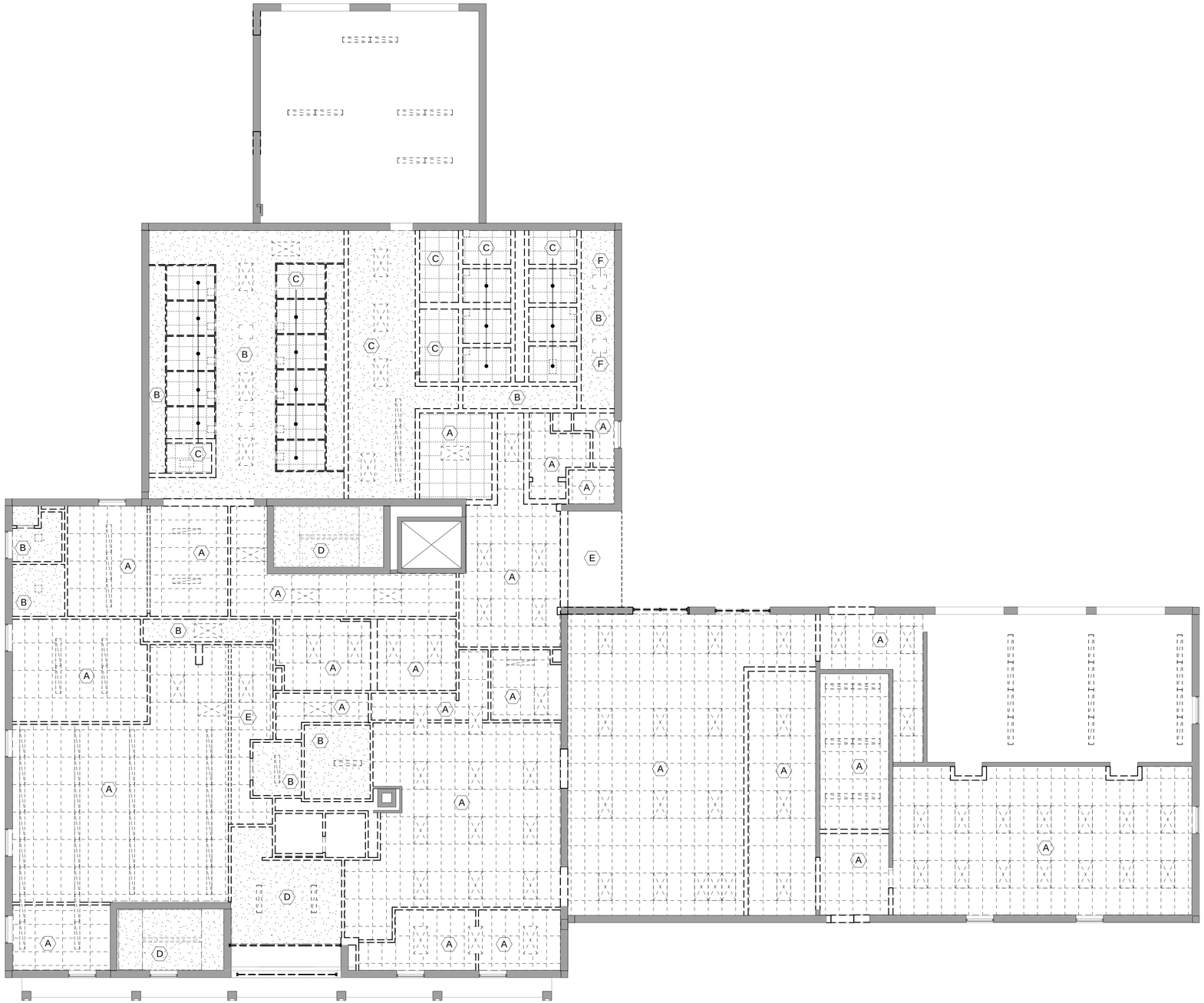
AD120

SHEET 30 **OF** 157



1 **FIRST FLOOR RCP DEMOLITION**
SCALE: 1/8" = 1'-0"

0' 4' 8' 16'

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EXIST'G CEILING COMPONENT TO BE DEMOLISHED (REFER TO MEP PLANS FOR MEP DEMOLITION)

EXIST'G CONSTRUCTION TO REMAIN

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

FIRST FLOOR DEMOLITION RCP

PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: Author
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

AD121

SHEET 31 **OF** 157

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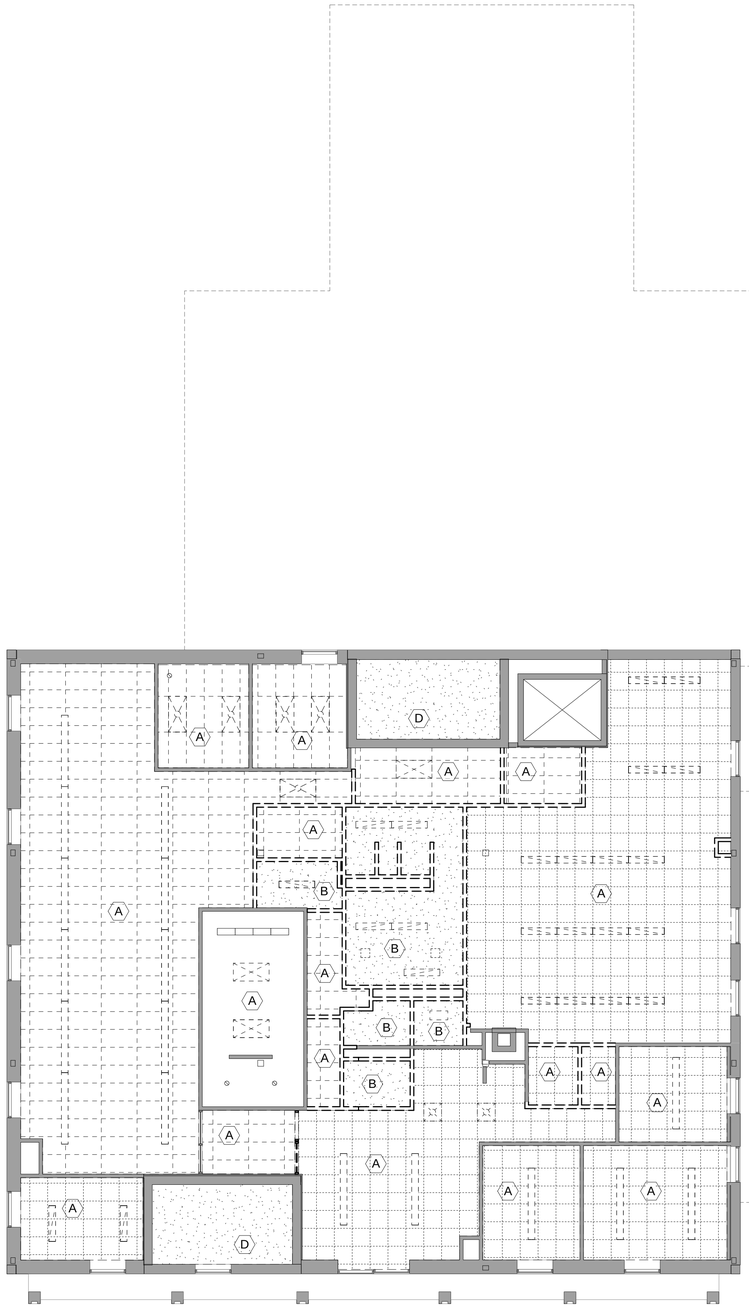

1 **SECOND FLOOR RCP DEMOLITION**
SCALE: 1/8" = 1'-0"

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EXIST'G CONSTRUCTION TO REMAIN

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECOND FLOOR DEMOLITION RCP

PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: Author
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

AD122

SHEET 32 **OF** 157

ABBREVIATIONS LIST

&,	AND
∠	ANGLE
@	AT
℄, C.L.	CENTERLINE
[, C	CHANNEL
ø	DIAMETER OR ROUND
∝	PENNY (NAIL)
℘, PL, PL'S	PLATE(S)
#, NO, NO'S	NUMBER(S)

A

A.B.	ANCHOR BOLT
ABV.	ABOVE
A/C	AIR CONDITIONING
A.C.	ASPHALTIC CONCRETE
ACOUS.	ACOUSTICAL
ACT	ACOUSTICAL CEILING TILE
A.D.	AREA DRAIN
ADDM	ADDENDUM
ADJ.	ADJUSTABLE
ADJA.	ADJACENT
AGGR.	AGGREGATE
A.F.F.	ABOVE FINISH FLOOR
AL.	ALUMINUM
ALT.	ALTERNATE
ANOD.	ANODIZED
A.P.	ACCESS PANEL
APPROX.	APPROXIMATE
ARCH.	ARCHITECT(URAL)
ASPH.	ASPHALT
A.T.	ACOUSTICAL TILE

B

B.C.	BOTTOM OF CURB
BD.	BOARD
BIT.	BITUMINOUS
BLDG.	BUILDING
BLK.	BLOCK
BLKG.	BLOCKING
B.M.	BENCHMARK
BM	BEAM
BOT.	BOTTOM
B.R.	BEDROOM
BRKT.	BRACKET
BRNZ.	BRONZE
B.S.	BOTTOM OF STAIR
BSMT.	BASEMENT
BTWN.	BETWEEN
B.U.R.	BUILT-UP ROOF(ING)
B.W.	BOTTOM OF WALL

C

CAB.	CABINET
CPT	CARPET
C.B.	CATCH BASIN
C.B.B.	CEMENT BACKER BOARD
CEM.	CEMENT
CER.	CERAMIC
CF.	CUBIC FOOT/FEET
CHAM.	CHAMFER
C.I.	CAST IRON
C.J.	CONTROL JOINT
CLF	CHAIN LINK FENCE
CLG.	CEILING
CLKG.	CAULKING
CLO.	CLOSET
CLR.	CLEAR(ANCE)
C.M.U.	CONCRETE MASONRY UNIT(S)
CNTR.	COUNTER
C.O.	CLEAN OUT
COL.	COLUMN
COMB.	COMBINATION
COMP.	COMPRESS(ED), (ION), (IBLE)
CONC.	CONCRETE
COND.	CONDITION
CONN.	CONNECTION
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CONTR.	CONTRACTOR
CORR.	CORRIDOR, CORRUGATED
C.R.M.	CONCRETE RUBBLE MASONRY
CSMT.	CASEMENT
C.T.	CERAMIC TILE
CTR.	CENTER
CTSK.	COUNTERSUNK, (SINK)
CY	CUBIC YARD(S)

D

D.	DEEP,DEPTH
DBL.	DOUBLE
DEMO.	DEMOLISH, DEMOLITION
DEP.	DEPRESSED
DEPT.	DEPARTMENT
DET.	DETAIL
D.F.	DRINKING FOUNTAIN
DIA.	DIAMETER
DIM.	DIMENSION
DISP.	DISPENSER
D.M.H.	DRAIN MANHOLE
DN.	DOWN
DR.	DOOR
DS.	DOWNSPOUT
D.S.P.	DRY STANDPIPE
DWG.	DRAWING
DWR.	DRAWER

E

E.	EAST
EA.	EACH
E.B.	EXPANSION BOLT
E.F.	EACH FACE
E.J.	EXPANSION JOINT
EL.	ELEVATION
ELEC.	ELECTRICAL
ELEV.	ELEVATOR
EMER.	EMERGENCY
ENCL.	ENCLOSURE
E.P.	ELEC. PANELBOARD
EQ.,	EQUAL
EQPT.	EQUIPMENT
E.S.	ELECTRIC STRIKE
E.T.R	EXISTING TO REMAIN
E.W.	EACH WAY
E.W.C.	ELEC. WATER COOLER
EXH.	EXHAUST
EXP.	EXPOSED, EXPANSION
EXIST.	EXISTING
EXT.	EXTERIOR

F

F.	FEMALE
F.A.	FIRE ALARM, FRESH AIR
F.A.E.M.	FLUID APPLIED ELASTOMERIC MEMBRANE
F.B.	FLAT BAR
F.B.O.	FURNISHED BY OTHERS
F.D.	FLOOR DRAIN
FDN.	FOUNDATION
F.E.	FIRE EXTINGUISHER
F.E.C.	FIRE EXTINGUISHER CABINET
F.F.	FACTORY FINISH
F.H.	FIRE HYDRANT
F.H.C.	FIRE HOSE CABINET
FIN. FL.	FINISH(ED) FLOOR
FL.	FLOOR
FLASH.	FLASHING
FLDG.	FOLDING
FLUOR.	FLUORESCENT
F.O.C.	FACE OF CONCRETE
F.O.S.	FACE OF STUD(S)
FPRF.	FIREPROOF
FR.	FRAME
F.R.P.	FIBERGLASS REINFORCED PANEL
F.S.	FULL SIZE, FLOOR SINK
FT.	FOOT, FEET
F.T.	FIRE TREATED
FTG.	FOOTING
FURR.	FURRED, (ING)
FUT.	FUTURE

G

GA.	GAUGE
GALV.	GALVANIZED
G.B.	GRAB BAR
G.C.	GENERAL CONTRACT(OR)
G.C.M.U.	GLAZED CEMENT MASONRY UNIT
G.F.R.C.	GLASS FIBER REINFORCED CONCRETE
G.I.	GALVANIZED IRON/STEEL
GL.	GLASS
GLB.	GLASS BLOCK
GLU.LAM.	GLUE LAMINATED
GND.	GROUND
GR.	GRADE
G.W.B.	GYPSUM WALL BOARD
GYP. BD.	GYPSUM BOARD

H

H.	HIGH
H.B.	HOSE BIBB
H.C.	HOLLOW CORE
H.D.	HEAVY DUTY, HOT DIPPED
HDBD	HARDBOARD
HDNR	HARDENER
HDR.	HEADER
HDWD.	HARDWOOD
HDWE.	HARDWARE
HGT.	HEIGHT
H.M.	HOLLOW METAL
HORIZ.	HORIZONTAL
H.P.	HIGH POINT
HR.	HOUR
H.V.A.C.	HEATING/VENTILATING AIR CONDITIONING

I

I.D.	INSIDE DIAMETER/DIMENSION
INCL.	INCLUD(ED), (ING), (SIVE)
INSUL.	INSULATION
INT.	INTERIOR
INV.	INVERT

J

JAN.	JANITOR
JST.	JOIST
JT.	JOINT

K

KIT.	KITCHEN
K.J.	KEYED JOINT
K.O.	KNOCK-OUT

L

LAB.	LABORATORY
LAM.	LAMINATE
LAV.	LAVATORY
LKR.	LOCKER
L.P.	LOW POINT
L.R.	LIVING ROOM
LT.	LIGHT
LVR.	LOUVER
LWT.	LIGHTWEIGHT

M

M.	MALE
MAX.	MAXIMUM
M.C.	MEDICINE CABINET
MECH.	MECHANICAL
MEMB.	MEMBRANE
MET.	METAL
MFR.	MANUFACTURER
MH.	MANHOLE
MIN.	MINIMUM
MIR.	MIRROR
MISC.	MISCELLANEOUS
M.O.	MASONRY OPENING
MTD.	MOUNTED
MTG.	MOUNTING
MUL.	MULLION

N

N.	NORTH
N.C.	NONCOMBUSTIBLE
N.I.C.	NOT IN CONTRACT
NO., #	NUMBER
NOM.	NOMINAL
N.T.S.	NOT TO SCALE

O

O.A.	OVERALL
OBS.	OBSCURE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER/DIMENSION
OFF.	OFFICE
OPNG.	OPENING
OPP.	OPPOSITE

P

PC.	PIECE
PFND.	PREFINISHED
P.L.	PROPERTY LINE
P.LAM.	PLASTIC LAMINATE
PLAS.	PLASTER
PLBG.	PLUMBING
PL.GL.	PLATE GLASS
PLYWD.	PLYWOOD
PNL.	PANEL
POL.	POLISHED
P.P.	PORCELAIN PAVERS
PR.	PAIR
PRCST.	PRECAST
P.T.	PRESSURE TREATED
PT.	POINT
PTD.,P.	PAINTED
P.T.D.	PAPER TOWEL DISPENSER
P.T.D./R.	COMBINATION PAPER TOWEL DISPENSER AND RECEPTACLE
PTN.	PARTITION
P.T.R.	PAPER TOWEL RECEPTACLE
P.V.C.	POLYVINYL CHLORIDE
PVMT.	PAVEMENT

Q

Q.T.	QUARRY TILE

R

R.	RISER, RADIUS
RAD.	RADIUS
R.A.F.	RAISED ACCESS FLOORING
R.A.R.	RETURN AIR REGISTER
R.B.	REINFORCING BAR(S)
R.D.	ROOF DRAIN
REF.	REFERENCE
REFR.	REFRIGERATOR
REINF.	REINFORCES, REINFORCING
REQD.	REQUIRED
RESIL.	RESILIENT
R.F.	RUBBER FLOORING
R.H.	ROBE HOOK
RM.	ROOM
R.O.	ROUGH OPENING
RUB	RUBBER
RWD.	REDWOOD

S

S.	SOUTH
S.A.R.	SUPPLY AIR REGISTER
S.A.T.	SUSPENDED ACOUSTICAL TILE
S.C.	SOLID CORE
SC.	SCALE
S.C.D.	SEAT COVER DISPENSER
SCHED.	SCHEDULE
SCR.	SCREEN
S.D.	SOAP DISPENSER
SECT.	SECTION
SF., SQ.FT.	SQUARE FOOT (FEET)
S.G.B.	SUSPENDED GYPSUM BOARD
SHR.	SHOWER
SHT.	SHEET
SIM.	SIMILAR
SL.	SLOPE
SLDG.	SLIDING
S.N.D.	SANITARY NAPKIN DISPENSER
S.N.R.	SANITARY NAPKIN RECEPTACLE
S.P.	SUSPENDED PLASTER
SQ.	SQUARE
S.S.	STAINLESS STEEL
S.SK.	SERVICE SINK
STA.	STATION
STD.	STANDARD
STL.	STEEL
STOR.	STORAGE
STRUC	STRUCTURAL
SURR.	SURROUND
SUSP.	SUSPEND(ED)
S.W.C.	SOLID WOOD CORE
SYM.	SYMMETRICAL

T

T.B.	TOWEL BAR
T.C.	TOP OF CURB
TEL.	TELEPHONE
TEMP.	TEMPERED
TER.	TERRAZZO
T.& G.	TONGUE AND GROOVE
T.O.S.	TOP OF STAIR (TOP OF STEEL)
THR.	THRESHOLD
T.P.	TOP OF PAVEMENT
T.P.D.	TOILET PAPER DISPENSER
T.P.H.	TOILET PAPER HOLDER
TRD., T.	TREAD
T.V.	TELEVISION
T.O.W.	TOP OF WALL
TYP.	TYPICAL

U

UNF.	UNFINISHED
U.O.N.	UNLESS OTHERWISE NOTED
UR.	URINAL
U.P.	UTILITY POLE

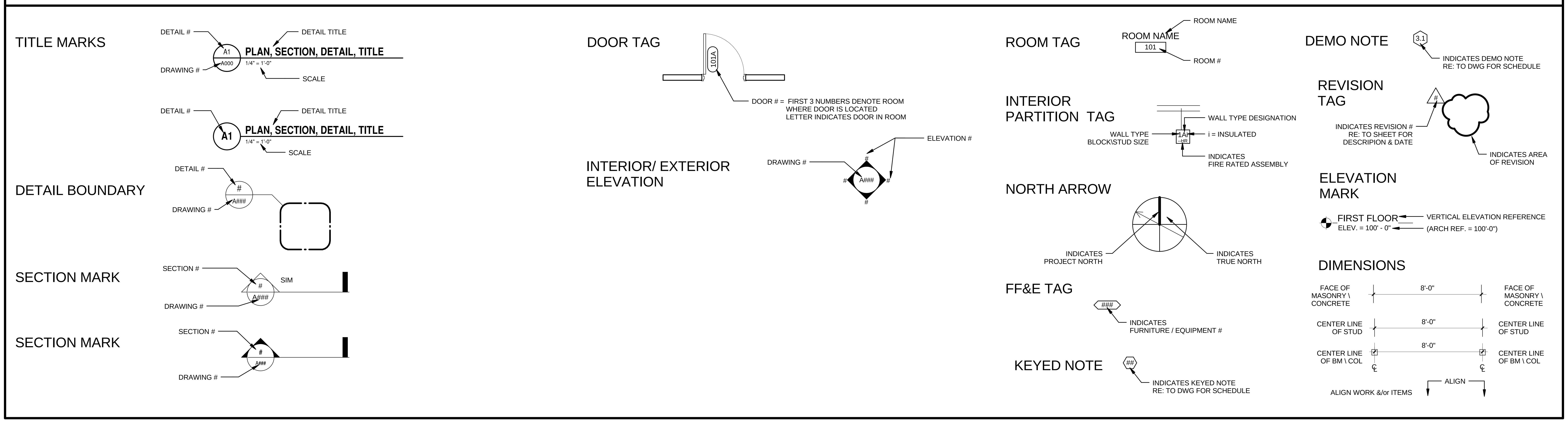
V

VB	VINYL BASE
V.C.T.	VINYL COMPOSITION TILE
VERT.	VERTICAL
V.I.F.	VERIFY IN FIELD
V.W.C.	VINYL WALL COVERING
VNR.PLAS.	VENEER PLASTER

W

W.	WEST, WIDE, WIDTH
W/	WITH
W.C.	WATER CLOSET,
WD.	WOOD
WDW.	WINDOW
W.F.	WIDE FLANGE
WG	WATER GATE
W.H.	WATER HEATER
W/O	WITHOUT
WP.	WATERPROOF (ING)
W.R.	WATER RESISTANT
WSCT.	WAINSCOT
W.S.P.	WET STAND PIPE
WGT.	WEIGHT
W.W.M.	WELDED WIRE MESH

ARCHITECTURAL SYMBOLS LEGEND



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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SYMBOLS AND ABBREVIATIONS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated
SHEET NUMBER: A001

SHEET 33 OF 157

REVIEWD BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:
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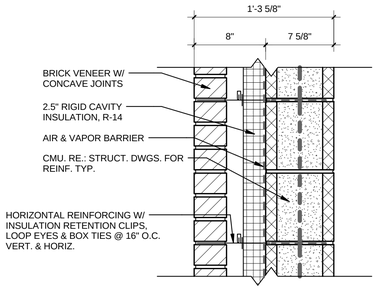
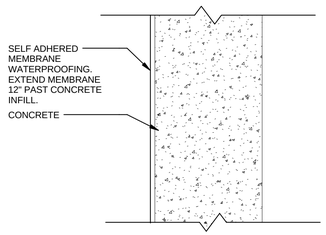


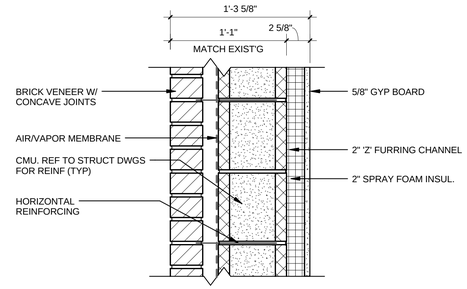
BRICK VENEER & CMU BACK UP

A8 8" CMU BACKUP



CONCRETE

12C 12" CONCRETE INFILL @ EXIST FOUNDATION PENETRATION (SEE STRUCT DWGS)

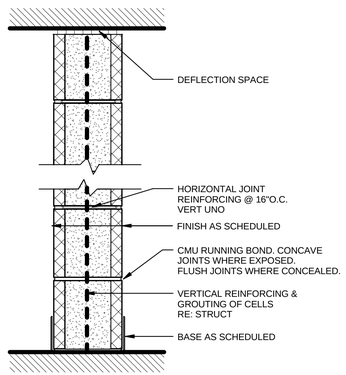


BRICK VENEER & CMU BACK UP

A12 MASONRY INFILL

EXTERIOR WALL TYPES

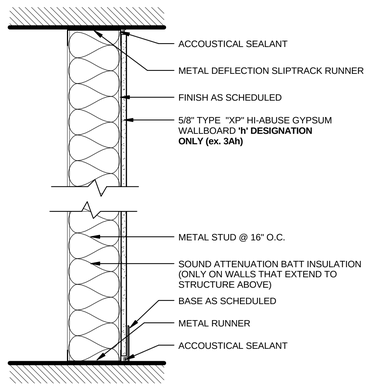
1 1/2" = 1'-0"



8M 8" CMU

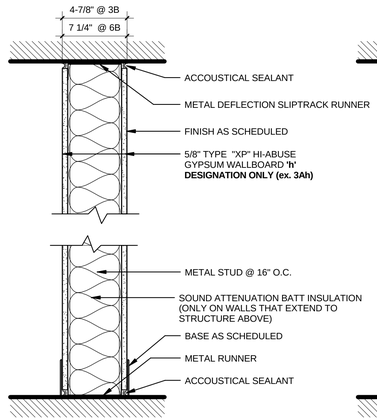
8M 1HR 8" CMU (TO UNDERSIDE OF DECK ABOVE)

'1HR' DESIGNATION INDICATES: FIRE RATED - 1 HR RATED ASSEMBLY - U.L. U906



3A 3 5/8" MTL STUDS

6A 6" MTL STUDS



3B 3B 1HR 3 5/8" MTL STUDS

6B 6" MTL STUDS

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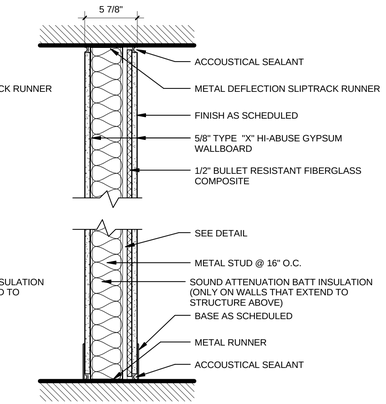
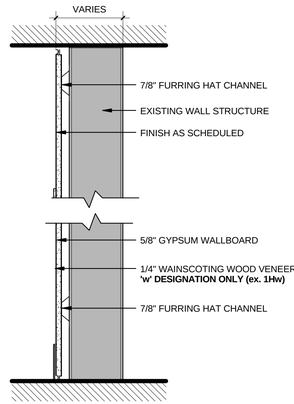
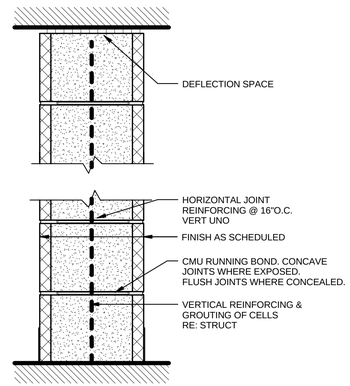
8B 8" MTL STUDS



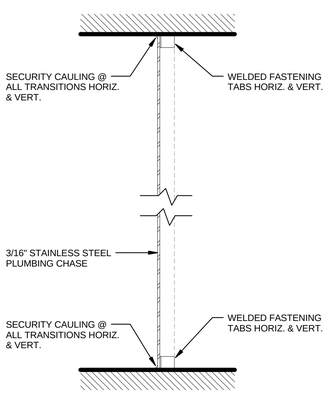
3Bx 3 5/8" MTL STUDS (GYP & BULLET RESISTANT FIBERGLASS SHALL RUN TO UNDERSIDE OF DECK ABOVE)



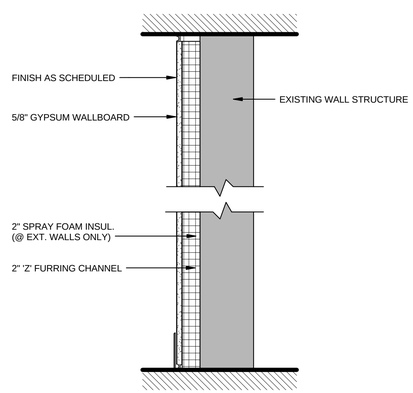
1H 5/8" GYP & 7/8" FURRING



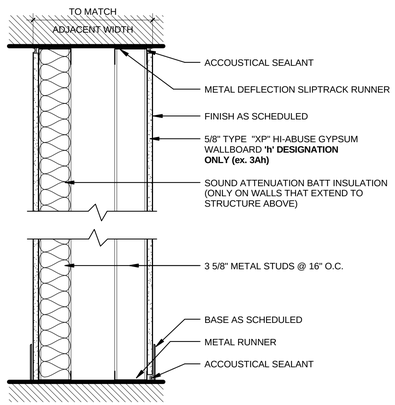
12M 12" CMU



1A DETENTION CELL PLUMBING CHASE WALL



2A 5/8" GYP & 2" 'Z' FURRING



12B 3 5/8" MTL STUD INFILL (GYP BD SHALL RUN TO UNDERSIDE OF DECK ABOVE)

TYP. INTERIOR PARTITION TYPES

1 1/2" = 1'-0"

TYP. PARTITION NOTES

1. FOR NON-LOAD BEARING WALLS THAT SEAL TO ROOF STRUCTURE ABOVE, PROVIDE SUITABLE STUD TRACK TO ALLOW FOR MINIMUM ROOF DEFLECTION OF 1" WITHOUT TRANSFERRING LOAD TO METAL STUDS. RE: STRUCTURAL DWGS FOR MORE STRINGENT DEFLECTION INFORMATION. (NOT REQUIRED AT PERIMETER WALLS UNLESS OTHERWISE NOTED)
2. HOLD BOTTOM OF GYPSUM WALL BOARD @ 1/4" ABOVE CONCRETE FLOOR TYPICAL (TO PREVENT MOISTURE WICKING). SEAL/CAULK ALL EDGES TO MEET FIRE OR SOUND RATING REQUIREMENTS OF PARTITION TYPES.
3. PROVIDE MOISTURE RESISTANT GYPSUM WALL BOARD AT ALL TOILET ROOMS, AND JANITOR CLOSETS UNLESS OTHERWISE NOTED. PROVIDE CEMENT BOARD AT ALL WALLS SCHEDULED TO RECEIVE TILE FINISHES.
4. ALL STUDS SHALL EXTEND TO THE UNDERSIDE OF STRUCTURE ABOVE UNLESS OTHERWISE NOTED; THE GYPSUM BOARD HEIGHT WILL BE NOTED ELSEWHERE.
5. ALL RATED WALL ASSEMBLIES SHALL RUN TO THE UNDERSIDE OF DECK ABOVE (PER UL DESIGN)
6. GYPSUM BOARD SHALL EXTEND 6" PAST CEILING UNLESS NOTED OTHERWISE WITH AN "*" (REFER TO FLOOR PLANS) WALL TAGS MARKED WITH "*" DENOTES GYP. BD TIGHT TO STRUCTURE.
7. GYP BD SHALL RUN TO UNDERSIDE OF DECK ABOVE @ ALL TOILET ROOMS)

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

WALL TYPES

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: CS
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A002

SHEET 34 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:21:11 PM

PROJECT FILE: C:\Users\MRoyal\Documents\19401-Waltham Police Station-ARCHITECTURE_MRoyal.rvt

APPLICABLE CODES

BUILDING CODE:
(IBC) INTERNATIONAL BUILDING CODE 2009
INTERNATIONAL EXISTING BUILDING CODE 2009
780 CMR: MASSACHUSETTS BUILDING CODE - 8TH EDITION

MECHANICAL CODE:
(IMC) INTERNATIONAL MECHANICAL CODE 2009

PLUMBING CODE:
248 CMR 10.00: UNIFORM STATE PLUMBING CODE

ELECTRICAL CODE:
527 CMR 12.00: MASSACHUSETTS ELECTRICAL CODE
(NEC) NFPA 70: NATIONAL ELECTRICAL CODE 2011

FIRE CODE:
(IFC) INTERNATIONAL FIRE CODE 2009
527 CMR: MASSACHUSETTS FIRE PREVENTION REGULATIONS

STATE/CITY AMENDMENTS:
780 CMR: MASSACHUSETTS BUILDING CODE - 8TH EDITION AMENDMENTS
CITY OF WALTHAM GENERAL ORDINANCES
CHAPTER Z: ZONING
SEC. 3.7. EXISTING BUILDINGS, STRUCTURES AND USES.

LIFE SAFETY CODE:
NFPA 101 LIFE SAFETY CODE

ACCESSIBILITY CODE:
ADA STANDARDS FOR ACCESSIBLE DESIGN
521 CMR: MASSACHUSETTS ARCHITECTURAL ACCESS BOARD REGULATIONS

ENERGY CODE:
(IECC) INTERNATIONAL ENERGY CONSERVATION CODE 2009
780 CMR: MASSACHUSETTS BUILDING CODE - 8TH EDITION
CHAPTER 13 - ENERGY CONSERVATION
CHAPTER 115 APPENDIX AA - STRETCH ENERGY CODE
ASHRAE 90.1

SIGN CODE:
CITY OF WALTHAM GENERAL ORDINANCES
CHAPTER Z. ZONING
ARTICLE VI. SPECIAL PROVISIONS RELATING TO SIGNS

ELEVATOR CODE:
ANSI/ASME A17.1-2007 SAFETY CODE FOR ELEVATORS AND ESCALATORS
524 CMR: MASSACHUSETTS ELEVATOR CODE

BUILDING INFORMATION

WALTHAM POLICE DEPARTMENT
155 LEXINGTON ST
WALTHAM, MA 02454

PARCEL ID:	R051 002 0018
OWNER:	CITY OF WALTHAM
LAND USE:	MUNICIPAL BUILDINGS (3.216) (EXISTING NONCONFORMING)
YEAR BUILT:	1964 (50 YEARS OLD)
ORIGINAL USE:	POLICE STATION
CURRENT OCCUPANCY:	POLICE STATION (NON SEPARATED MIXED USE)
	ASSEMBLY GROUP A-3 15 SF PER OCC
	BUSINESS GROUP B 100 SF PER OCC
	INSTITUTIONAL GROUP I-3 240 SF PER OCC
	STORAGE GROUP S-2 200 SF PER OCC
PROPOSED OCCUPANCY:	UNCHANGED
CONSTRUCTION:	CONSTRUCTION TYPE II B (UNPROTECTED)
	NONCOMBUSTIBLE MATERIALS
	BRICK CLAD STEEL FRAME W/ MEMBRANE ROOF

FIRE PROTECTION:

EXISTING	PROPOSED
NONE	FULLY SPRINKLERED

EXISTING HEIGHT:	24'-9"
EXISTING STORIES:	BASEMENT + 2 STORIES

AREA:

8,601 SF (BASEMENT)
13,120 SF (FIRST FLOOR)
1,088 SF (SALLY PORT ADDITION 1989)
5,727 SF (SECOND FLOOR)
28,536 SF (EXISTING AREA)
1,311 SF (STORAGE ADDITION, REAR ENTRY, AND CANOPIES)
29,847 SF (TOTAL)

CLASSIFICATION OF WORK: ALTERATIONS OF 100% OF EXISTING AREA AND ADDITION OF STORAGE AREA PER IBEC CHAPTER 3 - PRESCRIPTIVE COMPLIANCE METHOD

ZONING

ZONING:	COMMERCIAL (C)	
FRONT YARD:	ALLOWED	EXISTING
	1/2" HEIGHT = 12'	30'
SIDE YARD:	15'	6'
REAR YARD:	25'	70'
MAXIMUM HEIGHT:	80'	24'-9"
MAXIMUM STORIES:	8	2
FAR BY RIGHT:	.4	N/A
FAR BY SPECIAL PERMIT:	2.0	N/A
LOT AREA:	10,000 SF	N/A
LOT FRONTAGE:	50 FT	N/A
PARKING :	1 PER 300 SF (OFFICES)	
	ACCESSIBLE SPACES	15-25 1
		26-50 2
		51-75 3
		76- 100 4

REQUIRED	EXISTING	PROPOSED
N/A	N/A	UNCHANGED + (1) ACCESSIBLE SPACE

ALLOWABLE AREA AND HEIGHT
A-3 IS THE MORE RESTRICTIVE AND ALLOWS UP TO 3 STORIES AND 19,000SF PER STORY WHEN SPRINKLERED. THE ENTIRE BUILDING IS 29,847 SF < 57,000 A-3 LIMIT. THEREFORE NO SEPARATIONS ARE REQUIRED.

	ALLOWED	PROPOSED
STORIES:	3 STORIES	2 STORIES
AREA:	57,000 SF	29,847 SF
HEIGHT:	75 FT	24'-9"

STRUCTURAL

TABLE 1604.11 GROUND SNOW LOADS; BASIC WIND SPEEDS; EARTHQUAKE DESIGN FACTORS

CITY/TOWN	Pg	Pf	V	SS	S1
WALTHAM	40	*34	105	0.28	0.069

*CALCULATED FLAT ROOF SNOW LOAD

ENERGY CONSERVATION

	STRETCH CODE
ROOFS - INSULATION ENTIRELY ABOVE DECK	R-25 CI
WALLS, ABOVE GRADE - MASS	R-11.4 CI
SLAB-ON-GRADE FLOORS	R-10 FOR 24 IN. BELOW
OPAQUE DOORS - SWINGING	U – 0.37
OPAQUE DOORS - ROLL-UP OR SLIDING	R – 4.75
FENESTRATION - CURTAIN WALL/STOREFRONT U-FACTOR	0.42
FENESTRATION - ENTRANCE DOOR U-FACTOR	0.80
FENESTRATION - ALL OTHER U-FACTOR	0.45
FENESTRATION - SHGC-ALL FRAME TYPES	0.40

EGRESS

OCCUPANT LOAD:

BASEMENT:			
BUSINESS GROUP B	8,601 SF ÷ 100 SF PER OCC (B) = 87 OCC		
	*ACTUAL BY ROOM GREATER	=	102 OCC
SUBTOTAL BASEMENT			102 OCC
FIRST FLOOR:			
ASSEMBLY GROUP A-3	839 SF ÷ 15 SF PER OCC (A-3)	=	56 OCC
BUSINESS GROUP B	104 SF ÷ 100 SF PER OCC (B) = (2 OCC)		
BUSINESS GROUP B	9,354 SF ÷ 100 SF PER OCC (B) = (94 OCC)		
	*ACTUAL BY ROOM GREATER	=	238 OCC
INSTITUTIONAL GROUP I-3	3,584 SF ÷ 240 SF PER OCC (B) = (15 OCC)		
	*ACTUAL BY ROOM GREATER	=	30 OCC
STORAGE GROUP S-2	640 SF ÷ 200 SF PER OCC (B)	=	4 OCC
STORAGE GROUP S-2	993 SF ÷ 200 SF PER OCC (B)	=	5 OCC
SUBTOTAL FIRST FLOOR			333 OCC
SECOND FLOOR:			
BUSINESS GROUP B	5,727 SF ÷ 100 SF PER OCC (B) = 58 OCC		
	*ACTUAL BY ROOM GREATER	=	83 OCC
SUBTOTAL SECOND FLOOR			83 OCC
TOTAL:			518 OCC

NUMBER OF EXITS:	REQUIRED	PROVIDED
BASEMENT:	2	2
FIRST FLOOR:	2	3 (B) + 1 (I-3) = 4
SECOND FLOOR	2	2
SEPARATION:	REQUIRED	PROVIDED
BASEMENT:	143' ÷ 3 = 48'	54'
FIRST FLOOR:	185' ÷ 3 = 62'	82'
SECOND FLOOR:	108' ÷ 3 = 36'	54'
EGRESS WIDTH:	REQUIRED	PROVIDED
STAIRS:	48"	48" TREADS, 40" LANDINGS (*NON COMPLIANT)
CORRIDORS:	24" MECH (1018.2)	26" MECH
	36" (521 CMR 20)	36" < 50 OCC (1018.2)
	48" LATCH SIDE (521 CMR 26)	60" MIN
BASEMENT:		
STAIR 1:	0.3" X 102 = 30.6" ÷ 2 = 15.3"	48"
DOOR:	0.2" X 102 = 20.4" ÷ 2 = 10.2"	36"
STAIR 3:	0.3" X 102 = 30.6" ÷ 2 = 15.3"	48"
DOOR:	0.2" X 102 = 20.4" ÷ 2 = 10.2"	36"
FIRST FLOOR:		
DOOR 1:	0.2" X 333 = 66.6" ÷ 3 = 22.2"	72"
DOOR 2:	0.2" X 333 = 66.6" ÷ 3 = 22.2"	72"
DOOR 3:	0.2" X 333 = 66.6" ÷ 3 = 22.2"	72"
DOOR 4 (I-3 ONLY):	0.2" X 30 = 6" ÷ 1 = 6"	35.5"
SECOND FLOOR:		
STAIR 1:	0.3" X 83 = 24.9" ÷ 2 = 12.45"	48"
DOOR:	0.2" X 83 = 16.6" ÷ 2 = 8.3"	36"
STAIR 2:	0.3" X 83 = 24.9" ÷ 2 = 12.45"	48"
DOOR:	0.2" X 83 = 16.6" ÷ 2 = 8.3"	36"

EXIT ACCESS TRAVEL DISTANCE:

	REQUIRED	PROVIDED
ASSEMBLY GROUP A-3	250'	170'
BUSINESS GROUP B	300'	261'
INSTITUTIONAL GROUP I-3	200'	143'
STORAGE GROUP S-2	400'	150'

FIRE PROTECTION

PRIMARY STRUCTURAL FRAME	0
BEARING WALLS	
EXTERIOR	2 HOUR
INTERIOR	0
NONBEARING WALLS AND PARTITIONS	
INTERIOR	0
FLOOR CONSTRUCTION	0
ROOF CONSTRUCTION	0
NONBEARING EXTERIOR WALLS:	
X < 5'	1 HOUR
5' ≤ X< 10'	1 HOUR
10' ≤ X< 30'	0
X ≥ 30 '	0

EXTERIOR WALL UNPROTECTED OPENINGS:	ALLOWABLE AREA
5' < 10'	25%
10' < 15'	45%
15' < 20'	75%
20' OR GREATER	NO LIMIT

SHAFTS:	1 HOUR
ELEVATOR:	1 HOUR
ELEVATOR MACHINE ROOM:	1 HOUR
STAIRS 1 AND 2:	1 HOUR
STAIR 1 AND 2 DOORS:	1 HOUR
EXIT PASSAGEWAY WALLS:	1 HOUR
EXIT PASSAGEWAY FLOOR AND STRUCTURE:	1 HOUR
EXIT PASSAGEWAY CEILING:	1 HOUR
EXIT PASSAGEWAY DOORS:	1 HOUR
EXIT PASSAGEWAY SHUTTERS:	1 HOUR
MECHANICAL ROOM (508.2.5)	1 HOUR
ELECTRICAL ROOM (NEC 450.21(B))	1 HOUR
SMOKE DOORS	1/3 HOUR

FIRE EXTINGUISHERS:

10 LBS 4A-60B:C (UL RATING)			
ORDINARY (MODERATE) HAZARD OCCUPANCY			
MINIMUM RATED SINGLE EXTINGUISHER			2-A
MAXIMUM FLOOR AREA PER UNIT OF A			1,500 SF X 5 = 6,000 SF
MAXIMUM TRAVEL DISTANCE TO EXTINGUISHER			75'
8,601 SF (BASEMENT) ÷ (6,000 SF)		=	2 EXTINGUISHERS
14,208 SF (FIRST FLOOR) ÷ (6,000 SF	)	=	3 EXTINGUISHERS
5,727 SF (SECOND FLOOR) ÷ (6,000 SF)	=		1 EXTINGUISHER

PLUMBING FIXTURE COUNT

	REQUIRED	PROVIDED	
WATER CLOSETS - FEMALE	N/A	8	(5 ACCESSIBLE)
WATER CLOSETS - MALE	N/A	12	(5 ACCESSIBLE)
WATER CLOSETS - UNISEX	N/A	1	(1 ACCESSIBLE)
URINALS - MALE	N/A	3	(2 ACCESSIBLE)
LAVATORIES - FEMALE	N/A	8	(5 ACCESSIBLE)
LAVATORIES - MALE	N/A	13	(5 ACCESSIBLE)
LAVATORIES - UNISEX	N/A	1	(1 ACCESSIBLE)
SHOWERS - MALE	N/A	3	(1 ACCESSIBLE)
SHOWERS - FEMALE	N/A	1	(1 ACCESSIBLE)
DRINKING FOUNTAINS	N/A	6	(3 ACCESSIBLE HIGH-LOW TYPE)
SERVICE SINKS	N/A	2	
KITCHEN SINKS	N/A	2	(2 ACCESSIBLE)

EXCEPTIONS

715.4.7.1 SIZE LIMITATIONS. FIRE-PROTECTION-RATED GLAZING USED IN FIRE DOORS SHALL COMPLY WITH THE SIZE LIMITATIONS OF NFPA 80.

EXCEPTIONS:
1. FIRE-PROTECTION-RATED GLAZING LOCATED IN FIRE WALLS SHALL BE PROHIBITED EXCEPT WHERE SERVING IN A FIRE DOOR IN A HORIZONTAL EXIT, A SELF-CLOSING SWINGING DOOR SHALL BE PERMITTED TO HAVE A VISION PANEL OF NOT MORE THAN 100 SQUARE INCHES (0.065 M2) WITHOUT A DIMENSION EXCEEDING 10 INCHES (254 MM).

1007.3 STAIRWAYS. IN ORDER TO BE CONSIDERED PART OF AN ACCESSIBLE MEANS OF EGRESS, AN EXIT ACCESS STAIRWAY AS PERMITTED BY SECTION 1016.1 OR EXIT STAIRWAY SHALL HAVE A CLEAR WIDTH OF 48 INCHES (1219 MM) MINIMUM BETWEEN HANDRAILS AND SHALL EITHER INCORPORATE AN AREA OF REFUGE WITHIN AN ENLARGED FLOOR-LEVEL LANDING OR SHALL BE ACCESSED FROM EITHER AN AREA OF REFUGE COMPLYING WITH SECTION 1007.6 OR A HORIZONTAL EXIT.

EXCEPTIONS:
1. THE AREA OF REFUGE IS NOT REQUIRED AT OPEN EXIT ACCESS OR EXIT STAIRWAYS AS PERMITTED BY SECTIONS 1016.1 AND 1022.1 IN BUILDINGS THAT ARE EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.3.1.2.

2. THE CLEAR WIDTH OF 48 INCHES (1219 MM) BETWEEN HANDRAILS IS NOT REQUIRED AT EXIT ACCESS STAIRWAY AS PERMITTED BY SECTION 1016.1 OR EXIT STAIRWAYS IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.3.1.2.

3. AREAS OF REFUGE ARE NOT REQUIRED AT EXIT STAIRWAYS IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.3.

*EXISTING STAIRWAY LANDINGS ARE NOT 48" WIDE IN THE DIRECTION OF TRAVEL

1009.5 STAIRWAY LANDINGS. THERE SHALL BE A FLOOR OR LANDING AT THE TOP AND BOTTOM OF EACH STAIRWAY. THE WIDTH OF LANDINGS SHALL NOT BE LESS THAN THE WIDTH OF STAIRWAYS THEY SERVE. EVERY LANDING SHALL HAVE A MINIMUM DIMENSION MEASURED IN THE DIRECTION OF TRAVEL EQUAL TO THE WIDTH OF THE STAIRWAY. SUCH DIMENSION NEED NOT EXCEED 48 INCHES (1219 MM) WHERE THE STAIRWAY HAS A STRAIGHT RUN.

1015.2.1 TWO EXITS OR EXIT ACCESS DOORWAYS. WHERE TWO EXITS OR EXIT ACCESS DOORWAYS ARE REQUIRED FROM ANY PORTION OF THE EXIT ACCESS, THE EXIT DOORS OR EXIT ACCESS DOORWAYS SHALL BE PLACED A DISTANCE APART EQUAL TO NOT LESS THAN ONE-HALF OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED MEASURED IN A STRAIGHT LINE BETWEEN EXIT DOORS OR EXIT ACCESS DOORWAYS. INTERLOCKING OR SCISSOR STAIRS SHALL BE COUNTED AS ONE EXIT STAIRWAY.

EXCEPTIONS:
2. WHERE A BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.3.1.2, THE SEPARATION DISTANCE OF THE EXIT DOORS OR EXIT ACCESS DOORWAYS SHALL NOT BE LESS THAN ONE-THIRD OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE AREA SERVED.

1018.4 DEAD ENDS.
WHERE MORE THAN ONE EXIT OR EXIT ACCESS DOORWAY IS REQUIRED, THE EXIT ACCESS SHALL BE ARRANGED SUCH THAT THERE ARE NO DEAD ENDS IN CORRIDORS MORE THAN 20 FEET (6096 MM) IN LENGTH.

EXCEPTIONS:
1. IN OCCUPANCIES IN GROUP I-3 OF OCCUPANCY CONDITION 2, 3 OR 4 (SEE SECTION 308.5), THE DEAD END IN A CORRIDOR SHALL NOT EXCEED 50 FEET (15 240 MM).
2. IN OCCUPANCIES IN GROUPS B, E, F, I-1, M, R-1, R-2, R-4, S AND U, WHERE THE BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1, THE LENGTH OF THE DEAD-END CORRIDORS SHALL NOT EXCEED 50 FEET (15 240 MM).
3. A DEAD-END CORRIDOR SHALL NOT BE LIMITED IN LENGTH WHERE THE LENGTH OF THE DEAD-END CORRIDOR IS LESS THAN 2.5 TIMES THE LEAST WIDTH OF THE DEAD-END CORRIDOR.

TABLE 1021.1 MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD

OCCUPANT LOAD (PER STORY)	MINIMUM NUMBER OF EXITS (PERSONS PER STORY)
1-500	2
501-1,000	3

TABLE 1021.2 STORIES WITH ONE EXIT
SECOND STORY, B OCCUPANCY, 29 OCCUPANTS AND 75 FEET TRAVEL DISTANCE

1022.1 ENCLOSURES REQUIRED. INTERIOR EXIT STAIRWAYS...SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN...1 HOUR WHERE CONNECTING LESS THAN FOUR STORIES.

EXCEPTIONS:
1.1. THE STAIRWAY IS OPEN TO NOT MORE THAN ONE STORY ABOVE ITS LEVEL OF EXIT DISCHARGE; OR
1.2. THE STAIRWAY IS OPEN TO NOT MORE THAN ONE STORY BELOW ITS LEVEL OF EXIT DISCHARGE.

1022.2 TERMINATION. EXIT ENCLOSURES SHALL TERMINATE AT AN EXIT DISCHARGE OR A PUBLIC WAY.

EXCEPTION: AN EXIT ENCLOSURE SHALL BE PERMITTED TO TERMINATE AT AN EXIT PASSAGEWAY COMPLYING WITH SECTION 1023, PROVIDED THE EXIT PASSAGEWAY TERMINATES AT AN EXIT DISCHARGE OR A PUBLIC WAY.

1023.5 OPENINGS AND PENETRATIONS. EXIT PASSAGEWAY OPENING PROTECTIVES SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 715.

EXCEPT AS PERMITTED IN SECTION 402.4.6, OPENINGS IN EXIT PASSAGEWAYS OTHER THAN EXTERIOR OPENINGS SHALL BE LIMITED TO THOSE NECESSARY FOR EXIT ACCESS TO THE EXIT PASSAGEWAY FROM NORMALLY OCCUPIED SPACES AND FOR EGRESS FROM THE EXIT PASSAGEWAY.

ELEVATORS SHALL NOT OPEN INTO AN EXIT PASSAGEWAY.

521 CMR 20.00: ACCESSIBLE ROUTE: 20.12 AREAS OF RESCUE ASSISTANCE
SHALL BE PROVIDED WHERE AN ACCESSIBLE MEANS OF EGRESS IS NOT PROVIDED AND SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
EXCEPTION: AREAS OF RESCUE ASSISTANCE ARE NOT REQUIRED IN:
A. EXISTING BUILDINGS UNDERGOING ALTERATIONS, REMODELING, RECONSTRUCTION

ELEC:
MECH:
FIRE:
PLUM:
STRU:
ARCH:
CIVIL:
REVIEWED BY:

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

LIFE SAFETY DATA SHEET

PROJECT NUMBER:	19401.01
DESIGNED BY:	Designer
DRAWN BY:	Author
CHECKED BY:	Checker
DATE:	July 11, 2014
SCALE:	

SHEET NUMBER:

A009

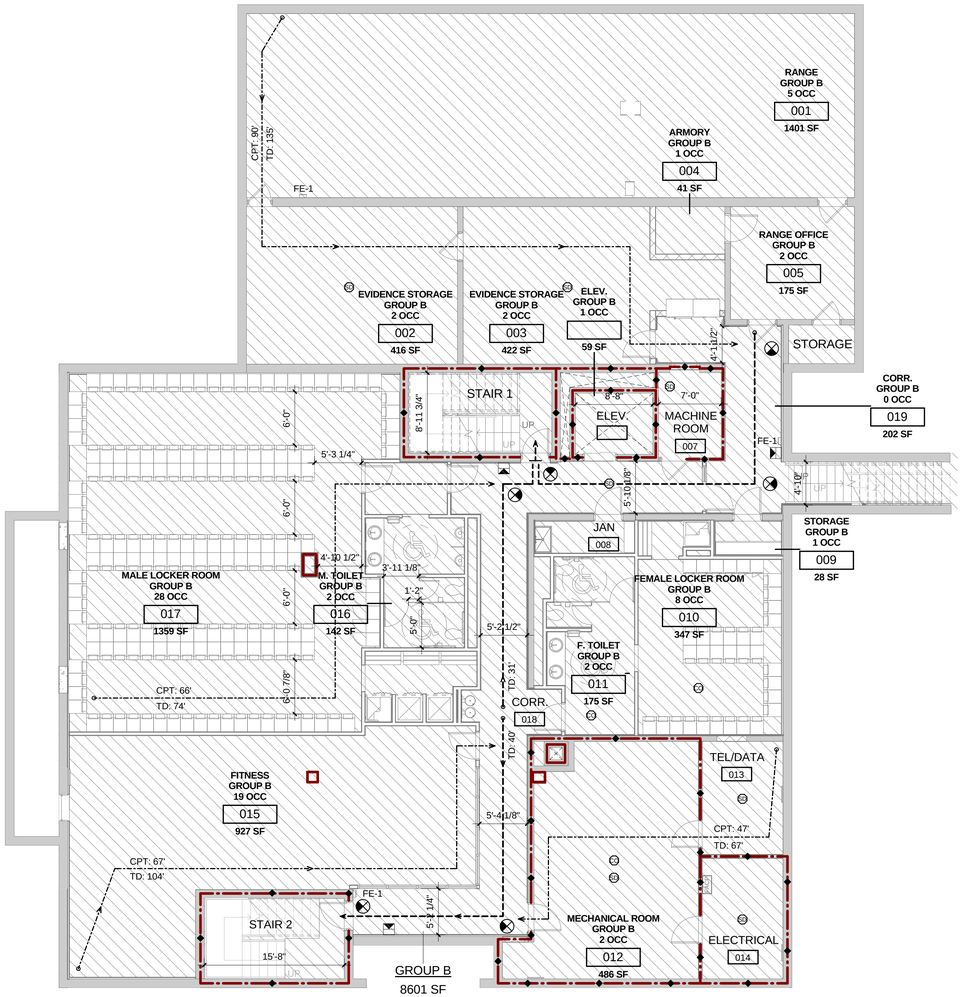
SHEET 35 OF 157

RELEVANT CODE SECTIONS AND EXCEPTIONS
101.5.0 COMPLIANCE ALTERNATIVES. EXCEPT FOR STRUCTURAL WORK, WHERE COMPLIANCE WITH THE PROVISIONS OF THE CODE FOR NEW CONSTRUCTION, REQUIRED BY THIS CODE, IS IMPRACTICAL BECAUSE OF CONSTRUCTION DIFFICULTIES OR REGULATORY CONFLICTS, COMPLIANCE ALTERNATIVES MAY BE ACCEPTED BY THE BUILDING OFFICIAL. EXAMPLES OF COMPLIANCE ALTERNATIVES AND ARCHAIC CONSTRUCTION SYSTEMS CAN BE FOUND AT THE FAQ LINK AT WWW.MASS.GOV/DPS. THE BUILDING OFFICIAL MAY ACCEPT THESE COMPLIANCE ALTERNATIVES, ARCHAIC CONSTRUCTION SYSTEMS, OR OTHERS PROPOSED. IF THE COMPLIANCE ALTERNATIVE INVOLVES FIRE PROTECTION SYSTEMS THE BUILDING OFFICIAL SHALL CONSULT WITH THE FIRE OFFICIAL.

101.5.0.1 SUBMITTALS. THE APPLICATION FOR A BUILDING PERMIT SHALL BE IN ACCORDANCE WITH SUBSECTION 107.2.1 OF THE INTERNATIONAL BUILDING CODE 2009 WITH MASSACHUSETTS AMENDMENTS (780 CMR 107.2.1) AND IDENTIFY ALL ITEMS OF NON- OR PARTIAL COMPLIANCE WITH THE REQUIREMENTS OF THIS CODE, AND COMPLIANCE ALTERNATIVES, IF ANY ARE PROPOSED. FOR APPROVAL BY THE BUILDING OFFICIAL. THE BUILDING OFFICIAL SHALL RESPOND TO THE ACCEPTABILITY OF ANY PROPOSED COMPLIANCE ALTERNATIVES WITHIN 30 DAYS OF THE FILING OF THE BUILDING PERMIT APPLICATION. WHERE PROPOSED COMPLIANCE ALTERNATIVES ARE, IN THE OPINION OF THE BUILDING OFFICIAL, UNACCEPTABLE, OR WHERE ISSUES OF NON-COMPLIANCE REMAIN, THE PERMIT APPLICANT SHALL HAVE THE REMEDIES PRESCRIBED BY SECTION 113 OF THE INTERNATIONAL BUILDING CODE 2009 WITH THE MASSACHUSETTS AMENDMENTS (780 CMR 113).

303.1 GENERAL. EXCEPT AS PROVIDED BY SECTION 301.2 OR THIS SECTION, ALTERATIONS TO ANY BUILDING OR STRUCTURE SHALL COMPLY WITH THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE FOR NEW CONSTRUCTION. ALTERATIONS SHALL BE SUCH THAT THE EXISTING BUILDING OR STRUCTURE IS NO LESS CONFORMING TO THE PROVISIONS OF THE INTERNATIONAL BUILDING CODE THAN THE EXISTING BUILDING OR STRUCTURE WAS PRIOR TO THE ALTERATION.

EXCEPTIONS:
1. AN EXISTING STAIRWAY SHALL NOT BE REQUIRED TO COMPLY WITH THE REQUIREMENTS OF SECTION 1009 OF THE INTERNATIONAL BUILDING CODE WHERE THE EXISTING SPACE AND CONSTRUCTION DOES NOT ALLOW A REDUCTION IN PITCH OR SLOPE.



1 **BASEMENT LIFE SAFETY PLAN - 102 OCCUPANTS**
SCALE: 1/8" = 1'-0"

OCCUPANCY LEGEND

GROUP B

OCCUPANCY AREA SCHEDULE	
Name	Area
BASEMENT FLOOR	
GROUP B	8601 SF
BASEMENT FLOOR: 1	8601 SF
FIRST FLOOR	
GROUP A-3	839 SF
GROUP B	104 SF
GROUP B	9345 SF
GROUP I-3	3593 SF
GROUP S-2	712 SF
GROUP S-2	993 SF
FIRST FLOOR: 6	15586 SF
SECOND FLOOR	
GROUP B	5726 SF
SECOND FLOOR: 1	5726 SF
Grand total: 8	29913 SF

LIFE SAFETY LEGEND

OCCUPANT LOAD: IBC 2009 SECTION 1004

Room — ROOM NUMBER
GROUP Rm_Occupancy — OCCUPANCY TYPE
Occupancy OCC — NUMBER OF OCC
101 — ROOM NUMBER
150 SF — AREA

EXIT ACCESS TRAVEL DISTANCE:
IBC 2009 SECTION 1016

PATH OF TRAVEL (TD)
COMMON PATH OF TRAVEL (CPT)
EXIT SIGN

EGRESS WIDTH: IBC 2009 SECTION 1005

0 — EGRESS WIDTH
0 — EGRESS CAPACITY

FIRE-RESISTANCE RATED WALL SYMBOLS:
IBC SECTION 703

1 HR FIRE
2 HR FIRE
1 HR FIRE/SMOKE
2 HR FIRE/SMOKE

FIRE EXTINGUISHER LEGEND (NFPA 10)

FE-1 SURFACE MOUNTED FIRE EXTINGUISHER
FE-2 SEMI RECESSED (3" MAX PROJECTION) FIRE EXTINGUISHER & CABINET

FIRE ALARM LEGEND

FACP FIRE ALARM CONTROL PANEL
FAA FIRE ALARM ANNUNCIATOR PANEL
CO CARBON MONOXIDE DETECTOR
SD SMOKE DETECTOR
FIRE ALARM MANUAL PULL STATION
FDC FIRE DEPARTMENT CONNECTION

0' 4' 8' 16'

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

BASEMENT LIFE SAFETY PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: Author
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

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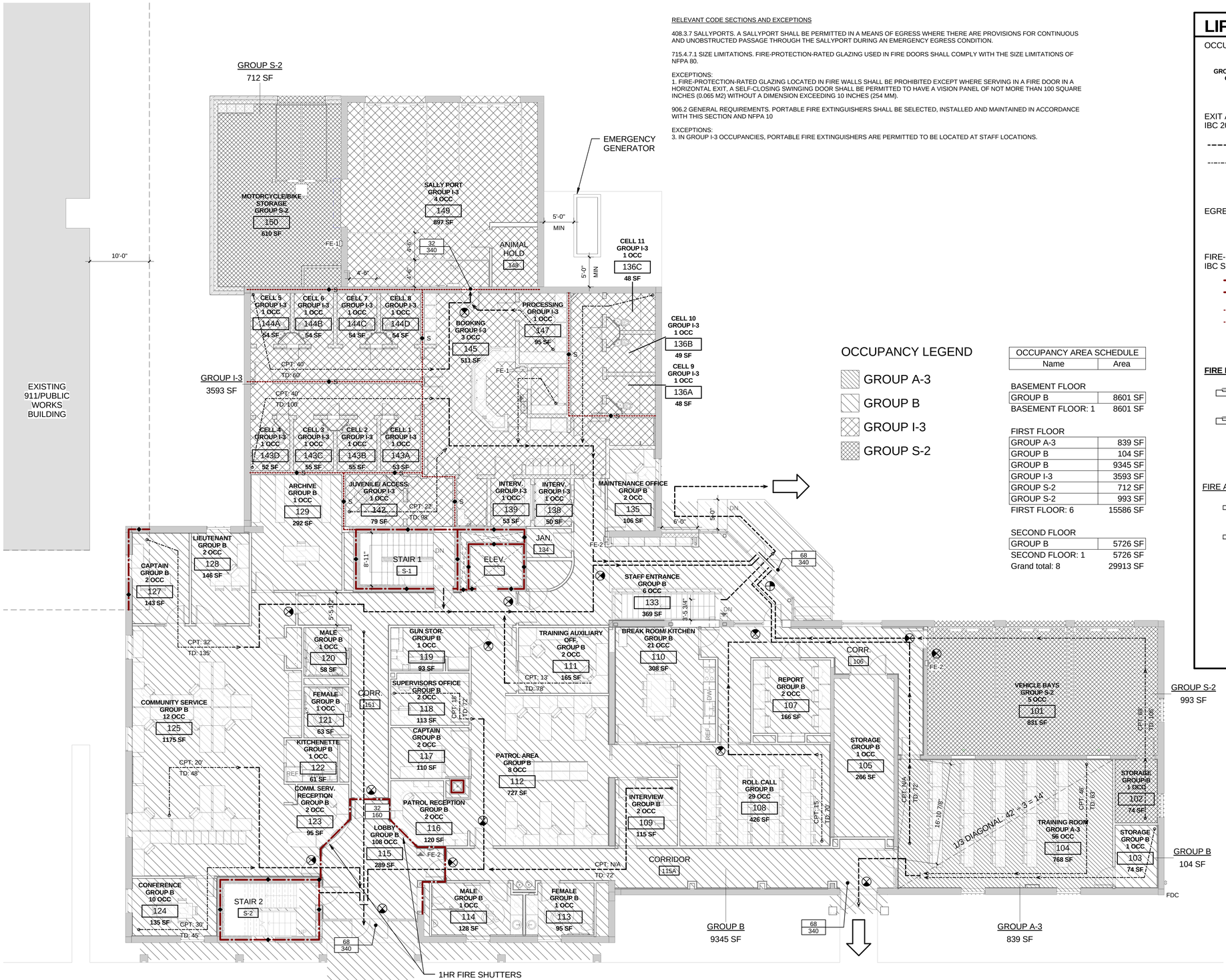
SHEET 36 OF 157



RELEVANT CODE SECTIONS AND EXCEPTIONS

408.3.7 SALLYPORTS. A SALLYPORT SHALL BE PERMITTED IN A MEANS OF EGRESS WHERE THERE ARE PROVISIONS FOR CONTINUOUS AND UNOBSTRUCTED PASSAGE THROUGH THE SALLYPORT DURING AN EMERGENCY EGRESS CONDITION.

715.4.7.1 SIZE LIMITATIONS. FIRE-PROTECTION-RATED GLAZING USED IN FIRE DOORS SHALL COMPLY WITH THE SIZE LIMITATIONS OF NFPA 80.

EXCEPTIONS:
1. FIRE-PROTECTION-RATED GLAZING LOCATED IN FIRE WALLS SHALL BE PROHIBITED EXCEPT WHERE SERVING IN A FIRE DOOR IN A HORIZONTAL EXIT, A SELF-CLOSING SWINGING DOOR SHALL BE PERMITTED TO HAVE A VISION PANEL OF NOT MORE THAN 100 SQUARE INCHES (0.065 M2) WITHOUT A DIMENSION EXCEEDING 10 INCHES (254 MM).

906.2 GENERAL REQUIREMENTS. PORTABLE FIRE EXTINGUISHERS SHALL BE SELECTED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH THIS SECTION AND NFPA 10

EXCEPTIONS:
3. IN GROUP I-3 OCCUPANCIES, PORTABLE FIRE EXTINGUISHERS ARE PERMITTED TO BE LOCATED AT STAFF LOCATIONS.

OCCUPANCY LEGEND

- GROUP A-3
- GROUP B
- GROUP I-3
- GROUP S-2

OCCUPANCY AREA SCHEDULE

Name	Area
BASEMENT FLOOR	
GROUP B	8601 SF
BASEMENT FLOOR: 1	8601 SF
FIRST FLOOR	
GROUP A-3	839 SF
GROUP B	104 SF
GROUP B	9345 SF
GROUP I-3	3593 SF
GROUP S-2	712 SF
GROUP S-2	993 SF
FIRST FLOOR: 6	15586 SF
SECOND FLOOR	
GROUP B	5726 SF
SECOND FLOOR: 1	5726 SF
Grand total: 8	29913 SF

LIFE SAFETY LEGEND

OCCUPANT LOAD: IBC 2009 SECTION 1004

Room — ROOM NUMBER
GROUP Rm Occupancy — OCCUPANCY TYPE
Occupancy OCC — NUMBER OF OCC
101 — ROOM NUMBER
150 SF — AREA

EXIT ACCESS TRAVEL DISTANCE: IBC 2009 SECTION 1016

PATH OF TRAVEL (TD)
COMMON PATH OF TRAVEL (CPT)
EXIT SIGN

EGRESS WIDTH: IBC 2009 SECTION 1005

0 — EGRESS WIDTH
0 — EGRESS CAPACITY

FIRE-RESISTANCE RATED WALL SYMBOLS: IBC SECTION 703

1 HR FIRE
2 HR FIRE
1 HR FIRE/SMOKE
2 HR FIRE/SMOKE

FIRE EXTINGUISHER LEGEND (NFPA 10)

FE-1 — SURFACE MOUNTED FIRE EXTINGUISHER
FE-2 — SEMI RECESSED (3" MAX PROJECTION) FIRE EXTINGUISHER & CABINET

FIRE ALARM LEGEND

FACP — FIRE ALARM CONTROL PANEL
FAA — FIRE ALARM ANNUNCIATOR PANEL
CO — CARBON MONOXIDE DETECTOR
S — SMOKE DETECTOR
FIRE ALARM MANUAL PULL STATION
FDC — FIRE DEPARTMENT CONNECTION

0' 4' 8' 16'

1 **FIRST FLOOR LIFE SAFETY PLAN - 333 OCCUPANTS**
SCALE: 1/8" = 1'-0"

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

FIRST FLOOR LIFE SAFETY PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: Author
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DATE: July 11, 2014
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SHEET NUMBER:

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SHEET 37 OF 157

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SECTION 1016 EXIT ACCESS TRAVEL DISTANCE

1016.1 TRAVEL DISTANCE LIMITATIONS. EXITS SHALL BE SO LOCATED ON EACH STORY SUCH THAT THE MAXIMUM LENGTH OF EXIT ACCESS TRAVEL, MEASURED FROM THE MOST REMOTE POINT WITHIN A STORY ALONG THE NATURAL AND UNOBSTRUCTED PATH OF EGRESS TRAVEL TO AN EXTERIOR EXIT DOOR AT THE LEVEL OF EXIT DISCHARGE, AN ENTRANCE TO A VERTICAL EXIT ENCLOSURE, AN EXIT PASSAGEWAY, A HORIZONTAL EXIT, AN EXTERIOR EXIT STAIRWAY OR AN EXTERIOR EXIT RAMP, SHALL NOT EXCEED THE DISTANCES GIVEN IN TABLE 1016.1.

EXCEPTIONS:

3. IN OTHER THAN OCCUPANCY GROUPS H AND I, THE EXIT ACCESS TRAVEL DISTANCE TO A MAXIMUM OF 50 PERCENT OF THE EXITS IS PERMITTED TO BE MEASURED FROM THE MOST REMOTE POINT WITHIN A BUILDING TO AN EXIT USING UNENCLOSED EXIT ACCESS STAIRWAYS OR RAMPS WHEN CONNECTING A MAXIMUM OF TWO STORIES. THE TWO CONNECTED STORIES SHALL BE PROVIDED WITH AT LEAST TWO MEANS OF EGRESS. SUCH INTERCONNECTED STORIES SHALL NOT BE OPEN TO OTHER STORIES.

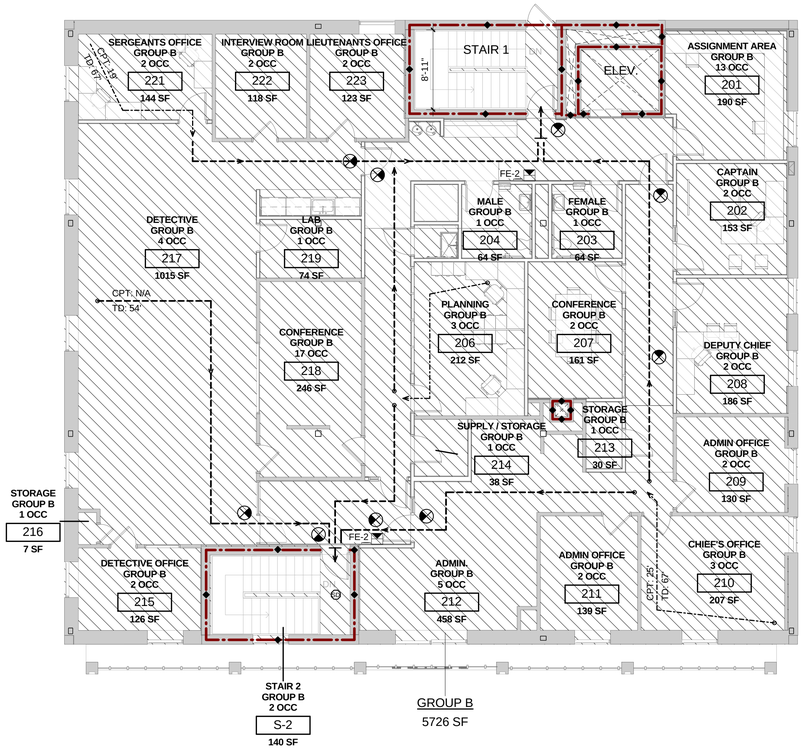
4. IN OTHER THAN OCCUPANCY GROUPS H AND I, EXIT ACCESS TRAVEL DISTANCE IS PERMITTED TO BE MEASURED FROM THE MOST REMOTE POINT WITHIN A BUILDING TO AN EXIT USING UNENCLOSED EXIT ACCESS STAIRWAYS OR RAMPS IN THE FIRST AND SECOND STORIES ABOVE GRADE PLANE IN BUILDINGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1. THE FIRST AND SECOND STORIES ABOVE GRADE PLANE SHALL BE PROVIDED WITH AT LEAST TWO MEANS OF EGRESS. SUCH INTERCONNECTED STORIES SHALL NOT BE OPEN TO OTHER STORIES.

WHERE APPLICABLE, TRAVEL DISTANCE ON UNENCLOSED EXIT ACCESS STAIRWAYS OR RAMPS AND ON CONNECTING STORIES SHALL ALSO BE INCLUDED IN THE TRAVEL DISTANCE MEASUREMENT. THE MEASUREMENT ALONG STAIRWAYS SHALL BE MADE ON A PLANE PARALLEL AND TANGENT TO THE STAIR TREAD NOSINGS IN THE CENTER OF THE STAIRWAY.

OCCUPANCY LEGEND

GROUP B

OCCUPANCY AREA SCHEDULE	
Name	Area
BASEMENT FLOOR	
GROUP B	8601 SF
BASEMENT FLOOR: 1	8601 SF
FIRST FLOOR	
GROUP A-3	839 SF
GROUP B	104 SF
GROUP B	9345 SF
GROUP I-3	3593 SF
GROUP S-2	712 SF
GROUP S-2	993 SF
FIRST FLOOR: 6	15586 SF
SECOND FLOOR	
GROUP B	5726 SF
SECOND FLOOR: 1	5726 SF
Grand total: 8	29913 SF



1 / A012 SECOND FLOOR LIFE SAFETY PLAN - 83 OCCUPANTS
1/8" = 1'-0"

LIFE SAFETY LEGEND

OCCUPANT LOAD: IBC 2009 SECTION 1004

Room — ROOM NUMBER
GROUP Rm_Occupancy — OCCUPANCY TYPE
Occupancy OCC — NUMBER OF OCC
101 — ROOM NUMBER
150 SF — AREA

EXIT ACCESS TRAVEL DISTANCE:
IBC 2009 SECTION 1016

PATH OF TRAVEL (TD)

COMMON PATH OF TRAVEL (CPT)

EXIT SIGN

EGRESS WIDTH: IBC 2009 SECTION 1005

0 — EGRESS WIDTH
0 — EGRESS CAPACITY

FIRE-RESISTANCE RATED WALL SYMBOLS:
IBC SECTION 703

1 HR FIRE

2 HR FIRE

1 HR FIRE/SMOKE

2 HR FIRE/SMOKE

FIRE EXTINGUISHER LEGEND (NFPA 10)

FE-1 SURFACE MOUNTED FIRE EXTINGUISHER

FE-2 SEMI RECESSED (3" MAX PROJECTION) FIRE EXTINGUISHER & CABINET

FIRE ALARM LEGEND

FACP FIRE ALARM CONTROL PANEL

FAA FIRE ALARM ANNUNCIATOR PANEL

CO CARBON MONOXIDE DETECTOR

S SMOKE DETECTOR

FIRE ALARM MANUAL PULL STATION

FDC FIRE DEPARTMENT CONNECTION

0' 4' 8' 16'

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155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECOND FLOOR LIFE SAFETY PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: Author
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

A012

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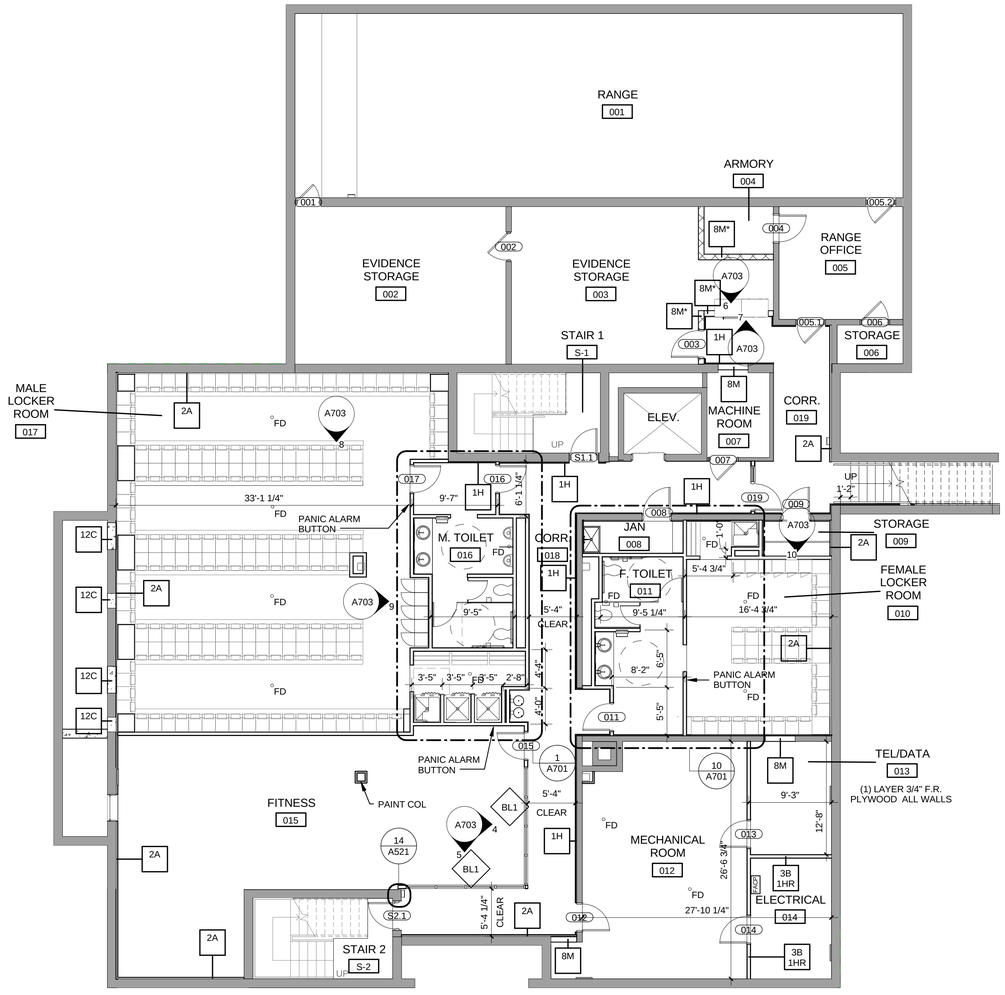
PROJECT FILE: C:\Users\MRoy\Documents\19401-Waltham Police Station-ARCHITECTURE_MRoy.rvt

GENERAL PLAN NOTES

1. COORDINATE ALL NEW WORK w/ STRUCTURAL, PLUMBING, MECHANICAL & ELECTRICAL DRAWINGS. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.
2. ALL DIMENSIONS TO NEW CONSTRUCTION ARE TO CENTERLINE OF STUD AND FACE OF MASONRY UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS TO EXISTING CONSTRUCTION ARE TO FACE OF FINISH UNLESS NOTED OTHERWISE
4. ALL NEW INTERIOR WALLS ARE TYPE 3B UNLESS NOTED OTHERWISE.
5. ALL INTERIOR GYPSUM WALL BOARD CORNERS WITHOUT WAINSCOTING SHALL HAVE STEEL CORNER GUARDS.
6. ALL EXISTING DOOR FRAMES TO REMAIN SHALL BE SCRAPED, PRIMED AND PAINTED.
7. ALL EXISTING WOOD DOORS TO REMAIN SHALL BE SANDED AND REFINISHED.
8. ALL EXISTING METAL DOORS TO REMAIN SHALL BE SCRAPED, PRIMED AND PAINTED.
9. SEE FINISH PLANS FOR THE EXTENT OF WAINSCOTTING.
10. REFER TO STRUCTURAL DRAWINGS FOR PATCHING OF CONCRETE SLAB.
11. WALL TAGS MARKED WITH '*' DENOTES GYP BOARD SHALL RUN TO THE UNDERSIDE OF DECK ABOVE



1 BASEMENT LEVEL PLAN

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

FLOOR PLAN LEGEND

- EXISTING CONSTRUCTION TO REMAIN
- NEW CONSTRUCTION

0' 4' 8' 16'

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

BASEMENT FLOOR PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM, LR
CHECKED BY: FC
DATE: July 11, 2014
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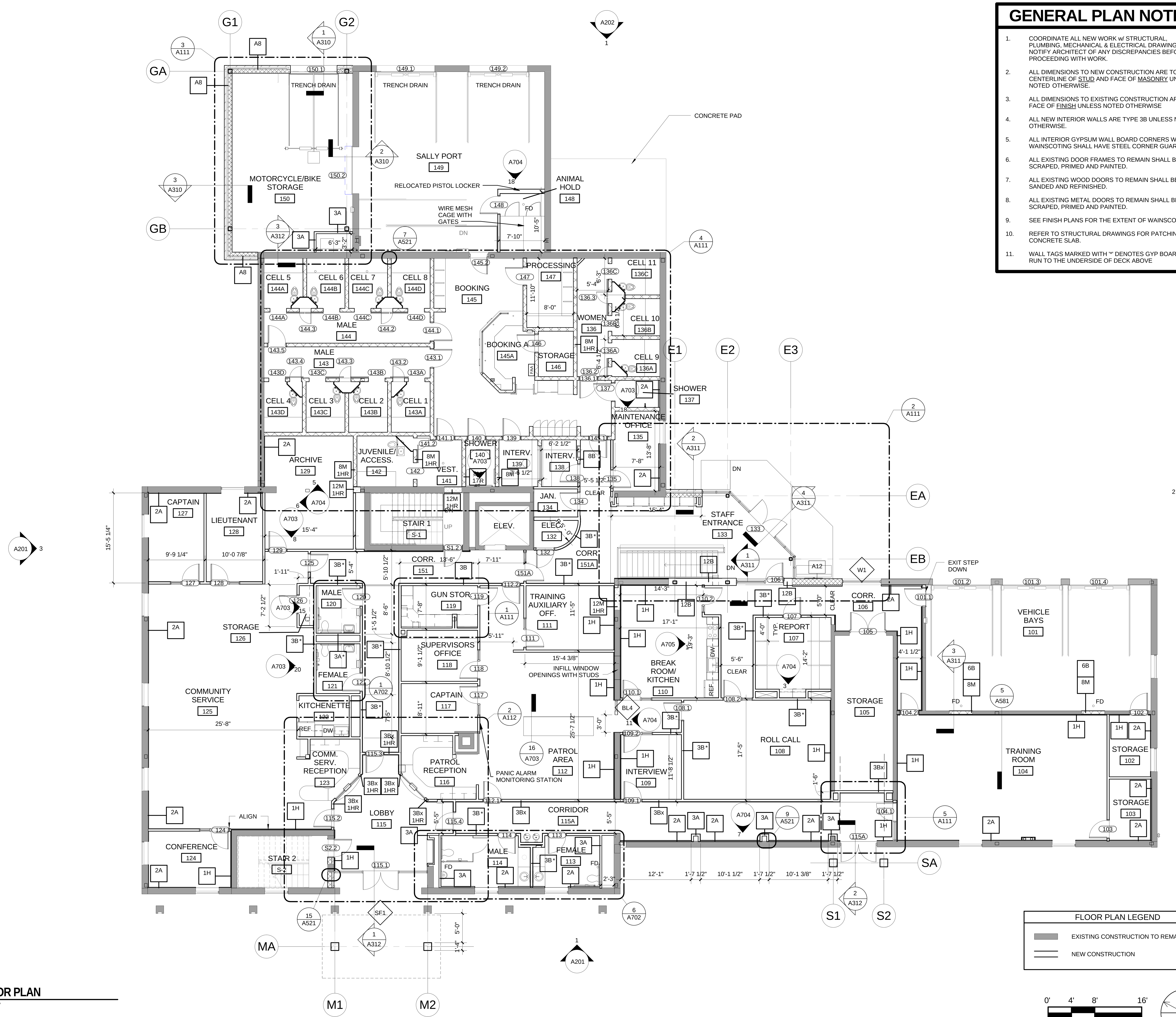
A100



1 FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

GENERAL PLAN NOTES

1. COORDINATE ALL NEW WORK w/ STRUCTURAL, PLUMBING, MECHANICAL & ELECTRICAL DRAWINGS. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.
2. ALL DIMENSIONS TO NEW CONSTRUCTION ARE TO CENTERLINE OF STUD AND FACE OF MASONRY UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS TO EXISTING CONSTRUCTION ARE TO FACE OF FINISH UNLESS NOTED OTHERWISE
4. ALL NEW INTERIOR WALLS ARE TYPE 3B UNLESS NOTED OTHERWISE.
5. ALL INTERIOR GYPSUM WALL BOARD CORNERS WITHOUT WAINSCOTING SHALL HAVE STEEL CORNER GUARDS.
6. ALL EXISTING DOOR FRAMES TO REMAIN SHALL BE SCRAPED, PRIMED AND PAINTED.
7. ALL EXISTING WOOD DOORS TO REMAIN SHALL BE SANDED AND REFINISHED.
8. ALL EXISTING METAL DOORS TO REMAIN SHALL BE SCRAPED, PRIMED AND PAINTED.
9. SEE FINISH PLANS FOR THE EXTENT OF WAINSCOTTING.
10. REFER TO STRUCTURAL DRAWINGS FOR PATCHING OF CONCRETE SLAB.
11. WALL TAGS MARKED WITH '*' DENOTES GYP BOARD SHALL RUN TO THE UNDERSIDE OF DECK ABOVE

FLOOR PLAN LEGEND

EXISTING CONSTRUCTION TO REMAIN

NEW CONSTRUCTION

0' 4' 8' 16'

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

FIRST FLOOR PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM, LR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:
A101

SHEET 40 OF 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:
PLOTTED: 7/14/2014 5:21:29 PM
PROJECT FILE: C:\Users\...\Waltham Police Station ARCHITECTURE ...rvt

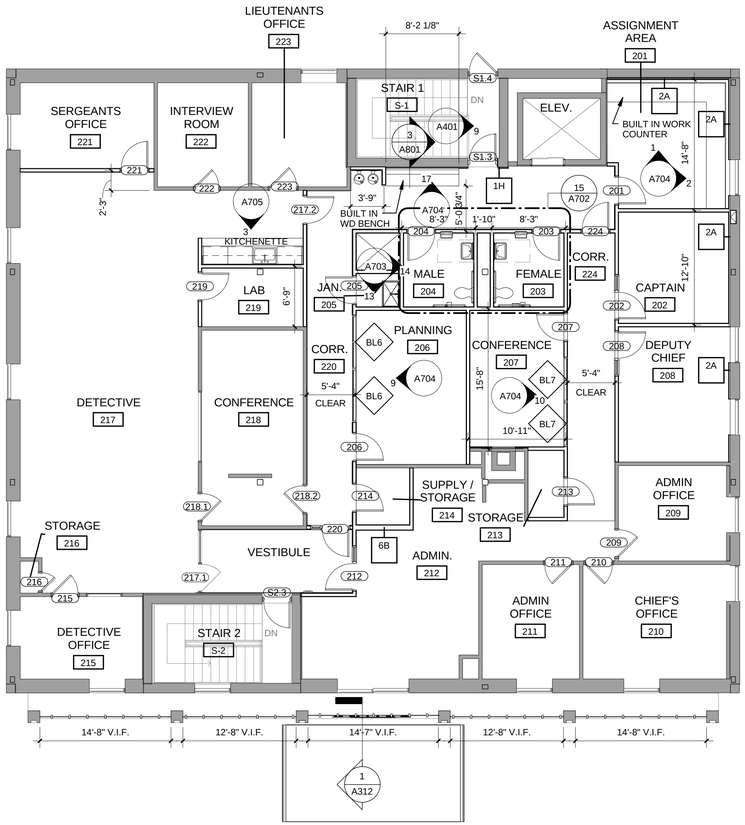
REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:21:31 PM

PROJECT FILE: C:\Users\MRoyal\Documents\19401-Waltham Police Station-ARCHITECTURE_MRoyal.rvt

GENERAL PLAN NOTES

1. COORDINATE ALL NEW WORK w/ STRUCTURAL, PLUMBING, MECHANICAL & ELECTRICAL DRAWINGS. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.
2. ALL DIMENSIONS TO NEW CONSTRUCTION ARE TO CENTERLINE OF STUD AND FACE OF MASONRY UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS TO EXISTING CONSTRUCTION ARE TO FACE OF FINISH UNLESS NOTED OTHERWISE
4. ALL NEW INTERIOR WALLS ARE TYPE 3B UNLESS NOTED OTHERWISE.
5. ALL INTERIOR GYPSUM WALL BOARD CORNERS WITHOUT WAINSCOTING SHALL HAVE STEEL CORNER GUARDS.
6. ALL EXISTING DOOR FRAMES TO REMAIN SHALL BE SCRAPED, PRIMED AND PAINTED.
7. ALL EXISTING WOOD DOORS TO REMAIN SHALL BE SANDED AND REFINISHED.
8. ALL EXISTING METAL DOORS TO REMAIN SHALL BE SCRAPED, PRIMED AND PAINTED.
9. SEE FINISH PLANS FOR THE EXTENT OF WAINSCOTTING.
10. REFER TO STRUCTURAL DRAWINGS FOR PATCHING OF CONCRETE SLAB.
11. WALL TAGS MARKED WITH '*' DENOTES GYP BOARD SHALL RUN TO THE UNDERSIDE OF DECK ABOVE



1 **SECOND FLOOR PLAN**
SCALE: 1/8" = 1'-0"

FLOOR PLAN LEGEND
- EXISTING CONSTRUCTION TO REMAIN
- NEW CONSTRUCTION

0' 4' 8' 16'

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Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

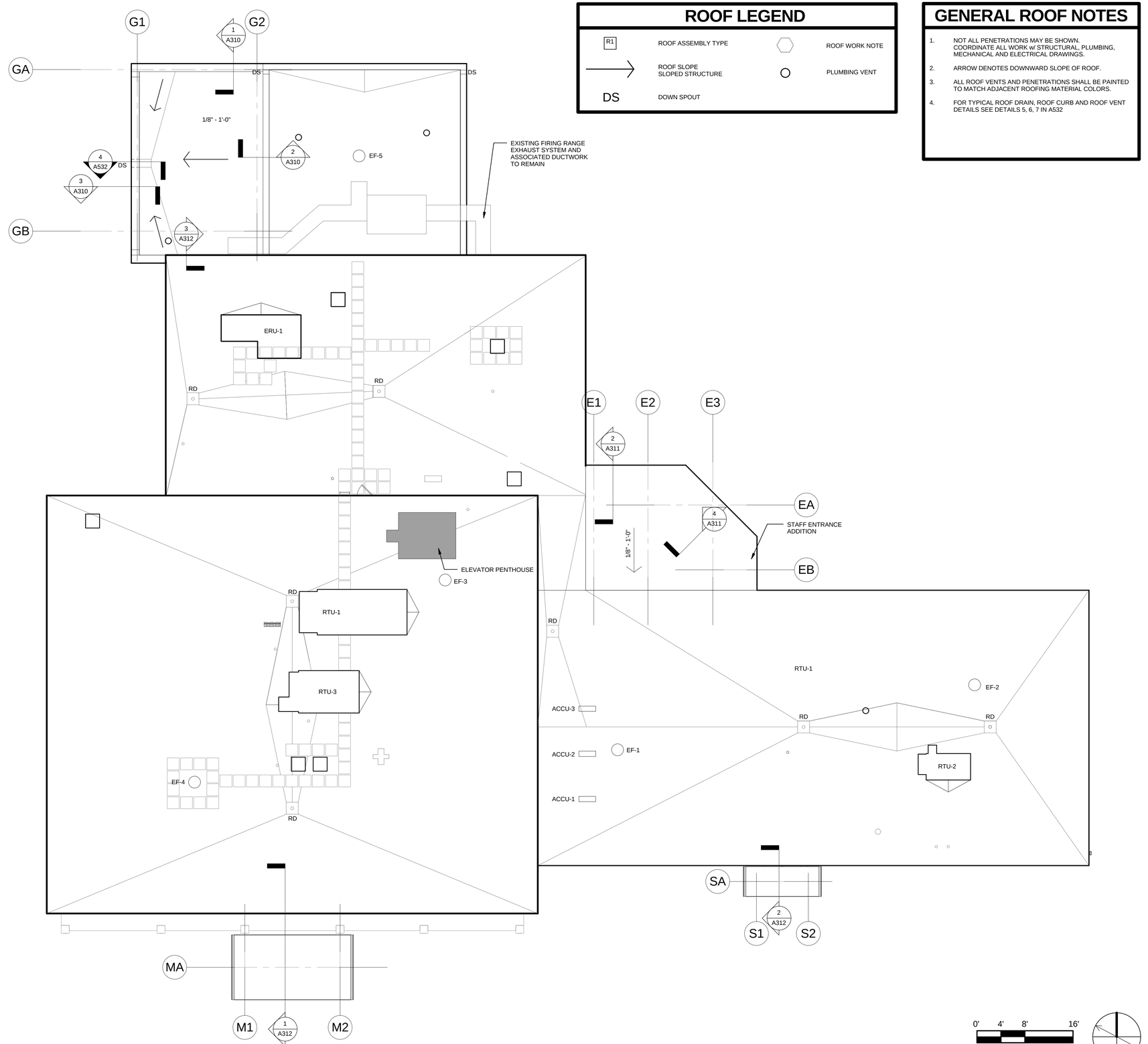
SECOND FLOOR PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM, LR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A102

SHEET 41 **OF** 157



ROOF LEGEND

R1	ROOF ASSEMBLY TYPE	⬡	ROOF WORK NOTE
→	ROOF SLOPE SLOPED STRUCTURE	○	PLUMBING VENT
DS	DOWN SPOUT		

GENERAL ROOF NOTES

1. NOT ALL PENETRATIONS MAY BE SHOWN. COORDINATE ALL WORK w/ STRUCTURAL, PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS.
2. ARROW DENOTES DOWNWARD SLOPE OF ROOF.
3. ALL ROOF VENTS AND PENETRATIONS SHALL BE PAINTED TO MATCH ADJACENT ROOFING MATERIAL COLORS.
4. FOR TYPICAL ROOF DRAIN, ROOF CURB AND ROOF VENT DETAILS SEE DETAILS 5, 6, 7 IN A532

1 **ROOF LEVEL**
SCALE: 1/8" = 1'-0"

0' 4' 8' 16'

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Number	Description	Date

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ROOF PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM, LR
CHECKED BY: LR
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A103

SHEET 42 **OF** 157

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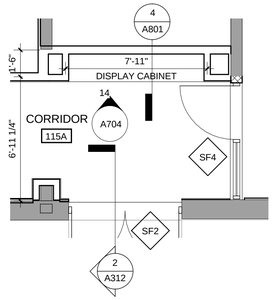
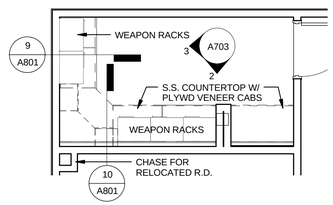
PROJECT FILE: C:\Users\MMcgoff\Documents\19401-Waltham Police Station-ARCHITECTURE_MMcgoff.rvt



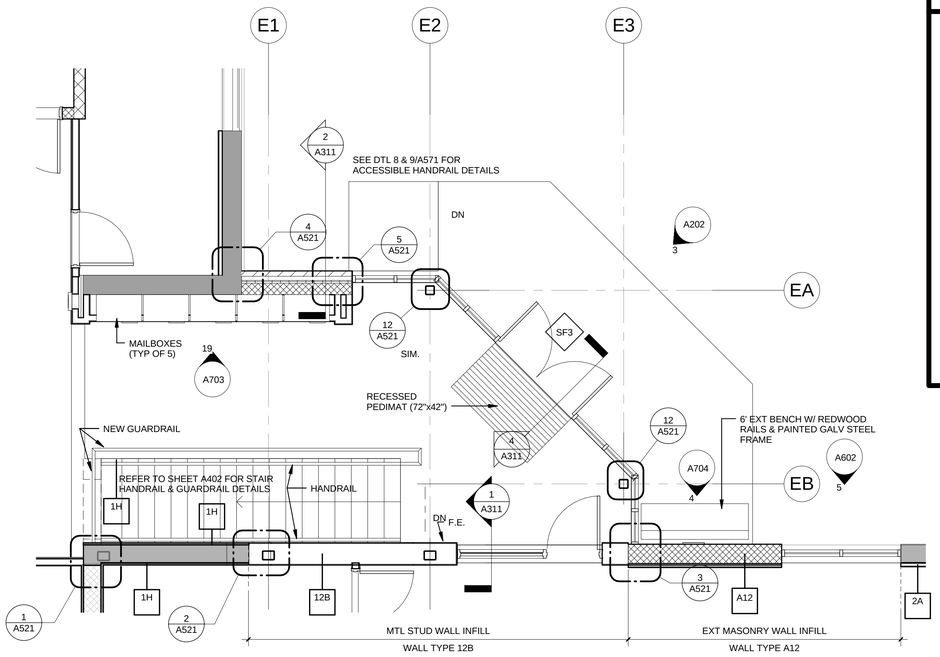
5 VESTIBULE @ 115A

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



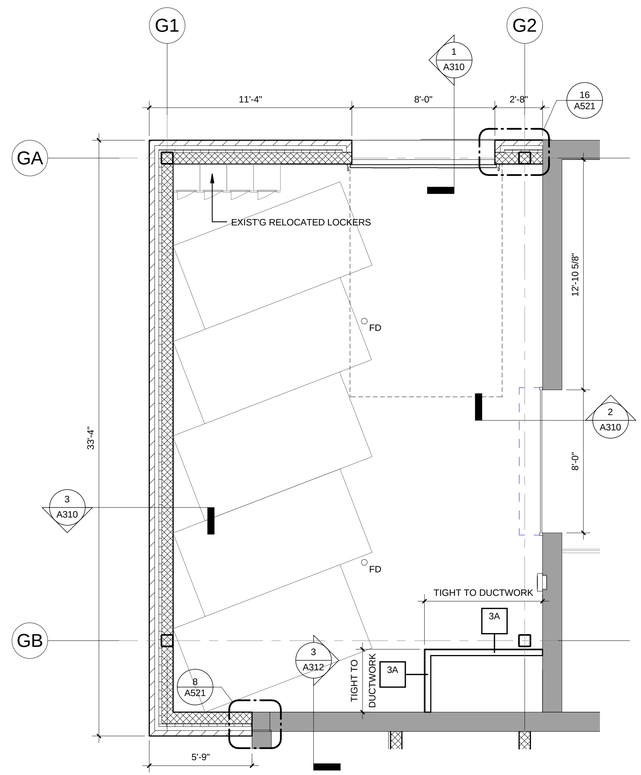
1 ENLARGED GUN STORAGE PLAN

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



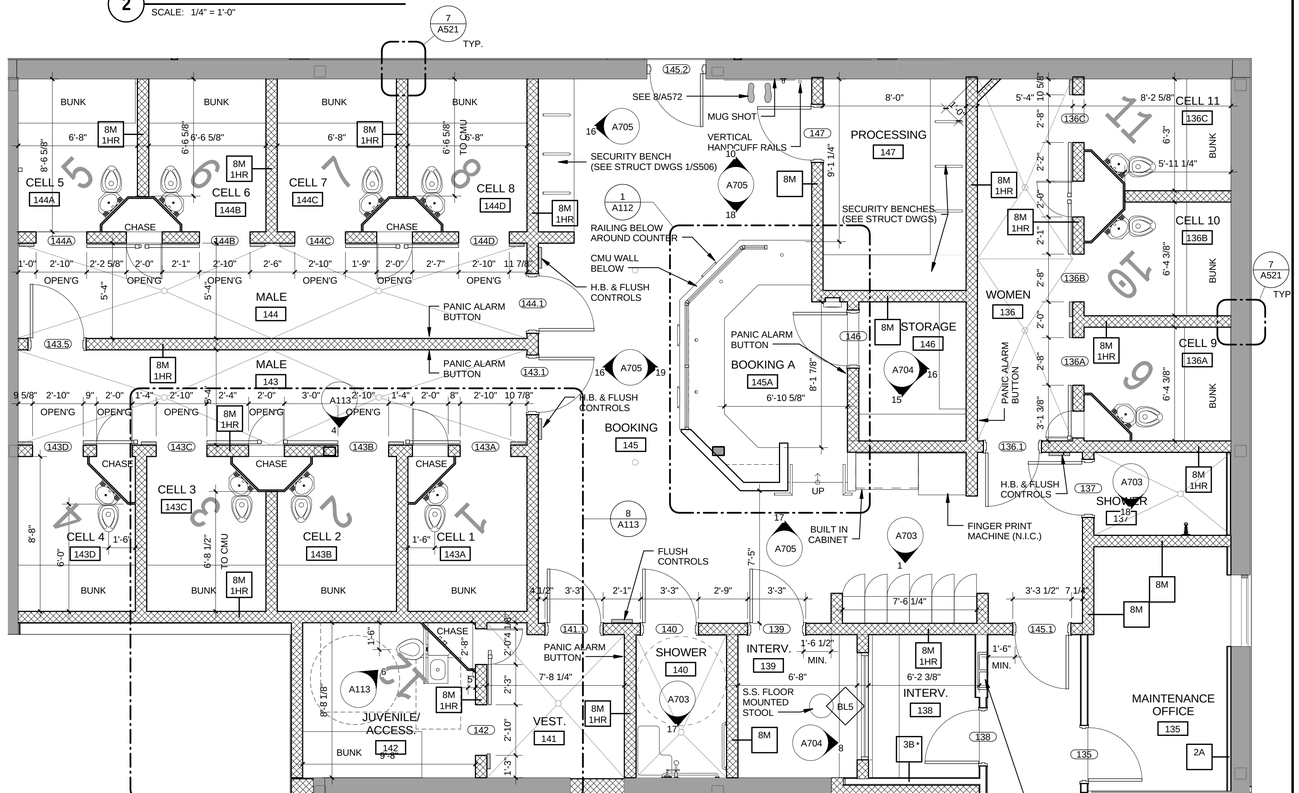
2 ENLARGED STAFF ENTRANCE

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



3 ENLARGED MOTORCYCLE/BIKE STORAGE PLAN

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



4 ENLARGED DETENTION AREA PLAN

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

GENERAL PLAN NOTES

1. COORDINATE ALL NEW WORK w/ STRUCTURAL, PLUMBING, MECHANICAL & ELECTRICAL DRAWINGS. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.
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7. ALL EXISTING WOOD DOORS TO REMAIN SHALL BE SANDED AND REFINISHED.
8. ALL EXISTING METAL DOORS TO REMAIN SHALL BE SCRAPED, PRIMED AND PAINTED.
9. SEE FINISH PLANS FOR THE EXTENT OF WAINSCOTTING.
10. REFER TO STRUCTURAL DRAWINGS FOR PATCHING OF CONCRETE SLAB.
11. WALL TAGS MARKED WITH '*' DENOTES GYP BOARD SHALL RUN TO THE UNDERSIDE OF DECK ABOVE

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ENLARGED FLOOR PLANS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM, JR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A111

SHEET 43 **OF** 157

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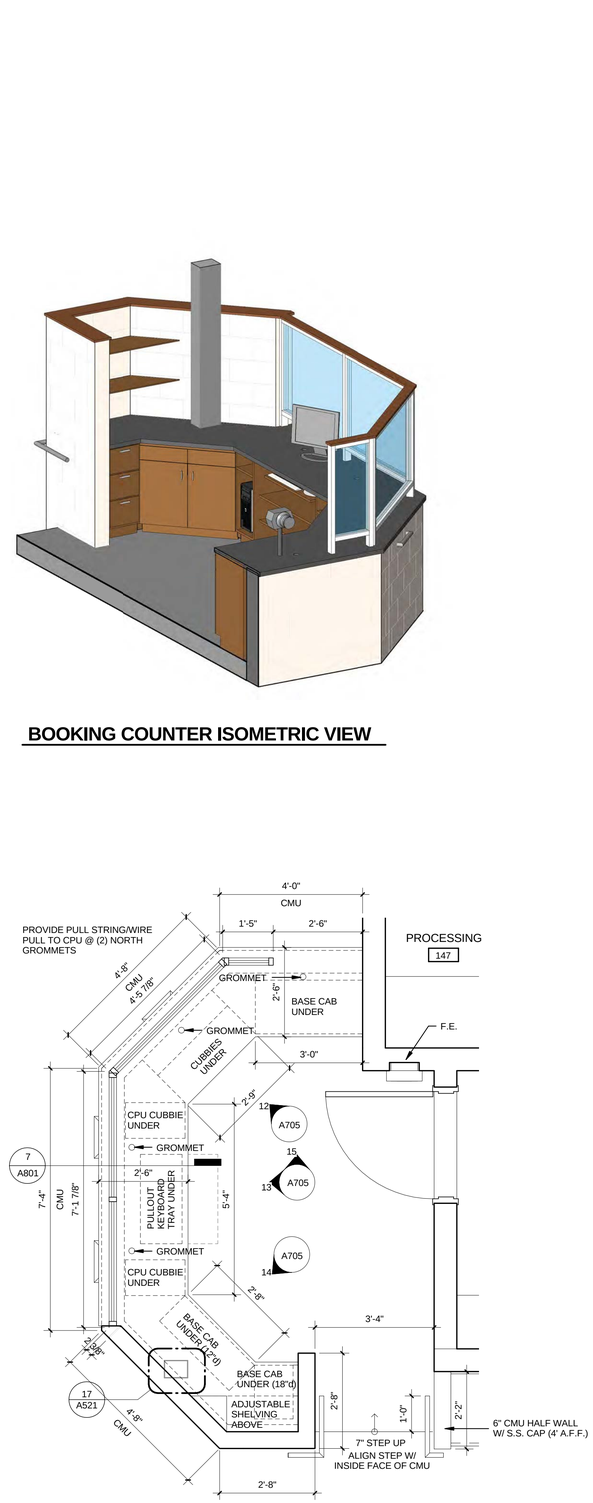
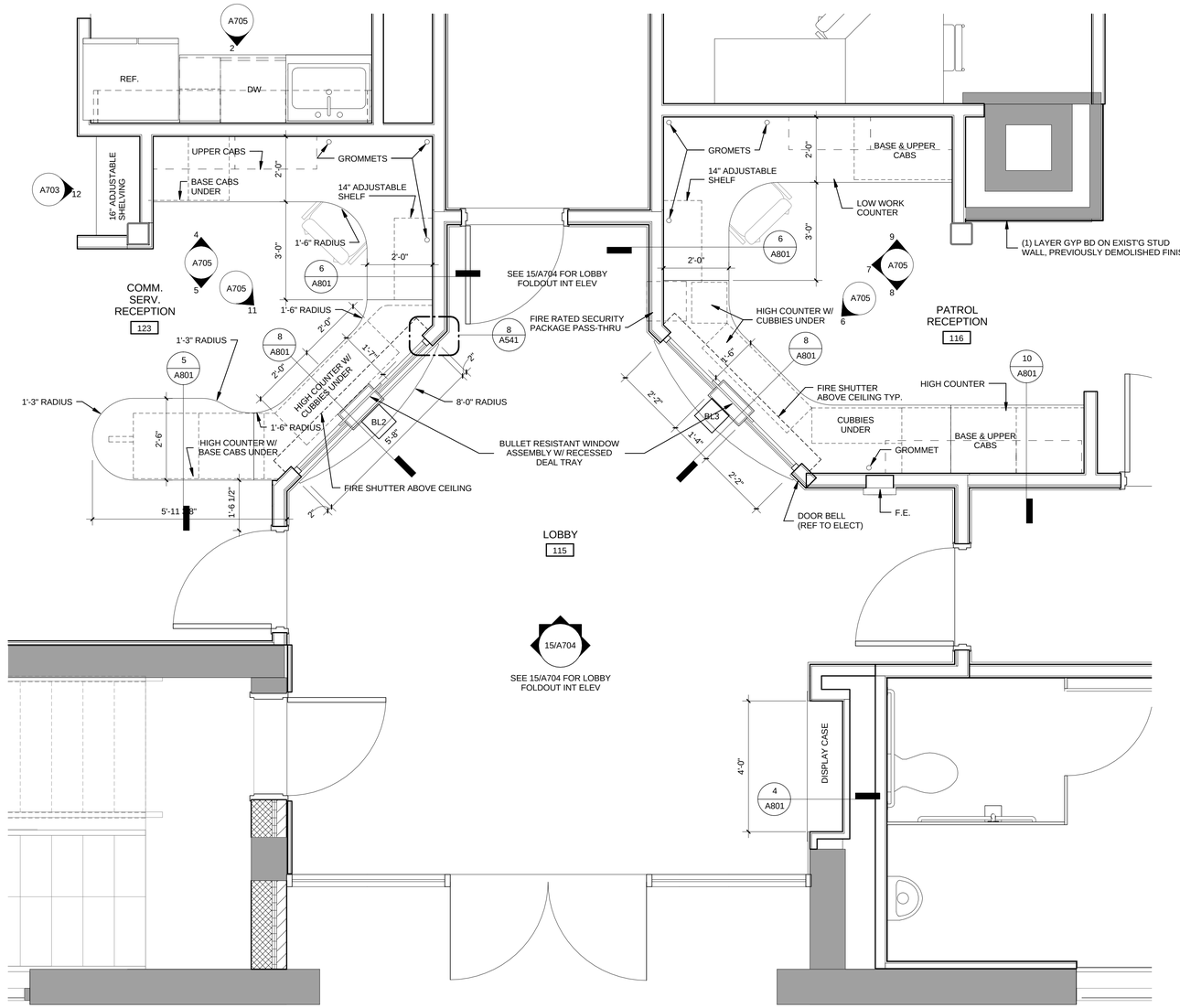
PROJECT FILE: C:\Users\MRogoff\Documents\19401-Waltham Police Station-ARCHITECTURE_MRogoff.rvt

BOOKING COUNTER ISOMETRIC VIEW



1 ENLARGED BOOKING AREA PLAN
SCALE: 1/2" = 1'-0"



2 ENLARGED LOBBY/RECEPTION AREA
SCALE: 1/2" = 1'-0"

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Number	Description	Date

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

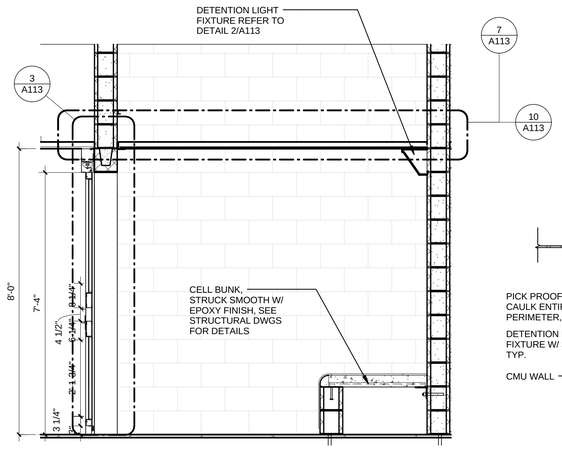
ENLARGED FLOOR PLANS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: JR, R
CHECKED BY: FC
DATE: July 11, 2014
SCALE: 1/2" = 1'-0"

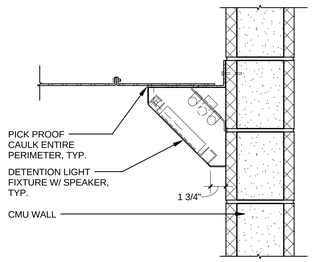
SHEET NUMBER:

A112

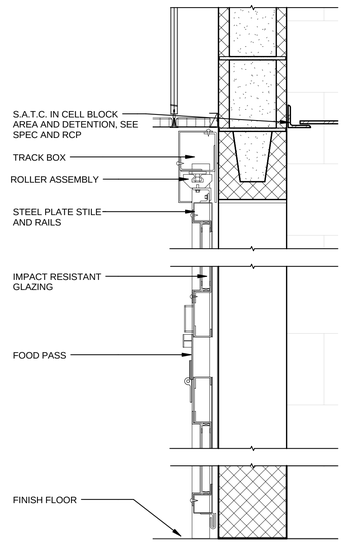
SHEET 44 **OF** 157



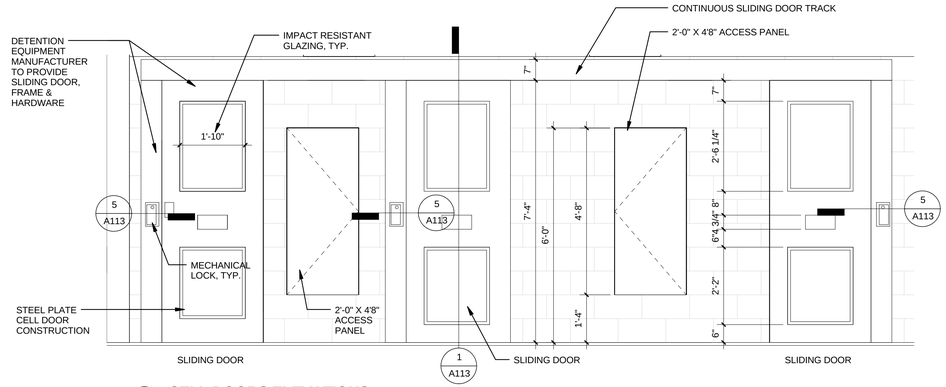
1 SECTION AT TYPICAL CELL
SCALE: 1/2" = 1'-0"



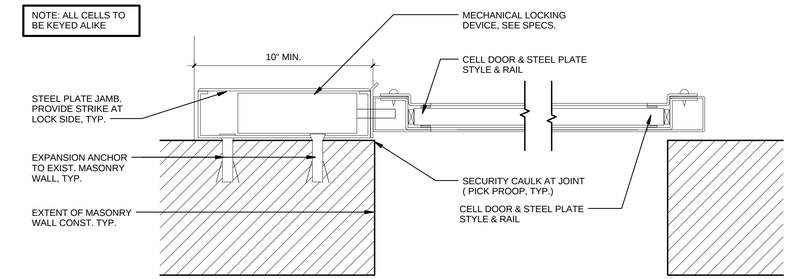
2 DETENTION LIGHT FIXTURE
SCALE: 1 1/2" = 1'-0"



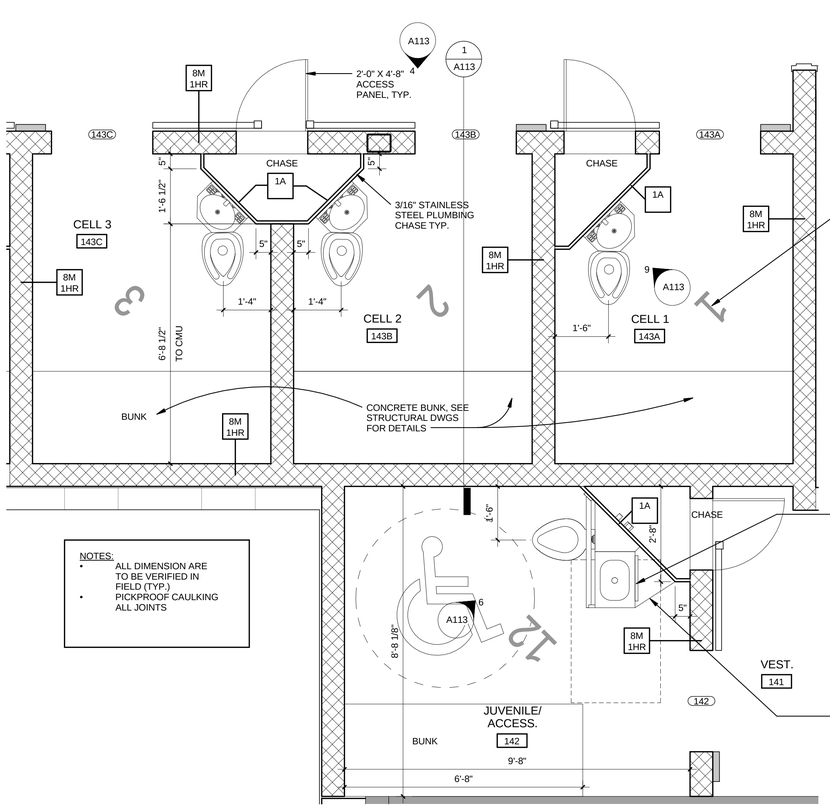
3 CELL DOOR LOCK SECTION
SCALE: 1 1/2" = 1'-0"



4 CELL DOORS ELEVATIONS
SCALE: 1/2" = 1'-0"



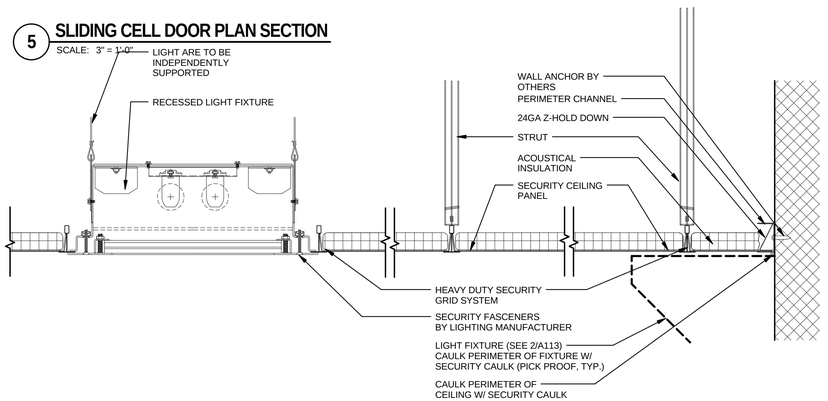
5 SLIDING CELL DOOR PLAN SECTION
SCALE: 3" = 1'-0"



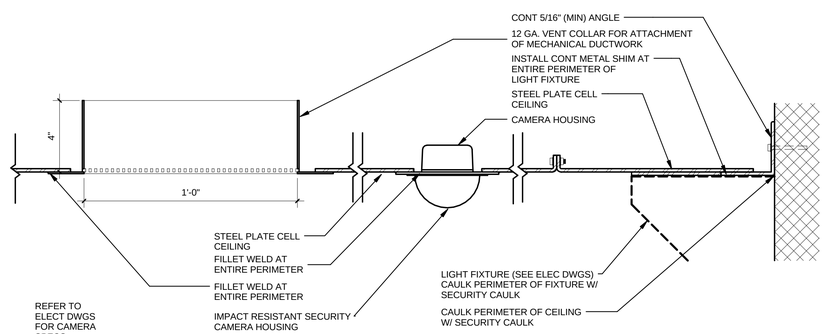
8 TYPICAL CELL LAYOUT PLAN
SCALE: 1/2" = 1'-0"

6 ACCESSIBLE CELL TYP. ELEV.
SCALE: 1/2" = 1'-0"

9 TYPICAL CELL ELEVATION
SCALE: 1/2" = 1'-0"



7 SECURITY CEILING SECTION AT BOOKING AREA
SCALE: 3" = 1'-0"



10 TYPICAL STEEL CEILING SECTION
SCALE: 3" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ENLARGED CELL PLANS ELEVATIONS & DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: LR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A113

SHEET 45 **OF** 157

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PLOTTED: 7/14/2014 6:21:01 PM

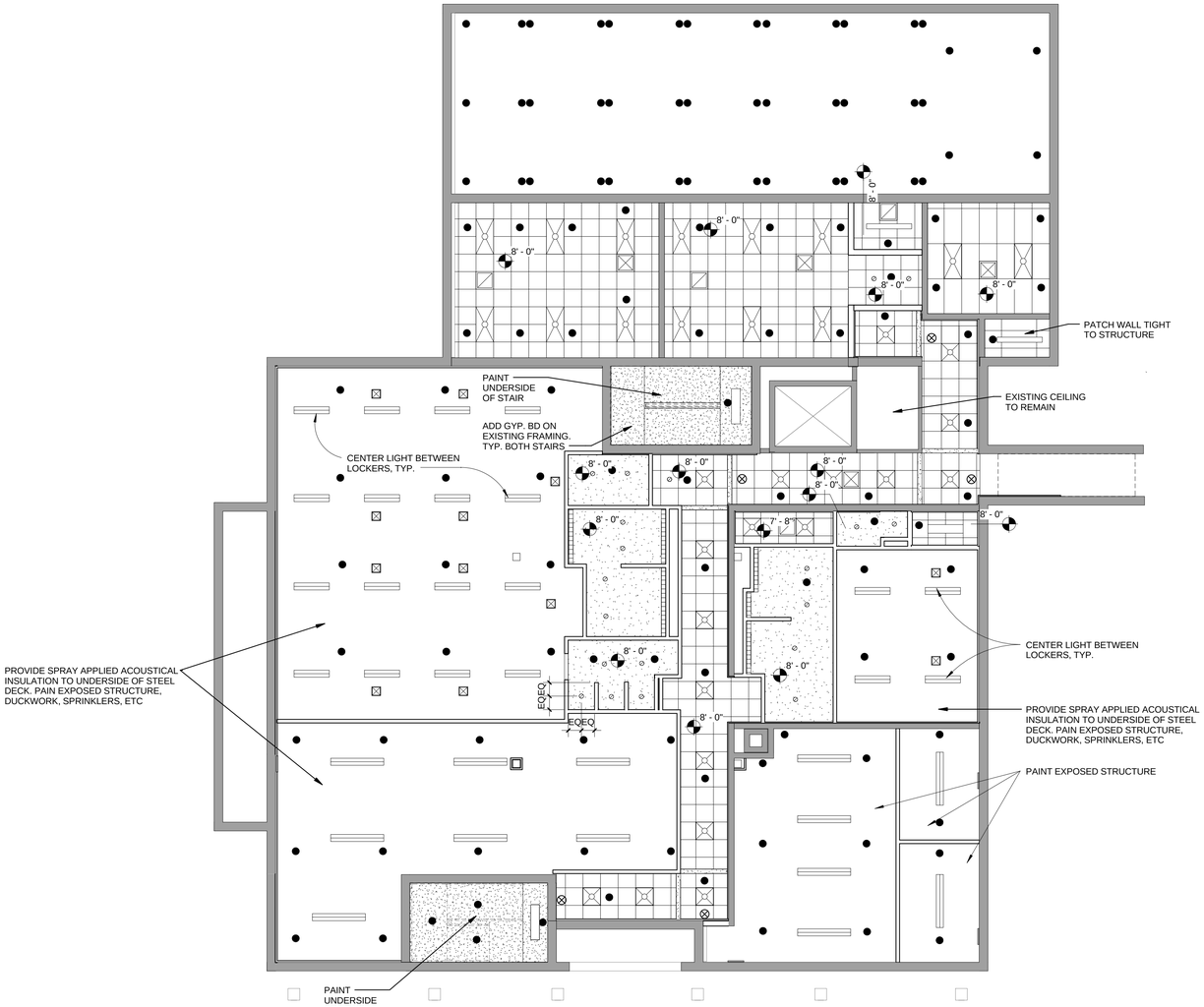
PROJECT FILE: C:\Users\MRogoff\Documents\19401-Waltham Police Station-ARCHITECTURE_MRogoff.rvt

RCP FINISH LEGEND

- 2'X4' SUSPENDED ACT CEILING
- GYPSUM BOARD CEILING / SOFFIT
- 2'X2' SECURITY CEILING
- STEEL PLATE CELL CEILING
- 2X2 RECESSED LIGHT FIXTURE. (SEE ELEC.)
- 2X4 RECESSED LIGHT FIXTURE. (SEE ELEC.)
- TUBE STRIP SURFACE MOUNTED LIGHT FIXTURE (SEE ELEC.)
- PENDANT LIGHT FIXTURE. (SEE ELEC.)
- SURFACE MOUNTED LIGHT FIXTURE (SEE ELEC.)
- RECESSED SOFFIT LIGHT
- RECESSED CAN LIGHT
- RECESSED LIGHT FIXTURE
- EXIT SIGN. (SEE ELEC.)
- SPEAKERS (SEE TD DRAWINGS.)
- SPRINKLER HEADS (SEE FIRE SUPPRESSION)
- MECHANICAL DIFFUSER / REGISTER. (SEE MECH.)
- MECHANICAL DIFFUSER / REGISTER. (SEE MECH.)

GENERAL RCP NOTES

1. NOT ALL CEILING MOUNTED ITEMS MAY BE SHOWN. CONTRACTOR TO COORDINATE w/ STRUCTURAL, PLUMBING, MECHANICAL, ELECTRICAL & I.T. DRAWINGS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE STARTING WORK.
2. ALL CEILING MOUNTED ITEMS ARE TO BE CENTERED IN CEILING TILES UNLESS NOTED OTHERWISE.
3. SPRINKER HEAD LAYOUT IS APPROXIMATE AND NOT ALL HEADS MAY BE SHOWN. COORDINATE W/ SPRINKLER DWGS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE STARTING WORK.
4. PROVIDE WHITE GROMMET TRIM @ ALL SUPPORT CABLE PENETRATIONS FOR SUSPENDED ELEMENTS.
5. ALL EXPOSED PIPING UTILITIES, HVAC SHALL BE PAINTED IN EXPOSED CEILING AREAS.
6. SEE SHEET A581 FOR TYPICAL CEILING DETAILS.
7. REFER TO ELECTRICAL DRAWINGS FOR LIGHT LOCATIONS.



1 **BASEMENT LEVEL REFLECTED CEILING PLAN**
SCALE: 1/8" = 1'-0"

0' 4' 8' 16'

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WALTHAM POLICE STATION RENOVATION

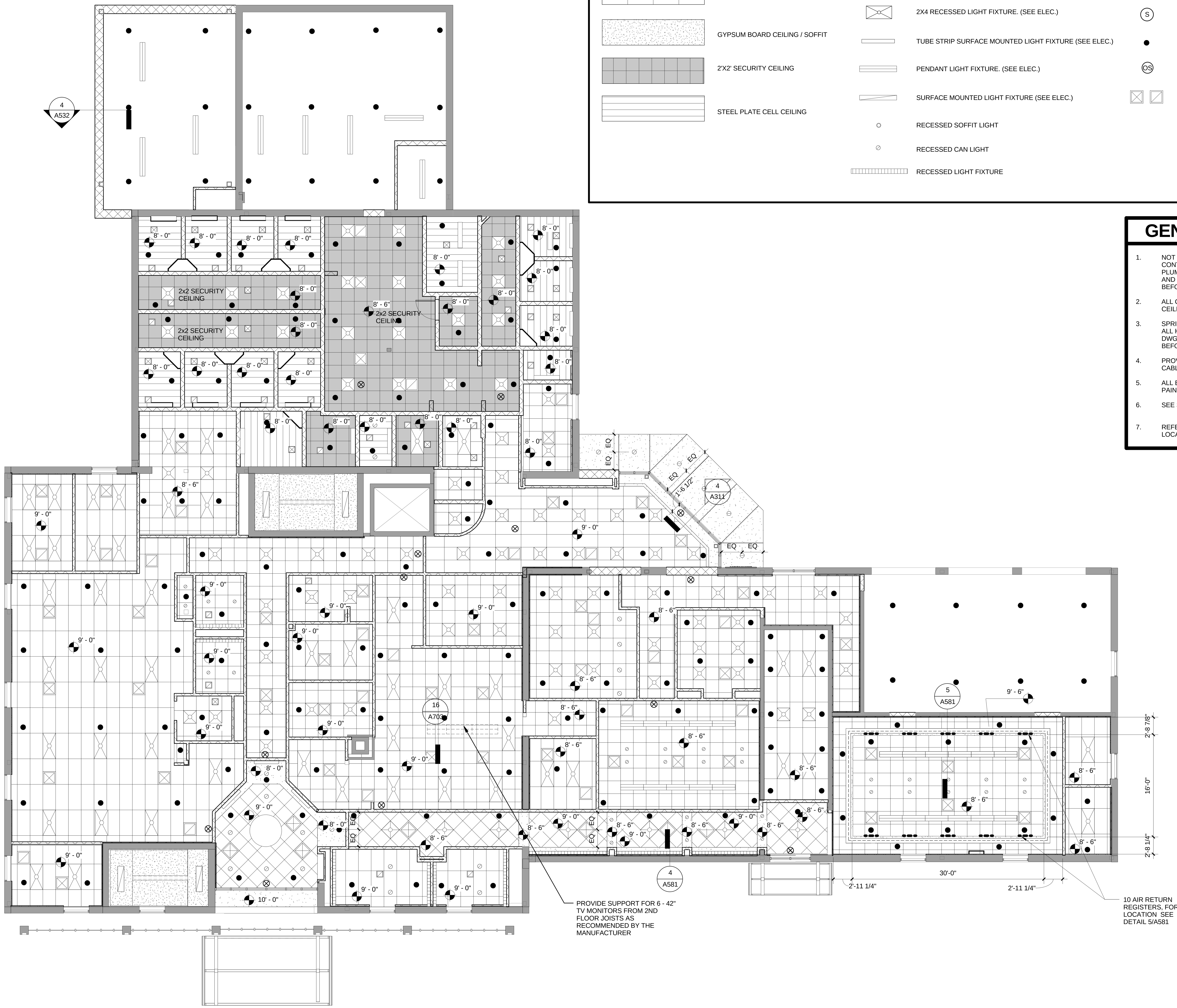
155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

BASEMENT FLOOR REFLECTED CEILING PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM, LR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A120



1 FIRST FLOOR REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"

0' 4' 8' 16'

RCP FINISH LEGEND

- 2'X4' SUSPENDED ACT CEILING
- GYPSUM BOARD CEILING / SOFFIT
- 2'X2' SECURITY CEILING
- STEEL PLATE CELL CEILING
- 2X2 RECESSED LIGHT FIXTURE. (SEE ELEC.)
- 2X4 RECESSED LIGHT FIXTURE. (SEE ELEC.)
- TUBE STRIP SURFACE MOUNTED LIGHT FIXTURE (SEE ELEC.)
- PENDANT LIGHT FIXTURE. (SEE ELEC.)
- SURFACE MOUNTED LIGHT FIXTURE (SEE ELEC.)
- RECESSED SOFFIT LIGHT
- RECESSED CAN LIGHT
- RECESSED LIGHT FIXTURE
- EXIT SIGN. (SEE ELEC.)
- SPEAKERS (SEE TD DRAWINGS.)
- SPRINKLER HEADS (SEE FIRE SUPPRESSION)
- MECHANICAL DIFFUSER / REGISTER. (SEE MECH.)
- MECHANICAL DIFFUSER / REGISTER. (SEE MECH.)

GENERAL RCP NOTES

1. NOT ALL CEILING MOUNTED ITEMS MAY BE SHOWN. CONTRACTOR TO COORDINATE w/ STRUCTURAL, PLUMBING, MECHANICAL, ELECTRICAL & I.T. DRAWINGS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE STARTING WORK.
2. ALL CEILING MOUNTED ITEMS ARE TO BE CENTERED IN CEILING TILES UNLESS NOTED OTHERWISE.
3. SPRINKER HEAD LAYOUT IS APPROXIMATE AND NOT ALL HEADS MAY BE SHOWN. COORDINATE W/ SPRINKLER DWGS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE STARTING WORK.
4. PROVIDE WHITE GROMMET TRIM @ ALL SUPPORT CABLE PENETRATIONS FOR SUSPENDED ELEMENTS.
5. ALL EXPOSED PIPING UTILITIES, HVAC SHALL BE PAINTED IN EXPOSED CEILING AREAS.
6. SEE SHEET A581 FOR TYPICAL CEILING DETAILS.
7. REFER TO ELECTRICAL DRAWINGS FOR LIGHT LOCATIONS.

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REVISIONS		
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ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

FIRST FLOOR REFLECTED CEILING PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM, LR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:
A121

SHEET 47 OF 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:
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PLOTTED: 7/14/2014 5:21:58 PM

PROJECT FILE: C:\Users\MRogoff\Documents\19401-Waltham Police Station-ARCHITECTURE_MRogoff.rvt

RCP FINISH LEGEND

2'X4' SUSPENDED ACT CEILING	2X2 RECESSED LIGHT FIXTURE. (SEE ELEC.)	⊗	EXIT SIGN. (SEE ELEC.)
GYPSUM BOARD CEILING / SOFFIT	2X4 RECESSED LIGHT FIXTURE. (SEE ELEC.)	S	SPEAKERS (SEE TD DRAWINGS.)
2'X2' SECURITY CEILING	TUBE STRIP SURFACE MOUNTED LIGHT FIXTURE (SEE ELEC.)	●	SPRINKLER HEADS (SEE FIRE SUPPRESSION)
STEEL PLATE CELL CEILING	PENDANT LIGHT FIXTURE. (SEE ELEC.)	DS	MECHANICAL DIFFUSER / REGISTER. (SEE MECH.)
	SURFACE MOUNTED LIGHT FIXTURE (SEE ELEC.)		MECHANICAL DIFFUSER / REGISTER. (SEE MECH.)
	RECESSED SOFFIT LIGHT		
	RECESSED CAN LIGHT		
	RECESSED LIGHT FIXTURE		

GENERAL RCP NOTES

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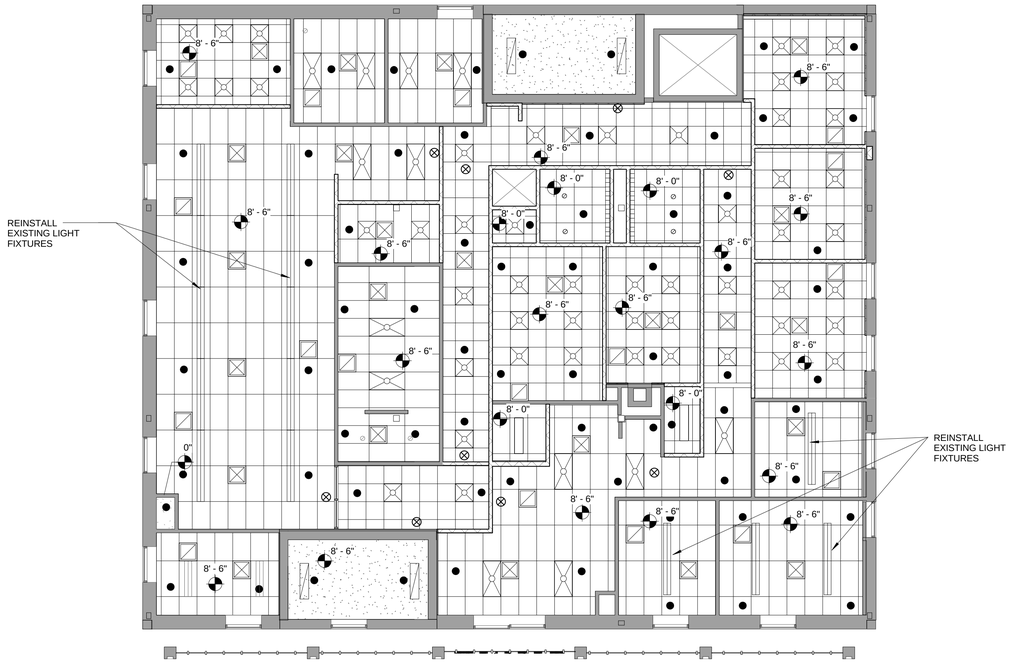
4. PROVIDE WHITE GROMMET TRIM @ ALL SUPPORT CABLE PENETRATIONS FOR SUSPENDED ELEMENTS.
5. ALL EXPOSED PIPING UTILITIES, HVAC SHALL BE PAINTED IN EXPOSED CEILING AREAS.
6. SEE SHEET A581 FOR TYPICAL CEILING DETAILS.
7. REFER TO ELECTRICAL DRAWINGS FOR LIGHT LOCATIONS.



1 **SECOND FLOOR RCP**
SCALE: 1/8" = 1'-0"

0' 4' 8' 16'

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECOND FLOOR RCP

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM, LR
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A122

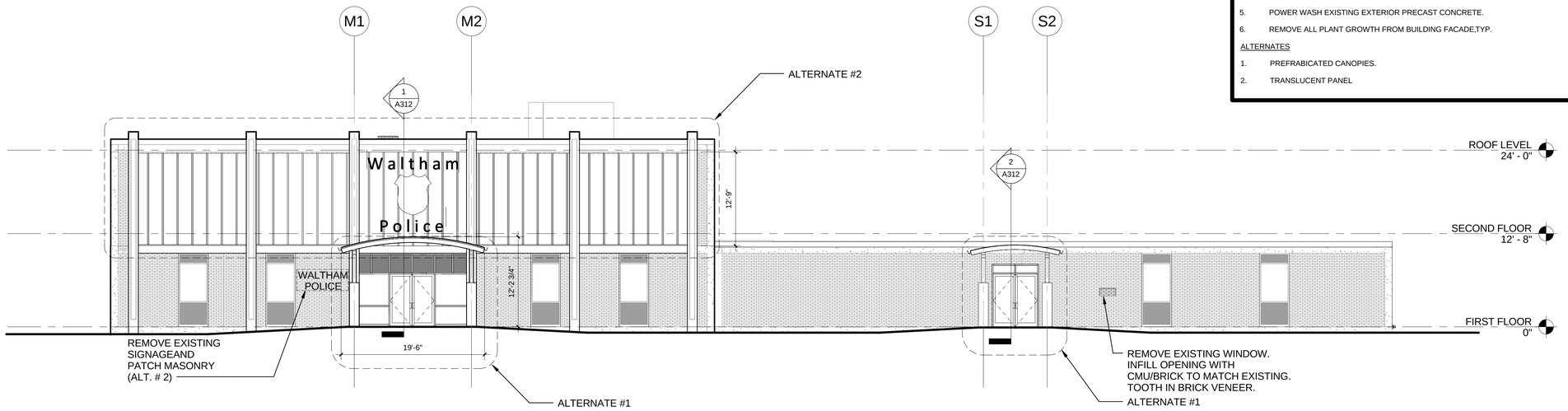
SHEET 48 **OF** 157

EXTERIOR ELEVATION NOTES

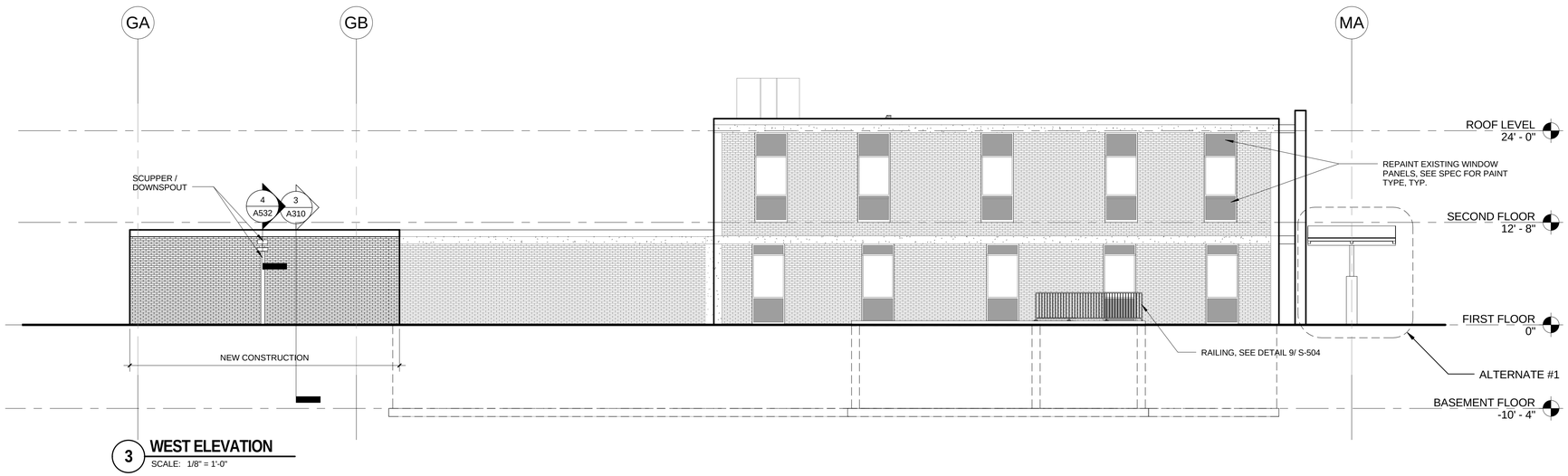
1. REPAIR & PAINT ALL EXISTING WINDOW FRAMES/ SOLID PANELS AND STEEL LINTELS.
2. REMOVE AND REPLACE ALL EXISTING SEALANT JOINTS AROUND PENETRATIONS, DOORS, WINDOWS, AND BETWEEN BRICK AND PRECAST CONCRETE.
3. CLEAN ALL EXISTING EXTERIOR BRICK, SURFACES AS PER SPECIFICATIONS.
4. REPOINT EXISTING DETERIORATED BRICK MORTAR AS PER SPECIFICATIONS. INCLUDE AN ALLOWANCE OF 30% OF THE EXISTING MORTAR QUANTITY.
5. POWER WASH EXISTING EXTERIOR PRECAST CONCRETE.
6. REMOVE ALL PLANT GROWTH FROM BUILDING FACADE,TYP.

ALTERNATES

1. PREFRABICATED CANOPIES.
2. TRANSLUCENT PANEL



1 **SOUTH ELEVATION**
SCALE: 1/8" = 1'-0"



3 **WEST ELEVATION**
SCALE: 1/8" = 1'-0"

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Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

EXTERIOR ELEVATION

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM, LR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A201

SHEET 49 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:22:06 PM

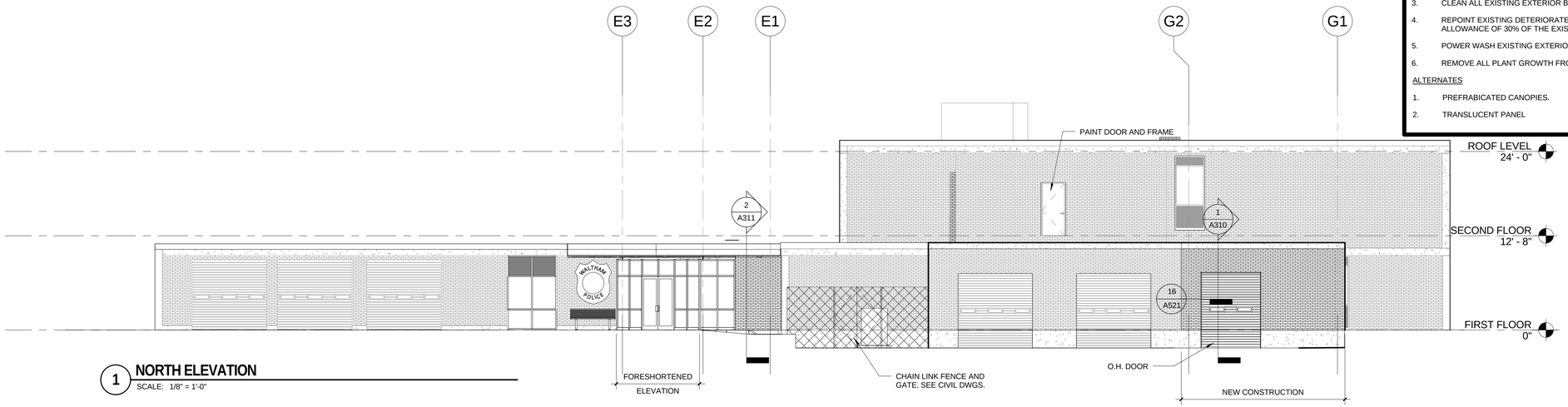
PROJECT FILE: C:\Users\MMcgoff\Documents\19401-Waltham Police Station-ARCHITECTURE_MMcgoff.rvt

EXTERIOR ELEVATION NOTES

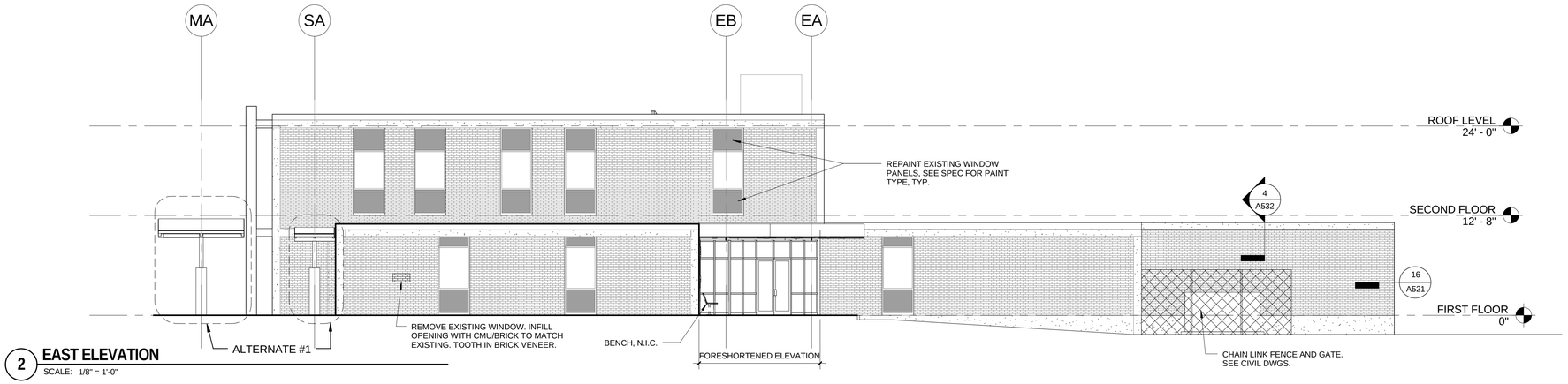
1. REPAIR & PAINT ALL EXISTING WINDOW FRAMES/ SOLID PANELS AND STEEL LINTELS.
2. REMOVE AND REPLACE ALL EXISTING SEALANT JOINTS AROUND PENETRATIONS, DOORS, WINDOWS, AND BETWEEN BRICK AND PRECAST CONCRETE.
3. CLEAN ALL EXISTING EXTERIOR BRICK, SURFACES AS PER SPECIFICATIONS.
4. REPOINT EXISTING DETERIORATED BRICK MORTAR AS PER SPECIFICATIONS. INCLUDE AN ALLOWANCE OF 30% OF THE EXISTING MORTAR QUANTITY.
5. POWER WASH EXISTING EXTERIOR PRECAST CONCRETE.
6. REMOVE ALL PLANT GROWTH FROM BUILDING FACADE,TYP.

ALTERNATES

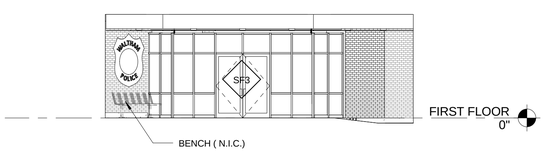
1. PREFRABICATED CANOPIES.
2. TRANSLUCENT PANEL



1 NORTH ELEVATION
SCALE: 1/8" = 1'-0"



2 EAST ELEVATION
SCALE: 1/8" = 1'-0"



3 STAFF ENTRY ELEVATION NORTHEAST
SCALE: 1/8" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

EXTERIOR ELEVATION

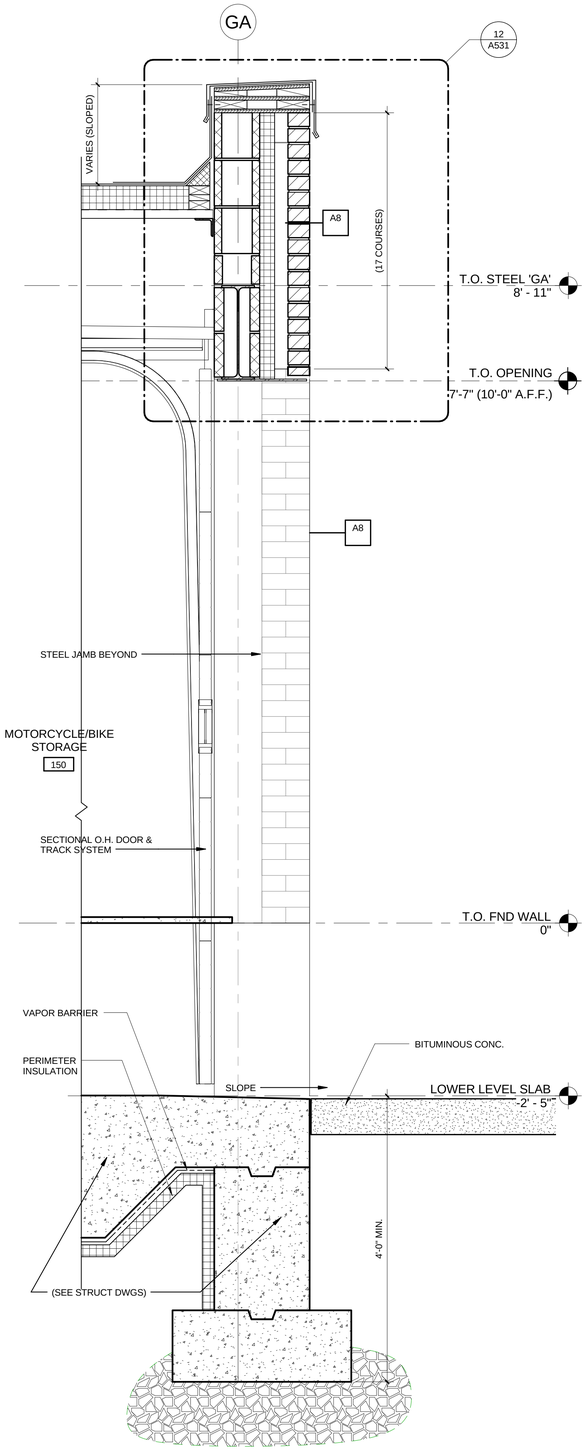
PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM, LR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A202

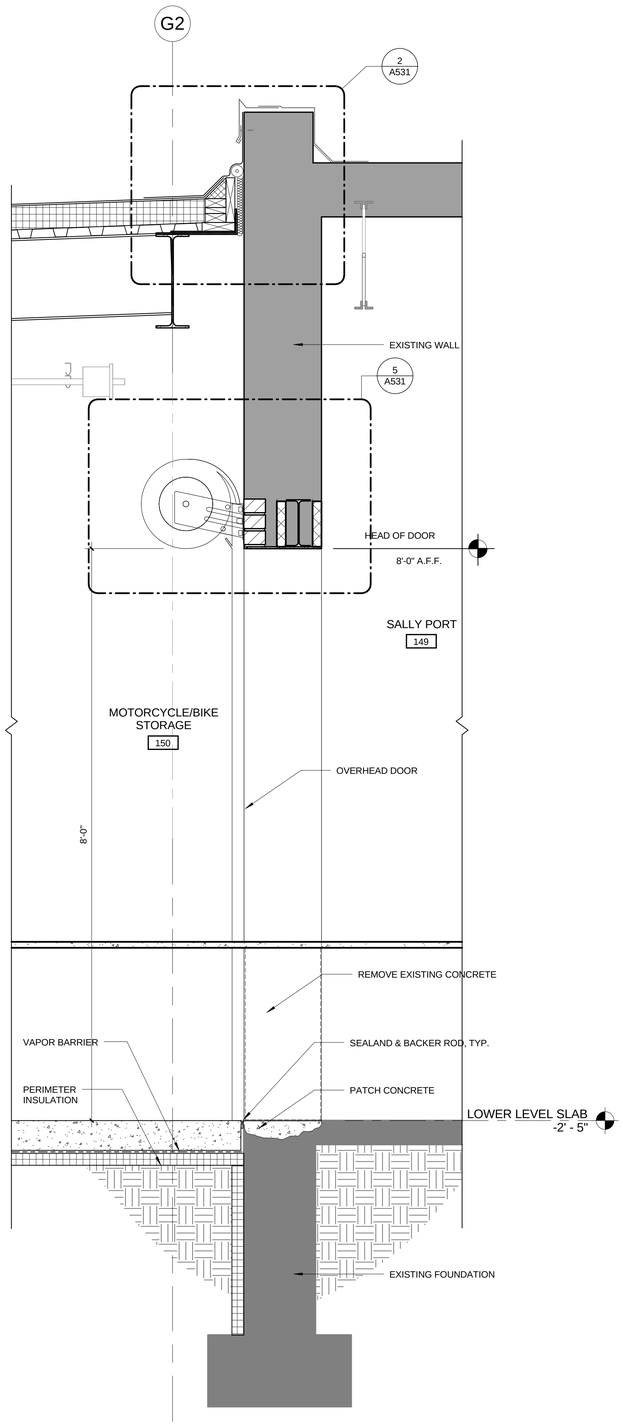
SHEET 50 **OF** 157

PROJECT FILE: C:\Users\MRogoff\Documents\19401-Waltham Police Station-ARCHITECTURE_MRogoff.rvt
PLOTTED: 7/14/2014 5:22:13 PM



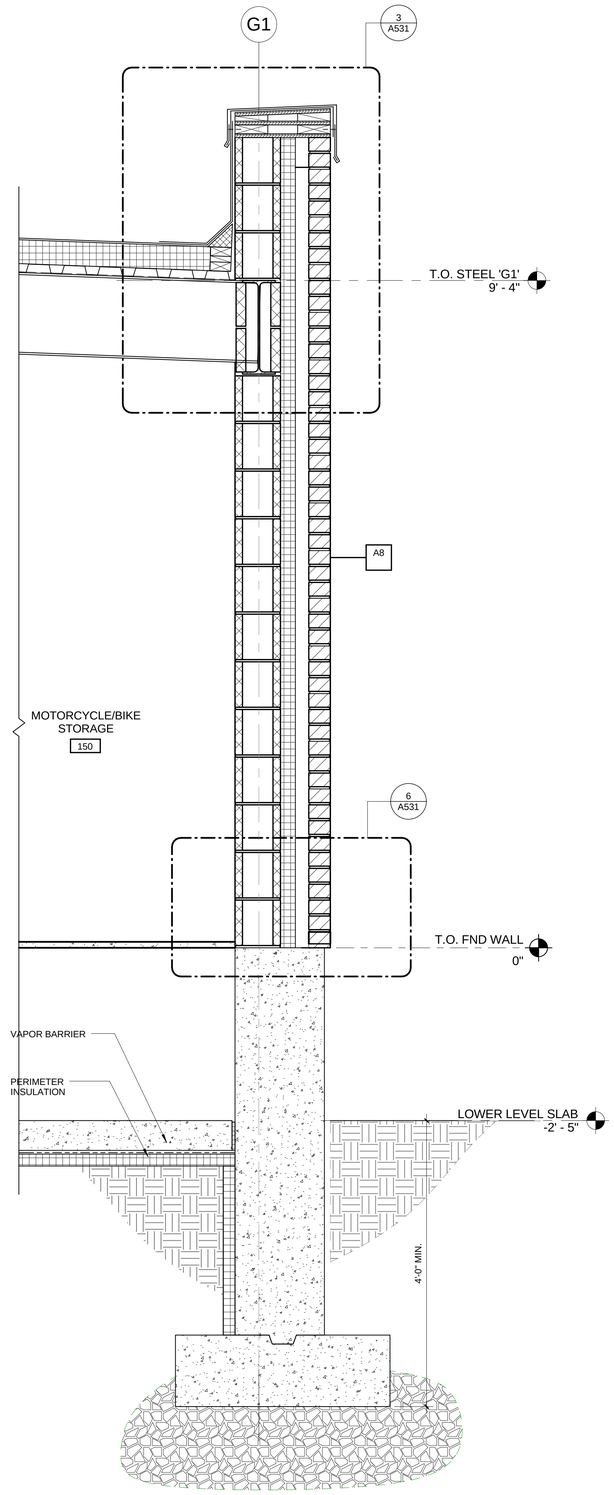
1 MOTORCYCLE/ BIKE STORAGE DOOR SECTION

SCALE: 1" = 1'-0"



2 OH DOOR SECTION

SCALE: 1" = 1'-0"



3 MOTORCYCLE/ BIKE STORAGE EXTERIOR WALL

SCALE: 1" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

TYP. WALL SECTIONS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: JR, LR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: 1" = 1'-0"

SHEET NUMBER:

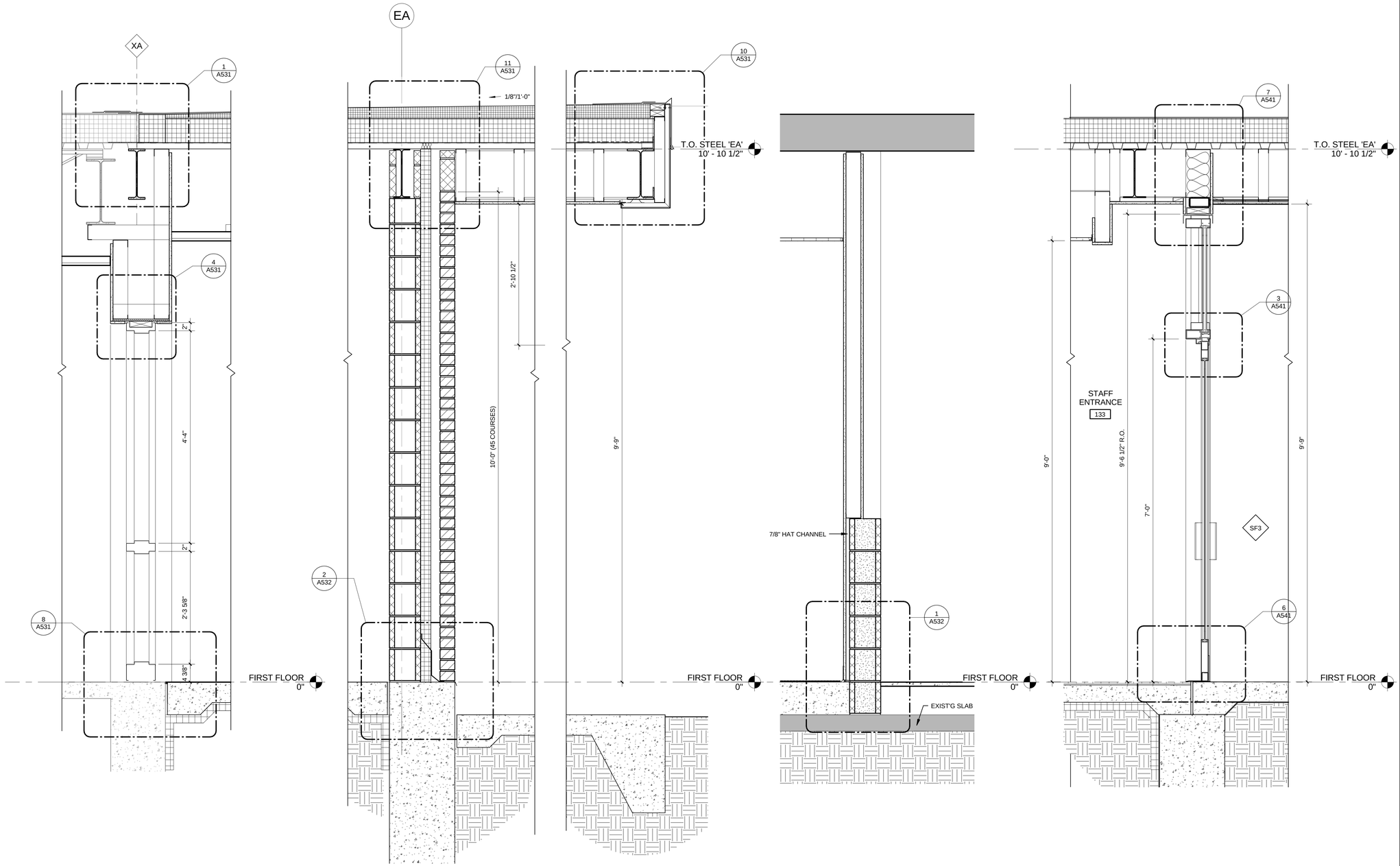
A310

SHEET 51 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:22:16 PM

PROJECT FILE: C:\Users\MRogo\Documents\19401-Waltham Police Station-ARCHITECTURE_MRogo.rvt



1 **SECTION THRU STAFF ENTRNACE SOUTH WALL**
SCALE: 1" = 1'-0"

2 **SECTION THRU STAFF ENTRANCE NORTH WALL**
SCALE: 1" = 1'-0"

3 **VEHICLE BAY STACKED WALL**
SCALE: 1" = 1'-0"

4 **STAFF ENTRY WALL SECTION**
SCALE: 1" = 1'-0"

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

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PROJECT FILE: C:\Users\MRoyal\Documents\19401-Waltham Police Station-ARCHITECTURE_MRoyal.rvt

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

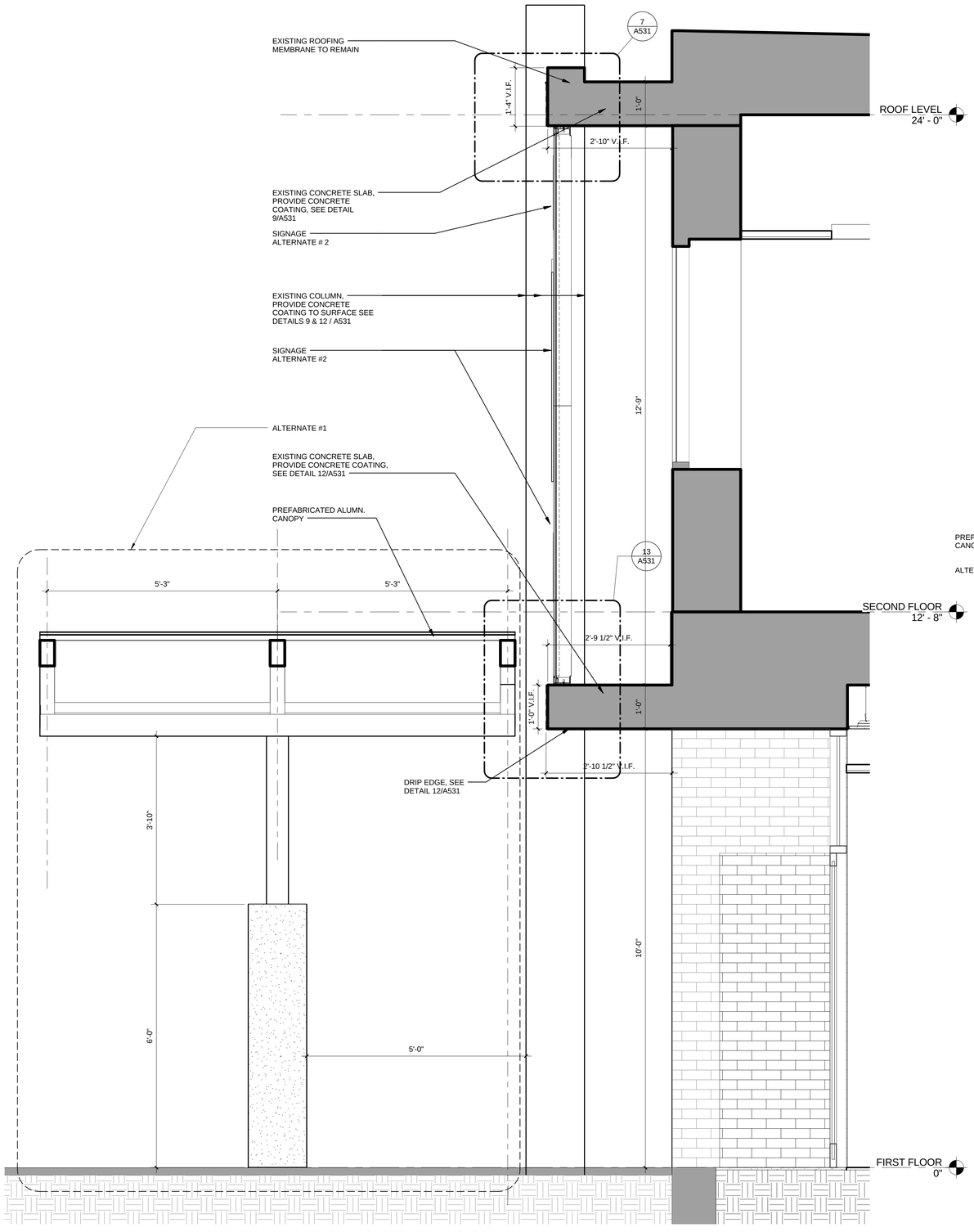
TYP. WALL SECTIONS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: JR, LR
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: 1" = 1'-0"

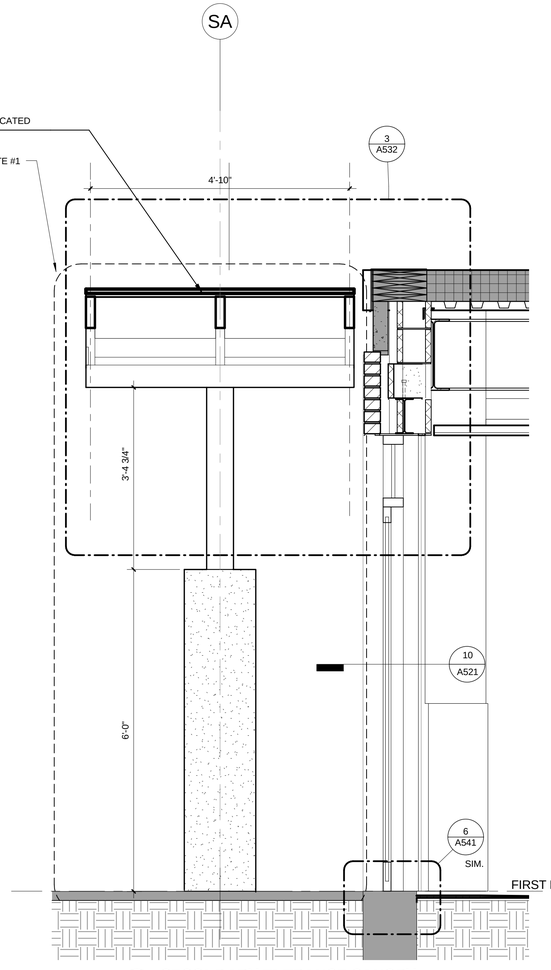
SHEET NUMBER:

A311

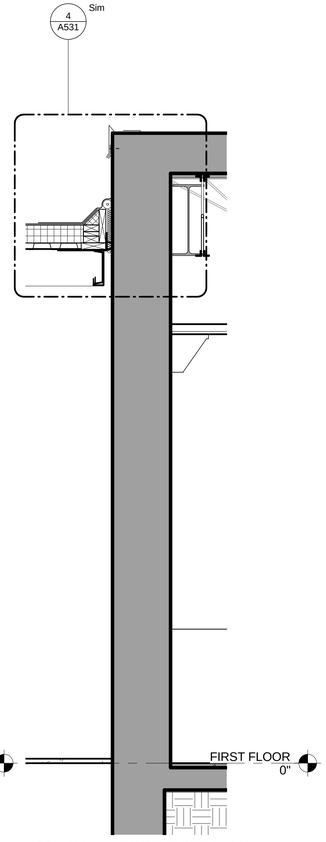
SHEET 52 **OF** 157



1 **SECTION THROUGH MAIN ENTRANCE & FRONT CANOPY**
SCALE: 3/4" = 1'-0"



2 **SECONDARY ENTRANCE CANOPY**
SCALE: 3/4" = 1'-0"



3 **SALLYPORT EXISTING WALL**
SCALE: 3/4" = 1'-0"

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Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

TYP. WALL SECTIONS

PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: LR
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: 3/4" = 1'-0"

SHEET NUMBER:

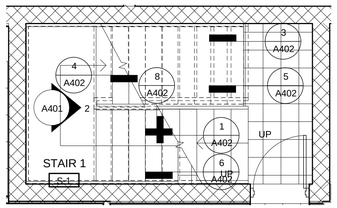
A312

SHEET 53 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

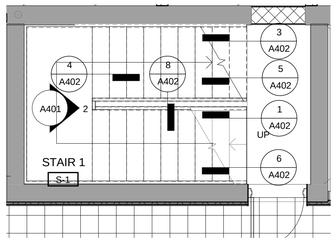
PLOTTED: 7/15/2014 8:23:46 AM

PROJECT FILE: C:\Users\lluis.rodouret\Documents\19401 Waltham Police Station-ARCHITECTURE_luis.rodouret.rvt



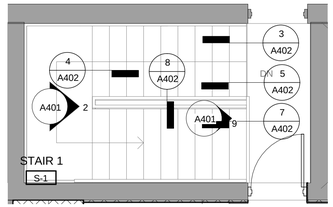
1 ENLARGED STIAR 1 BASEMENT PLAN - EL-10'-4"

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



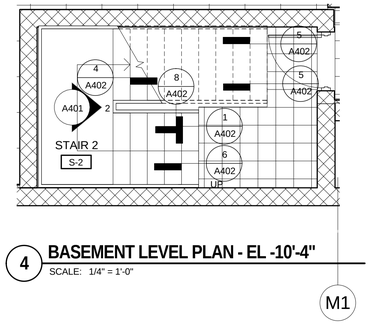
2 ENLARGED STAIR 1 FIRST FLOOR PLAN - EL 0'-0"

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



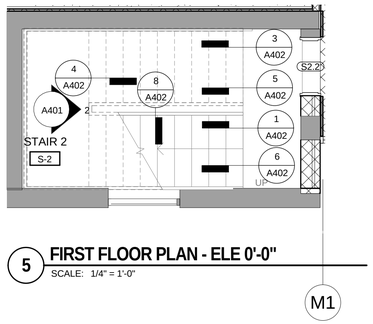
3 ENLARGED STAIR 1 SECOND FLOOR PLAN - EL 12'-8"

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



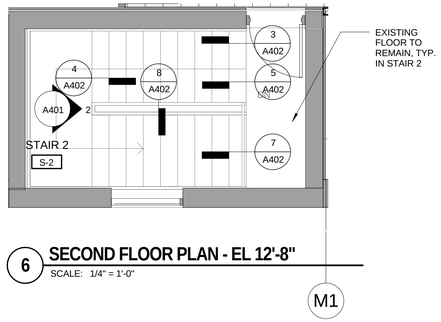
4 BASEMENT LEVEL PLAN - EL -10'-4"

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



5 FIRST FLOOR PLAN - ELE 0'-0"

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

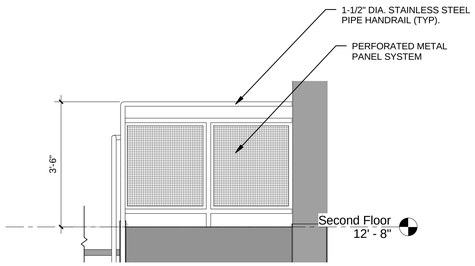


6 SECOND FLOOR PLAN - EL 12'-8"

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

STAIR NOTES

1. REMOVE EXISTING GUARDRAILS AND HANDRAILS.
2. NEW GUARDRAILS AND HANDRAILS, SEE DETAILS ON A402
3. REMOVE DOOR, PATCH MASONRY.
4. PAINT CMU, POLYMIX, SEE SPECIFICATIONS.
5. REFINISH TERRAZO FLOORING / TREADS IN STAIR 2
6. NEW GWB CEILING AND UNDERSIDE OF STAIR.
7. PAINT UNDERSIDE OF STAIR.
8. PAINT DOORS & WINDOW FRAME.



9 TYP. STAIR RAIL ELEVATION

SCALE: 1/2" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

STAIR PLAN, SECTIONS, DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A401

SHEET 54 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

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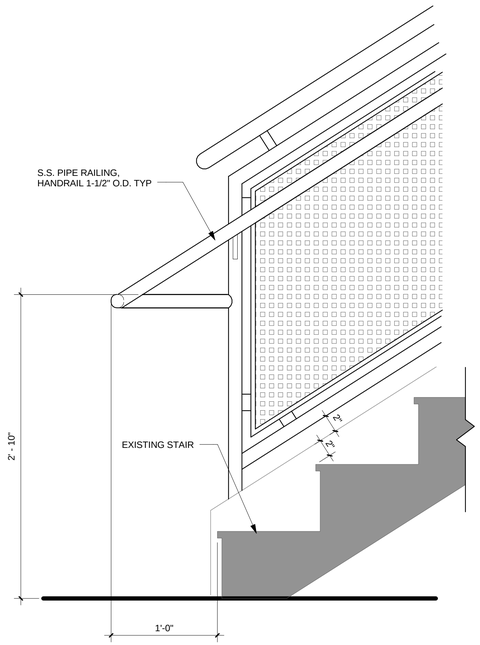
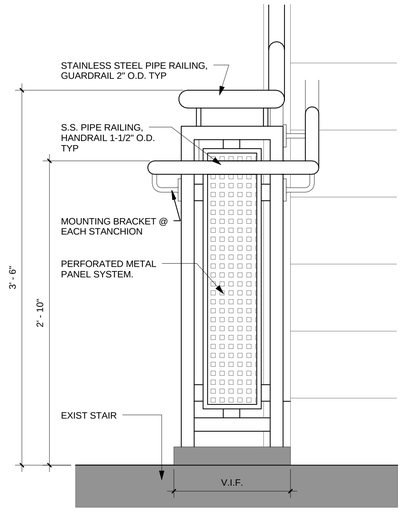
PROJECT FILE: C:\Users\MMcgoff\Documents\19401-Waltham Police Station-ARCHITECTURE_MMcgoff.rvt



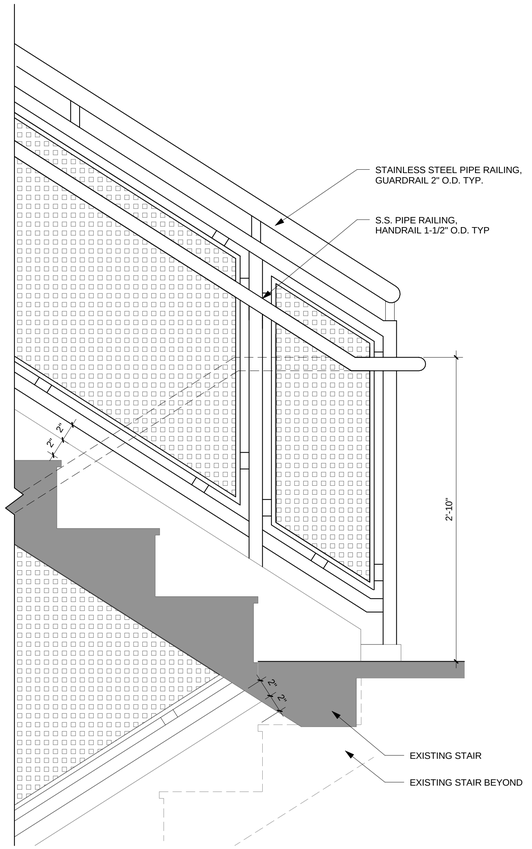
1 TYP. STAIR BOTTOM

SCALE: 1 1/2" = 1'-0"



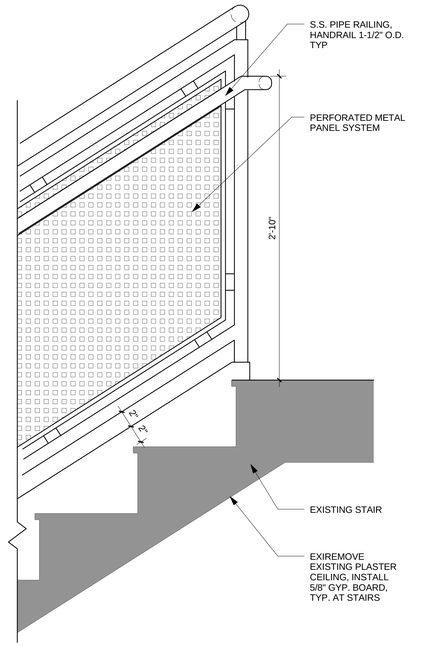
2 TYP. STAIR RAIL RETURN

SCALE: 1 1/2" = 1'-0"



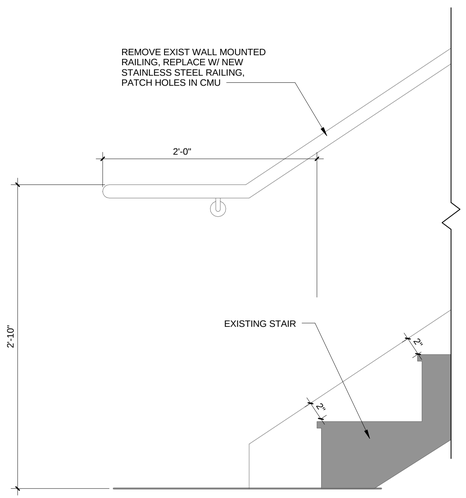
4 TYP. STAIR INTERMEDIATE

SCALE: 1 1/2" = 1'-0"



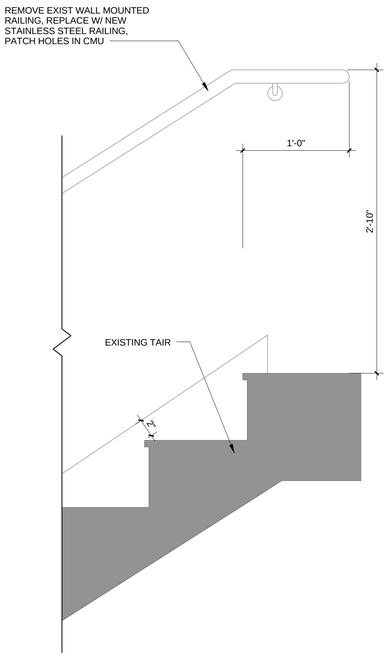
5 TYP. STAIR TOP

SCALE: 1 1/2" = 1'-0"



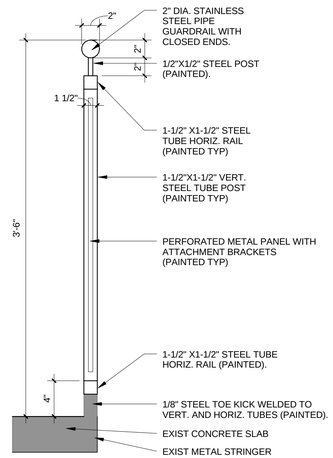
6 TYP. STAIR BOTTOM - HANDRAIL

SCALE: 1 1/2" = 1'-0"



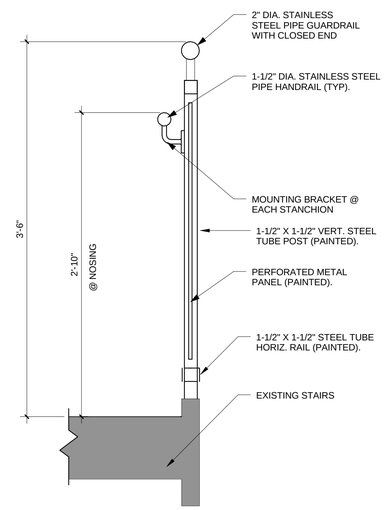
3 TYP. STAIR TOP - HANDRAIL

SCALE: 1 1/2" = 1'-0"



7 TYP. GUARD RAIL

SCALE: 1 1/2" = 1'-0"



8 TYP. CHANNEL STRINGER

SCALE: 1 1/2" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

STAIR PLAN, SECTIONS, DETAILS

PROJECT NUMBER:	19401.01
DESIGNED BY:	FC
DRAWN BY:	EKM
CHECKED BY:	Checker
DATE:	July 11, 2014
SCALE:	1 1/2" = 1'-0"

SHEET NUMBER:

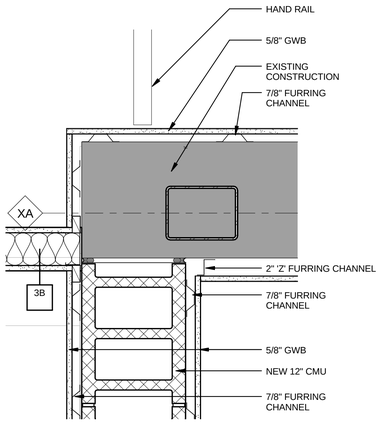
A402

SHEET 55 OF 157

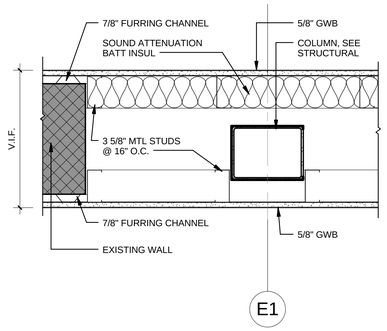
REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:22:25 PM

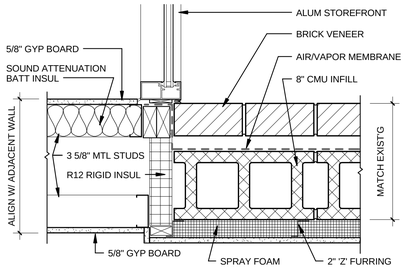
PROJECT FILE: C:\Users\MRogo\Documents\19401-Waltham Police Station-ARCHITECTURE_MRogo.rvt



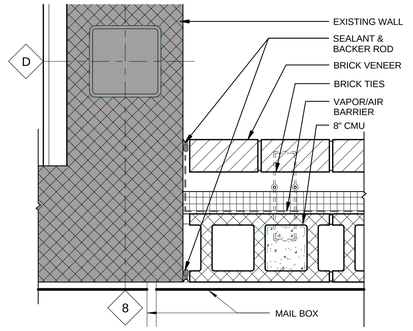
1 COLUMN DETAIL AT STAIR
SCALE: 1 1/2" = 1'-0"



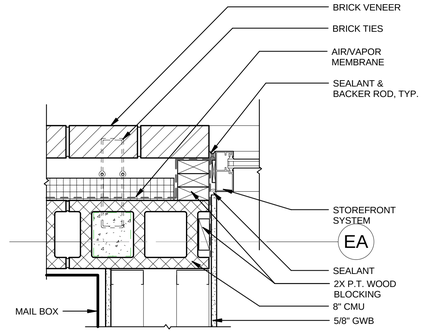
2 COLUMN DETAIL @ STAIR WALL
SCALE: 1 1/2" = 1'-0"



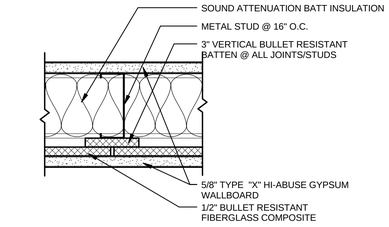
3 PLAN DETAIL @ STAFF ENTRANCE
SCALE: 1 1/2" = 1'-0"



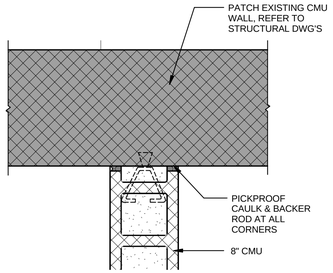
4 STAFF ENTRY WALL
SCALE: 1 1/2" = 1'-0"



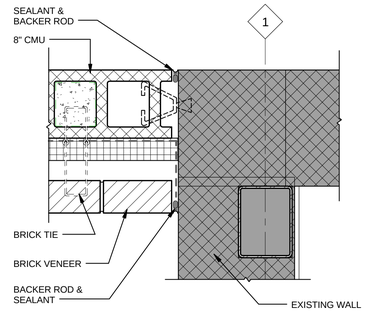
5 STAFF ENTRY PLAN DETAIL
SCALE: 1 1/2" = 1'-0"



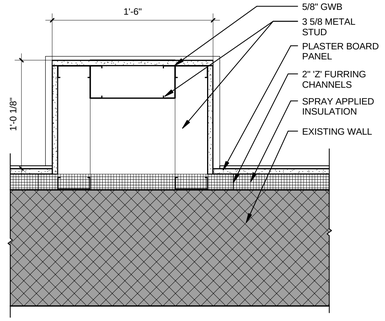
6 WALL TYPE 3Bx PLAN DETAIL
SCALE: 3" = 1'-0"



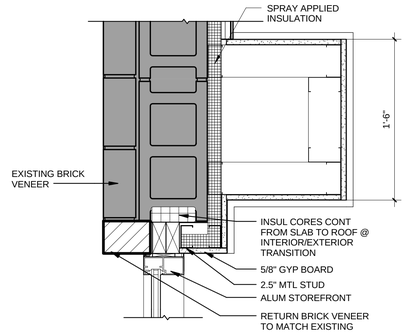
7 PLAN DETAIL AT CELL'S CMU
SCALE: 1 1/2" = 1'-0"



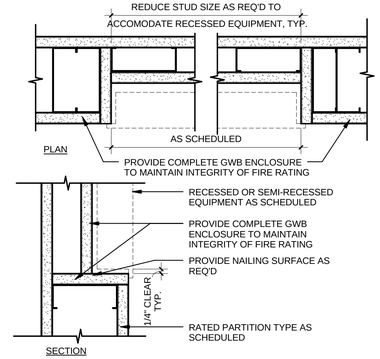
8 CELL WALL CMU CORNER1
SCALE: 1 1/2" = 1'-0"



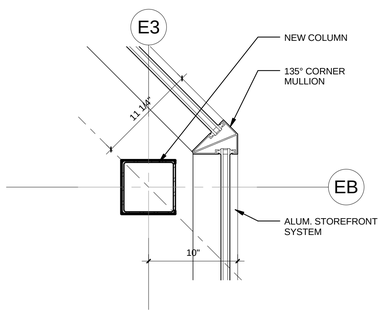
9 CORRIDOR PILASTER PLAN DETAIL
SCALE: 1 1/2" = 1'-0"



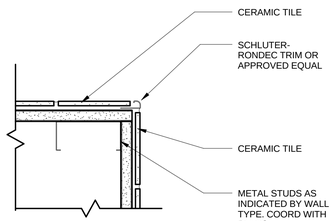
10 SECONDARY ENTRANCE JAMB
SCALE: 1 1/2" = 1'-0"



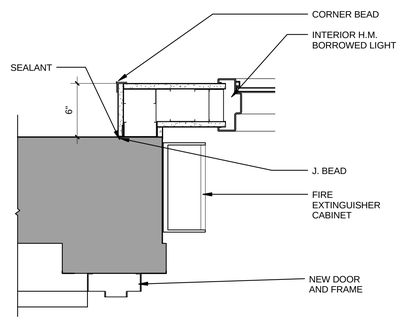
11 DETAIL @ RECESSED EQPT. @ 1HR RATED WALL
SCALE: 3" = 1'-0"



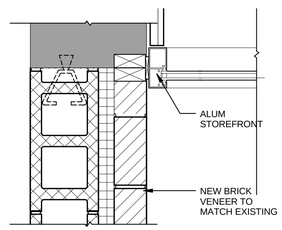
12 COLUMN STAFF ENTRANCE
SCALE: 1 1/2" = 1'-0"



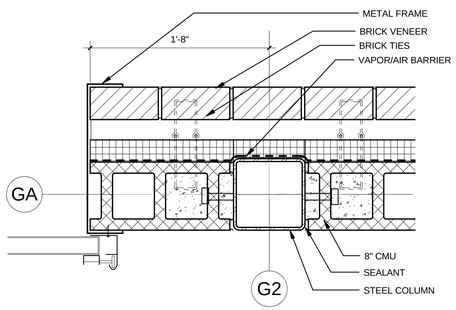
13 TYPICAL TILE OUTSIDE CORNER
SCALE: 3" = 1'-0"



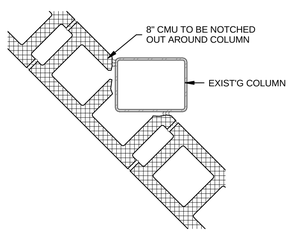
14 STOREFRONT JAMB AT FITNESS
SCALE: 1 1/2" = 1'-0"



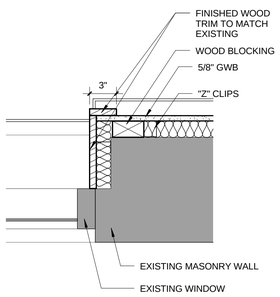
15 PLAN DETAIL AT MAIN ENTRANCE STOREFRONT
SCALE: 1 1/2" = 1'-0"



16 COLUMN DETAIL AT SALLYPORT
SCALE: 1 1/2" = 1'-0"



17 BOOKING CMU DETAIL
SCALE: 1 1/2" = 1'-0"



18 FURRING DETAIL AT EXISTING WINDOWS
SCALE: 1 1/2" = 1'-0"

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/15/2014 9:00:34 AM

PROJECT FILE: C:\Users\luis.rioburno\Documents\19401-Waltham Police Station-ARCHITECTURE_luis.rioburno.rvt

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

PLAN DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: LR, JR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

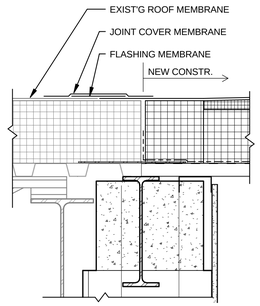
A521

SHEET 56 **OF** 157

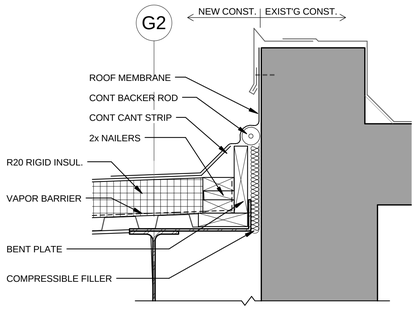
REVISED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:22:35 PM

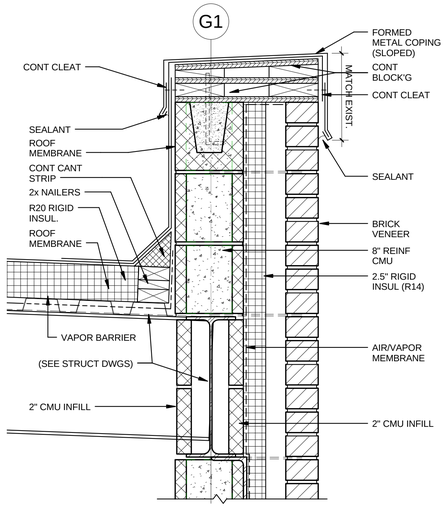
PROJECT FILE: C:\Users\MRoy\Documents\19401-Waltham Police Station-ARCHITECTURE_MRoy.rvt



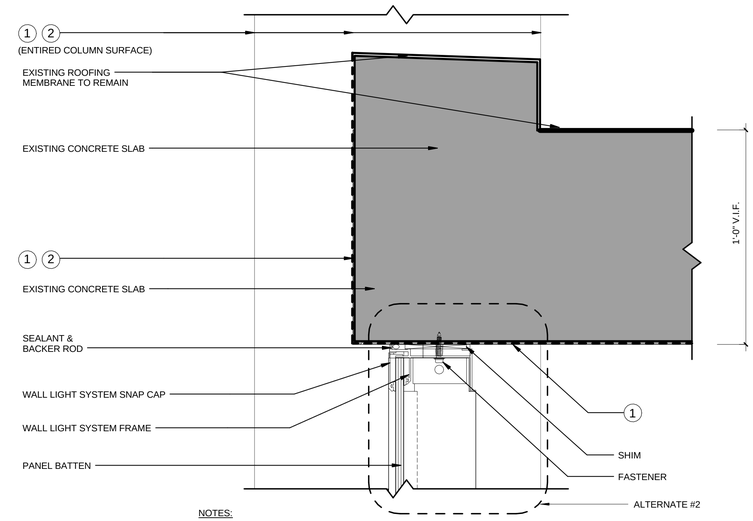
1 DETAIL @ NEW / EXISTING ROOF
SCALE: 1 1/2" = 1'-0"



2 DETAIL @ EXIST'G WALL
SCALE: 1 1/2" = 1'-0"



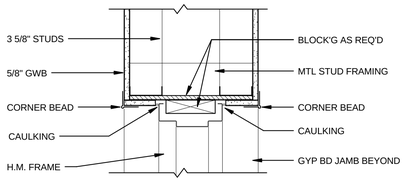
3 DETAIL @ HIGH PARAPET
SCALE: 1 1/2" = 1'-0"



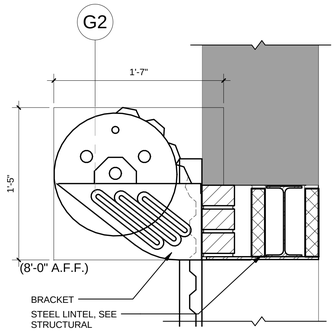
NOTES:

1. APPLY SIKATOP 123 COATING OR EQUAL
2. APPLY SIKAGARD 670W OR EQUAL, COLOR TO BE SELECTED BY OWNER

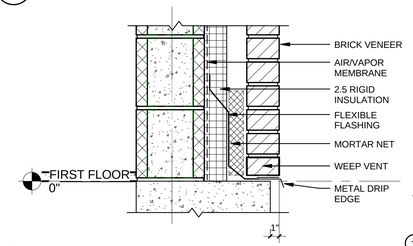
FOR CONCRETE SPALL REPAIR DETAILS SEE STRUCTURAL DRAWING S505



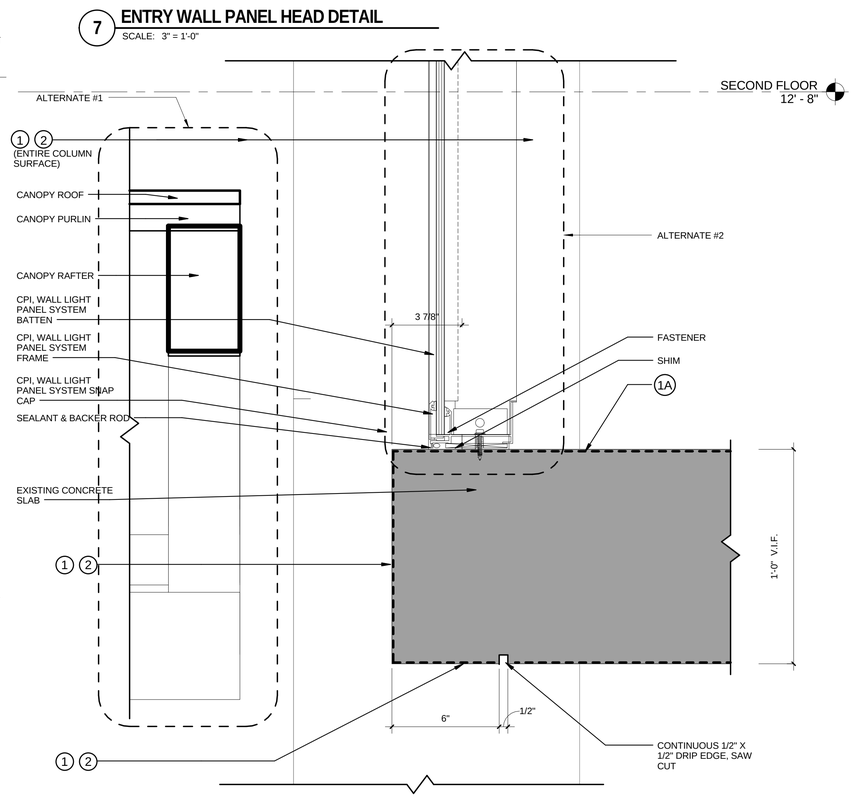
4 H.M. HEAD @ STAFF ENTRY SOUTH WALL
SCALE: 1 1/2" = 1'-0"



5 DETAIL @ ROLL-UP DOOR
SCALE: 1 1/2" = 1'-0"



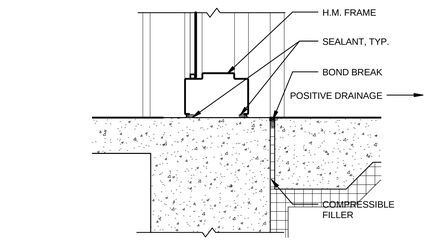
6 SALLYPORT WALL BASE
SCALE: 1 1/2" = 1'-0"



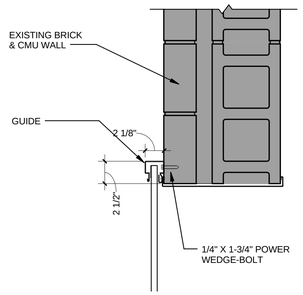
NOTES:

1. APPLY SIKATOP 123 COATING OR EQUAL
1A. SIKALASTIC 710 / 715 WITH SIKAFLOOR FTP PRIMER
2. APPLY SIKAGARD 670W OR EQUAL, COLOR TO BE SELECTED BY OWNER

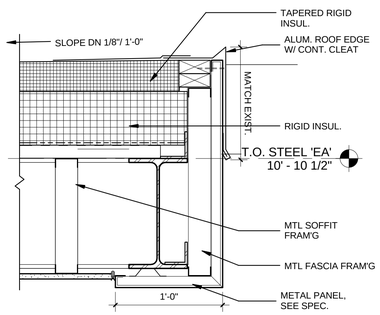
FOR CONCRETE SPALL REPAIR DETAILS SEE STRUCTURAL DRAWING S505



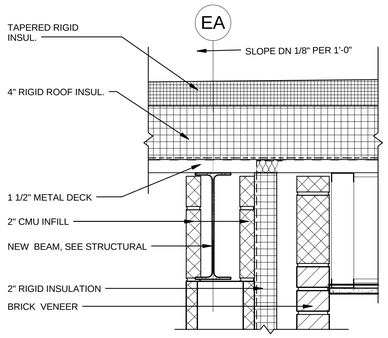
8 SILL DETAIL @ STAFF ENTRY SOUTH WALL
SCALE: 1 1/2" = 1'-0"



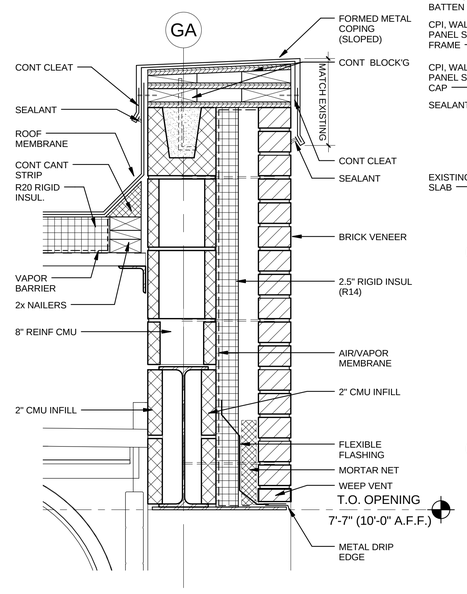
9 ROLL-UP DOOR JAMB @ CONCRETE/MASONRY
SCALE: 1 1/2" = 1'-0"



10 DETAIL @ CANOPY FASCIA
SCALE: 1 1/2" = 1'-0"



11 DETAIL @ STAFF ENTRANCE ROOF/CANOPY
SCALE: 1 1/2" = 1'-0"



12 SECTIONAL DOOR HEAD
SCALE: 1 1/2" = 1'-0"

13 EXISTING FRONT PRECAST RESTORATION AND ENTRY WALL PANEL BASE DETAIL
SCALE: 3" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

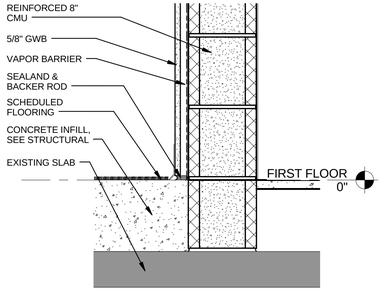
SECTION DETAILS

PROJECT NUMBER:	19401.01
DESIGNED BY:	FC
DRAWN BY:	LR
CHECKED BY:	FC
DATE:	July 11, 2014
SCALE:	As indicated

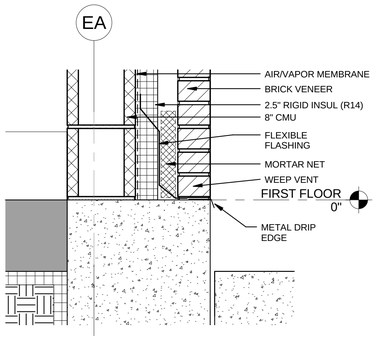
SHEET NUMBER:

A531

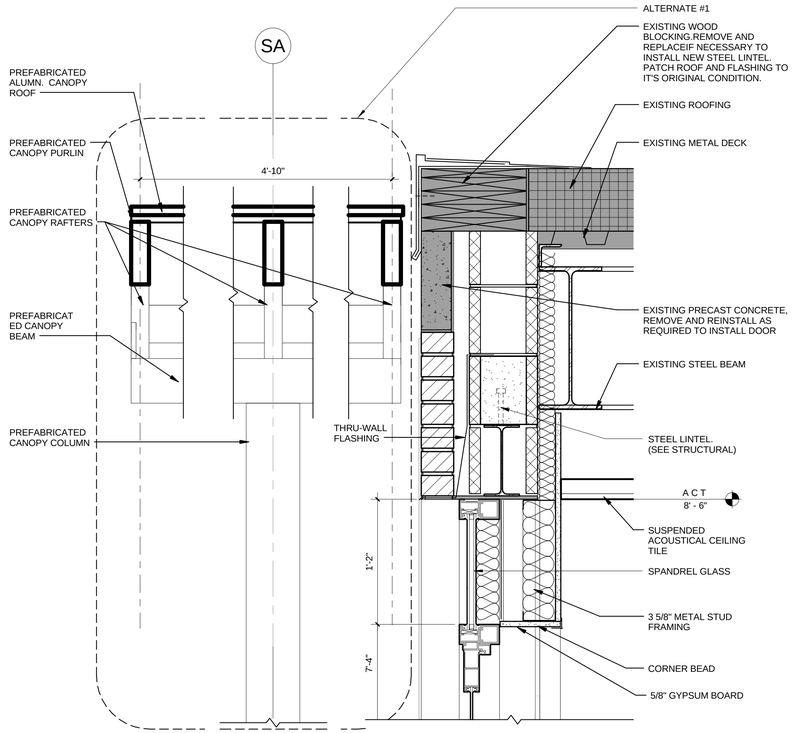
SHEET 57 OF 157



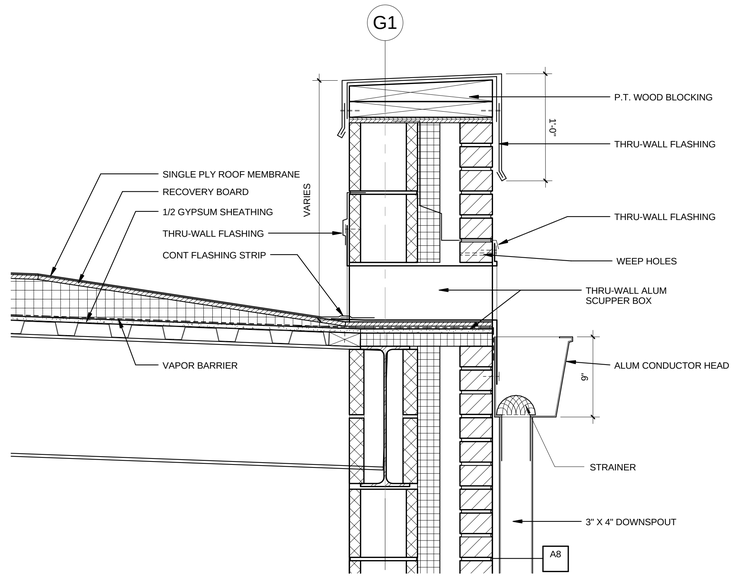
1 VEHICLE BAY WALL BASE
SCALE: 1 1/2" = 1'-0"



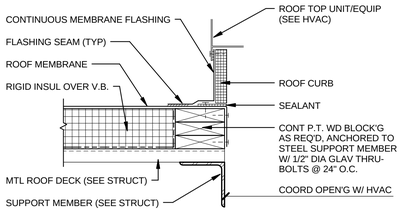
2 DETAIL @ STAFF ENTRANCE NORTH WALL
SCALE: 1 1/2" = 1'-0"



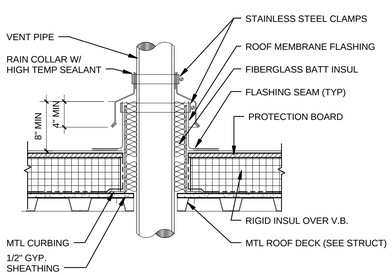
3 CANOPY WALL DETAIL
SCALE: 1 1/2" = 1'-0"



4 SCUPPER DETAIL
SCALE: 1 1/2" = 1'-0"



5 TYP ROOF CURB DETAIL
SCALE: 1 1/2" = 1'-0"



6 TYP ROOF VENT DETAIL
SCALE: 1 1/2" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECTION DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: LR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: 1 1/2" = 1'-0"

SHEET NUMBER:

A532

SHEET 58 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:
PLOTTED: 7/15/2014 8:24:47 AM
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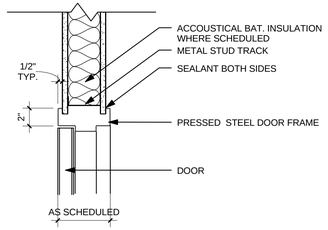
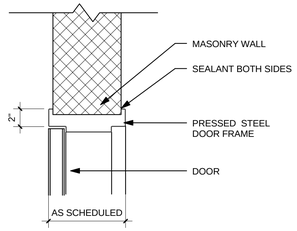
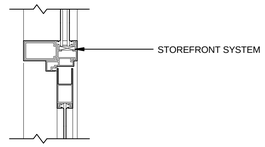


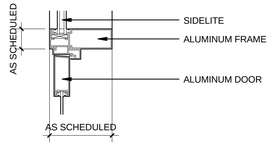
1 HM DOOR HEAD AT GWB WALL
SCALE: 1 1/2" = 1'-0"



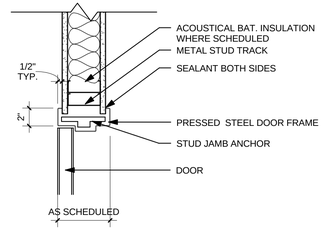
2 HM DOOR HEAD AT CMU WALL
SCALE: 1 1/2" = 1'-0"



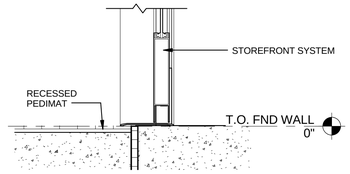
3 STAFF ENTRY HEAD
SCALE: 1 1/2" = 1'-0"



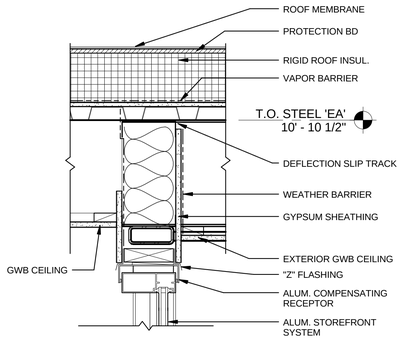
4 STOREFRONT DOOR JAMB
SCALE: 1 1/2" = 1'-0"



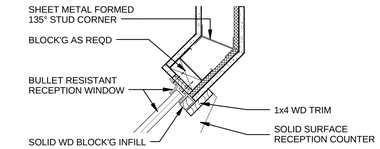
5 HM DOOR JAMB AT GWB WALL
SCALE: 1 1/2" = 1'-0"



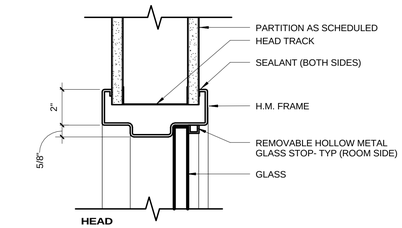
6 STAFF ENTRY SILL
SCALE: 1 1/2" = 1'-0"

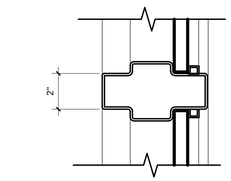


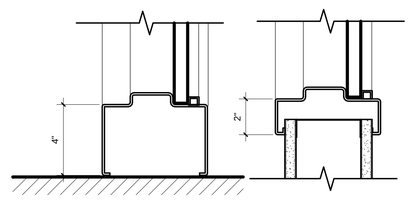
7 CANOPY ROOF @ STAFF ENTRY
SCALE: 1 1/2" = 1'-0"

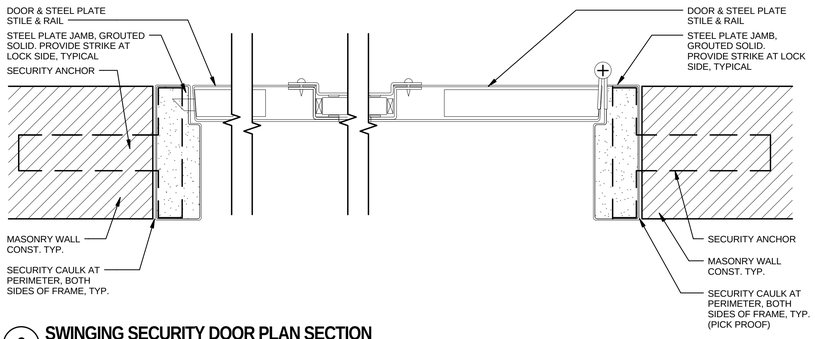


8 RECEPTION WINDOW JAMB
SCALE: 1 1/2" = 1'-0"

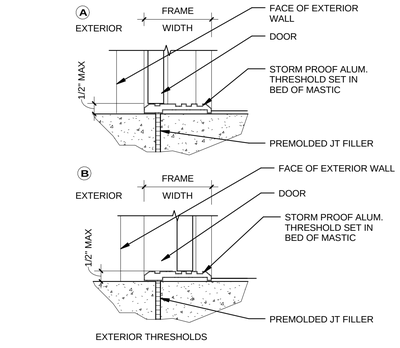




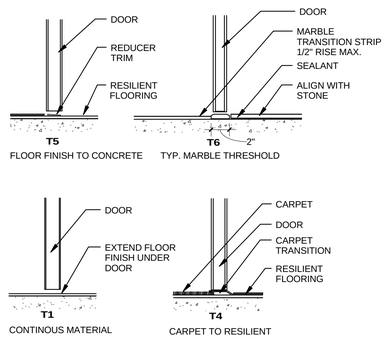




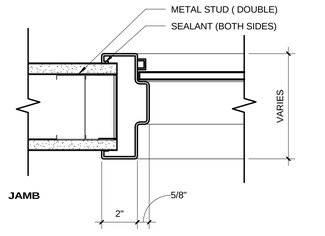
9 SWINGING SECURITY DOOR PLAN SECTION
SCALE: 3" = 1'-0"



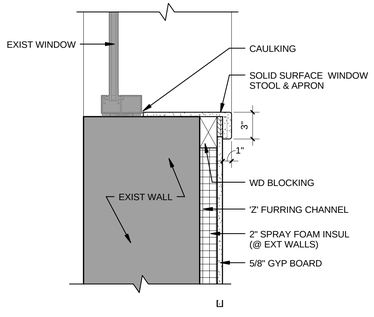
10 EXTERIOR THRESHOLD DETAILS
SCALE: 1 1/2" = 1'-0"



11 INTERIOR THRESHOLD DETAILS
SCALE: 1 1/2" = 1'-0"



12 H.M. HEAD, SILL & JAMB WINDOW DETAILS
SCALE: 3" = 1'-0"



13 TYP SILL @ EXIST'G WINDOWS
SCALE: 1 1/2" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

DOOR & WINDOW DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: LR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A541

SHEET 59 OF 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

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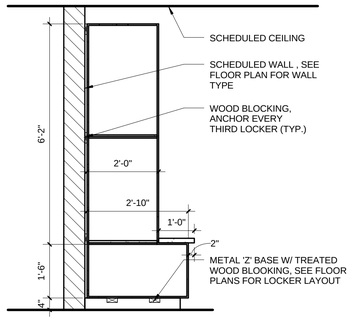
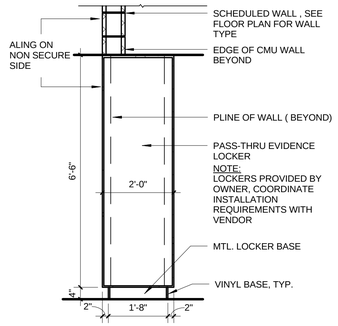
PROJECT FILE: C:\Users\MRogoff\Documents\19401-Waltham Police Station-ARCHITECTURE_MRogoff.rvt



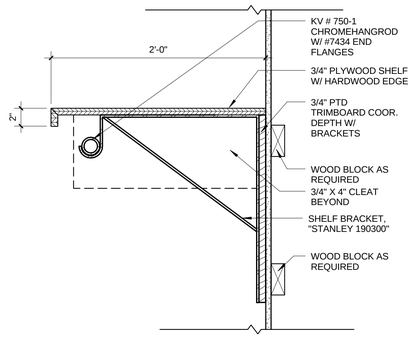
1 PERSONNEL DUTY LOCKER DETAIL

SCALE: 1/2" = 1'-0"



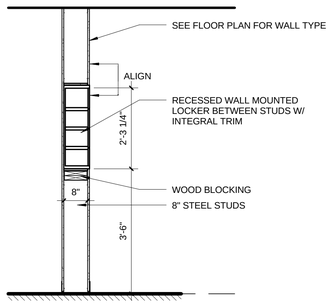
2 PASS-THRU EVIDENCE LOCKERL

SCALE: 1/2" = 1'-0"



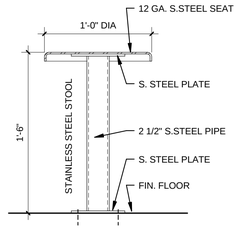
3 ROD & SHELF DETAIL

SCALE: 1 1/2" = 1'-0"



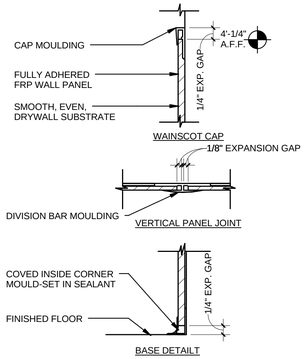
4 PISTOL LOCKER

SCALE: 1/2" = 1'-0"



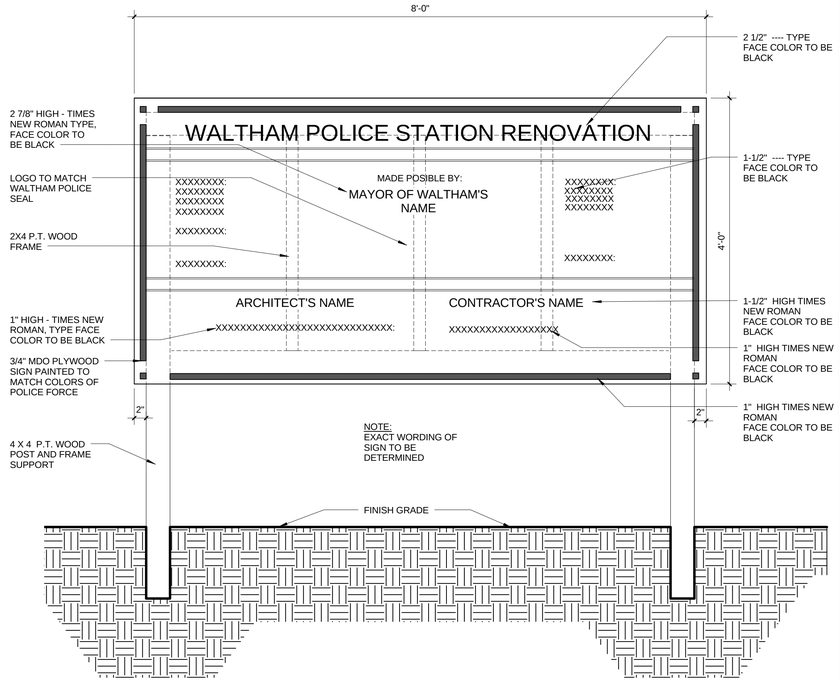
5 TYPICAL FLOOR MOUNTED STOOL

SCALE: 1 1/2" = 1'-0"



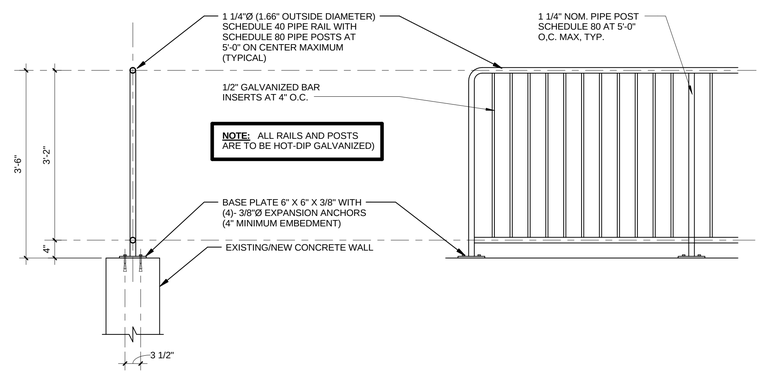
6 FIBERGLASS REINFORCED PLASTIC PANEL

SCALE: 6" = 1'-0"



7 CONSTRUCTION SIGN

SCALE: 1" = 1'-0"



8 TYPICAL GUARDRAIL DETAIL

SCALE: 3/4" = 1'-0"

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REVISIONS		
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ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

MISCELLANEOUS DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: LR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A571

SHEET 60 **OF** 157

PROJECT FILE: C:\Users\MRoggo\Documents\19401-Waltham Police Station-ARCHITECTURE_MRoggo.rvt
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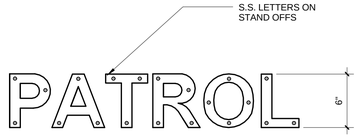
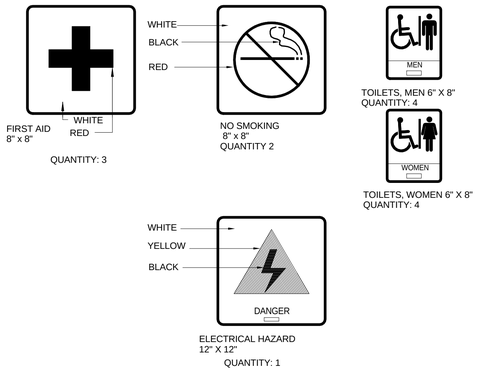
REVISED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

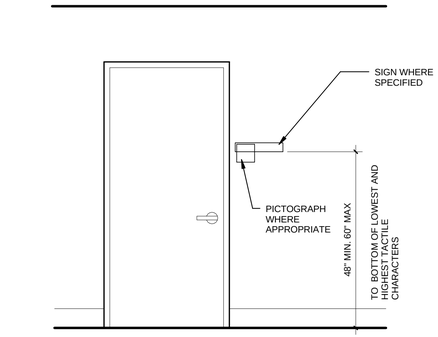


1 S.S. LETTERS @ PATROL & COMMUNITY
SCALE: 1 1/2" = 1'-0"



NOTE:
PROVIDE 1/32" RAISED GRAPHIC W/ BRAILLE FOR TOILET ROOMS.

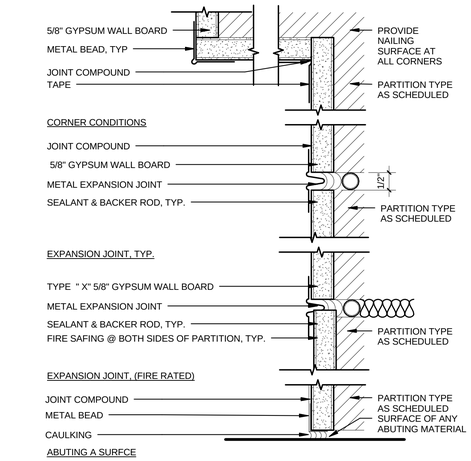
2 ROOM SIGNAGE PICTOGRAPHS
SCALE: 1 1/2" = 1'-0"



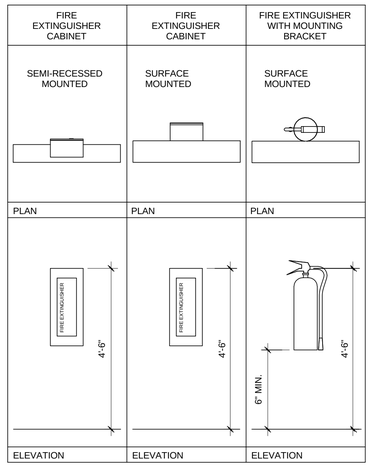
NOTES:

1. MOUNT SIGN PANELS WITH SCREWS AND EXPANSION SLEEVES AS REQUIRED.
2. SIGNAGE SHALL BE MOUNTED ON THE LATCH SIDE OF DOOR

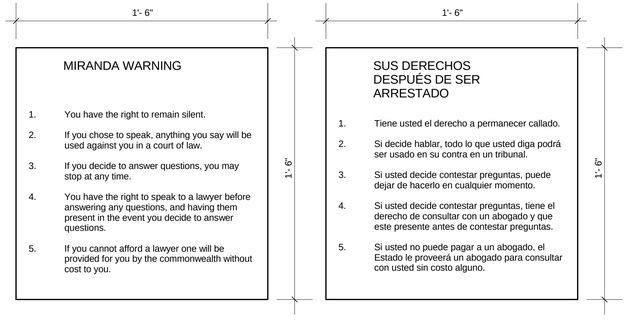
3 ROOM SIGNAGE
SCALE: 1/2" = 1'-0"



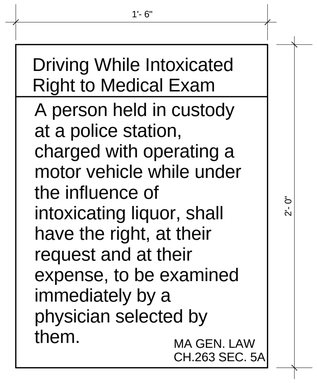
4 TYPICAL GYPSUM BOARD DETAIL
SCALE: 6" = 1'-0"



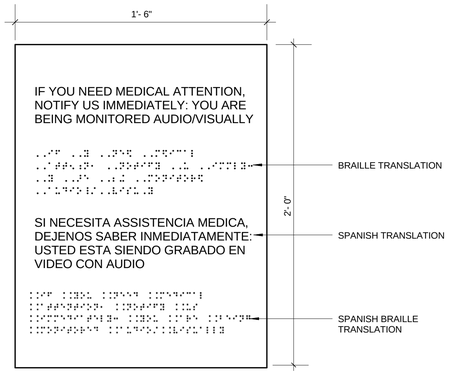
5 FIRE EXTINGUISHER MOUNTING HEIGHT
SCALE: 1/2" = 1'-0"

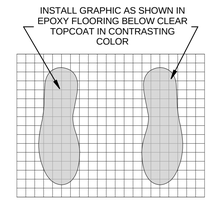


6 MIRANDA RIGHTS SINAGE @ BOOKING AREA
SCALE: 1/2" = 1'-0"



7 NOTICE SINAGE @ BOOKING AREA
SCALE: 1/2" = 1'-0"





8 FOOTPRINT GRAPHIC
SCALE: 1 1/2" = 1'-0"

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

MISCELANEOUS DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: LR
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A572

SHEET 61 **OF** 157

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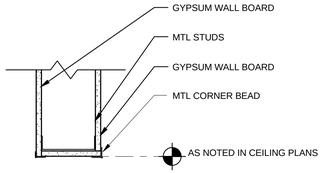
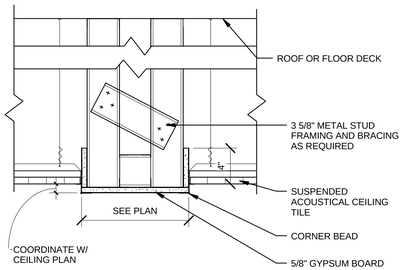


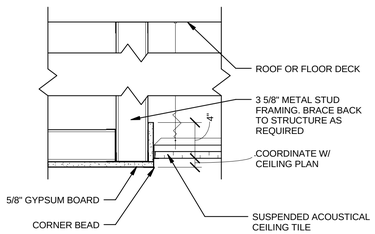
1 HEADER DETAIL

SCALE: 1 1/2" = 1'-0"



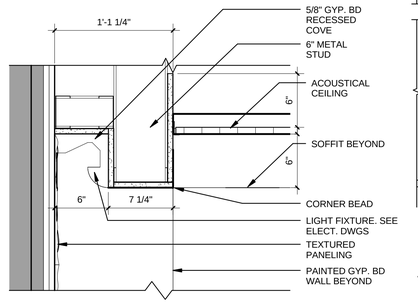
2 SOFFIT DETAIL

SCALE: 1 1/2" = 1'-0"



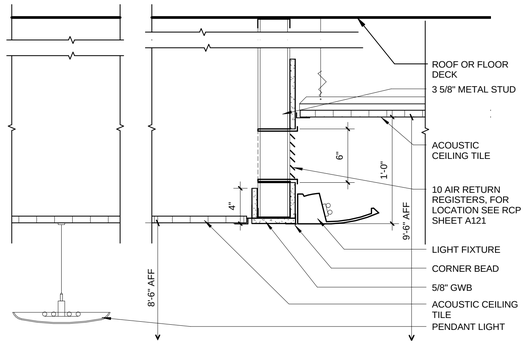
3 CEILING TRANSITION DETAIL AT GWB TO ACT

SCALE: 1 1/2" = 1'-0"



4 SOFFIT COVE DETAIL

SCALE: 1 1/2" = 1'-0"



5 TRAINING ROOM SOFFIT SECTION

SCALE: 1 1/2" = 1'-0"

REVIEWED BY: CIVIL: ARCH: STRU.: PLUM.: FIRE: MECH: ELEC.:

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

CEILING DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: LR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: 1 1/2" = 1'-0"

SHEET NUMBER:

A581

SHEET 62 **OF** 157

INTERIOR FINISH NOTES

1. G.C. OR THEIR SUBCONTRACTORS SHALL SUBMIT MANUFACTURER'S COLOR SELECTION FOR ALL SPECIFIED MATERIALS. (COLOR SCHEDULE TO BE COMPLETED UPON RECEIPT AND APPROVAL OF ALL SPECIFIED FINISHES)

2. G.C. OR THEIR SUBCONTRACTORS SHALL INSTALL FRT WOOD BLOCKING AT ALL AREAS INDICATED TO RECEIVE WALL MOUNTED ITEMS, CABINETRY, SHELVING, TOILET ACCESSORIES, ETC.

3. REFER TO REFLECTED CEILING PLANS, SECTIONS AND DETAILS FOR CEILING HEIGHTS AND SOFFITS.

4. ALL SPECIFIED FINISHES SHALL BE CONTINUOUS BEHIND ALL MOUNTED OR APPLIED ITEMS, i.e.: MIRRORS, TACK BOARDS, ETC.

5. FOR MILLWORK FINISHES & DETAILS RE: A801 AND OTHER RELATED DRAWINGS.

6. SEE FLOOR FINISH PLANS FOR FLOORING PATTERNS.

7. ALL RESILIENT BASE WILL BE STRAIGHT AT CARPETS AND COVED AT RESILIENT FLOORING.

8. PAINT ALL EXPOSED DUCTS, CONDUITS, PIPING, STRUCTURE, ETC, NOT CONCEALED BY ROOM FINISHES. COORDINATE WITH MEP & STRUCTURAL DRAWINGS (NOT FACTORY FINISH)

9. PAINT ALL STEEL HANDRAILS, RISERS, STAIR STRINGERS AND UNDERSIDE OF STAIR AT ALL EXPOSED AREAS.

10. G.C. AND THEIR SUBCONTRACTORS SHALL DETERMINE AVAILABILITY OF ALL FINISH MATERIALS. ANY DELIVERY SCHEDULE THAT POTENTIALLY MAY CAUSE COORDINATION PROBLEMS DURING THE CRITICAL PATH OF CONSTRUCTION/INSTALLATION SHALL BE BROUGHT TO ATTENTION OF THE ARCHITECT, EARLY ON, FOR POSSIBLE RE-EVALUATION OF MATERIAL DESIGNATION. THE LACK OF A TIMELY ORDER DOES NOT CONSTITUTE A RE-SELECTION.

11. A MINIMUM QUANTITY OF TWO (2) 1'-0" X 1'-0" FINISH SAMPLES OF ALL SPECIFIED FINISHES AND CURRENT STOCK CUTTINGS OF ALL SPECIFIED FABRICS SHALL BE PROVIDED FOR APPROVAL PRIOR TO ORDERING.

12. G.C. AND THEIR SUBCONTRACTORS SHALL ASSURE THAT NO ELECTRIC RECEPTACLE OR TELECOMMUNICATIONS OUTLET COVERPLATES HAVE BEEN INSTALLED PRIOR TO COMPLETION OF APPLICATION OF ANY WALL FINISH MATERIALS. ANY SUCH COVERPLATES OR SURFACE HARDWARE, ETC., IN PLACE, SHALL BE REMOVED PRIOR TO WALL FINISH APPLICATION.

13. UPON COMPLETION OF FINISH PHASE OF JOB, G.C. SHALL REMOVE ALL PAINT, WALLCOVERING PASTE, ETC., FROM WHERE IT HAS SPILLED, SPLASHED, OR SPATTERED.

14. ALL FINISH FLOORING MATERIAL INSTALLATION SHALL BE PER MANUFACTURERS RECOMMENDATION. SEAMS SHALL BE TIGHT/INVISIBLE. G.C. OR THEIR SUBCONTRACTORS SHALL PROVIDE AND MAINTAIN ADEQUATE PROTECTION FOR ALL NEWLY INSTALLED FLOORING MATERIALS FOR THE DURATION OF CONSTRUCTION AND REMOVE PROTECTION ONLY IMMEDIATELY BEFORE JOB COMPLETION, FLOOR WILL BE THOROUGHLY CLEANED OF ALL ADHESIVE, GROUT, CONSTRUCTION STAINS, ETC.

15. PROVIDE MOISTURE MITIGATION UNDERLAYMENT UNDERNEATH ALL VCT AND PAINTED FLOORING AT FIRST FLOOR (TYPE 1). SECOND FLOOR USE TYPE 2 UNDERLAYMENT.

TYPE 1 UNDERLAYMENT: MOISTURE CONTROL UNDERLAYMENTS AND PATCHING COMPOUNDS: TWO-COAT 100% SOLID EPOXY MOISTURE MANAGEMENT SYSTEM WHERE MOISTURE EMISSIONS FROM NEW AND EXISTING CONCRETE SLABS EXCEEDS TILE MANUFACTURER'S REQUIREMENTS OR APPROVED BY TILE MANUFACTURER FOR APPLICATIONS RECOMMENDED BY THE FLOORING MANUFACTURER.
1. SIMILAR TO ARDEX MC PLUS.
2. OR EQUAL.

TYPE 2 UNDERLAYMENT: TROWELABLE UNDERLAYMENTS AND PATCHING COMPOUNDS: LATEX-MODIFIED, PORTLAND-CEMENT-BASED FORMULATION PROVIDED OR APPROVED BY TILE MANUFACTURER FOR APPLICATIONS RECOMMENDED BY THE FLOORING MANUFACTURER.
1. SIMILAR TO LEVELASTIC.
2. SIMILAR TO GYP-CRETE.
3. SIMILAR TO ARDEX K-15.
4. OR EQUAL

16. G.C. AND THEIR SUBCONTRACTORS ARE RESPONSIBLE FOR ALL FLASH PATCHING AND TO HAVE THE FLOOR IN A CONDITION TO RECEIVE FLOORING MATERIALS.

17. CARPET SUPPLIER/INSTALLER SHALL PROVIDE CURRENT STOCK SAMPLES OF SPECIFIED CARPET FINISHES FOR APPROVAL PRIOR TO ORDERING. PROVIDE TRANSITION STRIPS AS SPECIFIED OR NECESSARY (VINYL, IF NOT SPECIFIED).

18. G.C. AND VENDORS/SUBCONTRACTORS ARE RESPONSIBLE FOR FIELD VERIFICATION OF ALL DIMENSIONS, QUANTITIES ETC., OF THEIR RESPECTIVE WORK.

19. FOR FLOOR MATERIAL CHANGE LOCATIONS, SEE FLOOR PLANS, THRESHOLD DETAILS AND/OR FLOOR FINISH PLANS

20. FOR WALL MATERIAL FINISH CHANGE LOCATIONS, SEE INTERIOR WALL ELEVATIONS

21. FOR ADDITIONAL WORK REQUIRED, SEE INTERIOR WALL ELEVATIONS

22. PROVIDE SPLASH TRIM AT ALL WALLS ADJACENT TO COUNTER TOPS U.O.N. TYPICAL

23. PROVIDE BASE FINISH AT TOE KICKS OF ALL CABINETRY KITCHENS & VANITIES

24. PROVIDE BASE FINISH AT ALL FINISH CABINETRY END PANELS

25. PROVIDE WALL BASE BEHIND ALL REFRIGERATORS, RANGE AND OTHER APPLIANCES. PROVIDE PAINTED FINISH AND CAULKING.

26. PROVIDE PAINTED FINISH AND CAULKING BEHIND SINKS, TYP

27. NOT ALL WALL OBJECTS MAY BE SHOWN. COORDINATE WITH MECHANICAL; PLUMBING; ELECTRICAL DRAWINGS. ALSO REFER TO ARCHITECTURAL DWGS & SPECIFICATIONS FOR ADDITIONAL ITEMS

28. INSULATE ALL EXPOSED PIPES AND SINK BOTTOM WITH TRAP WRAP PROTECTIVE KIT

29. ALL WINDOW SILLS SHALL BE SOLID, CLEAR FINISHED MAPLE UNLESS NOTED OTHERWISE.

30. PAINT CONCRETE BLOCK AND PAINT PIERS AT COLUMNS AND PROVIDE SEALED CONCRETE AT STAIR TREADS AND PAINT ALL EXPOSED STAIR STRUCTURE AND RAILINGS.

31. FOR TOILET ACCESSORIES SCHEDULE SEE A701.

32. PAINT CONCRETE BLOCK AND PAINT PIERS AT COLUMNS AND PROVIDE SEALED CONCRETE AT STAIR TREADS AND PAINT ALL EXPOSED STAIR STRUCTURE AND RAILINGS.

33. FIELD PAINT ALL EXPOSED FRAMING, STEEL AND IRON WORK, BARE AND COVERED PIPES, HANGERS, PLYWOOD, CMU, STEEL DECK, RAILING, UNDERNEATH THE STAIRS AND PRIMED METAL SURFACES OF MECHANICAL AND ELECTRICAL WORK.

34. ALL CORRIDOR WALLS SHALL RECEIVE ABUSE RESISTAND, HIGH IMPACT GYPSUM BOARD.

INTERIOR FINISH ABBREVIATIONS

ACT	ACOUSTICAL CEILING TILE
CPT	CARPET TILES
CT	CERAMIC TILE
EPX	EPOXY
E.T.R.	EXISTING TO REMAIN
GWB	GYPSUM WALL BOARD
PP	PORCELAIN PAVERS
PTD	PAINTED
RES	RESINOUS FLOORING
RUB	RUBBER BASE
ST	SPORTS TILE FLOORING
VCT	VINYL COMPOSITE TILE

FINISH MATERIAL SCHEDULE

MARK	DESCRIPTION	MANUF., LINE	COLOR
CT-1	CERAMIC TILE	DALTILE, NATURAL HUES-FLOOR TILE 6x6	TBD
CT-2	CERAMIC TILE	DALTILE, NATURAL HUES-WALL BASE	TBD
CT-3	CERAMIC TILE	DALTILE, NATURAL HUES-WALL TILE 6x6	TBD
CPT	CARPET TILE	MANNINGTON, MODERN WEAR	TBD
EPX	EPOXY PAINT	SEE SPECIFICATIONS	TBD
MC-PTD-1	MULTI-COLORED PAINT		TBD
PAR-1	SOLID WOOD PARQUET	ARMSTRONG, URETHANE PARQUET	TBD
PP	PORCELAIN PAVER TILE	DALTILE, COLOUR SCHEME	TBD
PTD	PAINT	SHERWIN WILLIAMS	TBD
RES-1	RESILIENT FLOORING	DUR-A-FLEX, DUR-A-QUARTZ	TBD
RES-2	RESILIENT WALL BASE	DUR-A-FLEX, DUR-A-QUARTZ	TBD
RUB-1	RUBBER FLOORING		TBD
RUB-2	RUBBER WALL BASE		TBD
ST-1	SPORTS TILE FLOORING	JOHNSONITE, TRIUMPH SPORTS RUBBER TILE	TBD
VCT-1	VINYL COMPOSITION TILE	ARMSTRONG, IMPERIAL TEXTURE	TBD
WAIN-1	WAINSCOTTING		TBD
WD-1	WOOD WALL BASE		TBD

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR	BASE	WALLS				CEILING		NOTES
				NORTH	SOUTH	EAST	WEST	FINISH	HEIGHT	
	ELEV.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	EXPOSED	10' - 0"	
	ELEV.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	EXPOSED	10' - 0"	
	ELEV.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	EXPOSED	10' - 0"	
	VESTIBULE	E.T.R.	WD	PTD	PTD	PTD	PTD	ACT	8' - 0"	
001	RANGE	CONC	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	10' - 0"	
002	EVIDENCE STORAGE	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 0"	
003	EVIDENCE STORAGE	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 0"	
004	ARMORY	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 0"	
005	RANGE OFFICE	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 0"	
006	STORAGE	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT	7' - 9"	
007	MACHINE ROOM	E.T.R.	E.T.R.	PTD	PTD	PTD	PTD	E.T.R.	9' - 0"	
008	JAN	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT	7' - 8"	FRP PANEL AT MOP SINK
009	STORAGE	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 0"	
010	FEMALE LOCKER ROOM	EPX	RUB-2	PTD/CT-3	PTD	PTD/CT-3	PTD	EXPOSED PAINTED	9' - 0"	PROVIDE SPRAY ACOUSTICAL INSULATION ON CEILING
011	F. TOILET	CT-1	CT-2	PTD/CT-3	PTD/CT-3	PTD/CT-3	PTD/CT-3	GWB	8' - 0"	
012	MECHANICAL ROOM	CONC	RUB-2	PTD	PTD	PTD	PTD	EXPOSED	9' - 4"	
013	TEL/DATA	CONC	RUB-2	PTD	PTD	PTD	PTD	EXPOSED	9' - 4"	
014	ELECTRICAL	CONC	RUB-2	PTD	PTD	PTD	PTD	EXPOSED	9' - 4"	
015	FITNESS	ST	RUB-2	PTD	PTD	PTD	PTD	EXPOSED	10' - 0"	
016	M. TOILET	CT-1	CT-2	PTD/CT-3	PTD/CT-3	PTD/CT-3	PTD/CT-3	GWB	8' - 0"	
017	MALE LOCKER ROOM	EPX	RUB-2	PTD	PTD	PTD	PTD	EXPOSED	9' - 0"	PROVIDE SPRAY ACOUSTICAL INSULATION ON CEILING
018	CORR.	VCT	WAIN	PTD	PTD	PTD	PTD	ACT/ GWB	8' - 0"	
019	CORR.	VCT	WAIN	PTD	PTD	PTD	PTD	ACT/ GWB	8' - 0"	
101	VEHICLE BAYS	E.T.R.	E.T.R.	PTD	PTD	PTD	PTD	EXPOSED	10' - 0"	
102	STORAGE	CONC	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 6"	
103	STORAGE	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 6"	
104	TRAINING ROOM	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 6"	
105	STORAGE	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 6"	
106	CORR.	VCT	WD	PTD	PTD	PTD	PTD	ACT	8' - 6"	
107	REPORT	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	9' - 0"	
108	ROLL CALL	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 6"	
109	INTERVIEW	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 6"	
110	BREAK ROOM/ KITCHEN	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT/ GWB	8' - 6"	
111	TRAINING AUXILIARY OFF.	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	9' - 0"	
112	PATROL AREA	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 6"	
113	FEMALE	CT-1	CT-2	CT-3	CT-3	CT-3	CT-3	ACT	9' - 0"	
114	MALE	CT-1	CT-2	CT-3	CT-3	CT-3	CT-3	ACT	9' - 0"	
115	LOBBY	PP	WD	PTD	PTD	PTD	PTD	ACT/ GWB	9' - 0"	
115A	CORRIDOR	PP	WD	PTD	PTD	PTD	PTD	ACT/ GWB	9' - 0"	
116	PATROL RECEPTION	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	9' - 0"	
117	CAPTAIN	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	9' - 0"	
118	SUPERVISORS OFFICE	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	9' - 0"	
119	GUN STOR.	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT	9' - 0"	
120	MALE	CT-1	CT-2	CT-3	CT-3	CT-3	CT-3	ACT	9' - 0"	
121	FEMALE	CT-1	CT-2	CT-3	CT-3	CT-3	CT-3	ACT	9' - 0"	
122	KITCHENETTE	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT	9' - 0"	
123	COMM. SERV. RECEPTION	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	9' - 0"	
124	CONFERENCE	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	9' - 0"	
125	COMMUNITY SERVICE	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	9' - 0"	
126	STORAGE	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	9' - 0"	
127	CAPTAIN	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	9' - 0"	
128	LIEUTENANT	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	9' - 0"	
129	ARCHIVE	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 6"	
132	ELEC.	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 0"	
133	STAFF ENTRANCE	VCT	WD	PTD	PTD	PTD	PTD	ACT/ GWB	9' - 0"	
134	JAN.	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 0"	FRP PANEL AT MOP SINK
135	MAINTENANCE OFFICE	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 0"	
136	WOMEN	RES-1	RES-2	EPX	EPX	EPX	EPX	SECURITY CEILING	8' - 0"	
136A	CELL 9	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
136B	CELL 10	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
136C	CELL 11	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
137	SHOWER	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
138	INTERV.	VCT	RUB-2	PTD	PTD	PTD	PTD	SECURITY CEILING	8' - 0"	
139	INTERV.	RES-1	RES-2	EPX	EPX	EPX	EPX	SECURITY CEILING	8' - 0"	
140	SHOWER	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
141	VEST.	RES	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
142	JUVENILE/ ACCESS.	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
143	MALE	RES-1	RES-2	EPX	EPX	EPX	EPX	SECURITY CEILING	8' - 0"	
143A	CELL 1	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
143B	CELL 2	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
143C	CELL 3	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
143D	CELL 4	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
144	MALE	RES-1	RES-2	EPX	EPX	EPX	EPX	SECURITY CEILING	8' - 0"	
144A	CELL 5	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
144B	CELL 6	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
144C	CELL 7	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
144D	CELL 8	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
145	BOOKING	RES-1	RES-2	EPX	EPX	EPX	EPX	SECURITY CEILING	8' - 6"	
145A	BOOKING A	RES-1	RES-2	EPX	EPX	EPX	EPX	SECURITY CEILING	8' - 6"	
146	STORAGE	RES-1	RES-2	EPX	EPX	EPX	EPX	SECURITY CEILING	8' - 0"	
147	PROCESSING	RES-1	RES-2	EPX	EPX	EPX	EPX	DETENTION CEILING	8' - 0"	
148	ANIMAL HOLD	E.T.R.	N/A	PTD	PTD	PTD	PTD	EXPOSED	10' - 0"	
149	SALLY PORT	E.T.R.	N/A	PTD	PTD	PTD	PTD	EXPOSED	10' - 0"	
150	MOTORCYCLE/BIKE STORAGE	CONC	N/A	PTD	PTD	PTD	PTD	EXPOSED	10' - 0"	
151	CORR.	VCT	WAIN	PTD	PTD	PTD	PTD	ACT	8' - 6"	
151A	CORR.	VCT	WAIN	PTD	PTD	PTD	PTD	ACT	9' - 0"	
201	ASSIGNMENT AREA	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 6"	
202	CAPTAIN	CPT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 6"	
203	FEMALE	CT-1	CT-2	CT-3	CT-3	CT-3	CT-3	ACT	8' - 0"	
204	MALE	CT-1	CT-2	CT-3	CT-3	CT-3	CT-3	ACT	8' - 0"	
205	JAN.	VCT	WD	PTD	PTD	PTD	PTD	ACT	8' - 6"	FRP PANEL AT MOP SINK
206	PLANNING	CPT	WD	PTD	PTD	PTD	PTD	ACT	8' - 6"	
207	CONFERENCE	CPT	WD	PTD	PTD	PTD	PTD	ACT	8' - 6"	
208	DEPUTY CHIEF	CPT	WD	PTD	PTD	PTD	PTD	ACT	8' - 6"	
209	ADMIN OFFICE	E.T.R.	E.T.R.	PTD	PTD	PTD	PTD	ACT	8' - 6"	
210	CHIEF'S OFFICE	E.T.R.	E.T.R.	PTD	PTD	PTD	PTD	ACT	8' - 6"	
211	ADMIN OFFICE	E.T.R.	E.T.R.	PTD	PTD	PTD	PTD	ACT	8' - 6"	
212	ADMIN.	CPT	WD	PTD	PTD	PTD	PTD	ACT	8' - 6"	
213	STORAGE	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 0"	
214	SUPPLY / STORAGE	VCT	RUB-2	PTD	PTD	PTD	PTD	ACT	8' - 0"	
215	DETECTIVE OFFICE	CPT	WD	PTD	PTD	PTD	PTD	ACT	8' - 6"	BASE TO MATCH EXISTING
216	STORAGE	VCT	WD	PTD	PTD	PTD	PTD	GWB	8' - 6"	
217	DETECTIVE	CPT	WD	PTD	PTD	PTD	PTD	ACT	8' - 6"	BASE TO MATCH EXISTING
218	CONFERENCE	E.T.R.	E.T.R.	PTD	PTD	PTD	PTD	ACT	8' - 6"	
219	LAB	VCT	WD	PTD	PTD	PTD	PTD	ACT	8' - 6"	
220	CORR.	VCT	WAIN	PTD	PTD	PTD	PTD	ACT	8' - 6"	
221	SERGEANTS OFFICE	CPT	WD	PTD	PTD	PTD	PTD	ACT	8' - 6"	BASE TO MATCH EXISTING
222	INTERVIEW ROOM	CPT	WD	PTD	PTD	PTD	PTD	ACT	8' - 6"	BASE TO MATCH EXISTING
223	LIEUTENANTS OFFICE	CPT	WD	PTD	PTD	PTD	PTD	ACT	8' - 6"	BASE TO MATCH EXISTING
224	CORR.	PQT	WD	PTD	PTD	PTD	PTD	ACT	8' - 6"	
S-1	STAIR 1	RUB-1	RUB-2	MC-PTD	MC-PTD	MC-PTD	MC-PTD	GWB	EXISTING	MULTI-COLORED PAINT ON WALLS. STEEL TO BE PAINTED. RUBBER FLOORING AND THREAD/RISER WEARING SURFACE.
S-1	STAIR 1	RUB-1	RES-2	MC-PTD	MC-PTD	MC-PTD	MC-PTD	GWB	EXISTING	MULTI-COLORED PAINT ON WALLS. STEEL TO BE PAINTED. RUBBER FLOORING AND THREAD/RISER WEARING SURFACE.
S-1	STAIR 1	RUB-1	RUB-2	MC-PTD	MC-PTD	MC-PTD	MC-PTD	GWB	EXISTING	MULTI-COLORED PAINT ON WALLS. STEEL TO BE PAINTED. RUBBER FLOORING AND THREAD/RISER WEARING SURFACE.
S-2	STAIR 2	TER	RUB-2	MC-PTD	MC-PTD	MC-PTD	MC-PTD	GWB	EXISTING	MULTI-COLORED PAINT ON WALLS. TERRAZZO TO BE CLEANED. STEEL TO BE PAINTED
S-2	STAIR 2	TER	RUB-2	MC-PTD	MC-PTD	MC-PTD	MC-PTD	GWB	EXISTING	MULTI-COLORED PAINT ON WALLS. TERRAZZO TO BE CLEANED. STEEL TO BE PAINTED
S-2	STAIR 2	TER	RUB-2	MC-PTD	MC-PTD	MC-PTD	MC-PTD	GWB	EXISTING	MULTI-COLORED PAINT ON WALLS. TERRAZZO TO BE CLEANED. STEEL TO BE PAINTED

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REVISIONS

Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ROOM FINISH SCHEDULE

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM
CHECKED BY: FC
DATE: July 11, 2014
SCALE: 12" = 1'-0"
SHEET NUMBER:
A601

SHEET 63 OF 157

REVIEWD BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/15/2014 10:31:28 AM

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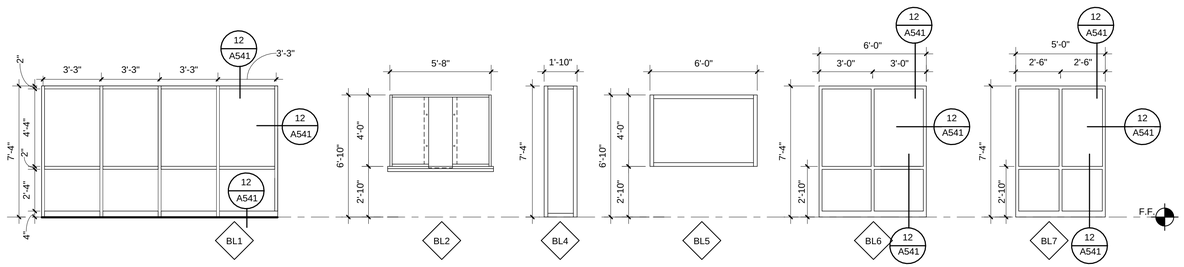
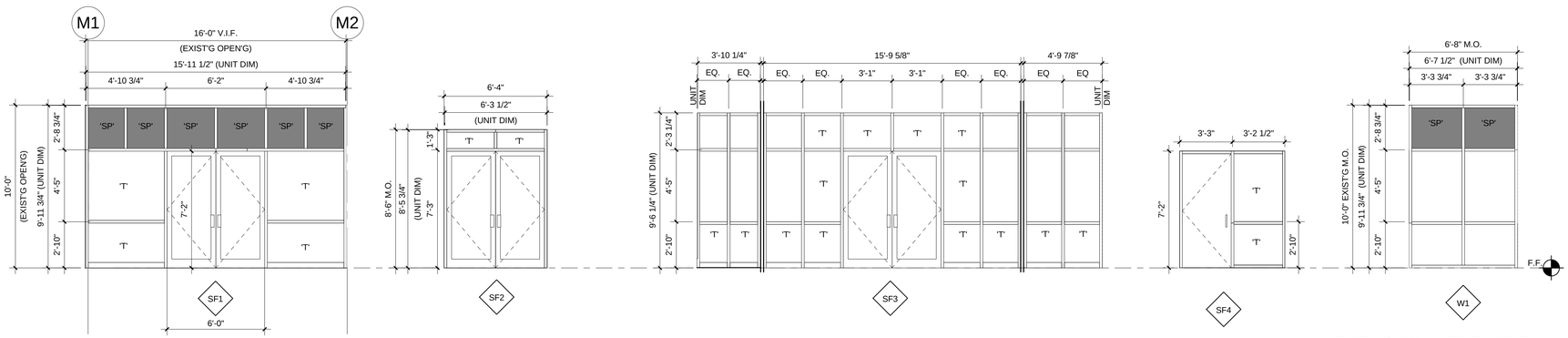


INTERIOR HOLLOW METAL BORROWED LIGHT

1/4" = 1'-0"

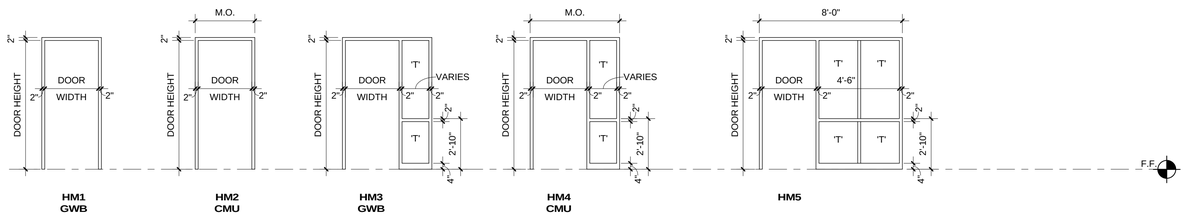


EXTERIOR STORE FRONT ELEVATIONS

1/4" = 1'-0"

EXT WINDOW TYPE ELEV

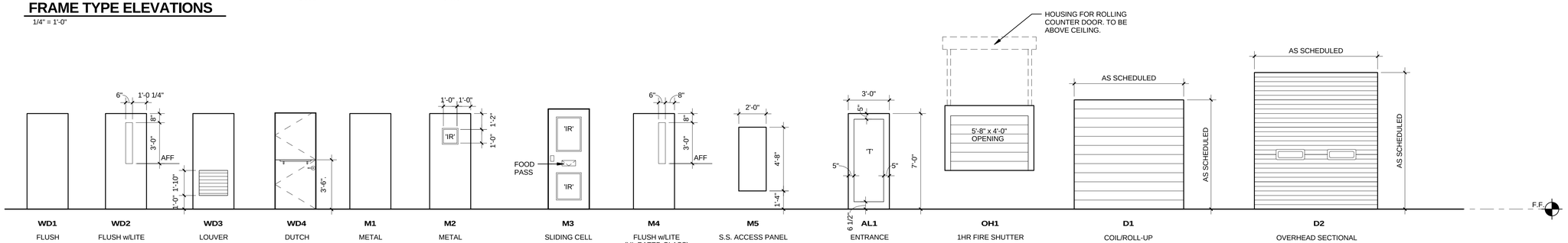
1/4" = 1'-0"



HM1 GWB
HM2 CMU
HM3 GWB
HM4 CMU
HM5

FRAME TYPE ELEVATIONS

1/4" = 1'-0"



WD1 FLUSH
WD2 FLUSH w/LITE
WD3 LOUVER
WD4 DUTCH
M1 METAL
M2 METAL
M3 SLIDING CELL
M4 FLUSH w/LITE (UL RATED GLASS)
M5 S.S. ACCESS PANEL
AL1 ENTRANCE
OH1 1HR FIRE SHUTTER
D1 COIL/ROLL-UP
D2 OVERHEAD SECTIONAL

DOOR TYPE ELEVATIONS

1/4" = 1'-0"

GENERAL NOTES - DOORS

GENERAL

1. FOR DOOR JAMB, HEAD AND THRESHOLD DETAILS, REFER TO AXXX & AXXX UNLESS NOTED OTHERWISE.
2. WINDOW DIMENSIONS SHOWN ARE ROUGH OPENING
3. SYMBOL "T" DENOTES LOCATION REQUIRING TEMPERED GLAZING. TYPICAL.
4. ALL GLAZING STOPS SHALL BE INSTALLED ON THE 'NON-PUBLIC' SIDE AT ALL FRAMES.

DOORS

1. EXTERIOR DOOR FINISHES:
   ALUMINUM - CUSTOM
   HOLLOW METAL-PAINTED TBD
2. INTERIOR DOOR FINISHES:
   ALUMINUM - CUSTOM
3. WOOD - CLEAR STAINED
   HOLLOW METAL - PAINTED TBD

FRAMES

1. EXTERIOR HOLLOW METAL - FACTORY A60 GALV & PRIME, FIELD PAINT. TBD
2. INTERIOR FRAME FINISHES:
   HOLLOW METAL - FIELD PAINTED TBD
3. QUICK SET KNOCK DOWN FRAMES ARE NOT ACCEPTABLE.
4. PRE-ASSEMBLED & FULLY WELDED KNOCK DOWN FRAMES MEETING REQUIRED U.L. FIRE RATINGS ARE ACCEPTABLE FOR USE ON THIS PROJECT IF APPROVED IN WRITING BY THE ARCHITECT.
5. FIELD PAINT ALL METAL FRAMES WITH COLOR AS SELECTED BY THE ARCHITECT. TBD

HARDWARE

1. HARDWARE & ACCESSORY LIST SCHEDULE ESTABLISHES GENERAL SCOPE REQUIREMENTS, SUPPLIER &/or MFR. TO PROVIDE ALL NECESSARY ACCESSORIES, SCREWS, HEX BOLTS, STRIKES, COVER PLATES, etc. FOR A COMPLETE INSTALLATION OF HARDWARE FOR THE INTENDED USE.
2. PROVIDE LEVER HANDLES @ ALL LATCHSETS, LOCKSETS, &/or DUMMY LATCHSETS. TYPICAL U.N.O.
3. TACTILE WARNING: PROVIDE KNURLING WHERE REQUIRED (HIGH HAZARDS, ELECTRICAL & MECHANICAL ROOMS, ETC.). ABRASIVE COATINGS ARE NOT ACCEPTABLE.
4. PROVIDE 6" x 20 GA. METAL PLATE OR 2x6 FRT BLOCKING UNDER GWB @ ALL WALL MOUNTED DOOR STOPS - TYPICAL U.N.O.
5. PROVIDE DOOR SILENCERS @ ALL DOORS NOT RECEIVING WEATHERSTRIPPING:
   (3) per SINGLE DOOR
   (2) per DOUBLE DOORS
6. PROVIDE FULL WEATHER STRIPING @ ALL EXTERIOR DOORS - TYP.
7. PROVIDE ALUMINUM THRESHOLDS WHERE SHOWN ON PLANS; SILL DETAILS; &/or WHERE NOTED AND AT ALL EXTERIOR DOORS. TYP.
8. MASTER AND GRAND MASTER KEYING SYSTEM TO BE COORDINATED WITH OWNER.

NOTE: SEE A541 FOR DETAILS. COORDINATE WITH ROOM FINISHES.

NOTES

GENERAL

1. SYMBOL 'T' DENOTES LOCATION REQUIRING TEMPERED GLAZING
2. SYMBOL 'IR' DENOTES IMPACT RESISTANT GLAZING
3. SYMBOL 'SP' DENOTES SPANDREL GLASS WITH SOLID BACKING

FRAMES

1. EXTERIOR FRAME FINISHES: ALUMINUM - TBD: CUSTOM

XXA — INDICATES WINDOW \ LOUVER TYPE:
W = WINDOW L = LOUVER
SF = STOREFRONT CW = CURTAIN WALL
BL = BORROWED LIGHT

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

WINDOW & DOOR TYPE ELEVATIONS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: JR
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A602

SHEET 64 **OF** 157

ELEC: MECH: FIRE: PLUM: STRU: ARCH: CIVIL: REVIEWED BY:

PLOTTED: 7/15/2014 6:44:58 AM

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REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:22:52 PM

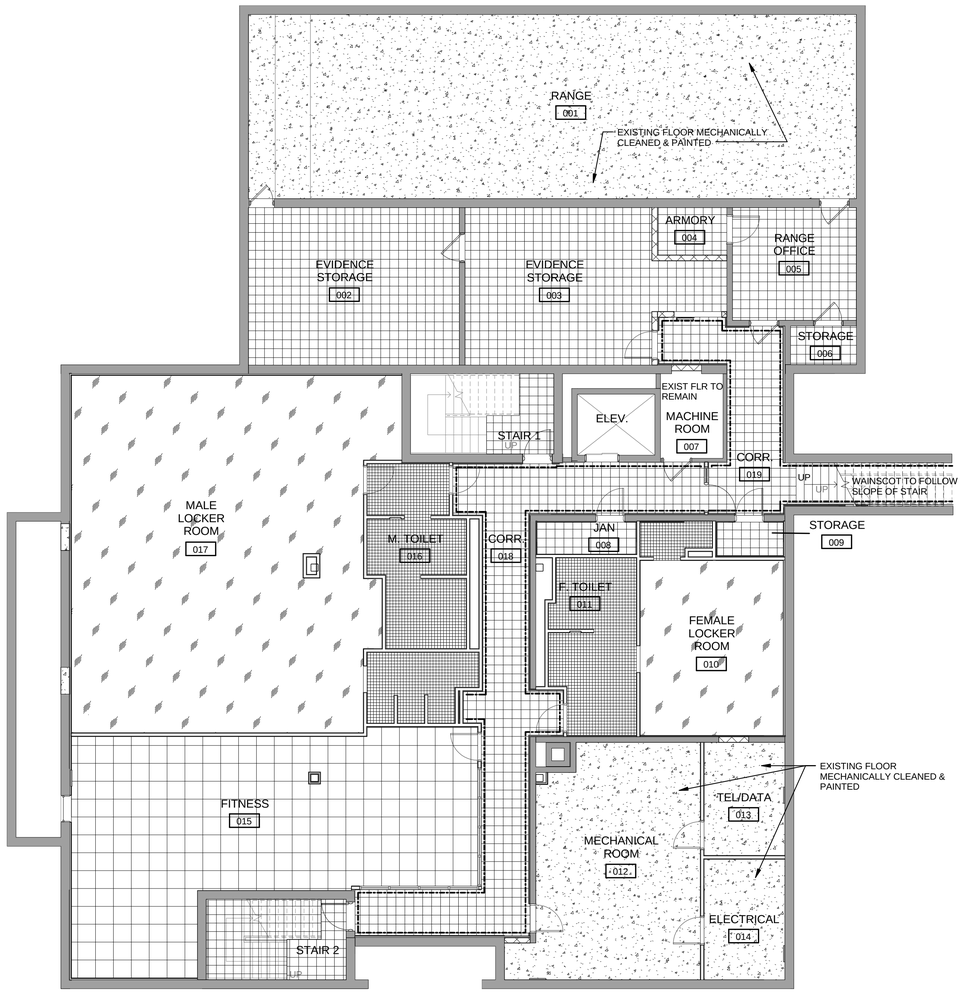
PROJECT FILE: C:\Users\MRogo\Documents\19401-Waltham Police Station-ARCHITECTURE_MRogo.rvt

FINISH FLOOR LEGEND

	24" x 24" SPORTS FLOORING TILE		RESINOUS FLOORING
	12" x 12" VCT FLOOR TILE		24" x 24" CARPET TILE
	12" x 12" TILE (PORCELAIN PAVERS)		PAINTED EXPOSED CONCRETE
	2"x2" CERAMIC TILE		WOOD PARQUET FLOOR (TO MATCH EXIST)

WALL FINISH LEGEND

	TYP WOOD WAINSCOTING (12/A704)
FH	WOOD WAINSCOTING (FLR TO CEILING)
SP	SCULPTURED PANEL BOARD (7/A704)



1 **BASEMENT LEVEL FINISH PLAN**
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

* EXTEND ALL FLOORING UNDER CASEWORK, CABINETRY ETC
* PROVIDE 7" WIDE MARBLE THRESHOLD AT C.T. FLOOR TRANSITION
* VCT FLOORING SHALL CONSIST OF A 3-COLOR BLEND, EXACT LAYOUT SHALL BE DETERMINED DURING CONSTRUCTION
* REFER TO SPECIFICATIONS FOR PROPER FLOORING PREPARATION
* PROVIDE ALUM STRIP AT ALL FLOOR MATERIAL TRANSITIONS.

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

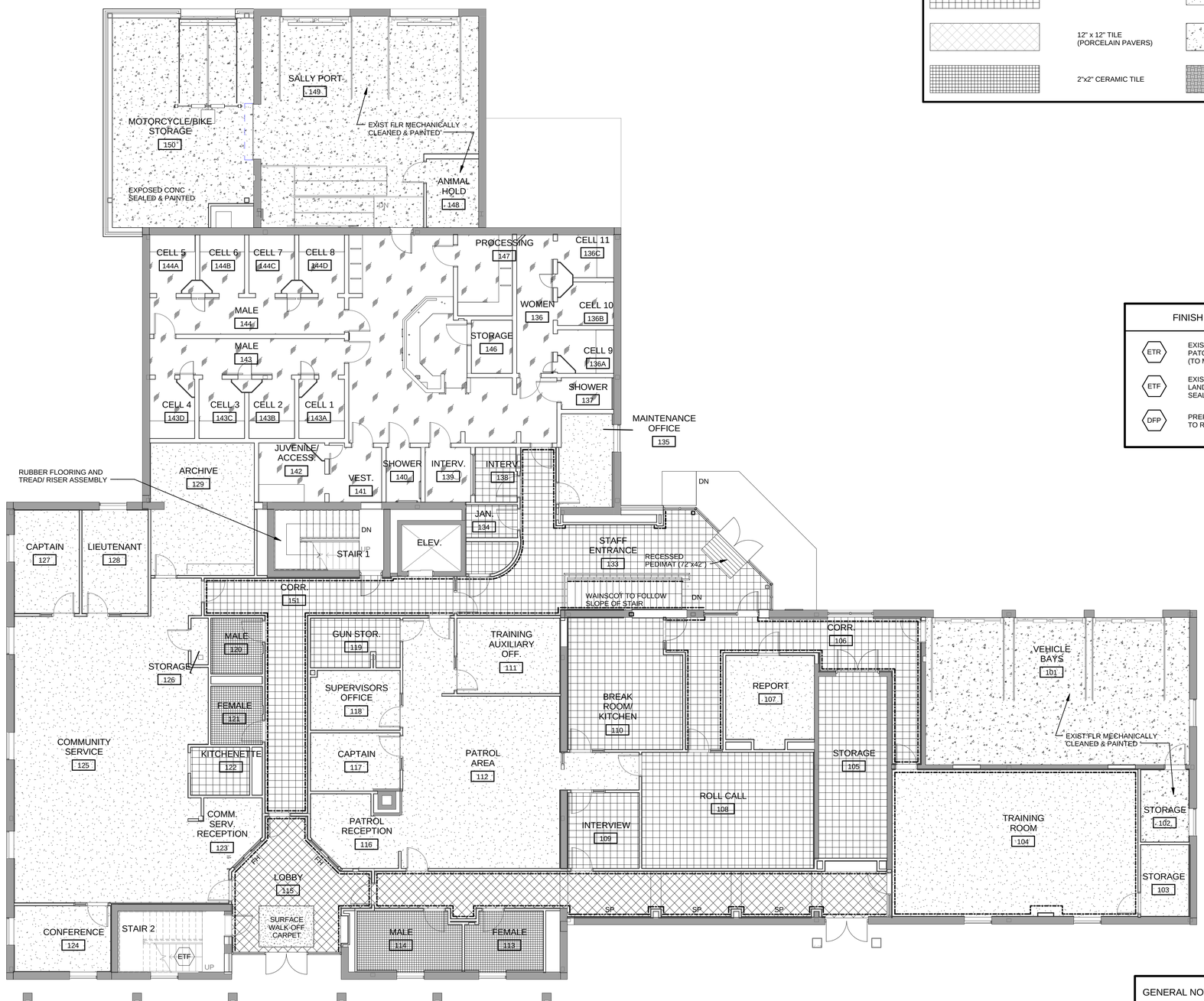
155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

BASEMENT FINISH PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: MR
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A630



1 **FIRST FLOOR FINISH PLAN**
SCALE: 1/8" = 1'-0"

FINISH FLOOR LEGEND

	24" x 24" SPORTS FLOORING TILE		RESINOUS FLOORING
	12" x 12" VCT FLOOR TILE		24" x 24" CARPET TILE
	12" x 12" TILE (PORCELAIN PAVERS)		PAINTED EXPOSED CONCRETE
	2"x2" CERAMIC TILE		WOOD PARQUET FLOOR (TO MATCH EXIST)

WALL FINISH LEGEND

	TYP WOOD WAINSCOTING (12/A704)
FH	WOOD WAINSCOTING (FLR TO CEILING)
SP	SCULPTURED PANEL BOARD (7/A704)

FINISH KEYNOTES

ETR	EXISTING FLOORING TO REMAIN: PATCH FLOORING & BASE IMPACTED BY RENOVATION (TO MATCH EXIST)
ETF	EXISTING TERRAZZO FLOOR COVERING @ STAIR LANDING & TREADS TO BE REPAIRED/REFINISHED & SEALED.
DFP	PREPARE EXIST SLAB (PREVIOUSLY DEMO FLOORING) TO RECEIVE NEW VCT

GENERAL NOTES:

* EXTEND ALL FLOORING UNDER CASEWORK, CABINETRY ETC
* PROVIDE 7" WIDE MARBLE THRESHOLD AT C.T. FLOOR TRANSITION
* VCT FLOORING SHALL CONSIST OF A 3-COLOR BLEND, EXACT LAYOUT SHALL BE DETERMINED DURING CONSTRUCTION
* REFER TO SPECIFICATIONS FOR PROPER FLOORING PREPARATION
* PROVIDE ALUM STRIP AT ALL FLOOR MATERIAL TRANSITIONS.

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REVISIONS

Number	Description	Date

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

FIRST FLOOR FINISH PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: MR
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A631

SHEET 66 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:22:27 PM

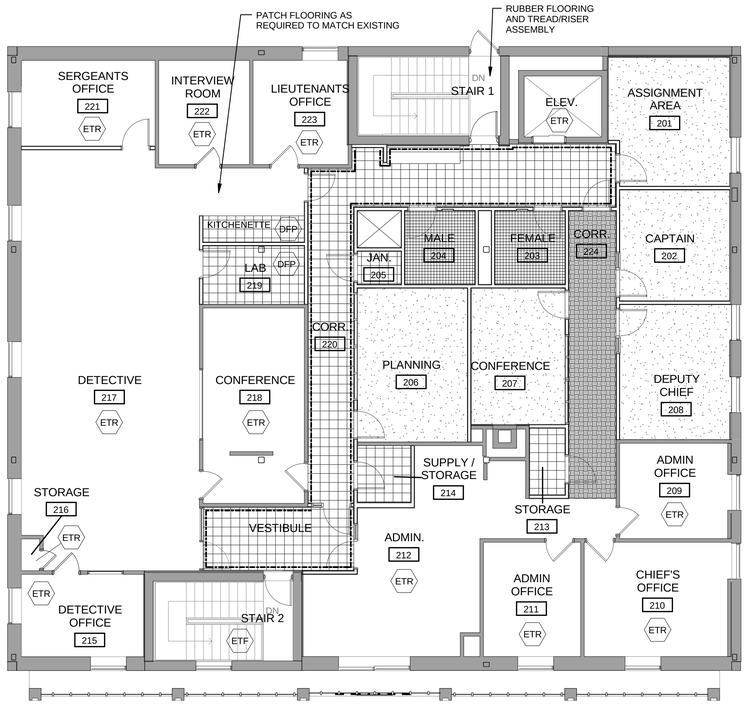
PROJECT FILE: C:\Users\MRogoff\Documents\19401-Waltham Police Station-ARCHITECTURE_MRogoff.rvt

FINISH FLOOR LEGEND

	24" x 24" SPORTS FLOORING TILE		RESINOUS FLOORING
	12" x 12" VCT FLOOR TILE		24" x 24" CARPET TILE
	12" x 12" TILE (PORCELAIN PAVERS)		PAINTED EXPOSED CONCRETE
	2"x2" CERAMIC TILE		WOOD PARQUET FLOOR (TO MATCH EXIST)

WALL FINISH LEGEND

-----------	TYP WOOD WAINSCOTING (12/A704)
FH -----------	WOOD WAINSCOTING (FLR TO CEILING)
SP -----------	SCULPTURED PANEL BOARD (7/A704)



1 SECOND FLOOR FINISH PLAN

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

FINISH KEYNOTES

ETR	EXISTING FLOORING TO REMAIN: PATCH FLOORING & BASE IMPACTED BY RENOVATION (TO MATCH EXIST)
ETF	EXISTING TERRAZZO FLOOR COVERING @ STAIR LANDING & TREADS TO BE REPAIRED/REFINISHED & SEALED.
DFP	PREPARE EXIST SLAB (PREVIOUSLY DEMO FLOORING) TO RECEIVE NEW VCT

GENERAL NOTES:

* EXTEND ALL FLOORING UNDER CASEWORK, CABINETRY ETC
* PROVIDE 7" WIDE MARBLE THRESHOLD AT C.T. FLOOR TRANSITION
* VCT FLOORING SHALL CONSIST OF A 3-COLOR BLEND, EXACT LAYOUT SHALL BE DETERMINED DURING CONSTRUCTION
* REFER TO SPECIFICATIONS FOR PROPER FLOORING PREPARATION
* PROVIDE ALUM STRIP AT ALL FLOOR MATERIAL TRANSITIONS.

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

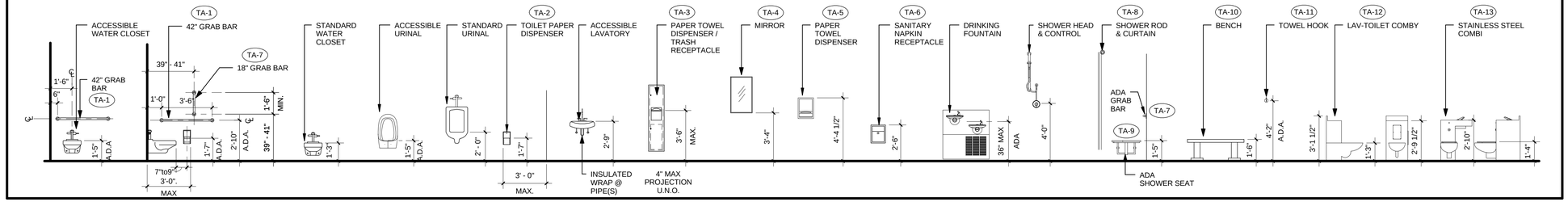
SECOND FLOOR FINISH PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: MR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A632

TOILET ROOM ACCESSORY LEGEND & MOUNTING HEIGHTS

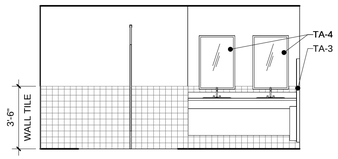


TOILET ROOM ACCESSORY SCHEDULE

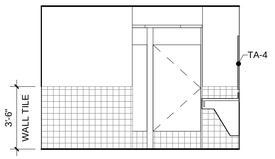
TYPE MARK	FIXTURE	BOBRICK MODEL NUMBER
TA-1	GRAB BAR	42" BOBRICK #B6806
TA-2	TOILET PAPER DISPENSER	BOBRICK #B4388
TA-3	PAPER TOWEL & TRASH RECEPTICAL	BOBRICK B3942
TA-4	MIRROR	BOBRICK #B290
TA-5	PAPER TOWEL DISPENSER	BOBRICK #B359
TA-6	SANITARY NAPKIN DISPOSAL	BOBRICK #B354
TA-7	ADA VERITICAL GRAB BAR	18" BOBRICK #B5806
TA-8	SHOWER ROD WITH CURTAIN	BOBRICK #B6047(ROD) #B243 (CURTAIN)
TA-9	SHOWER SEAT	#B517 - RT HANDED #B518 - LT HANDED
TA-11	GRAB BAR-CORNER	B-6806 Series

SHEET NOTES:

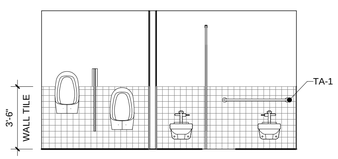
1. REFER TO SHEET A602 FOR FINISH MATERIAL SCHEDULE.
2. REFER TO SHEET A101 FOR GENERAL PLAN NOTES.
3. REFER TO STRUCTURAL DWGS FOR CUTTING & PATCHING OF CONC SLAB



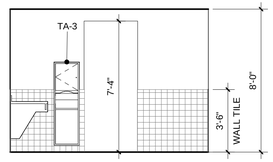
5 **RM 016 WEST ELEV**
SCALE: 1/4" = 1'-0"



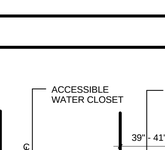
4 **RM 016 SOUTH ELEV**
SCALE: 1/4" = 1'-0"



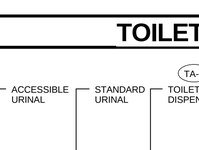
3 **RM 016 EAST ELEV**
SCALE: 1/4" = 1'-0"



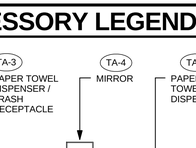
2 **RM 016 NORTH ELEV**
SCALE: 1/4" = 1'-0"



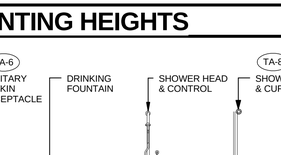
9 **MENS SHOWER WEST ELEV**
SCALE: 1/4" = 1'-0"



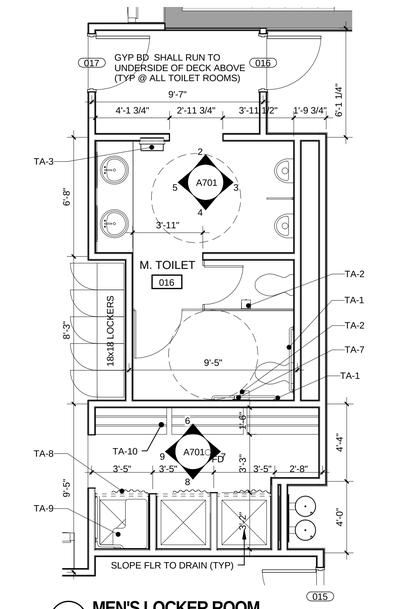
8 **MENS SHOWER SOUTH ELEV**
SCALE: 1/4" = 1'-0"



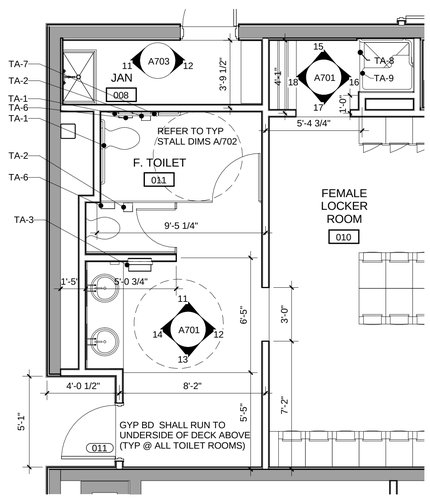
7 **MENS SHOWER EAST ELEV**
SCALE: 1/4" = 1'-0"



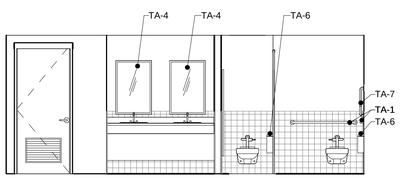
6 **MENS SHOWER NORTH ELEV**
SCALE: 1/4" = 1'-0"



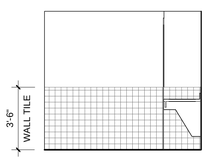
1 **MEN'S LOCKER ROOM**
SCALE: 1/4" = 1'-0"



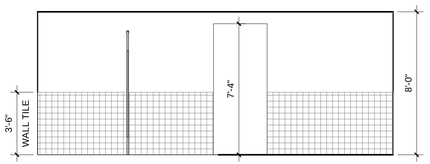
10 **WOMEN'S LOCKER ROOM**
SCALE: 1/4" = 1'-0"



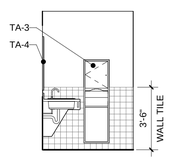
14 **RM 011 WEST ELEV**
SCALE: 1/4" = 1'-0"



13 **RM 011 SOUTH ELEV**
SCALE: 1/4" = 1'-0"

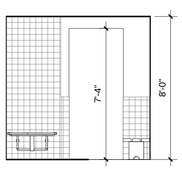


12 **RM 011 EAST ELEV**
SCALE: 1/4" = 1'-0"

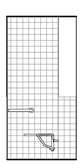


11 **RM 011 NORTH ELEV**
SCALE: 1/4" = 1'-0"

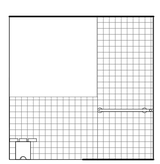
18 **WOMENS SHOWER WEST ELEV**
SCALE: 1/4" = 1'-0"



17 **WOMENS SHOWER SOUTH ELEV**
SCALE: 1/4" = 1'-0"



16 **WOMENS SHOWER EAST ELEV**
SCALE: 1/4" = 1'-0"



15 **WOMENS SHOWER NORTH ELEV**
SCALE: 1/4" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

TOILET ROOM PLANS AND ELEVATIONS

PROJECT NUMBER:	19401.01
DESIGNED BY:	FC
DRAWN BY:	EKM
CHECKED BY:	FC
DATE:	July 11, 2014
SCALE:	1/4" = 1'-0"

SHEET NUMBER:

A701

SHEET 68 OF 157

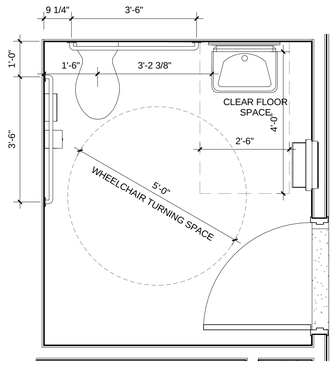
REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:23:01 PM

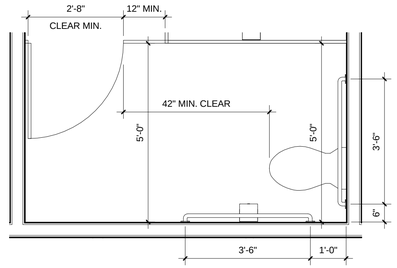
PROJECT FILE: C:\Users\MRoy\Documents\19401-Waltham Police Station-ARCHITECTURE_MRoyLocal.rvt

SHEET NOTES:

1. REFER TO SHEET A602 FOR FINISH MATERIAL SCHEDULE.
2. REFER TO SHEET A101 FOR GENERAL PLAN NOTES.
3. REFER TO SHEET A701 FOR TOILET FIXTURE LEGEND



TYP ACCESSIBLE SINGLE USER TOILET DIMS
1/2" = 1'-0"



TYP ACCESSIBLE STALL DIMS
1/2" = 1'-0"

TOILET ROOM ACCESSORY SCHEDULE

TYPE MARK	FIXTURE	BOBRICK MODEL NUMBER
TA-1	GRAB BAR	42" BOBRICK #B6806
TA-2	TOILET PAPER DISPENSER	BOBRICK #B4388
TA-3	PAPER TOWEL & TRASH RECEPTICAL	BOBRICK B3942
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TA-5	PAPER TOWEL DISPENSER	BOBRICK #B359
TA-6	SANITARY NAPKIN DISPOSAL	BOBRICK #B354
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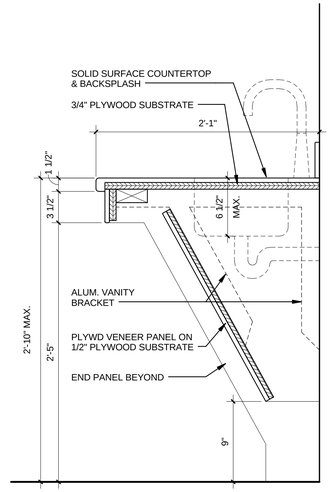
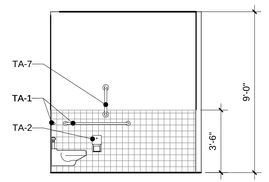
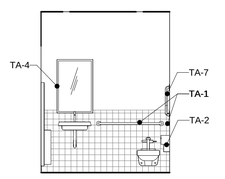
TA-9	SHOWER SEAT	#B517 - RT HANDED #B518 - LT HANDED
TA-11	GRAB BAR-CORNER	B-6806 Series



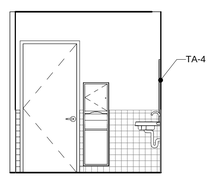
20 TYPICAL ACCESSIBLE SINK
SCALE: 1 1/2" = 1'-0"



5 RM 120 WEST ELEV (RM 121 SIMILAR)
SCALE: 1/4" = 1'-0"



4 RM 120 SOUTH ELEV (RM 121 SIMILAR)
SCALE: 1/4" = 1'-0"



3 RM 120 EAST ELEV (RM 121 SIMILAR)
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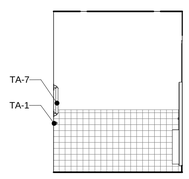

2 RM 120 NORTH ELEV (RM 121 SIMILAR)
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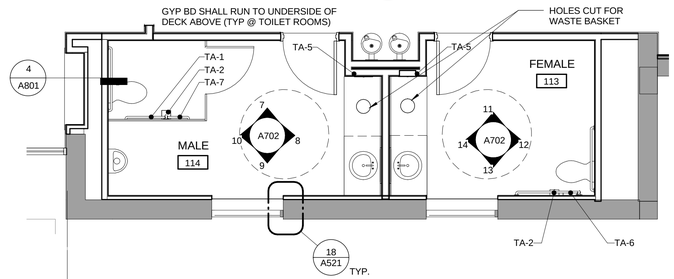
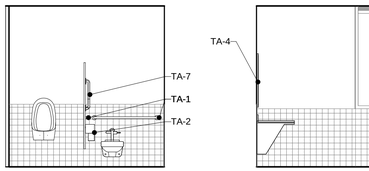
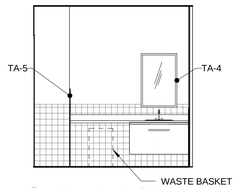


6 ENLARGED FIRST FLOOR PUBLIC BATHROOM PLAN
SCALE: 1/4" = 1'-0"



10 RM 114 WEST ELEV
SCALE: 1/4" = 1'-0"

9 RM 114 SOUTH ELEV
SCALE: 1/4" = 1'-0"



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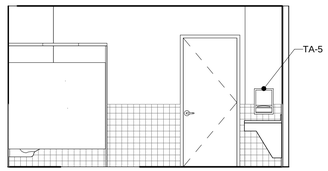
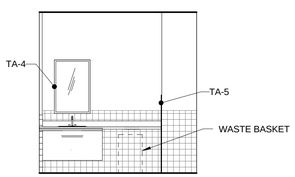
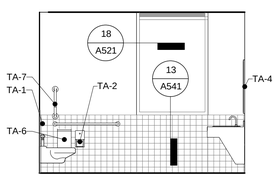
SCALE: 1/4" = 1'-0"



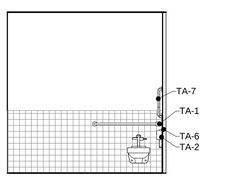
7 RM 114 NORTH ELEV
SCALE: 1/4" = 1'-0"



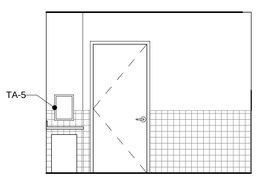
14 RM 113 WEST ELEV
SCALE: 1/4" = 1'-0"



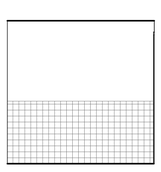
13 RM 113 SOUTH ELEV
SCALE: 1/4" = 1'-0"



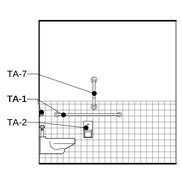
12 RM 113 EAST ELEV
SCALE: 1/4" = 1'-0"



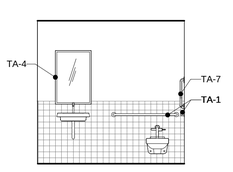
11 RM 113 NORTH ELEV
SCALE: 1/4" = 1'-0"



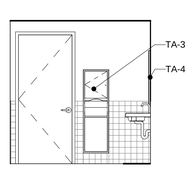
19 RM 204 WEST ELEV (RM 203 SIMILAR)
SCALE: 1/4" = 1'-0"



18 RM 204 SOUTH ELEV (RM 203 SIMILAR)
SCALE: 1/4" = 1'-0"

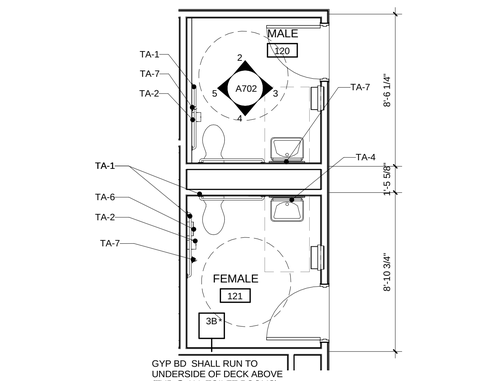


17 RM 204 EAST ELEV (RM 203 SIMILAR)
SCALE: 1/4" = 1'-0"

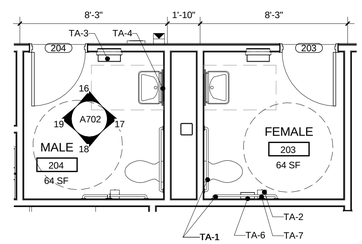


16 RM 204 NORTH ELEV (RM 203 SIMILAR)
SCALE: 1/4" = 1'-0"

M2



1 ENLARGED FIRST FLOOR PRIVATE BATHROOM PLAN
SCALE: 1/4" = 1'-0"



15 ENLARGED SECOND FLOOR BATHROOM
SCALE: 1/4" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

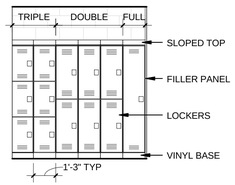
155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

TOILET ROOM PLANS AND ELEVATIONS

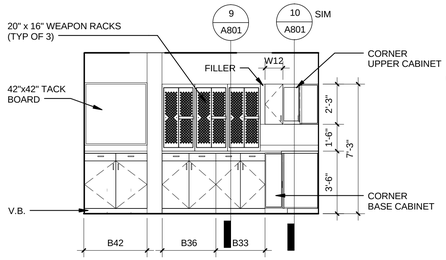
PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: EKM
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

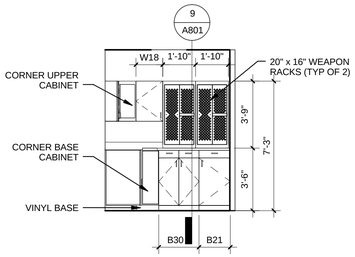
A702



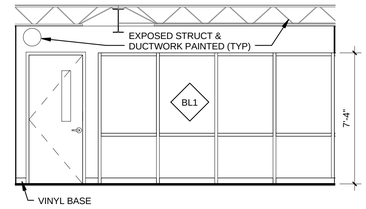
1 DETENTION LOCKERS ELEVATION
SCALE: 1/4" = 1'-0"



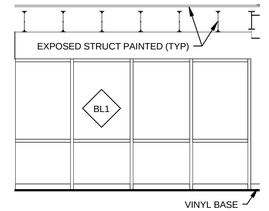
2 GUN STORAGE SOUTH ELEVATION
SCALE: 1/4" = 1'-0"



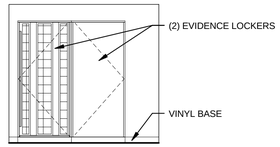
3 GUN STORAGE WEST ELEVATION
SCALE: 1/4" = 1'-0"



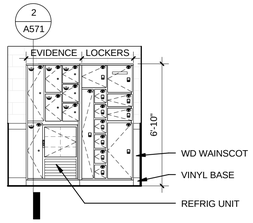
4 FITNESS EAST ELEVATION
SCALE: 1/4" = 1'-0"



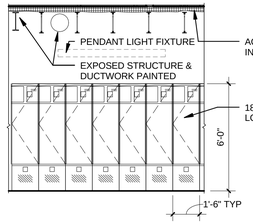
5 FITNESS SOUTH ELEVATION
SCALE: 1/4" = 1'-0"



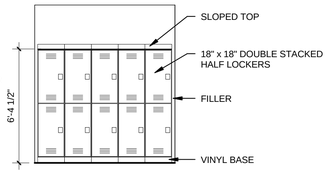
6 EVIDENCE LOCKERS NORTH WALL ELEV
SCALE: 1/4" = 1'-0"



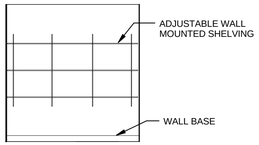
7 EVIDENCE LOCKERS SOUTH WALL ELEV
SCALE: 1/4" = 1'-0"



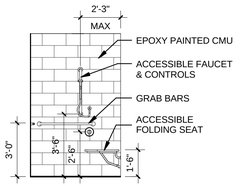
8 TYP'L 18" LOCKER ELEV
SCALE: 1/4" = 1'-0"



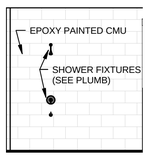
9 DOUBLE STACKED LOCKERS
SCALE: 1/4" = 1'-0"



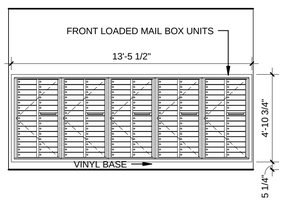
10 STORAGE 009 NORTH ELEV
SCALE: 1/4" = 1'-0"



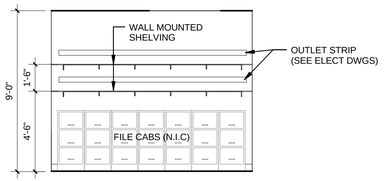
17 SHOWER 140 SOUTH
SCALE: 1/4" = 1'-0"



18 SHOWER 137 SOUTH
SCALE: 1/4" = 1'-0"

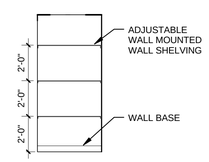


19 MAILBOX ELEVATION
SCALE: 1/4" = 1'-0"

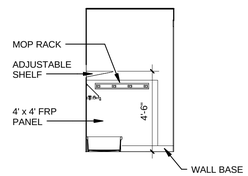


20 COMMUNITY SERV. ALCOVE
SCALE: 1/4" = 1'-0"

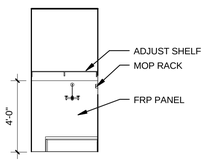
11 JANIOR RM 008 EAST ELEV.
SCALE: 1/4" = 1'-0"



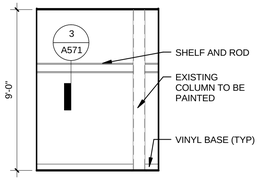
12 JANITOR RM 008 WEST ELEV.
SCALE: 1/4" = 1'-0"



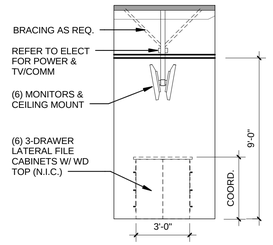
13 JANITOR 205 NORTH ELEV
SCALE: 1/4" = 1'-0"



14 JANITOR 205 EAST
SCALE: 1/4" = 1'-0"



15 STORAGE RM 126 WEST ELEV
SCALE: 1/4" = 1'-0"



16 PATROL OVERHEAD MONITORS
SCALE: 1/4" = 1'-0"

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

INTERIOR ELEVATIONS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: JR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: 1/4" = 1'-0"

SHEET NUMBER:

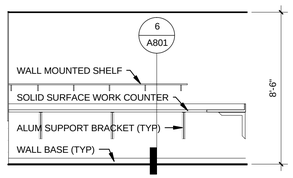
A703

SHEET 70 **OF** 157

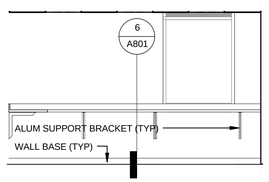
REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

PLOTTED: 7/14/2014 5:23:07 PM

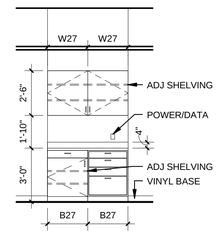
PROJECT FILE: C:\Users\MMcgoff\Documents\19401-Waltham Police Station-ARCHITECTURE_MMcgoff.rvt



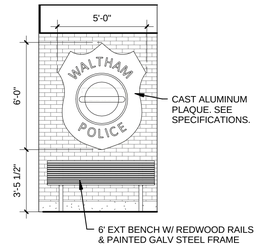
1 ASSIGNMENT 201 NORTH
SCALE: 1/4" = 1'-0"



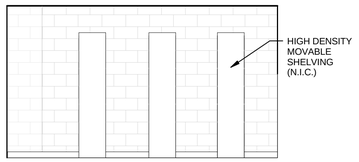
2 ASSIGNMENT 201 EAST
SCALE: 1/4" = 1'-0"



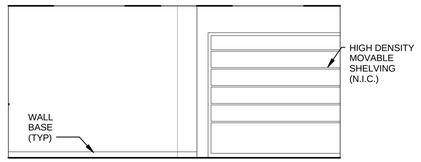
3 REPORT RM ELEV
SCALE: 1/4" = 1'-0"



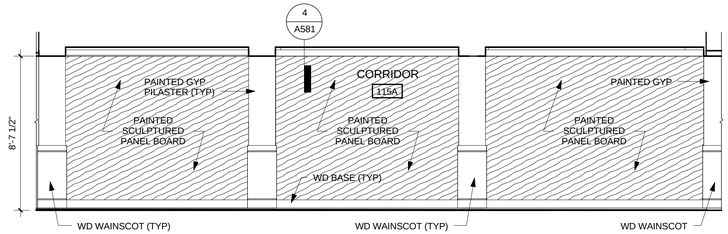
4 DECORATIVE SIGNAGE
SCALE: 1/4" = 1'-0"



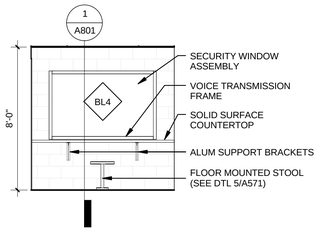
5 ARCHIVES NORTH ELEVATION
SCALE: 1/4" = 1'-0"



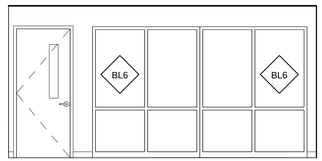
6 ARCHIVE WEST ELEVATION
SCALE: 1/4" = 1'-0"



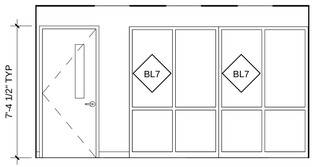
7 CORRIDOR 115A ELEV
SCALE: 1/4" = 1'-0"



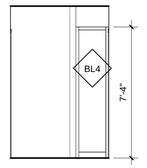
8 INTERVIEW 139 EAST
SCALE: 1/4" = 1'-0"



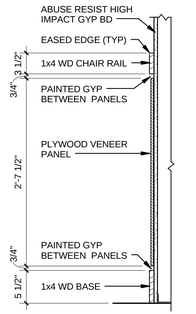
9 TRAINING AUXILARY OFFICE
SCALE: 1/4" = 1'-0"



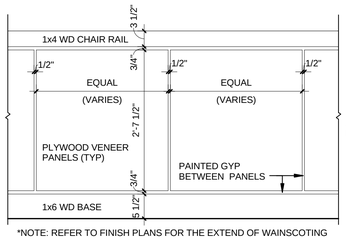
10 PLANNING OFFICE
SCALE: 1/4" = 1'-0"



11 VESTIBULE ELEVATION
SCALE: 1/4" = 1'-0"

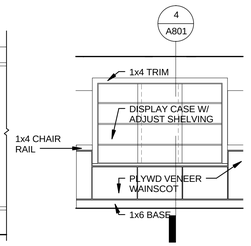


12 TYP WAINSCOT DETAIL
SCALE: 1" = 1'-0"

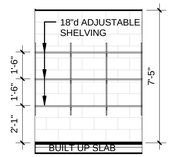


*NOTE: REFER TO FINISH PLANS FOR THE EXTEND OF WAINSCOTING

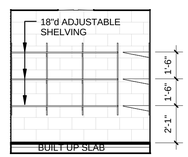
13 TYP WAINSCOT ELEV
SCALE: 3/4" = 1'-0"



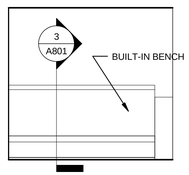
14 DISPLAY CASE ELEV
SCALE: 1/4" = 1'-0"



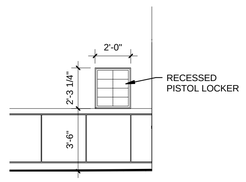
15 STORAGE 146 SOUTH
SCALE: 1/4" = 1'-0"



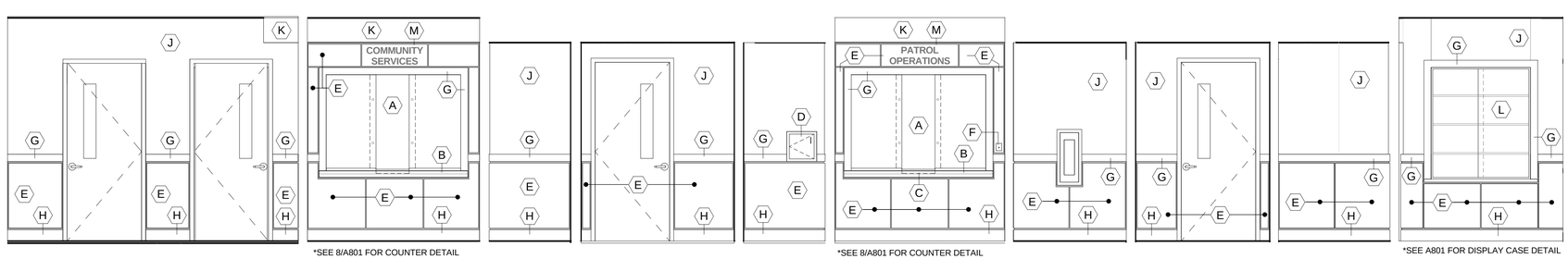
16 STORAGE 146 WEST
SCALE: 1/4" = 1'-0"



17 SECOND FLOOR BENCH ELEV
SCALE: 1/4" = 1'-0"



18 8 DOOR PISTOL LOCKER
SCALE: 1/4" = 1'-0"



*SEE 8/A801 FOR COUNTER DETAIL

*SEE 8/A801 FOR COUNTER DETAIL

*SEE A801 FOR DISPLAY CASE DETAIL

19 UNFOLDED ELEVATION @ LOBBY
SCALE: 3/8" = 1'-0"

LOBBY ELEV KEY NOTES:

- A — BULLET RESISTANT SECURITY WINDOW ASSEMBLY W/ BAFFLE CONFIG GLAZING
- B — SOLID SURFACE COUNTERTOP & EDGE
- C — RECESSED DEAL TRAY
- D — FIRE RATED SECURITY PACKAGE PASS-THRU
- E — 1/2" PLYWOOD VENEER PANEL
- F — DOOR BELL, MAX 48" A.F.F. (REF TO ELECT)
- G — 1x4 SOLID WD TRIM
- H — 1x6 SOLID WD BASE TRIM
- J — PAINTED GYPSUM BOARD WALL
- K — PAINTED GYPSUM BOARD SOFFIT
- L — DISPLAY CASE W/ ADJUST SHELVING
- M — INDIVIDUAL STAINLESS STEEL LETTERS ON STANDOFFS, SEE DETAIL 1/A572

NOTES:

1) 1/2" GAP BETWEEN PLWD PANELS TO EXPOSE PAINTED GYP (TYP FOR VERTICAL RUNNING GAPS)
2) 3/4" GAP BETWEEN PLWD PANELS TO EXPOSE PAINTED GYP (TYP FOR HORIZONTAL RUNNING GAPS)

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

INTERIOR ELEVATIONS

PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: JR
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

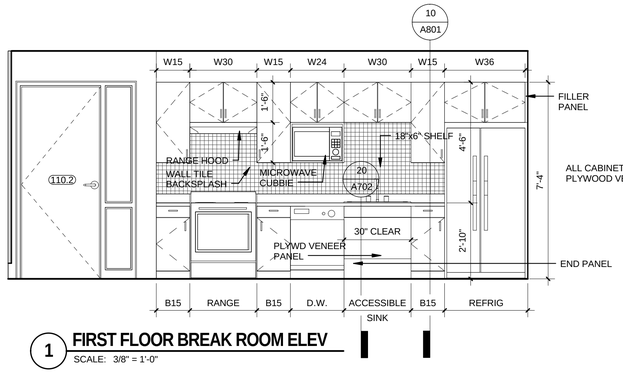
A704

SHEET 71 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

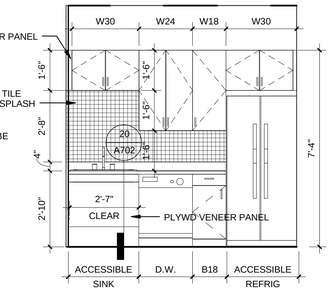
PLOTTED: 7/14/2014 6:23:10 PM

PROJECT FILE: C:\Users\MRoger\Documents\19401-Waltham Police Station-ARCHITECTURE_MRoger.rvt



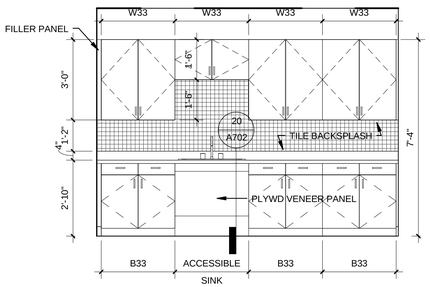
1 FIRST FLOOR BREAK ROOM ELEV

SCALE: 3/8" = 1'-0"



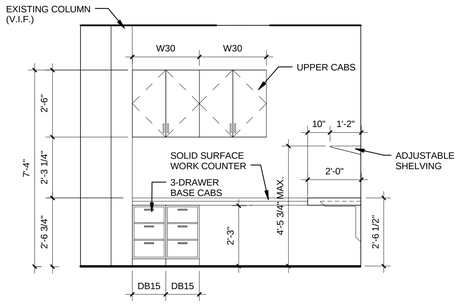
2 KITCHENETTE 122 ELEV

SCALE: 3/8" = 1'-0"



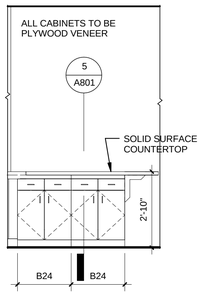
3 SECOND FLOOR KITCHENETTE ELEV

SCALE: 3/8" = 1'-0"



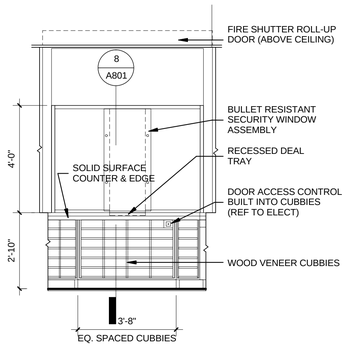
4 RECEPTION 123 NORTH

SCALE: 3/8" = 1'-0"



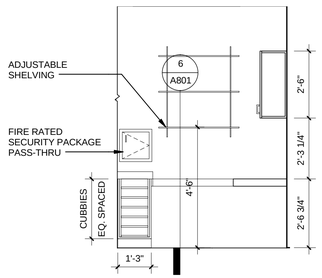
5 RECEPTION 123 SOUTH

SCALE: 3/8" = 1'-0"



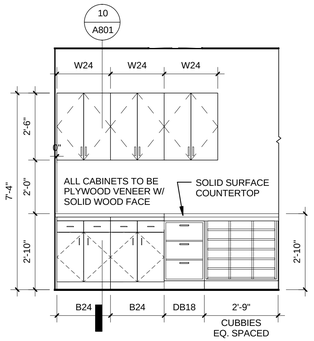
6 PATROL RECEPTION WINDOW

SCALE: 3/8" = 1'-0"



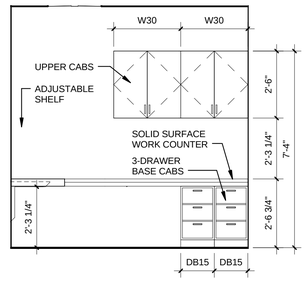
7 PATROL RECEPTION WEST

SCALE: 3/8" = 1'-0"



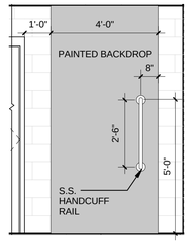
8 PATROL RECEPTION SOUTH

SCALE: 3/8" = 1'-0"



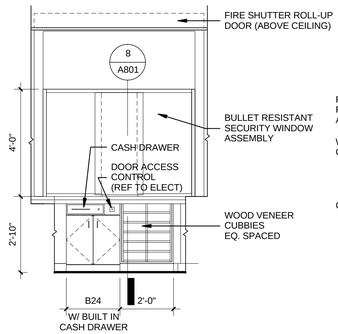
9 PATROL RECEPTION NORTH

SCALE: 3/8" = 1'-0"



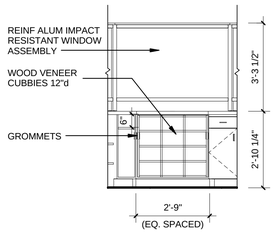
10 MUG SHOT WALL ELEV

SCALE: 3/8" = 1'-0"



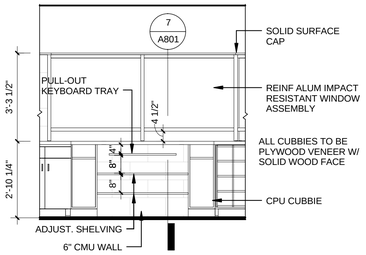
11 RECEPTION 123 EAST

SCALE: 3/8" = 1'-0"



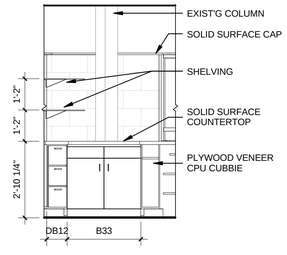
12 BOOKING A SHELVING

SCALE: 3/8" = 1'-0"



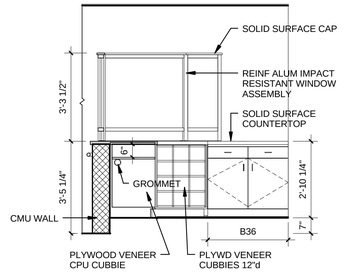
13 BOOKING A - WEST

SCALE: 3/8" = 1'-0"



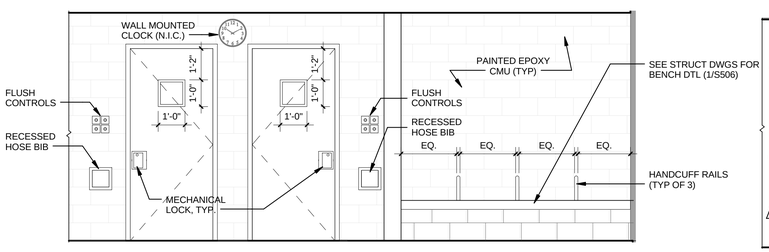
14 BOOKING A - SOUTH

SCALE: 3/8" = 1'-0"



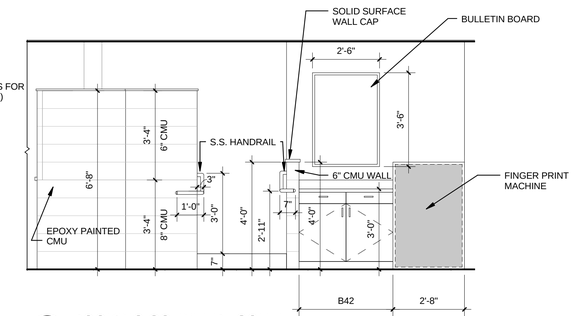
15 BOOKING A - NORTH

SCALE: 3/8" = 1'-0"



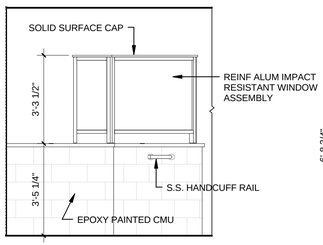
16 BOOKING 145 WEST ELEV

SCALE: 3/8" = 1'-0"



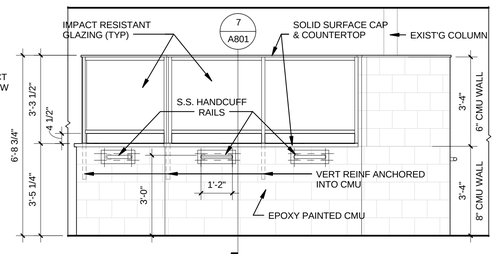
17 BOOKING COUNTER - SOUTH

SCALE: 3/8" = 1'-0"



18 BOOKING COUNTER - NORTH

SCALE: 3/8" = 1'-0"



19 BOOKING COUNTER - WEST

SCALE: 3/8" = 1'-0"

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ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

INTERIOR ELEVATIONS

PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: JR
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: 3/8" = 1'-0"

SHEET NUMBER:

A705

SHEET 72 OF 157

REVISED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

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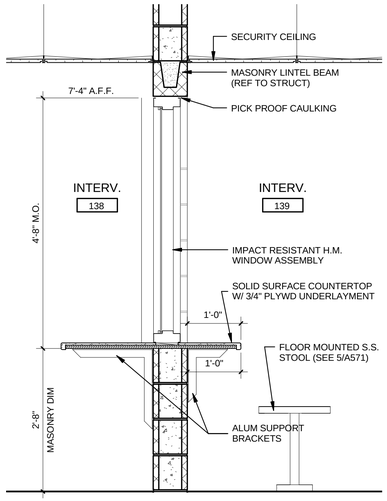
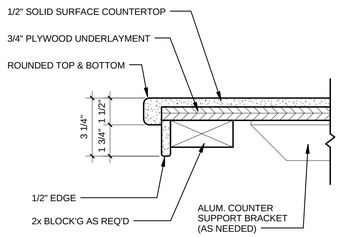
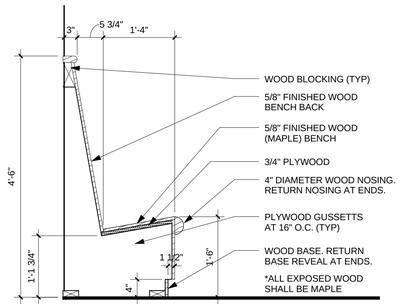
PROJECT FILE: C:\Users\MWoggon\Documents\19401-Waltham Police Station-ARCHITECTURE_MWoggon.rvt



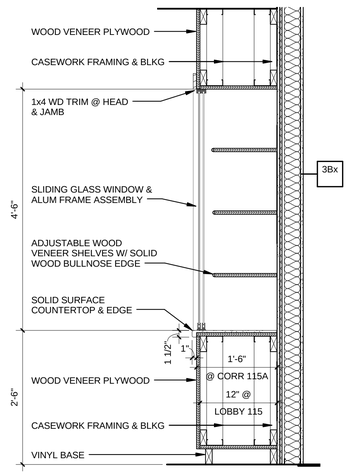
1 SECTION THRU INTERVIEW COUNTER
SCALE: 3/4" = 1'-0"



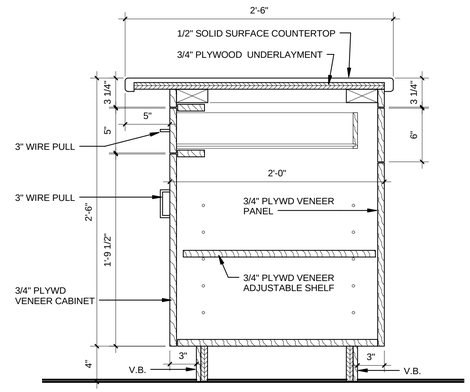
2 TYP'L WORK COUNTER EDGE
SCALE: 3" = 1'-0"



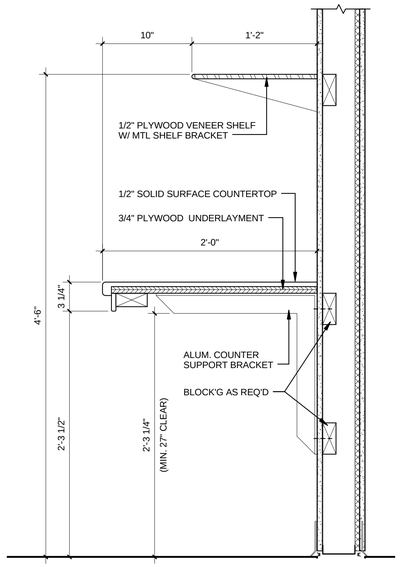
3 SECOND FLOOR BENCH SECTION
SCALE: 3/4" = 1'-0"



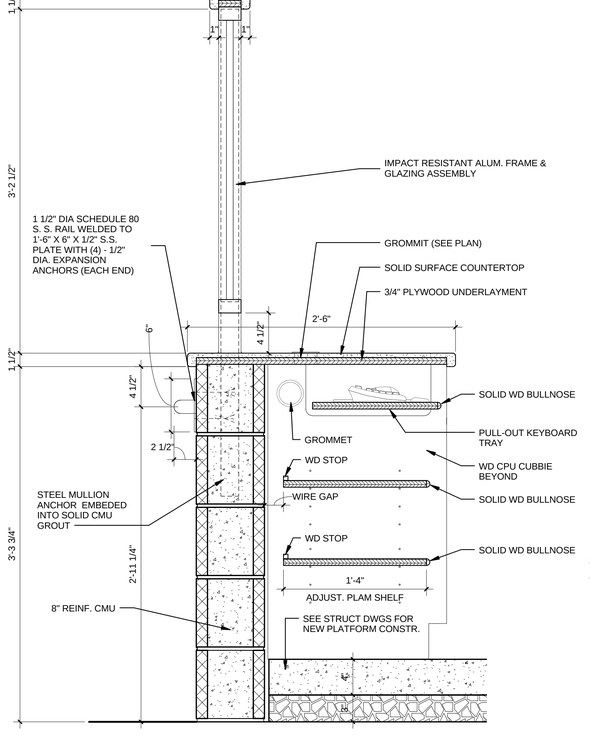
4 DISPLAY CASE SECTION
SCALE: 3/4" = 1'-0"



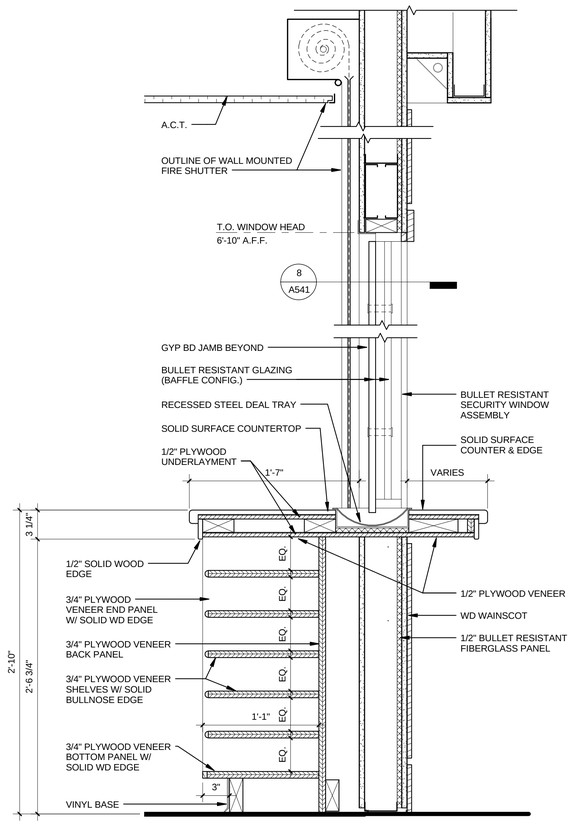
5 ISLAND COUNTER/CABINET
SCALE: 1 1/2" = 1'-0"



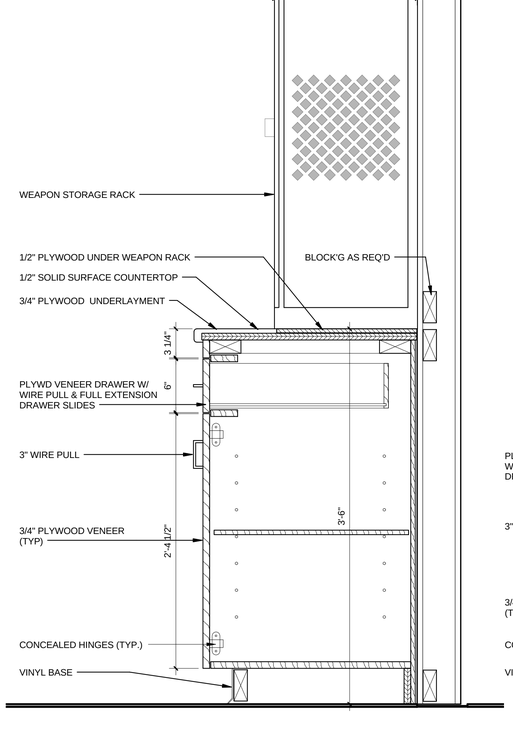
6 WORK COUNTER
SCALE: 1 1/2" = 1'-0"



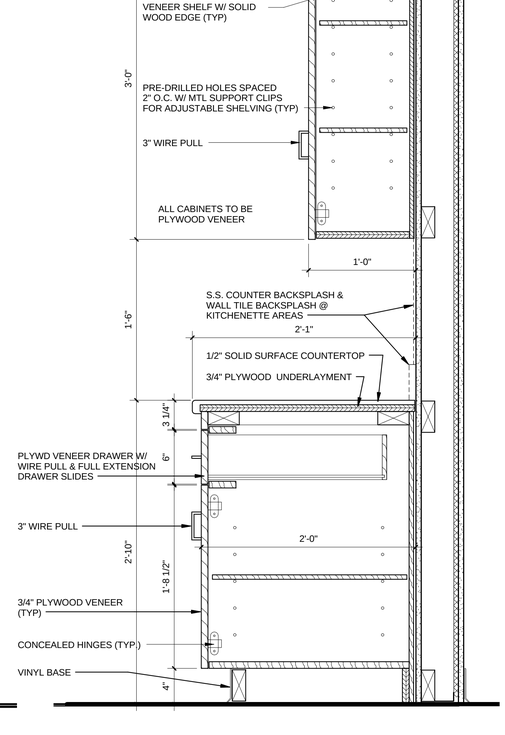
7 BOOKING COUNTER SECTION
SCALE: 1 1/2" = 1'-0"



8 RECEPTION COUNTER
SCALE: 1 1/2" = 1'-0"



9 WEAPON RACK & CABINET DETAIL
SCALE: 1 1/2" = 1'-0"



10 BASE & UPPER CABS
SCALE: 1 1/2" = 1'-0"

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

MILLWORK DETAILS

PROJECT NUMBER: 19401.01
DESIGNED BY: FC
DRAWN BY: JR
CHECKED BY: FC
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A801

SHEET 73 **OF** 157

REVISED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

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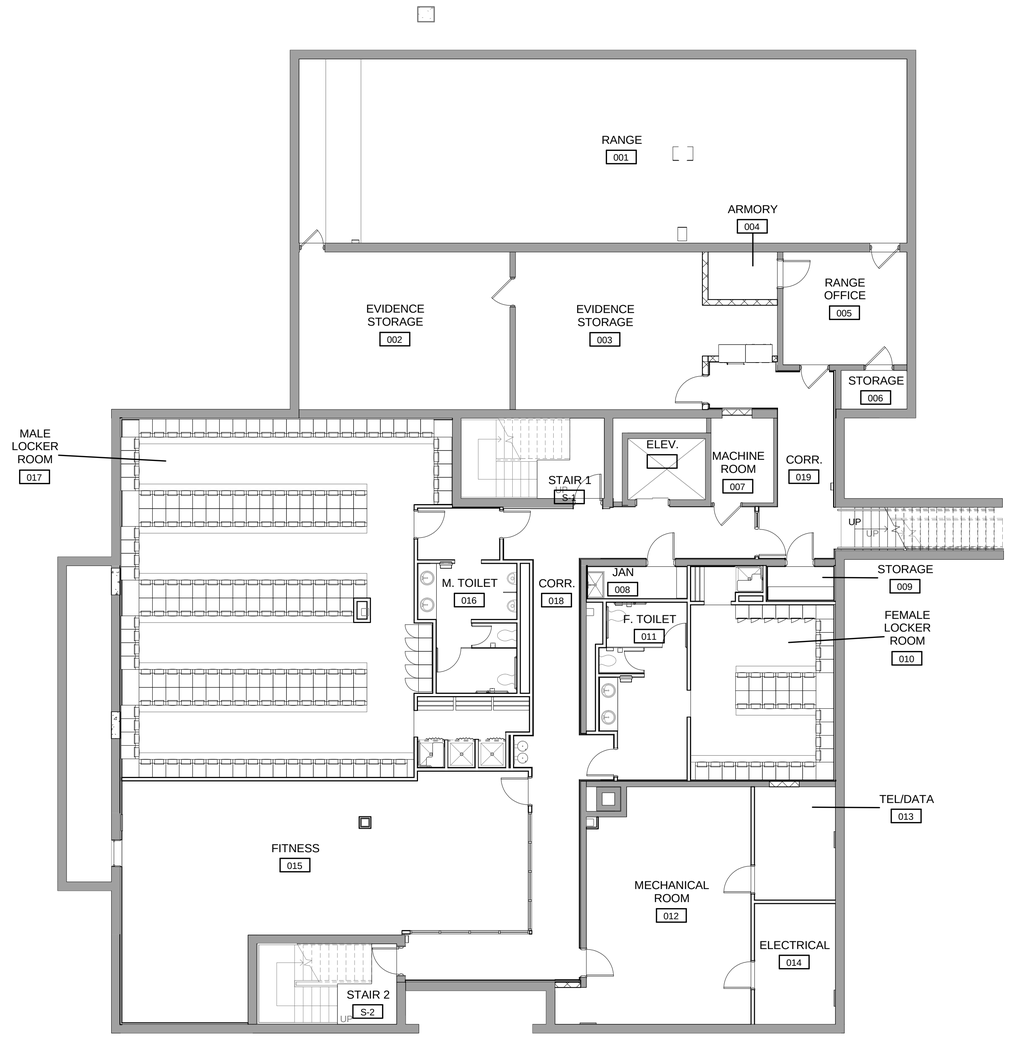
FURNITURE PLAN NOTES

1 ALL FURNITURE AND EQUIPMENT SHALL BE PURCHASED AND INSTALLED BY THE CITY UNLESS OTHERWISE NOTED. GM TO COORDINATE POWER / DATA WITH VENDOR.



1 BASEMENT LEVEL FURNITURE PLAN
SCALE: 1/8" = 1'-0"

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

BASEMENT FLOOR FURNITURE PLAN

PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: Author
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A900

SHEET 74 **OF** 157

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FURNITURE PLAN NOTES

1 ALL FURNITURE AND EQUIPMENT SHALL BE PURCHASED AND INSTALLED BY THE CITY UNLESS OTHERWISE NOTED. GM TO COORDINATE POWER / DATA WITH VENDOR.

1 **FIRST FLOOR FURNITURE PLAN**
SCALE: 1/8" = 1'-0"

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

FIRST FLOOR FURNITURE PLAN

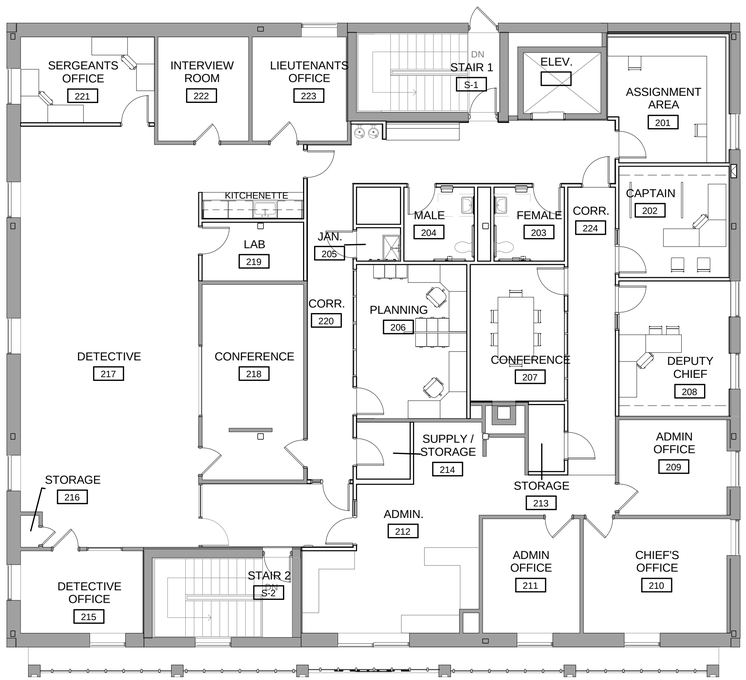
PROJECT NUMBER: 19401.01
DESIGNED BY: Designer
DRAWN BY: Author
CHECKED BY: Checker
DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A901

FURNITURE PLAN NOTES

1 ALL FURNITURE AND EQUIPMENT SHALL BE PURCHASED AND INSTALLED BY THE CITY UNLESS OTHERWISE NOTED. GM TO COORDINATE POWER / DATA WITH VENDOR.



1 **SECOND FLOOR FURNITURE PLAN**
SCALE: 1/8" = 1'-0"

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECOND FLOOR FURNITURE PLAN

PROJECT NUMBER: 19401.01
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DATE: July 11, 2014
SCALE: As indicated

SHEET NUMBER:

A902

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

ABBREVIATIONS

GENERAL

A	COMPRESSED AIR
AD	ACCESS DOOR
ADD'L	ADDITIONAL
AF	AIR FOIL
AFF	ABOVE FINISHED FLOOR
AFR	ABOVE FINISHED ROOF
ALT	ALTITUDE OR ALTERNATE
AMP	AMPERE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARCH	ARCHITECT
ATC	AUTOMATIC TEMPERATURE CONTROL
ATM	ATMOSPHERE
AVE	AVERAGE
BHP	BRAKE HORSEPOWER
BI	BACKWARDS INCLINED
BLDG	BUILDING
BOD	BOTTOM OF DUCT
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
C TO C	CENTER TO CENTER
CENT	CENTRIFUGAL
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CL	CENTERLINE
CLG	CEILING OR COOLING
CO	CARBON MONOXIDE
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONTR	CONTRACTOR
D	DRAIN OR DEPTH
DB	DRY BULB TEMPERATURE
DEG	DEGREE
DDC	DIRECT DIGITAL CONTROL
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DP	DIFFERENTIAL PRESSURE
EA	EACH OR EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EFF	EFFICIENCY
ELEC	ELECTRICAL
ELEV	ELEVATION
EMER	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
ENT	ENTER
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXIST.	EXISTING
EXT	EXTERNAL
EXP	EXPANSION
F	FAHRENHEIT
FA	FREE AREA
FC	FLEXIBLE CONNECTION
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLRDR	FLOOR DRAIN
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOW SWITCH
FT	FEET
G	GAS
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRD	GRADE
GWB	GYPSUM WALL BOARD
HB	HOSE BIBB CONN.
HD	HEAD
HGT	HEIGHT
HP	HORSEPOWER
HR	HOUR
HTG	HEATING
HZ	HERTZ (FREQUENCY, CYCLES PER SECOND)
ID	INSIDE DIAMETER
IN	INCHES
KW	KILOWATT
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LF	LINEAR FEET
LP	LOW POINT
LRA	LOCKED ROTOR AMPS
LUVR	LOUVER
LVDR	LOUVERED DOOR
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTUH
MCA	MINIMUM CIRCUIT AMPS
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MU	MAKE-UP WATER
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED OR NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
No.	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OC	ON CENTER
OD	OUTSIDE DIAMETER
ODP	OPEN DRIP PROOF
OV	OUTLET VELOCITY
PCF	POUNDS PER CUBIC FOOT
PD	PRESSURE DROP
PH	PHASE
PBG	PLUMBING
POS	PROVIDED BY OTHER SECTION
PPM	PARTS PER MILLION
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
PSIG	POUNDS PER SQUARE INCH GAUGE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
R	RADIUS
RA	RETURN AIR
RET	RETURN
REQ'D	REQUIRED
RH	RELATIVE HUMIDITY
RLA	RUNNING LOAD AMPS
RLF	RELIEF
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SCH	SCHEDULE
SCR	SCREEN
SDET	SMOKE DETECTOR
SEN	SENSIBLE
SHC	SENSIBLE HEAT CAPACITY
SP	STATIC PRESSURE
SPECS	SPECIFICATIONS
SQ	SQUARE
SF	SQUARE FEET
SS	STAINLESS STEEL
STL	STEEL
SUP	SUPPLY
T	TEMPERATURE
TA	THROWAWAY
TEL	TELEPHONE
TEFC	TOTALLY ENCLOSED FAN COOLED
TEMP	TEMPERATURE
TSTAT	THERMOSTAT
TON	12,000 BTUH COOLING CAPACITY
TOT	TOTAL
TYP	TYPICAL
UC	UNDERCUT DOOR
V	VOLTS (ELECTRICAL)
VEL	VELOCITY
W	WIDTH OR WATT
W/	WITH
WB	WET BULB TEMPERATURE
WC	WATER COLUMN
WG	WATER GAUGE
W/O	WITHOUT
WPD	WATER PRESSURE DROP
WTD	WATER TEMPERATURE DIFFERENCE

DUCT

ACD	AUTOMATIC CONTROL DAMPER
AFMS	AIR FLOW MEASURING STATION
BDD	BACKDRAFT DAMPER
BOD	BOTTOM OF DUCT
DIFF	DIFFUSER
EA	EXHAUST AIR
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
FBD	FLAT BOTTOM DUCT
FD	FIRE DAMPER (W/ ACCESS DOOR)
LD	LINEAR DIFFUSER
MD	MOTOR OPERATED DAMPER
OA	OUTSIDE AIR
OED	OPEN END DUCT
RA	RETURN AIR
RG	RETURN GRILLE
RR	RETURN REGISTER
SA	SUPPLY AIR
SD	SMOKE DAMPER
SFD	COMBINATION AUTOMATIC SMOKE/FIRE DAMPER WITH ACCESS DOOR
TA	THROW AWAY OR TRANSFER AIR
TG	TRANSFER GRILLE
TOD	TOP OF DUCT
TR	TRANSFER
TSP	TOTAL STATIC PRESSURE (IN. WG)
VD	VOLUME DAMPER
VAV	VARIABLE AIR VOLUME SUPPLY AIR TERMINAL
WMS	WIRE MESH SCREEN

EQUIPMENT

AC	AIR CONDITIONING OR AIR CONDITIONING UNIT
ACC	AIR COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
B	BOILER
CUH	CABINET UNIT HEATER
DDC	DIRECT DIGITAL CONTROL
DX	DIRECT EXPANSION
EF	EXHAUST FAN
ET	EXPANSION TANK
F	FAN
FTR	FINNED TUBE RADIATION
HC	HEATING COIL
HP	HEAT PUMP
HWC	HOT WATER HEATING COIL
P	PUMP
REG	REGISTER
RF	RETURN FAN
RHC	REHEAT COIL
RTU	ROOF TOP UNIT
SA	SOUND ATTENUATOR
SF	SUPPLY FAN
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME TERMINAL UNIT
VFD	VARIABLE FREQUENCY DRIVE

HOT WATER

HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY

PIPING

AAV	AUTOMATIC AIR VENT
ACV	AUTOMATIC CONTROL VALVE
AS	AIR SEPARATOR
ATV	ATMOSPHERIC VENT
BOP	BOTTOM OF PIPE
CO	CLEAN-OUT
DOV	DRAIN-OFF VALVE
MAV	MANUAL AIR VENT
MU	MAKE-UP WATER
TOP	TOP OF PIPE
V	VENT

REFRIGERATION

DX	DIRECT EXPANSION
RG	REFRIGERANT GAS
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION

PIPING LEGEND

- BALL VALVE
- BUTTERFLY VALVE
- HOSE END BALL VALVE WITH CAP AND CHAIN
- CHECK VALVE (SILENT CHECK TYPE ON PUMP DISCHARGE)
- STRAINER WITH HOSE END BLOWOFF VALVE, CAP AND CHAIN
- SUCTION DIFFUSER/STRAINER (NON-REDUCING) WITH BLOWOFF
- SOLENOID VALVE
- 2-WAY MODULATING PRESSURE INDEPENDENT ACV
- 2-WAY AUTOMATIC CONTROL VALVE (TWO POSITION)
- AUTOMATIC FLOW LIMITING VALVE (PRESSURE INDEPENDENT)
- TRIPLE DUTY PUMP VALVE, CHECK, BALANCING (FLOW METER), SHUT-OFF
- FS — FLOW SWITCH
- RELIEF/SAFETY VALVE
- UNION
- BLIND FLANGE
- PIPE - CAPPED
- PRESSURE GAUGE (W/ BALL VALVE(S))
- PS — PRESSURE SWITCH
- THERMOMETER
- PT — PRESSURE/THERMOMETER WELL
- AV — AIR VENT - AUTOMATIC
- MV — AIR VENT - MANUAL
- DIRECTION OF FLOW
- EJ — EXPANSION JOINT
- FLEXIBLE CONNECTOR
- PIPE ANCHOR
- PIPE GUIDE
- PIPE CONNECTION - TOP
- PIPE CONNECTION - BOTTOM
- PIPE - DOWN
- PIPE - UP
- R — PITCH OF PIPE - (R) RISE OR (D) DROP
- REDUCER - CONCENTRIC
- REDUCER - ECCENTRIC
- CO — CLEANOUT FOR CONDENSATE DRAIN
- DIRT LEG
- RISE (DOUBLE LINE - PLAN VIEW)
- DROP (DOUBLE LINE - PLAN VIEW)
- PIPE BREAK (DOUBLE LINE)
- PIPE BREAK (SINGLE LINE)

DUCTWORK

SINGLE LINE	DOUBLE LINE
WxD	W, D — RECTANGULAR SUPPLY DUCT W=WIDTH, D=DEPTH (INCHES UNLESS NOTED OTHERWISE) AS VIEWED
DIA"Ø	DIA — ROUND SUPPLY DUCT (DIA=INSIDE DIAMETER)
	ROUND SUPPLY DUCT UP
	ROUND SUPPLY DUCT DOWN
	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	ROUND RETURN DUCT UP
	ROUND RETURN DUCT DOWN
	RETURN DUCT UP
	RETURN DUCT DOWN
	ROUND EXHAUST DUCT UP
	ROUND EXHAUST DUCT DOWN
	EXHAUST DUCT UP
	EXHAUST DUCT DOWN
10x6 / 6"Ø / 10x6 / 6"Ø	6"Ø / 10x6 — RECTANGULAR DUCT TO ROUND SUPPLY/RETURN/ EXHAUST
VD	VD — CEILING DUCT MOUNTED DIFFUSER/GRILLE
VD	VD — TAKE-OFF TO DIFFUSER/GRILLE; HARD ELBOW
VD	VD — CEILING DUCT MOUNTED DIFFUSER/GRILLE
	ACOUSTICALLY LINED DUCT
	FLEXIBLE DUCT

SINGLE LINE	DOUBLE LINE
WxD	W, D — RECTANGULAR RETURN/EXHAUST DUCT W=WIDTH, D=DEPTH (INCHES UNLESS NOTED OTHERWISE) AS VIEWED
DIA"Ø	DIA — ROUND RETURN/EXHAUST DUCT (DIA=INSIDE DIAMETER)
	STANDARD RADIUS ELBOW (R = W) SUPPLY/RETURN/EXHAUST
	FULL LENGTH SPLITTER VANES (R < W) SUPPLY/RETURN/ EXHAUST
	SPLIT TAKE-OFF
	RECTANGULAR WYE SUPPLY
	HORIZONTAL OFFSET SUPPLY/RETURN/EXHAUST
R/D	R/D — CHANGE OF ELEVATION (R)RISE OR (D)DROP SUPPLY/RETURN/ EXHAUST
	45° TAP TAKE-OFF
	45° TAKEOFF; 45° TAKE-OFF TRANSITION TO ROUND — 90° TAP TAKE-OFF; SQUARE TO ROUND CONNECTION; BELLMOUTH CONNECTION
	CONVERGE RETURN/EXHAUST W/45° TAKE-OFFS
	SIDEWALL DUCT MOUNTED REGISTER/GRILLE
VD VD	VD VD — SUPPLY SIDEWALL LINEAR DIFFUSER (W/ SHEETMETAL PLENUM, LINING & BRANCH CONN. FOR EVERY 4' OF LINEAR.)
VD VD	VD VD — SUPPLY CEILING LINEAR DIFFUSER (W/SHEETMETAL PLENUM, LINING & BRANCH CONN. FOR EVERY 4' OF LINEAR.); PLENUM BY LD MF'R
	OPEN END DUCT W/ 1/2"x1/2" WMS

ACD	AUTOMATIC CONTROL DAMPER W/ ACCESS DOOR
VD	MANUAL VOLUME DAMPER
FD	SELF-CLOSING FIRE DAMPER W/ ACCESS DOOR
SFD	COMBINATION SMOKE/FIRE DAMPER W/ ACCESS DOOR
SDET	DUCT MOUNTED SMOKE DETECTOR
BDD	BACKDRAFT DAMPER
UC 1/2"	UNDERCUT DOOR
	RETURN OR EXHAUST AIR FLOW
	SUPPLY AIR FLOW

	STANDARD 4-WAY BLOW SUPPLY DIFFUSER
	3-WAY BLOW SUPPLY DIFFUSER
OR	2-WAY BLOW SUPPLY DIFFUSER
	ONE-WAY BLOW SUPPLY DIFFUSER
	RETURN/EXHAUST GRILLE OR REGISTER
	ROOF EXHAUST FAN SHOWN ON ROOF
	ROOF EXHAUST FAN SHOWN ON FLOORPLAN

PIPING ABBREVIATIONS

D	DRAIN
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
RG	REFRIGERANT GAS
RHGB	REFRIGERANT HOT GAS BYPASS
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
V	VENT
(NAME)	REMOVE EXISTING PIPING

CALLOUT SYMBOLS

- CONNECT NEW TO EXISTING
- LIMIT OF DEMOLITION
- A / H2.0 — SECTION DESIGNATION / SHEET NUMBER
- 1 — REVISION NUMBER
- T — TEMPERATURE SENSOR OR THERMOSTAT
- H — HUMIDITY SENSOR OR HUMIDISTAT
- S — TEMPERATURE SENSOR
- REMOVE EXISTING ITEM
- SA(100) — S = SUPPLY A = SCHEDULED DIFFUSER. (100) = CFM TO BALANCE TO
- RA(100) — R = RETURN A = SCHEDULED GRILLE. (100) = CFM TO BALANCED TO
- EA(100) — E = EXHAUST A = SCHEDULED REGISTER/GRILLE (100) = CFM TO BALANCED TO
- TA(100) — T = TRANSFER A = SCHEDULED REGISTER/GRILLE (100) = CFM TO BALANCED TO

EQUIPMENT REQUIRING ELECTRICAL SERVICE,
SEE SCHEDULE FOR PERFORMANCE REQUIREMENTS:

TAG 3.1 (XXX, XXX, XXX)

- SCHEDULED EQUIPMENT UNIT NUMBER
- FIRST DIGIT(S) = LEVEL WHERE UNIT IS LOCATED:
  - SB = SUB-BASEMENT
  - B = BASEMENT
  - LL = LOWER LEVEL
  - G = GROUND FLOOR
  - 1 = FIRST FLOOR
  - 2 = SECOND FLOOR
  - 3 = THIRD FLOOR, ETC
  - M = MEZZANINE
  - A = ATTIC
  - PH = PENTHOUSE
  - R = ROOF
- SECOND DIGIT(S):
  - 1 = FIRST UNIT OF THIS EQUIPMENT TYPE ON THIS LEVEL.
  - 2 = SECOND UNIT OF THIS EQUIPMENT TYPE ON THIS LEVEL.
  - 3 = THIRD UNIT OF THIS EQUIPMENT TYPE ON THIS LEVEL, ETC.
  - (DUE TO EDITING NOT ALL NUMBERS MAY BE USED)
- UNIT CAPACITY INFORMATION (IF APPLICABLE-DATA VARIES DEPENDING ON TYPE OF EQUIPMENT)
  - i.e. FOR FAN POWERED VAV BOXES:
    - FIRST NUMBER = MAX. CFM
    - SECOND NUMBER = MIN. CFM OR PERCENT OF MAX. CFM
    - THIRD NUMBER = COIL GPM OR KW

EQUIPMENT NOT REQUIRING ELECTRICAL SERVICE,
SEE SCHEDULE FOR PERFORMANCE REQUIREMENTS:

TAG 3.1 (XXX, XXX, XXX) — REFER TO EQUIPMENT REQUIRING ELECTRICAL SERVICE SYMBOL ABOVE FOR TAG AND DATA INFORMATION.

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

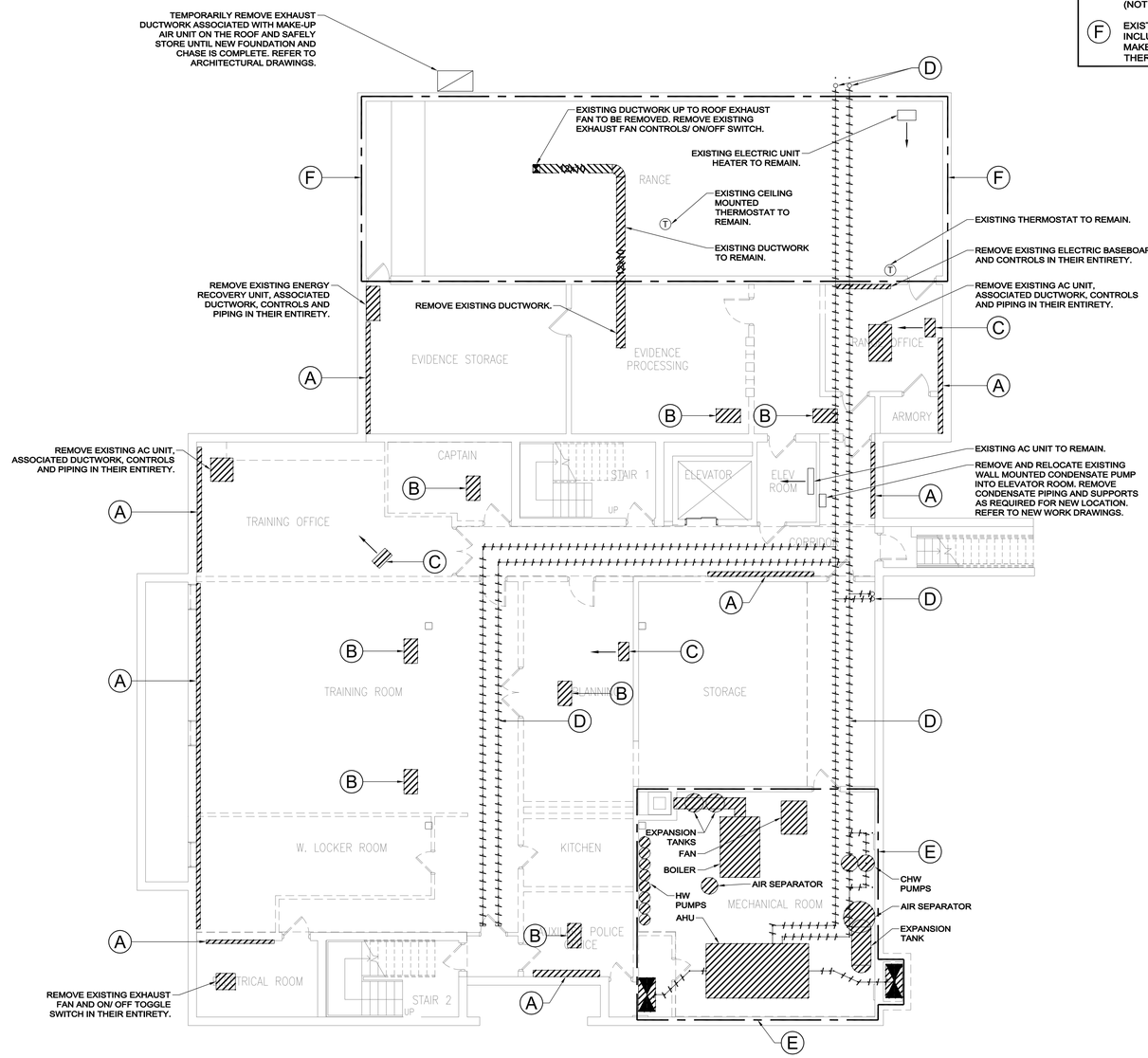
HVAC LEGEND, NOTES & ABBRVS.

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER: H000

SHEET 79 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:



A	REMOVE ALL EXISTING HOT WATER BASEBOARD SERVING BASEMENT, INCLUDING ENCLOSURE, PIPING, CONTROLS, THERMOSTATS, CONTROL WIRING, MOUNTING BRACKETS, ETC. IN THEIR ENTIRETY.
B	REMOVE ALL EXISTING FAN COIL UNIT, DUCTWORK, SUPPLY AND RETURN REGISTERS, PIPING, CONTROLS, THERMOSTAT'S, CONTROL WIRING HANGERS AND SUPPORTS IN THEIR ENTIRETY.
C	REMOVE ALL EXISTING ELECTRIC UNIT HEATERS, CONTROLS, THERMOSTATS, CONTROL WIRING AND SUPPORTS IN THEIR ENTIRETY UNLESS NOTED OTHERWISE. PROVIDE CITY OF WALTHAM WITH THE OPPORTUNITY TO RE-CLAIM DISCONNECTED EQUIPMENT PRIOR TO DISPOSING OF ELECTRIC UNIT HEATERS.
D	REMOVE ALL EXISTING CHILLED WATER SUPPLY AND RETURN PIPING,CONDENSATE PIPING, SLEEVES, HANGERS, BRACKETS, INSULATION, INCLUDING PIPING TO EXISTING FAN COIL UNITS (NOT SHOWN) UNLESS NOTED OTHERWISE.
E	REMOVE ALL EXISTING MECHANICAL EQUIPMENT WITHIN MECHANICAL ROOM INCLUDING EXPANSION TANKS, HOT WATER PUMPS, CHILLED WATER PUMPS, AIR SEPARATOR'S, BOILER, AHU, EXHAUST FAN, DUCTWORK, SLEEVES, HANGERS, BOILER FLUE, PIPING, SUPPORTS, CONTROLS, ETC. IN THEIR ENTIRETY. REMOVE ALL EXISTING HOT WATER SUPPLY AND RETURN PIPING AND AHU DUCTWORK TO UPPER FLOORS IN THEIR ENTIRETY (NOT SHOWN)
F	EXISTING EQUIPMENT LOCATED WITHIN THE GUN RANGE INCLUDING EXHAUST DUCTWORK (ASSOCIATED WITH MAKE-UP AIR UNIT), CONTROLS, ELECTRIC HEATERS, THERMOSTATS, ETC. SHALL REMAIN AND BE REUSED.

DEMOLITION WORK NOTES:

1. IF THERE IS A QUESTION AS TO WHETHER EXISTING EQUIPMENT SHALL REMAIN AND BE REUSED OR REMOVED CONTACT THE ARCHITECT AND ENGINEER PRIOR TO DEMOLISHING FOR CLARIFICATION.
2. PRIOR TO DEMOLITION, COORDINATE WITH THE CITY OF WALTHAM TO CONFIRM IF ANY EXISTING EQUIPMENT TO BE DEMOLISHED CAN BE TURNED OVER TO THE CITY FOR RE-USE (I.E. EXISTING ACU/ACCU'S, ELECTRIC UNIT HEATERS, ETC.)
3. THE DEMOLITION DRAWINGS AND EQUIPMENT LOCATIONS ARE DIAGRAMMATIC AND ARE NOT REPRESENTATIVE OF ALL EXISTING EQUIPMENT, PIPING, CONTROLS, ETC. TO BE DEMOLISHED - I.E. ROOMS WITHIN THE SCOPE OF WORK WITH BASEBOARD RADIATION NOT SHOWN ON DEMOLITION PLANS SHALL BE REMOVED IN SAME MANNER AS SIMILAR EQUIPMENT DESCRIBED ON THE PLANS AT NO ADDITIONAL COST TO THE OWNER UNLESS EQUIPMENT IS TO BE TURNED OVER TO CITY FOR RE-USE, SEE NOTE ABOVE.
4. THE EQUIPMENT ASSOCIATED WITH THE ELEVATOR MACHINE ROOM AND GUN RANGE SHALL REMAIN AND BE REUSED UNLESS OTHERWISE NOTED.
5. IF EXISTING EQUIPMENT IS FOUND DURING DEMOLITION THAT IS NOT EXPLICITLY OR GENERICALLY DESCRIBED OR NOTED WITHIN THESE DOCUMENTS, CONTACT THE ARCHITECT AND ENGINEER FOR FURTHER GUIDANCE PRIOR TO DEMOLISHING SAID EQUIPMENT.
6. PROVIDE DEMOLITION OF EXISTING HOT WATER SYSTEM, BOILER, PUMPS, PIPING, HANGERS, SLEEVES, SUPPORTS, EXPANSION TANK, EXPANSION LOOPS, AIR SEPARATOR, TERMINAL EQUIPMENT, COMBUSTION DUCTWORK, CONTROLS, VALVES, ACTUATORS, AND COMPONENTS IN THEIR ENTIRETY. NO PART OF THE EXISTING SYSTEM SHALL REMAIN AND BE REUSED. EXISTING HOT WATER PIPING DISTRIBUTION NOT SHOWN ON PLANS.
7. PROVIDE DEMOLITION OF EXISTING CHILLED WATER SYSTEM, AIR COOLED CHILLER, EXPANSION TANK, AIR SEPARATOR, CHILLED WATER PUMPS, PIPING, CONDENSATE DRAINS, HANGERS, SLEEVES, SUPPORTS, CONTROLS, VALVES ACTUATORS AND COMPONENTS IN THEIR ENTIRETY. NO PART OF THE EXISTING SYSTEM SHALL REMAIN AND BE REUSED. EXISTING CHILLED WATER MAINS SHOWN (V.I.F. EXACT RUNS AND LOCATIONS.
8. ALL EXISTING SUPPLY, RETURN, AND EXHAUST DUCTWORK AND ASSOCIATED EQUIPMENT LOCATED IN THE BASEMENT, FIRST FLOOR, SECOND FLOOR AND ROOF SHALL BE REMOVED IN IT'S ENTIRETY UNLESS EXPLICITLY CALLED OUT TO REMAIN AND BE REUSED.
9. ALL SIZES, ROUTING AND EQUIPMENT LOCATIONS INDICATED AND ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY EXACT SIZES AND ROUTING IN THE FIELD.
10. PROVIDE WEATHER PROTECTION FOR ALL ROOF AND WALL OPENINGS DURING DEMOLITION/CONSTRUCTION.
11. CONTRACTOR SHALL SAFELY CAPTURE AND LEGALLY DISPOSE OF ALL REFRIGERANT ASSOCIATED WITH EXISTING COOLING SYSTEMS.

8' 16'

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC BASEMENT FLOOR DEMO PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

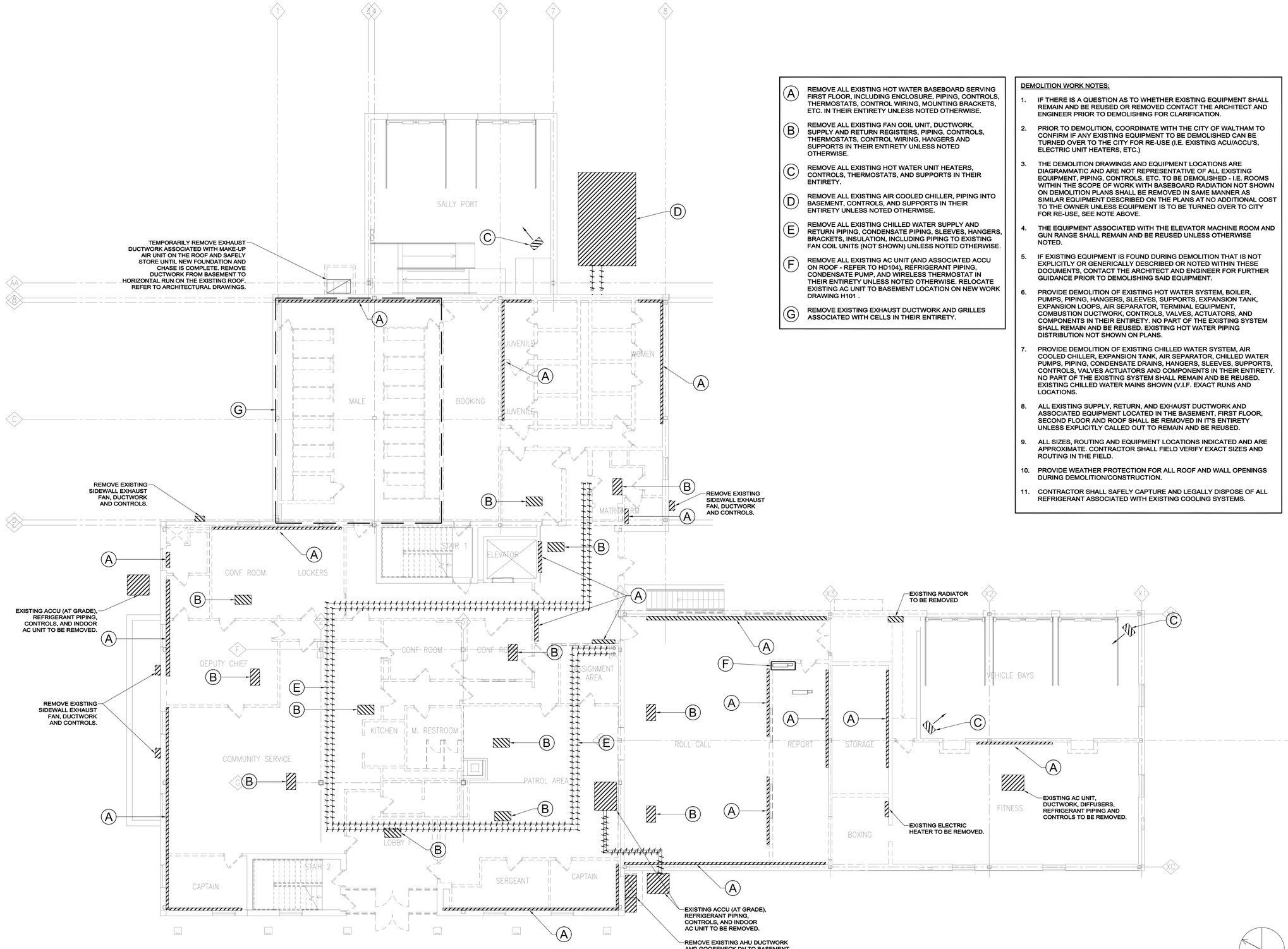
SHEET NUMBER:

HD101

SHEET 80 **OF** 157

G:\20130\20130535 - Waltham Police HQ Renovation\1200 Drawings\1203 HVAC\Plot Files\20130535 HD101 HVAC BASEMENT FLOOR DEMOLITION PLAN.dwg [Work] July 14, 2014 - 5:48pm dfrazek

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:



(A) REMOVE ALL EXISTING HOT WATER BASEBOARD SERVING FIRST FLOOR, INCLUDING ENCLOSURE, PIPING, CONTROLS, THERMOSTATS, CONTROL WIRING, MOUNTING BRACKETS, ETC. IN THEIR ENTIRETY UNLESS NOTED OTHERWISE.

(B) REMOVE ALL EXISTING FAN COIL UNIT, DUCTWORK, SUPPLY AND RETURN REGISTERS, PIPING, CONTROLS, THERMOSTATS, CONTROL WIRING, HANGERS AND SUPPORTS IN THEIR ENTIRETY UNLESS NOTED OTHERWISE.

(C) REMOVE ALL EXISTING HOT WATER UNIT HEATERS, CONTROLS, THERMOSTATS, AND SUPPORTS IN THEIR ENTIRETY.

(D) REMOVE ALL EXISTING AIR COOLED CHILLER, PIPING INTO BASEMENT, CONTROLS, AND SUPPORTS IN THEIR ENTIRETY UNLESS NOTED OTHERWISE.

(E) REMOVE ALL EXISTING CHILLED WATER SUPPLY AND RETURN PIPING, CONDENSATE PIPING, SLEEVES, HANGERS, BRACKETS, INSULATION, INCLUDING PIPING TO EXISTING FAN COIL UNITS (NOT SHOWN) UNLESS NOTED OTHERWISE.

(F) REMOVE ALL EXISTING AC UNIT (AND ASSOCIATED ACCU ON ROOF - REFER TO HD104), REFRIGERANT PIPING, CONDENSATE PUMP, AND WIRELESS THERMOSTAT IN THEIR ENTIRETY UNLESS NOTED OTHERWISE. RELOCATE EXISTING AC UNIT TO BASEMENT LOCATION ON NEW WORK DRAWING H101 .

(G) REMOVE EXISTING EXHAUST DUCTWORK AND GRILLES ASSOCIATED WITH CELLS IN THEIR ENTIRETY.

DEMOLITION WORK NOTES:

1. IF THERE IS A QUESTION AS TO WHETHER EXISTING EQUIPMENT SHALL REMAIN AND BE REUSED OR REMOVED CONTACT THE ARCHITECT AND ENGINEER PRIOR TO DEMOLISHING FOR CLARIFICATION.
2. PRIOR TO DEMOLITION, COORDINATE WITH THE CITY OF WALTHAM TO CONFIRM IF ANY EXISTING EQUIPMENT TO BE DEMOLISHED CAN BE TURNED OVER TO THE CITY FOR RE-USE (I.E. EXISTING ACU/ACCU'S, ELECTRIC UNIT HEATERS, ETC.)
3. THE DEMOLITION DRAWINGS AND EQUIPMENT LOCATIONS ARE DIAGRAMMATIC AND ARE NOT REPRESENTATIVE OF ALL EXISTING EQUIPMENT, PIPING, CONTROLS, ETC. TO BE DEMOLISHED - I.E. ROOMS WITHIN THE SCOPE OF WORK WITH BASEBOARD RADIATION NOT SHOWN ON DEMOLITION PLANS SHALL BE REMOVED IN SAME MANNER AS SIMILAR EQUIPMENT DESCRIBED ON THE PLANS AT NO ADDITIONAL COST TO THE OWNER UNLESS EQUIPMENT IS TO BE TURNED OVER TO CITY FOR RE-USE, SEE NOTE ABOVE.
4. THE EQUIPMENT ASSOCIATED WITH THE ELEVATOR MACHINE ROOM AND GUN RANGE SHALL REMAIN AND BE REUSED UNLESS OTHERWISE NOTED.
5. IF EXISTING EQUIPMENT IS FOUND DURING DEMOLITION THAT IS NOT EXPLICITLY OR GENERICALLY DESCRIBED OR NOTED WITHIN THESE DOCUMENTS, CONTACT THE ARCHITECT AND ENGINEER FOR FURTHER GUIDANCE PRIOR TO DEMOLISHING SAID EQUIPMENT.
6. PROVIDE DEMOLITION OF EXISTING HOT WATER SYSTEM, BOILER, PUMPS, PIPING, HANGERS, SLEEVES, SUPPORTS, EXPANSION TANK, EXPANSION LOOPS, AIR SEPARATOR, TERMINAL EQUIPMENT, COMBUSTION DUCTWORK, CONTROLS, VALVES, ACTUATORS, AND COMPONENTS IN THEIR ENTIRETY. NO PART OF THE EXISTING SYSTEM SHALL REMAIN AND BE REUSED. EXISTING HOT WATER PIPING DISTRIBUTION NOT SHOWN ON PLANS.
7. PROVIDE DEMOLITION OF EXISTING CHILLED WATER SYSTEM, AIR COOLED CHILLER, EXPANSION TANK, AIR SEPARATOR, CHILLED WATER PUMPS, PIPING, CONDENSATE DRAINS, HANGERS, SLEEVES, SUPPORTS, CONTROLS, VALVES ACTUATORS AND COMPONENTS IN THEIR ENTIRETY. NO PART OF THE EXISTING STEM SHALL REMAIN AND BE REUSED. EXISTING CHILLED WATER MAINS SHOWN (V.I.F. EXACT RUNS AND LOCATIONS.
8. ALL EXISTING SUPPLY, RETURN, AND EXHAUST DUCTWORK AND ASSOCIATED EQUIPMENT LOCATED IN THE BASEMENT, FIRST FLOOR, SECOND FLOOR AND ROOF SHALL BE REMOVED IN IT'S ENTIRETY UNLESS EXPLICITLY CALLED OUT TO REMAIN AND BE REUSED.
9. ALL SIZES, ROUTING AND EQUIPMENT LOCATIONS INDICATED AND ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY EXACT SIZES AND ROUTING IN THE FIELD.
10. PROVIDE WEATHER PROTECTION FOR ALL ROOF AND WALL OPENINGS DURING DEMOLITION/CONSTRUCTION.
11. CONTRACTOR SHALL SAFELY CAPTURE AND LEGALLY DISPOSE OF ALL REFRIGERANT ASSOCIATED WITH EXISTING COOLING SYSTEMS.

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC FIRST FLOOR DEMO PLAN

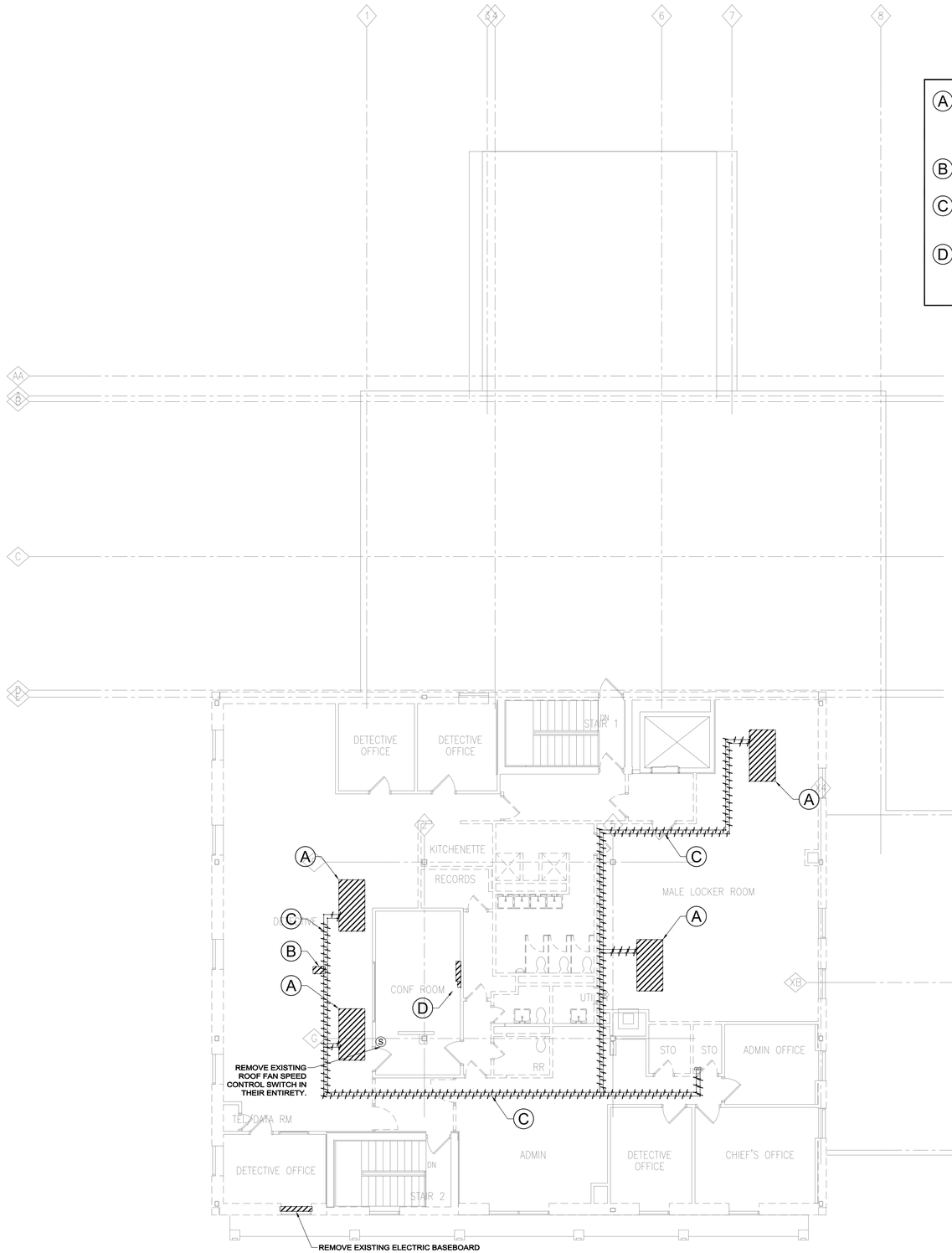
PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

HD102

SHEET 81 **OF** 157

REVIEWED BY: CIVIL: ____ ARCH: ____ STRU: ____ PLUM: ____ FIRE: ____ MECH: ____ ELEC: ____



(A) REMOVE ALL EXISTING CEILING MOUNTED AIR HANDLING UNITS, SUPPLY AND RETURN DUCTWORK, FLEXIBLE DUCTWORK, VOLUME DAMPERS, DIFFUSERS, RETURN GRILLES, CONTROLS, ASSOCIATED THERMOSTAT, CONTROL WIRING, VALVES, PIPING AND HANGING HARDWARE IN THEIR ENTIRETY UNLESS NOTED OTHERWISE.

(B) REMOVE EXISTING CIRCULATOR PUMP (VERIFY LOCATION IN FIELD), PIPING, CONTROLS AND HANGING HARDWARE IN THEIR ENTIRETY UNLESS NOTED OTHERWISE.

(C) REMOVE ALL EXISTING CHILLED AND HOT WATER PIPING, CONDENSATE PIPING, INSULATION, SLEEVES, HANGERS, CONTROLS AND VALVES IN THEIR ENTIRETY UNLESS NOTED OTHERWISE.

(D) REMOVE EXISTING ACU UNIT (AND ASSOCIATED ACCU ON ROOF - REFER TO HD104), REFRIGERANT PIPING, CONDENSATE PUMP, AND WIRELESS THERMOSTAT IN THEIR ENTIRETY. COORDINATE WITH CITY OF WALTHAM AS TO WHETHER OR NOT THE EQUIPMENT SHALL BE TURNED OVER TO THE CITY OR DISPOSED OF UNLESS NOTED OTHERWISE.

DEMOLITION WORK NOTES:

1. IF THERE IS A QUESTION AS TO WHETHER EXISTING EQUIPMENT SHALL REMAIN AND BE REUSED OR REMOVED CONTACT THE ARCHITECT AND ENGINEER PRIOR TO DEMOLISHING FOR CLARIFICATION.
2. PRIOR TO DEMOLITION, COORDINATE WITH THE CITY OF WALTHAM TO CONFIRM IF ANY EXISTING EQUIPMENT TO BE DEMOLISHED CAN BE TURNED OVER TO THE CITY FOR RE-USE (I.E. EXISTING ACU/ACCU'S, ELECTRIC UNIT HEATERS, ETC.)
3. THE DEMOLITION DRAWINGS AND EQUIPMENT LOCATIONS ARE DIAGRAMMATIC AND ARE NOT REPRESENTATIVE OF ALL EXISTING EQUIPMENT, PIPING, CONTROLS, ETC. TO BE DEMOLISHED - I.E. ROOMS WITHIN THE SCOPE OF WORK WITH BASEBOARD RADIATION NOT SHOWN ON DEMOLITION PLANS SHALL BE REMOVED IN SAME MANNER AS SIMILAR EQUIPMENT DESCRIBED ON THE PLANS AT NO ADDITIONAL COST TO THE OWNER UNLESS EQUIPMENT IS TO BE TURNED OVER TO CITY FOR RE-USE, SEE NOTE ABOVE.
4. THE EQUIPMENT ASSOCIATED WITH THE ELEVATOR MACHINE ROOM AND GUN RANGE SHALL REMAIN AND BE REUSED UNLESS OTHERWISE NOTED.
5. IF EXISTING EQUIPMENT IS FOUND DURING DEMOLITION THAT IS NOT EXPLICITLY OR GENERICALLY DESCRIBED OR NOTED WITHIN THESE DOCUMENTS, CONTACT THE ARCHITECT AND ENGINEER FOR FURTHER GUIDANCE PRIOR TO DEMOLISHING SAID EQUIPMENT.
6. PROVIDE DEMOLITION OF EXISTING HOT WATER SYSTEM, BOILER, PUMPS, PIPING, HANGERS, SLEEVES, SUPPORTS, EXPANSION TANK, EXPANSION LOOPS, AIR SEPARATOR, TERMINAL EQUIPMENT, COMBUSTION DUCTWORK, CONTROLS, VALVES, ACTUATORS, AND COMPONENTS IN THEIR ENTIRETY. NO PART OF THE EXISTING SYSTEM SHALL REMAIN AND BE REUSED. EXISTING HOT WATER PIPING DISTRIBUTION NOT SHOWN ON PLANS.
7. PROVIDE DEMOLITION OF EXISTING CHILLED WATER SYSTEM, AIR COOLED CHILLER, EXPANSION TANK, AIR SEPARATOR, CHILLED WATER PUMPS, PIPING, CONDENSATE DRAINS, HANGERS, SLEEVES, SUPPORTS, CONTROLS, VALVES ACTUATORS AND COMPONENTS IN THEIR ENTIRETY. NO PART OF THE EXISTING SYSTEM SHALL REMAIN AND BE REUSED. EXISTING CHILLED WATER MAINS SHOWN (V.I.F. EXACT RUNS AND LOCATIONS.
8. ALL EXISTING SUPPLY, RETURN, AND EXHAUST DUCTWORK AND ASSOCIATED EQUIPMENT LOCATED IN THE BASEMENT, FIRST FLOOR, SECOND FLOOR AND ROOF SHALL BE REMOVED IN IT'S ENTIRETY UNLESS EXPLICITLY CALLED OUT TO REMAIN AND BE REUSED.
9. ALL SIZES, ROUTING AND EQUIPMENT LOCATIONS INDICATED AND ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY EXACT SIZES AND ROUTING IN THE FIELD.
10. PROVIDE WEATHER PROTECTION FOR ALL ROOF AND WALL OPENINGS DURING DEMOLITION/CONSTRUCTION.
11. CONTRACTOR SHALL SAFELY CAPTURE AND LEGALLY DISPOSE OF ALL REFRIGERANT ASSOCIATED WITH EXISTING COOLING SYSTEMS.

8' 16'

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC SECOND FLOOR DEMO PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

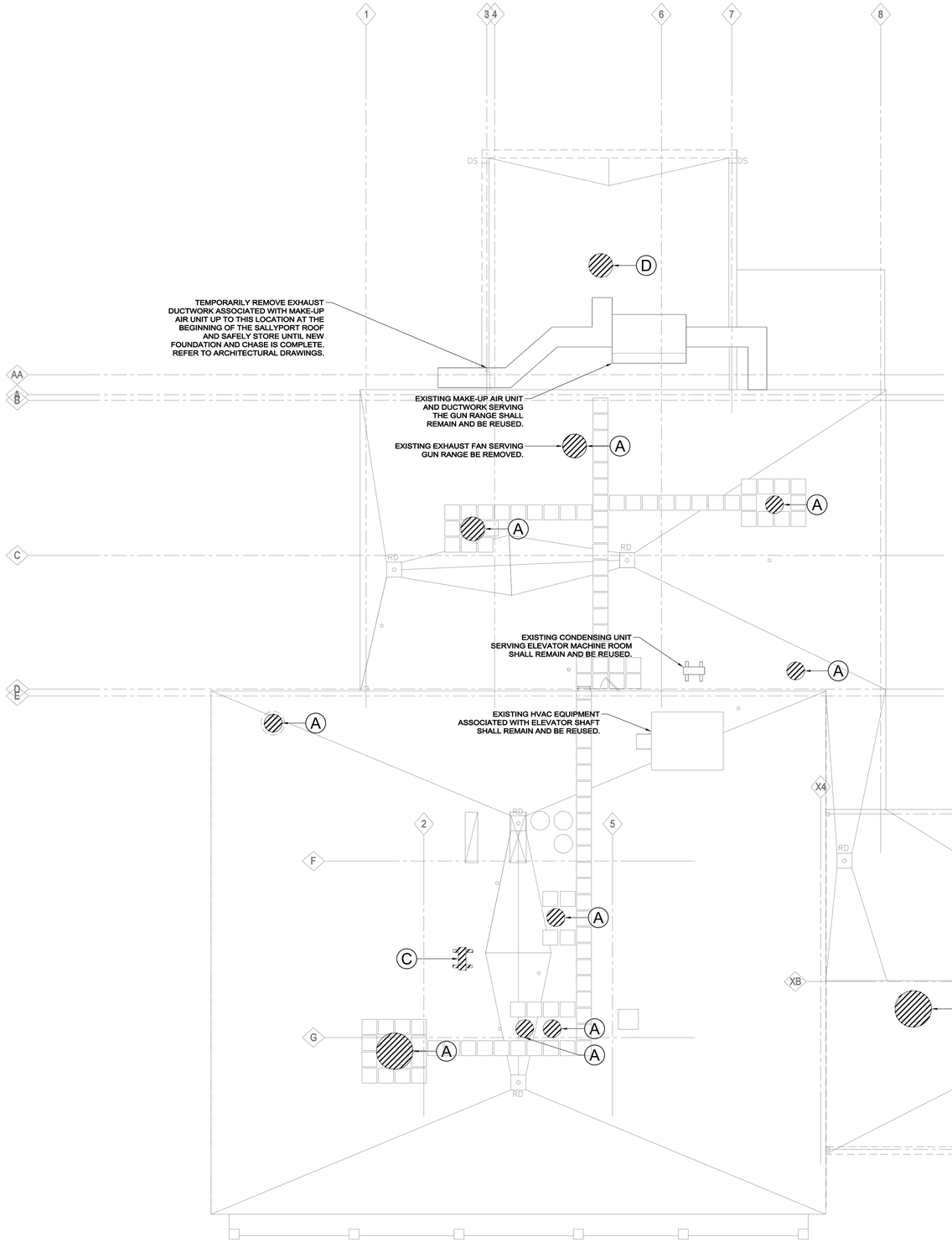
SHEET NUMBER:

HD103

SHEET 82 **OF** 157

G:\20130\20130535 - Waltham Police HQ Renovation\1200 Drawings\1203 HVAC\Plot Files\20130535 HD103 HVAC SECOND FLOOR DEMOLITION PLAN.dwg (Work) July 14, 2014 - 5:48pm dfarcasi

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



(A) REMOVE EXISTING ROOF MOUNTED EXHAUST FANS, CONTROLS, DAMPERS, DAMPER ACTUATORS AND EXHAUST DUCTWORK DOWN THROUGH THE POLICE STATION INCLUDING EXHAUST GRILLES. PROVIDE NEW INSULATED, REINFORCED CURB CAP FOR EXISTING CURB/ PENETRATION.

(B) REMOVE EXISTING DAIKIN ROOF MOUNTED ACCU UNIT (AND ASSOCIATED ACU INDOORS), REFRIGERANT PIPING, ROOF SUPPORTS AND CONTROLS IN THEIR ENTIRETY. SAFELY RECLAIM AND STORE R-410A REFRIGERANT FROM SYSTEM. RELOCATE EXISTING EVAPORATOR SECTION IN BASEMENT LOCATIOM SHOWN ON NEW WORK DRAWING H101 AND CONDENSING UNIT TO LOCATION SHOWN ON H103.

(C) REMOVE EXISTING ACCU, ROOF SUPPORTS, REFRIGERANT PIPING, REFRIGERANT IN THEIR ENTIRETY.

(D) REMOVE EXISTING ROOF MOUNTED EXHAUST FANS, CONTROLS, DAMPERS, DAMPER ACTUATORS AND EXHAUST DUCTWORK DOWN THROUGH THE POLICE STATION INCLUDING EXHAUST GRILLES. EXISTING ROOF CURB TO REMAIN AND BE REUSED.

DEMOLITION WORK NOTES:

1. IF THERE IS A QUESTION AS TO WHETHER EXISTING EQUIPMENT SHALL REMAIN AND BE REUSED OR REMOVED CONTACT THE ARCHITECT AND ENGINEER PRIOR TO DEMOLISHING FOR CLARIFICATION.
2. PRIOR TO DEMOLITION, COORDINATE WITH THE CITY OF WALTHAM TO CONFIRM IF ANY EXISTING EQUIPMENT TO BE DEMOLISHED CAN BE TURNED OVER TO THE CITY FOR RE-USE (I.E. EXISTING ACU/ACCU'S, ELECTRIC UNIT HEATERS, ETC.)
3. THE DEMOLITION DRAWINGS AND EQUIPMENT LOCATIONS ARE DIAGRAMMATIC AND ARE NOT REPRESENTATIVE OF ALL EXISTING EQUIPMENT, PIPING, CONTROLS, ETC. TO BE DEMOLISHED - I.E. ROOMS WITHIN THE SCOPE OF WORK WITH BASEBOARD RADIATION NOT SHOWN ON DEMOLITION PLANS SHALL BE REMOVED IN SAME MANNER AS SIMILAR EQUIPMENT DESCRIBED ON THE PLANS AT NO ADDITIONAL COST TO THE OWNER UNLESS EQUIPMENT IS TO BE TURNED OVER TO CITY FOR RE-USE, SEE NOTE ABOVE.
4. THE EQUIPMENT ASSOCIATED WITH THE ELEVATOR MACHINE ROOM AND GUN RANGE SHALL REMAIN AND BE REUSED UNLESS OTHERWISE NOTED.
5. IF EXISTING EQUIPMENT IS FOUND DURING DEMOLITION THAT IS NOT EXPLICITLY OR GENERICALLY DESCRIBED OR NOTED WITHIN THESE DOCUMENTS, CONTACT THE ARCHITECT AND ENGINEER FOR FURTHER GUIDANCE PRIOR TO DEMOLISHING SAID EQUIPMENT.
6. PROVIDE DEMOLITION OF EXISTING HOT WATER SYSTEM, BOILER, PUMPS, PIPING, HANGERS, SLEEVES, SUPPORTS, EXPANSION TANK, EXPANSION LOOPS, AIR SEPARATOR, TERMINAL EQUIPMENT, COMBUSTION DUCTWORK, CONTROLS, VALVES, ACTUATORS, AND COMPONENTS IN THEIR ENTIRETY. NO PART OF THE EXISTING SYSTEM SHALL REMAIN AND BE REUSED. EXISTING HOT WATER PIPING DISTRIBUTION NOT SHOWN ON PLANS.
7. PROVIDE DEMOLITION OF EXISTING CHILLED WATER SYSTEM, AIR COOLED CHILLER, EXPANSION TANK, AIR SEPARATOR, CHILLED WATER PUMPS, PIPING, CONDENSATE DRAINS, HANGERS, SLEEVES, SUPPORTS, CONTROLS, VALVES ACTUATORS AND COMPONENTS IN THEIR ENTIRETY. NO PART OF THE EXISTING SYSTEM SHALL REMAIN AND BE REUSED. EXISTING CHILLED WATER MAINS SHOWN (V.I.F. EXACT RUNS AND LOCATIONS.
8. ALL EXISTING SUPPLY, RETURN, AND EXHAUST DUCTWORK AND ASSOCIATED EQUIPMENT LOCATED IN THE BASEMENT, FIRST FLOOR, SECOND FLOOR AND ROOF SHALL BE REMOVED IN IT'S ENTIRETY UNLESS EXPLICITLY CALLED OUT TO REMAIN AND BE REUSED.
9. ALL SIZES, ROUTING AND EQUIPMENT LOCATIONS INDICATED AND ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY EXACT SIZES AND ROUTING IN THE FIELD.
10. PROVIDE WEATHER PROTECTION FOR ALL ROOF AND WALL OPENINGS DURING DEMOLITION/CONSTRUCTION.
11. CONTRACTOR SHALL SAFELY CAPTURE AND LEGALLY DISPOSE OF ALL REFRIGERANT ASSOCIATED WITH EXISTING COOLING SYSTEMS.

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC ROOF DEMO PLAN

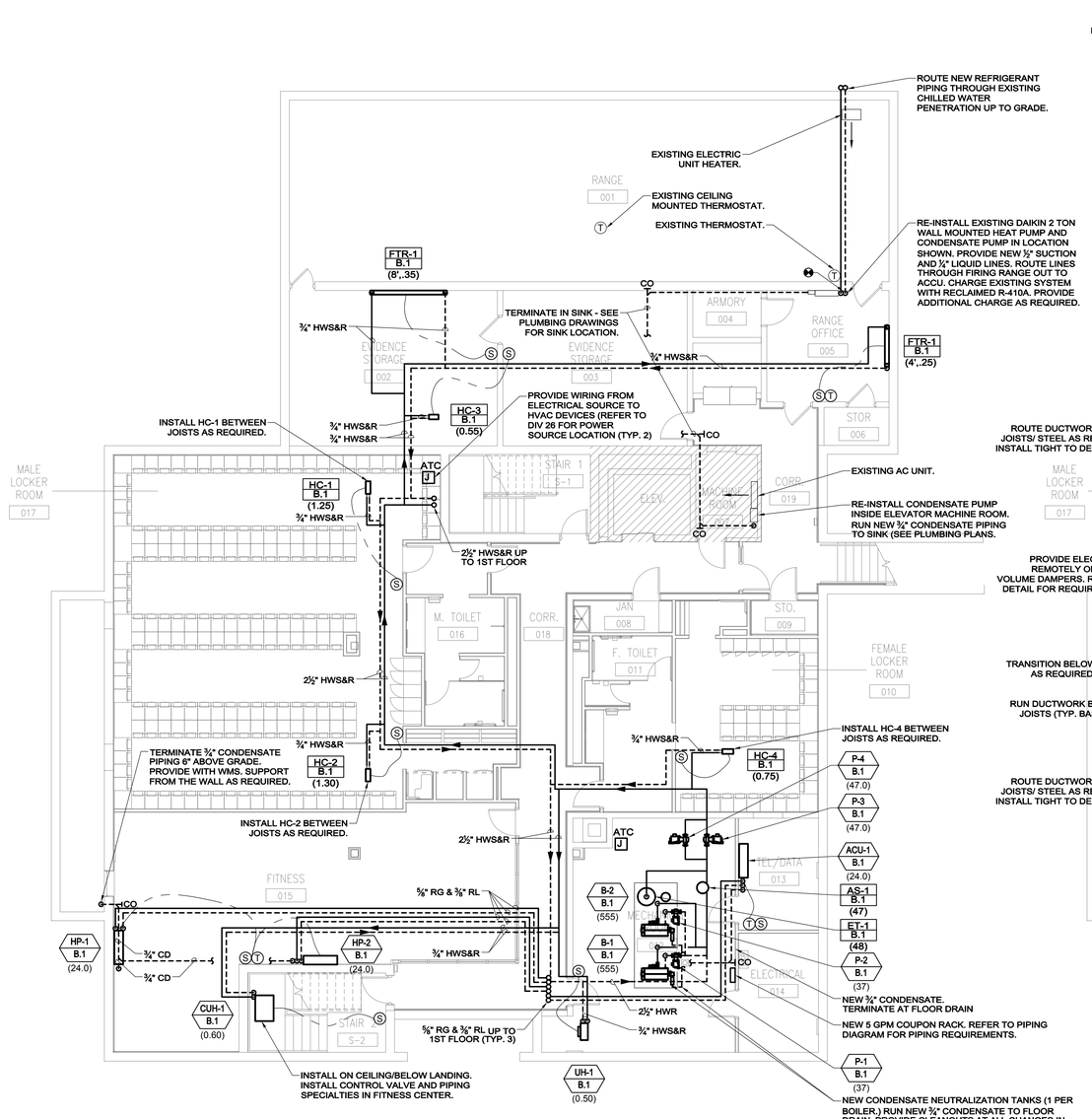
PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

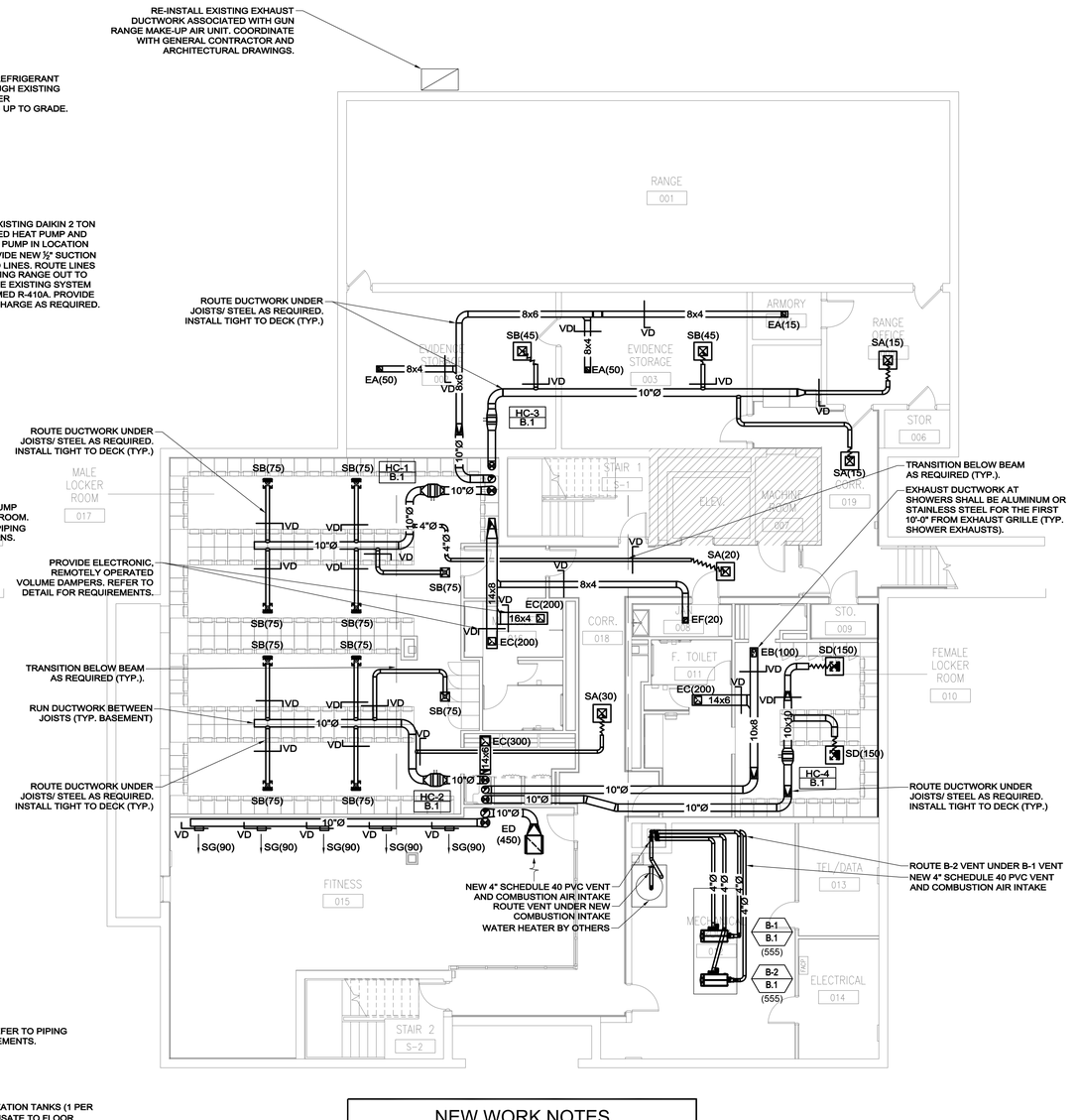
SHEET NUMBER:

HD104

SHEET 83 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:





NEW WORK NOTES

1. BALANCE EQUIPMENT, REGISTERS, GRILLES AND DIFFUSERS TO AIR AND WATER FLOWS INDICATED.
2. ALL PIPING AND DUCTWORK PENETRATIONS THROUGH BASEMENT WALLS/CEILINGS SHALL BE SEALED. CONTRACTOR TO FIRE STOP ALL NEW PIPING AND DUCTWORK PENETRATIONS THROUGH FULL HEIGHT WALLS/ MASONRY.
3. REFER TO PIPING INSULATION SCHEDULES FOR INSULATION REQUIREMENTS FOR HOT WATER , CONDENSATE AND REFRIGERANT PIPING. HEAT PUMP REFRIGERANT PIPING SHALL HAVE BOTH LINES INSULATED.
4. REFER TO DUCTWORK INSULATION SCHEDULES FOR INSULATION REQUIREMENTS FOR THE SUPPLY, RETURN AND ERU EXHAUST DUCTWORK.
5. RUN NEW HOT WATER SUPPLY AND RETURN PIPING TO BASEBOARD RADIATION WITHIN NEW WALLS. INSTALL CONTROL VALVES IN CEILING SPACE ABOVE. REFER TO ARCHITECTURAL DRAWINGS FOR WALL LOCATIONS.

8' 16'

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC BASEMENT FLOOR PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

H101

SHEET 84 **OF** 157

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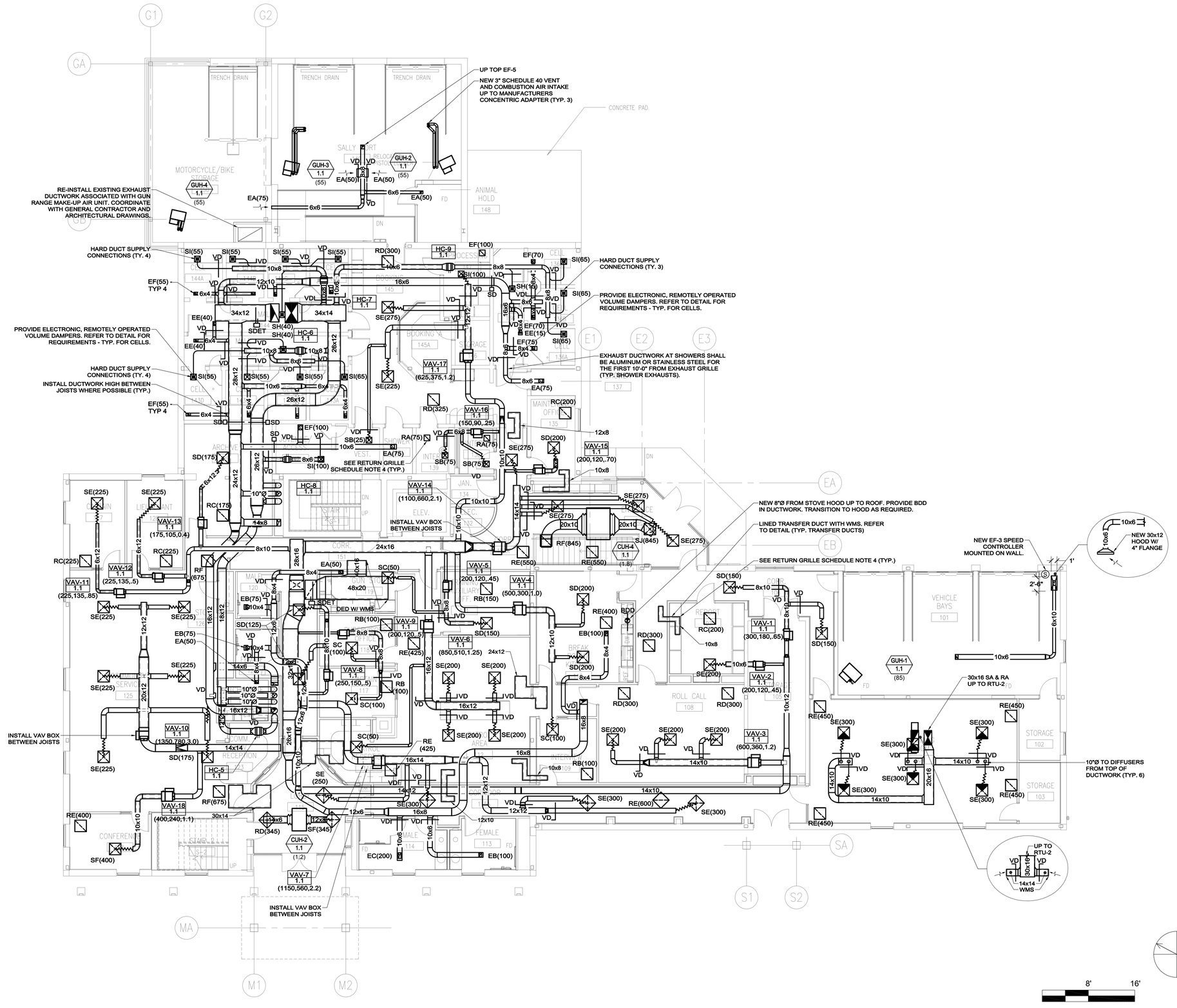

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC FIRST FLOOR DUCTWORK PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

H102

SHEET 85 **OF** 157

Q:\20132013035 - Waltham Police HQ Renovation\1200 Drawings\1200 HVAC\Plot Files\20130535 H102 HVAC FIRST FLOOR PLAN DUCTWORK PLAN.dwg [Work] July 14, 2014 - 5:47pm dfrezzetti

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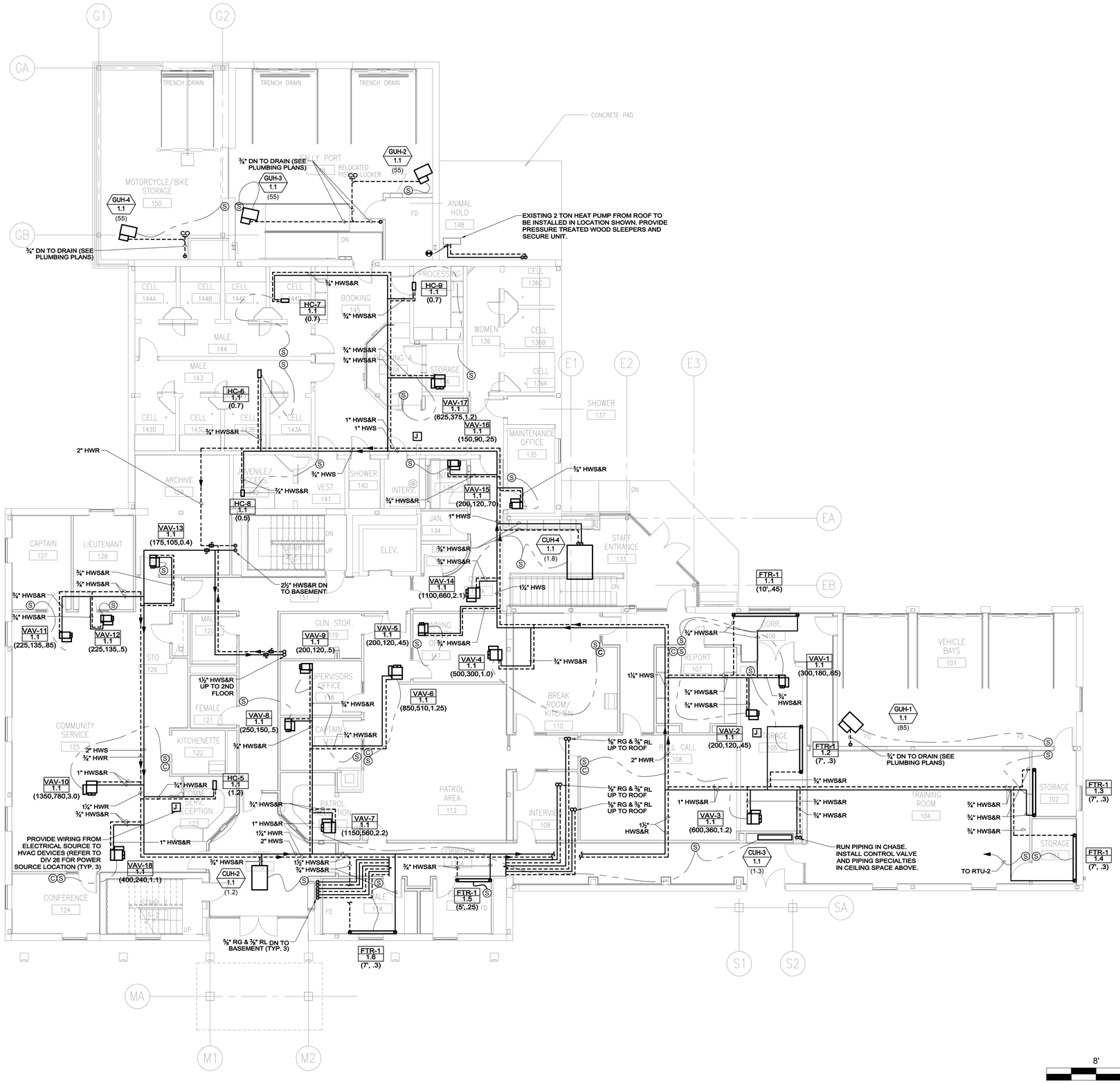

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC FIRST FLOOR PIPING PLAN

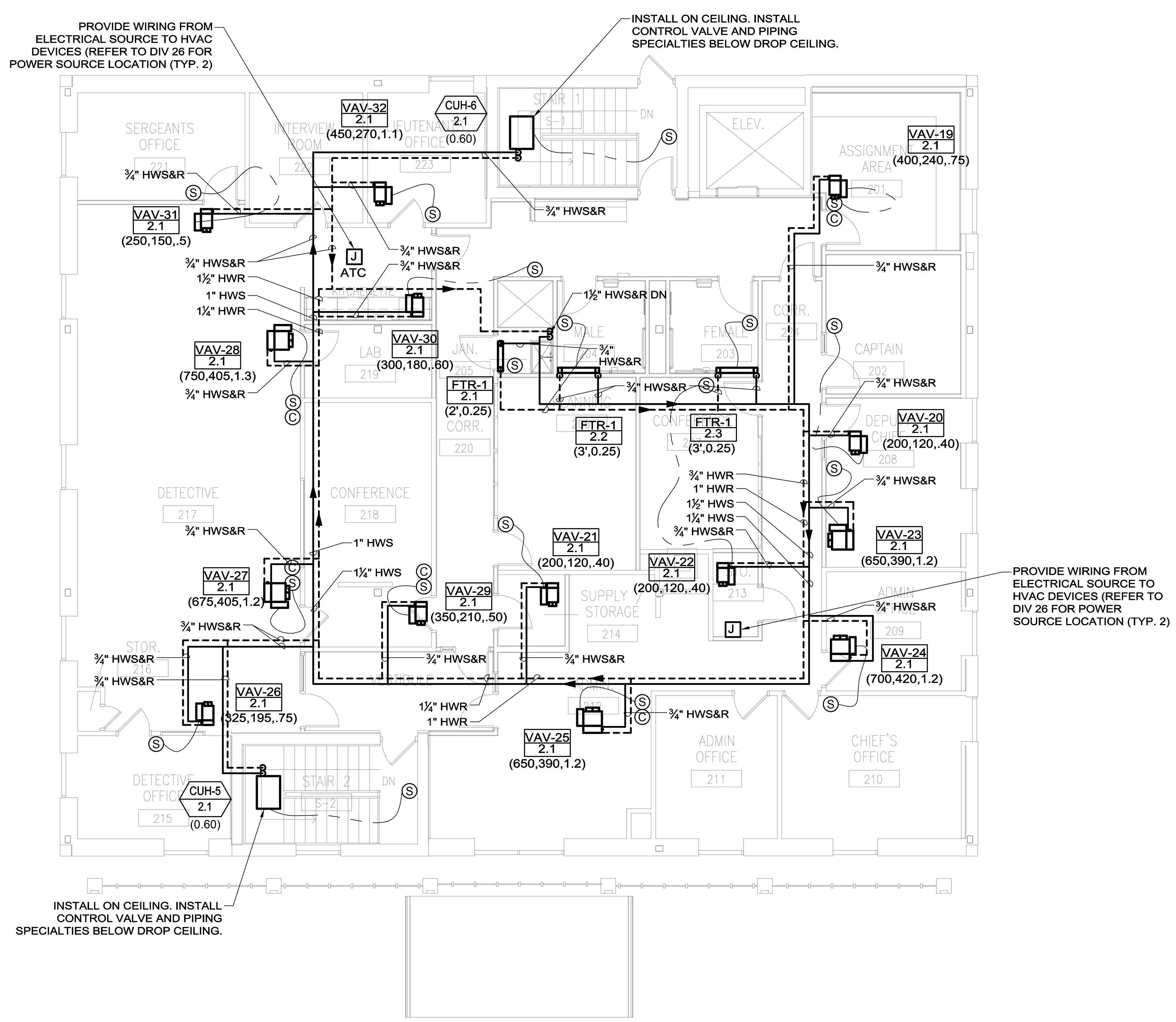
PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

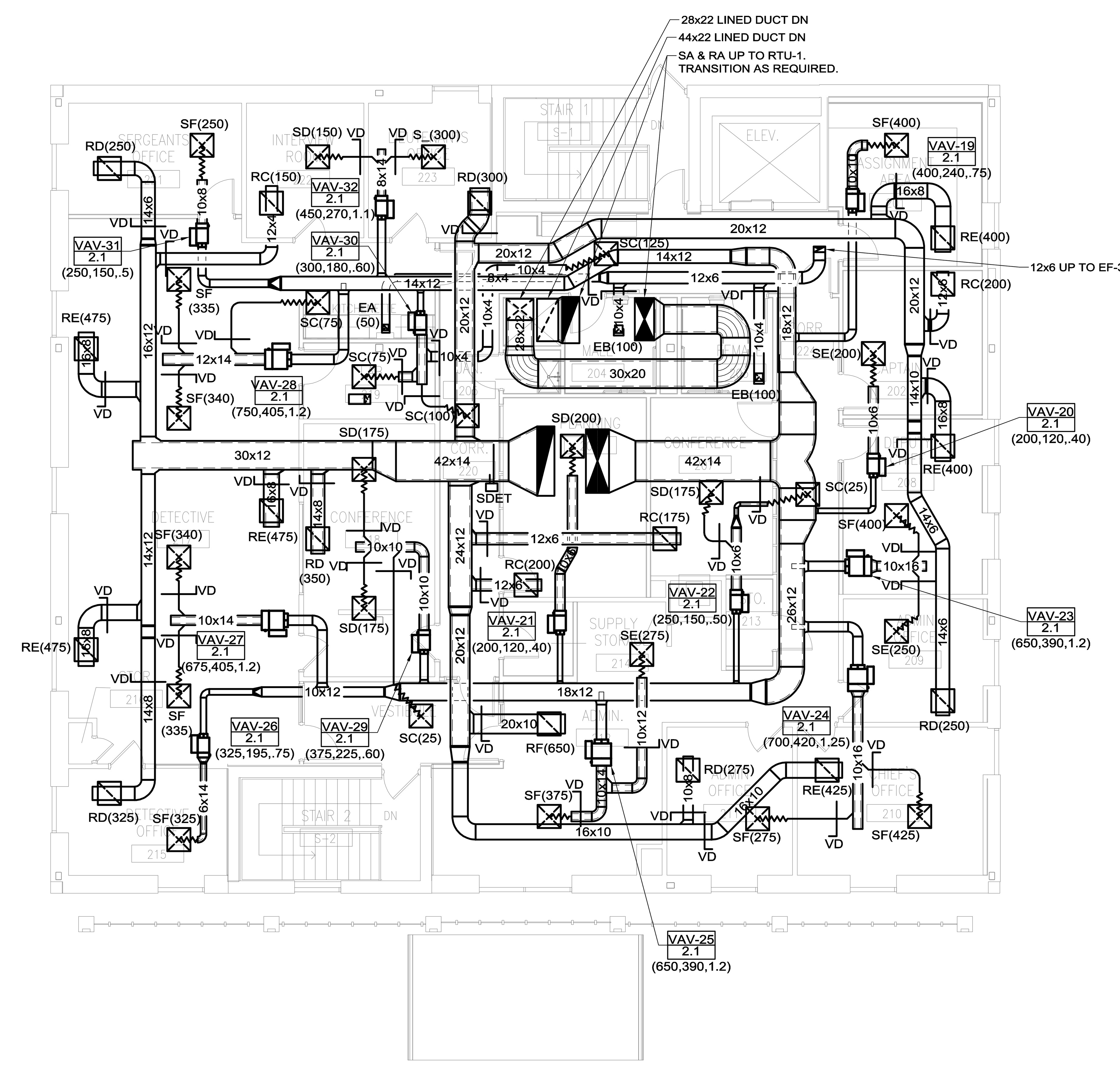
SHEET NUMBER:

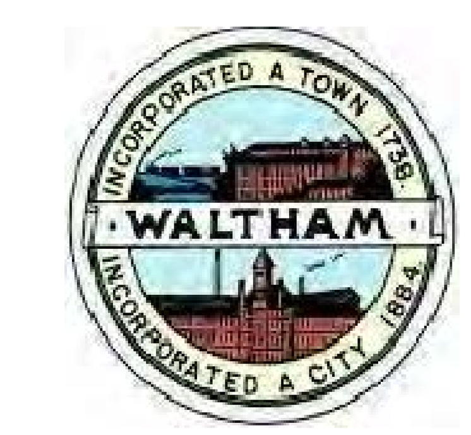
H103

SHEET 86 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:







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WALTHAM POLICE STATION RENOVATION

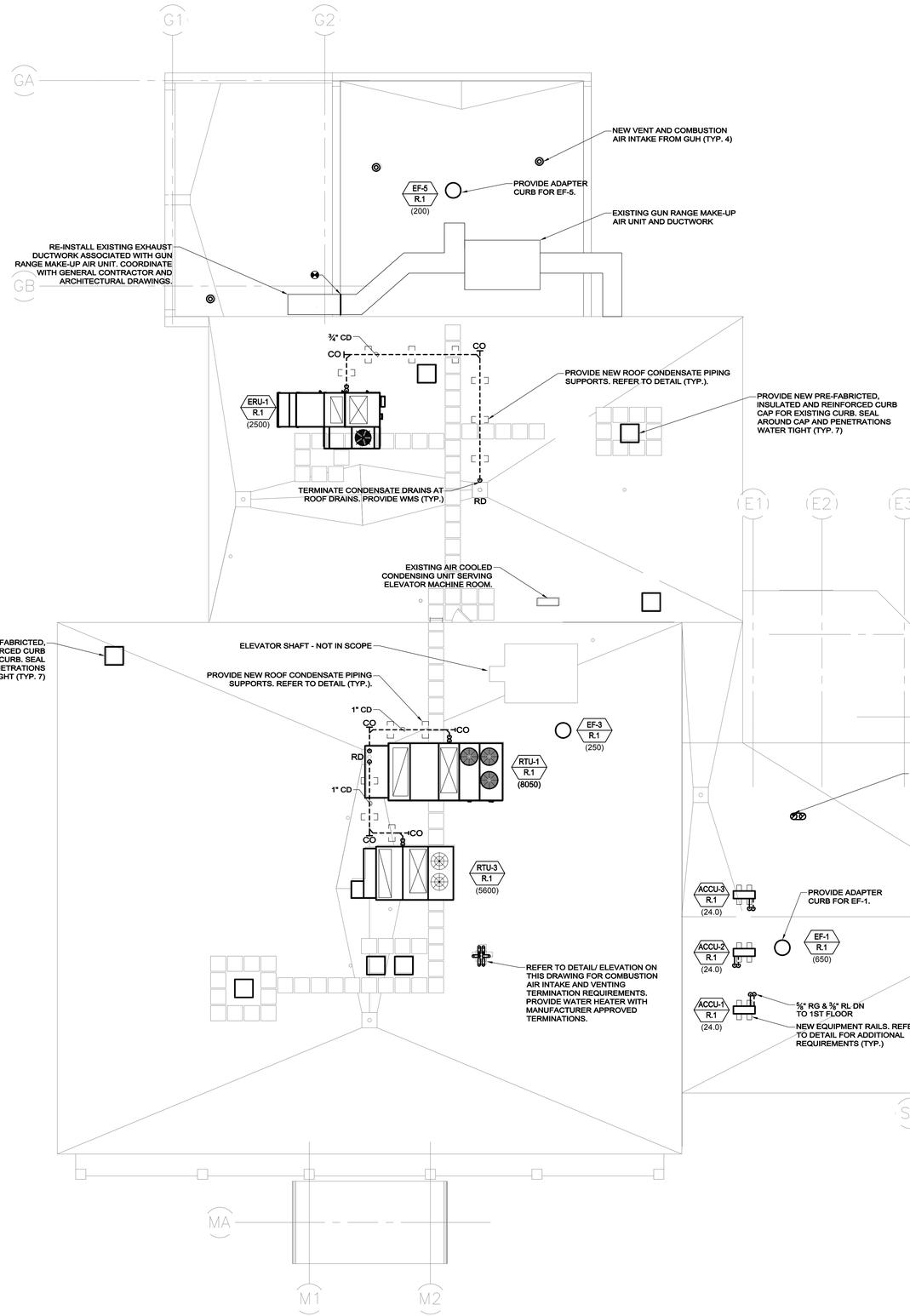
155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

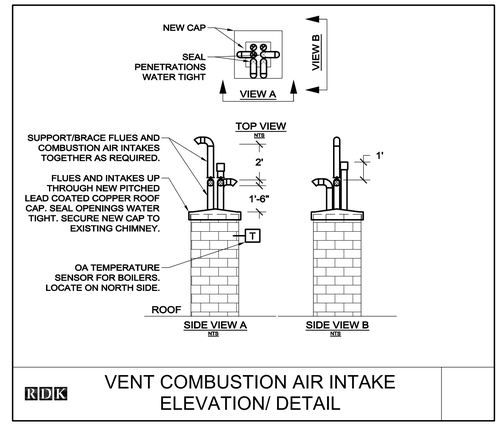
HVAC SECOND FLOOR PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"
SHEET NUMBER:
H104

SHEET 87 OF 157

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____





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VENT COMBUSTION AIR INTAKE ELEVATION/ DETAIL

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC ROOF PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

H105

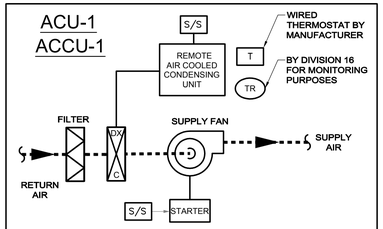
SHEET 88 **OF** 157

CONTROL POINT DESCRIPTOR LEGEND

TAG	ATC CONTRACTOR PROVIDED DDC POINT AND HARDWARE
TAG ELEC	CONTROL DEVICE FURNISHED BY ELECTRICAL OR PLUMBING CONTRACTOR BUT INTERFACED TO DDC SYSTEM BY ATC CONTRACTOR
TAG	ATC CONTRACTOR INTERFACE TO EQUIPMENT MANUFACTURER'S HARDWARE
TAG	ATC CONTRACTOR PROVIDED LOCAL CONTROL POINT

CONTROL ABBREVIATIONS

ACD	AUTOMATIC CONTROL DAMPER
ACV	AUTOMATIC CONTROL VALVE
AFMS	AIR FLOW MEASURING STATION
ALM	ALARM
ATC	AUTOMATIC TEMPERATURE CONTROL
BDD	BACKDRAFT DAMPER (ADJUSTABLE COUNTERWEIGHT)
BV	BYPASS VALVE
C	CARBON DIOXIDE SENSOR
CAP	CAPACITY CONTROL
%CAP	PERCENT OF FULL LOAD CAPACITY
CCLT	COOLING COIL LEAVING AIR TEMPERATURE SENSOR
CO	CARBON MONOXIDE SENSOR
CT	CURRENT TRANSFORMER (STATUS FEEDBACK)
DAT	DISCHARGE AIR TEMPERATURE SENSOR
DDC	DIRECT DIGITAL CONTROL
DDCFP	DIRECT DIGITAL CONTROL FIELD PANEL
DPS	DIFFERENTIAL PRESSURE SWITCH
DPT	DIFFERENTIAL PRESSURE SENSOR/TRANSMITTER
DPV	DIFFERENTIAL PRESSURE BYPASS VALVE
DSP	DISCHARGE STATIC PRESSURE SENSOR
EAD	EXHAUST AIR DAMPER
EHRET	EXHAUST HEAT RECOVERY COIL ENTERING AIR TEMPERATURE SENSOR
EHRLT	EXHAUST HEAT RECOVERY COIL LEAVING AIR TEMPERATURE SENSOR
EHRV	EXHAUST HEAT RECOVERY COIL CONTROL VALVE
ES	END SWITCH
FA	FAULT ALARM
FMT	FLOW METER/TRANSMITTER
FS	FLOW SWITCH
FZ	FREEZESTAT
H	HUMIDITY SENSOR
HALM	HOOD ALARM
HCLT	HEATING COIL LEAVING AIR TEMPERATURE SENSOR
HGB	HOT GAS BYPASS
HOA	HANDS-OFF AUTOMATIC SWITCH
HR	HUMIDITY SENSOR (ROOM)
HRET	HEAT RECOVERY COIL ENTERING AIR TEMPERATURE SENSOR
HRLT	HEAT RECOVERY COIL LEAVING AIR TEMPERATURE SENSOR
HSS	HOOD SASH SWITCH
HV	HEATING COIL CONTROL VALVE
HWRT	HOT WATER RETURN TEMPERATURE SENSOR
HWST	HOT WATER SUPPLY TEMPERATURE SENSOR
LAT	LEAVING AIR TEMPERATURE SENSOR
MAT	MIXED AIR TEMPERATURE SENSOR
MD	MOTION DETECTOR
NC	NORMALLY CLOSED (ON LOSS OF POWER)
NO	NORMALLY OPEN (ON LOSS OF POWER)
OAD	OUTSIDE AIR DAMPER
OAH	OUTSIDE AIR HUMIDITY SENSOR (FOR WET BULB READING)
OAT	OUTSIDE AIR TEMPERATURE SENSOR (DRY BULB)
PAD	PRIMARY AIR DAMPER
PR	PRESSURE SENSOR (ROOM)
RAD	RETURN AIR DAMPER
RAH	RETURN AIR HUMIDITY SENSOR
RAT	RETURN AIR TEMPERATURE SENSOR
RV	REHEAT CONTROL VALVE
RH	RELATIVE HUMIDITY
S	SWITCH
SAD	SUPPLY AIR DAMPER
SD	SMOKE DAMPER
SDET	SMOKE DETECTOR
SFD	SMOKE/FIRE DETECTOR
SP	STATIC PRESSURE SENSOR
SPD	SPEED CONTROL
S/S	START/STOP
S/S H	START/STOP HIGH SPEED/CAPACITY
S/S L	START/STOP LOW SPEED/CAPACITY
T	TEMPERATURE SENSOR/THERMOSTAT
TR	TEMPERATURE SENSOR/THERMOSTAT (ROOM)
VFDS	VARIABLE FREQUENCY DRIVE SPEED
VFDO	VARIABLE FREQUENCY DRIVE SPEED OUTPUT (FEEDBACK)



NEW DUCTLESS SPLIT SYSTEM AIR CONDITIONING UNIT CONTROLS:

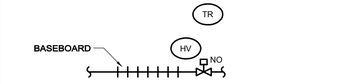
GENERAL
1. THE DUCTLESS SPLIT SYSTEM AIR CONDITIONING UNIT SHALL BE CONTROLLED VIA A WIRED REMOTE CONTROL PROVIDED BY THE AIR CONDITIONING UNIT MANUFACTURER. ALL SETPOINTS SHALL BE ADJUSTABLE.
2. ATC CONTRACTOR SHALL PROVIDE ALL REQUIRED WIRING AND CONDUIT.
3. ALL TEMPERATURES LISTED ARE FAHRENHEIT.
4. ANTI-RECYCLE TIME DELAYS AND SAFETIES ON COMPRESSORS SHALL BE PROVIDED BY THE DUCTLESS SPLIT SYSTEM AIR CONDITIONING UNIT MANUFACTURER.
5. UNIT SHALL GRAPHICALLY REPRESENTED ON THE BAS SYSTEM.

FAN CONTROL
1. WHILE OFF ON SAFETY OR MANUAL DISCONNECT THE AIR CONDITIONING UNIT (INCLUDING SUPPLY AIR FAN) SHALL BE OFF AND THE CONDENSING UNIT SHALL BE OFF.
2. WHILE THE UNIT IS ENERGIZED, THE SUPPLY AIR FAN SHALL RUN CONTINUOUSLY ON LOW SPEED.

COOLING MODE
1. THE SUPPLY AIR FAN SHALL RUN CONTINUOUSLY ON LOW SPEED. MECHANICAL REFRIGERATION SHALL SATISFY THE SPACE TEMPERATURE SETPOINT OF 70°F (ADJ.). IF ADDITIONAL COOLING IS REQUIRED, THE SUPPLY AIR FAN SHALL RUN CONTINUOUSLY AT HIGH SPEED.
2. THE REVERSE SHALL OCCUR IN A DROP IN SPACE TEMPERATURE.
3. MANUFACTURER PROVIDED TIME DELAYS SHALL PREVENT COMPRESSOR SHORT-CYCLING.

ALARMS
1. NEW TEMPERATURE SENSOR LOCATED IN ROOM SHALL SEND AN ALARM SIGNAL TO THE BAS IF THE TEMPERATURE EXCEEDS 78°F (ADJ.) FOR 10 MINUTES OR LONGER.

RDK **DUCTLESS SPLIT AIR CONDITIONER CONTROL SEQUENCE** -



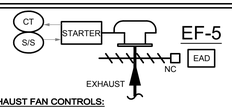
BASEBOARD RADIATION CONTROLS:
GENERAL:
1. PROVIDE NEW 2 WAY, 2 POSITION CONTROL VALVE FOR PIPING AS INDICATED.
2. NEW HEATING CONTROL VALVES TO BE CONTROLLED BY DDC CONTROLLER. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
3. COORDINATE OCCUPIED/UNOCCUPIED SCHEDULED WITH OWNER.
4. ALL TEMPERATURES LISTED ARE FAHRENHEIT.

OCCUPIED HEATING CONTROL:
1. UPON A DROP IN ROOM TEMPERATURE BELOW THE ROOM HEATING SETPOINT OF 68°F (ADJ.), THE CONVECTOR HV SHALL MODULATE OPEN TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.

UNOCCUPIED HEATING CONTROL:
1. UPON A DROP IN ROOM TEMPERATURE BELOW THE ROOM HEATING SETPOINT OF 60°F (ADJ.), THE CONVECTOR HV SHALL MODULATE OPEN TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.

ALARMS
1. IF THE ROOM TEMPERATURE FALLS BELOW 50° (ADJ) FOR 10 MINUTES (ADJ) OR LONGER, SEND A DETAILED ALARM TO THE FRONT END.

RDK **BASEBOARD CONTROL SEQUENCE** -



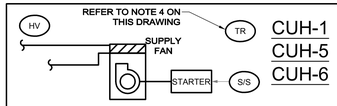
EXHAUST FAN CONTROLS:

GENERAL
1. EXHAUST FANS SHALL BE CONTROLLED VIA NEW DDC CONTROLLER (PROVIDED BY ATC CONTRACTOR). EXHAUST FAN SHALL RUN 24/7. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
2. GRAPHICALLY REPRESENT NEW FAN ON DDC CONTROL SYSTEM.

FAN CONTROL
1. WHILE DE-ENERGIZED (OR OFF ON MANUAL DISCONNECT), THE EXHAUST FAN SHALL BE OFF AND THE EXHAUST AIR DAMPER (EAD) SHALL BE CLOSED.
2. WHEN ENERGIZED, THE EAD SHALL BE OPEN, AND THE EXHAUST FAN SHALL START.

ALARMS
1. IF THE EXHAUST FAN FAILS, THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE BAS.

RDK **EXHAUST FAN CONTROL SEQUENCE** -



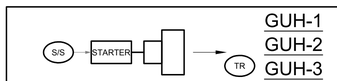
CABINET UNIT HEATER CONTROLS:

GENERAL:
1. CABINET UNIT HEATERS SHALL BE STARTED AND STOPPED VIA A DDC CONTROLLER.
2. ALL SETPOINTS SHALL BE ADJUSTABLE.
3. MOTOR RATED RELAYS SHALL BE PROVIDED TO INTERFACE MANUAL MOTOR STARTER WITH CONTROL WIRING TO SATISFY CONTROL SEQUENCE.
4. ALL TEMPERATURES LISTED ARE FAHRENHEIT.
5. PROVIDE INDIVIDUAL GRAPHICS OF EACH SYSTEM (I.E. EACH INDIVIDUAL CUH ETC.) WITH REAL TIME UPDATING OF CONDITIONS (STATUS ETC.).

CABINET UNIT HEATER CONTROL
1. THE CABINET UNIT HEATER'S FAN SHALL BE DE-ENERGIZED. UPON A CALL FOR HEAT, 60°F (ADJ), FROM THE TEMPERATURE SENSOR THE CABINET UNIT HEATER'S FAN SHALL BE ENERGIZED. THE REVERSE SHALL OCCUR ON A RISE IN TEMPERATURE.

ALARMS
1. IF THE ROOM TEMPERATURE FALLS BELOW 50° (ADJ) FOR 10 MINUTES (ADJ) OR LONGER, SEND A DETAILED ALARM TO THE BAS.

RDK **CABINET UNIT HEATER CONTROL SEQUENCE** -



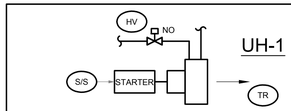
UNIT HEATER CONTROLS:

GENERAL
1. UNIT HEATERS SHALL BE STARTED AND STOPPED VIA DDC CONTROLLER. ALL SETPOINTS SHALL BE ADJUSTABLE.
2. MOTOR RATED RELAYS SHALL BE PROVIDED TO INTERFACE MANUAL MOTOR STARTER WITH CONTROL WIRING TO SATISFY CONTROL SEQUENCE.
3. ALL TEMPERATURES LISTED ARE FAHRENHEIT.

GAS UNIT HEATER CONTROL
1. THE UNIT HEATER'S FAN SHALL BE DE-ENERGIZED. UPON A CALL FOR HEAT, 55°F (ADJ), FROM THE TEMPERATURE SENSOR THE GAS UNIT HEATER SHALL BE STAGED ON, AND AFTER A TIME DELAY (BY EQUIPMENT MANUFACTURER) THE FAN SHALL ACTIVATE. FAN SHALL BE ENERGIZED. THE REVERSE SHALL OCCUR ON A RISE IN TEMPERATURE ABOVE 58°F (ADJ.).

ALARMS
1. IF THE ROOM TEMPERATURE FALLS BELOW 45° (ADJ) FOR 10 MINUTES (ADJ) OR LONGER, SEND A DETAILED ALARM TO THE BAS.
2. IF THE HIGH LIMIT CONTROLLER EXCEEDS FACTORY SETPOINT, THE UNIT HEATER SHALL BE DE-ENERGIZED AND THE GAS VALVE SHALL CLOSE.

RDK **GAS FIRED UNIT HEATER CONTROL SEQUENCE** -



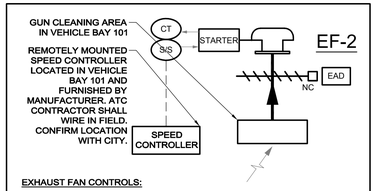
CABINET UNIT HEATER CONTROLS:

GENERAL:
1. UNIT HEATER SHALL BE STARTED AND STOPPED VIA A DDC CONTROLLER.
2. ALL SETPOINTS SHALL BE ADJUSTABLE.
3. MOTOR RATED RELAYS SHALL BE PROVIDED TO INTERFACE MANUAL MOTOR STARTER WITH CONTROL WIRING TO SATISFY CONTROL SEQUENCE.
4. ALL TEMPERATURES LISTED ARE FAHRENHEIT.
5. PROVIDE INDIVIDUAL GRAPHICS OF EACH SYSTEM (I.E. EACH INDIVIDUAL CUH, CONTROL VALVE ETC.) WITH REAL TIME UPDATING OF CONDITIONS (STATUS ETC.).
6. PROVIDE 2-WAY OPEN/ CLOSE CONTROL VALVE FOR HEATING COIL.

UNIT HEATER CONTROL
1. THE CABINET UNIT HEATER'S FAN SHALL BE DE-ENERGIZED. UPON A CALL FOR HEAT, 55°F (ADJ), FROM THE TEMPERATURE SENSOR THE HV SHALL OPEN AND THE UNIT HEATER'S FAN SHALL BE ENERGIZED. THE REVERSE SHALL OCCUR ON A RISE IN TEMPERATURE.

ALARMS
1. IF THE ROOM TEMPERATURE FALLS BELOW 50° (ADJ) FOR 10 MINUTES (ADJ) OR LONGER, SEND A DETAILED ALARM TO THE BAS.

RDK **UNIT HEATER CONTROL SEQUENCE** -



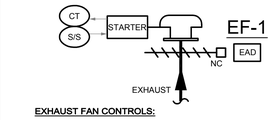
EXHAUST FAN CONTROLS:

GENERAL
1. EXHAUST FAN SHALL BE STARTED VIA A REMOTE SPEED CONTROLLER HOOD SWITCH FURNISHED BY FAN MANUFACTURER AND INSTALLED/ WIRED BY ATC CONTRACTOR. SWITCH SHALL HAVE AN "OFF" POSITION AND DIAL TO ADJUST THE SPEED OF FAN. PROVIDE CURRENT TRANSFORMER FOR STATUS AND MONITORING. EXHAUST AIR DAMPER SHALL BE LOW VOLTAGE BY MANUFACTURER.
2. ALL ACTUATORS SHALL BE ELECTRONIC.
3. GRAPHICALLY REPRESENT NEW FAN ON THE DDC CONTROL SYSTEM.

FAN CONTROL
1. WHILE DE-ENERGIZED (OR OFF ON MANUAL DISCONNECT) WITH THE SPEED CONTROLLER IN THE "OFF" POSITION, THE EXHAUST FAN SHALL BE OFF AND THE EXHAUST AIR DAMPER (EAD) SHALL BE CLOSED.
2. WHEN THE SPEED SWITCH IS IN THE "ON" POSITION, THE EXHAUST AIR DAMPER (EAD) SHALL OPEN AND THE FAN SHALL RAMP UP AND DOWN DEPENDING ON THE POSITION OF THE SPEED DIAL.

ALARMS
1. IF THE EXHAUST FAN FAILS AS SENSED BY THE CURRENT TRANSFORMER, THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE BAS.

RDK **EXHAUST FAN CONTROL SEQUENCE** -



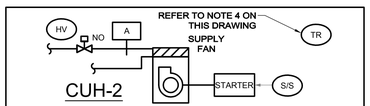
EXHAUST FAN CONTROLS:

GENERAL
1. EXHAUST FANS SHALL BE CONTROLLED VIA NEW DDC CONTROLLER (PROVIDED BY ATC CONTRACTOR). EXHAUST FAN SHALL SERVING PUBLIC AREAS AND SHALL RUN 24/7. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
2. GRAPHICALLY REPRESENT NEW FAN ON DDC CONTROL SYSTEM.

FAN CONTROL
1. WHILE DE-ENERGIZED (OR OFF ON MANUAL DISCONNECT), THE EXHAUST FAN SHALL BE OFF AND THE EXHAUST AIR DAMPER (EAD) SHALL BE CLOSED.
2. WHEN ENERGIZED, THE EAD SHALL BE OPEN, AND THE EXHAUST FAN SHALL START.

ALARMS
1. IF THE EXHAUST FAN FAILS, THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE BAS.

RDK **EXHAUST FAN CONTROL SEQUENCE** -



CABINET UNIT HEATER CONTROLS:

GENERAL:
1. CABINET UNIT HEATERS SHALL BE STARTED AND STOPPED VIA A DDC CONTROLLER.
2. ALL SETPOINTS SHALL BE ADJUSTABLE.
3. MOTOR RATED RELAYS SHALL BE PROVIDED TO INTERFACE MANUAL MOTOR STARTER WITH CONTROL WIRING TO SATISFY CONTROL SEQUENCE.
4. ALL TEMPERATURES LISTED ARE FAHRENHEIT.
5. PROVIDE INDIVIDUAL GRAPHICS OF EACH SYSTEM (I.E. EACH INDIVIDUAL CUH, CONTROL VALVE ETC.) WITH REAL TIME UPDATING OF CONDITIONS (STATUS ETC.).
6. PROVIDE 2-WAY OPEN/ CLOSE CONTROL VALVE FOR HEATING COIL.
7. THE MANUFACTURER FURNISHED AQUASTAT SHALL ENABLE THE FAN WHEN THE HOT WATER TEMPERATURE IS 100°F (ADJ.) OR ABOVE.

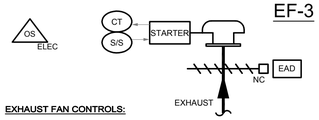
CABINET UNIT HEATER CONTROL
1. THE CABINET UNIT HEATER'S FAN SHALL BE DE-ENERGIZED. UPON A CALL FOR HEAT, 70°F (ADJ), FROM THE TEMPERATURE SENSOR THE HV SHALL OPEN AND THE CABINET UNIT HEATER'S FAN SHALL BE ENERGIZED. THE REVERSE SHALL OCCUR ON A RISE IN TEMPERATURE.

ALARMS
1. IF THE ROOM TEMPERATURE FALLS BELOW 50° (ADJ) FOR 10 MINUTES (ADJ) OR LONGER, SEND A DETAILED ALARM TO THE BAS.

RDK **CABINET UNIT HEATER CONTROL SEQUENCE** -

ATC NOTES:
1. PROVIDE NEW DDC TEMPERATURE CONTROL SYSTEM PER DRAWINGS AND SPECIFICATIONS. NEW DDC SYSTEM SHALL INTERFACE AND CONTROL ALL SYSTEMS ON DRAWINGS AND IN SPECIFICATIONS. CONTRACTOR SHALL PROVIDE NEW DDC CONTROLLERS AS REQUIRED TO SATISFY THE CONTROL SEQUENCES OUTLINED ON AUTOMATIC CONTROL DRAWINGS.
2. PROVIDE INDIVIDUAL EQUIPMENT GRAPHICS WITH REAL TIME UPDATING OF CONDITIONS (STATUS, TEMPERATURE, FLOWS, ETC) FOR ALL SYSTEMS WITHIN EACH CONTROL SEQUENCE. PROVIDE THE CITY OF WALTHAM WITH 1 SERVICE TOOL LAPTOP COMPUTER DEDICATED TO THE NEW DDC CONTROL SYSTEM - REFER TO ATC SPECIFICATIONS FOR SERVICE TOOL REQUIREMENTS.
3. PROVIDE SECURITY ACCESS/PASSWORD PROGRAMMING FOR DDC CONTROL SYSTEM. ALL ALARMS SHALL BE SENT TO THE DDC SYSTEM AND SHALL BE VIEWABLE WHEN LOGGED ON FROM ANY COMPUTER WITH AN AUTHORIZED USER VIA THE INTERNET.
4. PROVIDE STAINLESS STEEL WALL PLATE TEMPERATURE SENSOR IN ALL PUBLIC AREAS (I.E. CORRIDORS, BATHROOMS, ETC.) AND IN THE CELLS.
5. REFER TO SPECIFICATIONS FOR ADDITIONAL DETAILS AND TRAINING REQUIREMENTS.
6. ALL NEW ROOM TEMPERATURE SENSORS SHALL BE MOUNTED AT 48" ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED BY ARCHITECT.
7. ALL ATC CONTROLS SHALL BE HARDWIRED. NO WIRELESS TECHNOLOGY SHALL BE ALLOWED. ALL EXPOSED WIRING SHALL BE IN WIRE MOLD, NO CONDUIT SHALL BE USED IN EXPOSED AREAS.
8. ON SITE TRAINING SHALL ALSO INCLUDE A MINIMUM OF 40 HOURS OF HANDS ON INSTRUCTION GEARED TOWARD OPERATION AND MAINTENANCE OF THE SYSTEMS. PRIOR TO TRAINING, THE NECESSARY LESSON PLANS, TRAINING DOCUMENTS, HANDOUTS, ETC. SHALL BE PROVIDED WITH THE CURRICULUM OUTLINE, WHICH SHALL INCLUDE AS A MINIMUM:
   - 8.a. INITIAL SESSION: 8 HRS
   - 8.b. 2ND SESSION, 2 WEEKS LATER 8 HRS
   - 8.c. 3RD SESSION, 2 WEEKS LATER 8 HRS
   - 8.d. 4TH SESSION, 1 MONTH LATER 8 HRS
   - 8.e. REMAINING 8 HRS TO BE SCHEDULED BY AS NEEDED
9. THE CONTRACTOR SHALL CARRY 24 HOURS OF ADDITIONAL ON-SITE PROGRAMMING (ABOVE BASE CONTRACT) IN THEIR BID PROPOSAL TO ALLOW FOR FIELD MODIFICATIONS THAT MAY BE NEEDED TO OPTIMIZE THE VARIOUS SYSTEMS TO FULLY CONFORM TO THE REQUIREMENTS OF THE VARIOUS SYSTEMS TO FULLY CONFORM TO THE REQUIREMENTS OF THE SPECIFICATIONS, SEQUENCE OF CONTROLS AND WORK WITH THE ACTUAL OPERATING CONDITIONS AS INSTALLED. THIS WORK SHALL BE DONE AT NO ADDITIONAL COST.
10. SUBMIT ACCEPTANCE TESTING PLAN, PRE-FUNCTIONAL PERFORMANCE TEST FORMS/NARRATIVES AND FUNCTIONAL TEST FORMS/NARRATIVES TO THE ENGINEER FOR REVIEW AND APPROVAL.
11. REFER TO FLOOR PLANS FOR ELECTRICAL SOURCES TO SERVE MISCELLANEOUS ATC DEVICES - COORDINATE WITH DIVISION 16.

RDK **ATC NOTES** -



EXHAUST FAN CONTROLS:

GENERAL
1. EXHAUST FAN SHALL BE CONTROLLED VIA NEW DDC CONTROLLER (PROVIDED BY ATC CONTRACTOR).
2. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
3. EF-3 SHALL BE CONTROLLED/INTERFACED WITH THE LIGHTING MOTION SENSORS.
4. COORDINATE OCCUPANCY SENSOR WITH DIVISION 16.
5. GRAPHICALLY REPRESENT NEW FAN ON DDC CONTROL SYSTEM.

FAN CONTROL
1. WHILE DE-ENERGIZED (OR OFF ON MANUAL DISCONNECT), THE EXHAUST FAN SHALL BE OFF AND THE EXHAUST AIR DAMPER (EAD) SHALL BE CLOSED.
2. WHEN AN OS SENSOR IS TRIPPED, THE EAD SHALL OPEN, AND THE EXHAUST FAN SHALL START.

ALARMS
1. IF THE EXHAUST FAN FAILS, THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE EXISTING BAS.

RDK **ROOF MOUNTED EXHAUST FAN CONTROL SEQUENCE** -

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC AUTOMATIC TERMPERATURE CONTROLS

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

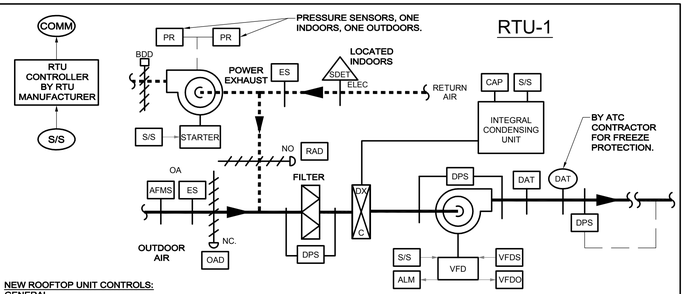
H600

SHEET 89 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

Q:\20130\20130535 - Waltham Police HQ Renovation\1200 Drawings\1200 HVAC\Plot Files\20130535 H600 HVAC ATC.dwg [Work], July 14, 2014 - 5:51pm dfreizak

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



RTU-1

NEW ROOFTOP UNIT CONTROLS:

GENERAL

1. THE NEW ROOFTOP UNIT SHALL BE STARTED AND STOPPED VIA A DDC CONTROLLER PROVIDED BY THE ATC CONTRACTOR. ALL SETPOINTS SHALL BE ADJUSTABLE.
2. THE ROOFTOP UNIT ACTUATORS, ENTHALPY SENSORS, DIRTY FILTER SENSOR, PRESSURE SENSORS, DISCHARGE AIR SENSOR, DIFFERENTIAL PRESSURE TRANSDUCER, VARIABLE FREQUENCY DRIVE, AND FROSTAT SHALL BE PROVIDED BY ROOFTOP UNIT MANUFACTURER. THE ROOFTOP UNIT'S REFRIGERATION CYCLE, ECONOMIZER CONTROL, AND SUPPLY FAN VFD OPERATION SHALL BE CONTROLLED BY THE ROOFTOP UNIT MANUFACTURER'S INTEGRAL CONTROLLER PROVIDED WITH THE ROOFTOP UNIT.
3. ROOFTOP UNIT SHALL BE INTERFACED WITH THE DDC CONTROL SYSTEM VIA THE ROOFTOP UNIT MANUFACTURER'S ATC INTERFACE CARD VIA BACNET INTERFACE. ATC CONTRACTOR SHALL COORDINATE THE REQUIRED INTERFACE SIGNALS TO PROVIDE ALL CONTROL SEQUENCES AND BAS GRAPHICS.
4. ALL TEMPERATURES LISTED ARE FAHRENHEIT.
5. ANTI-RECYCLE TIME DELAYS AND SAFETIES ON COMPRESSORS SHALL BE PROVIDED BY THE ROOFTOP UNIT MANUFACTURER.

FAN CONTROL

1. WHILE OFF ON SAFETY OR MANUAL DISCONNECT, THE ROOFTOP UNIT (INCLUDING ALL FANS) SHALL BE OFF WITH THE OUTSIDE AIR DAMPER (OAD) AND EXHAUST AIR DAMPER (EAD) CLOSED, AND THE CONDENSING UNIT SHALL BE OFF AND THE RETURN AIR DAMPER (RAD) OPEN.
2. WHEN THE RTU SYSTEM IS STARTED, THE OAD SHALL BE CLOSED AND THE RAD SHALL BE OPEN 100% AND THE RTU FAN SHALL START IN RECIRCULATION MODE AT MINIMUM SPEED.
3. THE SUPPLY FAN VFD SHALL SLOWLY INCREASE IN SPEED TO MAINTAIN SETPOINT OF THE REMOTE DIFFERENTIAL PRESSURE SENSOR (DPS). INITIAL SETPOINT SHALL BE 1.0" W.G. WITH THE FINAL SETPOINT DETERMINED BY THE BALANCING CONTRACTOR TO BE AS LOW AS NEEDED TO PROVIDE FULL AIRFLOW TO THE MOST REMOTE TERMINAL BOXES WITH THEIR PRIMARY AIR DAMPERS AT LEAST 95% OPEN. MINIMUM AIRFLOW OF THE SUPPLY FAN SHALL BE 60% OF THE SUPPLY VOLUME (8050 CFM AND MINIMUM VAV BOX SET POINTS).
4. THE POWERED EXHAUST SHALL BE BE RAMPED UP AND DOWN AS REQUIRED TO PROVIDE A POSITIVE INDOOR PRESSURE OF 0.06" AS MEASURED BY THE INDOOR AND OUTDOOR DIFFERENTIAL PRESSURE SENSORS TO MAINTAIN BUILDING PRESSURE.
5. AFTER THE ROOFTOP UNIT SUPPLY FAN IS STARTED, THE OAD AND RAD SHALL MODULATE TO THE MINIMUM BALANCED OUTSIDE AIR POSITION (REFER TO CO2 CONTROL).

CARBON DIOXIDE CONTROL

1. THE ACTUAL MINIMUM OUTDOOR AIRFLOW SHALL BE CONTROLLED BY THE OUTDOOR AIR AFMS TO VARY BETWEEN 60% AND 100% OF THE SCHEDULED OUTDOOR AIR VOLUME. NORMAL MINIMUM OUTDOOR AIR QUANTITY SHALL BE 60% OF THE SCHEDULED MINIMUM OA. IF THE FOLLOWING OCCURS, THE ROOFTOP UNIT CONTROLLER SHALL SLOWLY MODULATE THE OAD AND RAD AS LITTLE AS REQUIRED TO MAINTAIN THE MAXIMUM CO2 WITHIN 50 PPM OF THE LISTED LIMIT:
   - 1.a. IF ANY OF THE VAV CO2 SENSORS (REFER TO VAV CONTROLS) RISES ABOVE THE LIMIT OF 1100 PPM FOR 5 MINUTES).

HEATING CONTROL

1. MECHANICAL COOLING SHALL BE OFF.
2. THE UNIT SHALL OPERATE AS IF IN OCCUPIED COOLING MODE EXCEPT THAT MECHANICAL REFRIGERATION AND ECONOMIZER MODES SHALL BE LOCKED OUT. THE HEATING SHALL BE DONE BY THE VAV UNITS DOWNSTREAM OF THE ROOFTOP UNIT.

COOLING CONTROL

1. UPON A RISE IN DAT ABOVE THE DISCHARGE SEPTOINT OF 55°F (ADJ.) THE COOLING CYCLE SHALL BE ACTIVATED. THE COOLING SETPOINT SHALL BE RESENT TO AS WARM AS POSSIBLE (BETWEEN 55 MINIMUM AND 60°F MAXIMUM) WITH THE FOLLOWING LIMITS:
   - 1.a. NO ROOM TEMPERATURE (FOR ALL ASSOCIATED TERMINAL VOLUME BOXES) IS MORE THAN 1°F (ADJ.) ABOVE SETPOINT.
2. THE FIRST MEANS OF MAINTAINING DISCHARGE AIR TEMPERATURE SHALL BE ACTIVATION OF THE ECONOMIZER. IF THE OUTSIDE AIR ENTHALPY IS BELOW THE RETURN AIR ENTHALPY, THE OUTDOOR AND RETURN AIR DAMPERS SHALL BE PROPORTIONALLY MODULATED UP TO 100% OUTDOOR AIR TO MAINTAIN SETPOINT. DAT SHALL LIMIT SUPPLY AIR TEMPERATURE TO 55°F MINIMUM DURING THE COOLING SEASON (LIMIT SHALL NOT RESULT IN REDUCTION TO MINIMUM OUTDOOR AIRFLOW). IF ADDITIONAL COOLING IS REQUIRED, THE COMPRESSORS SHALL BE STAGED TO SATISFY THE DISCHARGE TEMPERATURE SETPOINT. WHEN THE MECHANICAL REFRIGERATION IS SATISFIED, THE COMPRESSORS SHALL BE LOCKED OUT AND THE ECONOMIZER SHALL MODULATE TO MAINTAIN THE DISCHARGE TEMPERATURE SETPOINT. THE REVERSE SHALL OCCUR ON A DROP IN DAT BELOW COOLING SETPOINT.
3. IF THE OUTSIDE AIR ENTHALPY RISES ABOVE THE RETURN AIR ENTHALPY THE ECONOMIZER SHALL BE POSITIONED TO PROVIDE MINIMUM OUTDOOR AIRFLOW (SEE OCCUPIED CO2 CONTROL) AND MECHANICAL REFRIGERATION SHALL BE ENERGIZED IN STAGES TO MAINTAIN THE DISCHARGE TEMPERATURE SETPOINT. DAT SHALL LIMIT SUPPLY AIR TEMPERATURE TO 55°F MINIMUM DURING THE COOLING SEASON.

SAFETIES

1. THE FOLLOWING SAFETIES, EACH WITH ITS OWN MANUAL RESET, SHALL SHUT DOWN THE ROOFTOP UNIT'S SUPPLY FAN VIA HARDWARE BEFORE THE H-O-A.
   - a. WHEN THE SMOKE DETECTOR SENSES SMOKE THE ROOFTOP UNIT'S FAN AND CONDENSING SECTION SHALL BE DE-ENERGIZED AS OUTLINED UNDER FAN CONTROL.
   - b. THE DISCHARGE AIR SENSOR ACTING AS A FREEZESTAT SHALL CAUSE AND ALARM AT THE BAS AND BE INTERLOCKED FOR UNIT SHUTDOWN WHEN SENSING A TEMPERATURE OF 37° (ADJ.) OR LESS

ALARMS

1. IF THE ATC PROVIDED DISCHARGE AIR TEMPERATURE SENSOR SENSES A TEMPERATURE MORE THAN 5°F (ADJ.) ABOVE OR BELOW SETPOINT FOR 5 MINUTES (ADJ.) THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE BAS.
2. IF FILTER PRESSURE DROP EXCEEDS SETPOINT (CLEAN FILTER +.25") THE CONTROLLER SHALL GIVE AN ALARM SIGNAL TO THE DDC SYSTEM.
3. IF THE SUPPLY FAN FAILS OR IF ANY UNIT SAFETY IS TRIPPED, THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE DDC SYSTEM.

RDK

ROOFTOP UNIT 1
CONTROL SEQUENCE

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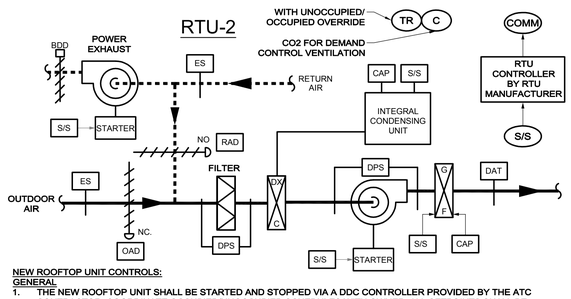


RTU-2

NEW ROOFTOP UNIT CONTROLS:

GENERAL

1. THE NEW ROOFTOP UNIT SHALL BE STARTED AND STOPPED VIA A DDC CONTROLLER PROVIDED BY THE ATC CONTRACTOR. COORDINATE OCCUPIED/UNOCCUPIED SCHEDULES WITH OWNER. ALL SETPOINTS SHALL BE ADJUSTABLE.
2. THE ROOFTOP UNIT ACTUATORS, ENTHALPY SENSORS, DIRTY FILTER SENSOR, DISCHARGE AIR SENSOR, AND FROSTAT SHALL BE PROVIDED BY ROOFTOP UNIT MANUFACTURER.
3. ROOFTOP UNIT SHALL BE INTERFACED WITH THE DDC CONTROL SYSTEM VIA THE ROOFTOP UNIT MANUFACTURER'S ATC INTERFACE CARD VIA BACNET INTERFACE. ATC CONTRACTOR SHALL COORDINATE THE REQUIRED INTERFACE SIGNALS TO PROVIDE ALL CONTROL SEQUENCES AND BAS GRAPHICS.
4. ALL TEMPERATURES LISTED ARE FAHRENHEIT.
5. ANTI-RECYCLE TIME DELAYS AND SAFETIES ON COMPRESSORS AND GAS FURNACE SHALL BE PROVIDED BY THE ROOFTOP UNIT MANUFACTURER.

FAN CONTROL

1. WHILE IN UNOCCUPIED MODE (OR OFF ON SAFETY OR MANUAL DISCONNECT) THE ROOFTOP UNIT (INCLUDING ALL FANS) SHALL BE OFF WITH THE OUTSIDE AIR DAMPER (OAD) AND EXHAUST AIR DAMPER (EAD) CLOSED, THE GAS HEATER AND CONDENSING UNIT SHALL BE OFF AND THE RETURN AIR DAMPER (RAD) OPEN.
2. AFTER THE ROOFTOP UNIT SUPPLY FAN IS STARTED IN THE OCCUPIED MODE, THE OAD AND RAD SHALL MODULATE TO THE MINIMUM BALANCED OUTSIDE AIR POSITION (SEE CO2 CONTROL).

COOLING (OCCUPIED MODE)

1. THE SUPPLY AIR FAN SHALL RUN CONTINUOUSLY. THE OUTSIDE AIR AND RETURN DAMPERS SHALL BE OPEN TO THE THE DESIGN O.A POSITION. THE FIRST STAGE OF COOLING SHALL BE VIA DIFFERENTIAL ENTHALPY ECONOMIZER. IF THE OUTDOOR AIR ENTHALPY IS BELOW THE ENTHALPY OF THE RETURN AIR, AND THE SPACE TEMPERATURE SENSOR IS CALLING FOR COOLING, THE ECONOMIZER SHALL MODULATE TO MAINTAIN THE ROOM TEMPERATURE SETPOINT OF 75°F (ADJUSTABLE). IF ADDITIONAL COOLING IS REQUIRED, THE COMPRESSORS SHALL BE STAGED TO SATISFY THE SPACE TEMPERATURE SETPOINT. WHEN THE MECHANICAL REFRIGERATION IS SATISFIED, THE COMPRESSORS SHALL BE LOCKED OUT AND THE ECONOMIZER SHALL MODULATE TO MAINTAIN THE SPACE TEMPERATURE COOLING SETPOINT.
2. UNIT MOUNTED POWER EXHAUST FAN WITH BACKDRAFT DAMPER SHALL PREVENT THE SPACE FROM BECOMING OVER-PRESSURIZED DURING ECONOMIZER OPERATION. THE POWER EXHAUST FAN SHALL BE ENERGIZED THROUGH AN INTERNAL END SWITCH (PROVIDED BY THE UNIT MANUFACTURER) WHEN THE OUTDOOR DAMPER/ECONOMIZER OPENS AT 50% (ADJ.).
3. IF THE OUTDOOR AIR ENTHALPY IS ABOVE THE ENTHALPY OF THE RETURN AIR, AND THE SPACE TEMPERATURE SENSOR IS CALLING FOR COOLING, THEN THE OUTSIDE AND RETURN AIR DAMPERS SHALL GO TO THEIR BALANCED OUTDOOR AIR POSITION AND MECHANICAL REFRIGERATION SHALL BE ENERGIZED IN STAGES TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.
4. MANUFACTURER PROVIDED TIME DELAYS SHALL PREVENT COMPRESSOR SHORT-CYCLING.

COOLING (UNOCCUPIED MODE)

1. THE SUPPLY AIR AND POWER EXHAUST FANS SHALL BE OFF. THE OUTSIDE AIR DAMPER SHALL BE CLOSED. THE RETURN AIR DAMPER SHALL BE OPEN. NO COOLING SHALL BE PROVIDED.

OCCUPIED OUTDOOR AIR - CARBON DIOXIDE CONTROL

1. THE NORMAL ROOFTOP UNIT MINIMUM OUTDOOR AIR SHALL BE 50% OF THE SCHEDULED OUTDOOR AIRFLOW. IF THE SPACE CO2 SENSOR LEVEL RISES ABOVE 1200 PPM FOR 5 MINUTES (ADJ) THE RTU CONTROLLER SHALL SLOWLY MODULATE THE OAD AND RAD AS REQUIRED TO MAINTAIN THE MAXIMUM CO2 WITHIN 50 PPMOF THE LIMIT (UP TO THE BALANCED POSITION FOR THE SCHEDULED OUTDOOR AIR - COORDINATE WITH THE BALANCING CONTRACTOR.
2. ON A DROP IN CO2 BELOW 1100 PPM FOR 5 MINUTES (ADJ.), THE OAD AND RAD SHALL MODULATE TO THE MINIMUM POSITION (UNLESS IN ECONOMIZER COOLING).

HEATING (OCCUPIED MODE)

1. THE SUPPLY AIR FAN SHALL RUN CONTINUOUSLY. THE OUTSIDE AIR DAMPER AND RETURN AIR DAMPER SHALL CLOSE TO THEIR BALANCED OUTDOOR AIR POSITION. NO COOLING SHALL BE PROVIDED.
2. UPON A CALL FOR HEAT FROM THE SPACE TEMPERATURE SENSOR, THE GAS FURNACE SHALL BE STAGED TO MAINTAIN THE SPACE HEATING TEMPERATURE SETPOINT 70°F (ADJ.). THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.

HEATING (UNOCCUPIED MODE)

1. THE SUPPLY FAN SHALL BE CYCLED "ON" AND "OFF" (IN RECIRCULATION MODE) WITH THE GAS FURNACE TO SATISFY THE NIGHT SETBACK SETPOINT, 55°F (ADJ) WITH A 4°F DIFFERENTIAL (ON AT 53°, OFF AT 57°). THE OUTDOOR AIR DAMPER SHALL BE CLOSED AND THE RAD OPEN. THE SUPPLY FAN SHALL RUN 2 TO 5 MINUTES (ADJ) AFTER THE GAS BURNER IS DE-ENERGIZED. PROVIDE REQUIRED TIME DELAYS.

UNOCCUPIED OVERRIDE

1. THE PUSH BUTTON ON THE THE SPACE TEMPERATURE SENSOR SHALL OVERRIDE THE UNOCCUPIED MODE AND FOLLOW THE OCCUPIED MODE SEQUENCE FOR 2 HOURS (ADJ.) AND THEN RETURN TO THE UNOCCUPIED MODE.

WARM-UP/COOL DOWN CONTROL

1. PROVIDE WARM-UP/COOL DOWN CONTROL AND OPTIMAL START/STOP (INCLUDING CALCULATED START TIME).
2. THE DDC CONTROLLER SHALL PROVIDE OPTIMUM START CAPABILITY. THE FIRST MEANS OF MAINTAINING THE COOLING SETPOINT SHALL BE ACTIVATION OF THE ECONOMIZER. IF THE OUTSIDE ENTHALPY IS BELOW THE RETURN ENTHALPY, THE OUTDOOR AND RETURN AIR DAMPERS SHALL BE PROPORTIONALLY MODULATED UP TO 100% OUTDOOR AIR TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. IF ADDITIONAL COOLING IS REQUIRED, THE COMPRESSORS SHALL BE STAGED TO SATISFY THE SPACE TEMPERATURE SETPOINT. WHEN THE MECHANICAL REFRIGERATION IS SATISFIED, THE COMPRESSORS SHALL BE LOCKED OUT AND THE ECONOMIZER SHALL MODULATE TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. AFTER THE SPACE TEMPERATURE REACHES 75°F (ADJ.) THE ROOFTOP UNIT'S OCCUPIED MODE SHALL START.
3. THE UNIT MOUNTED POWER EXHAUST AND BACKDRAFT DAMPER SHALL PREVENT THE SPACE FROM BECOMING OVER PRESSURIZED DURING ECONOMIZER MODE.
4. DURING MORNING WARM-UP, THE FAN SHALL BE ENERGIZED, THE RETURN AIR DAMPER SHALL BE OPEN AND THE OUTDOOR AIR DAMPER SHALL BE CLOSED. THE GAS FURNACE SHALL BE STAGED ON AS REQUIRED TO MAINTAIN A 90°F (ADJ.) DISCHARGE AIR TEMPERATURE. AFTER THE SPACE TEMPERATURE REACHES 70°F (ADJ.) THE ROOFTOP UNIT OCCUPIED MODE SHALL START.

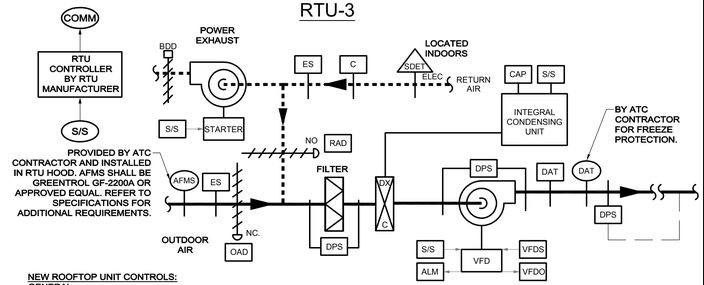
SAFETIES AND ALARMS

1. IF THE TEMPERATURE SENSOR SENSES A TEMPERATURE MORE THAN 5°F (ADJ.) ABOVE OR BELOW SETPOINT FOR 5 MINUTES (ADJ.) THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE BAS.
2. IF FILTER PRESSURE DROP EXCEEDS SETPOINT (CLEAN FILTER +.25") THE CONTROLLER SHALL GIVE AN ALARM SIGNAL TO THE FAN STATUS SWITCH.
3. IF THE DISCHARGE AIR TEMPERATURE SENSOR (BY ATC) SENSES A TEMPERATURE LESS THAN 37°F (ADJ.) FOR 5 MINUTES (ADJ.) THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE BAS AND THE UNIT SHALL BE SHUT OFF.

RDK

ROOFTOP UNIT 2
CONTROL SEQUENCE

-



RTU-3

NEW ROOFTOP UNIT CONTROLS:

GENERAL

1. THE NEW ROOFTOP UNIT SHALL BE STARTED AND STOPPED VIA A DDC CONTROLLER PROVIDED BY THE ATC CONTRACTOR. COORDINATE OCCUPIED/UNOCCUPIED SCHEDULES WITH OWNER. ALL SETPOINTS SHALL BE ADJUSTABLE.
2. THE ROOFTOP UNIT ACTUATORS, ENTHALPY SENSORS, DIRTY FILTER SENSOR, DISCHARGE AIR SENSOR, DIFFERENTIAL PRESSURE TRANSDUCER, VARIABLE FREQUENCY DRIVE, AND FROSTAT SHALL BE PROVIDED BY ROOFTOP UNIT MANUFACTURER. THE ROOFTOP UNIT'S REFRIGERATION CYCLE, ECONOMIZER CONTROL, AND SUPPLY FAN VFD OPERATION SHALL BE CONTROLLED BY THE ROOFTOP UNIT MANUFACTURER'S INTEGRAL CONTROLLER PROVIDED WITH THE ROOFTOP UNIT.
3. THE OCCUPIED CYCLE, UNOCCUPIED CYCLE AND CARBON DIOXIDE SHALL BE CONTROLLED VIA THE DDC CONTROLS.
4. ROOFTOP UNIT SHALL BE INTERFACED WITH THE DDC CONTROL SYSTEM VIA THE ROOFTOP UNIT MANUFACTURER'S ATC INTERFACE CARD VIA BACNET INTERFACE. ATC CONTRACTOR SHALL COORDINATE THE REQUIRED INTERFACE SIGNALS TO PROVIDE ALL CONTROL SEQUENCES AND BAS GRAPHICS.
5. ALL TEMPERATURES LISTED ARE FAHRENHEIT.
6. ANTI-RECYCLE TIME DELAYS AND SAFETIES ON COMPRESSORS SHALL BE PROVIDED BY THE ROOFTOP UNIT MANUFACTURER.

FAN CONTROL

1. WHILE IN UNOCCUPIED MODE (OR OFF ON SAFETY OR MANUAL DISCONNECT) THE ROOFTOP UNIT (INCLUDING ALL FANS) SHALL BE OFF WITH THE OUTSIDE AIR DAMPER (OAD) AND EXHAUST AIR DAMPER (EAD) CLOSED, AND THE CONDENSING UNIT SHALL BE OFF AND THE RETURN AIR DAMPER (RAD) OPEN.
2. WHEN THE RTU SYSTEM IS STARTED, THE OAD SHALL BE CLOSED AND THE RAD SHALL BE OPEN 100% AND THE RTU FAN SHALL START IN RECIRCULATION MODE AT MINIMUM SPEED.
3. THE SUPPLY FAN VFD SHALL SLOWLY INCREASE IN SPEED TO MAINTAIN SETPOINT OF THE REMOTE DIFFERENTIAL PRESSURE SENSOR (DPS). INITIAL SETPOINT SHALL BE 1.0" W.G. WITH THE FINAL SETPOINT DETERMINED BY THE BALANCING CONTRACTOR TO BE AS LOW AS NEEDED TO PROVIDE FULL AIRFLOW TO THE MOST REMOTE TERMINAL BOXES WITH THEIR PRIMARY AIR DAMPERS AT LEAST 95% OPEN. MINIMUM AIRFLOW OF THE SUPPLY FAN SHALL BE 60% OF THE SUPPLY VOLUME (5600 CFM PER RTU AND MINIMUM VAV BOX SET POINTS).
4. AFTER THE ROOFTOP UNIT SUPPLY FAN IS STARTED IN THE OCCUPIED MODE, THE OAD AND RAD SHALL MODULATE TO THE MINIMUM BALANCED OUTSIDE AIR POSITION (REFER TO CO2 CONTROL).

OCCUPIED CARBON DIOXIDE CONTROL

1. THE ACTUAL MINIMUM OUTDOOR AIRFLOW SHALL BE CONTROLLED BY THE OUTDOOR AIR AFMS TO VARY BETWEEN 50% AND 100% OF THE SCHEDULED OUTDOOR AIR VOLUME. NORMAL MINIMUM OUTDOOR AIR QUANTITY SHALL BE 50% OF THE SCHEDULED MINIMUM OA. IF THE FOLLOWING OCCURS, THE ROOFTOP UNIT CONTROLLER SHALL SLOWLY MODULATE THE OAD AND RAD AS LITTLE AS REQUIRED TO MAINTAIN THE MAXIMUM CO2 WITHIN 50 PPM OF THE LISTED LIMIT:
   - 1.a. IF RETURN DUCT MOUNTED CO2 SENSOR RISES ABOVE THE LIMIT OF 1000 PPM (ADJ) FOR 5 MINUTES (ADJ).
   - 1.b. IF ANY SPACE CO2 SENSOR (SEE RTU-3 TERMINAL UNIT CONTROLS) RISES ABOVE LIMIT OF 1200 PPM

OCCUPIED HEATING CONTROL

1. MECHANICAL COOLING SHALL BE OFF.
2. THE UNIT SHALL OPERATE AS IF IN OCCUPIED COOLING MODE EXCEPT THAT MECHANICAL REFRIGERATION AND ECONOMIZER MODES SHALL BE LOCKED OUT. THE HEATING SHALL BE DONE BY THE VAV UNITS DOWNSTREAM OF THE ROOFTOP UNIT.

UNOCCUPIED HEATING CONTROL

1. THE SUPPLY FAN SHALL BE CYCLED "ON" AND "OFF" (IN RECIRCULATION MODE) TO SATISFY THE NIGHT SETBACK SETPOINT, 55°F (ADJ.). REFER TO VAV CONTROLS. THE OUTDOOR AIR DAMPER SHALL BE CLOSED AND THE RAD OPEN.

OCCUPIED COOLING CONTROL

1. UPON A RISE IN DAT ABOVE THE DISCHARGE SEPTOINT OF 55°F (ADJ.) THE COOLING CYCLE SHALL BE ACTIVATED. THE COOLING SETPOINT SHALL BE RESENT TO AS WARM AS POSSIBLE (BETWEEN 55 MINIMUM AND 60°F MAXIMUM) WITH THE FOLLOWING LIMITS:
   - 1.a. NO ROOM TEMPERATURE (FOR ALL ASSOCIATED TERMINAL VOLUME BOXES) IS MORE THAN 1°F (ADJ.) ABOVE SETPOINT.
2. THE FIRST MEANS OF MAINTAINING DISCHARGE AIR TEMPERATURE SHALL BE ACTIVATION OF THE ECONOMIZER. IF THE OUTSIDE AIR ENTHALPY IS BELOW THE RETURN AIR ENTHALPY, THE OUTDOOR AND RETURN AIR DAMPERS SHALL BE PROPORTIONALLY MODULATED UP TO 100% OUTDOOR AIR TO MAINTAIN SETPOINT. DAT SHALL LIMIT SUPPLY AIR TEMPERATURE TO 55°F MINIMUM DURING THE COOLING SEASON (LIMIT SHALL NOT RESULT IN REDUCTION TO MINIMUM OUTDOOR AIRFLOW). IF ADDITIONAL COOLING IS REQUIRED, THE COMPRESSORS SHALL BE STAGED TO SATISFY THE DISCHARGE TEMPERATURE SETPOINT. WHEN THE MECHANICAL REFRIGERATION IS SATISFIED, THE COMPRESSORS SHALL BE LOCKED OUT AND THE ECONOMIZER SHALL MODULATE TO MAINTAIN THE DISCHARGE TEMPERATURE SETPOINT. THE REVERSE SHALL OCCUR ON A DROP IN DAT BELOW COOLING SETPOINT.
3. UNIT MOUNTED POWER EXHAUST AND BACKDRAFT DAMPER SHALL PREVENT THE BUILDING FROM BECOMING OVER PRESSURIZED DURING ECONOMIZER OPERATIONS.
4. IF THE OUTSIDE AIR ENTHALPY RISES ABOVE THE RETURN AIR ENTHALPY THE ECONOMIZER SHALL BE POSITIONED TO PROVIDE MINIMUM OUTDOOR AIRFLOW (SEE OCCUPIED CO2 CONTROL) AND MECHANICAL REFRIGERATION SHALL BE ENERGIZED IN STAGES TO MAINTAIN THE DISCHARGE TEMPERATURE SETPOINT. DAT SHALL LIMIT SUPPLY AIR TEMPERATURE TO 55°F MINIMUM DURING THE COOLING SEASON.

UNOCCUPIED OVERRIDE

1. THE PUSH BUTTON ON ANY OF THE ASSOCIATED TERMINAL VAV BOXES TEMPERATURE SENSORS SHALL OVERRIDE THE UNOCCUPIED MODE AND FOLLOW THE OCCUPIED MODE SEQUENCE FOR 2 HOURS (ADJ.) AND THEN RETURN TO THE UNOCCUPIED MODE. THE CONTROLS SHALL ENSURE THAT ENOUGH "UNOCCUPIED ZONES" ARE ALSO OVERRIDDEN SO THAT THE UNIT OPERATES WITH AT LEAST 60% OF THE DESIGN AIRFLOW.

WARM-UP/COOL DOWN CONTROL

1. PROVIDE WARM-UP/COOL DOWN CONTROL AND OPTIMAL START/STOP (INCLUDING CALCULATED START TIME).
2. THE DDC CONTROLLER SHALL PROVIDE OPTIMUM START CAPABILITY. IF ANY OF THE THE ROOM TEMPERATURES AT ANY ASSOCIATED TERMINAL BOX IS BELOW 63°F (ADJ.), MORNING WARM-UP SHALL BE DONE. THE UNIT SUPPLY FAN SHALL BE ENERGIZED, WITH THE RAD OPEN AND OAD CLOSED. THE HEATING SHALL BE DONE AT THE VAV UNIT. WHEN ALL ROOM TEMPERATURES RISE TO 69°F, THE OCCUPIED MODE SHALL START.
3. THE DDC CONTROLLER SHALL PROVIDE OPTIMUM START CAPABILITY. THE FIRST MEANS OF MAINTAINING THE DISCHARGE SETPOINT SHALL BE ACTIVATION OF THE ECONOMIZER. IF THE OUTSIDE ENTHALPY IS BELOW THE RETURN ENTHALPY, THE OUTDOOR AND RETURN AIR DAMPERS SHALL BE PROPORTIONALLY MODULATED UP TO 100% OUTDOOR AIR TO MAINTAIN DISCHARGE TEMPERATURE SETPOINT. IF ADDITIONAL COOLING IS REQUIRED, THE COMPRESSORS SHALL BE STAGED TO SATISFY THE TEMPERATURE SETPOINT. WHEN THE MECHANICAL REFRIGERATION IS SATISFIED, THE COMPRESSORS SHALL BE LOCKED OUT AND THE ECONOMIZER SHALL MODULATE TO MAINTAIN THE DISCHARGE TEMPERATURE SETPOINT. AFTER ALL THE ROOM TEMPERATURES REACH 75°F (ADJ.) THE ROOFTOP UNIT'S OCCUPIED MODE SHALL START.
4. THE UNIT MOUNTED POWER EXHAUST AND BACKDRAFT DAMPER SHALL PREVENT THE SPACES FROM BECOMING OVER PRESSURIZED DURING ECONOMIZER MODE.

SAFETIES

1. THE FOLLOWING SAFETIES, EACH WITH ITS OWN MANUAL RESET, SHALL SHUT DOWN THE ROOFTOP UNIT'S SUPPLY FAN VIA HARDWARE BEFORE THE H-O-A.
   - a. WHEN THE SMOKE DETECTOR SENSES SMOKE THE ROOFTOP UNIT'S FAN AND CONDENSING SECTION SHALL BE DE-ENERGIZED AS OUTLINED UNDER FAN CONTROL.
   - b. THE DISCHARGE AIR SENSOR ACTING AS A FREEZESTAT SHALL CAUSE AND ALARM AT THE BAS AND BE INTERLOCKED FOR UNIT SHUTDOWN WHEN SENSING A TEMPERATURE OF 37° (ADJ.) OR LESS.

ALARMS

1. IF THE DISCHARGE AIR TEMPERATURE SENSOR SENSES A TEMPERATURE MORE THAN 5°F (ADJ.) ABOVE OR BELOW SETPOINT FOR 5 MINUTES (ADJ.) THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE BAS.
2. IF FILTER PRESSURE DROP EXCEEDS SETPOINT (CLEAN FILTER +.25") THE CONTROLLER SHALL GIVE AN ALARM SIGNAL TO THE DDC SYSTEM.
3. IF THE SUPPLY FAN FAILS OR IF ANY UNIT SAFETY IS TRIPPED, THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE DDC SYSTEM.

RDK

ROOFTOP UNIT 3
CONTROL SEQUENCE

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

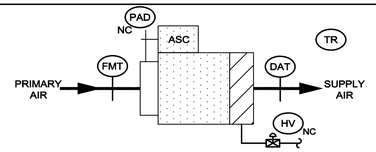
HVAC AUTOMATIC TERMPERATURE CONTROLS

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

H601

SHEET 90 **OF** 157



VAV-20 VAV-26
VAV-21 VAV-30
VAV-22 VAV-31
VAV-23 VAV-32
VAV-24

VAV BOX WITH HW COIL CONTROL SEQUENCES
GENERAL
1. VAV BOX, HOT WATER COIL, AND CONTROL VALVE SHALL BE CONTROLLED BY A PROGRAMMABLE APPLICATION SPECIFIC CONTROLLER (ASC) PROVIDED BY THE ATC CONTRACTOR. COORDINATE OCCUPIED/UNOCCUPIED SCHEDULES WITH OWNER. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
2. ALL TEMPERATURES LISTED ARE FAHRENHEIT AND SHALL BE ADJUSTABLE.
3. PROVIDE PRESSURE INDEPENDENT TYPE CONTROL VALVE FOR HEATING COIL.
4. AIRFLOW SHALL BE MEASURED BY THE FLOW MEASURING TRANSMITTER (FMT) AND DISPLAYED ON THE GRAPHICS.
5. OCCUPIED HEATING SETPOINT SHALL BE 70°F. OCCUPIED COOLING SETPOINT SHALL BE 5°F WARMER THAN HEATING SETPOINT.
6. ROOM TEMPERATURES SHALL BE SET BY THE BUILDING AUTOMATION SYSTEM (BAS) AND CAPABLE OF LOCAL +/- 2°F ADJUSTMENT.
7. MINIMUM AND MAXIMUM PRIMARY AIRFLOWS ARE SHOWN ON DRAWINGS. HEATING AIRFLOWS ARE SHOWN ON SCHEDULES.

OCCUPIED HEATING CONTROL
1. UPON A CALL FOR HEATING FROM THE ROOM TEMPERATURE SENSOR (TR), THE PAD SHALL MODULATE TO ITS MINIMUM AIRFLOW AND THE HEATING CONTROL VALVE (HV) SHALL MODULATE AS REQUIRED TO MAINTAIN THE HEATING SETPOINT. THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.

OCCUPIED COOLING CONTROL
1. UPON A CALL FOR COOLING FROM THE ROOM TEMPERATURE SENSOR (TR), THE PAD SHALL MODULATE BETWEEN MINIMUM AND MAXIMUM AIRFLOWS AS REQUIRED TO MAINTAIN COOLING SETPOINT WITH THE HEATING COIL CONTROL VALVE (HV) CLOSED.

UNOCCUPIED HEATING CONTROL
1. IF THE ROOM TEMPERATURE SENSOR FALLS BELOW 55°F (ADJ.) FOR 10 MINUTES OR LONGER, THE INTERLOCKED ROOFTOP UNIT SHALL START IN THE UNOCCUPIED MODE, ALL VAV BOXES SHALL OPEN TO THEIR MINIMUM AIRFLOW, AND ALL HW VALVES SHALL MODULATE TO MAINTAIN A DISCHARGE AIR TEMPERATURE (DAT) OF 90°F (ADJ.). WHEN EACH OF THE ROOM TEMPERATURE SENSORS RISES ABOVE 60°F (ADJ.), THEN THE VALVES SHALL CLOSE AND THE VAV BOXES AND INTERLOCKED ROOFTOP UNIT SHALL SHUT DOWN.
2. THERE SHALL BE NO UNOCCUPIED COOLING.

UNOCCUPIED OVERRIDE
1. BUTTON ON TR SHALL ALLOW 2-HOUR (ADJ) OVERRIDE FROM UNOCCUPIED TO OCCUPIED CONTROL. WHEN ANY ROOM IS IN THIS OVERRIDE, THE DDC SYSTEM SHALL ENSURE THAT ENOUGH "UNOCCUPIED" ZONES ARE ALSO OVERRIDDEN SO THAT THE ASSOCIATED ROOFTOP UNIT CAN OPERATE AT MINIMUM AIRFLOW IN THIS MODE.

WARM-UP CONTROL
1. PROVIDE OPTIMUM START CAPABILITY. IF ROOM TEMPERATURE IS BELOW 65°F, WARM-UP SHALL BE DONE BY MODULATING THE HW HEATING CONTROL VALVE TO MAINTAIN A DISCHARGE AIR TEMPERATURE (DAT) OF 90°F (ADJ.). THE PAD SHALL BE AT ITS MINIMUM HEATING POSITION. WHEN ROOM TEMPERATURE RISES ABOVE 69°F, OCCUPIED MODE SHALL START.

ALARMS
1. IF THE ROOM TEMPERATURE SENSOR TR SENSES A TEMPERATURE MORE THAN 5°F ABOVE OR BELOW THE SETPOINT FOR 5 MINUTES THE DDC SYSTEM SHALL GIVE A DETAILED ALARM SIGNAL.

RDK

RTU-3 VAV BOX CONTROL SEQUENCES

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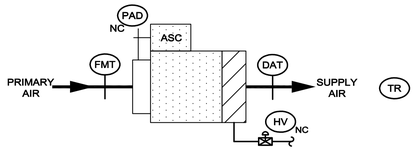

VAV-19
VAV-25
VAV-27
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VAV-29

VAV BOX WITH HW COIL CONTROL SEQUENCES
GENERAL
1. VAV BOX, HOT WATER COIL, CARBON DIOXIDE SENSOR AND CONTROL VALVE SHALL BE CONTROLLED BY A PROGRAMMABLE APPLICATION SPECIFIC CONTROLLER (ASC) PROVIDED BY THE ATC CONTRACTOR. COORDINATE OCCUPIED/UNOCCUPIED SCHEDULES WITH OWNER. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
2. ALL TEMPERATURES LISTED ARE FAHRENHEIT AND SHALL BE ADJUSTABLE.
3. PROVIDE PRESSURE INDEPENDENT TYPE CONTROL VALVE FOR HEATING COIL.
4. AIRFLOW SHALL BE MEASURED BY THE FLOW MEASURING TRANSMITTER (FMT) AND DISPLAYED ON THE GRAPHICS.
5. OCCUPIED HEATING SETPOINT SHALL BE 70°F. OCCUPIED COOLING SETPOINT SHALL BE 5°F WARMER THAN HEATING SETPOINT.
6. ROOM TEMPERATURES SHALL BE SET BY THE BUILDING AUTOMATION SYSTEM (BAS) AND CAPABLE OF LOCAL +/- 2°F ADJUSTMENT.
7. MINIMUM AND MAXIMUM PRIMARY AIRFLOWS ARE SHOWN ON DRAWINGS. HEATING AIRFLOWS ARE SHOWN ON SCHEDULES.

OCCUPIED HEATING CONTROL
1. UPON A CALL FOR HEATING FROM THE ROOM TEMPERATURE SENSOR (TR), THE PAD SHALL MODULATE TO ITS MINIMUM AIRFLOW AND THE HEATING CONTROL VALVE (HV) SHALL MODULATE AS REQUIRED TO MAINTAIN THE HEATING SETPOINT. THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.

OCCUPIED COOLING CONTROL
1. UPON A CALL FOR COOLING FROM THE ROOM TEMPERATURE SENSOR (TR), THE PAD SHALL MODULATE BETWEEN MINIMUM AND MAXIMUM AIRFLOWS AS REQUIRED TO MAINTAIN COOLING SETPOINT WITH THE HEATING COIL CONTROL VALVE (HV) CLOSED.

UNOCCUPIED HEATING CONTROL
1. IF THE ROOM TEMPERATURE SENSOR FALLS BELOW 55°F (ADJ.) FOR 10 MINUTES OR LONGER, THE INTERLOCKED ROOFTOP UNIT SHALL START IN THE UNOCCUPIED MODE, ALL VAV BOXES SHALL OPEN TO THEIR MINIMUM AIRFLOW, AND ALL HW VALVES SHALL MODULATE TO MAINTAIN A DISCHARGE AIR TEMPERATURE (DAT) OF 90°F (ADJ.). WHEN EACH OF THE ROOM TEMPERATURE SENSORS RISES ABOVE 60°F (ADJ.), THEN THE VALVES SHALL CLOSE AND THE VAV BOXES AND INTERLOCKED ROOFTOP UNIT SHALL SHUT DOWN.
2. THERE SHALL BE NO UNOCCUPIED COOLING.

CARBON DIOXIDE CONTROL
1. WHEN THE CO2 LEVEL AT ANY SENSOR (C) RISES ABOVE 1200 PPM THE CONTROLLER SHALL OVERRIDE THE PAD TO INCREASE THE PRIMARY AIR (UP TO MAXIMUM AIRFLOW) AS REQUIRED TO MAINTAIN THE CO2 LEVEL AT 1200.
2. IF THE PAD IS AT MAXIMUM AIRFLOWS AND THE CO2 LEVEL AT ANY SENSOR (C) RISES ABOVE 1200 PPM FOR 5 MINUTES THEN THE OA DAMPER ON THE ASSOCIATED INTERLOCKED ROOFTOP UNIT SHALL MODULATE TO PROVIDE MORE OA AS REQUIRED TO MAINTAIN A MAXIMUM ROOM CO2 LEVEL OF 1200 PPM (SEE ASSOCIATED RTU CONTROLS). THE REVERSE SHALL OCCUR WHEN CO2 IS SATISFIED.

UNOCCUPIED OVERRIDE
1. BUTTON ON TR SHALL ALLOW 2-HOUR (ADJ) OVERRIDE FROM UNOCCUPIED TO OCCUPIED CONTROL. WHEN ANY ROOM IS IN THIS OVERRIDE, THE DDC SYSTEM SHALL ENSURE THAT ENOUGH "UNOCCUPIED" ZONES ARE ALSO OVERRIDDEN SO THAT THE ASSOCIATED ROOFTOP UNIT CAN OPERATE AT MINIMUM AIRFLOW IN THIS MODE.

WARM-UP CONTROL
1. PROVIDE OPTIMUM START CAPABILITY. IF ROOM TEMPERATURE IS BELOW 65°F, WARM-UP SHALL BE DONE BY MODULATING THE HW HEATING CONTROL VALVE TO MAINTAIN A DISCHARGE AIR TEMPERATURE (DAT) OF 90°F (ADJ.). THE PAD SHALL BE AT ITS MINIMUM HEATING POSITION. WHEN ROOM TEMPERATURE RISES ABOVE 69°F, OCCUPIED MODE SHALL START.

ALARMS
1. IF THE ROOM TEMPERATURE SENSOR TR SENSES A TEMPERATURE MORE THAN 5°F ABOVE OR BELOW THE SETPOINT FOR 5 MINUTES THE DDC SYSTEM SHALL GIVE A DETAILED ALARM SIGNAL.

RDK

RTU-3 VAV BOX WITH CO2 CONTROL SEQUENCES

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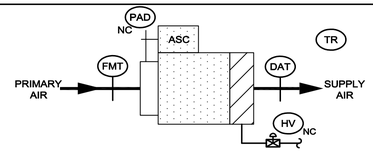

VAV-5
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VAV-12
VAV-13
VAV-15
VAV-16
VAV-17

VAV BOX WITH HW COIL CONTROL SEQUENCES
GENERAL
1. VAV BOX, HOT WATER COIL, AND CONTROL VALVE SHALL BE CONTROLLED BY A PROGRAMMABLE APPLICATION SPECIFIC CONTROLLER (ASC) PROVIDED BY THE ATC CONTRACTOR. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
2. ALL TEMPERATURES LISTED ARE FAHRENHEIT AND SHALL BE ADJUSTABLE.
3. PROVIDE PRESSURE INDEPENDENT TYPE CONTROL VALVE FOR HEATING COIL.
4. AIRFLOW SHALL BE MEASURED BY THE FLOW MEASURING TRANSMITTER (FMT) AND DISPLAYED ON THE GRAPHICS.
5. HEATING SETPOINT SHALL BE 70°F (ADJ.). COOLING SETPOINT SHALL BE 5°F WARMER THAN HEATING SETPOINT.
6. ROOM TEMPERATURES SHALL BE SET BY THE BUILDING AUTOMATION SYSTEM (BAS) AND CAPABLE OF LOCAL +/- 2°F ADJUSTMENT.
7. MINIMUM AND MAXIMUM PRIMARY AIRFLOWS ARE SHOWN ON SCHEDULES.
8. WHEN THE ROOM IS EMPTY PER THE OCCUPANCY SENSOR (OS), THE HEATING SETPOINT SHALL BE LOWERED BY 3°F (ADJ.) AND THE COOLING SETPOINT SHALL BE RAISED BY 3°F (ADJ.). COORDINATE OCCUPANCY SENSOR WITH THE ELECTRICAL CONTRACTOR.

HEATING CONTROL
1. UPON A CALL FOR HEATING FROM THE ROOM TEMPERATURE SENSOR (TR), THE PAD SHALL MODULATE TO ITS MINIMUM HEATING AIRFLOW AND THE HEATING CONTROL VALVE (HV) SHALL MODULATE AS REQUIRED TO MAINTAIN THE HEATING SETPOINT. THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.

COOLING CONTROL
1. UPON A CALL FOR COOLING FROM THE ROOM TEMPERATURE SENSOR (TR), THE PAD SHALL MODULATE BETWEEN MINIMUM AND MAXIMUM AIRFLOWS AS REQUIRED TO MAINTAIN COOLING SETPOINT WITH THE HEATING COIL CONTROL VALVE (HV) CLOSED.

ALARMS
1. IF THE ROOM TEMPERATURE SENSOR TR SENSES A TEMPERATURE MORE THAN 10°F ABOVE OR BELOW THE SETPOINT FOR 5 MINUTES THE DDC SYSTEM SHALL GIVE A DETAILED ALARM SIGNAL.

RDK

RTU-1 VAV BOX CONTROL SEQUENCES

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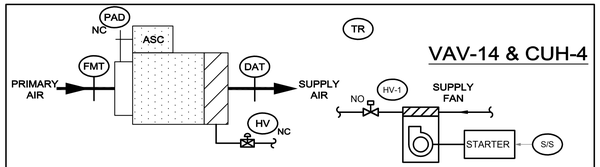

VAV BOX WITH HW COIL CONTROL SEQUENCES
GENERAL
1. VAV BOX, CUH, HOT WATER COIL, AND CONTROL VALVES SHALL BE CONTROLLED BY A PROGRAMMABLE APPLICATION SPECIFIC CONTROLLER (ASC) PROVIDED BY THE ATC CONTRACTOR. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
2. ALL TEMPERATURES LISTED ARE FAHRENHEIT AND SHALL BE ADJUSTABLE.
3. PROVIDE PRESSURE INDEPENDENT TYPE CONTROL VALVE FOR HEATING COIL.
4. AIRFLOW SHALL BE MEASURED BY THE FLOW MEASURING TRANSMITTER (FMT) AND DISPLAYED ON THE GRAPHICS.
5. HEATING SETPOINT SHALL BE 70°F (ADJ.). COOLING SETPOINT SHALL BE 5°F WARMER THAN HEATING SETPOINT.
6. ROOM TEMPERATURES SHALL BE SET BY THE BUILDING AUTOMATION SYSTEM (BAS) AND CAPABLE OF LOCAL +/- 2°F ADJUSTMENT.
7. MINIMUM AND MAXIMUM PRIMARY AIRFLOWS ARE SHOWN ON DRAWINGS. HEATING AIRFLOWS ARE SHOWN ON SCHEDULES.

HEATING CONTROL
1. UPON A CALL FOR HEATING FROM THE ROOM TEMPERATURE SENSOR (TR), THE PAD SHALL MODULATE TO ITS MINIMUM HEATING AIRFLOW AND THE HEATING CONTROL VALVE (HV) SHALL MODULATE AS REQUIRED TO MAINTAIN THE HEATING SETPOINT. IF THERE IS A CONTINUED DROP IN TEMPERATURE, THE ASSOCIATED CABINET UNIT HEATER'S CONTROL VALVE HV-1 SHALL OPEN, AND THE FAN SHALL BE ENERGIZED UNTIL THE HEATING SETPOINT IS MAINTAINED. THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.

COOLING CONTROL
1. UPON A CALL FOR COOLING FROM THE ROOM TEMPERATURE SENSOR (TR), THE PAD SHALL MODULATE BETWEEN MINIMUM AND MAXIMUM AIRFLOWS AS REQUIRED TO MAINTAIN COOLING SETPOINT WITH THE HEATING COIL CONTROL VALVE (HV) CLOSED, THE CUH CONTROL VALVE HV-1 CLOSED, AND THE CUH DE-ENERGIZED.

ALARMS
1. IF THE ROOM TEMPERATURE SENSOR TR SENSES A TEMPERATURE MORE THAN 10°F ABOVE OR BELOW THE SETPOINT FOR 5 MINUTES THE DDC SYSTEM SHALL GIVE A DETAILED ALARM SIGNAL.

RDK

RTU-1 VAV BOX WITH CUH CONTROL SEQUENCES

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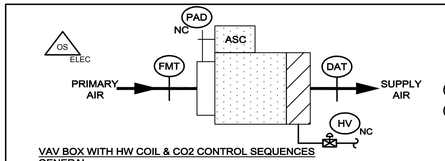

VAV-2
VAV-3
VAV-4
VAV-6
VAV-10
VAV-18

VAV BOX WITH HW COIL & CO2 CONTROL SEQUENCES
GENERAL
1. VAV BOX, HOT WATER COIL, CONTROL VALVE AND CARBON DIOXIDE SENSOR SHALL BE CONTROLLED BY A PROGRAMMABLE APPLICATION SPECIFIC CONTROLLER (ASC) PROVIDED BY THE ATC CONTRACTOR. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
2. ALL TEMPERATURES LISTED ARE FAHRENHEIT AND SHALL BE ADJUSTABLE.
3. PROVIDE PRESSURE INDEPENDENT TYPE CONTROL VALVE FOR HEATING COIL.
4. AIRFLOW SHALL BE MEASURED BY THE FLOW MEASURING TRANSMITTER (FMT) AND DISPLAYED ON THE GRAPHICS.
5. HEATING SETPOINT SHALL BE 70°F (ADJ.). COOLING SETPOINT SHALL BE 5°F WARMER THAN HEATING SETPOINT.
6. ROOM TEMPERATURES SHALL BE SET BY THE BUILDING AUTOMATION SYSTEM (BAS) AND CAPABLE OF LOCAL +/- 2°F ADJUSTMENT.
7. MINIMUM AND MAXIMUM PRIMARY AIRFLOWS ARE SHOWN ON SCHEDULES.
8. WHEN THE ROOM IS EMPTY PER THE OCCUPANCY SENSOR (OS), THE HEATING SETPOINT SHALL BE LOWERED BY 3°F (ADJ.) AND THE COOLING SETPOINT SHALL BE RAISED BY 3°F (ADJ.). COORDINATE OCCUPANCY SENSOR WITH THE ELECTRICAL CONTRACTOR.

HEATING CONTROL
1. UPON A CALL FOR HEATING FROM THE ROOM TEMPERATURE SENSOR (TR), THE PAD SHALL MODULATE TO ITS MINIMUM HEATING AIRFLOW AND THE HEATING CONTROL VALVE (HV) SHALL MODULATE AS REQUIRED TO MAINTAIN THE HEATING SETPOINT. THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.

COOLING CONTROL
1. UPON A CALL FOR COOLING FROM THE ROOM TEMPERATURE SENSOR (TR), THE PAD SHALL MODULATE BETWEEN MINIMUM AND MAXIMUM AIRFLOWS AS REQUIRED TO MAINTAIN COOLING SETPOINT WITH THE HEATING COIL CONTROL VALVE (HV) CLOSED.

CARBON DIOXIDE CONTROL (NO OVERRIDE IF ROOM IS EMPTY PER OS)
1. WHEN THE CO2 LEVEL AT ANY SENSOR (C) RISES ABOVE 1200 PPM THE COTNROLLER SHALL OVERRIDE THE PAD TO INCREASE THE PRIMARY AIR (UP TO MAXIMUM AIRFLOW) AS REQUIRED TO MAINTAIN THE CO2 LEVEL AT 1200.
2. IF THE PAD IS AT MAXIMUM AIRFLOWS AND THE CO2 LEVEL AT ANY SENSOR (C) RISES ABOVE 1200 PPM FOR 56 MINUTES THEN THE OA DAMPER ON THE ASSOCIATED INTERLOCKED AIR HANDLER SHALL MODULATE TO PROVIDE MORE OA AS REQUIRED TO MAINTAIN A MAXIMUM ROOM CO2 LEVEL OF 1200 PPM (SEE ASSOCIATED RTU CONTROLS). THE REVERSE SHALL OCCUR WHEN CO2 IS SATISFIED.

ALARMS
1. IF THE ROOM TEMPERATURE SENSOR TR SENSES A TEMPERATURE MORE THAN 10°F ABOVE OR BELOW THE SETPOINT FOR 5 MINUTES THE DDC SYSTEM SHALL GIVE A DETAILED ALARM SIGNAL.

RDK

RTU-1 VAV BOX WITH CO2 CONTROL SEQUENCES

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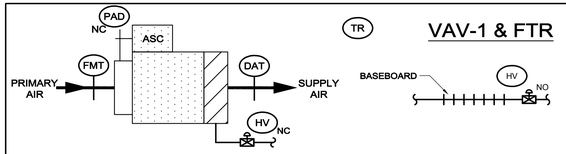

VAV BOX WITH HW COIL CONTROL SEQUENCES
GENERAL
1. VAV BOX, HOT WATER COIL, AND CONTROL VALVES SHALL BE CONTROLLED BY A PROGRAMMABLE APPLICATION SPECIFIC CONTROLLER (ASC) PROVIDED BY THE ATC CONTRACTOR. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
2. ALL TEMPERATURES LISTED ARE FAHRENHEIT AND SHALL BE ADJUSTABLE.
3. PROVIDE PRESSURE INDEPENDENT TYPE CONTROL VALVES FOR HEATING COIL AND FTR.
4. AIRFLOW SHALL BE MEASURED BY THE FLOW MEASURING TRANSMITTER (FMT) AND DISPLAYED ON THE GRAPHICS.
5. HEATING SETPOINT SHALL BE 70°F (ADJ.). COOLING SETPOINT SHALL BE 5°F WARMER THAN HEATING SETPOINT.
6. ROOM TEMPERATURES SHALL BE SET BY THE BUILDING AUTOMATION SYSTEM (BAS) AND CAPABLE OF LOCAL +/- 2°F ADJUSTMENT.
7. MINIMUM AND MAXIMUM PRIMARY AIRFLOWS ARE SHOWN ON DRAWINGS. HEATING AIRFLOWS ARE SHOWN ON SCHEDULES.

HEATING CONTROL
1. UPON A CALL FOR HEATING FROM THE ROOM TEMPERATURE SENSOR (TR), THE PAD SHALL MODULATE TO ITS MINIMUM HEATING AIRFLOW AND THE HEATING CONTROL VALVE (HV) SHALL MODULATE AS REQUIRED TO MAINTAIN THE HEATING SETPOINT. IF THERE IS A CONTINUED DROP IN TEMPERATURE, THE BASEBOARD RADIATION CONTROL VALVE SHALL MODULATE OPEN AS REQUIRED TO MAINTAIN SETPOINT. THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.

COOLING CONTROL
1. UPON A CALL FOR COOLING FROM THE ROOM TEMPERATURE SENSOR (TR), THE PAD SHALL MODULATE BETWEEN MINIMUM AND MAXIMUM AIRFLOWS AS REQUIRED TO MAINTAIN COOLING SETPOINT WITH THE HEATING COIL CONTROL VALVE (HV) AND BASEBOARD RADIATION CONTROL VALVE CLOSED.

ALARMS
1. IF THE ROOM TEMPERATURE SENSOR TR SENSES A TEMPERATURE MORE THAN 10°F ABOVE OR BELOW THE SETPOINT FOR 5 MINUTES THE DDC SYSTEM SHALL GIVE A DETAILED ALARM SIGNAL.

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RTU-1 VAV BOX WITH BASEBOARD RADIATION CONTROL SEQUENCES

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC AUTOMATIC TERMPERATURE CONTROLS

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

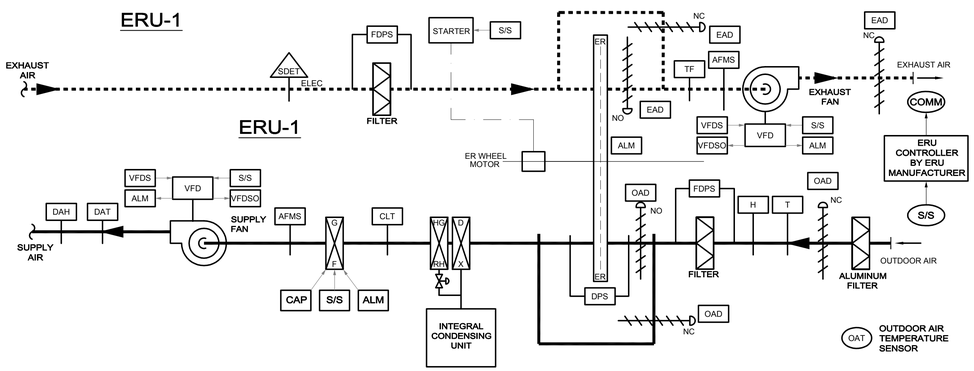
H602

SHEET 91 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

G:\20130\20130535 - Waltham Police HQ Renovation\1200 Drawings\1203 HVAC\Plot Files\20130535 H602 HVAC ATC.dwg [Work] July 14, 2014 - 5:50pm dfrazek

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:



GENERAL

1. THE ENERGY RECOVERY UNIT (ERU) SHALL BE CONTROLLED VIA A DEDICATED FACTORY PROVIDED, FULLY PROGRAMMABLE DDC CONTROLLER TO PROVIDE ENERGY RECOVERY, COOLING, DEHUMIDIFICATION, AND HEATING CAPACITY CONTROL. PROVIDE FAILURE ALARMS. BAS CONTRACTOR SHALL COORDINATE/ INTERFACE WITH ERU FACTORY MOUNTED CONTROL POINTS TO PROVIDE GRAPHICS (WITH ALL DATA) AND ALARMS IN THE DDC CONTROL SYSTEM VIA BACNET.
2. THE ENERGY RECOVERY UNIT MANUFACTURER SHALL PROVIDE THE FILTER DIFFERENTIAL PRESSURE SWITCHES, FREEZESTAT, VARIABLE FREQUENCY DRIVES (SUPPYL AND EXHAUST),GAS FIRED FURNACE (INCLUDING SAFETIES AND CAPACITY CONTROL), DISCHARGE AIR TEMPERATURE SENSOR, DISCHARGE AIR HUMIDITY SENSOR, AIRFLOW MEASURING STATIONS (SUPPLY AND EXHAUST), OUTDOOR AIR INTAKE ENTHALPY SENSOR (H), FROST PROTECTION SENSOR, MOTOR STARTERS, CURRENT SWITCHES, DAMPERS AND ACTUATORS, AND RECOVERY WHEEL BY-PASS DAMPERS AND ACTUATORS. THE ATC CONTRACTOR SHALL PROVIDE THE DDC CONTROLLER AND INTERFACE TO THE ENERGY RECOVERY UNIT END DEVICES.
3. ATC CONTRACTOR AND UNIT MANUFACTURER SHALL COORDINATE AFMS, VFD, AND ALL SENSOR SIGNALS AND RANGES.
4. PROVIDE FROST CONTROL FOR MANUFACTURER'S SEQUENCE WITH VFD WHEEL CONTROL.
5. ALL TEMPERATURES LISTED ARE FAHRENHEIT. SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
6. ANTI-RECYCLE TIME DELAYS AND SAFETIES ON COMPRESSORS AND GAS FURNACE SHALL BE PROVIDED BY THE ENERGY RECOVERY UNIT MANUFACTURER.
7. ALL TEMPERATURE SENSORS IN THE ERU AND DUCTWORK SHALL BE AVERAGING TYPE EXCEPT FOR FREEZESTATS WHICH SHALL BE LOW POINT READING TYPE. SEE ATC SPECIFICATION FOR MORE INFO ON CONTROL COMPONENT REQUIREMENTS.
8. THE FIRST STAGE OF HEATING AND COOLING FOR THE ENERGY RECOVERY UNIT IS USE OF THE ENERGY RECOVERY (ER) WHEEL. WHEN NEITHER HEATING OR COOLING IS NEEDED, THE WHEEL SHALL BE DE-ENERGIZED AND BY-PASSED.
9. MOTOR RATED RELAYS SHALL BE PROVIDED TO INTERFACE MANUAL MOTOR STARTER WITH CONTROL WIRING TO SATISFY THE CONTROL SEQUENCE.
10. REFER TO HOT WATER HEATING COILS FOR ADDITIONAL SEQUENCES AND REQUIREMENTS.

FAN CONTROL

1. ERU SHALL NORMALLY OPERATE CONTINUOUSLY.
2. WHILE OFF ON SAFETY OR MANUAL DISCONNECT, ERU (INCLUDING SUPPLY FAN, EXHAUST FAN, AND ER WHEEL) SHALL BE OFF WITH THE OUTSIDE AIR DAMPER (OAD) AND EXHAUST AIR DAMPER (EAD) CLOSED. THE GAS FURNACE AND CONDENSING UNIT DE-ENERGIZED.
3. WHEN STARTED, THE OAD AND EAD SHALL OPEN AND THE ENERGY RECOVERY WHEEL SHALL START ON LOW SPEED AND SLOWLY RAMP TO HIGH SPEED. THEN THE ERU SUPPLY AND EXHAUST FANS SHALL START. DISCHARGE AIR TEMPERATURE SENSOR (DAT) SHALL MODULATE ER WHEEL SPEED TO MAINTAIN AIR TEMPERATURE SETPOINT.

HEATING CONTROL

1. THE FIRST MEANS OF MAINTAINING HEAT SETPOINT SHALL BE ACTIVATION OF THE ECONOMIZER AS SENSED BY THE OUTDOOR AIR INTAKE ENTHALPY SENSOR. HEATING SET POINT AT DAT SHALL BE 60°F (ADJ.). UPON A DROP IN DISCHARGE AIR TEMPERATURE (DAT) BELOW THE HEATING SETPOINT SENSOR (TR), THE ER WHEEL SHALL INCREASE IN SPEED TO SATISFY THE HEATING DEMAND. IF ADDITIONAL HEATING IS REQUIRED, THE GAS FIRED FURNACE (HV) SHALL BE STAGED TO PROVIDE THE REQUIRED CAPACITY TO MAINTAIN THE DISCHARGE AIR TEMPERATURE SETPOINT. THE REVERSE SHALL OCCUR ON A RISE IN DISCHARGE AIR TEMPERATURE.

COOLING CONTROL

1. COOLING COIL DISCHARGE SET POINT (CLT) SHALL BE RESET BETWEEN 55°F (ADJ.) AND 75°F (ADJ.) MAX TO SATISFY THE COOLING REQUIREMENTS (UNLESS IN DEHUMIDIFICATION MODE) BY POOLING THE TEMPERATURE SENSORS SERVED BY ERU-1 (EXCEPT FITNESS ROOM - SEE HC CONTROLS) AND PROVIDING A DAT REQUIRED TO SATISFY WORST CASE SENSOR. THE FIRST MEANS OF MAINTAINING COOLING SETPOINT SHALL BE ACTIVATION OF THE ECONOMIZER AS SENSED BY THE OUTDOOR AIR INTAKE ENTHALPY SENSOR. IF ADDITIONAL COOLING IS REQUIRED, THE INTEGRAL CONDENSING UNIT SHALL BE STAGED AS REQUIRED TO MAINTAIN THE COOLING COIL DISCHARGE TEMPERATURE SETPOINT(CLT). THE REVERSE SHALL OCCUR ON A DROP IN TEMPERATURE BELOW COOLING SETPOINT.

DEHUMIDIFICATION CONTROL

1. IF THE DISCHARGE AIR DEW POINT AS MEASURED BY DAT AND DAH RISES ABOVE 58°F (ADJ) FOR 5 MINUTES (ADJ.), THE DX COIL SHALL BE CONTROLLED BETWEEN 50°F AND 55°F AT CLT AND THE HOT GAS REHEAT COIL SHALL BE MODULATED TO MAINTAIN COOLING SETPOINT. UPON A DROP IN DEW POINT BELOW 57°F (ADJ.) FOR 10 MINUTES THE DEHUMIDIFICATION CYCLE SHALL END.

FROST CONTROL

1. IF THE FROST PROTECTION TEMPERATURE SENSOR TF, LOCATED IN THE LEAVING EXHAUST AIR AFTER THE ENTHALPY WHEEL FALLS TO BELOW SETPOINT OF 15°F (CONTRACTOR SHALL VERIFY SETPOINT WITH MANUFACTURER), THE BY-PASS DAMPERS SHALL MODULATE OPEN TO RAISE THE AIR TEMPERATURE TO MINIMUM SETPOINT.

SAFETIES

1. THE FOLLOWING SAFETIES, EACH WITH ITS OWN MANUAL RESET, SHALL SHUT DOWN THE ENERGY RECOVERY UNIT'S SUPPLY AND EXHAUST FANS VIA HARDWARE BEFORE THE H-O-A.
   a. IF THE FROST PROTECTION TEMPERATURE SENSOR TF LOCATED IN THE LEAVING EXHAUST AIR STREAM AFTER THE ENTHALPY WHEEL FALLS TO BELOW SETPOINT OF -2°F (MANUFACTURER SHALL VERIFY LOCATION AND SETPOINT).

ALARMS

1. ENERGY WHEEL FROST CONTROL: IF EXHAUST AIR TEMPERATURE IS BELOW THE ENERGY RECOVERY WHEEL'S FROST THRESHOLD 15°F (ADJ.) (DETERMINED BY THE FROST PROTECTION SENSOR, SETPOINTS TO BE COORDINATED WITH UNIT MANUFACTURER) FOR 15 MINUTES (ADJ.) AN ALARM SHALL BE SENT TO THE BAS.
2. CURRENT SWITCHES PROVIDE MONITORING OF SUPPLY AND EXHAUST FANS OPERATION. UPON LOSS OF SIGNAL, AN ALARM SHALL BE SENT TO THE BAS AND THE UNIT SHALL BE SHUT DOWN.
3. VFD ALARM CONTACT PROVIDES INDICATION OF ENERGY RECOVERY WHEEL OPERATION. UPON LOSS OF SIGNAL, AN ALARM SHALL BE SENT TO THE BAS.
4. DIFFERENTIAL PRESSURE SWITCH PROVIDE MONITORING OF FILTER PRESSURE DROPS. ALARM SHALL BE SENT TO THE BAS WHEN EITHER PRESSURE DROP SETPOINT (REFER TO SCHEDULE FOR INITIAL PD) IS EXCEEDED FOR MORE THEN 10 MINUTES.
5. DIFFERENTIAL PRESSURE SENSOR SHALL MONITOR THE ENERGY RECOVERY WHEEL PRESSURE DROP. ALARM SHALL BE SENT TO THE BAS WHEN THE MANUFACTURER'S SETPOINT IS EXCEEDED.
6. IF ANY DUCT SMOKE DETECTOR TRIPS, THE UNIT SUPPLY FAN, CONDENSING SECTION, AND GAS FURNACE SHALL BE SHUTDOWN AND AN ALARM SHALL BE SENT TO THE BAS. THE EXHAUST FAN SHALL REMAIN ON. THE DETECTOR MUST BE MANUALLY RESET TO RESUME NORMAL OPERATIONS.

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ENERGY RECOVERY UNIT CONTROL SEQUENCES

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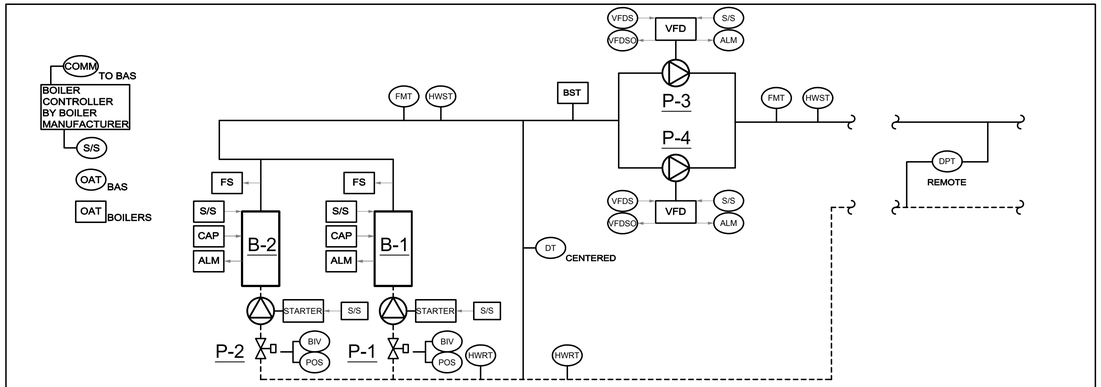

GENERAL

1. BOILER MANUFACTURER SHALL PROVIDE BOILER CONTROLLER TO SEQUENCE AND MODULATE ALL BOILERS, AND PROVIDE BACNET OR LONTALK 2-WAY COMMUNICATIONS, INCLUDING ALARMS, BETWEEN THE BOILER CONTROLLER AND THE BAS. BAS CONTRACTOR SHALL INSTALL AND WIRE REMOTE SENSORS FURNISHED BY THE BOILER MANUFACTURER, PROVIDE ALL PUMP CONTROLS, AND PROVIDE DYNAMIC GRAPHICS (ALL DATA) OF THE BOILER SYSTEM AT THE OPERATOR'S WORKSTATION.
2. BOILER CONTROLS SHALL BE SET-UP BY THE MANUFACTURER TO INTERLOCK WITH ASSOCIATED ISOLATION VALVES. PROVIDE LINE SIZED, TWO POSITION, SLOW ACTING BOILER ISOLATION VALVES. BOILER ISOLATION VALVES SHALL BE PROVIDED WITH POSITION FEEDBACK SIGNAL.
3. BAS CONTRACTOR SHALL MEET WITH BOILER CONTROLS MANUFACTURER TO COORDINATE THE REQUIRED CONTROL SIGNALS, STATUS SIGNALS (FOR THE GRAPHICS), AND ALARMS FOR THE BOILER SYSTEM.
4. ALL SET POINTS AND TIME DELAYS SHALL BE ADJUSTABLE WITHOUT ANY PROGRAM CHANGES. ALL ACTUATORS SHALL BE ELECTRONIC. PROVIDE FOR LOCAL EQUIPMENT OVERRIDE OF CONTROL SYSTEM.
5. BAS SHALL PROVIDE FOR ROTATION OF LEAD/STANDBY VFD SECONDARY PUMPS ON A WEEKLY BASIS.
6. PROVIDE TEMPERATURE SENSORS AND OTHER DEVICES SHOWN AND COORDINATE ALL SENSOR INSTALLATION LOCATIONS WITH THE MECHANICAL CONTRACTOR. COORDINATE AND INSURE MANUFACTURER'S RECOMMENDED UPSTREAM AND DOWNSTREAM PIPE DIAMETERS ARE PROVIDED - ESPECIALLY FOR FLOW METERS. WIRE BOILER MANUFACTURER'S CONTROLLER TO EACH BOILER AND SENSOR PER MANUFACTURER'S DIAGRAMS. COORDINATE TO OBTAIN ALL INFO FOR BAS GRAPHICS.
7. BAS CONTRACTOR SHALL PROVIDE AND WIRE INDIVIDUAL FIRESTATS (NOT SHOWN) TO SHUTDOWN EACH BOILER AND ENSURE THE BOILER EMERGENCY SHUT-OFF SWITCHES STOP ALL BOILERS.

HOT WATER CONTROL

1. THE BOILER SYSTEM SHALL NORMALLY BE ON DURING WARM-UP, ALL OCCUPIED HOURS (INCLUDING UNOCCUPIED OVERRIDE) AND UNOCCUPIED HOURS WHEN THE OAT IS BELOW 57°F AND SHALL BE AUTOMATICALLY STARTED AND STOPPED BY THE BAS. THE BOILER SHALL BE DISABLED ONLY DURING THE UNOCCUPIED HOURS WHEN THE OAT IS ABOVE 57°F. THE CONTROL OF BOILER STAGING AND CAPACITY SHALL BE BY THE BOILER CONTROLLER.
2. BEFORE THE BOILERS ARE STARTED, THE LEAD BOILERS ISOLATION VALVE SHALL BE OPENED SLOWLY, THE PRIMARY PUMP (BP) SHALL BE STARTED AND THE LEAD SECONDARY HOT WATER PUMP SHALL BE STARTED AT LOW SPEED BY THE BAS. IF SECONDARY PUMP FAILS, STANDBY PUMP SHALL BE STARTED AND THE BAS SHALL ALARM.
3. OPERATING SPEED FOR THE LEAD PUMP SHALL BE THE LOWEST REQUIRED TO MAINTAIN THE SET POINT OF THE REMOTE DIFFERENTIAL PRESSURE SENSOR (DPT) LOCATED NEAR THE FURTHEST COILS. INITIAL SET POINT OF REMOTE DPT SHALL BE 15 PSI WITH FINAL SET POINT COORDINATED WITH THE BALANCING CONTRACTOR TO THE LOWEST NEEDED TO GET FULL FLOW TO THE MOST REMOTE COIL (WITH THE COILS CONTROL VALVE NO MORE THAN 90% OPEN).
4. THE BOILER SUPPLY WATER TEMPERATURE AT SENSOR BST SHALL BE INITIALLY SET TO A MAXIMUM OF 140°F AT 0°F OAT AND RESET LINEARLY TO A MINIMUM OF 110°F AT 60°F OAT.

BOILER CONTROL SYSTEM

1. WHEN A BOILER IS NEEDED TO OPERATE, THE PRIMARY BOILER PUMP (P-1 AND/OR P-2) SHALL PROVE ON BY THE BOILER'S FLOW SWITCH (FS) BEFORE THE BOILER STARTS. WHEN A BOILER IS NOT NEEDED THE BOILER PUMP SHALL BE STOPPED AFTER THE BURNER IS STOPPED. AN EXCEPTION IS THE LEAD BOILER WHOSE BOILER PUMP SHALL ALWAYS REMAIN ON TO PROVIDE PRIMARY HW FLOW.
2. ON A CALL FOR HEATING, THE LEAD BOILER SHALL START ON LOW FIRE. THE BOILER HOT SUPPLY WATER TEMPERATURE AT BST SHALL BE MAINTAINED BY STAGING OF BOILERS AND MODULATING THE BURNERS. MANUFACTURER'S BOILER CONTROLLER SHALL START AND OPERATE THE LAG BOILERS WHEN NEEDED TO MAINTAIN EITHER THE SYSTEM SUPPLY TEMPERATURE AT BST OR WHEN THE SYSTEM WOULD OPERATE MORE EFFICIENTLY WITH MORE BOILERS ON.
3. THE BOILER CONTROLLER SHALL ROTATE THE LEAD AND LAG BOILERS TO ASSURE THAT ALL BOILERS RECEIVE EQUAL RUN TIME.
4. WHEN LOAD DROPS (BASED ON BOILER CAPACITY AND EFFICIENCY) LAG BOILERS SHALL BE STOPPED AS REQUIRED.
5. THE BOILER CONTROLLER SHALL ENABLE/DISABLE, MONITOR STATUS, AND DISPLAY ALARM SIGNALS FOR FLAME FAILURE AND LOW WATER ALARM. UPON A BOILER FAILURE ALARM, FLAME FAILURE ALARM, BP FAILURE, OR LOW WATER ALARM, THE RESPECTIVE BOILER SHALL BE DE-ENERGIZED, BOILER PUMP SHALL STOP, AND ISOLATION VALVE SHALL CLOSE, THE NEXT BOILER IN THE LEAD/LAG SEQUENCE OF OPERATION SHALL BE ENERGIZED, AND EACH ALARM SHALL BE COMMUNICATED TO THE BAS FOR ALARM/DISPLAY AT THE OPERATOR'S WORKSTATION.

BOILER MOUNTED CONTROLS (BY BOILER MANUFACTURER)

1. ALL CONTROLS SHALL BE LOCATED IN A HINGED LOCKING METAL CABINET WITH NEMA 1A ENCLOSURE AND NEOPRENE DUST SEAL. CONTROLS SHALL BE ELECTRONIC. ALL WIRING SHALL BE COLOR CODED. PROVIDE CONTROL TRANSFORMER, AND FUSING IN ACCORDANCE WITH ALL CODE REQUIREMENTS. PROVIDE DUAL ADJUSTABLE HIGH LIMIT CONTROLS WITH ONE SET AT 190°F WITH MANUAL RESET AND ALARM CONTACT, AND ONE SET AT 180°F WITH AUTO RESET AFTER AN ADJUSTABLE DIFFERENTIAL; ADJUSTABLE, RESETTABLE OPERATING CONTROL (WITH INITIAL RESET SCHEDULE BETWEEN 140°F AND 110°F BASED ON OAT); AND LOW WATER CUT OFF DEVICE WITH MANUAL RESET.
2. THE SEQUENCE OF BURNER OPERATION SHALL BE CONTROLLED BY A PROGRAMMING RELAY OF THE ELECTRONIC TYPE PROVIDING PRE-PURGE AND POST-PURGE CYCLES AND WITH FULL PROTECTION AGAINST FLAME FAILURE DURING BOTH IGNITION AND NORMAL BURNER OPERATING PERIODS. OPERATING OF THE PROGRAMMING RELAY SHALL BE GOVERNED BY EXCESS TEMPERATURE LIMIT SWITCH, AN ELECTRONIC FLAME FAILURE PROTECTION DEVICE AND THE LOW WATER CUT-OFF TO SHUT DOWN THE BOILER. AFTER THE SAFETY SHUTDOWN MANUAL RESET SHALL BE REQUIRED. THE BURNER BLOWER CONTROLS SHALL BE INTERLOCKED TO PREVENT BURNER OPERATION WITHOUT FORCED DRAFT. MEANS SHALL BE PROVIDED FOR AUTOMATICALLY DELAYING BURNER OPERATION WHILE ALLOWING FAN TO SCAVENGE BOILER PASSES OF COMBUSTION GASES AFTER FLAME OR OTHER BURNER STOPPAGE. EACH BURNER SHALL BE PROVIDED WITH BOILER PUMP START/STOP CONTACTS AND ALARM.

REPORTING FUNCTIONS

1. HISTORIES/TRENDING
   a. THE BAS SHALL PRINT OUT ANY TEMPERATURE OR DATA FROM ANY SENSOR OR DEFINED VARIABLE ON REQUEST OF OPERATOR.
   b. THE BAS SHALL BE PROGRAMMED TO RECORD HISTORIES OF ALL TEMPERATURES (BOILER WATER SUPPLY AND RETURN TEMPERATURES, HOT WATER SUPPLY AND RETURN TEMPERATURES, DE-COUPLER TEMPERATURE [DT] TO INDICATE DIRECTION OF FLOW, ETC.), STATUS, FLOW RATE, HOUR OF DAY, HOURS OF OPERATION ASSOCIATED WITH EACH PIECE OF EQUIPMENT. IN ADDITION, RECORD HISTORIES OF ANY OTHER ITEM OVER ANY TIME PERIOD REQUESTED BY OPERATOR. COORDINATE WITH OWNER FOR INITIAL LIST OF HISTORY ITEMS.
   c. THE BAS SHALL PRINT OUT ALL CHANGES IN EQUIPMENT STATUS AS THEY OCCUR.
   d. INITIALLY THE BAS SHALL TREND AND LOG BOILER PLANT CAPACITY (FLOW AT FMT AND DIFFERENTIAL TEMPERATURE BETWEEN MATCHED SENSORS HWST AND HWRT), PUMP SPEED, REMOTE DPT READING, OAT, WHICH BOILERS ARE ON AND AT WHAT CAPACITY, ALONG WITH TIME OF DAY.
2. ALARMS
   a. ALARM MESSAGES SHALL BE DISPLAYED AND PRINTED AT THE OPERATORS WORKSTATION.
   b. IN ADDITION TO THE ALARMS PREVIOUSLY LISTED, ALL SENSORS AND VARIABLES SHALL BE CAPABLE OF HIGH/LOW ALARM POINTS. AS A MINIMUM, THE FOLLOWING SHALL BE ALARMED AFTER APPROPRIATE TIME DELAYS:
      1)F ANY PIECE OF EQUIPMENT IS ON THAT IS INDICATED AS OFF OR FAILS.
3. GRAPHICS
   a. PROVIDE OVERALL SYSTEM, INDIVIDUAL BOILER AND PUMP GRAPHICS WITH REAL TIME UPDATING OF CONDITIONS (STATUS, TEMPERATURES, FLOWS, ETC.).

RDK

HOT WATER SYSTEM CONTROL SEQUENCE

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

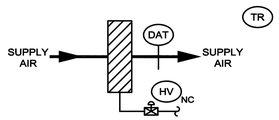
HVAC AUTOMATIC TERMPERATURE CONTROLS

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

H603

SHEET 92 **OF** 157



HC-1 HC-6
HC-2 HC-7
HC-3 HC-8
HC-4 HC-9

HW COIL CONTROL SEQUENCES

GENERAL

1. HOT WATER COIL, AND CONTROL VALVES SHALL BE CONTROLLED BY A PROGRAMMABLE APPLICATION SPECIFIC CONTROLLER (ASC) PROVIDED BY THE ATC CONTRACTOR. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
2. ALL TEMPERATURES LISTED ARE FAHRENHEIT AND SHALL BE ADJUSTABLE.
3. PROVIDE PRESSURE INDEPENDENT TYPE CONTROL VALVE FOR HEATING COIL.
4. HEATING SETPOINT SHALL BE 70°F (ADJ.). COOLING SETPOINT SHALL BE 5°F WARMER THAN HEATING SETPOINT.
5. ROOM TEMPERATURES SHALL BE SET BY THE BUILDING AUTOMATION SYSTEM (BAS).

HEATING CONTROL

1. UPON A CALL FOR HEATING FROM THE ROOM TEMPERATURE SENSOR (TR), THE HEATING CONTROL VALVE (HV) SHALL MODULATE AS REQUIRED TO MAINTAIN THE HEATING SETPOINT WITH A MAXIMUM SUPPLY TEMPERATURE OF 90°F (ADJ.). THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.

COOLING CONTROL

1. COOL, CONSTANT VOLUME, SUPPLY AIR SHALL BE PROVIDED BY ERU-1 (REFER TO ERU CONTROL SEQUENCE) AND THE CONTROL VALVE SHALL BE CLOSED.

ALARMS

1. IF THE ROOM TEMPERATURE SENSOR TR SENSES A TEMPERATURE MORE THAN 10°F ABOVE OR BELOW THE SETPOINT FOR 5 MINUTES THE DDC SYSTEM SHALL GIVE A DETAILED ALARM SIGNAL.

RDK

DUCT MOUNTED HOT WATER COIL CONTROL SEQUENCE

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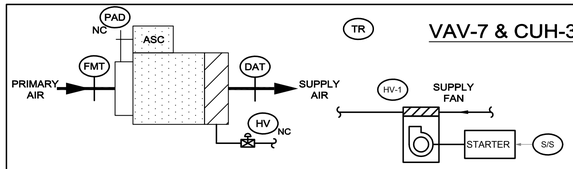


VAV-7 & CUH-3

VAV BOX WITH HW COIL CONTROL SEQUENCES

GENERAL

1. VAV BOX, CUH, HOT WATER COIL, AND CONTROL VALVES SHALL BE CONTROLLED BY A PROGRAMMABLE APPLICATION SPECIFIC CONTROLLER (ASC) PROVIDED BY THE ATC CONTRACTOR. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
2. ALL TEMPERATURES LISTED ARE FAHRENHEIT AND SHALL BE ADJUSTABLE.
3. PROVIDE PRESSURE INDEPENDENT TYPE CONTROL VALVE FOR HEATING COIL.
4. AIRFLOW SHALL BE MEASURED BY THE FLOW MEASURING TRANSMITTER (FMT) AND DISPLAYED ON THE GRAPHICS.
5. HEATING SETPOINT SHALL BE 70°F (ADJ.). COOLING SETPOINT SHALL BE 5°F WARMER THAN HEATING SETPOINT.
6. ROOM TEMPERATURES SHALL BE SET BY THE BUILDING AUTOMATION SYSTEM (BAS) AND CAPABLE OF LOCAL +/- 2°F ADJUSTMENT.
7. MINIMUM AND MAXIMUM PRIMARY AIRFLOWS ARE SHOWN ON DRAWINGS. HEATING AIRFLOWS ARE SHOWN ON SCHEDULES.

HEATING CONTROL

1. UPON A CALL FOR HEATING FROM THE ROOM TEMPERATURE SENSOR (TR), THE PAD SHALL MODULATE TO ITS MINIMUM HEATING AIRFLOW AND THE HEATING CONTROL VALVE (HV) SHALL MODULATE AS REQUIRED TO MAINTAIN THE HEATING SETPOINT. IF THERE IS A CONTINUED DROP IN TEMPERATURE, THE ASSOCIATED CABINET UNIT HEATER'S FAN SHALL BE ENERGIZED UNTIL THE HEATING SETPOINT IS MAINTAINED. THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.

COOLING CONTROL

1. UPON A CALL FOR COOLING FROM THE ROOM TEMPERATURE SENSOR (TR), THE PAD SHALL MODULATE BETWEEN MINIMUM AND MAXIMUM AIRFLOWS AS REQUIRED TO MAINTAIN COOLING SETPOINT WITH THE HEATING COIL CONTROL VALVE (HV) CLOSED, THE CUH CONTROL VALVE HV-1 CLOSED, AND THE CUH DE-ENERGIZED.

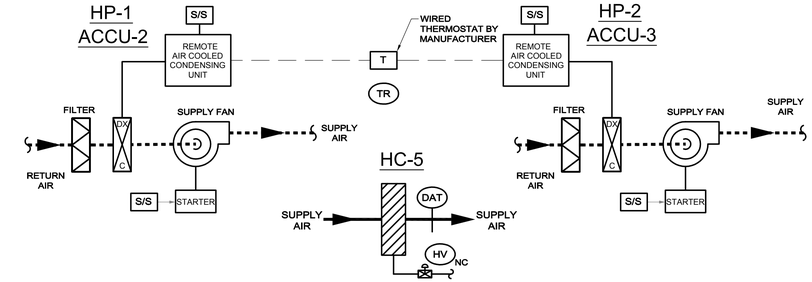
ALARMS

1. IF THE ROOM TEMPERATURE SENSOR TR SENSES A TEMPERATURE MORE THAN 10°F ABOVE OR BELOW THE SETPOINT FOR 5 MINUTES THE DDC SYSTEM SHALL GIVE A DETAILED ALARM SIGNAL.

RDK

RTU-1 VAV BOX WITH CUH CONTROL SEQUENCES

-



NEW HEAT PUMP AND HOT WATER COIL CONTROLS:

GENERAL

1. THE HEAT PUMP UNITS SHALL BE CONTROLLED VIA A WIRED REMOTE CONTROL PROVIDED BY THE AIR CONDITIONING UNIT MANUFACTURER. HOT WATER COIL, AND CONTROL VALVE SHALL BE CONTROLLED BY A PROGRAMMABLE APPLICATION SPECIFIC CONTROLLER (ASC) PROVIDED BY THE ATC CONTRACTOR. ALL SETPOINTS SHALL BE ADJUSTABLE.
2. ATC CONTRACTOR SHALL PROVIDE ALL REQUIRED WIRING AND CONDUIT.
3. ALL TEMPERATURES LISTED ARE FAHRENHEIT.
4. ANTI-RECYCLE TIME DELAYS AND SAFETIES ON COMPRESSORS SHALL BE PROVIDED BY THE DUCTLESS SPLIT SYSTEM AIR CONDITIONING UNIT MANUFACTURER.
5. UNITS SHALL GRAPHICALLY REPRESENTED ON THE BAS SYSTEM.
6. PROVIDE PRESSURE INDEPENDENT TYPE CONTROL VALVE FOR HEATING COIL.
7. HEATING SETPOINT SHALL BE 70°F (ADJ.). COOLING SETPOINT SHALL BE 5°F WARMER THAN HEATING SETPOINT.

HEAT PUMP FAN CONTROL

1. WHILE OFF ON SAFETY OR MANUAL DISCONNECT THE HEAT PUMP (INCLUDING SUPPLY AIR FAN) SHALL BE OFF AND THE CONDENSING UNIT SHALL BE OFF.
2. WHILE THE UNIT IS ENERGIZED, THE SUPPLY AIR FAN SHALL RUN CONTINUOUSLY ON LOW SPEED.

HEAT PUMP COOLING MODE

1. THE SUPPLY AIR FAN SHALL RUN CONTINUOUSLY ON LOW SPEED. MECHANICAL REFRIGERATION SHALL SATISFY THE SPACE TEMPERATURE SETPOINT. IF ADDITIONAL COOLING IS REQUIRED, THE SUPPLY AIR FAN SHALL RUN CONTINUOUSLY AT HIGH SPEED.
2. THE REVERSE SHALL OCCUR IN A DROP IN SPACE TEMPERATURE.
3. MANUFACTURER PROVIDED TIME DELAYS SHALL PREVENT COMPRESSOR SHORT-CYCLING.

HEAT PUMP HEATING MODE

1. THE SUPPLY AIR FAN SHALL RUN CONTINUOUSLY. MECHANICAL REFRIGERATION SHALL SATISFY THE SPACE TEMPERATURE SETPOINT. IF ADDITIONAL HEATING IS REQUIRED, THE SUPPLY AIR FAN SHALL RUN CONTINUOUSLY AT HIGH SPEED.
2. THE REVERSE SHALL OCCUR IN A RISE IN SPACE TEMPERATURE.
3. MANUFACTURER PROVIDED TIME DELAYS SHALL PREVENT COMPRESSOR SHORT-CYCLING.

HOT WATER COIL HEATING CONTROL

1. UPON A CALL FOR HEATING FROM THE ROOM TEMPERATURE SENSOR (TR), THE HEATING CONTROL VALVE (HV) SHALL MODULATE AS REQUIRED TO MAINTAIN THE HEATING SETPOINT WITH A MAXIMUM SUPPLY TEMPERATURE OF 90°F (ADJ.). THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.

COOLING CONTROL

2. COOL, CONSTANT VOLUME, SUPPLY AIR SHALL BE PROVIDED BY ERU-1 (REFER TO ERU CONTROL SEQUENCE) AND THE CONTROL VALVE SHALL BE CLOSED.

ALARMS

1. NEW TEMPERATURE SENSOR LOCATED IN ROOM SHALL SEND AN ALARM SIGNAL TO THE BAS IF THE TEMPERATURE EXCEEDS 80°F (ADJ.) FOR 10 MINUTES OR LONGER.

RDK

HEAT PUMP AND HOT WATER COIL HC-5 CONTROL SEQUENCES

-

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC AUTOMATIC TERMPERATURE CONTROLS

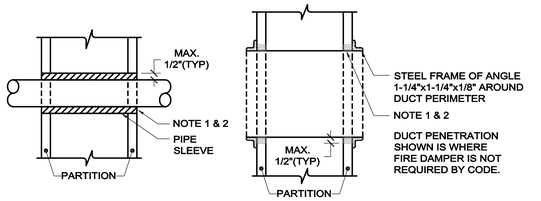
PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

H604

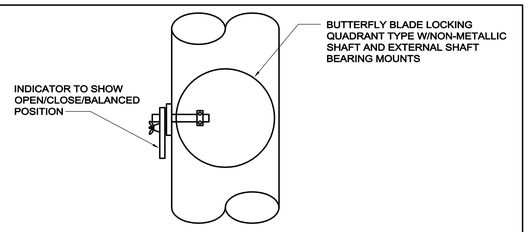
SHEET 93 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:



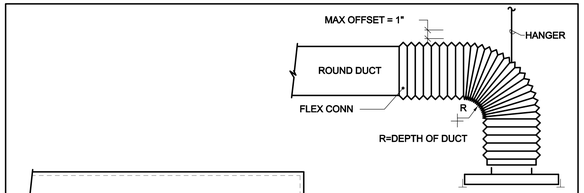
NOTES:
1. AT FIRE RATED PARTITIONS ADD ADDITIONAL LAYER OF FIRE SAFING INSULATION AROUND PENETRATIONS SO AS TO FILL CAVITY.
2. DUCT AND PIPE PENETRATIONS THROUGH CORRIDOR WALLS ABOVE THE CEILING ARE TO BE FIRE STOPPED AROUND THE PENETRATION.

RDK **DUCT & PIPE PENETRATIONS** H901

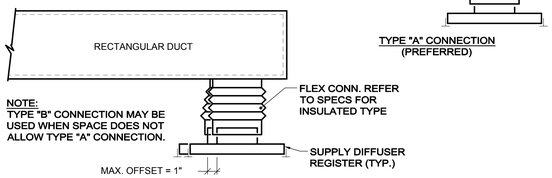


NOTES:
1. DAMPER SHALL BE MFR. OF SAME MATERIAL AS DUCTWORK
2. GAUGE OF DAMPER TO BE (2) GAUGES HEAVIER THAN DUCTWORK

RDK **ROUND VOLUME DAMPER BELOW 14"Ø - LOW PRESSURE** H1514

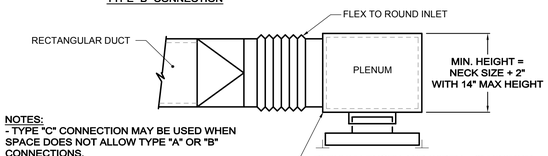


TYPE "A" CONNECTION (PREFERRED)



NOTE:
TYPE "B" CONNECTION MAY BE USED WHEN SPACE DOES NOT ALLOW TYPE "A" CONNECTION.

TYPE "B" CONNECTION



NOTES:
- TYPE "C" CONNECTION MAY BE USED WHEN SPACE DOES NOT ALLOW TYPE "A" OR "B" CONNECTIONS.
- BUCKLEY ASSOCIATES DIFFUSER CONNECTION BOOT TRANSITION DCBTR MAY BE USED.

TYPE "C" CONNECTION

NOTES:
1. THESE DETAILS ALLOW DUCTWORK TO BE PROVIDED BEFORE CEILING GRID IS INSTALLED THEN DIFFUSER/REGISTER CAN BE POSITIONED INTO GRID.
2. PROVIDE INSULATED TRANSITION ROUND TO SQUARE IF REQUIRED AT DIFFUSER.
3. PROVIDE NYLON TY-WRAP TOOL OR REUSABLE SS DRAW BAND PER SPECS.
4. FLEX DUCT SHALL NOT HAVE MORE THAN 1/2" SAG PER FOOT.
5. LENGTH OF FLEX DUCT SHALL NOT EXCEED 6'-0".
6. PROVIDE DUCT MOUNTED VOLUME DAMPER WHENEVER POSSIBLE. TRY TO AVOID NECK DAMPERS.

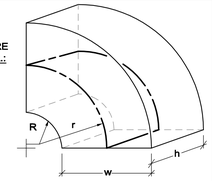
RDK **TYPICAL SUPPLY DIFFUSER/ REGISTER DUCTWORK & CONNECTION** H1517

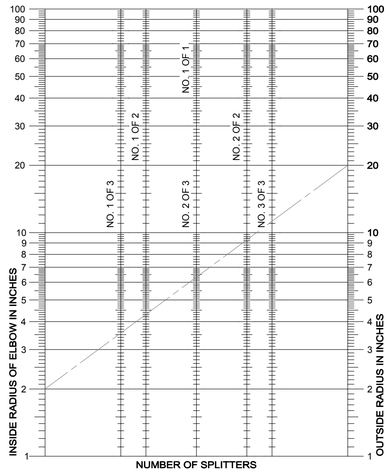
RADIUS ELBOW AND SPLITTER VANE REQUIREMENTS

r/w RATIO:	NO. OF VANES FOR 1 ELBOW:	NO. OF VANES WHEN 2 ELBOWS ARE WITHIN 2 EQUIV. DIA.:
r/w >= 1.50	0	1
1.5 > r/w >= 0.70	1	2
0.7 > r/w >= 0.60	2	3
0.6 > r/w >= 0.55	3	3

EQUIVALENT DIAMETER = (w+h)/2

NOTE: r/w = 0.5 IS A SQUARE THROAT ELBOW! HOWEVER, MINIMUM INSIDE RADIUS R SHOULD BE 2".





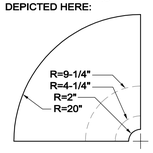
r = CENTERLINE RADIUS
R = INSIDE RADIUS
w = DUCT WIDTH
h = DUCT HEIGHT

TERMINOLOGY:

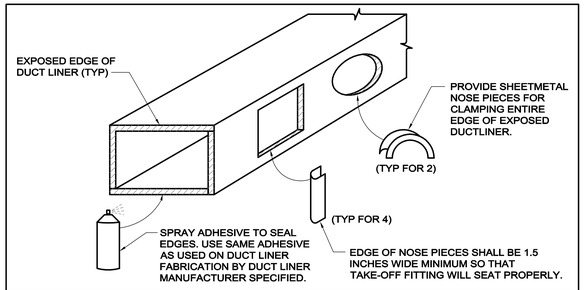
"NO. 1 OF 3" = NO. 1 VANE OF A TOTAL OF 3 VANES.

"NO. 2 OF 3" = NO. 2 VANE OF A TOTAL OF 3 VANES.

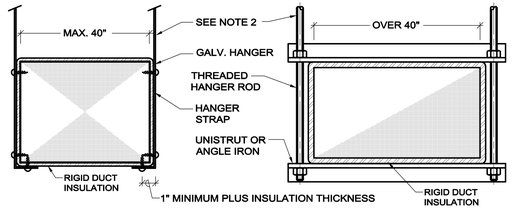
EXAMPLE AT LEFT IS DEPICTED HERE:



RDK **NUMBERING & SPACING OF DUCT SPLITTER VANES** H1520

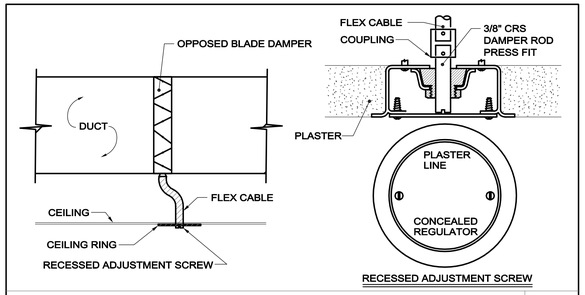


RDK **SEALING & SECURING EXPOSED DUCTLINER** H1503

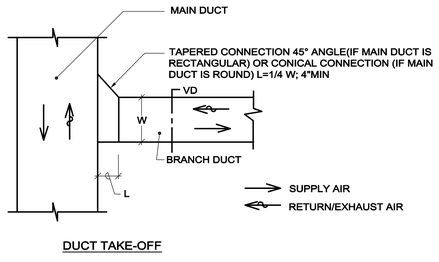


NOTES:
1. CUTTING AND PATCHING SHALL BE LIMITED TO A MINIMUM AS REQUIRED FOR PROPER INSTALLATION.
2. SUPPORTS SHALL BE SPACED AND SIZED AS PER SMACNA.

RDK **DUCT HANGER SUPPORT** H1508

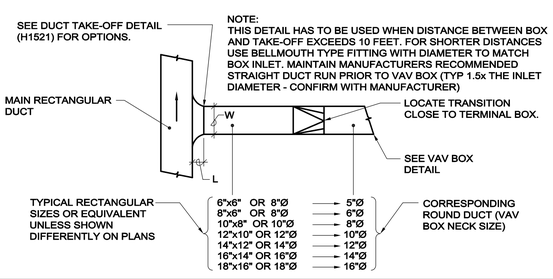


RDK **REMOTELY ADJUSTABLE BALANCING DAMPER** H1511

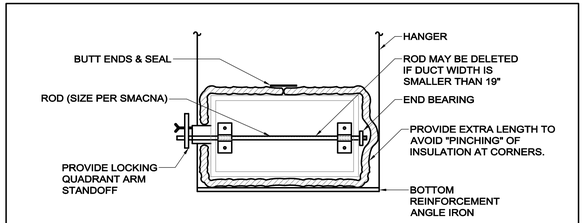


DUCT TAKE-OFF

RDK **BRANCH TAKE-OFFS** H1501



RDK **TAKE-OFF TO TERMINAL BOX** H1502



NOTE:
FOR HANGING DUCT: TRAPEZE DUCT OR STRAP HANGER AROUND DUCT COMPLETELY. DO NOT USE ANY SCREWS, BECAUSE THEY INTERFERE WITH DAMPER BLADE(S).

RDK **TYPICAL DUCT INSTALLATION & SUPPORT NEAR VOLUME DAMPERS** H1509

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

Q:\20139\20135\35 - Waltham Police HQ Renovation\1200 Drawings\1203 HVAC\Plot Files\20135035 H700 HVAC DETAILS.dwg [Work] July 14, 2014 - 5:50pm dfranzak

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

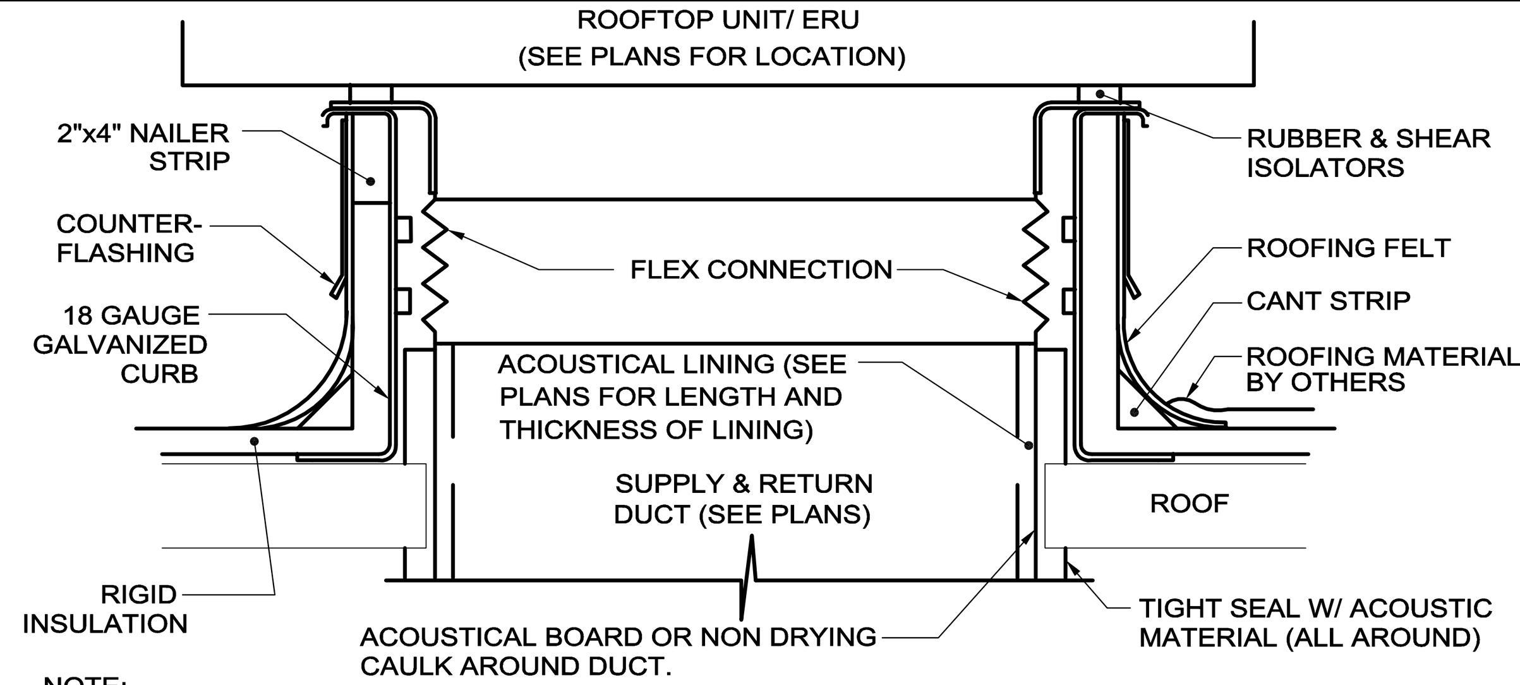
HVAC DETAILS

PROJECT NUMBER: 20135035
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

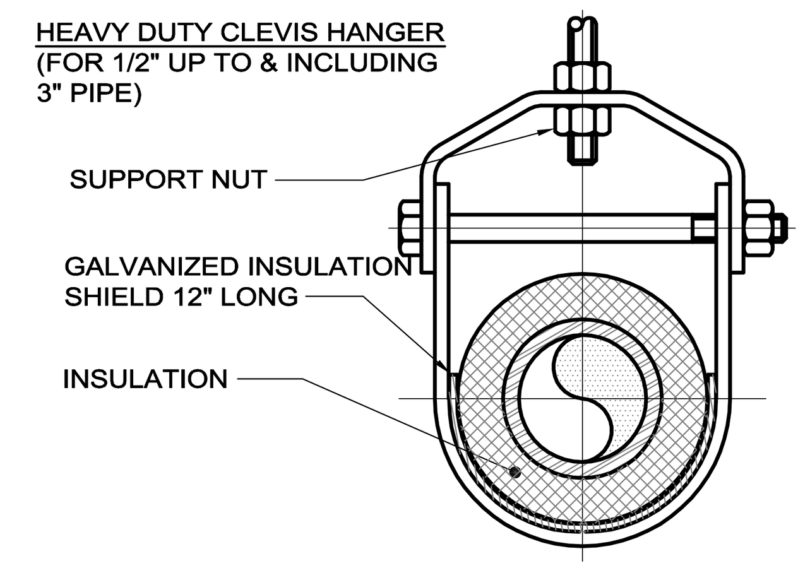
H700

SHEET 94 **OF** 157



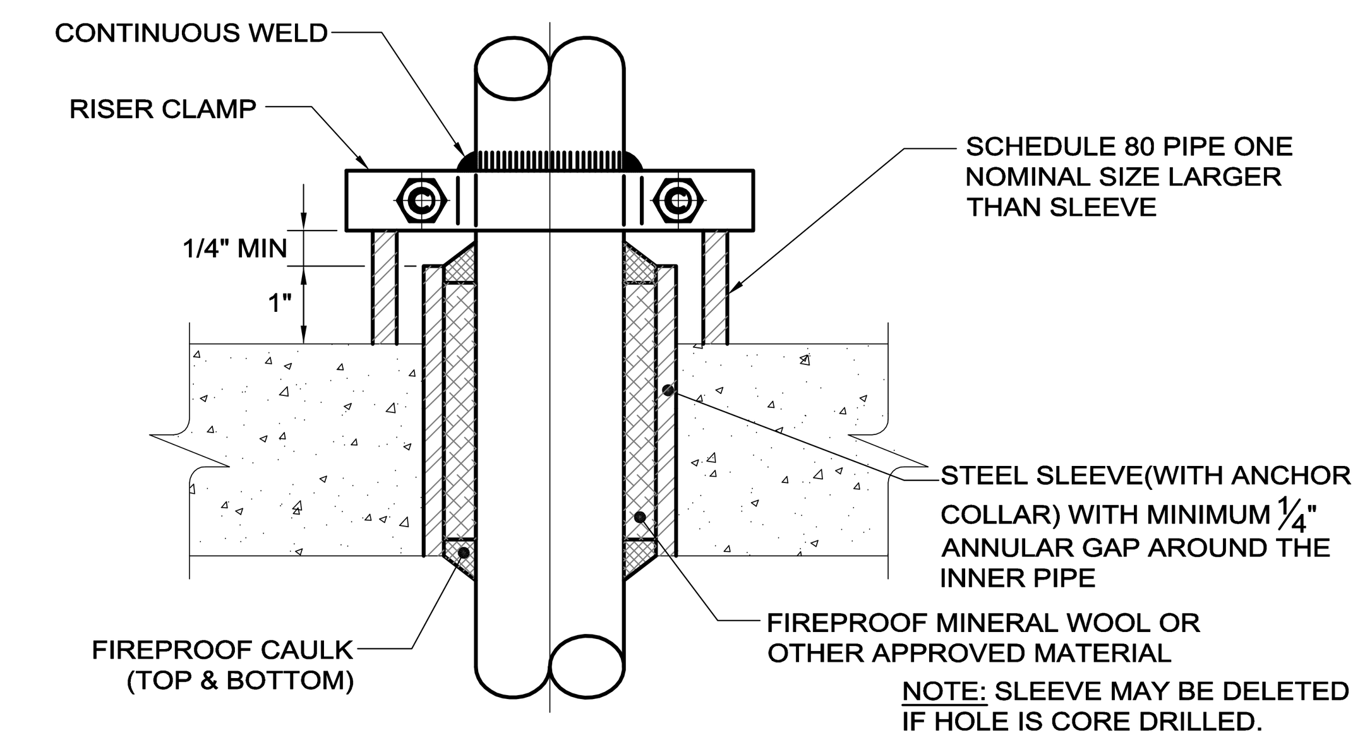
NOTE:
1. LINE ROOF UNDER CURB AND SIDES OF CURB W/ 4" THICK (TWO 2" LAYERS) ACOUSTICAL BOARD.

RDK **ROOFTOP UNIT MOUNTING W/ CURB** H907



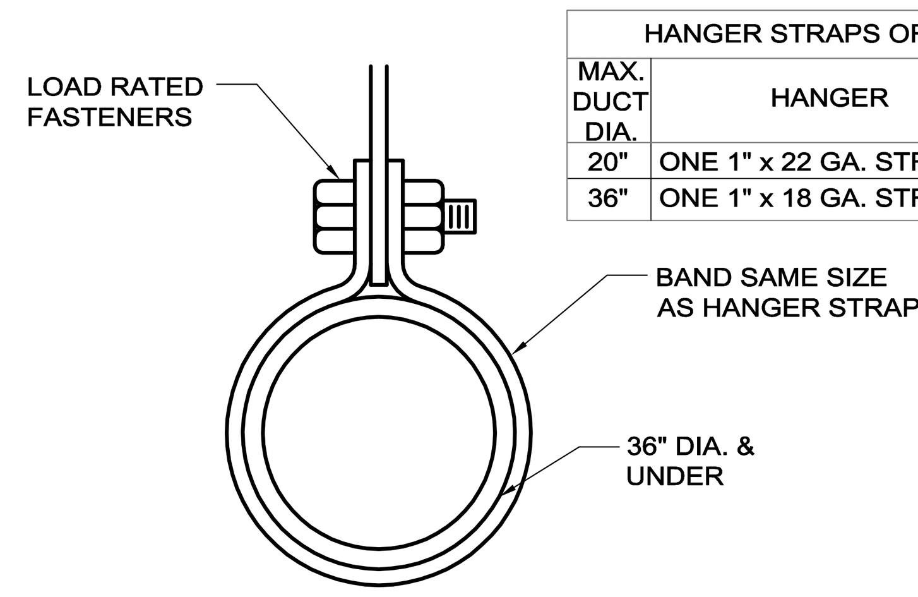
NOTES:
1. SEE SPECIFICATION FOR HANGER SIZES.

RDK **PIPE HANGER SUPPORT** H001



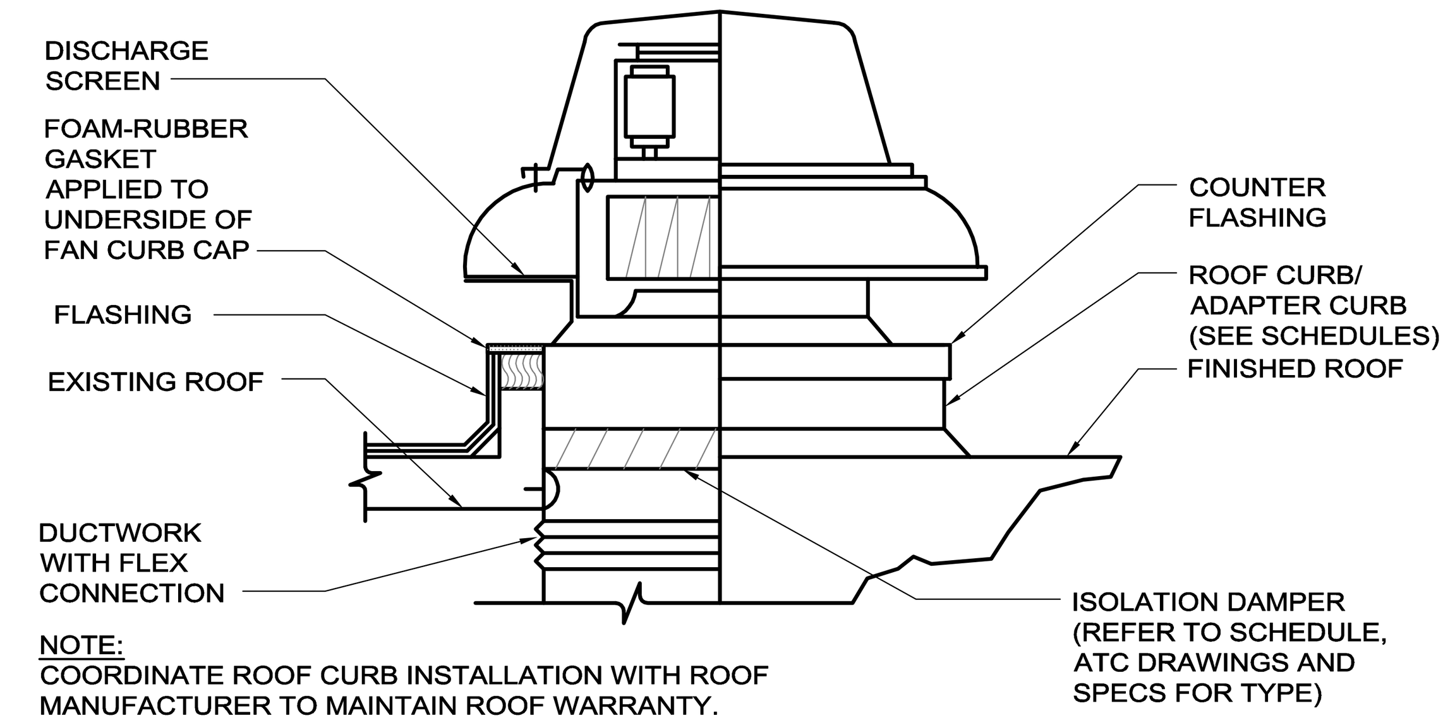
RDK **PIPE RISER SUPPORT** H002

HANGER STRAPS OR RODS		
MAX. DUCT DIA.	HANGER	MAX. SPACING FEET
20"	ONE 1" x 22 GA. STRAP	10
36"	ONE 1" x 18 GA. STRAP	10



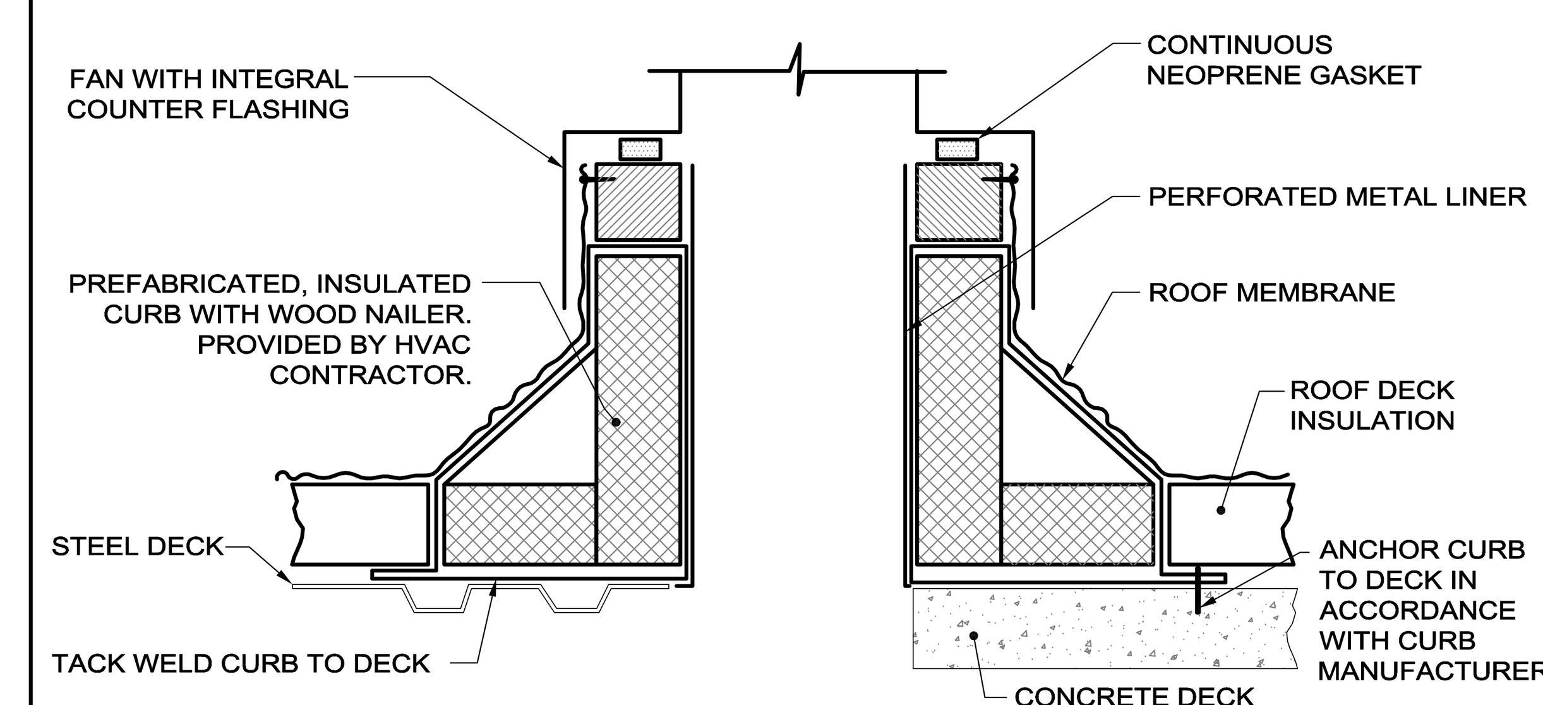
NOTES:
1. ALL SUPPORTS SHALL BE GALVANIZED STEEL FOR STEEL DUCT, STAINLESS STEEL FOR STAINLESS STEEL DUCT, OR ALUMINUM FOR ALUMINUM DUCT.
2. HANGERS MUST NOT DEFORM DUCT SHAPE.
3. ATTACHMENTS TO STRUCTURE SHALL BE PER SMACNA.

RDK **ROUND METAL DUCT HANGERS** H008

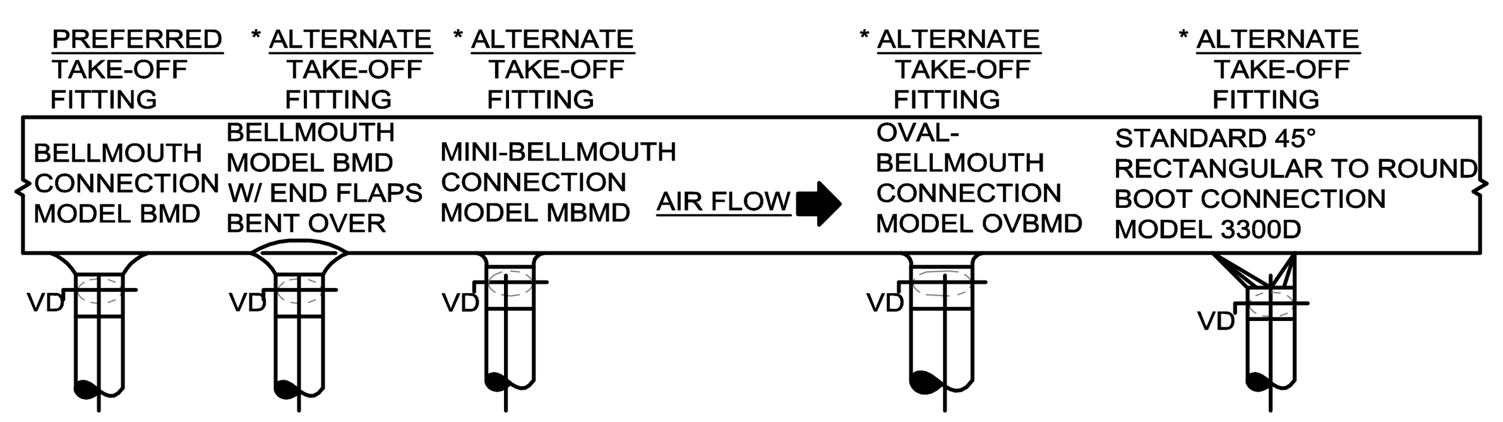


NOTE:
COORDINATE ROOF CURB INSTALLATION WITH ROOF MANUFACTURER TO MAINTAIN ROOF WARRANTY.

RDK **ROOF MOUNTED EXHAUST FAN** H401



RDK **ROOF CURB** H906

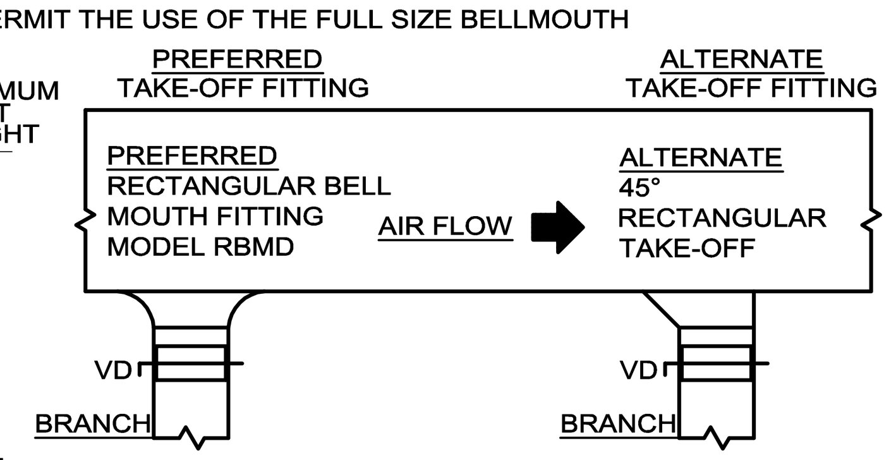


DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT	DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT	DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT	DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT
5"	8"	9"	5"	—	—	5"	—	—	5"	5" x 10"	7"
6"	9"	10"	6"	7"	9"	6"	—	—	6"	6" x 12"	8"
7"	10"	11"	7"	—	—	7"	9"x 10-9/16"	10"	7"	6" x 12"	8"
8"	11"	12"	8"	9"	11"	8"	9"x 12-1/8"	10"	8"	6-1/2" x 12"	8-1/2"
9"	12"	13"	9"	—	—	9"	9"x 13-11/16"	10"	9"	6-1/2" x 14"	8-1/2"
10"	13"	14"	10"	11"	13"	10"	9"x 15-1/4"	10"	10"	6-1/2" x 16"	8-1/2"
12"	15"	16"	12"	—	—	12"	9"x 18-3/8"	10"	12"	8-1/2" x 18"	10-1/2"
14"	17"	18"	14"	—	—	14"	9"x 21-1/2"	10"	14"	10" x 20"	12"
16"	19"	20"	16"	—	—	16"	9"x 24-5/8"	10"	16"	—	—

ALTERNATE ROUND BRANCH DUCT TAKE-OFFS

* ALTERNATE FITTING'S TO BE USED WHEN DUCT HEIGHT DOES NOT PERMIT THE USE OF THE FULL SIZE BELLMOUTH

DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT
6 x 4	7.5 x 5.5	7.5
10 x 4	11.5 x 5.5	7.5
16 x 4	17.5 x 5.5	7.5
24 x 4	25.5 x 5.5	7.5
6 x 5	7.5 x 6.5	8.5
10 x 5	11.5 x 6.5	8.5
16 x 5	17.5 x 6.5	8.5
24 x 5	25.5 x 6.5	8.5
6 x 6	7.5 x 7.5	9.5
10 x 6	11.5 x 7.5	9.5
16 x 6	17.5 x 7.5	9.5
24 x 6	25.5 x 7.5	9.5
8 x 8	9.5 x 9.5	11.5
16 x 8	17.5 x 9.5	11.5
24 x 8	25.5 x 9.5	11.5
10 x 10	11.5 x 11.5	13.5
16 x 10	17.5 x 11.5	13.5
24 x 10	25.5 x 11.5	13.5

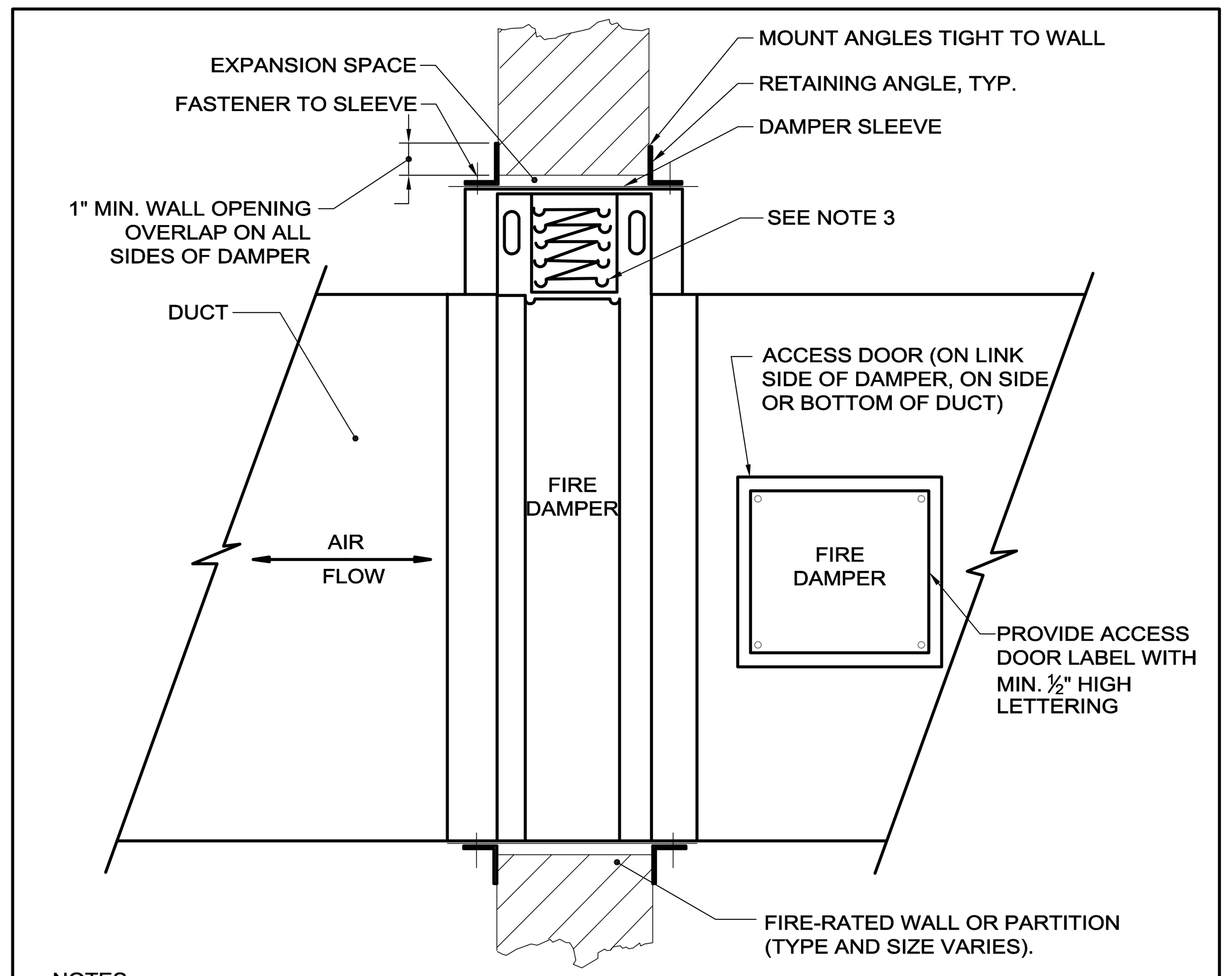


ALTERNATE RECTANGULAR BRANCH DUCT TAKE-OFF

NOTES:
ALL ROUND AND RECTANGULAR BELLMOUTH FITTINGS SHALL BE INCLUDED WITH THE FOLLOWING STANDARD FEATURES:

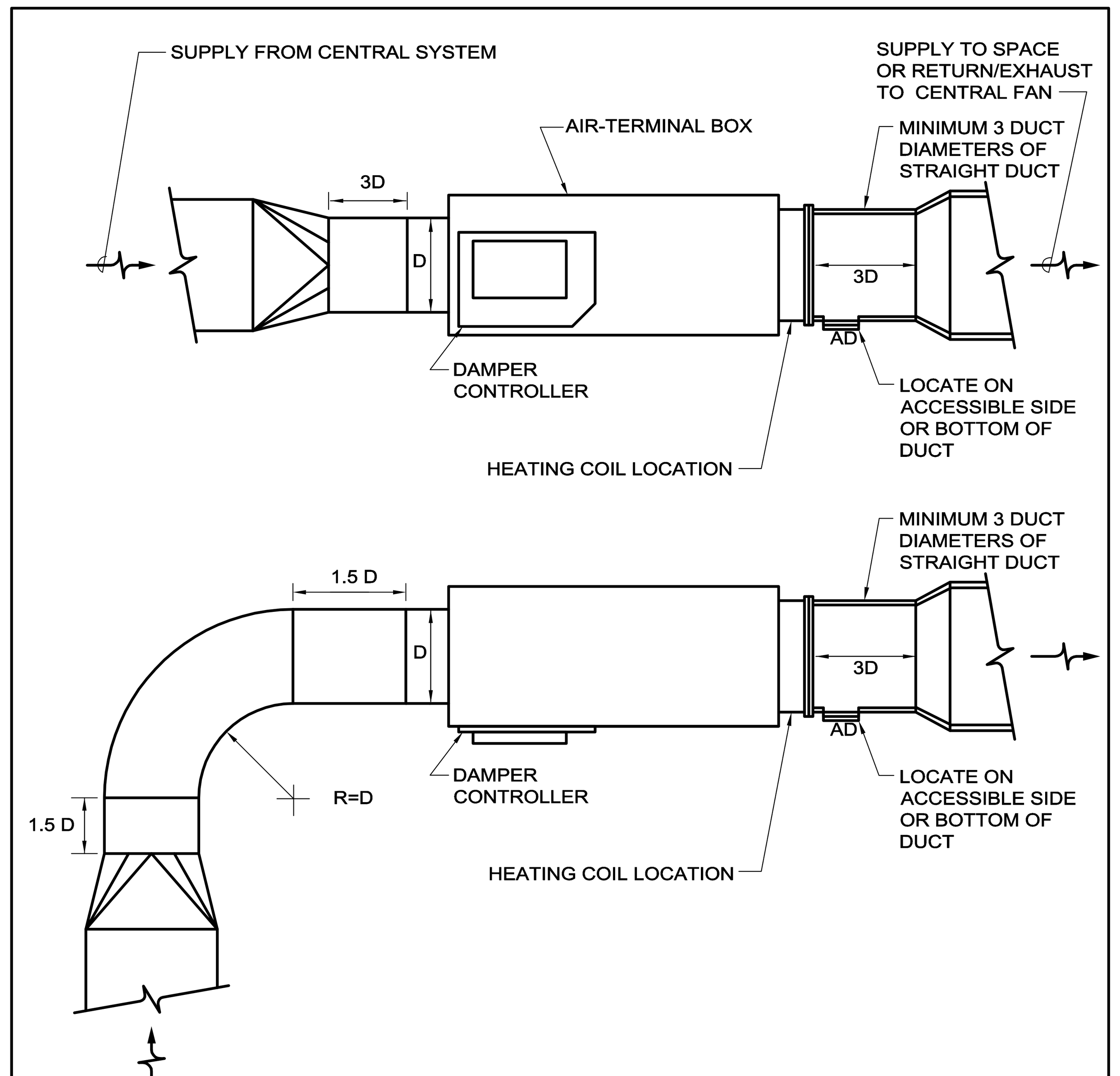
1. NEOPRENE GASKET TO MINIMIZE AIR LEAKAGE.
2. PRE-DRILLED HOLES FOR QUICK MOUNTING.
3. CONSTRUCTED OF HEAVY GALVANIZED STEEL.
4. 26 GAUGE GALV. QUADRANT VOLUME DAMPER W/ TIGHT FITTING GASKETING TO MINIMIZE LEAKAGE AT DAMPER PIVOT POINTS. (FOR LOW PRESSURE DUCTWORK)

RDK **TYPICAL DUCT TAKE-OFF** H1521



NOTES:
1. WALL OPENING SHALL BE SIZED TO MAINTAIN MANUFACTURER'S REQUIRED EXPANSION SPACE AROUND DAMPER.
2. DAMPER BLADES SHALL BE OUT OF AIRSTREAM TYPE "3A,3B,7 OR 8" (SEE SMACNA FIRE DAMPER AND HEAT STOP GUIDE - 2ND EDITION PAGE 9 OR NEWER VERSION IF APPLICABLE) WHEN OPEN 100% FREE AREA IS REQUIRED. WHEN DUCT DIMENSIONS ARE LARGER THAN THE LARGEST AVAILABLE CURTAIN TYPE DAMPER (SHOWN), PROVIDE BLADE TYPE DAMPERS (SIMILAR TO FIRE/SMOKE DAMPERS). IF POWERED ACTIVATORS ARE REQUIRED, THE WIRING SHALL BE INCLUDED IN THE MECHANICAL CONTRACTOR'S COST.
3. PROVIDE SPRING LOADED CLOSURE FOR ALL FIRE DAMPERS.
4. WHEN DUCTWORK IS INSULATED OR LINED, PROVIDE INSULATED ACCESS DOOR.
5. ACCESS DOOR SHALL BE 12" X 12" OR LARGER IF REQUIRED FOR FUSIBLE LINK REPLACEMENT WITH PERMANENTLY MOUNTED LABEL.
6. TYPE "1" OR "2" FIRE DAMPERS (BLADES OR FRAME IN AIR STREAM) MAY BE SUBSTITUTED FOR TYPE "3A OR 3B" WHERE VELOCITIES ARE UNDER 500 FPM IN LOW PRESSURE DUCT SYSTEMS ONLY.
7. INSTALLATION SHOWN AS AN EXAMPLE. SPECIFIC INSTALLATION REQUIREMENTS, INCLUDING BREAKAWAY CONNECTIONS, SHALL CONFORM WITH MANUFACTURER'S UL APPROVED INSTRUCTIONS.

RDK **FIRE DAMPER** H1510



NOTES:
1. IF STRAIGHT RUN CANNOT BE MADE PROVIDE FLOW STRAIGHTENER AT BOX INLET.
2. BOX ORIENTATION FOR SUPPLY. VELOCITY SENSOR MUST BE IN CORRECT ORIENTATION.

RDK **AIR TERMINAL BOX CONNECTIONS (HARD DUCTED)** H1602

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC DETAILS

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: N.T.S.
SHEET NUMBER:

H701

SHEET 95 OF 157

ELEC: ______ MECH: ______ FIRE: ______ PLUM: ______ STRU: ______ ARCH: ______ CIVIL: ______ REVIEWD BY:

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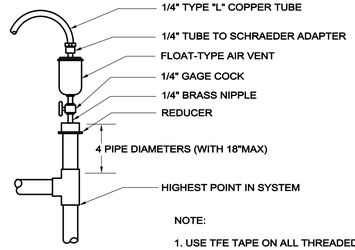
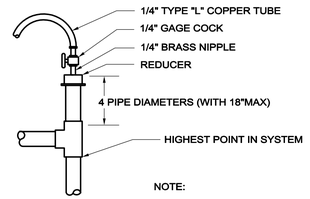


NOTE:

1. USE TFE TAPE ON ALL THREADED JOINTS.

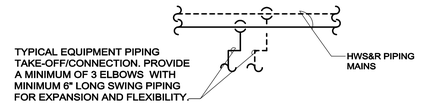
RDK **AUTOMATIC AIR VENT ASSEMBLY** H1107



NOTE:

1. USE TFE TAPE ON ALL THREADED JOINTS.

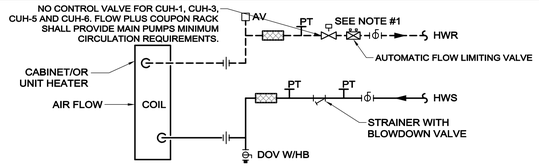
RDK **MANUAL AIR VENT ASSEMBLY** H1108



NOTE:

1. REFER TO PLANS FOR PIPING TAKE-OFF SIZES.
2. THIS DETAIL SHALL APPLY TO ALL EQUIPMENT PIPING RUN-OUTS INCLUDING, BUT NOT LIMITED TO, CABINET UNIT HEATERS, UNIT HEATERS, VAV BOXES, FINTUBE, ETC.

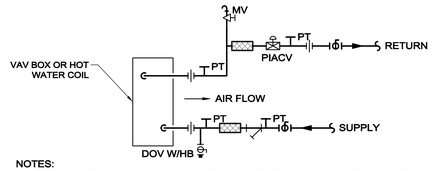
RDK **TYPICAL HOT WATER TAKE-OFF** H1107



NOTE:

1. REFER TO AUTOMATIC CONTROL DRAWINGS AND SPECIFICATIONS FOR CONTROL VALVE REQUIREMENTS.
2. TWO FOOT LONG STAINLESS STEEL BRAIDED FIRE RETARDANT HOSE KITS MAY BE USED (PRE-PIPED WITH ALL COMPONENTS AS SHOWN) PROVIDING ALL COMPONENTS MEET THEIR INDIVIDUAL SPECIFICATION REQUIREMENTS.
3. PROVIDE REDUCERS AS REQUIRED.
4. FOR MULTIPLE ROW COILS, PIPE COIL COUNTER FLOW TO THE AIR FLOW (WARMEST WATER LOCATED ON THE SIDE WITH WARMEST AIR).

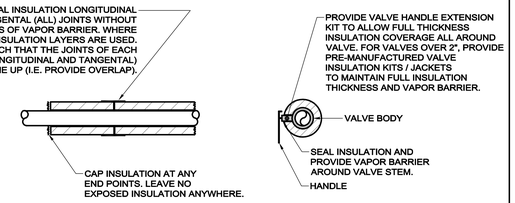
RDK **HOT WATER UNIT/CABINET HEATER** H213



NOTES:

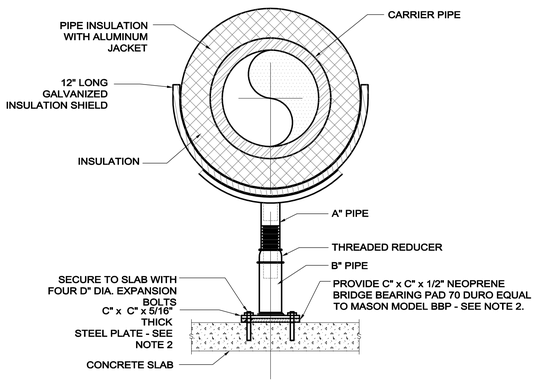
1. TWO FOOT LONG STAINLESS STEEL BRAIDED FIRE RETARDANT HOSE KITS MAY BE USED (PRE-PIPED WITH ALL COMPONENTS AS SHOWN) PROVIDING ALL COMPONENTS MEET THEIR INDIVIDUAL SPECIFICATION REQUIREMENTS.
2. PROVIDE REDUCERS AS REQUIRED.
3. FOR MULTIPLE ROW COILS, PIPE COIL COUNTER FLOW TO THE AIR FLOW (WARMEST WATER LOCATED ON THE SIDE WITH WARMEST AIR).

RDK **WATER COIL WITH 2-WAY MODULATING PI CONTROL VALVE** H223



RDK **TYPICAL PIPE INSULATION & VALVE HANDLE EXTENSION** H1106

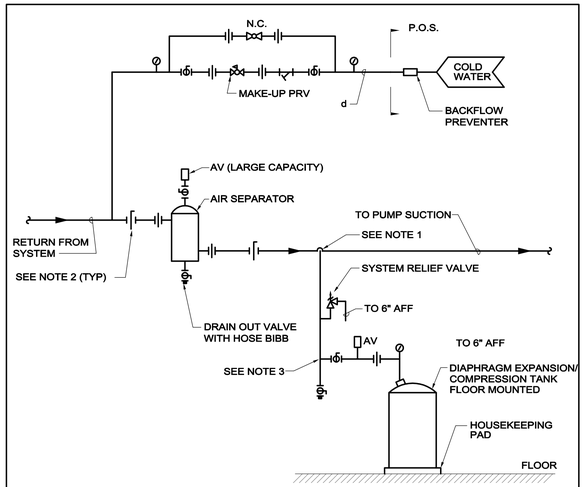
	PIPE SIZES (IN)		PLATE INFO (IN)	
SIZE (IN)	A (MIN)	B (MIN)	C (MIN)	D (MIN)
UP TO 3	2	2 1/2	9	1/2



NOTES:

1. ADJUST HEIGHT OF SUPPORTS FOR ZERO STRESS ON ADJACENT FLANGES.
2. FOR SUPPORTS FOR PIPING WITHIN 10 FEET OF EQUIPMENT, PROVIDE A SECOND LAYER OF STEEL PLATE AND PAD.

RDK **ADJUSTABLE FLOOR PIPE SUPPORT** H012

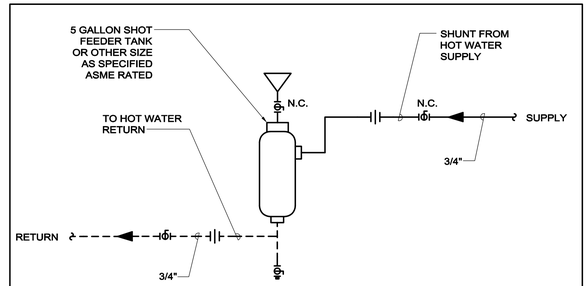


MAKE-UP SIZE (d)		
TOTAL SYSTEM PUMP FLOW (GPM)	d (INCHES)	PRV MIN. FLOW (GPM)
UP TO 200	1/2	3

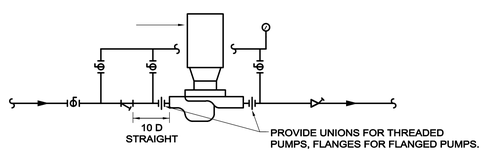
NOTES:

1. CONNECT TO SIDE OF MAIN TO PREVENT AIR OR DEBRIS FROM ENTERING PIPE TO TANK. TOP OR BOTTOM CONNECTION NOT PERMITTED.
2. PROVIDE BUTTERFLY VALVES FOR 2-1/2" PIPES AND LARGER; BALL VALVES FOR 2" PIPES AND SMALLER (SEE SPECS).
3. FOR HOT WATER SYSTEMS, IF ELEVATION AT INLET TO TANK IS NOT BELOW MAIN BY 24", PROVIDE 24" TRAP TO PREVENT GRAVITY HEATING OF TANK.

RDK **FULL SIZE AIR SEPARATOR, MAKE-UP WATER & DIAPHRAGM EXPANSION TANK FOR CLOSED LOOP WATER SYSTEMS (UP TO 8" PIPING)** H1103



RDK **CHEMICAL FEED (SHOT FEEDER)** H1112



NOTES:
1. VALVES SHALL BE SAME SIZE AS PIPE, REDUCE TO PUMP CONNECTIONS AS REQUIRED.
2. FOR PUMPS OVER ¼ HP: PUMP & PIPE WITHIN 20' SHALL HAVE SPRING-ISOLATOR SUPPORTS
3. SUBSTITUTE BUTTERFLY VALVES FOR BALL VALVES FOR PIPING GREATER THAN 2".

RDK **INLINE PUMP PIPING (EACH PUMP)** H1201

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC DETAILS

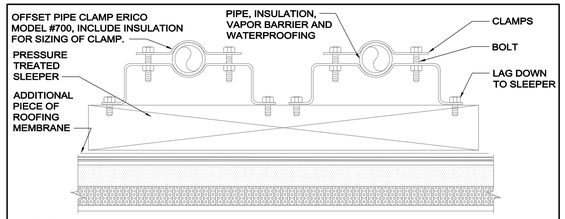
PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

H702

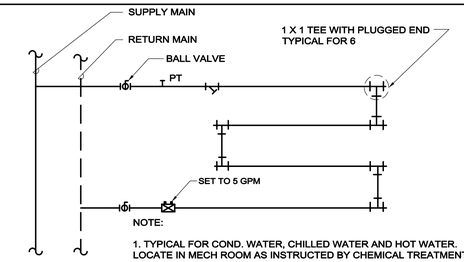
SHEET 96 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:



NOTES:
1. FOR DISTANCE BETWEEN SUPPORTS REFER TO SPECIFICATIONS.
2. PROVIDE DOUBLE LAYER SLIP SHEET (ROOF MEMBRANE) BETWEEN ROOF & SLEEPER.

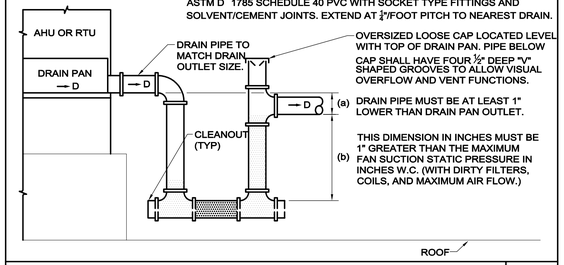
RDK **ROOF SURFACE MOUNTED PIPING SUPPORT (UP TO 3")** H007



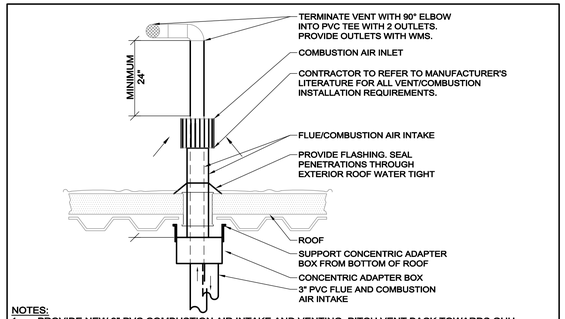
NOTE:
1. TYPICAL FOR COND. WATER, CHILLED WATER AND HOT WATER. LOCATE IN MECH ROOM AS INSTRUCTED BY CHEMICAL TREATMENT CONTRACTOR AND OWNER.

RDK **COUPON RACK** H1111

NOTE: OUTDOOR UNIT CONDENSATE DRAIN PIPING SHALL BE UV RESISTANT, ASTM D 1785 SCHEDULE 40 PVC WITH SOCKET TYPE FITTINGS AND SOLVENT/CEMENT JOINTS. EXTEND AT ¼"/FOOT PITCH TO NEAREST DRAIN.

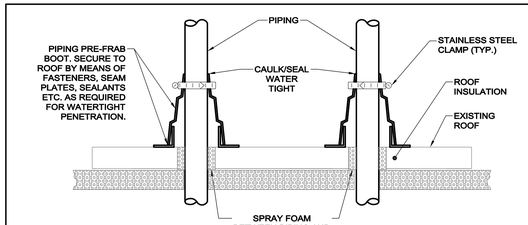


RDK **BLOW THRU UNIT CONDENSATE TRAP** H1109



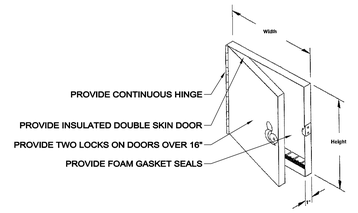
NOTES:
1. PROVIDE NEW 3" PVC COMBUSTION AIR INTAKE AND VENTING. PITCH VENT BACK TOWARDS GUH. MAINTAIN 30" BETWEEN ROOF AND COMBUSTION AIR INTAKE.
2. DUE TO HIGH TEMPERATURE, DO NOT ENCLOSE FLUE EXHAUST PIPE OR PLACE PIPE CLOSER THAN 6" TO COMBUSTIBLE MATERIAL. MAXIMUM EQUIVALENT LENGTH OF FLUE EXHAUST FROM HEATER TO CONCENTRIC ADAPTER MUST NOT EXCEED MANUFACTURERS RECOMMENDATIONS. WHEN ELBOWS ARE REQUIRED, SUBTRACT APPROPRIATE LENGTH FOR EQUIVALENT 90° ELBOW AND 45° ELBOW.
3. FOLLOW MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.

RDK **VERTICAL EXHAUST FLUE AND COMBUSTION AIR INTAKE DETAIL** -



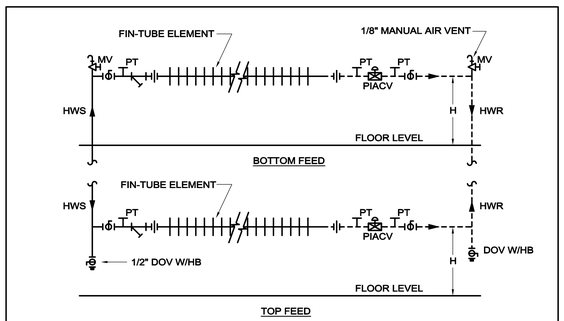
NOTE:
PROVIDE PENETRATION FOR PIPING. COORDINATE QUANTITY OF PENETRATIONS, SIZE OF CURB AND QUANTITY OF RUBBER SLEEVES/PVC BOOTS.

RDK **PIPING THRU ROOF DECK** -



NOTES:
1. REFER TO THE SPECIFICATION AND ON DRAWING NOTES FOR SIZE AND LOCATION OF ACCESS DOORS.

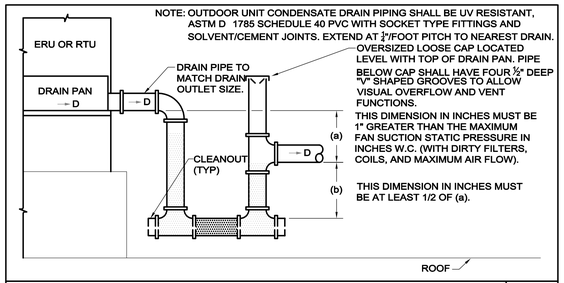
RDK **TYPICAL CLEANOUT/ACCESS DOOR FOR RECTANGULAR DUCTWORK** -



NOTES:
1. HEIGHT "H" AS REQUIRED TO ACCOMMODATE ENCLOSURE.
2. WHEN INSTALLING TWO ELEMENTS HIGH IN SERIES, CONNECT HWS TO BOTTOM ELEMENT AND PITCH UP TOWARD HWR.
3. MINIMUM OF TWO ELBOW CONNECTIONS SHALL BE USED AT SUPPLY & RETURN CONNECTIONS FROM & TO RISERS TO SUIT JOB CONDITIONS.

RDK **HOT WATER FIN-TUBE RADIATION WITH 2-WAY MODULATING PI AUTOMATIC CONTROL VALVE** H208

NOTE: OUTDOOR UNIT CONDENSATE DRAIN PIPING SHALL BE UV RESISTANT, ASTM D 1785 SCHEDULE 40 PVC WITH SOCKET TYPE FITTINGS AND SOLVENT/CEMENT JOINTS. EXTEND AT ¼"/FOOT PITCH TO NEAREST DRAIN.



RDK **DRAW THRU UNIT CONDENSATE TRAP** H1110

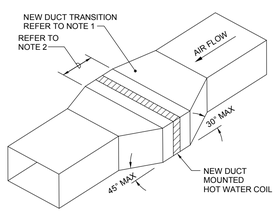
NOTES:
1. WALL OPENING SHALL BE SIZED TO MAINTAIN MANUFACTURER'S REQUIRED EXPANSION SPACE AROUND DAMPER.
2. SLEEVES EXPOSED TO THE SYSTEM AIRSTREAM (AS SHOWN HERE) SHALL BE OF THE SAME MATERIAL AS THE DUCT SYSTEM. DUCTS CONNECTING TO SLEEVES SHALL BE EQUAL TO OR LESS THAN THE SLEEVE THICKNESS. MINIMUM SLEEVE GAUGES SHALL BE AS FOLLOWS (USE MANUFACTURER'S UL APPROVED REQUIREMENTS IF MORE STRINGENT):

MAX SLEEVE DIMENSIONS	GAUGE
12" AND LESS	26
13" - 30"	24
31" - 54"	22

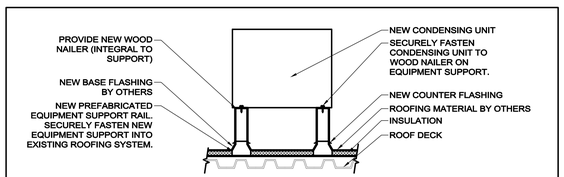
3. MOUNTING ANGLES SHALL BE A MINIMUM OF 1-1/2" x 1-1/2" x 14 GAUGE AND FASTENED TO SLEEVE WITH 1/2" LONG WELDS, 1/4" BOLTS AND NUTS, OR NO. 10 STEEL SCREWS. MAXIMUM SPACING FOR FASTENERS SHALL BE 6" OC, WITH A MINIMUM OF 2 CONNECTIONS ON EACH SIDE, TOP AND BOTTOM OF THE DAMPER ASSEMBLY. FOR BOTH SIDES OF THE WALL, DO NOT FASTEN OR WELD ANGLES TOGETHER AT THE CORNERS OF THE DAMPER ASSEMBLY.
4. THE DAMPER SHALL BE FASTENED TO THE SLEEVE WITH 1/4" BOLTS AND NUTS, NO. 10 SCREWS, OR 1/2" LONG WELDS STAGGERED INTERMITTENTLY ON BOTH SIDES. SPACE FASTENERS 6" OC AND A MAXIMUM OF 2" FROM EACH CORNER. A CONTINUOUS 1/8" BEAD OF APPROVED FIRE-RESISTANT SEALANT SHALL BE APPLIED TO ONE SIDE WHERE THE DAMPER JOINS THE SLEEVE. PRESS THE SURFACE OF THE SEALANT IN PLACE TO DISPEL ANY AIR.
5. PROVIDE A MINIMUM OF 6" BETWEEN THE OPENINGS OF MULTIPLE PENETRATIONS IN A RATED FLOOR OR WALL.
6. DETAIL COMPLIES WITH UL SAFETY STANDARD 555 AND 555S AND IS SHOWN AS AN EXAMPLE. THE MANUFACTURER'S INSTALLATION DETAILS AND INSTRUCTIONS (INCLUDING SLEEVE GAUGES AND BREAK AWAY CONNECTIONS) AS TESTED AND APPROVED BY UL MUST BE USED IN LIEU OF THE ABOVE DETAIL WHERE THEY DIFFER.

RDK **SMOKE DAMPER** H1525

NOTES:
1. DUCT TRANSITION TO BE SUCH THAT AN EVEN DISTRIBUTION OF AIR WILL RESULT ACROSS THE COIL.
2. PROVIDE 3" STRAIGHT DUCT ON EACH SIDE OF COIL.
3. REFER TO COIL PIPING DETAIL FOR PIPING REQUIREMENTS.



RDK **DUCT MOUNTED HOT WATER COIL** -



RDK **ROOF MOUNTED EQUIPMENT DETAIL** -

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC DETAILS

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

H703

SHEET 97 **OF** 157

G:\2013\20130535 - Waltham Police HQ Renovation\1200 Drawings\1203 HVAC\Plot Files\20130535 H703 HVAC DETAILS.dwg (World) July 14, 2014 - 9:49pm dtarcak

PACKAGED DX ROOFTOP AIR HANDLING UNIT SCHEDULE

TAG	SERVICE	LOCATION	REFRIGERANT TYPE	REFRIGERANT CHARGE (LBS)	OUTDOOR AIR CONDITIONS DB (°F)	OUTDOOR AIR CONDITIONS WB (°F)	SUPPLY FAN CFM TOTAL	CFM O.A.	CAPACITY CONTROL RANGE	CAPACITY CONTROL TYPE	STATIC PRESS. (IN.WG) EXTERNAL (W/ .25 DIRTY FILTER)	STATIC PRESS. (IN.WG) TOTAL	MOTOR RPM	MOTOR BHP	MOTOR HP	UNIT COOLING COIL CAPACITY (MBH) TOTAL	CAPACITY (MBH) SENS.	FACE VELOCITY (FPM)	UNIT EAT (°F) DB	UNIT EAT (°F) WB	*UNIT LAT (°F) DB	*UNIT LAT (°F) WB	AIR-COOLED CONDENSING UNIT COMPRESSOR(S) TYPE	NO.	NOMINAL HP EA.	STEPS OF UNLOAD	DB TEMP. (°F)	MIN. EFF	CONDENSER FAN NO.	CONDENSER FAN HP EA.	INDIRECT GAS-FIRED HEATER DATA CAPACITY (MBH) INPUT	OUTPUT	MIN. EFF (%)	AIR DATA EAT (°F)	LAT (°F)	P.D. (IN.WG)	GAS PRESS. (IN.WG)	HZ	V	PH	FILTER DATA	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
RTU-1	1ST FLOOR	UPPER ROOF	R-410A	24.6	91.0	74.0	8,050	1,700	4,830-8,050	VAV	1.6	2.162	674	5.54	7.5	269.2	206.3	254	79.9	66.0	55.51	53.91	SCROLL	2	-	2	95.0	10.3 EER	3	1.1	-	-	-	-	-	-	60	208	3	4" PLEATED MERV 14	TRANE YCD 330	SEE NOTE 1
RTU-2	TRAINING ROOM	LOWER ROOF	R-410A	11.8	91.0	74.0	1,800	300	900-1800	SINGLE ZONE VAV	1.25	1.153	1039	0.77	1	66.0	47.6	182	79.3	66.3	58.61	56.30	SCROLL	1	4.3	1	95.0	17.2 SEER	1	0.4	80	64	-	57.67	90.87	0.153	4.5/14.0	60	208	3	2" PLEATED MERV 13	TRANE YHC 060	SEE NOTE 2
RTU-3	2ND FLOOR	UPPER ROOF	R-410A	17.8	91.0	74.0	5,600	1,000	3,360-5,600	VAV	1.5	1.73	778	3.88	5	167.0	131.3	178	79.0	65.0	59.54	55.40	SCROLL	2	3.9	2	95.0	14.2 EER	2	0.5	-	-	-	-	-	-	60	208	3	2" PLEATED MERV 13	TRANE YHD 180	SEE NOTE 3

NOTES:
1) REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.
2) PROVIDE RTU-1 WITH 2" MERV 14 FILTER SECTION, HINGED ACCESS DOORS, STAINLESS STEEL CONDENSATE DRAIN PAN, CONDENSATE OVERFLOW SWITCH, COMPARATIVE ENTHALPY ECONOMIZER WITH POWERED EXHAUST WITH PRESSURE CONTROL, BACNET INTERFACE CARD, VARIABLE SPEED SUPPLY FAN WITH VFD BY MANUFACTURER, THRU THE BASE ELECTRICAL, SINGLE POINT ELECTRICAL CONNECTION, FACTORY POWERED GROUND FAULT CONVENIENCE OUTLET WITH DISCONNECT SWITCH AND 24" ROOF CURB.
3) PROVIDE RTU-2 WITH 2" MERV 13 FILTER SECTION, HINGED ACCESS DOORS, NATURAL GAS FURNACE WITH STAINLESS STEEL HEAT EXCHANGER, STAINLESS STEEL CONDENSATE DRAIN PAN, COMPARATIVE ENTHALPY ECONOMIZER WITH POWERED EXHAUST, DEMAND CONTROL VENTILATION, BACNET INTERFACE CARD, 0-100% MOTORIZED OUTDOOR AIR DAMPERS, THRU THE BASE ELECTRICAL, DISCONNECT SWITCH, POWERED GFCI CONVENIENCE OUTLET AND 24" ROOF CURB.
4) PROVIDE RTU-3 WITH 2" MERV 13 FILTER SECTION, HINGED ACCESS DOORS, STAINLESS STEEL CONDENSATE DRAIN PAN, COMPARATIVE ENTHALPY ECONOMIZER WITH POWERED EXHAUST, BACNET INTERFACE CARD, VARIABLE SPEED SUPPLY FAN WITH VFD BY MANUFACTURER, THRU THE BASE ELECTRICAL, SINGLE POINT POWER CONNECTION, POWERED CONVENIENCE OUTLET WITH DISCONNECT SWITCH AND 24" ROOF CURB.
5) RTU'S SHALL BE BY TRANE, MCQUAY, OR JOHNSON CONTROLS.

ENERGY RECOVERY UNIT SCHEDULE

TAG	SERVICE	LOCATION	REFRIGERANT TYPE	CFM SUPPLY AIR	CFM EXHAUST AIR	FAN DATA CAPACITY CONTROL RANGE	CAPACITY CONTROL TYPE	SUPPLY STATIC PRESS. (IN. WG)	EXHAUST STATIC PRESS. (IN. WG)	SUPPLY MOTOR RPM	SUPPLY MOTOR BHP	SUPPLY MOTOR HP	SUPPLY MOTOR V	SUPPLY MOTOR PH	EXHAUST MOTOR RPM	EXHAUST MOTOR BHP	EXHAUST MOTOR HP	EXHAUST MOTOR V	EXHAUST MOTOR PH	WHEEL CONTROL	ENERGY RECOVERY WHEEL NET EFFECTIVENESS % SUMMER	NET EFFECTIVENESS % WINTER	SUPPLY AIR DATA WINTER EAT °F	SUPPLY AIR DATA WINTER LAT °F	SUPPLY AIR DATA SUMMER EAT °F	SUPPLY AIR DATA SUMMER LAT °F	EXHAUST AIR DATA WINTER EAT °F	EXHAUST AIR DATA WINTER LAT °F	EXHAUST AIR DATA SUMMER EAT °F	EXHAUST AIR DATA SUMMER LAT °F	DX COOLING COIL TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY	HOT GAS REHEAT MBH	HOT GAS REHEAT LAT	SAT. SUCTION TEMP (°F)	FACE VELOCITY (FPM)	AIR DATA EAT (°F) DB	AIR DATA EAT (°F) WB	AIR DATA LAT (°F) DB	AIR DATA LAT (°F) WB	P.D. (IN.WG)
ERU-1	BASEMENT & 1ST FLOOR	LOWER ROOF	R410A	2,575	2,450	VFD	CONSTANT	1.40	1.25	2331	2.06	3	208	3	2075	1.43	2.0	208	3	VFD	-	-	0.0	45.9	91.0	81.6	68.0	18.1	77.0	87.3	125.0	84.3	200	67.0	-	292	81.6	67.4	50.7	50.5	0.35

NOTES:
1 REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.
2 PROVIDE ERU-1 WITH MANUFACTURER'S MODULATING HOT GAS REHEAT, DIGITAL SCROLL PRIMARY COMPRESSOR, 2" DOUBLE WALLED CONSTRUCTION, INLET HOOD WITH MOISTURE ELIMINATORS, SUPPLY AND EXHAUST DIRECT DRIVE FANS W/ VFDS (VFDS BY MANUFACTURER), MODULATING INDIRECT FIRED NATURAL GAS BURNER WITH STAINLESS STEEL HEAT EXCHANGER, STAINLESS STEEL CONDENSATE DRAIN PAN, BACNET DDC INTERFACE CARD, ERV COMPOSITE CONSTRUCTION WITH FROST PROTECTION, MODULATING OA/RA DAMPERS WITH ECONOMIZER CONTROL AND WITH LOW LEAKAGE DAMPER BLADES, HINGED ACCESS DOORS WITH SLIDE OUT TOTAL ENERGY WHEEL SECTION, COMPARATIVE ENTHALPY ECONOMIZER, DE-HUMIDIFICATION SEQUENCE, MERV 13 FILTERS ON SUPPLY AND EXHAUST, AIRFLOW MEASURING STATION (SUPPLY AND EXHAUST), THRU THE BASE ELECTRICAL, SINGLE POINT POWER CONNECTION, POWERED CONVENIENCE OUTLET, DISCONNECT SWITCH AND 24" ROOF CURB.
3 ERU SHALL BE BY TRANE, MCQUAY, VENMAR OR APPROVED EQUAL.

CONDENSING BOILER SCHEDULE (HOT WATER)

(MBH OUT)

TAG	LOCATION	CAPACITY (MBH) MAX OUTPUT	CAPACITY (MBH) MAX INPUT	NATURAL GAS MIN (IN.WG)	NATURAL GAS MAX (IN.WG)	EFFICIENCY @ 100% FIRE	TURN DOWN	WATER RELIEF VALVE	WATER WPD (FT HD)	WATER ENT (°F)	WATER LVG (°F)	WATER GPM	ELECTRICAL V	ELECTRICAL PH	ELECTRICAL FLA	WEIGHT (LBS)	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
B-1	MECHANICAL ROOM	555	600	4.0	14.0	92.5	5:1	50	18	140	110	38	120	1	2.7	340	LOCHINVAR KB-601	SEE NOTES
B-2	MECHANICAL ROOM	555	600	4.0	14.0	92.5	5:1	50	18	140	110	38	120	1	2.7	340	LOCHINVAR KB-601	SEE NOTES

NOTES:
1. PROVIDE WITH STAINLESS STEEL CONSTRUCTION. PROVIDE BOILERS WITH A 10 YEAR WARRANTY ON THE STAINLESS STEEL HEAT EXCHANGER AND 1 YEAR WARRANTY ON REMAINDER OF THE BOILER (PARTS)
2. PROVIDE WITH PROBE TYPE LOW WATER CUT-OFF WITH MANUAL RESET. PROVIDE WITH PRESSURE RELIEF VALVE, SINGLE POINT ELECTRICAL CONNECTION, AND CONDENSATE TRAP.
3. PROVIDE WITH MASSACHUSETTS APPROVED VENTLESS GAS TRAIN. IF SUBMITTED BOILER DOES NOT HAVE VENTLESS GAS TRAIN CONTRACTOR SHALL PROVIDE GAS VENTS AS REQUIRED TO PROPERLY VENT GAS TRAIN AT NO ADDITIONAL COST TO THE OWNER.
4. PROVIDE WITH CONDENSATE NEUTRALIZER (EQUAL TO JIM MODEL JM-10).
5. PROVIDE WITH OUTDOOR RESET CONTROL AND OUTDOOR SENSOR.
6. PROVIDE WITH MANUFACTURER'S CONTROLLER AND BACNET INTERFACE.
7. PROVIDE WITH HIGH TEMPERATURE LIMIT WITH MANUAL RESET AND FLOW SWITCH.
8. BOILER SHALL COMPLY WITH CSD-1 CODE REQUIREMENTS.
9. PROVIDE STAINLESS STEEL FLUE DESIGNED FOR CONDENSING BOILERS (SEE SPECIFICATIONS FOR DETAILS).
10. PROVIDE WITH FACTORY HIGH TEMPERATURE LIMIT WITH MANUAL RESET, FLOW SWITCH, FLUE TEMPERATURE SENSOR, AND LOW AIR PRESSURE SWITCH FOR DETAILS.
11. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.
12. PROVIDE POLYPROPYLENE FLUE DESIGNED FOR CONDENSING BOILERS (SEE SPECIFICATIONS FOR DETAILS
13. EFFICIENCY BASED ON 110°F ENTERING WATER TEMPERATURE AND 140°F LEAVING WATER TEMPERATURE AT 100% FIRING.
14. BOILERS SHALL BE BY LOCHINVAR, AERCO, CLEAVER BROOKS, BUDERUS OR EQUAL.

CABINET HEATER (HOT WATER) SCHEDULE

(GPM)

TAG	LOCATION	TYPE	OUTPUT (MBH)	AIR CFM (LO)	AIR EAT (°F)	AIR LAT (°F)	WATER GPM	WATER EWT (°F)	WATER LWT (°F)	WATER P.D. (FT.)	MOTOR RPM	MOTOR HP	ELECTRIC SERVICE HZ	ELECTRIC SERVICE V	ELECTRIC SERVICE PH	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
CUH-1	STAIR #2 120 - BASEMENT	FLOOR MOUNTED	7.1	185	60	99.0	.60	140	110	0.2	875	1/15	60	115	1	STERLING C-1160-02	SEE NOTES
CUH-2	LOBBY 115	CEILING MOUNTED	13.3	345	60	95.6	1.2	140	110	0.1	875	1/10	60	115	1	STERLING RC-1210-04	SEE NOTES
CUH-3	LOBBY 115	FLOOR MOUNTED	25.8	845	60	98.3	1.8	140	110	.3	875	1 @ 1/10 & 1 @ 1/15	60	115	1	STERLING FSI-1055-10	SEE NOTES
CUH-4	STAFF ENTRANCE 133	CEILING MOUNTED	25.8	845	60	98.3	1.8	140	110	.3	875	1 @ 1/10 & 1 @ 1/15	60	115	1	STERLING RC-1210-10	SEE NOTES
CUH-5	STAIR #2 120 - 2ND FLOOR	FLOOR MOUNTED	7.1	185	60	99.0	.60	140	110	0.2	875	1/15	60	115	1	STERLING C-1160-02	SEE NOTES
CUH-6	STAIR #3 130 - 2ND FLOOR	FLOOR MOUNTED	7.1	185	60	99.0	.60	140	110	0.2	875	1/15	60	115	1	STERLING C-1160-02	SEE NOTES

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.
2. UNITS SELECTED AT LOW FAN SPEED. PROVIDE CABINET UNIT HEATERS WITH UNIT MOUNTED SPEED CONTROLLER AND LEVELING LEGS.
3. PROVIDE UNITS WITH MOTOR STARTER AND UNIT MOUNTED DISCONNECT.
4. PROVIDE WITH BAKED ENAMEL FINISH - COORDINATE FINAL COLOR WITH OWNER AND ARCHITECT.
5. CUH FLOW RATES, OUTPUT AND PRESSURE DROPS BASED ON 30°F WATER TEMPERATURE DROP. CONTRACTOR'S SUBMITTAL SHALL ADJUST ALL PERFORMANCE CHARACTERISTICS TO ACCOUNT FOR HIGHER TEMPERATURE DIFFERENCE.
6. PROVIDE CUH-2, CUH-3 AND CUH-4 WITH MANUFACTURERS FURNISHED AQUASTAT TO BE INSTALLED IN FIELD BY THIS CONTRACTOR.
7. CABINET UNIT HEATERS SHALL BE BY STERLING, MODINE, AIRTHERM OR EQUAL.

PUMP SCHEDULE

TAG	SERVICE	LOCATION	CASING TYPE	FLUID TYPE	FLUID TEMP (°F)	GPM	HEAD (FT.)	SHUT-OFF HEAD (FT.)	IMPELLER SIZE (IN.)	MOTOR RPM	MOTOR BHP	MOTOR HP	MOTOR V	MOTOR PH	WEIGHT (LBS)	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
P-1	B-1	MECHANICAL ROOM	CI	HW	140	38	27	29	5.25	1750	0.45	3/4	208	3	63	B&G SERIES 60 1-1/2x5-1/4	SEE NOTES
P-2	B-2	MECHANICAL ROOM	CI	HW	140	38	27	29	5.25	1750	0.45	3/4	208	3	63	B&G SERIES 60 1-1/2x5-1/4	SEE NOTES
P-3	HEATING HW	MECHANICAL ROOM	CI	HW	140	47	50	56	7	1750	1.1	1.5	208	3	170	B&G 1-1/2x1-1/2x7B	SEE NOTES
P-4	HEATING HW	MECHANICAL ROOM	CI	HW	140	47	50	56	7	1750	1.1	1.5	208	3	170	B&G 1-1/2x1-1/2x7B	SEE NOTES

NOTES:
1. PROVIDE P-1 AND P-2 WITH PREMIUM EFFICIENCY MOTORS. CAST BRONZE IMPELLER AND STEEL SHAFT.
2. PROVIDE P-3 AND P-4 WITH PREMIUM EFFICIENCY, VFD COMPATIBLE MOTOR (VFD BY DIVISION 26), CAST BRONZE IMPELLER AND STEEL SHAFT.
3. PUMPS SHALL BE BY BELL AND GOSSETT, TACO, ARMSTRONG OR EQUAL.

DUCTWORK PRESSURE CLASS AND SEAL CLASS

PRESSURE CLASS	STATIC PRESSURE CLASS	SMACNA SEAL CLASS	SMACNA LEAKAGE CLASS RECTANGULAR	SMACNA LEAKAGE CLASS ROUND	DESIGN VELOCITY LIMITS
2"	2" POS. OR NEG.	A	6	3	2000 FPM OR LESS

UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE DRAWINGS, USE THE FOLLOWING PRESSURE CLASSIFICATIONS FOR THE TYPES OF DUCTWORK LISTED BELOW

2" CLASS:	ALL OTHER DUCTWORK.

NOTES:
1. CONTRACTOR SHALL LEAK TEST (SUBMIT REPORT) A MINIMUM OF 25% OF THE SURFACE AREA FOR ALL DUCTWORK ABOVE PRESSURE CLASS 3" AND 100% OF ALL DUCTWORK LOCATED OUTDOORS.
2. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.

ENERGY RECOVERY UNIT SCHEDULE

TAG	HOT INDIRECT GAS-FIRED HEATER COIL DATA CAPACITY (MBH) INPUT	CAPACITY (MBH) OUTPUT	TURN DOWN	AIR DATA EAT (°F)	AIR DATA LAT (°F)	AIR DATA P.D. (IN.WG)	FILTER DATA (SUPPLY & EXHAUST)	WEIGHT (LBS)	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
	200	160	1:10	0.0	60.0	0.14	MERV 13	3522	TRANE OA1D	SEE NOTES

HOT WATER HEATING COIL SCHEDULE

(GPM)

TAG	LOCATION SERVED	CFM	OUTPUT (MBH)	SIZE (IN.) W	SIZE (IN.) H	FACE VELOCITY (FPM)	ROWS	FINS PER FOOT	AIR DATA EAT (°F)	AIR DATA LAT (°F)	AIR DATA P.D. (IN.WG)	WATER DATA GPM	WATER DATA EWT (°F)	WATER DATA LWT (°F)	WATER DATA P.D. (FT.)	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
HC-1	MALE LOCKER 017	395	18.7	18	9	350	2	150	60.0	103.7	0.11	1.25	140	110	1.4	TRANE DT0B09	SEE NOTES
HC-2	MALE LOCKER 017	405	19.1	18	9	360	2	150	60.0	103.4	0.12	1.3	140	110	1.4	TRANE DT0B09	SEE NOTES
HC-3	EVIDENCE STORAGE 002 & 003 AND RANGE OFFICE 005	120	4.1	8	6	345	2	110	60.0	90.8	0.08	0.55	140	110	0.1	TRANE DT0B06	SEE NOTES
HC-4	FEMALE LOCKER ROOM 010	300	10.9	16	9	300	2	110	60.0	96.7	0.06	0.75	140	110	0.2	TRANE DT0B09	SEE NOTES
HC-5	FITNESS 015	450	17.6	16	9	450	2	150	60.0	96.1	0.17	1.2	140	110	0.5	TRANE DT0B09	SEE NOTES
HC-6	MALE CELL 144E-H	260	10.3	16	9	260	2	110	60.0	10.3	0.06	0.7	140	110	0.2	TRANE DT0B09	SEE NOTES
HC-7	MALE CELL 144A-D	260	10.3	16	9	260	2	110	60.0	10.3	0.06	0.7	140	110	0.2	TRANE DT0B09	SEE NOTES
HC-8	JUVENILE 143	100	3.5	8	6	300	2	80	60.0	92.3	0.05	0.5	140	110	0.4	TRANE DT0B06	SEE NOTES
HC-9	WOMEN CELL 136A-C	290	9.9	16	9	290	1	150	60.0	91.2	0.07	0.7	140	110	0.7	TRANE DT0B09	SEE NOTES

NOTES:
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.
2. HOT WATER COIL SHALL BE BY TRANE, JOHNSON CONTROLS, OR MCQUAY.

GAS-FIRED UNIT HEATER SCHEDULE

TAG	LOCATION	GAS TYPE	PRESSURE MIN	PRESSURE MAX	INPUT (MBH)	OUTPUT (MBH)	MIN. EFFICIENCY (%)	AIR CFM	AIR TEMP. RISE (°F)	MOTOR RPM	MOTOR HP	ELECTRICAL SERVICE FLA	ELECTRICAL SERVICE V	ELECTRICAL SERVICE PH	WEIGHT (LBS)	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
GUH-1	VEHICLE BAYS 101	NAT	6"	7"	85	79.1	93	1650	44	1550	1/3	2.2	115	1	105	MODINE PTC-85	SEE NOTES
GUH-2	SALLYPORT 149	NAT	6"	7"	55	51.2	93	1100	43	1440	1/8	1.3	115	1	95	MODINE PTC-55	SEE NOTES
GUH-3	SALLYPORT 149	NAT	6"	7"	55	51.2	93	1100	43	1440	1/8	1.3	115	1	95	MODINE PTC-55	SEE NOTES
GUH-4	MOTORCYCLE/ BIKE STORAGE 150	NAT	6"	7"	55	51.2	93	1100	43	1440	1/8	1.3	115	1	95	MODINE PTC-55	SEE NOTES

NOTES:
1. PROVIDE WITH 20 GAUGE ALUMINIZED STEEL CABINET WITH BAKED ON POWDER COAT.
2. PROVIDE 20 GAUGE ALUMINIZED STEEL CABINET WITH BAKED ON POWDER COAT
3. PROVIDE ALUMINIZED STEEL HEAT EXCHANGER WITH POWER EXHAUSTER AND SINGLE STAGE DIRECT SPARK IGNITION
4. PROVIDE FACTORY FINGER PROOF FAN GUARD, MOUNTING BRACKETS, AND ADJUSTABLE AIR DEFLECTOR BLADES
5. PROVIDE FACTORY VERTICAL CONCENTRIC TERMINATION KIT. PROVIDE FACTORY MOUNTED DIFFERENTIAL PRESSURE SWITCH TO PROVE POSITIVE VENTING.
6. PROVIDE CONDENSATE DRAIN OVERFLOW SWITCH. PROVIDE FACTORY CONDENSATE NEUTRALIZER KIT.
7. PROVIDE FACTORY VERTICAL AND HORIZONTAL DEFLECTORS.
8. PROVIDE 10 YEAR HEAT EXCHANGER AND 1 YEAR LABOR WARRANTY.

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REVISIONS

Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC SCHEDULES

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

H800

SHEET 98 **OF** 157

ELEC: MECH: FIRE: PLUM: STRU: ARCH: CIVIL: REVIEWED BY:

AIR SEPARATOR SCHEDULE

TAG	SERVICE	TYPE	WATER FLOW (GPM) (GPM)	P.D. (FT.)	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
AS-1	HOT WATER	AIR SEPARATOR W/O STRAINER	47	0.3	AMTROL 3-AS-L	SEE NOTES

NOTES:
1. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2. PROVIDE BALL-TYPE BLOWDOWN VALVE, HOSE CONNECTION W/ CAP AND CHAIN.
3. PROVIDE VENT WITH ½" COPPER TUBING FROM THE AIR VENT TO FLOOR. REFER TO DETAIL.
4. AIR SEPARATOR SHALL BE BY AMTROL, TACO, BELL AND GOSSETT OR EQUAL.

PIPE INSULATION (IECC - 2012 ASHRAE 90.1 -2010 COMPLIANCE)

MINIMUM INSULATION THICKNESS IN INCHES FOR INDOOR PIPE SIZES (SEE NOTES BELOW)

PIPING SYSTEM TYPES	FLUID TEMP. RANGE (°F)	< 1"	1" TO 1¼"	1½" TO 3"	K-FACTOR (BTU-INCH/°F-HR-SF) AT AVE. TEMP. (°F)
LOW TEMPERATURE HEATING	100 TO 200	1.5	1.5	2	0.25-0.28 @ 125°F
REFRIGERANT (SUCTION/GAS AND LIQUID LINES FOR HEAT PUMPS) AND ALL OUTDOOR REFRIGERANT	-	0.5	1	1	0.21-0.27 @ 75°F

NOTES:
1. FOR MINIMUM THICKNESS OF ALTERNATIVE INSULATION TYPES OUTSIDE THE STATED CONDUCTIVITY RANGE, SEE TEST METHOD FOR STEADY STATE HEAT TRANSFER PROPERTIES OF HORIZONTAL PIPE INSULATIONS, ASTM C 335-95, AND THE STATE ENERGY CODE.
2. PROVIDE OUTDOOR REFRIGERANT WITH UV RESISTANT ALUMINUM OR PVC JACKET.
3. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.

SPLIT SYSTEM HEAT PUMP SCHEDULE

INDOOR UNIT													OUTDOOR UNIT										
TAG	SERVICE	LOCATION	CFM	COOLING DATA				HEATING DATA			ELECTRIC DATA			MANUFACTURER AND MODEL NUMBER (AS STANDARD)	TAG	LOCATION	REFRIGERANT	AMBIENT AIR TEMP. (°F)	COMPRESSOR		ELECTRIC SERVICE			MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
				TOTAL MBH	SENS. MBH	EAT		MBH	INDOOR TEMP. DB (°F)	OUTDOOR TEMP. DB (°F)	V	MCA	PH						MAX MBH		MCA	V	PH		
						DB (°F)	WB (°F)												HEATING	COOLING					
HP-1	FITNESS 015	FITNESS 015	635-705-775	24.0	18.5	80.0	67.0	18.0	70.0	17.0	208	1.0	1	PKA-A24KA4	ACCU-2	LOWER ROOF	R410A	95	18.0	24.0	18	208	1	PUZ-A24NHA4	SEE NOTES
HP-2	FITNESS 015	FITNESS 015	635-705-775	24.0	18.5	80.0	67.0	18.0	70.0	17.0	208	1.0	1	PKA-A24KA4	ACCU-3	LOWER ROOF	R410A	95	18.0	24.0	18	208	1	PUZ-A24NHA4	SEE NOTES

NOTES:
1 PROVIDE HP-1 AND HP-2 WITH WIND BAFFLE FOR LOW AMBIENT COOLING, OPTIONAL MINI CONDENSATE PUMP (MODEL SI3100) AND WIRED WALL MOUNTED CONTROLLER (PAR-21MAAU).

SPLIT A/C UNIT SCHEDULE

INDOOR UNIT												OUTDOOR UNIT										
TAG	SERVICE	LOCATION	COOLING DATA				CFM	ELECTRIC DATA				MANUFACTURER AND MODEL NUMBER (AS STANDARD)	TAG	LOCATION	REFRIGERANT TYPE	AMBIENT AIR TEMP. (°F)	COOLING	SEER	ELECTRIC SERVICE				MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
			TOTAL MBH	SENS. MBH	EAT			V	FLA	MCA	PH								MCA	FLA	V	PH		
					DB (°F)	WB (°F)																		
ACU-1	TEL/DATA 013	TEL/DATA 013	24.0	16.8	80.0	67.0	705	208	.36	1.0	1	PKA-A24	ACCU-1	LOWER ROOF	R410A	95	24.0	17.0	18	.75	208	1	PUY-A24	SEE NOTES

NOTES:
1 PROVIDE UNIT WITH WIRED REMOTE INDOOR TEMPERATURE SENSOR, CONDENSATE PUMP (MODEL SI3100) AND WIND BAFFLE FOR LOW AMBIENT COOLING.

DIFFUSER, GRILLE & REGISTER SCHEDULE

TAG	SELECTION RANGE (CFM)	NECK SIZE (IN.)	OVERALL SIZE (IN.)	MOUNTING	ACCESSORIES	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	NC OR AIR PRESSURE DROP NOT TO EXCEED	REMARKS
SA	0-50	4"Ø	12x12	LAY-IN	-	TITUS TMS	25	SEE NOTES
SB	50-75	5"Ø	12x12	LAY-IN	-	TITUS TMS	25	SEE NOTES
SC	50-125	8"Ø	24x24	LAY-IN	-	TITUS TMS	25	SEE NOTES
SD	125-200	10"Ø	24x24	LAY-IN	-	TITUS TMS	25	SEE NOTES
SE	200-300	12"Ø	24x24	LAY-IN	-	TITUS TMS	25	SEE NOTES
SF	300-450	14"Ø	24x24	LAY-IN	-	TITUS TMS	25	SEE NOTES
SG	90	14x6	14x6	SURFACE	-	TITUS 300RS	25	SEE NOTES
SH	15-50	6x6	6x6	SURFACE	-	TITUS SG-PR	25	SEE NOTES
SI	50-75	8x8	8x8	SURFACE	-	TITUS SG-PR	25	SEE NOTES
SJ	845	20x20	24x24	LAY-IN	-	TITUS 300RS	25	SEE NOTES
RA	0-75	6x6	24x24	LAY-IN	-	TITUS 350RL	25	SEE NOTES
RB	75-150	8x8	24x24	LAY-IN	-	TITUS 350RL	25	SEE NOTES
RC	150-250	10x10	24x24	LAY-IN	-	TITUS 350RL	25	SEE NOTES
RD	250-400	12x12	24x24	LAY-IN	-	TITUS 350RL	25	SEE NOTES
RE	400-600	14x14	24x24	LAY-IN	-	TITUS 350RL	25	SEE NOTES
RF	650-850	18x18	24x24	LAY-IN	-	TITUS 350RL	25	SEE NOTES
EA	0-75	6x6	24x24	LAY-IN	-	TITUS 350RL	25	SEE NOTES
EB	75-150	8x8	24x24	LAY-IN	-	TITUS 350RL	25	SEE NOTES
EC	150-300	12x12	24x24	LAY-IN	-	TITUS 350RL	25	SEE NOTES
ED	300-450	14x14	24x24	LAY-IN	-	TITUS 350RL	25	SEE NOTES
EE	15-50	6x6	6x6	SURFACE	-	TITUS SG-PR	25	SEE NOTES
EF	50-75	8x8	8x8	SURFACE	-	TITUS SG-PR	25	SEE NOTES

NOTES:
1 REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION. CONFIRM QUANTITIES AND FLOW PATTERNS WITH FLOOR PLANS.
2 RUNOUTS TO DIFFUSERS SHALL BE THE SAME SIZE AS THE INLET.
3 PROVIDE 24"x24" LAY-IN BORDER FOR DIFFUSERS, REGISTERS AND GRILLES THAT ARE TO BE INSTALLED WITHIN A CEILING GRID. REFER TO ARCHITECTURAL RCP.
4 PROVIDE RETURN GRILLES IN INTERVIEW ROOMS AND ROOMS WITH FULL HEIGHT WALLS/ DEDICATED TRANSFER AIR DUCTS WITH ACOUSTICAP ACOUSTIC BAFFLE (OR APPROVED EQUAL) AND LINER AND CAP-SUB ASSEMBLY FOR NOISE REDUCTION. ASSEMBLE/ ATTACH AS REQUIRED. CONFIGURE SO OPENING POINTS AWAY FROM TRANSFER DUCT.

HEATING SYSTEM EXPANSION TANK SCHEDULE

(ACCEPTANCE VOLUME)

TAG	SERVICE	LOCATION	FLUID	SYSTEM TEMP (°F)		SYSTEM PRESSURE (PSIG) AT TANK		VOLUME (GALLONS)		DIMENSIONS (IN)		INITIAL TANK AIR CHARGE (PSIG)	WEIGHT (LBS)	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
				MIN	MAX	MIN	MAX	TANK	ACCEPTANCE	DIAMETER	HEIGHT				
ET-1	HOT WATER	BOILER ROOM	WATER	40	140	20	48	53	48	24	38	12	190	EXTROL 200-L	SEE NOTES

NOTES:
1 REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2 EXPANSION TANKS TO BE RATED FOR MAXIMUM WORKING PRESSURE OF 125 PSIG. EXPANSION TANK SHALL BE ASME RATED.
3 EXPANSION TANKS SHALL BE FULL ACCEPTANCE TYPE.

FINNED TUBE RADIATOR SCHEDULE

TAG	WATER TEMP.		PIPE		FINS			ROWS HIGH	BTUH/FT	COVER		MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
	ENT (°F)	LVG (°F)	TYPE	SIZE (IN)	TYPE	FINS PER INCH	SIZE (IN)			TYPE	SIZE (IN)		
FTR-1	140	120	CU	¾"	AL	50	4-¼" x 3-⅝"	1	540	SLOPE	14	STERLING JVB-S14B	SEE NOTES

NOTES:
1. PROVIDE 14 GAGE ENCLOSURE WITH FULL BACKPLATE, END CAPS, ONE TIER SLOPE TOP TYPE ENCLOSURE.
2. PROVIDE WITH BAKED ENAMEL PRIME COAT. FINAL COLOR TO BE COORDINATED WTIH THE ARCHITECT.
3. FINTUBE RADIATION SHALL BE BY STERLING, SLANT-FIN, VULCAN OR EQUAL.

UNIT HEATER (HOT WATER) SCHEDULE

(GPM)

TAG	LOCATION	TYPE	MIN OUTPUT (MBH)	AIR			WATER				MOTOR HP	ELECTRIC SERVICE			MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
				CFM	EAT (°F)	LAT (°F)	GPM	EWT (°F)	LWT (°F)	P.D. (FT.)		AMPS	V	PH		
UH-1	MECHANICAL ROOM	HORIZONTAL	4.1	245	60	91	.50	140	110	.3	16 W	0.8	115	1	STERLING HS-108A	SEE NOTES

NOTES:
1. PROVIDE HOT WATER UNIT HEATER WITH OSHA APPROVED FAN GUARDS, HORIZONTAL LOUVER, AND UNIT MOUNTED MANUAL MOTOR STARTER/ DISCONNECT SWITCH.
2. PROVIDE WITH BAKED ENAMEL FINISH - COORDINATE FINAL COLOR WITH OWNER AND ARCHITECT.
3. HOT WATER UNIT HEATER SHALL BE BY STERLING, MODINE, AIRTHERM OR EQUAL.

MINIMUM DUCT INSULATION R-VALUES

LOCATION	SUPPLY	RETURN	RAW OUTDOOR AIR	EXHAUST	
				WITH ENERGY RECOVERY	WITHOUT ENERGY RECOVERY
UNCONDITIONED SPACE (SHAFT OR CEILING WITH DUCTED RETURN AIR)	R-5	R-5	R-4	R-5	-0-

DUCT LINING SCOPE: ACOUSTIC DUCT LINING OF THE TYPE AND THICKNESS SPECIFIED SHALL BE INSTALLED ON ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK WITHIN 20 FEET OF ALL TYPES OF AIR HANDLING UNITS (INCLUDING RTU, ERU, ACU, ETC., AND ALL BRANCHES WITHIN 20') ALL FANS (INCLUDING BRANCHES), ALL LOW PRESSURE DUCTWORK DOWNSTREAM OF ALL TYPES OF SUPPLY VOLUME BOXES (VAV), AND WHERE DETAILED OR SHOWN ON DRAWINGS. LINING SHALL NOT BE USED ON DUCTWORK SERVING AND SHOWER SYSTEMS.

NOTES: (SEE SPECIFICATIONS FOR R-VALUES OF VARIOUS DUCT INSULATION AND LINERS).
1. R-VALUES SHOWN MAY BE OBTAINED BY ADDING THE R-VALUES OF BOTH THE LINING (WHERE SHOWN OR USED) AND EXTERNAL DUCT INSULATION.
2. R-VALUES SHOWN ARE AS INSTALLED. USE R-VALUES FOR 25% COMPRESSION FOR NON-RIGID INSULATION.
3. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.

TERMINAL VOLUME BOX WITH HOT WATER SCHEDULE

TAG	TYPE	SERVICE	SELECTION RANGE (CFM)		INLET SIZE (IN.)	DISCHARGE SIZE (IN.)		MAX. S.P. DROP W/ COIL (IN.WG)	NC RATING	HOT WATER COIL DATA (SEE NOTES 2 AND 3)								MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
			MAX	MIN		W	H			MBH	MIN CFM	EWT (°F)	LWT (°F)	EAT (°F)	LAT (°F)	GPM	MAX WATER P.D. (FT.)	ROWS	
VAV-1	SINGLE DUCT	RTU-1	300	180	8	10	8	.13	20	9.5	180	140	110	44	92.5	0.65	0.05	3	TRANE VCWF08	SEE NOTES
VAV-2	SINGLE DUCT	RTU-1	200	120	5	10	8	.08	30	6.4	120	140	110	44	93.1	0.45	0.14	2	TRANE VCWF05	SEE NOTES
VAV-3	SINGLE DUCT	RTU-1	600	360	10	14	12	.17	17	17.5	360	140	110	44	88.9	1.2	0.24	2	TRANE VCWF10	SEE NOTES
VAV-4	SINGLE DUCT	RTU-1	500	300	10	14	12	.13	16	15.4	300	140	110	44	91.0	1.0	0.16	2	TRANE VCWF10	SEE NOTES
VAV-5	SINGLE DUCT	RTU-1	200	120	5	10	8	.08	30	6.4	120	140	110	44	93.1	0.45	0.17	2	TRANE VCWF05	SEE NOTES
VAV-6	SINGLE DUCT	RTU-1	850	510	14	19	18	.10	16	18.5	510	140	110	44	77.4	1.25	0.50	1	TRANE VCWF14	SEE NOTES
VAV-7	SINGLE DUCT	RTU-1	1150	690	14	19	18	.15	16	32.6	690	140	110	44	97.5	2.2	0.22	2	TRANE VCWF14	SEE NOTES
VAV-8	SINGLE DUCT	RTU-1	250	150	5	11	10	.12	32	6.4	150	140	110	44	90.2	0.45	0.20	2	TRANE VCWF04	SEE NOTES
VAV-9	SINGLE DUCT	RTU-1	200	120	4	10	8	.05	36	6.4	120	140	110	44	93.1	0.43	0.14	2	TRANE VCWF04	SEE NOTES
VAV-10	SINGLE DUCT	RTU-1	1300	780	16	-	-	.14	16	44.8	900	140	110	44	99.07	90.0	3.0	2	TRANE VCWF16	SEE NOTES
VAV-11	SINGLE DUCT	RTU-1	225	135	5	10	8	.15	31	12.6	225	140	110	44	95.7	0.85	0.65	3	TRANE VCWF05	SEE NOTES
VAV-12	SINGLE DUCT	RTU-1	225	135	5	10	8	.10	31	7.0	135	140	110	44	91.6	0.50	0.16	2	TRANE VCWF05	SEE NOTES
VAV-13	SINGLE DUCT	RTU-1	175	105	5	10	8	.07	29	5.8	105	140	110	44	94.7	0.39	0.11	2	TRANE VCWF05	SEE NOTES
VAV-14	SINGLE DUCT	RTU-1	1100	660	14	19	18	.14	16	31.5	660	140	110	44	88.0	2.1	0.20	2	TRANE VCWF14	SEE NOTES
VAV-15	SINGLE DUCT	RTU-1	200	120	5	10	8	.12	30	6.4	180	140	110	44	99.5	0.70	0.50	2	TRANE VCWF05	SEE NOTES
VAV-16	SINGLE DUCT	RTU-1	150	90	4	10	8	.03	36	3.4	90	140	110	44	78.5	0.25	0.13	1	TRANE VCWF04	SEE NOTES
VAV-17	SINGLE DUCT	RTU-1	625	375	10	14	12	.18	17	18.0	375	140	110	44	88.4	1.2	0.26	2	TRANE VCWF10	SEE NOTES
VAV-18	SINGLE DUCT	RTU-1	400	240	10	14	12	.09	16	13.0	325	140	110	44	90.3	1.1	0.21	2	TRANE VCWF10	SEE NOTES
VAV-19	SINGLE DUCT	RTU-3	400	240	8	11	10	.23	21	11.3	240	140	110	47	94.0	0.75	0.06	3	TRANE VCWF08	SEE NOTES
VAV-20	SINGLE DUCT	RTU-3	200	120	5	10	8	.08	30	6.1	120	140	110	47	90.3	0.40	0.12	2	TRANE VCWF05	SEE NOTES
VAV-21	SINGLE DUCT	RTU-3	200	120	5	10	9	.08	30	6.1	120	140	110	47	93.7	0.40	0.12	2	TRANE VCWF05	SEE NOTES
VAV-22	SINGLE DUCT	RTU-3	250	150	6	10	8	.08	20	6.3	150	140	110	47	85.6	0.40	0.02	2	TRANE VCWF08	SEE NOTES
VAV-23	SINGLE DUCT	RTU-3	650	390	10	14	12	.19	17	17.6	390	140	110	47	88.7	1.2	0.25	2	TRANE VCWF10	SEE NOTES
VAV-24	SINGLE DUCT	RTU-3	700	420	12	14	12	.16	15	18.0	420	140	110	47	86.6	1.20	0.10	2	TRANE VCWF12	SEE NOTES
VAV-25	SINGLE DUCT	RTU-3	650	390	10	14	12	.19	17	17.6	390	140	110	47	88.7	1.2	0.25	2	TRANE VCWF10	SEE NOTES
VAV-26	SINGLE DUCT	RTU-3	325	195	8	11	10	.16	20	9.5	195	140	110	47	92.0	0.65	0.10	3	TRANE VCWF06	SEE NOTES
VAV-27	SINGLE DUCT	RTU-3	675	450	12	14	12	.15	15	17.5	450	140	110	47	86.8	1.2	0.10	2	TRANE VCWF12	SEE NOTES
VAV-28	SINGLE DUCT	RTU-3	750	450	12	14	12	.17	15	19.1	450	140	110	47	86.1	1.3	0.10	2	TRANE VCWF12	SEE NOTES
VAV-29	SINGLE DUCT	RTU-3	375	225	10	14	12	.05	16	8.7	225	140	110	47	82.6	0.6	1.2	1	TRANE VCWF10	SEE NOTES
VAV-30	SINGLE DUCT	RTU-3	300	180	8	11	10	.14	20	9.1	180	140	110	47	93.6	0.60	0.05	3	TRANE VCWF06	SEE NOTES
VAV-31	SINGLE DUCT	RTU-3	250	150	6	10	8	.17	27	7.2	150	140	110	47	90.9	0.50	0.16	2	TRANE VCWF06	SEE NOTES
VAV-32	SINGLE DUCT	RTU-3	450	270	10	14	12	.13	16	17.2	270	140	110	47	105.6	1.1	0.33	3	TRANE VCWF10	SEE NOTES

NOTES:
1. COIL HEATING CAPACITY SHALL BE BASED ON MINIMUM CFM AND WATER FLOW LISTED ON DRAWINGS FOR EACH BOX. FOR BOXES WITH CO2 CONTROLS, IN WHICH CASE 75% OF MAXIMUM AIRFLOW SHALL BE USED).
2. RUNOUT TO VAV BOX SHALL BE THE SAME SIZE AS THE INLET CONNECTION.
3. 1" ACOUSTICAL SOUND LINING SHALL BE INSTALLED ON THE SUPPLY AIR DUCTWORK FROM THE VAV UNIT TO 20 FEET DOWNSTREAM OF THE BOX.
4. PROVIDE VAV UNIT WITH FACTORY CONTROLS ENCLOSURE.
5. PROVIDE VAV UNITS WITH HANGER BRACKETS AND 1" MATTE LINER.
6. CONFIRM LOCATION OF HOT WATER COIL CONNECTIONS IN THE FIELD AND WITH THE DRAWINGS.
7. INLET DUCTWORK TO VAV BOXES SHALL HAVE A MINIMUM DISTANCE OF 1.5 TIMES THE DIAMETER FOR PROPER AIRFLOW MEASUREMENT.
8. VAV TERMINAL UNITS SHALL BE BY TITUS, TRANE, PRICE OR EQUAL.

FAN SCHEDULE

TAG	SERVICE	LOCATION	CFM	FAN TYPE	E.S.P. (IN.WG)	ROOF CURB	MOTOR						SOUND POWER (dBA)	WEIGHT (LBS)	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
							MOTOR TYPE	RPM	BHP	HP	V	PH				
EF-1	1ST FLOOR TOILETS	LOWER ROOF	650	DIRECT DRIVE CENTRIFUGAL	1.0	16"	ECM	1415	0.21	¼	115	1	61	100	GREENHECK G-143HP-VG	SEE NOTES
EF-2	VEHICLE BAY 101	LOWER ROOF	150	DIRECT DRIVE CENTRIFUGAL	0.5	16"	ECM	1236	0.05	¼	115	1	50	82	GREENHECK G-097-VG	SEE NOTES
EF-3	2ND FLOOR TOILETS	UPPER ROOF	250	DIRECT DRIVE CENTRIFUGAL	0.5	16"	ECM	1571	0.06	⅛	115	1	55	65	GREENHECK G-080-VG	SEE NOTES
-							NOT USED									-
EF-5	SALLYPORT	LOWER ROOF	225	DIRECT DRIVE CENTRIFUGAL	0.5	16"	ECM	1395	0.07	¼	115	1	54	82	GREENHECK G-097-VG	SEE NOTES

NOTES:
1. PROVIDE FANS WITH EC MOTOR. PROVIDE EF-1, EF-3, AND EF-4 WITH UNIT MOUNTED SPEED CONTROLLERS FOR BALANCING. PROVIDE EF-2 WITH REMOTE SPEED CONTROLLER.
2. PROVIDE WITH FACTORY MOUNTED AND WIRED DISCONNECT SWITCH.
3. PROVIDE MOTORIZED DAMPER WITH 24V ACTUATOR AND DAMPER TRAY.
4. PROVIDE EF-2 AND EF-3 WITH 16" HIGH INSULATED ROOF CURBS. PROVIDE EF-1, EF-4, AND EF-5 WITH 12" HIGH ADAPTER CURBS. CONFIRM SIZE OF EXISTING ROOF CURBS IN THE FIELD.
5. FANS SHALL BE BY GREENHECK, PRICE, COOK OR APPROVED EQUAL.

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REVISIONS

Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

HVAC SCHEDULES

PROJECT NUMBER: 20130535
DESIGNED BY: JJK
DRAWN BY: JJK
CHECKED BY: CH
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

H801

SHEET 99 **OF** 157

ELEC: MECH: FIRE: PLUM: STRU: ARCH: CIVIL: REVIEWD BY:

Q:\2013\20130535 - Waltham Police HQ Renovation\1200 Drawings\1203 HVAC\Plot Files\20130535 H801 HVAC SCHEDULES.dwg [Work] July 14, 2014 - 5:40pm dfreezek

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

GENERAL

	FD	FLOOR DRAIN
	TD	TRENCH DRAIN
	CO	CLEANOUT
	FCO	FLOOR CLEANOUT
	GCO	GRADE CLEANOUT
		P-TRAP
		ELBOW UP OR RISE
		ELBOW DOWN OR DROP
		CAP OR END OF PIPE
HB	HB	HOSE BIBB
WH	WH	WALL HYDRANT
		TEE LOOKING UP
		TEE LOOKING DOWN
		UNION
	VIV	VALVE IN VERTICAL
	RPBP	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
		STRAINER
	WHA/SA	WATER HAMMER ARRESTOR/SHOCK ABSORBER
	CTE	CONNECT TO EXISTING
	ETR	EXISTING TO REMAIN
	ETBR	EXISTING TO BE REMOVED
		FLOW IN DIRECTION OF ARROW
		DIRECTION OF SLOPE
	CNR	CONCENTRIC REDUCER
		PIPE SLEEVE
	ECC	ECCENTRIC REDUCER
		DOUBLE WALL PIPING
		PIPE ANCHOR
		PIPE GUIDE
		EXPANSION JOINT
		FLEXIBLE CONNECTOR
		IN-LINE FILTER
FM		FLOW METER
		LIMIT OF WORK
	HC	HANDICAPPED ACCESSIBLE
NUM		KEY NOTE DESIGNATION
TP	TP	TRAP PRIMER

DESIGNATION INDICATOR

1 / P-1	DETAIL DESIGNATION NUMBER / DETAIL DESIGNATION DRAWING

VALVE LEGEND

		BALL VALVE
NC		BALL VALVE (NORMALLY CLOSED)
		GATE VALVE
NC		GATE VALVE (NORMALLY CLOSED)
	OS&Y	OUTSIDE SCREW AND YOKE VALVE
		BUTTERFLY VALVE
		CHECK VALVE
		BALL VALVE (GAS)
		GAS COCK
		PLUG VALVE
	MV	MIXING VALVE
		BALANCING VALVE
		ANGLE VALVE
	T&P	TEMPERATURE AND PRESSURE RELIEF VALVE
		VACUUM RELIEF VALVE
		AQUASTAT
		THERMOMETER
	PRV	PRESSURE REDUCING/REGULATING VALVE
	PG	PRESSURE GAUGE
		BACK WATER VALVE
		GLOBE VALVE
		FLOW SWITCH
		SOLENOID VALVE
		NEEDLE VALVE
		MOTOR OPERATED GATE VALVE
		MOTOR OPERATED BALL VALVE

PIPING LEGEND

	CW	COLD WATER
		COLD WATER BELOW SLAB
	HW	HOT WATER
	HWR	HOT WATER RETURN
	S or W	SOIL OR WASTE ABOVE GROUND
	S or W	SOIL OR WASTE BELOW SLAB
	V	VENT ABOVE GROUND
	V	VENT BELOW SLAB
RL	RL	RAIN LEADER ABOVE GROUND
RL	RL	RAIN LEADER BELOW SLAB
IW	IW	INDIRECT WASTE
G	G	NATURAL GAS PIPING
GV	GV	GAS VENT PIPING
TW	TW	TEMPERED WATER
TWR	TWR	TEMPERED WATER RETURN
140°F		140°F HOT WATER
140°F		140°F HOT WATER RETURN
NP	NPCW	NON POTABLE COLD WATER
DWS	DWS	CHILLED DRINKING WATER SUPPLY
DWR	DWR	CHILLED DRINKING WATER RECIRCULATING
TP	TP	TRAP PRIMER

ABBREVIATIONS

ACT	ACOUSTICAL TILE
AFF	ABOVE FINISH FLOOR
AP	ACCESS PANEL
ARCH	ARCHITECT
BLDG	BUILDING
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CLG	CEILING
CLDI	CEMENT LINED DUCTILE IRON
CO	CLEANOUT
CONC	CONCRETE
CONT	CONTINUATION
CONTR	CONTRACTOR
CP	CHROME PLATED
CTE	CONNECT TO EXISTING
CW	COLD WATER
DF	DRINKING FOUNTAIN-FIXTURE IDENTIFICATION
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
EL/ELEV	ELEVATION
EWC	ELECTRIC WATER COOLER-FIXTURE IDENTIFICATION
EX	EXISTING
FCO	FLOOR CLEANOUT
FFE	FINISH FLOOR ELEVATION
P-#	FIXTURE NUMBER
FLR	FLOOR
FP	FIRE PROTECTION
FS	FLOW SWITCH
FT	FOOT
FV	FLUSH VALVE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GI	GREASE INTERCEPTOR
GPF	GALLON PER FLUSH
GPM	GALLONS PER MINUTE
HC	HANDICAPPED
HW	HOT WATER
HWR	HOT WATER RETURN
ID	INSIDE DIAMETER
INV	INVERT
IW	INDIRECT WASTE
LPC	LIMIT OF PLUMBING CONTRACTOR
MECH	MECHANICAL
MSB	MOP SERVICE BASIN-FIXTURE IDENTIFICATION
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
NIC	NOT IN CONTRACT
OD	OUTSIDE DIAMETER
OED	OPEN END DRAIN
PC	PLUMBING CONTRACTOR
PLBG	PLUMBING
PSI	POUNDS PER SQUARE INCH
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
SA	SHOCK ABSORBER
SH	SHOWER-FIXTURE IDENTIFICATION
SK	SINK-FIXTURE IDENTIFICATION
SPEC	SPECIFICATION
SS	SOIL STACK
ST.ST.	STAINLESS STEEL
TW	TEMPERED WATER
TYP	TYPICAL
U	URINAL-FIXTURE IDENTIFICATION
V	VENT
VB	VACUUM BREAKER
VS	VENT STACK
VTR	VENT THRU ROOF
W	WASTE
WC	WATER CLOSET-FIXTURE IDENTIFICATION

GENERAL NOTES

1. PLUMBING WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE PLUMBING AND GAS CODE INCLUDING ALL LOCAL AMENDMENTS.
2. OBTAIN ALL PERMITS AND PAY ALL FEES ASSOCIATED WITH THIS WORK PRIOR TO COMMENCEMENT.
3. PIPING AND EQUIPMENT IS SHOWN DIAGRAMMATICALLY. THE ACTUAL ROUTING OF PIPING AND EXACT LOCATION OF EQUIPMENT SHALL BE DETERMINED IN THE FIELD.
4. IN ADDITION TO REVIEWING AND COORDINATING WITH THE OTHER TRADES (CIVIL, STRUCTURAL, ARCHITECTURAL, FIRE PROTECTION, HVAC, AND ELECTRICAL) THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH DETAILS OF CONSTRUCTION.
5. FURNISH AND INSTALL ALL NECESSARY PIPING, EQUIPMENT SUPPORTS AND ANY EQUIPMENT NOT SHOWN ON DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS BUT NECESSARY TO PROVIDE A COMPLETE AND WORKABLE SYSTEM.
6. PROVIDE ACCESSIBLE SHUTOFF VALVES ON ALL BRANCH PIPING AND ON ALL SUPPLY PIPING TO INDIVIDUAL FIXTURES AND EQUIPMENT.
7. PROVIDE ACCESS TO ALL EQUIPMENT REQUIRING PERIODIC SERVICE AND MAINTENANCE.
8. FURNISH ACCESS PANELS TO THE GENERAL CONTRACTOR FOR INSTALLATION UNDER THE RELATED TRADES.
9. PITCH ALL WATER LINES TO DRAIN.
10. INSTALL HORIZONTAL RUNS OF WATER PIPING AS HIGH AS POSSIBLE AND PROVIDE DRAIN-OFFS AT ALL LOW POINTS.
11. HOT WATER TAKEOFFS SHALL HAVE NOT LESS THAN THREE ELBOW SWINGS.
12. PROVIDE DRAIN VALVE ON HOUSE SIDE OF WATER METER.
13. PIPING SHALL RUN CONCEALED IN ALL AREAS WITH THE EXCEPTION OF MECHANICAL ROOMS, AREAS WHERE NO CEILING EXISTS OR WHERE NOTED ON THE PLANS.
14. INSTALL DIELECTRIC COUPLINGS BETWEEN DISSIMILAR MATERIALS.
15. PROVIDE DANDY CLEANOUTS AT THE BASE OF ALL SANITARY AND RAINWATER STACKS.
16. PROVIDE DRIP LEGS FOR ALL GAS RISERS.
17. AN AIR GAP OF AT LEAST TWICE THE EFFECTIVE DIAMETER OF THE DRAIN SERVED SHALL BE PROVIDED ON ALL EQUIPMENT DRAINS PIPED TO FLOOR DRAINS.
18. REQUIRED FIRE RESISTANCE RATING OF FLOORS, WALLS AND CEILINGS SHALL BE MAINTAINED WHEN PIPE PENETRATIONS ARE MADE.
19. REFER TO RISER DIAGRAMS AND DETAILS FOR PIPE AND EQUIPMENT SIZES NOT SHOWN ON THE PLANS.
20. ALL WORK SHOWN ON RISER DIAGRAMS BUT NOT ON PLANS OR VICE VERSA SHALL BE INCLUDED AS IF SHOWN ON BOTH.
21. SEE SPECIFICATIONS FOR OTHER REQUIREMENTS.

DEMO NOTES

DEMOLITION NOTES:

1. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXTENT OF THE DEMOLITION SCOPE OF WORK AND AREA. THE DEMOLITION PLANS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED.
2. VISIT THE SITE PRIOR TO SUBMISSION OF THE BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF THE WORK.
3. TRACE AND LABEL ALL EXISTING SYSTEMS WITHIN THE DEMOLITION AREA AND BEYOND PRIOR TO DISCONNECTION AND REMOVAL TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION AREA IS AFFECTED. REVIEW IN DETAIL WITH THE GENERAL CONTRACTOR AND OWNER WHAT IS TO BE REMOVED AND REMAIN PRIOR TO WORK COMMENCING THE DEMOLITION. THERE SHALL BE NO INTERRUPTION OF SERVICES OUTSIDE THE DEMOLITION AREA WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE.
4. NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING THE DEMOLITION.
5. ALL ITEMS REMOVED SHALL BE OFFERED TO THE OWNER FOR SALVAGE. IF THE OWNER DOES NOT TAKE POSSESSION, DISPOSE OF THE ITEMS IN A SAFE AND LEGAL MANNER. ALL ITEMS CLASSIFIED AS HAZARDOUS SHALL BE DISPOSED AS HAZARDOUS WASTES AND A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PROVIDED TO THE OWNER.
6. NOTIFY UTILITY COMPANIES IN ACCORDANCE WITH THEIR REQUIREMENTS PRIOR TO DEMOLITION. VERIFY THAT THE UTILITIES HAVE BEEN DISCONNECTED, VALVED, CAPPED AND MADE SAFE PRIOR TO DEMOLITION.
7. ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
8. DO NOT USE CUTTING TORCHES UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS. AT CONCEALED SPACES, SUCH AS DUCT AND PIPE INTERIORS, VERIFY CONDITION AND CONTENTS OF HIDDEN SPACE BEFORE STARTING FLAME-CUTTING OPERATIONS. MAINTAIN FIRE WATCH AND PORTABLE FIRE-SUPPRESSION DEVICES DURING FLAME-CUTTING OPERATIONS. MAINTAIN ADEQUATE VENTILATION WHEN USING CUTTING TORCHES.
9. DRAIN, PURGE, OR OTHERWISE REMOVE, COLLECT, AND DISPOSE OF CHEMICALS, LIQUIDS, GASES, EXPLOSIVES, ACIDS, FLAMMABLES, OR OTHER DANGEROUS MATERIALS BEFORE PROCEEDING WITH DEMOLITION OPERATIONS.
10. PRIOR TO DEMOLITION, MAKE SAFE ALL SERVICE PIPE TERMINATIONS TO THE AREA. PROVIDE VALVE AND CAPS ON PRESSURE SERVICES TO THE AREA THAT ARE TO REMAIN IN SERVICE.
11. PROPERLY LABEL ALL UNLABELED SERVICE PIPELINES AND VALVES TO REMAIN WITH COLOR PIPE MARKERS AND VALVE TAGS. MOUNT A VALVE AND SERVICE CHART IN THE AREA OF DEMOLITION THAT IDENTIFIES ALL LABELED SERVICES. TURN ONE COPY OF SAME OVER TO THE CM

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

PLUMBING LEGEND, NOTES & ABBRVS.

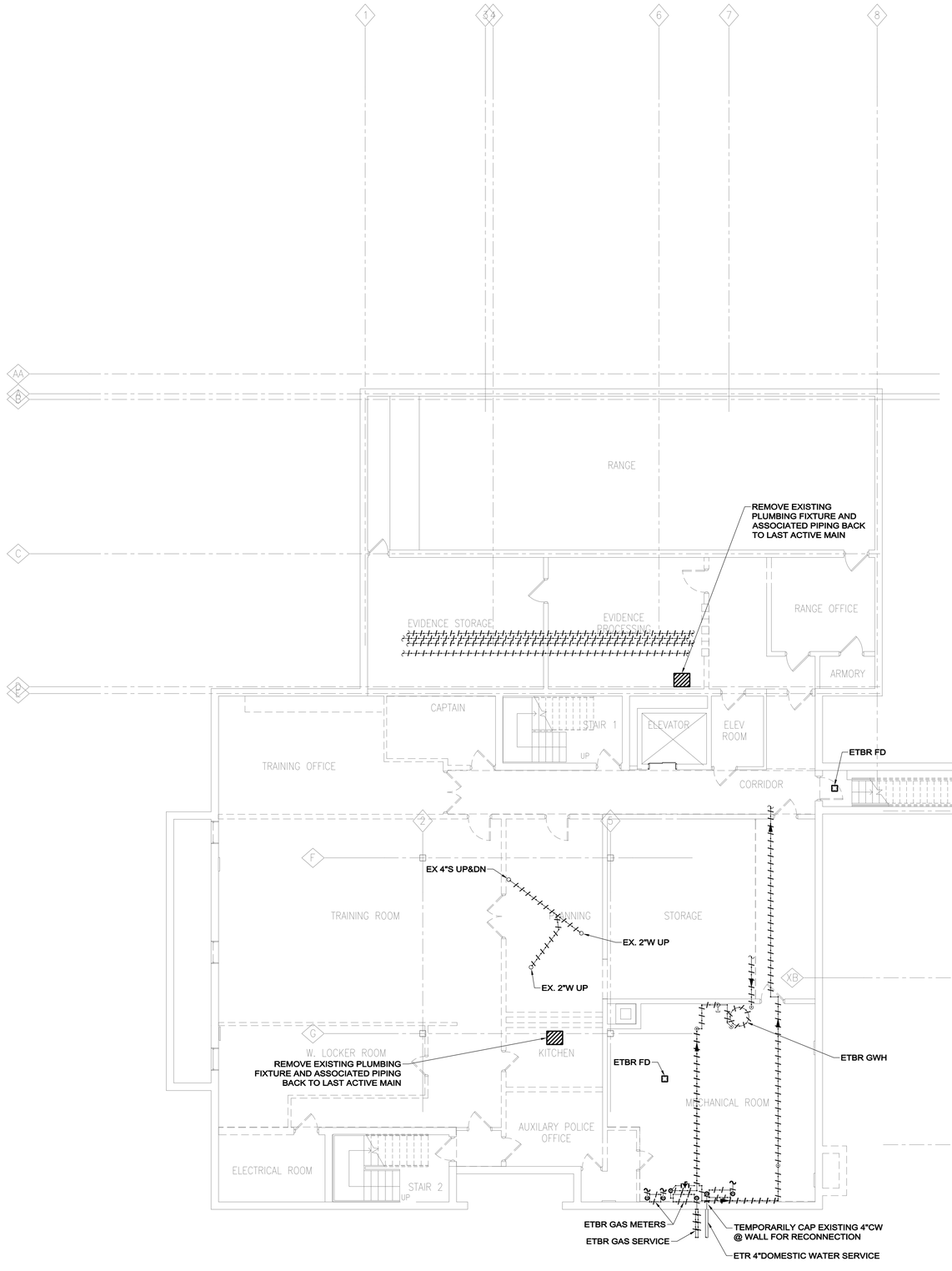
PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

P000

SHEET 100 **OF** 157

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



PLUMBING DEMOLITION NOTES:

1. ALL EXISTING NATURAL COLD WATER, HOT WATER, HOT WATER RETURN AND NATURAL GAS PIPING SHALL BE REMOVED IN THEIR ENTIRETY.
2. EXISTING WASTE AND VENT PIPING SHALL BE REMOVED TO THE EXTENT NECESSARY TO FACILITATE INSTALLATION OF NEW WORK, AND AS INDICATED ON DRAWINGS.
3. UNLESS OTHERWISE NOTED, ALL EXISTING ROOF DRAINS AND INTERNAL RAIN LEADERS ARE TO REMAIN. PROTECT FROM DAMAGE DURING DEMOLITION. WHERE RELOCATION IS REQUIRED TO SUIT THE NEW ARCHITECTURAL LAYOUT, THE CONTRACTOR SHALL COORDINATE FINAL ROUTING WITH ARCHITECT PRIOR TO INSTALLATION.
4. UNLESS NOTED OTHERWISE, ALL EXISTING PLUMBING FIXTURES (INCLUDING FLOOR DRAINS) ARE TO BE REMOVED.

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

PLUMBING BASEMENT FLOOR DEMO PLAN

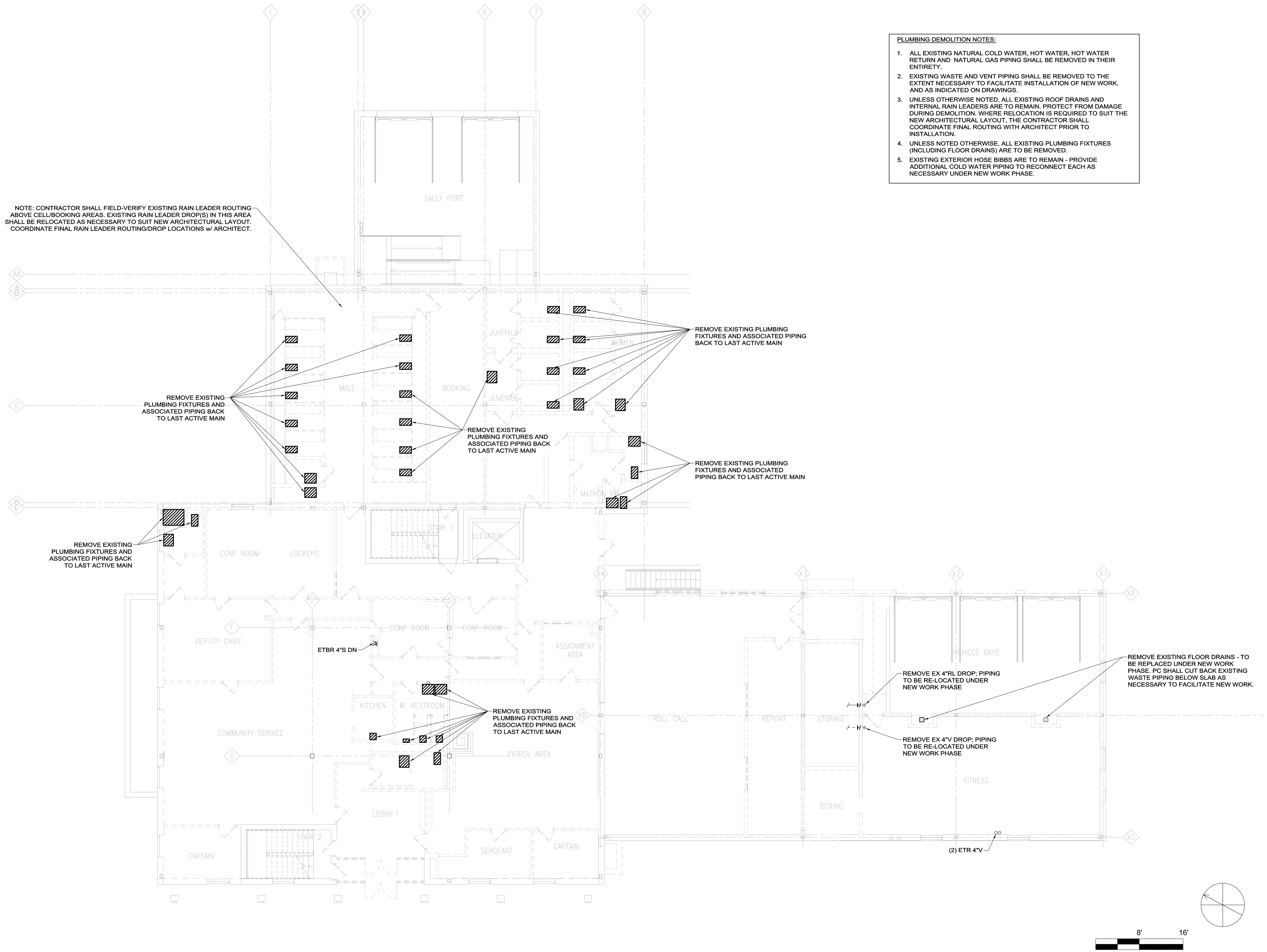
PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

PD101

SHEET 101 **OF** 157

REVIEWD BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:



PLUMBING DEMOLITION NOTES:

1. ALL EXISTING NATURAL COLD WATER, HOT WATER, HOT WATER RETURN AND NATURAL GAS PIPING SHALL BE REMOVED IN THEIR ENTIRETY.
2. EXISTING WASTE AND VENT PIPING SHALL BE REMOVED TO THE EXTENT NECESSARY TO FACILITATE INSTALLATION OF NEW WORK, AND AS INDICATED ON DRAWINGS.
3. UNLESS OTHERWISE NOTED, ALL EXISTING ROOF DRAINS AND INTERNAL RAIN LEADERS ARE TO REMAIN. PROTECT FROM DAMAGE DURING DEMOLITION. WHERE RELOCATION IS REQUIRED TO SUIT THE NEW ARCHITECTURAL LAYOUT, THE CONTRACTOR SHALL COORDINATE FINAL ROUTING WITH ARCHITECT PRIOR TO INSTALLATION.
4. UNLESS NOTED OTHERWISE, ALL EXISTING PLUMBING FIXTURES (INCLUDING FLOOR DRAINS) ARE TO BE REMOVED.
5. EXISTING EXTERIOR HOSE BIBBS ARE TO REMAIN - PROVIDE ADDITIONAL COLD WATER PIPING TO RECONNECT EACH AS NECESSARY UNDER NEW WORK PHASE.

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

PLUMBING FIRST FLOOR DEMO PLAN

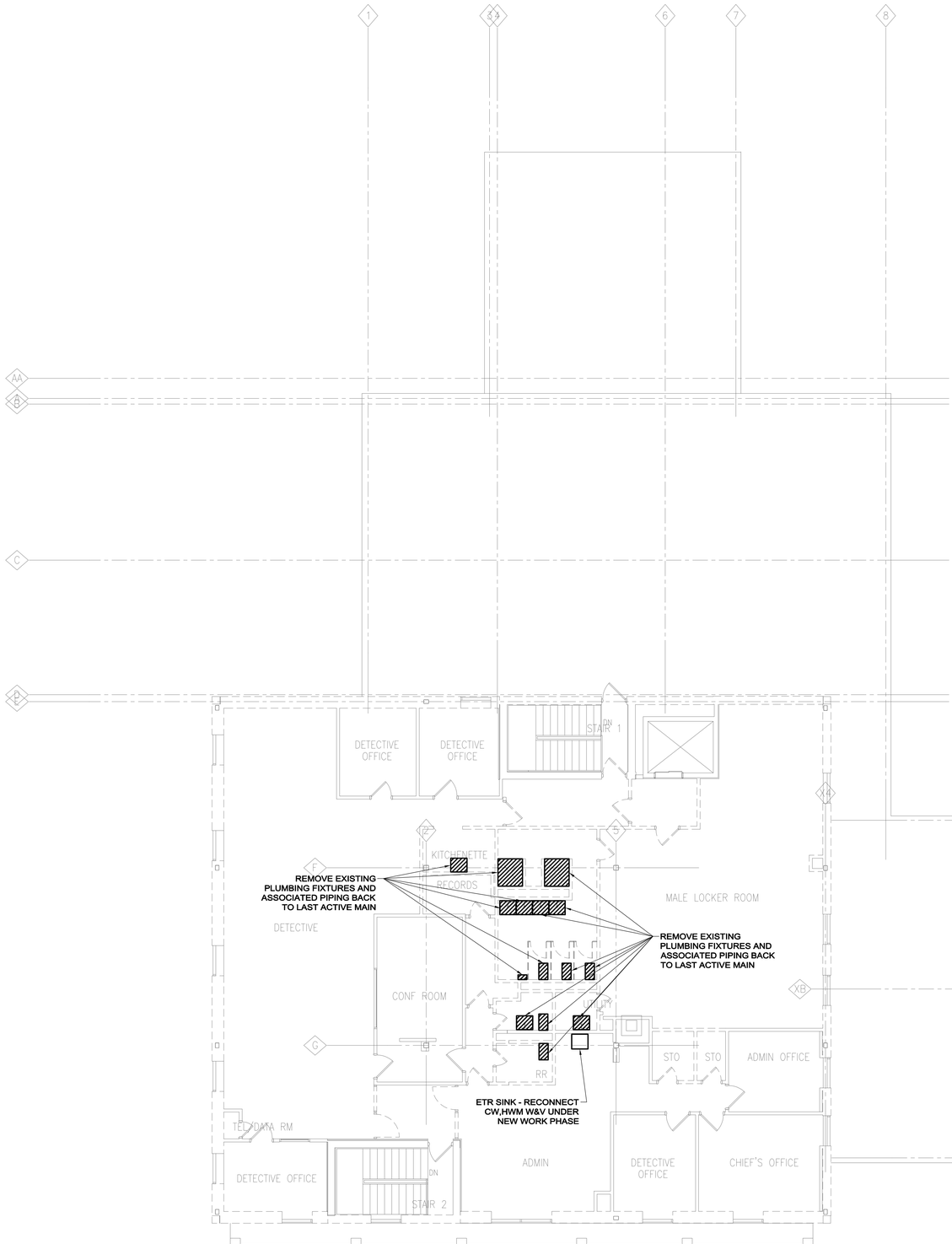
PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"
SHEET NUMBER:

PD102

SHEET 102 **OF** 157

G:\2013\20130535 - Waltham Police HQ Renovation\1200 Drawings\1202 Plumbing\Plot Files\20130535 PD102 PLUMBING FIRST FLOOR DEMOLITION PLAN.dwg [Work] July 14, 2014 - 5:54pm dfrancek

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



PLUMBING DEMOLITION NOTES:

1. ALL EXISTING NATURAL COLD WATER, HOT WATER, HOT WATER RETURN AND NATURAL GAS PIPING SHALL BE REMOVED IN THEIR ENTIRETY.
2. EXISTING WASTE AND VENT PIPING SHALL BE REMOVED TO THE EXTENT NECESSARY TO FACILITATE INSTALLATION OF NEW WORK, AND AS INDICATED ON DRAWINGS.
3. UNLESS OTHERWISE NOTED, ALL EXISTING ROOF DRAINS AND INTERNAL RAIN LEADERS ARE TO REMAIN. PROTECT FROM DAMAGE DURING DEMOLITION. WHERE RELOCATION IS REQUIRED TO SUIT THE NEW ARCHITECTURAL LAYOUT, THE CONTRACTOR SHALL COORDINATE FINAL ROUTING WITH ARCHITECT PRIOR TO INSTALLATION.
4. UNLESS NOTED OTHERWISE, ALL EXISTING PLUMBING FIXTURES (INCLUDING FLOOR DRAINS) ARE TO BE REMOVED.

8' 16'

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REVISIONS		
Number	Description	Date

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

PLUMBING SECOND FLOOR DEMO PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

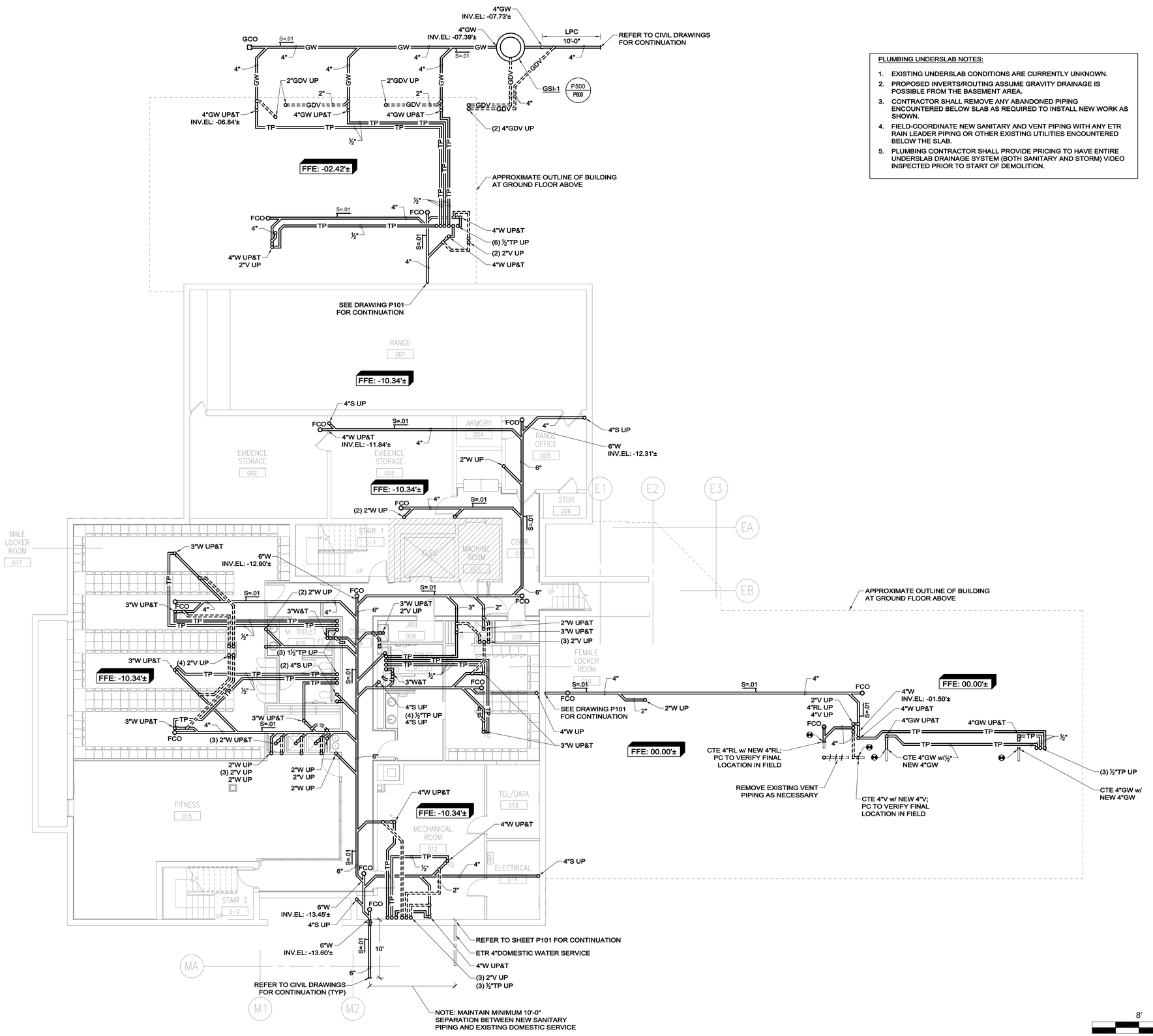
SHEET NUMBER:

PD103

SHEET 103 **OF** 157

Q:\2013\20130535 - Waltham Police HQ Renovation\1200 Drawings\1202 Plumbing\Plot Files\20130535 PD103 PLUMBING SECOND FLOOR DEMOLITION PLAN.dwg [Work] July 14, 2014 - 5:54pm dfranzak

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



PLUMBING UNDERSLAB NOTES:

1. EXISTING UNDERSLAB CONDITIONS ARE CURRENTLY UNKNOWN.
2. PROPOSED INVERTS/ROUTING ASSUME GRAVITY DRAINAGE IS POSSIBLE FROM THE BASEMENT AREA.
3. CONTRACTOR SHALL REMOVE ANY ABANDONED PIPING ENCOUNTERED BELOW SLAB AS REQUIRED TO INSTALL NEW WORK AS SHOWN.
4. FIELD-COORDINATE NEW SANITARY AND VENT PIPING WITH ANY ETR RAIN LEADER PIPING OR OTHER EXISTING UTILITIES ENCOUNTERED BELOW THE SLAB.
5. PLUMBING CONTRACTOR SHALL PROVIDE PRICING TO HAVE ENTIRE UNDERSLAB DRAINAGE SYSTEM (BOTH SANITARY AND STORM) VIDEO INSPECTED PRIOR TO START OF DEMOLITION.

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REVISIONS		
Number	Description	Date

ISSUED FOR
BID

WALTHAM POLICE
STATION
RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

PLUMBING UNDERSLAB PLAN

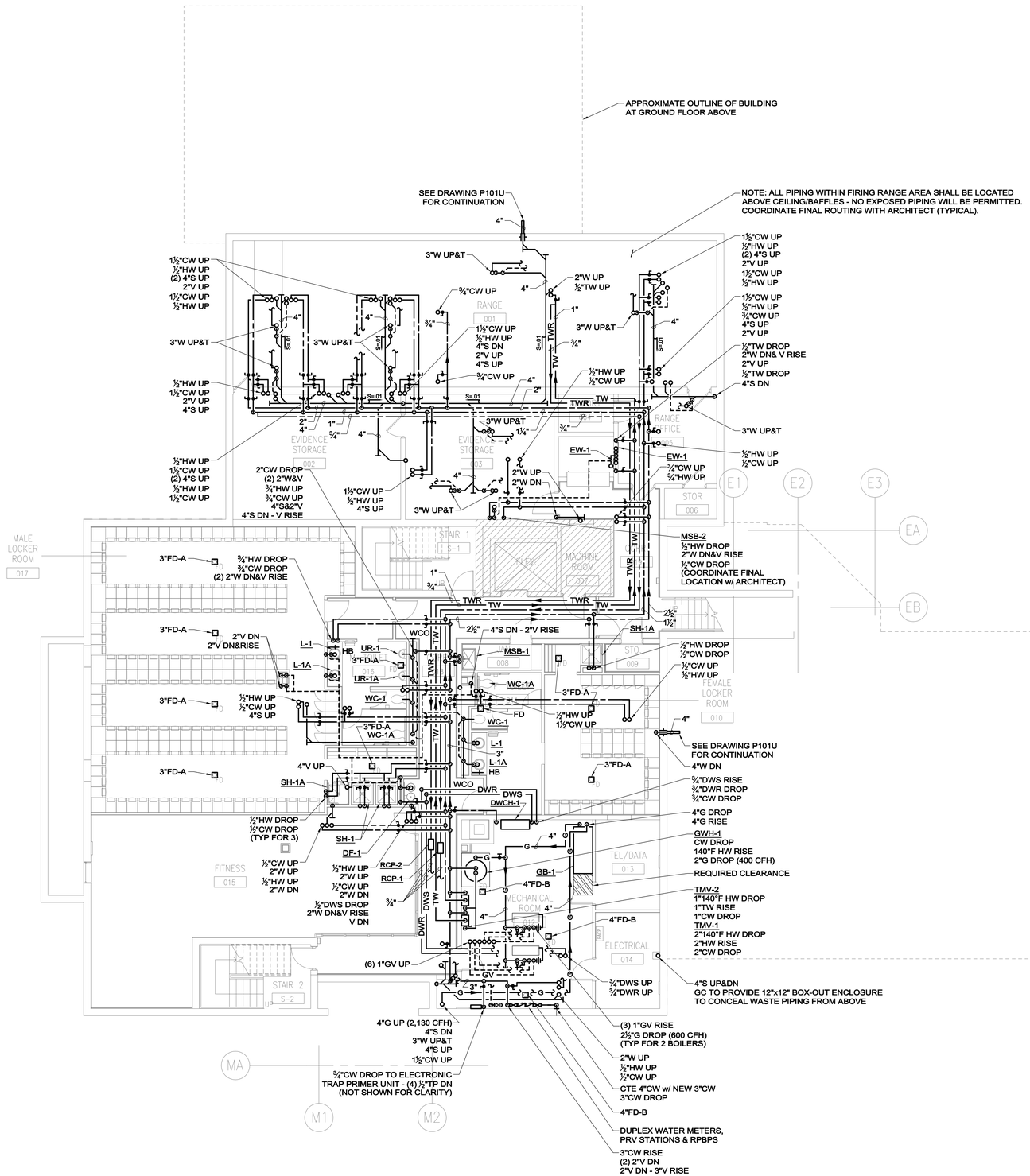
PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

P101U

SHEET 104 **OF** 157

REVIEWED BY: CIVIL:_____ ARCH:_____ STRU:_____ PLUM:_____ FIRE:_____ MECH:_____ ELEC:_____



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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

PLUMBING BASEMENT FLOOR PLAN

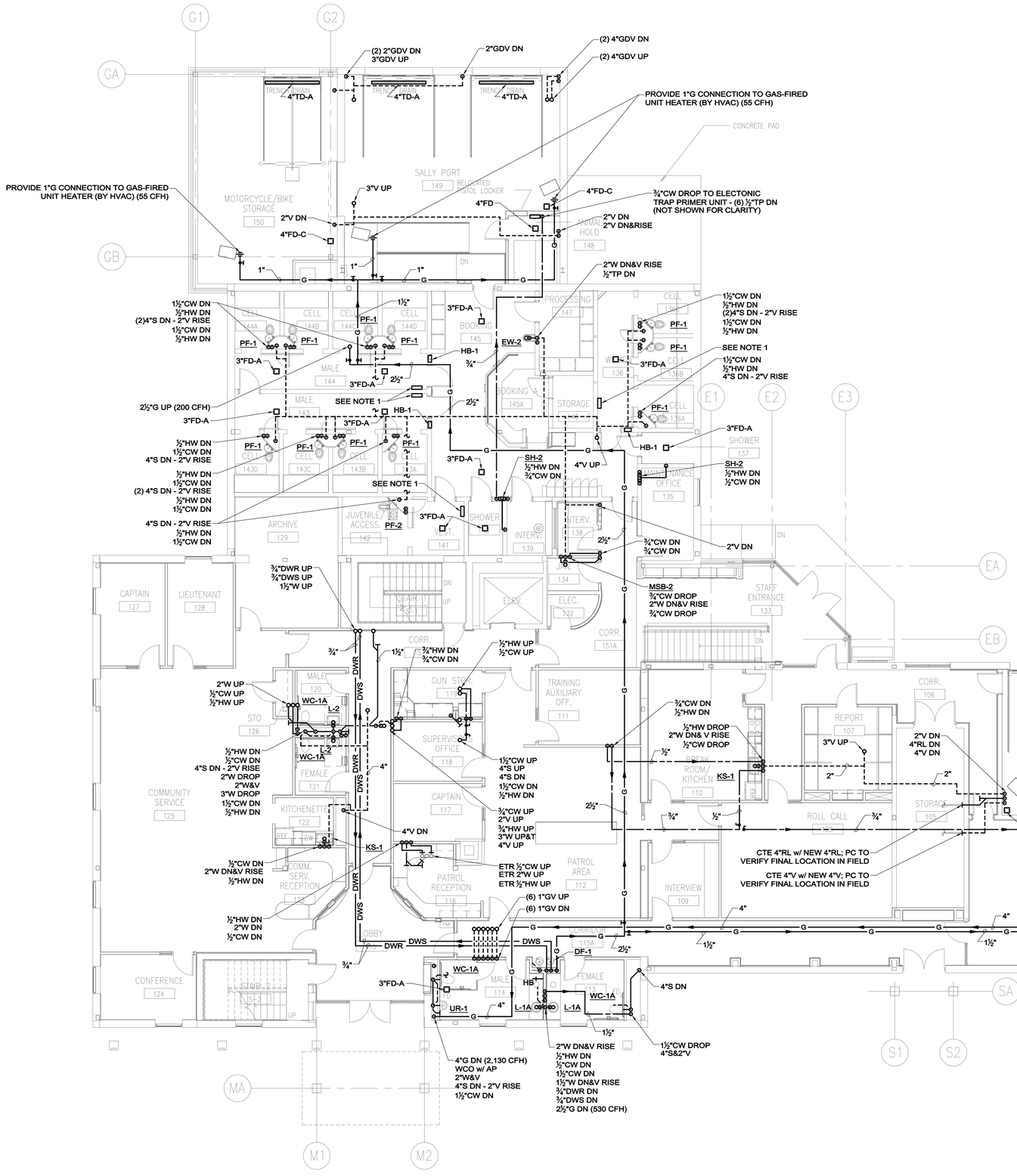
PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

P101

SHEET 105 **OF** 157

REVIEWED BY: CIVIL:_____ ARCH:_____ STRU:_____ PLUM:_____ FIRE:_____ MECH:_____ ELEC:_____



PLUMBING NOTES:

1. FLUSHING PANEL FOR CELL TOILETS - COORDINATE FINAL LOCATION w/ ARCHITECT.

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REVISIONS		
Number	Description	Date

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

PLUMBING FIRST FLOOR PLAN

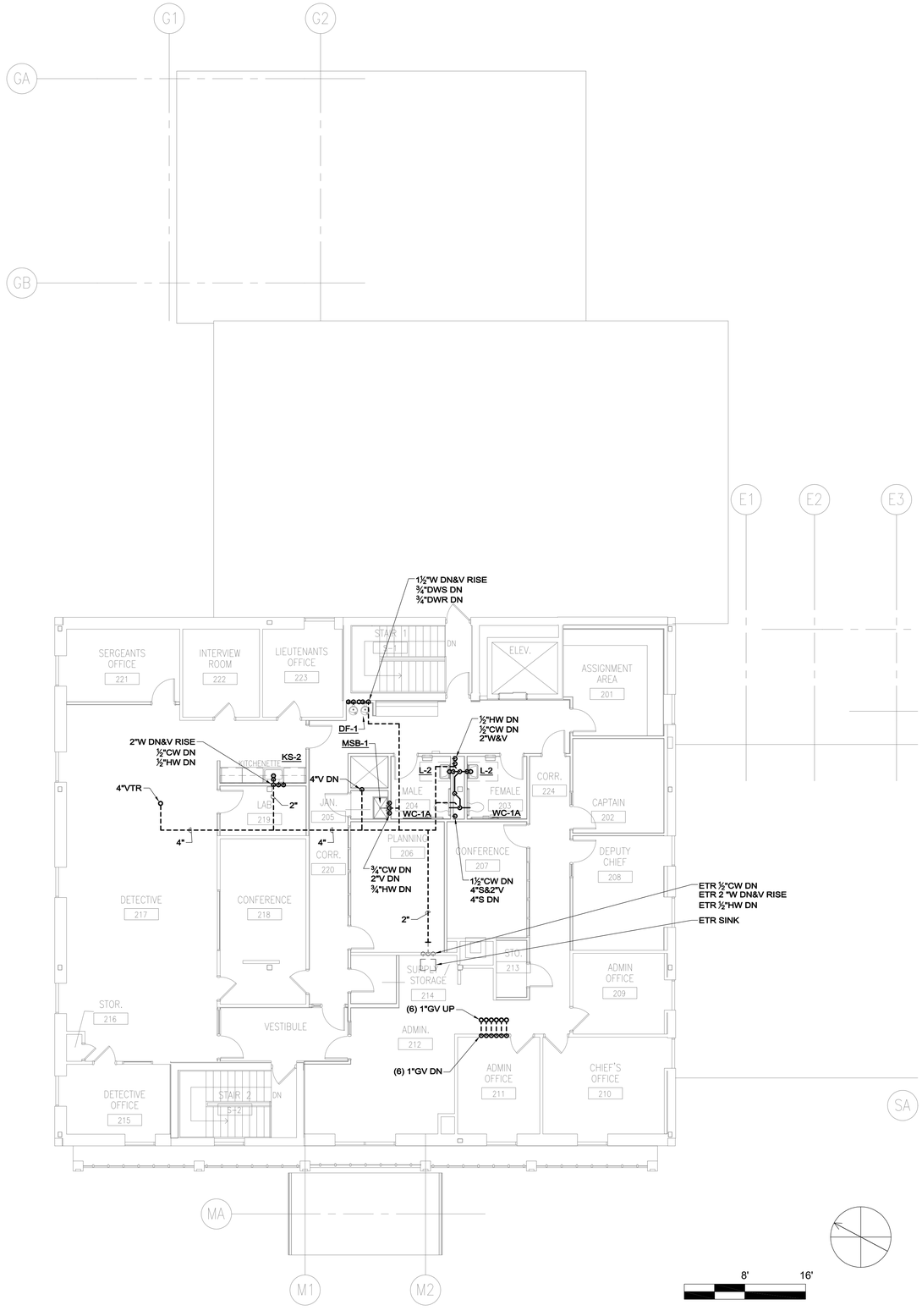
PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

P102

SHEET 106 **OF** 157

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



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REVISIONS		
Number	Description	Date

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

PLUMBING SECOND FLOOR PLAN

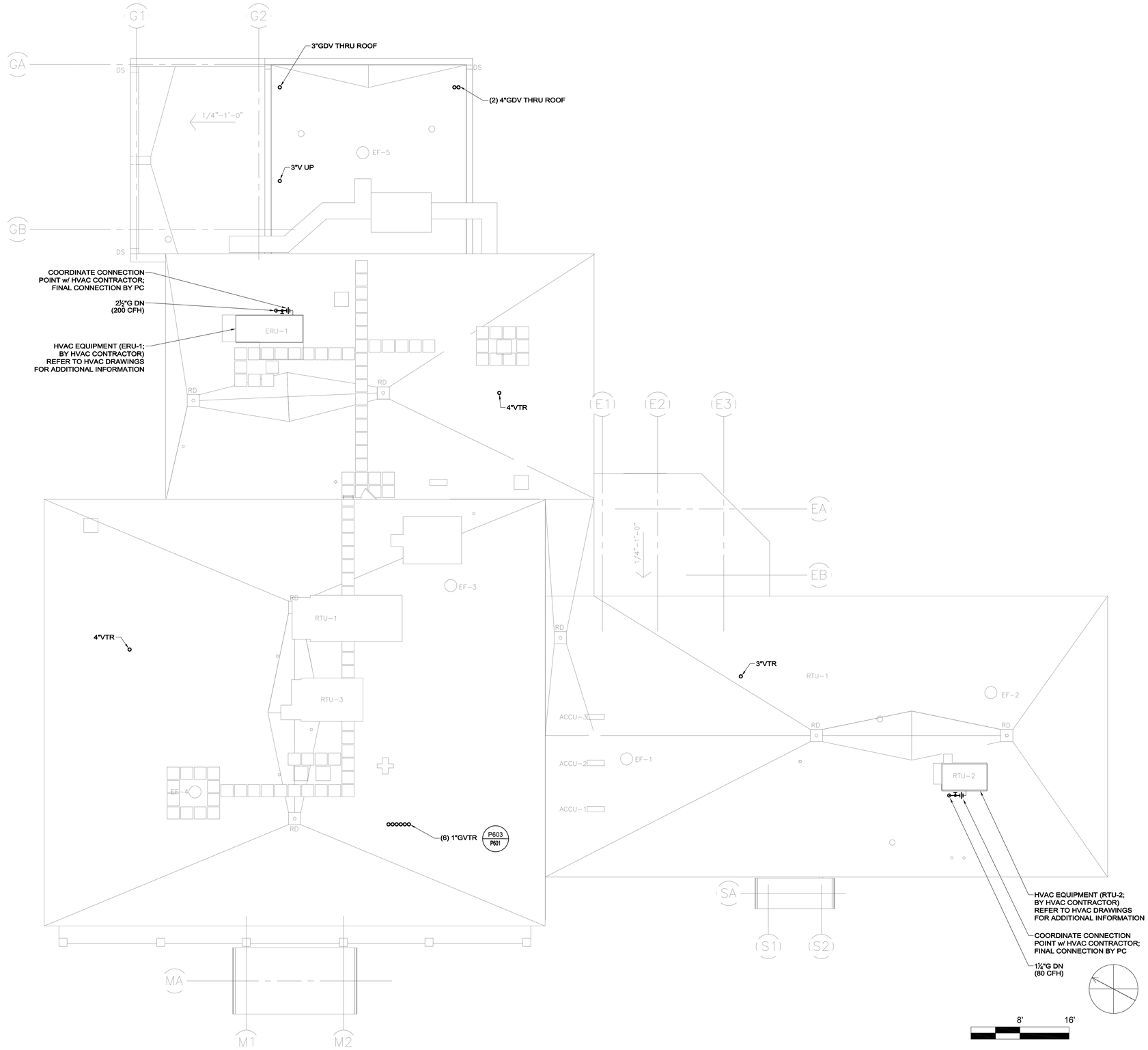
PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

P103

SHEET 107 **OF** 157

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

PLUMBING ROOF PLAN

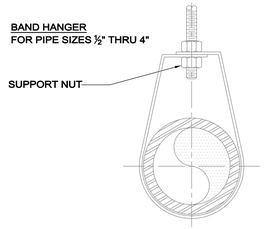
PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

P104

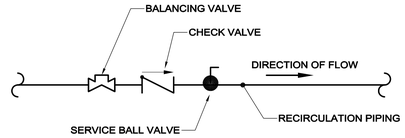
SHEET 108 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

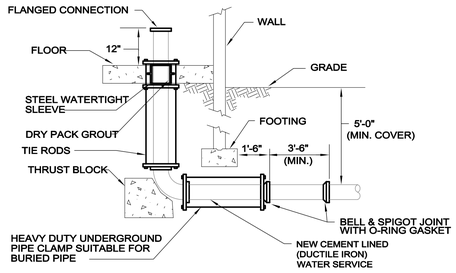


NOTES:
1. SEE SPECIFICATION FOR HANGER SIZES AND MATERIAL.
2. DISTANCE BETWEEN HANGERS SHALL BE IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODE.
3. HANGER ROD SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.

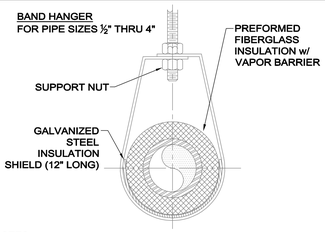
RDK | BAND HANGER | P800



RDK | BALANCING STATION DETAIL | P600

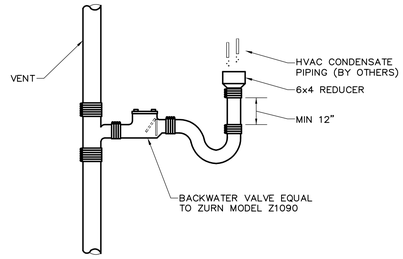


RDK | WATER SERVICE ENTRANCE DIAGRAM | P000
NO SCALE

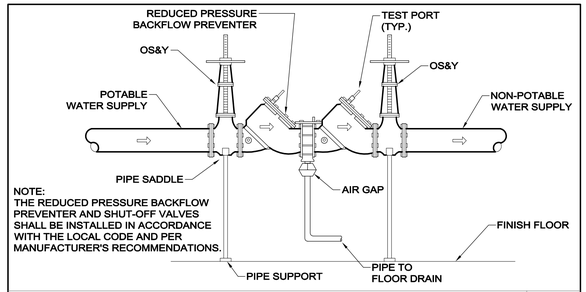


NOTES:
1. SEE SPECIFICATION FOR HANGER SIZES AND MATERIAL.
2. DISTANCE BETWEEN HANGERS SHALL BE IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODE.
3. HANGER ROD SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.

RDK | BAND HANGER WITH INSULATED PIPE | P801

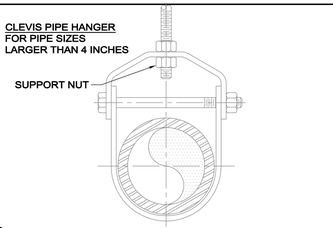


RDK | OPEN END DRAIN PIPED TO SANITARY | P604R



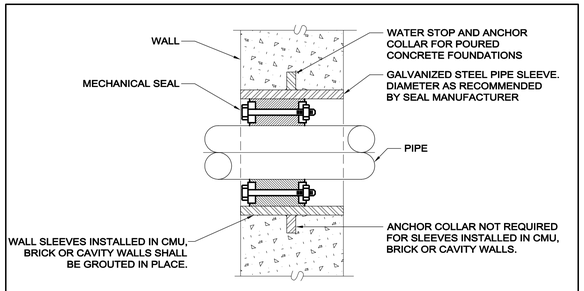
NOTE:
THE REDUCED PRESSURE BACKFLOW PREVENTER AND SHUT-OFF VALVES SHALL BE INSTALLED IN ACCORDANCE WITH THE LOCAL CODE AND PER MANUFACTURER'S RECOMMENDATIONS.

RDK | BACKFLOW PREVENTER (REDUCED PRESSURE BACKFLOW PREVENTER) | P101



NOTES:
1. SEE SPECIFICATION FOR HANGER SIZES AND MATERIAL.
2. DISTANCE BETWEEN HANGERS SHALL BE IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODE.
3. HANGER ROD SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.

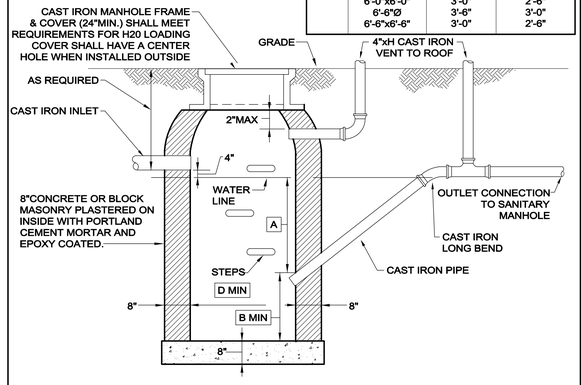
RDK | CLEVIS PIPE HANGER SUPPORT | P802



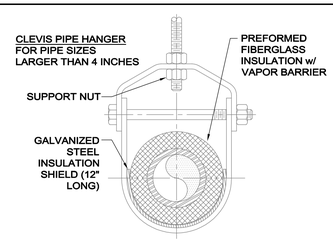
RDK | PIPE SLEEVE IN EXTERIOR WALL | P605

INLET SIZE	D	A	B
4"	3'6"Ø	3'-0"	2'-6"
5"	3'-6"Ø 3'-6"x3'-6" 4'-0"Ø 4'-0"x4'-0" 4'-6"Ø	5'-0" 4'-0" 3'-6" 3'-0" 3'-0"	4'-0" 3'-0" 3'-0" 2'-6" 2'-6"
6"	4'-0"Ø 4'-0"x4'-0" 4'-6"Ø 4'-6"x4'-6" 5'-0"Ø 5'-0"x5'-0"	5'-0" 4'-0" 4'-0" 3'-6" 3'-6" 3'-0"	4'-6" 3'-6" 3'-6" 3'-0" 3'-0" 2'-6"
8"	5'-0"Ø 5'-6"x5'-6" 6'-0"Ø 6'-0"x6'-0" 6'-6"Ø 6'-6"x6'-6"	6'-0" 4'-6" 4'-0" 3'-0" 3'-6" 3'-0"	5'-0" 4'-0" 3'-6" 2'-6" 3'-0" 2'-6"

NOTES:
1. GASOLINE/OIL INTERCEPTOR INSTALLATION SHALL CONFORM WITH THE STATE PLUMBING CODE.
2. IN OPEN PARKING GARAGES OR OPEN PARKING AREAS THE INLET MAY EXTEND BELOW THE WATER LINE A MAXIMUM OF 6 INCHES.

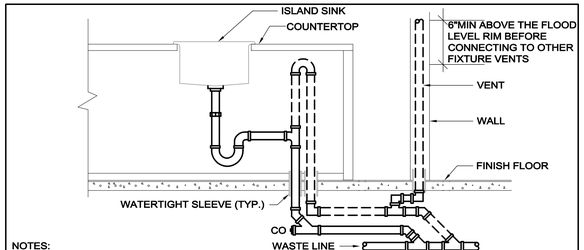


RDK | GASOLINE, OIL, AND SAND INTERCEPTOR | P500



NOTES:
1. SEE SPECIFICATION FOR HANGER SIZES AND MATERIAL.
2. DISTANCE BETWEEN HANGERS SHALL BE IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODE.
3. HANGER ROD SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.

RDK | CLEVIS PIPE HANGER SUPPORT WITH INSULATED PIPE | P803



NOTES:
1. DETAIL IS DIAGRAMMATIC, MODIFY PIPING TO CONFORM TO ACTUAL ROUGH IN LOCATIONS. CONTRACTOR IS RESPONSIBLE TO PROVIDE COMPLETE AND WORKING FIXTURES.

RDK | ISLAND SINK BOW VENT PIPING DIAGRAM | P606

DESIGNER NOTES TO BE DELETED: 1. INDICATE PIPE SIZES 2. X 3. X 4. X

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

PLUMBING DETAILS

PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: N.T.S.

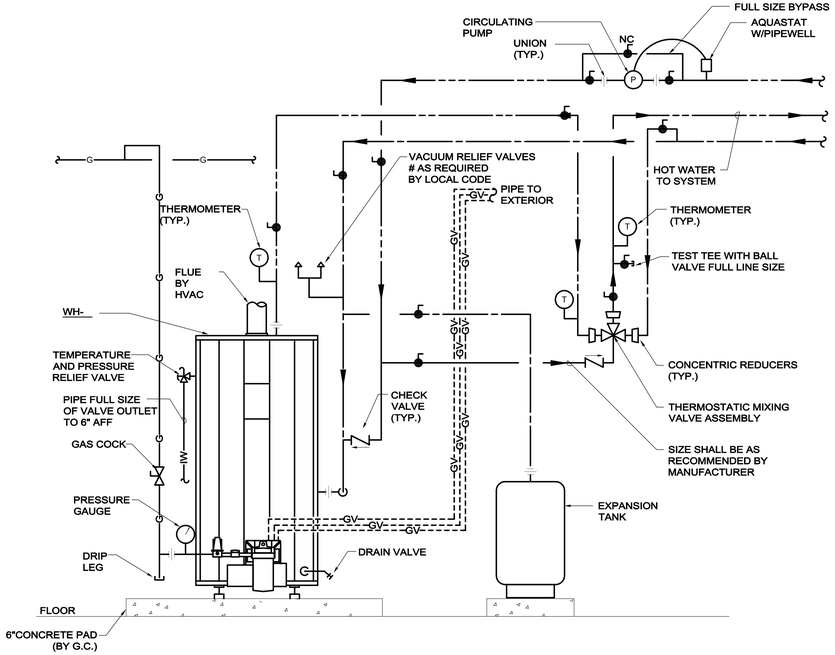
SHEET NUMBER:

P600

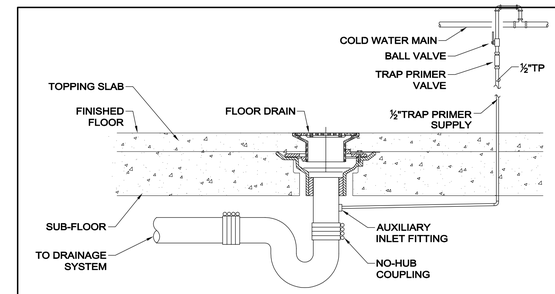
SHEET 109 **OF** 157

Q:\20130\130535 - Waltham Police HQ Renovation\1200 Drawings\1202 Plumbing\Plot Files\20130535 P600 PLUMBING DETAILS.dwg [Work] July 14, 2014 - 6:56pm dfraczek

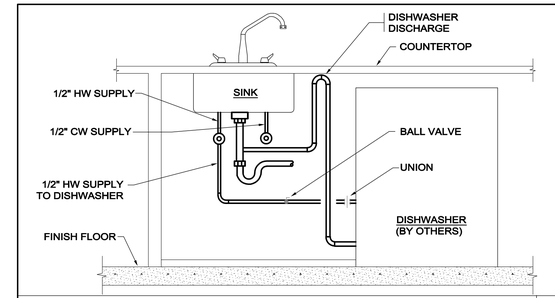
REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:



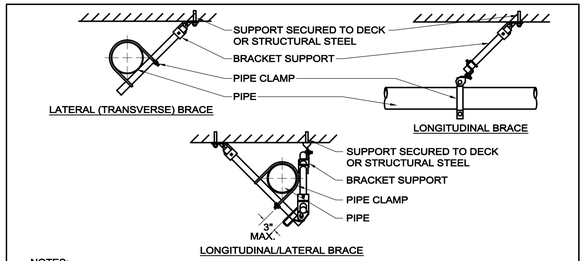
RDK | GAS FIRED WATER HEATER PIPING DIAGRAM | P1012



RDK | TRAP PRIMER CONNECTION | P602

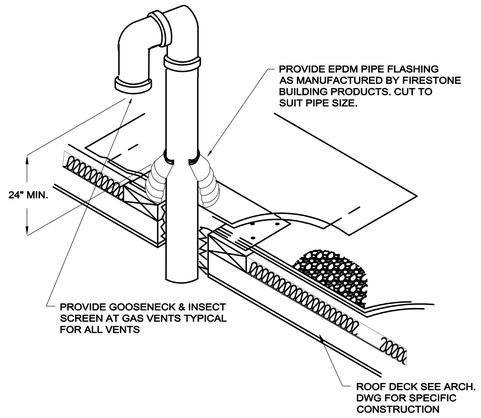


RDK | DISHWASHER CONNECTION UNDER COUNTER | P609



NOTES:
1. ALL APPLICABLE PLUMBING PIPING SYSTEMS SHALL BE SEISMICALLY BRACED AND INSTALLED PER APPLICABLE SECTIONS OF THE MASS. STATE BUILDING CODE LATEST EDITIONS.

RDK | SEISMIC PIPE BRACING DIAGRAM | P805



RDK | GAS VENT DETAIL | P603

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

PLUMBING DETAILS

PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

P601

SHEET 110 **OF** 157

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____

PLUMBING FIXTURE SCHEDULE

TAG NO.	FIXTURE				FITTING			TRAP	FLOW	CARRIER	REMARKS	
	TYPE	MANUFACTURER	MODEL	SIZE	TYPE	MANUFACTURER	MODEL					
WC-1	WATER CLOSET	TOTO	CT 708		SENSOR FLUSH VALVE	TOTO	ECOPOWER TET1GNC-32	INTEGRAL	1.6 GPF	PROVIDE TO SUIT	PROVIDE CARRIER SYSTEM EQUAL TO ZURN SERIES 1200. SPECIFIC MODEL AS REQUIRED FOR INSTALLATION ORIENTATION. PROVIDE TOTO MODEL SC534 OPEN FRONT SEAT	
WC-1A	WATER CLOSET (ADA)	TOTO	CT 708		SENSOR FLUSH VALVE	TOTO	ECOPOWER TET1GNC-32	INTEGRAL	1.6 GPF	PROVIDE TO SUIT	PROVIDE CARRIER SYSTEM EQUAL TO ZURN SERIES 1200. SPECIFIC MODEL AS REQUIRED FOR INSTALLATION ORIENTATION. PROVIDE TOTO MODEL SC534 OPEN FRONT SEAT. MOUNT AT ADA HEIGHT.	♿
UR-1	URINAL	TOTO	UT370		SENSOR FLUSH VALVE	TOTO	ECOPOWER TEU1GNC-12	INTEGRAL	1.0 GPF	PROVIDE TO SUIT		
UR-1A	URINAL (ADA)	TOTO	UT370		SENSOR FLUSH VALVE	TOTO	ECOPOWER TEU1GNC-12	INTEGRAL	1.0 GPF	PROVIDE TO SUIT		♿
L-1	LAVATORY (COUNTER-MOUNT)	TOTO	LT 501	20" X 17"	SELF GENERATING SENSOR OPERATED FAUCET, WITH THERMAL MIXING, 4 INCH CENTERS, TRIM PLATE	TOTO	TEL5GSC-10	1 1/4" X 1 1/2" 17 GA CAST BRASS CHROME PLATED P TRAP W/CO PLUG EQUAL TO MCGUIRE MCT150090B		SELF RIMMING	FAUCET SHALL BE SET FOR 10 SECOND RUN TIME	
L-1A	LAVATORY (COUNTER-MOUNT) (ADA)	TOTO	LT 501	20" X 17"	SELF GENERATING SENSOR OPERATED FAUCET, WITH THERMAL MIXING, 4 INCH CENTERS, TRIM PLATE	TOTO	TEL5GSC-10	1 1/4" X 1 1/2" 17 GA CAST BRASS CHROME PLATED P TRAP W/CO PLUG EQUAL TO MCGUIRE MCT150090B		SELF RIMMING	FAUCET SHALL BE SET FOR 10 SECOND RUN TIME	♿
L-2	LAVATORY (WALL HUNG) (ADA)	ZURN	Z5341	20" X 18"	SELF GENERATING SENSOR OPERATED FAUCET, WITH THERMAL MIXING, 4 INCH CENTERS, TRIM PLATE	TOTO	TEL5GSC-10	1 1/4" X 1 1/2" 17 GA CAST BRASS CHROME PLATED P TRAP W/CO PLUG EQUAL TO MCGUIRE MCT150090B		PROVIDE TO SUIT	FAUCET SHALL BE SET FOR 10 SECOND RUN TIME	♿
MSB-1	MOP BASIN (MOLDED STONE)	FIAT	MSB 2424	24" X 24" X 10"	1/2" H&CW	CHICAGO	445-897SRCXKCP	STAINLESS STEEL DRAIN BODY W/3" P-TRAP	-	FLOOR MOUNTED	PROVIDE HOSE & HOSE BRACKET FIAT MODEL 832-AA, AND MOP HANGER FIAT MODEL 889-CC	
MSB-2	UTILITY SINK/LAUNDRY TUB MOLDED STONE FLOOR MOUNTED	FIAT	FL-1	20 1/4" X 17 1/4" X 13"	1/2" H&CW	CHICAGO	526-CP	PROVIDE DRAIN AND STOPPER W/3" P-TRAP	-	FLOOR MOUNTED		
EW-1	EYE/FACE WASH RECESSED MOUNTED BARRIER FREE	GUARDIAN	GBF1735DP		½" TEPID WATER	-	-	-		WALL MOUNTED		♿
EW-2	EYE/FACE WASH WALL MOUNTED BARRIER FREE VANDAL RESISTANT	GUARDIAN	GBFVR1721-T		½" TEPID WATER	-	-	PROVIDE WITH OPTIONAL CHROME PLATED 1½" BRASS TAILPIECE AND TRAP		WALL MOUNTED		♿
KS-1	KITCHENETTE SINK w/ DISHWASHER CONNECTION (ADA)	JUST	SL-ADA-2225-A-GR	22"X25"X8"D	½" SWEAT X ½" COMP. SIMILAR TO MCGUIRE H171	CHICAGO	201-AGN8AE3V-317AB	1 1/2" X 1 1/2" 17 GA CAST BRASS CHROME PLATED P TRAP W/CO PLUG EQUAL TO MCGUIRE MCT150090B	2.2 GPM	SELF RIMMING	PROVIDE BASKET STRAINER AND 1/1/2" OD 17 GA BRASS TAILPIECE EQUAL TO WATTS BRASS NO.763 171 B	
KS-2	KITCHENETTE SINK (ADA)	JUST	SL-ADA-2225-A-GR	22"X25"X6"D	½" SWEAT X ½" COMP. SIMILAR TO MCGUIRE H171	CHICAGO	201-AGN8AE3V-317AB	1 1/2" X 1 1/2" 17 GA CAST BRASS CHROME PLATED P TRAP W/CO PLUG EQUAL TO MCGUIRE MCT150090B	2.2 GPM	SELF RIMMING	PROVIDE BASKET STRAINER AND 1/1/2" OD 17 GA CHROME PLATED BRASS OFFSET TAILPIECE EQUAL TO ELKAY LK AD35	♿
PF-1	LAV-W.C COMBINATION	BRADLEY	COMBI5500	-	-	-	-	INTEGRAL	1.6GPF	FLOOR MOUNTED	LAV-TOILET COMBY SHALL BE MANUFACTURED BY BRADLEY OR EQUAL BY ACORN OR WILLOUGHBY . UNIT SHALL INCLUDE: ON FLOOR MOUTING WITH WALL OUTLET, PENAL BUBBLER, AIR CONTROL VALVE SINGLE TEMPERATURE NON METERING, 1.6 GPF FLUSH VALVE, PAPER HOLDER, FLOOD-TROL AUTOMATIC, METAL TEMPLATE. PROVIDE A THERMOSTATIC MIXING VALVE LEONARD MODEL # TA-SB OR EQUAL BY SYMMONS OR LAWLER. CONTRACTOR TO FURNISH ONE FIXTURE AND TEMPLATE TO CELL MANUFACTURER FOR MOCK-UP PRIOR TO INSTALLATION. IMPORTANT: CONFIRM ALL OPTIONS WITH ARCHITECT PRIOR TO ORDERING.	
PF-2	LAV-W.C COMBINATION (ADA)	ACORN	1432-AL (OR AR) -2-BP-03-M-UFL-1.6-PH-FTA-MT-GBC	-	-	-	-	INTEGRAL	1.6GPF	FLOOR MOUNTED	LAV-TOILET COMBY SHALL BE MANUFACTURED BY ACORN OR EQUAL BY BRADLEY OR WILLOUGHBY . UNIT SHALL INCLUDE: ON FLOOR MOUTING WITH WALL OUTLET, PENAL BUBBLER, AIR CONTROL VALVE SINGLE TEMPERATURE METERING, 1.6 GPF FLUSH VALVE, PAPER HOLDER, FLOOD-TROL AUTOMATIC, METAL TEMPLATE, GRAB BAR CLOSURE PLATE. PROVIDE A THERMOSTATIC MIXING VALVE LEONARD MODEL # TA-SB OR EQUAL BY SYMMONS OR LAWLER. CONTRACTOR TO FURNISH ONE FIXTURE AND TEMPLATE TO CELL MANUFACTURER FOR MOCK-UP PRIOR TO INSTALLATION. IMPORTANT: CONFIRM ALL OPTIONS WITH ARCHITECT PRIOR TO ORDERING.	♿
SH-1	SHOWER (STAFF)		PC TO PROVIDE TERRAZZO SHOWER PAN (COLOR TBD BY ARCHITECT) AND SHOWER VALVE/TRIM ONLY; SHOWER STALL BUILT BY G.C.	48" X 36"		SYMMONS	SAFETYMIX 1-100-X-2.0	2" P-TRAP			PROVIDE SHOWER MODULE DRAIN EQUAL TO SIOUX CHIEF NO. 827-2B PROVIDE 2.0 GPM FLOW RESTRICTOR FOR SHOWER HEAD	
SH-2	SHOWER (DETENTION)	BUILT BY G.C.	-			SYMMONS	TEMPTROL	-			PROVIDE w/ 3"FD-A	
DF-1	DRINKING FOUNTAIN WALL MOUNTED HI-LO 18 GAUGE, TYPE 304 STAINLESS STEEL BOWL ASSEMBLY W/BACK PANEL AND ACCESS PANEL PUSH BUTTON CONTROL	HAWS	1011 MS		½" DWS						PROVIDE (1) UNIT PER FLOOR. FINAL LOCATIONS TBD BY ARCHITECT.	♿
HB	HOSE BIBB	CHICAGO	952-CP	-	-	-	-	-	-	-	LOCATED IN TOILET ROOMS	
HB-1	ENCLOSED HOSE BIBB	ZURN	Z1330	-	-	-	-	-	-	-	LOCATED IN CORRIDOR BETWEEN DETENTION CELLS	
WH	WALL HYDRANT	JAY R SMITH	5509QT	-	-	-	-	-	-	-	REFER TO PLANS FOR LOCATIONS	

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WATER HAMMER ARRESTER SCHEDULE

TYPE	FIXTURE UNIT RATING	MODEL
SA "A"	1-11	JAY R. SMITH 5005
SA "B"	12-32	JAY R. SMITH 5010
SA "C"	33-60	JAY R. SMITH 5020
SA "D"	61-113	JAY R. SMITH 5030
SA "E"	114-154	JAY R. SMITH 5040
SA "F"	155-330	JAY R. SMITH 5050

GAS FIRED WATER HEATER SCHEDULE

TAG NO.	STORAGE CAPACITY (gal.)	INPUT (MBH)	RECOVERY		GAS PRESSURE ("W.C.)	FLUE SIZE	TEMP. SETTING (°F)	ELECTRICAL DATA			MANUFACTURER	MODEL NO.	REMARKS
			RATE (GPH)	DEG. RISE (°F)				VOLTS	PHASE	HZ			
GWH-1	130	400	465	100	5.2-10"		140	120	1	60	STATE INDUSTRIES	SUF 130 400 NEA	

DRINKING WATER REMOTE CHILLER/PURIFIER EQUIPMENT SCHEDULE

TAG NO.	LOCATION	QTY	FIXTURES SERVED	DIMENSIONS	FILTER/PURIFIER	RECIRC. PUMP	COMP	POWER	MFG./MODEL #	REMARKS
DWCH-1	MECH RM 012	1		32"Wx30"Hx11.5"D	TMP2-07	1/25 HP	1/3 HP	115/60/1	FILTRINE ES-6-RFC-FS	SEE NOTES BELOW

NOTES:

CHILLER/PURIFIER SYSTEM TO INCLUDE:
1. WALL INSERT ASSEMBLY WITH HINGED STAINLESS STEEL GRILLE.
2. FILTER/PURIFIER TO BE NSF CERTIFIED TO REMOVE DIRT, RUST, SEDIMENT, CHLORINE, BAD TASTE AND ODORS, CYSTS AND PARTICLES 0.5 MICRON AND LARGER.
3. DRINKING WATER FICTURES AS SHOWN ON DRAWINGS AND FIXTURE SCHEDULE.
4. ½" RECIRCULATION PIPING LOOP FROM REMOTE CHILLER/PURIFIER TO FIXTURE AS SHOWN ON PLUMBING DRAWINGS.

DOMESTIC HOT WATER RECIRCULATION PUMP SCHEDULE

TAG NO.	TYPE	CAPACITY (GPM)	HEAD (FT)	ELECTRICAL DATA					MANUFACTURER	MODEL NO.	REMARKS
				HP	VOLTS	HZ	PHASE	RPM			
RCP-1	IN-LINE	5	10	⅛	115	60	1	3250	TACO	0010-BF3	
RCP-2	IN-LINE	5	10	⅛	115	60	1	3250	TACO	0010-BF3	

MIXING VALVE SCHEDULE

TAG NO.	CW INLET	HW INLET	TEMPERED OUTLET	FLOW (GPM)	MIXED TEMP. (°F)	SYSTEM	MANUFACTURER	MODEL NO.	REMARKS
TMV-1	1	1	1¼	23	120	HW	LAWLER	802	
TMV-2	½	½	½"	3	80	TW	LAWLER	911E/F	PROVIDE WITHIN 18 GA SURFACE MOUNTED CABINET LOCATED ABOVE FIXTURE SERVED

NATURAL GAS BOOSTER SCHEDULE

TAG NO.	INLET PRESSURE ("W.C.)	OUTLET PRESSURE ("W.C.)	INPUT (CFH)	ARRANGEMENT (SIMPLEX/DUPLEX)	ELECTRICAL DATA				MANUFACTURER	MODEL NO.	REMARKS
					HP	VOLTS	HZ	PHASE			
GB-1	4	7	2,130	SIMPLEX	1/2	208	60	3	ETTER	GASPOD-130-S-PCFM-REG-BP	LOCATED IN MECH RM 012

EXPANSION TANK SCHEDULE

TAG NO.	TANK VOL. (GAL.)	TANK ACCEPTANCE (GAL.)	MANUFACTURER	MODEL NO.	HEIGHT (IN.)	DIAMETER (IN.)	CONNECTION SIZE (IN.)
ET-1	9.2	2	AMTROL	ST-30-V-C	12"	16.25	¾"

GAS FIRED EQUIPMENT SCHEDULE

TAG NO. / EQUIPMENT	QTY.	INPUT (EA.) CFH	TOTAL INPUT CFH	REQ'D PRESS. "W.C. (MIN-MAX)	LOCATION	REMARKS
GWH-1	1	400	400	5.2-10	MECH ROOM 012	
RTU-2	1	80	80	4.5-14	LOWER ROOF	RTU BY HVAC
ERU-1	1	200	200	7-14	LOWER ROOF	ERU BY HVAC
GUH-1	1	85	85	6-7	VEHICLE BAYS 101	GUH BY HVAC
GUH-2	1	55	55	6-7	SALLY PORT 149	GUH BY HVAC
GUH-3	1	55	55	6-7	SALLY PORT 149	GUH BY HVAC
GUH-4	1	55	55	6-7	MOTORCYCLE/BIKE STORAGE 150	GUH BY HVAC
B-1	1	600	600	4-14	MECH ROOM 012	BOILER BY HVAC
B-2	1	600	600	4-14	MECH ROOM 012	BOILER BY HVAC
		TOTAL LOAD	2,130			

PLUMBING FIXTURE CONNECTION SCHEDULE

TAG NO.	FIXTURE	WASTE	VENT	HOT WATER	COLD WATER	TEMPERED WATER	REMARKS
WC-1	WATER CLOSET	4"	2"	-	1"	-	
WC-1A	WATER CLOSET (ADA)	4"	2"	-	1"	-	
UR-1	URINAL	2"	2"	-	¾"	-	
UR-1A	URINAL (ADA)	2"	2"	-	¾"	-	
L-1	LAVATORY	1½"	1½"	½"	½"	-	
L-1A	LAVATORY (ADA)	1½"	1½"	½"	½"	-	
L-2	LAVATORY (ADA)	1½"	1½"	½"	½"	-	
MSB-1	MOP SINK	3"	2"	¾"	¾"	-	
MSB-2	MOP SINK	3"	2"	¾"	¾"	-	
EW-1	EMERGENCY EYEWASH	2"	2"	-	-	½"	
EW-2	EMERGENCY EYEWASH	2"	2"	-	-	½"	
KS-1	KITCHENETTE SINK (ADA)	2"	2"	½"	½"	-	
KS-2	KITCHENETTE SINK (ADA)	2"	2"	½"	½"	-	
PF-1	LAV-W.C COMBINATION	4"	2"	½"	(1) 1" (1) ½"	-	
PF-2	LAV-W.C COMBINATION (ADA)	4"	2"	½"	(1) 1" (1) ½"	-	
SH-1	SHOWER (STAFF)	2"	2"	½"	½"	-	
SH-1A	SHOWER (STAFF) (ADA)	2"	2"	½"	½"	-	
SH-2	SHOWER (DETENTION)	-	-	½"	½"	-	PROVIDE w/ 3"FD-A
DF-1	DRINKING FOUNTAIN	1½"	1½"	-	½"	-	
HB	HOSE BIBB	-	-	-	½"	-	
HB-1	ENCLOSED HOSE BIBB	-	-	-	½"	-	
WH	WALL HYDRANT	-	-	-	¾"	-	

DRAIN SCHEDULE

TAG NO.	TYPE	MANUFACTURER	MODEL NO.	STRAINER	REMARKS
FD-A	FLOOR DRAIN	JAY R. SMITH	2005-Y-B-P050-B-U	6"	LOCATED IN TOILET ROOMS & HOLDING CELL VESTIBULES. PROVIDE W/ VANDAL PROOF HARDWARE, SQUARE STRAINER AND TRAP PRIMER CONNECTION. DRAINS TO BE PROVIDED WITH "PRECISION PLUMBING PRODUCTS" TRAP PRIMER TO SUIT.
FD-B	FLOOR DRAIN	JAY R. SMITH	2230-C	12"	LOCATED IN MECHANICAL AREAS - DRAINS TO BE PROVIDED WITH "PRECISION PLUMBING PRODUCTS" TRAP PRIMER TO SUIT.
FD-C	FLOOR DRAIN	JAY R. SMITH	2230-C-F37	12"	LOCATED IN FLEET GARAGE - SERVES INDIRECT WASTE FROM EQUIPMENT. PROVIDE WITH ANTI-FLOOD RIM.
FD-D	FLOOR DRAIN	JAY R. SMITH	2253-C-M	14"	GARAGE DRAIN - INSTALLED IN CIP SLAB ON GRADE. DRAINS TO BE PROVIDED WITH "PRECISION PLUMBING PRODUCTS" TRAP PRIMER TO SUIT.
TD-A	TRENCH DRAIN	ABT, INC	TRENCHFORMER TFX 6"-24"	12" WIDE	LOCATED IN SALLYPORT & MOTORCYCLE STORAGE GARAGE. PROVIDE TRAP PRIMER CONNECTION. PROVIDE HEELPROOF ADA-COMPLAINT GRATE w/ VANDAL-RESISTANT HARDWARE. PROVIDE LENGTHS TO SUIT; APPROXIMATELY 8'L EACH.

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SPRINKLER SCHEDULE

SYMBOL	CONDITION	RESPONSE	ORIENTATION	COVERAGE	K-FACTOR	FINISH	TEMP RATING
●	NEW	QUICK	CONCEALED PENDENT/ PENDENT	STANDARD	5.6	WHITE/CHROME	ORDINARY
◐	NEW	QUICK	CONCEALED PENDENT/PENDENT (OPTION 1)	STANDARD	5.6	WHITE/CHROME	ORDINARY
◒	NEW	QUICK	CONCEALED PENDENT/PENDENT (OPTION 2)	STANDARD	5.6	WHITE/CHROME	ORDINARY
◎	NEW	QUICK	UPRIGHT (OPTION 1)	STANDARD	5.6	BRASS	ORDINARY
○	NEW	QUICK	UPRIGHT (OPTION 2)	STANDARD	5.6	BRASS	ORDINARY
⊘	NEW	QUICK	DRY PENDENT/UPRIGHT	STANDARD	5.6	BRASS	ORDINARY
▼	NEW	QUICK	HORIZONTAL WET SIDEWALL	STANDARD	5.6	WHITE/CHROME/BRASS	ORDINARY
▽	NEW	QUICK	HORIZONTAL DRY SIDEWALL	STANDARD	5.6	WHITE/CHROME/BRASS	ORDINARY
⧨	NEW	QUICK	HORIZONTAL SIDEWALL (OPTION 1)	STANDARD	5.6	WHITE/CHROME/BRASS	ORDINARY
⧩	NEW	QUICK	HORIZONTAL SIDEWALL (OPTION 2)	STANDARD	5.6	WHITE/CHROME/BRASS	ORDINARY

GENERAL NOTES

1. FIRE PROTECTION WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE BUILDING CODE, LOCAL AMENDMENTS AND THE REFERENCED NATIONAL FIRE PROTECTION ASSOCIATION CODES INCLUDING 13, 14, 20, AND 24.
2. ALL FIRE PROTECTION SYSTEMS, EQUIPMENT, PIPING AND VALVES SHALL BE INSTALLED AND TESTED BY A SPRINKLER CONTRACTOR LICENSED BY THE STATE AND EXPERIENCED IN THE INSTALLATION OF SPRINKLER SYSTEMS.
3. OBTAIN ALL PERMITS AND PAY ALL FEES ASSOCIATED WITH THIS WORK PRIOR TO COMMENCEMENT.
4. PIPING AND EQUIPMENT IS SHOWN DIAGRAMMATICALLY THE ACTUAL ROUTING OF PIPING AND EXACT LOCATION OF EQUIPMENT SHALL BE DETERMINED IN THE FIELD.
5. THE DRAWINGS SUGGEST ROUTING OF PIPING, PIPE SIZES AND APPROXIMATE LOCATION OF HEADS. THE CONTRACTOR SHALL PRODUCE A COMPLETE SET OF WORKING PLANS IN ACCORDANCE WITH NFPA 13. THE SYSTEM SHALL BE HYDRAULICALLY CALCULATED PER THE DESIGN CRITERIA SPECIFIED. ALL PLANS AND CALCULATIONS SHALL BE STAMPED BY THE CONTRACTOR'S REGISTERED FIRE PROTECTION ENGINEER AND SHALL BE SUBMITTED TO THE LOCAL AUTHORITY AND OWNER'S UNDERWRITER FOR APPROVAL.
6. IN ADDITION TO REVIEWING AND COORDINATING WITH THE OTHER TRADES (CIVIL, STRUCTURAL, ARCHITECTURAL, HVAC AND ELECTRICAL) THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE DETAILS OF CONSTRUCTION.
7. FURNISH AND INSTALL ALL NECESSARY PIPING EQUIPMENT SUPPORTS AND ANY EQUIPMENT NOT SHOWN ON DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS BUT NECESSARY TO PROVIDE A COMPLETE AND WORKABLE SYSTEM.
8. PROVIDE ACCESS TO ALL EQUIPMENT REQUIRING PERIODIC SERVICE AND MAINTENANCE.
9. FURNISH ACCESS PANELS TO THE GENERAL CONTRACTOR FOR INSTALLATION UNDER THE RELATED TRADES.
10. PITCH ALL PIPING TO DRAIN, PROVIDE AN AUXILIARY DRAIN AT ALL LOW POINTS.
11. PROVIDE WATER TIGHT SLEEVES ON ALL PIPES PASSING THROUGH EXTERIOR WALLS AND BASEMENT FLOORS.
12. ALL VALVES CONTROLLING FIRE PROTECTION MAINS SHALL BE PROVIDED WITH TAMPER/SUPERVISORY SWITCHES WIRED TO THE FIRE ALARM CONTROL PANEL.
13. CONTRACTOR SHALL PROVIDE FIRE STOPPING FOR ALL PENETRATIONS THRU FIRE WALLS AND FIRE RATED SEPERATIONS, CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL DRAWINGS FOR LOCATIONS AND RATINGS OF ALL FIRE RATED SEPARATIONS AND BARRIERS, INSTALLATION OF FIRE STOPPING SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
14. ALL FIRE PROTECTION SYSTEMS SHALL BE SEISMICALLY BRACED ACCORDING TO THE APPLICABLE SECTIONS OF THE STATE BUILDING CODE AND THE REFERENCED EDITION OF NFPA-13.

ABBREVIATIONS

ACT	ACOUSTICAL TILE
AFF	ABOVE FINISH FLOOR
AP	ACCESS PANEL
BLDG	BUILDING
BFP	BACKFLOW PREVENTER
CLG	CEILING
CLDI	CEMENT LINED DUCTILE IRON
CONT	CONTINUATION
D	DRY SPRINKLER SYSTEM
DCVA	DOUBLE CHECK VALVE ASSEMBLY
DIA	DIAMETER
DN	DOWN
DSR	DRY SYSTEM MAIN RISER
DWG	DRAWING
EAB	ELECTRIC ALARM BELL
EL/ELEV	ELEVATION
F	FIRE SERVICE MAIN/BUILDING WET SUPPLY PIPING
FDC	FIRE DEPARTMENT CONNECTION
FFE	FINISH FLOOR ELEVATION
FLR	FLOOR
FP	FIRE PROTECTION
FS	FLOW SWITCH
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
INV	INVERT
LPS	LOW PRESSURE SWITCH
MECH	MECHANICAL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
NIC	NOT IN CONTRACT
OED	OPEN END DRAIN
OS&Y	OUTSIDE SCREW & YOLK
PG	PRESSURE GAUGE
PIV	POST INDICATOR VALVE
PRV	PRESSURE REDUCING/REGULATING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
SPEC	SPECIFICATION
SPD	SPRINKLER DRAIN
SPR	WET PIPE SPRINKLER SYSTEM
TS	TAMPER SWITCH
TYP	TYPICAL
VIV	VALVE IN VERTICAL
WSR	WET SYSTEM MAIN RISER
ZCA	SPRINKLER ZONE CONTROL ASSEMBLY

PIPING LINETYPES

- F — FIRE SERVICE/MAIN/BUIDING WET PIPING
- SPR — WET PIPE SPRINKLER SYSTEM
- FDC — FIRE DEPARTMENT CONNECTION PIPING
- SPD — SPRINKLER DRAIN
- D — DRY PIPE SPRINKLER SYSTEM

PIPING SYMBOLS

- OED — OPEN END DRAIN
- DIRECTION OF SLOPE
- ELBOW UP OR RISE
- ELBOW DOWN OR DROP
- TEE LOOKING DOWN
- TEE LOOKING UP
- VALVE IN VERTICAL
- FLOW IN DIRECTION OF ARROW
- CAP OR END OF PIPE
- REDUCER/INCREASER
- PIPE SLEEVE
- UNION

EQUIPMENT & VALVES

- WET SYSTEM MAIN RISER
- DRY SYSTEM MAIN RISER
- ANGLE VALVE
- BALL VALVE
- SUPERVISED BUTTERFLY VALVE
- CHECK VALVE
- BACKFLOW PREVENTER
- ZCA — SPRINKLER ZONE CONTROL ASSEMBLY
- FS — FLOW SWITCH
- GLOBE VALVE
- SUPERVISED OS&Y VALVE
- PRESSURE REDUCING/REGULATING VALVE
- PS — PRESSURE SWITCH
- PG — PRESSURE GAUGE
- ELECTRIC ALARM BELL
- WALL MOUNTED FIRE DEPARTMENT INLET CONNECTION

ANNOTATIONS

- 1 / FP-1 — DETAIL DESIGNATION NUMBER / DETAIL DESIGNATION DRAWING
- # / # — HYDRAULIC CALCULATION NODE POINT

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

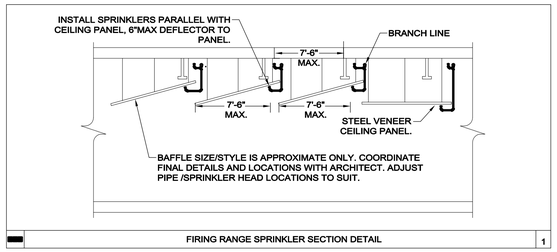
FIRE PROTECTION LEGEND, NOTES & ABBREVIATIONS

PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: N.T.S.

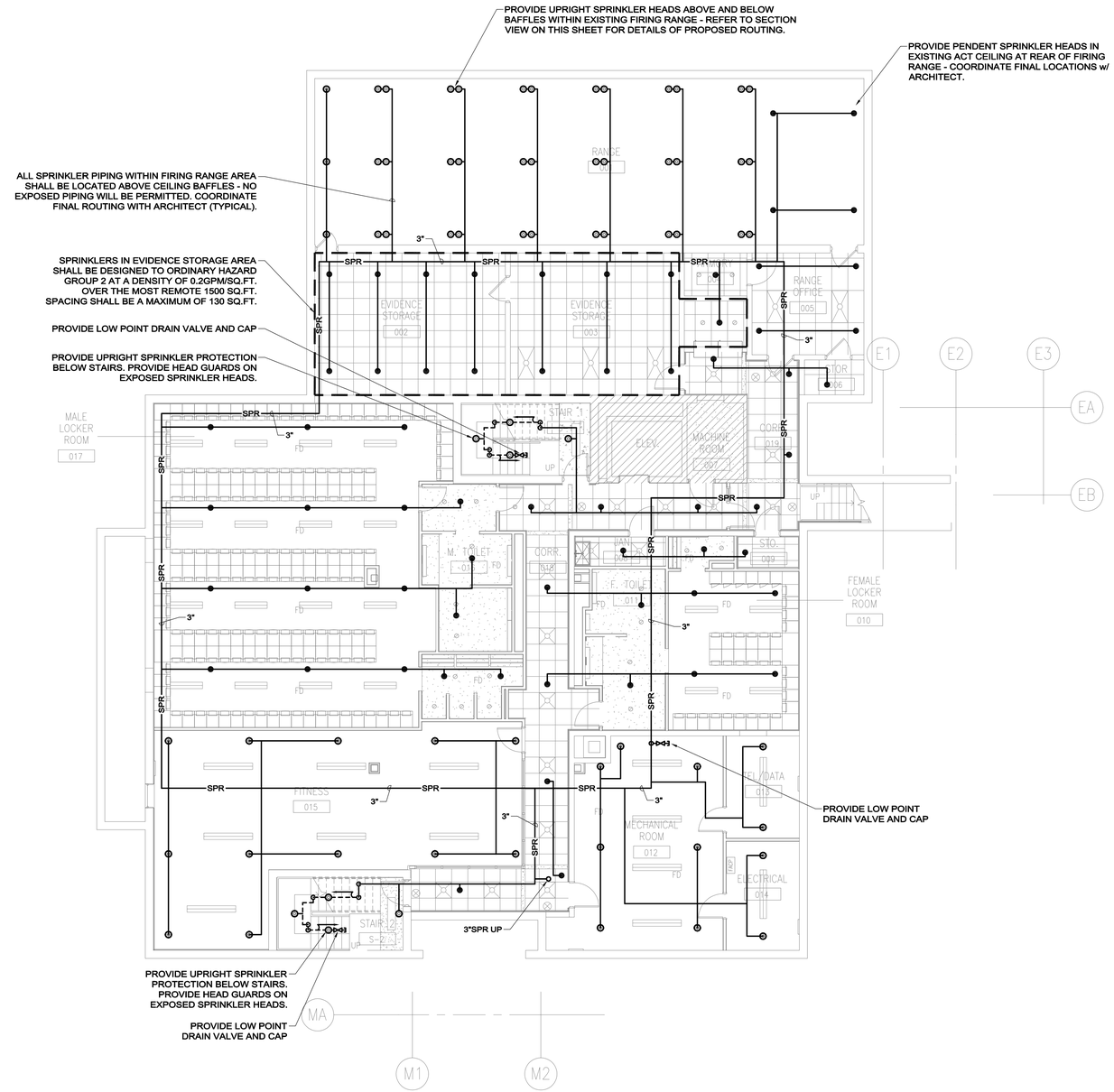
SHEET NUMBER:

FP000

SHEET 113 **OF** 157



FIRING RANGE SPRINKLER SECTION DETAIL 1



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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

FIRE PROTECTION BASEMENT FLOOR PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: 1/8"=1'-0"

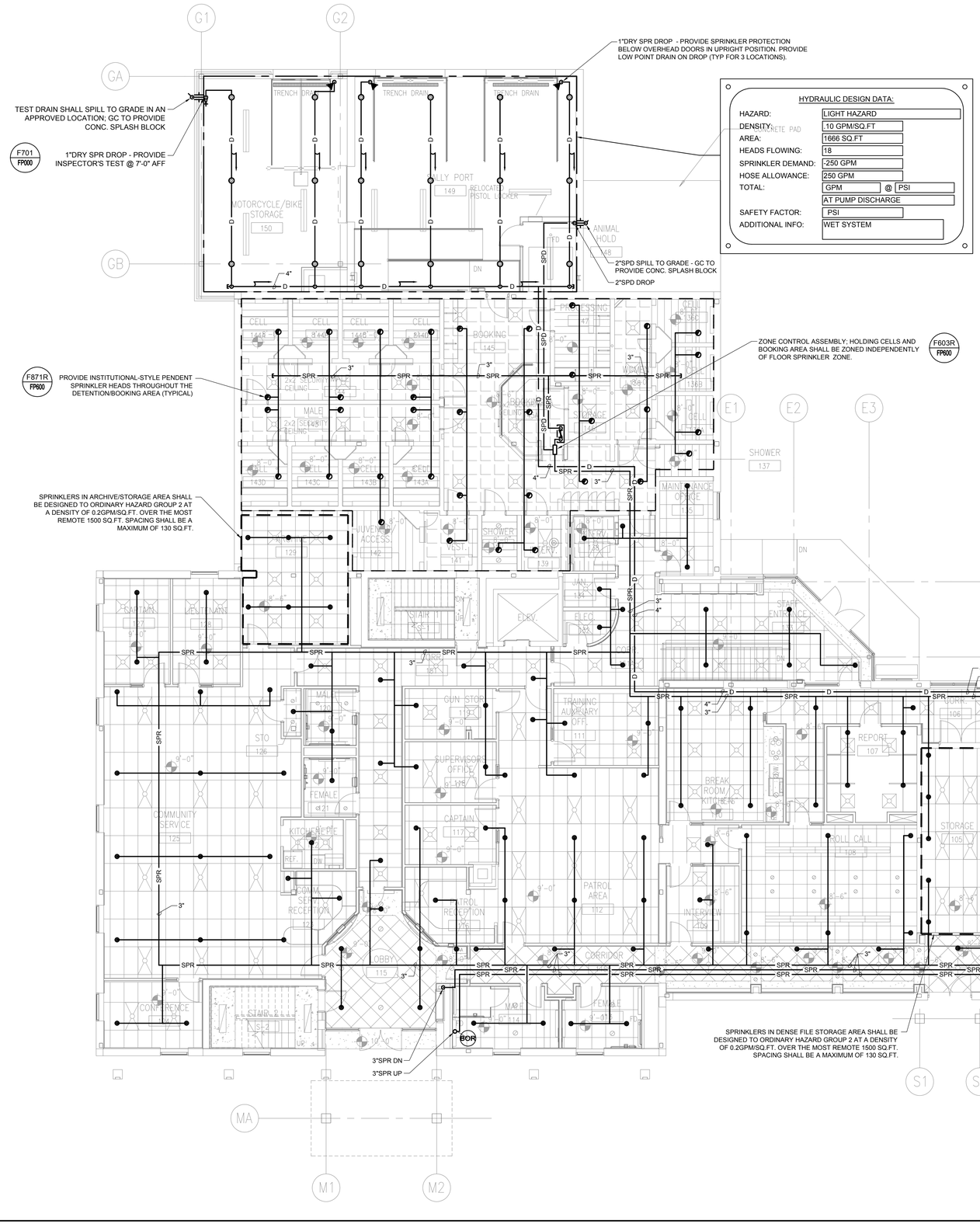
SHEET NUMBER:

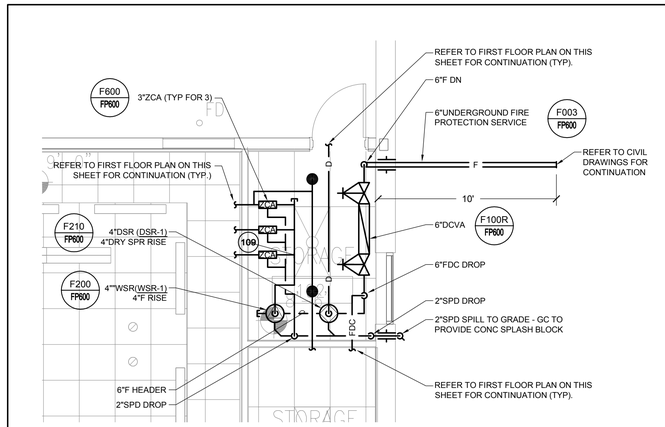
FP101

SHEET 114 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:





FIRE PROTECTION - SPRINKLER ROOM PART PLAN

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

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

FIRE PROTECTION FIRST FLOOR PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: 1/8"=1'-0"

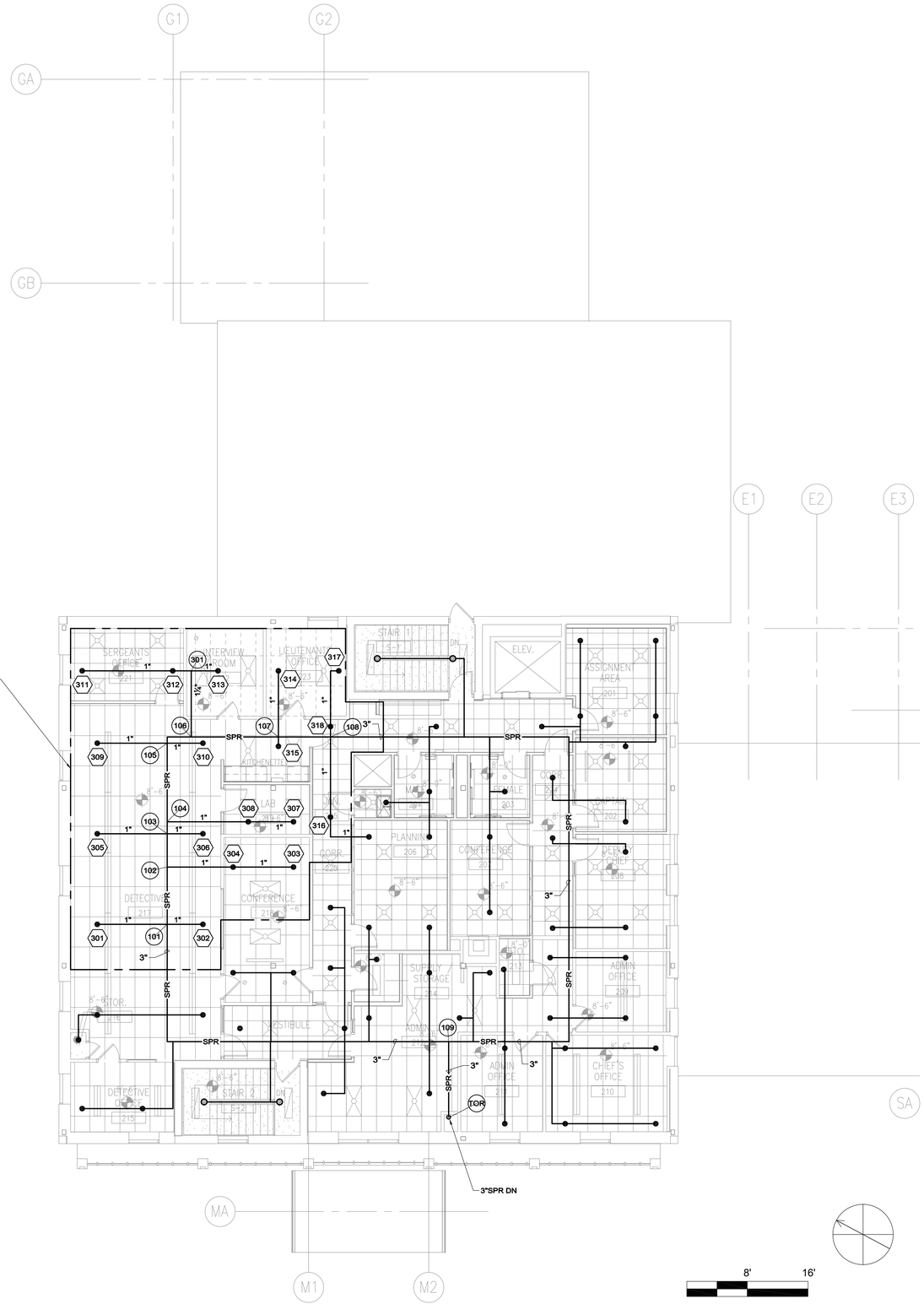
SHEET NUMBER:

FP102

SHEET 115 **OF** 157

REVIEWED BY: CIVIL: ____ ARCH: ____ STRU: ____ PLUM: ____ FIRE: ____ MECH: ____ ELEC: ____

HYDRAULIC DESIGN DATA:	
HAZARD:	LIGHT HAZARD
DENSITY:	.10 GPM/SQ.FT
AREA:	1545 SQ.FT
HEADS FLOWING:	18
SPRINKLER DEMAND:	250 GPM
HOSE ALLOWANCE:	250 GPM
TOTAL:	GPM @ PSI
	AT PUMP DISCHARGE
SAFETY FACTOR:	PSI
ADDITIONAL INFO:	WET SYSTEM



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REVISIONS		
Number	Description	Date

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

FIRE PROTECTION SECOND FLOOR PLAN

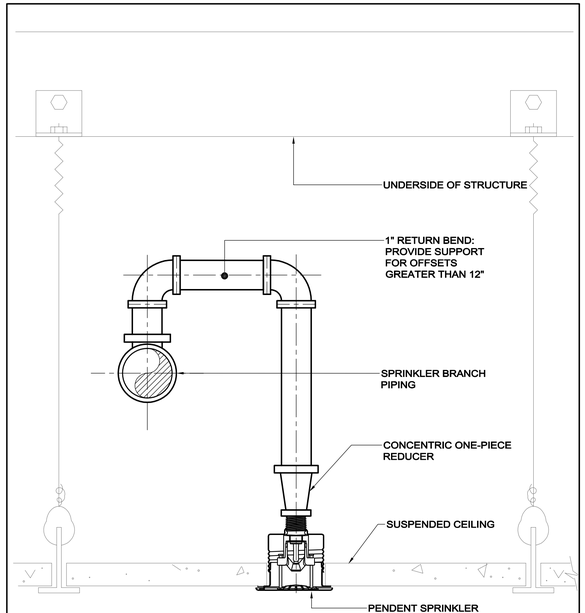
PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: 1/8"=1'-0"

SHEET NUMBER:

FP103

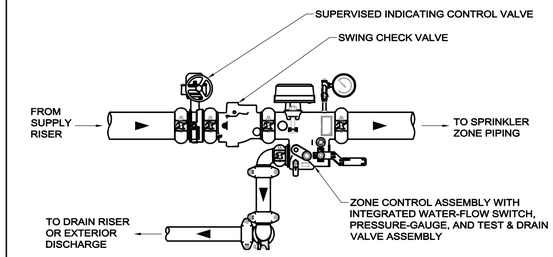
SHEET 116 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

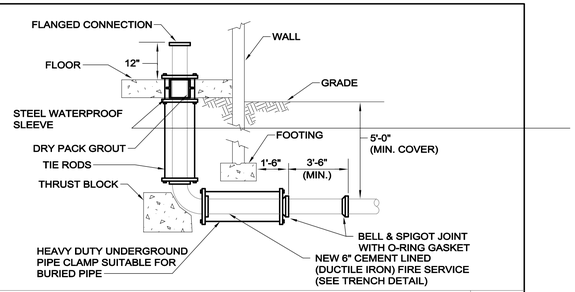


NOTE:
CONCEALED SHOWN FOR ILLUSTRATION ONLY, SEE SPECIFICATIONS FOR PROJECT SPECIFIC REQUIREMENTS

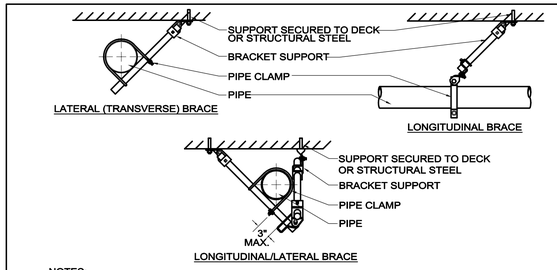
RDK | NEW PENDENT SPRINKLER FROM NEW BRANCHLINE | NO SCALE | F803



RDK | ZONE CONTROL ASSEMBLY | NO SCALE | F600

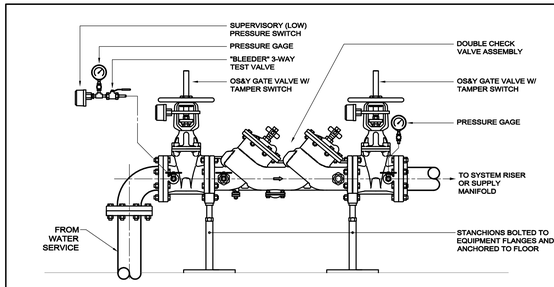


RDK | FIRE SERVICE ENTRANCE DIAGRAM | NO SCALE | F003

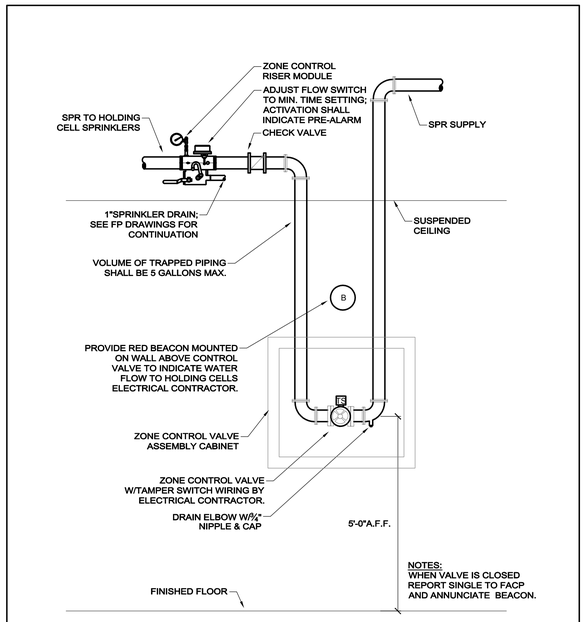


NOTES:
1. ALL APPLICABLE FIRE PROTECTION PIPING SYSTEMS SHALL BE SEISMICALLY BRACED AND INSTALLED PER APPLICABLE SECTIONS OF THE MASS. STATE BUILDING CODE LATEST EDITIONS.

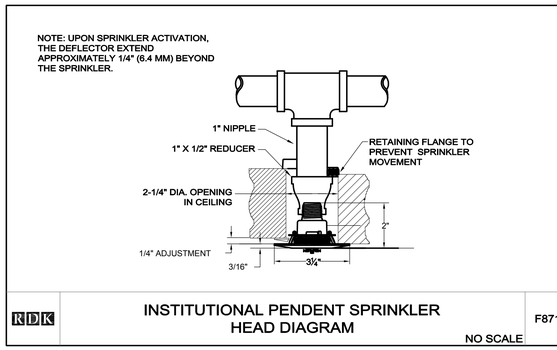
RDK | SEISMIC PIPE BRACING DIAGRAM | NO SCALE | F700



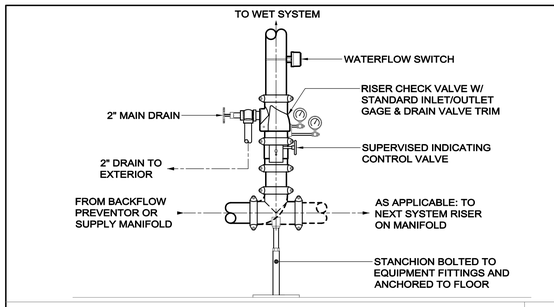
RDK | DOUBLE CHECK VALVE ASSEMBLY DIAGRAM | NO SCALE | F100R



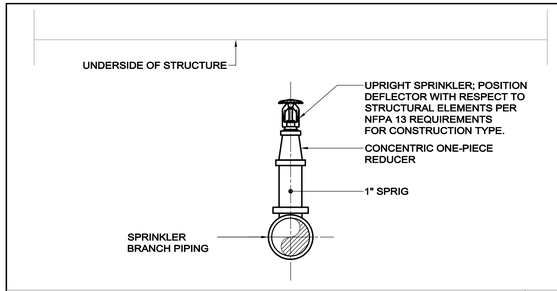
RDK | ZONE CONTROL ASSEMBLY AT HOLDING CELLS | NO SCALE | F603R



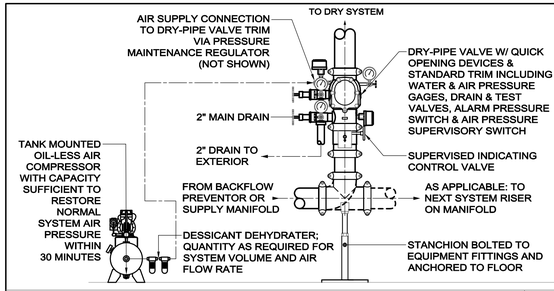
RDK | INSTITUTIONAL PENDENT SPRINKLER HEAD DIAGRAM | NO SCALE | F871R



RDK | WET SYSTEM RISER (RISER-CHECK VALVE) | NO SCALE | F200



RDK | NEW UPRIGHT SPRINKLER FROM NEW BRANCHLINE | NO SCALE | F815



RDK | DRY SYSTEM RISER | NO SCALE | F210

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

FIRE PROTECTION DETAILS

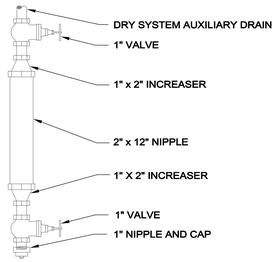
PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

FP600

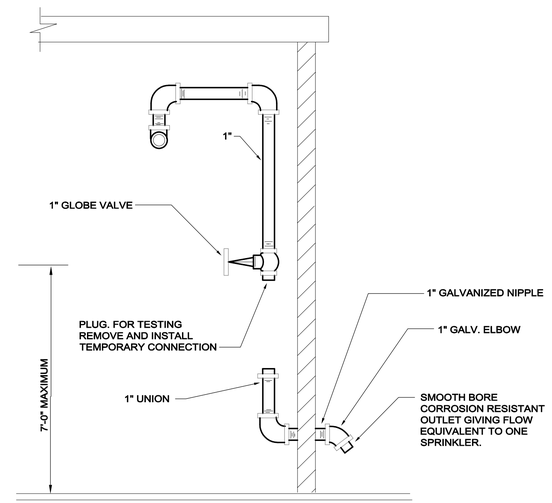
SHEET 117 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:



RDK | DRY SYSTEM AUXILIARY DRAIN DIAGRAM | F702

NO SCALE



RDK | DRY PIPE SYSTEM TEST CONNECTION DIAGRAM | F701

NO SCALE

A HYDRANT FLOW TEST WAS PERFORMED AT 8:15 PM ON FRIDAY, NOVEMBER 8TH, 2013 AT THE PROJECT SITE (155 LEXINGTON STREET IN WALTHAM, MA) BY RDK ENGINEERS AND AN EMPLOYEE OF THE WALTHAM DEPARTMENT OF PUBLIC WORKS.

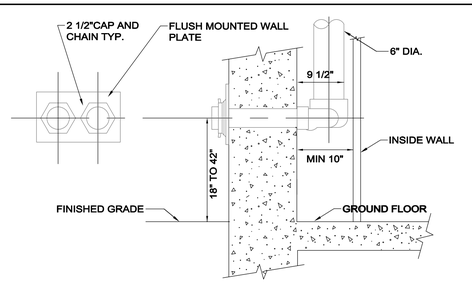
THE HYDRANT USED TO READ THE STATIC AND RESIDUAL PRESSURES WAS LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF LEXINGTON STREET AND DALE STREET. THE HYDRANT USED TO MEASURE THE FLOW WAS LOCATED ON LEXINGTON STREET, DIRECTLY ACROSS FROM THE POLICE STATION. THE DISTANCE BETWEEN THE TWO HYDRANTS IS APPROXIMATELY SIX HUNDRED FEET. THE CHANGE IN ELEVATION BETWEEN THE TWO HYDRANTS IS APPROXIMATELY FIVE FEET.

THE RESULTS ARE AS FOLLOWS:

STATIC PRESSURE:	94	PSI
RESIDUAL PRESSURE:	80	PSI
FLOW:	1,028	GPM

RDK | HYDRANT FLOW TEST DATA | F1000

NO SCALE



2-WAY FIRE DEPARTMENT CONNECTION DIAGRAM | F400

NO SCALE

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

FIRE PROTECTION DETAILS

PROJECT NUMBER: 20130535
DESIGNED BY: NEW
DRAWN BY: NEW
CHECKED BY: RDB
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

FP601

SHEET 118 **OF** 157

REVIEWD BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

ONE LINE SYMBOLS LEGEND

Symbol	Description
	DISCONNECT SWITCH, UNFUSED
XXAS / XXAF	DISCONNECT SWITCH, FUSED "XXAF" INDICATES FUSE RATING "XXAS" INDICATES SWITCH SIZE
XXAF / XXAT	CIRCUIT BREAKER, FIXED "XXAF" INDICATES FRAME SIZE "XXAT" INDICATES TRIP
HOA	HAND/OFF/AUTO SELECTOR SWITCH
SS	SELECTOR SWITCH
	FUSE
	POTENTIAL TRANSFORMER "2" INDICATES QUANTITY
3	CURRENT TRANSFORMER "3" - INDICATES QUANTITY "500:5A" - INDICATES PRIMARY TO SECONDARY TURNS RATIO
	TRANSFORMER
	3 PHASE, 3 WIRE DELTA CONNECTION
	3 PHASE, 4 WIRE WYE SOLIDLY GROUNDED
N E L	AUTOMATIC TRANSFER SWITCH
R21A	PANELBOARD

TELECOMMUNICATIONS LEGEND

Symbol	Description
W	TELEPHONE OUTLET "W" INDICATES WALL PHONE "P" INDICATES PAY PHONE "C" INDICATES COUNTER HEIGHT "FAX" INDICATES FAX MACHINE
	FLOOR MOUNTED BOX WITH TELEPHONE OUTLET
T1	CEILING MOUNTED BOX WITH TELEPHONE OUTLET
	DATA OUTLET
	FLOOR MOUNTED BOX WITH DATA OUTLET
D2	CEILING MOUNTED BOX WITH DATA OUTLET
	COMBINATION TELEPHONE/DATA OUTLET
	FLOOR MOUNTED BOX WITH COMBINATION TELEHONE/DATA OUTLET
T5	CEILING MOUNTED COMBINATION TELEHONE/DATA OUTLET
CT	CABLE TRAY, CONCEALED
	CABLE TRAY EXPOSED
	EQUIPMENT RACK
T	WALL MOUNTED BOX FOR TELEPHONE/DATA CONNECTION TO PRE-WIRED FURNITURE PARTITIONS
T	FLOOR MOUNTED BOX FOR TELEPHONE/DATA CONNECTION TO PRE-WIRED FURNITURE PARTITIONS
SP LS	SPEAKER, CEILING MOUNTED "LS" INDICATES LOCAL SOUND SYSTEM "VC" INDICATES INTEGRAL VOLUME CONTROL KNOB
SP LS	SPEAKER, WALL MOUNTED
V	SPEAKER VOLUME CONTROL, WALL MOUNTED
S WP	SPEAKER, HORN TYPE "WP" INDICATES WEATHERPROOF SPEAKER
I M	INTERCOM STATION "M" INDICATES MASTER INTERCOM STATION
M	SYSTEM CLOCK "M" INDICATES MASTER CLOCK WITH ASSOCIATED CONTROLS
	3/4" PLYWOOD BACKBOARD WITH 2" X 4" STUDS PLACED 16" OFF CENTER
VS	EXTERNAL DOOR/VOICE SIGNALING STATION
M	MICROPHONE OUTLET, WALL MOUNTED
AMP	AMPLIFIER, LOCAL SOUND SYSTEM
LSR	LOCAL SOUND RACK
TV P	TV OUTLET, WALL MOUNTED "TP" INDICATES TEACHER PRESENTATION "V1" INDICATES QUANTITIES OF DATA, VOICE, S-VIDEO, RCA AND CATV
TV	CEILING MTD. DATA/VIDEO PROJECTOR OUTLET w/CONDUIT TO TV OUTLET

FIRE ALARM LEGEND

Symbol	Description
FCP	FAN CONTROL PANEL
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR PANEL
FATC	FIRE ALARM TERMINAL CABINET
ESR	ELEVATOR STATUS/RECALL CABINET
BATT	FIRE ALARM SYSTEM BATTERY PACK & BATTERY CHARGER
F	FIRE ALARM MASTER BOX
T	FIRE ALARM COMMUNICATIONS ANTENNA/TRANSMITTER
F	FIRE ALARM RED ROTATING BEACON, EXTERIOR MOUNTED, WEATHERPROOF
L 15cd	FIRE ALARM VISUAL DEVICE
L 15cd	CEILING MOUNTED FIRE ALARM VISUAL DEVICE
B	FIRE ALARM BELL
S	FIRE ALARM SPEAKER
H	FIRE ALARM HORN
S	DUCT MOUNTED SMOKE DETECTOR
DH	MAGNETIC DOOR HOLDER
EOL	END OF LINE RESISTOR
K	KEY BOX
F SC	FIRE ALARM MANUAL PULL STATION "SC" INDICATES STOPPER COVER
TS	SPRINKLER TAMPER FLOW SWITCH
FS	SPRINKLER WATER FLOW SWITCH
PS	SPRINKLER LOW PRESSURE SWITCH
RAI	REMOTE ALARM INDICATOR
RTS	REMOTE TEST STATION
ACM	INDIVIDUAL ADDRESSABLE CONTROL MODULE
ZMM	ZONE MONITORING MODULE
F 110cd WG	FIRE ALARM AUDIBLE AND VISUAL DEVICE, NUMERAL INDICATES CANDELA VALUE "WG" INDICATES WIRE GUARD "WP" INDICATES WEATHERPROOF
F 15cd	CEILING MOUNTED FIRE ALARM AUDIBLE AND VISUAL DEVICE, NUMERAL INDICATES CANDELA VALUE
H	FIREFIGHTERS PHONE, JACK ONLY UNLESS INDICATED OTHERWISE "H" INDICATES HAND SET
S BT	BEAM TYPE SMOKE DETECTOR "BT" INDICATES TRANSMITTER "BR" INDICATES RECEIVER
S ER	FIRE ALARM SMOKE DETECTOR, PHOTO ELECTRIC UNLESS NOTED OTHERWISE "ER" INDICATES ELEVATOR RECALL "SC" INDICATES SELF-CONTAINED, SINGLE STATION TYPE "I" INDICATES IONIZATION TYPE DETECTOR "M" INDICATES MULTI-SENSOR "WG" INDICATES WIRE GUARD "V" INDICATES VESDA TAMPER PROOF SAMPLING TUBE BY VESDA
H RR	FIRE ALARM HEAT DETECTOR, 135° FIXED TEMPERATURE UNLESS NOTED OTHERWISE "RR" INDICATES RATE OF RISE "R/F" INDICATES RATE OF RISE AND FIXED TEMPERATURE "200" INDICATES 200° TEMPERATURE "WG" INDICATES WIRE GUARD
CO	CARBON MONOXIDE SENSOR

MOTOR & CONTROLS LEGEND

Symbol	Description
HT	HEAT TRACE
S_M	MANUAL MOTOR STARTING SWITCH WITH THERMAL OVERLOAD PROTECTION
	MAGNETIC MOTOR STARTER, REFER TO MAGNETIC MOTOR STARTER & VFD SCHEDULE FOR TYPE, SIZE AND ENCLOSURE
60AS / 50AF	COMBINATION FUSED DISCONNECT MAGNETIC MOTOR STARTER. REFER TO MAGNETIC MOTOR STARTER AND VFD SCHEDULE FOR TYPE, SIZE AND ENCLOSURE
C	CONTACTOR IN NEMA 1 ENCLOSURE UNLESS OTHERWISE NOTED
CP	EQUIPMENT CONTROL PANEL
VFD	VARIABLE SPEED DRIVE
ATS	AUTOMATIC TRANSFER SWITCH
G	GENERATOR
2	MOTOR, NUMERAL INDICATES HORSEPOWER "2" - INDICATES HORSEPOWER RATING
30AS	DISCONNECT SWITCH RATED 30AMP, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "3R" - INDICATES NEMA TYPE 3R ENCLOSURE "2P" - INDICATES 2 POLE SINGLE PHASE DISCONNECT "60AS" - INDICATES 60A SWITCH
60AS / 60AF	FUSED DISCONNECT SWITCH, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED. "3R" - INDICATES NEMA TYPE 3R ENCLOSURE "60AS" - INDICATES 60AMP SWITCH "50AF" - INDICATES 50AMP FUSES
100AF / 90AT CB	ENCLOSED CIRCUIT BREAKER IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "100AF" - INDICATES 100AMP, 3-POLE FRAME CIRCUIT BREAKER "90AT" - INDICATES 90AMP TRIP
FB-4 / 7.5KW	EQUIPMENT TAG, TOP ALPHANUMERIC CORRESPONDS TO EQUIPMENT ID LOWER INDICATES LOAD (KW, HP, ETC.)

SITE LEGEND

Symbol	Description
EH	ELECTRIC HAND HOLE
TH	TELEPHONE HAND HOLE
UE	UNDERGROUND ELECTRIC
UT	UNDERGROUND TELEPHONE
UF	UNDERGROUND FIRE ALARM
OE	OVERHEAD ELECTRIC
OF	OVERHEAD FIRE ALARM
A / #	UNDERGROUND SECTION, REFER TO SECTION DETAIL "A" INDICATES DETAIL LETTER "#" INDICATES DRAWING NUMBER

WIRING DEVICE LEGEND

Symbol	Description
5 GFI	DUPLEX RECEPTACLE, GROUNDING TYPE, RATED 20A, 125V "5"- INDICATES CIRCUIT NUMBER "GFI"- INDICATES INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER "IG"- INDICATES ISOLATED GROUND TYPE "WP" - INDICATES WEATHERPROOF "SP" - INDICATES SURGE PROTECTION "T" - INDICATES TAMPER RESISTANT SAFETY "C" - INDICATES COUNTER HEIGHT
a	DUPLEX RECEPTACLE, SHADING INDICATES EACH RECEPTACLE WIRED SEPARATELY, ONE ON CONSTANT SOURCE & ONE ON SWITCHED SOURCE FROM SWITCH "a"
	SINGLE RECEPTACLE, GROUNDING TYPE, RATED 20A, 125V
	DOUBLE DUPLEX RECEPTACLE, GROUNDING TYPE, RATED 20A, 125V
CE	DUPLEX RECEPTACLE MOUNTED FLUSH TO FINISHED CEILING
15	SPECIAL PURPOSE RECEPTACLE, "15" - INDICATES TAG NUMBER REFER TO SPECIAL PURPOSE RECEPTACLE SCHEDULE
15	FLOOR MOUNTED BOX WITH SPECIAL PURPOSE RECEPTACLE, "15" - INDICATES TAG NUMBER REFER TO SPECIAL PURPOSE RECEPTACLE SCHEDULE
	FLOOR MOUNTED BOX WITH DUPLEX RECEPTACLE
	FLOOR MOUNTED BOX WITH DOUBLE DUPLEX RECEPTACLE
	FLOOR MOUNTED BOX WITH DOUBLE DUPLEX RECEPTACLE AND TEL/DATA JACK
FB1	FLOOR MOUNTED BOX WITH MULTIPLE DEVICES. "FB1"-INDICATES TYPE AS DEFINED IN NOTES/SCHEDULES.
P	FLOOR MOUNTED BOX FOR POWER CONNECTION TO PRE-WIRED FURNITURE PARTITIONS
P	WALL MOUNTED BOX FOR POWER CONNECTION TO PRE-WIRED FURNITURE PARTITIONS
J	JUNCTION BOX
PB	PULLBOX
PP	POWER POLE
P1	SURFACE, HORIZONTALLY MOUNTED MULTI-OUTLET RACEWAY SYSTEM. "P1" - INDICATES TYPE, SIZE AND QUANTITY OF DEVICES AS PER ASSOCIATED NOTES, AND/OR SCHEDULES
P1	SURFACE MULTI-OUTLET RACEWAY SYSTEM VERTICALLY MOUNTED. "P1" - INDICATES TYPE, SIZE AND QUANTITY OF DEVICES AS PER ASSOCIATED NOTES, AND/OR SCHEDULES
P1 15	SURFACE MOUNTED MULTI-OUTLET RACEWAY SYSTEM, PROVIDE DEVICES AS SHOWN ON FLOOR PLANS. "P1" - INDICATES TYPE

BRANCH CIRCUIT & FEEDER LEGEND

Symbol	Description
	BRANCH CIRCUIT OR FEEDER CONCEALED IN FINISHED AREAS
	BRANCH CIRCUIT OR FEEDER, CONCEALED IN OR UNDER FLOOR SLAB
	BRANCH CIRCUIT OR FEEDER TURNING UP TOWARDS OBSERVER
	BRANCH CIRCUIT OR FEEDER TURNING DOWN AWAY FROM OBSERVER
	CONDUIT STUBBED ABOVE CEILING
R22A-1,3,5	BRANCH CIRCUIT HOME RUN TICKS INDICATE QUANTITY OF CONDUCTORS, GROUND CONDUCTORS ARE NOT INDICATED. NO TICKS INDICATES 2#12 & 1#12G IN 3/4"C MINIMUM. R22A-1,3,5 INDICATES PANEL AND CIRCUIT DESIGNATION FROM WHICH HOMERUN SHALL ORIGINATE. EACH CIRCUIT SHALL BE 20A-1P (20AMP SINGLE POLE) UNLESS NOTED OTHERWISE.
H42B-1 100A-3P 6	FEEDER HOMERUN. REFER TO LEGEND OF FEEDER SIZES FOR CONDUCTOR AND RACEWAY REQUIREMENTS DESIGNATED INSIDE TAG. H42B-1 INDICATES PANEL AND CIRCUIT NUMBER DESIGNATION FROM WHICH HOME RUN SHALL ORIGINATE, 100A-3P INDICATES 100 AMPERE, 3 POLE CIRCUIT BREAKER.
	FLEXIBLE CONNECTION TO EQUIPMENT. RACEWAY AND CONDUCTOR RATING TO MATCH ASSOCIATED BRANCH CIRCUIT OR FEEDER
E	BRANCH CIRCUIT FOR EMERGENCY BATTERY DC CIRCUIT, MINIMUM 2#10 IN 3/4"C. UNLESS OTHERWISE NOTED

POWER DISTRIBUTION

Symbol	Description
	208Y/120 VOLT PANELBOARD, SURFACE MOUNTED REFER TO SCHEDULE OF PANELBOARDS
	208Y/120 VOLT PANELBOARD, RECESSED MOUNTED REFER TO SCHEDULE OF PANELBOARDS
	480Y/277 VOLT PANELBOARD, SURFACE MOUNTED REFER TO SCHEDULE OF PANELBOARDS
	480Y/277 VOLT PANELBOARD, RECESSED MOUNTED REFER TO SCHEDULE OF PANELBOARDS
	GROUND BAR
T3	DRY TYPE TRANSFORMER "T3" - INDICATES KVA RATING OF TRANSFORMER REFER TO DRY TYPE TRANSFORMER SCHEDULE
CT	CURRENT TRANSFORMER CABINET
M	METER
M	UTILITY METER AND SOCKET

SECURITY LEGEND

Symbol	Description
CCTV	CLOSED CIRCUIT TV CAMERA
ES	ELECTRIC DOOR STRIKE
DC	DOOR CONTACT

EXISTING EQUIPMENT LEGEND

Symbol	Description
XM	EXISTING EQUIPMENT TO REMAIN
X	EXISTING EQUIPMENT TO BE REMOVED
XR	EXISTING EQUIPMENT TO BE RELOCATED
XN	NEW LOCATION OF EXISTING RELOCATED EQUIPMENT
NR	EXISTING EQUIPMENT TO BE REMOVED AND NEW EQUIPMENT TO BE INSTALLED ON EXISTING BRANCH/FEEDER
	EXISTING EQUIPMENT FOR INFORMATION ONLY- INDICATED BY SYMBOL WITH LIGHT AND OUT OF FUNCTION LINE TYPE
	EXISTING EQUIPMENT TO BE REWORKED- INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

LIGHTING FIXTURE LEGEND

Symbol	Description
FR2 2,a FR5 2,NL	LIGHTING FIXTURE (SEE LIGHTING FIXTURE SCHEDULE) "FR2" - INDICATES LIGHTING FIXTURE TYPE "2" - INDICATES CIRCUIT NUMBER "a" - INDICATES SWITCH CONTROL "NL"- INDICATES NIGHT LIGHT (UNSWITCHED) CIRCUIT
AR1 2,a	LIGHTING FIXTURE
AR1A 2,NL	RECESSED DIRECTIONALLY ORIENTED WALLWASH TYPE LIGHTING FIXTURE.
HW2 2,a	LIGHTING FIXTURE WALL MOUNTED
ES2 ES1	EXIT SIGN LIGHTING FIXTURE, CEILING, PENDANT MOUNTED, ARROWS AND EXIT FACE (SHADED) AS INDICATED
EW1	EXIT SIGN LIGHTING FIXTURE, WALL MOUNTED, ARROWS AND EXIT FACE AS (SHADED) AS INDICATED.
AS5 AS5 AS5 TS8 2,a	TRACK LIGHTING, WITH TYPE AS5 HEADS
DW1 DW2	EMERGENCY LIGHTING REMOTE LAMP HEADS, SINGLE OR DOUBLE
EB1	EMERGENCY LIGHTING BATTERY UNIT WITH DOUBLE LAMP HEADS
HG5	BOLLARD LIGHTING FIXTURE
FR # FS5 AR1	LIGHTING FIXTURE SHADING INDICATES FIXTURE EMERGENCY (LIFE SAFETY) POWER SOURCE
HG1 HG4	POLE MOUNTED LIGHTING FIXTURE

SWITCH LEGEND

Symbol	Description
S_a	SINGLE POLE SWITCH, RATED 20A, 120/277V "a" LOWER CASE LETTER INDICATES FIXTURE SWITCH CONTROL
S_a^2	TWO POLE SINGLE THROW SWITCH, RATED 20A, 120/277V
S_a^3	THREE WAY SWITCH, RATED 20A, 120/277V
S^{LV}	LOW VOLTAGE SWITCH
S^{DF}	FLUORESCENT DIMMER
S_a^{O1}	OCCUPANCY SENSOR, RECESS WALL MOUNTED "O1" INDICATES SINGLE CIRCUIT OUTPUT
S_A^{O2}	OCCUPANCY SENSOR, RECESS WALL MOUNTED "O2" INDICATES DUAL CIRCUIT OUTPUT
01 a,b	OCCUPANCY SENSOR, CEILING MOUNTED "O1"-INDICATES TYPE AS DEFINED IN NOTES/SCHEDULES, REFER TO DRAWING E701 FOR ADDITIONAL INFORMATION.
O1 a,b	OCCUPANCY SENSOR, SURFACE WALL MOUNTED "O1"-INDICATES TYPE AS DEFINED IN NOTES/SCHEDULES.
PC	PHOTOCELL
TC	TIMECLOCK
EPO	PUSHBUTTON STATION "EPO" INDICATES EMERGENCY POWER OFF

ABBREVIATIONS

A/AMP	AMPERE	KWH	KILOWATT HOURS
AC	ALTERNATION CURRENT	LTG	LIGHTING
ADA	AMERICAN WITH DISABILITIES ACT	MCB	MAIN CIRCUIT BREAKER
AF	AMPERE FRAME	MEC	MASSACHUSETTS ELECTRICAL CODE
AFF	ABOVE FINISHED FLOOR	M/G	MOTOR/GENERATOR SET
AFG	ABOVE FINISHED GRADE	MH	MANHOLE
AIC	AMPERE INTERRUPTING CAPACITY	MLO	MAIN LUGS ONLY
AL	ALUMINUM	MTD	MOUNTED
AT	AMPERE TRIP	MTG	MOUNTING
ATS	AUTOMATIC TRANSFER SWITCH	NC	NORMALLY CLOSED CONTACT
AWG	AMERICAN WIRE GAUGE	NEC	NATIONAL ELECTRICAL CODE
B	BURIED	NO	NORMALLY OPEN CONTACT
C	CONDUIT	NTS	NOT TO SCALE
CA	CABLE	#	NUMBER
CATV	CABLE TELEVISION	OPD	OVER CURRENT PROTECTION DEVICE
CCTV	CLOSED CIRCUIT TELEVISION SYSTEM	POS	PROVIDED UNDER OTHER SECTIONS
CB	CIRCUIT BREAKER	PVC	POLYVINYL CHLORIDE
CKT	CIRCUITS	PWR	POWER
CPU	CENTRAL PROCESSING UNIT	RGS	RIGID GALVANIZED STEEL
℄	CENTERLINE	RMS	ROOT MEAN SQUARE VALUE
dB	DECIBEL	RPM	REVOLUTIONS PER MINUTE
DC	DIRECT CURRENT	SN	SOLID NEUTRAL
DWG	DRAWING	SWBD	SWITCHBOARD
EC	ELECTRICAL CONTRACTOR	TB	TERMINAL BLOCK
EMT	ELECTRIC METALLIC TUBING	TEL	TELEPHONE
FDR	FEEDER	TERMN	TERMINAL
FLMT	FLEXIBLE LIQUID TIGHT METALLIC TUBING	TSP	TWISTED SHIELDED-PAIR
FREQ	FREQUENCY	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
GEC	GROUNDING ELECTRODE CONDUCTOR	TYP	TYPICAL
GFI	GROUND FAULT INTERRUPTING	UG	UNDERGROUND
GND	GROUND	UNO	UNLESS NOTED OTHERWISE
HH	HANDHOLE	UPS	UNINTERRUPTIBLE POWER SUPPLY
HP	HORSEPOWER	UTP	UNSHIELDED TWISTED-PAIR
HVAC	HEATING, VENTILATING AND AIR CONDITIONING	V	VOLTS
HZ	HERTZ	VA	VOLT-AMPERE
IG	ISOLATED GROUND	VSD	VARIABLE SPEED DRIVE
JB	JUNCTION BOX	W	WATTS
KVA	KILOVOLT-AMPERE	WP	WEATHERPROOF
KW	KILOWATT		

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

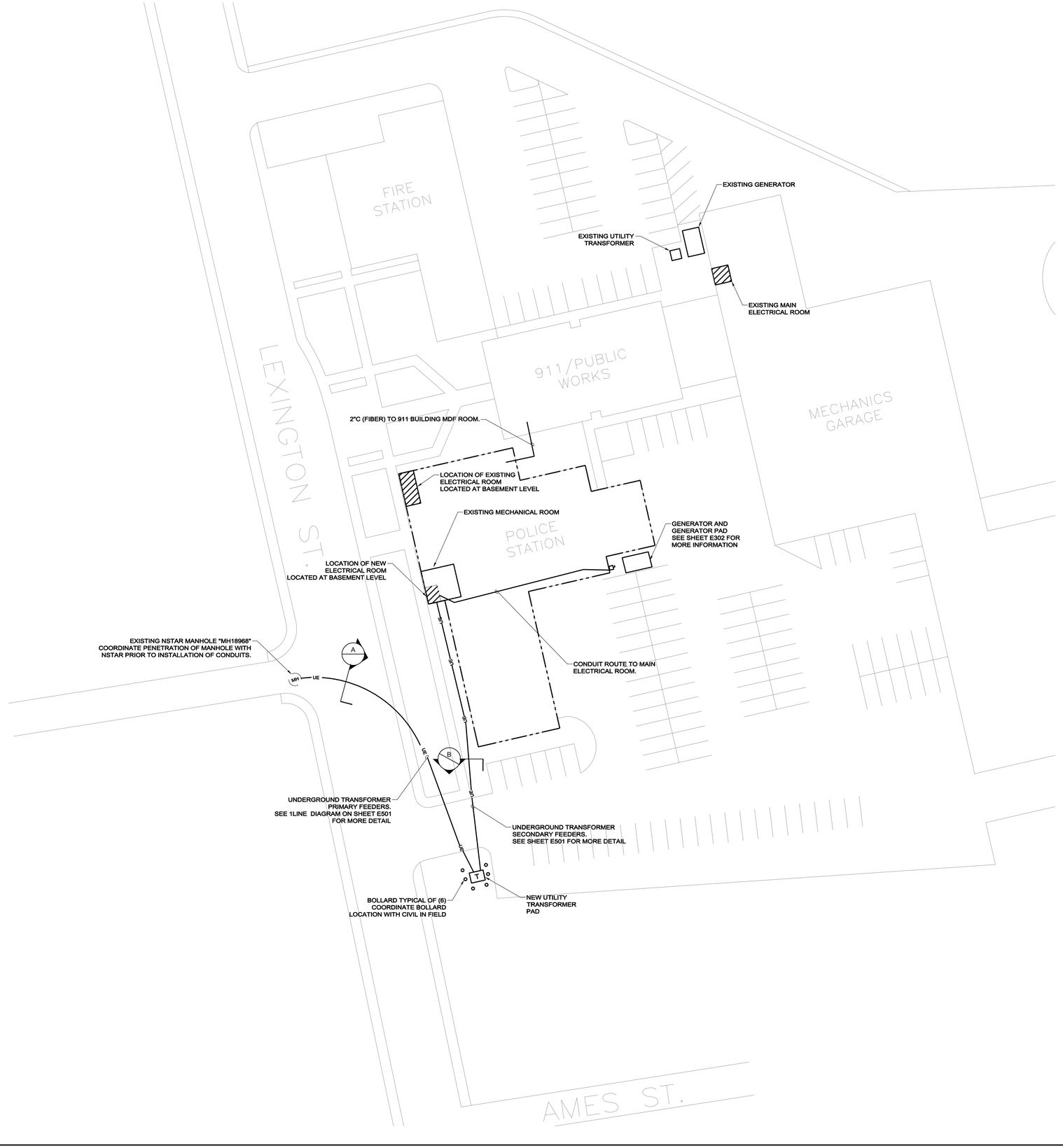
155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

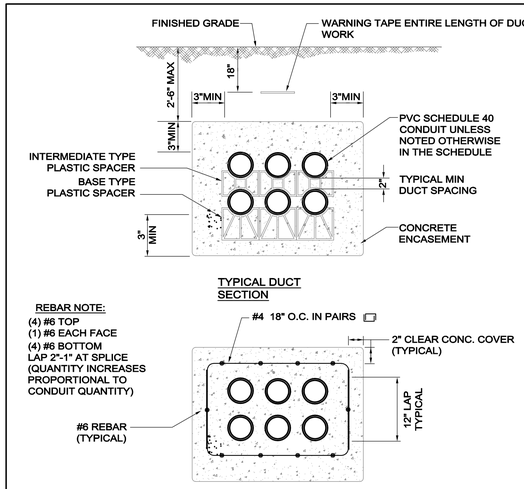
ELECTRICAL LEGEND, NOTES & ABBRVS.

PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: N.T.S.
SHEET NUMBER:

E000

REVIEWED BY: CIVIL: ____ ARCH: ____ STRU: ____ PLUM: ____ FIRE: ____ MECH: ____ ELEC: ____





TYPICAL DUCT SECTION

REBAR NOTE:
(4) #6 TOP
(1) #6 EACH FACE
(4) #6 BOTTOM
LAP 2'-1" AT SPLICE
(QUANTITY INCREASES PROPORTIONAL TO CONDUIT QUANTITY)

REBAR DETAIL

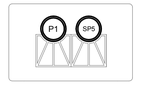
NOTES:

1. THIS DETAIL IS INTENDED TO ILLUSTRATE CONSTRUCTION OF TYPICAL DUCT BANK. REFER TO REFERENCED SECTION FOR QUANTITY AND SIZE OF CONDUIT REQUIRED. DUCT CONSTRUCTION SHALL BE MODIFIED TO ACCOMMODATE REQUIREMENTS ILLUSTRATED IN THE ACTUAL SECTION, UTILIZING THE CRITERIA ESTABLISHED IN THIS DETAIL AND AS WRITTEN IN THE SPECIFICATIONS.

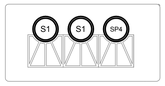
2. REBAR SHALL BE USED FOR ALL DUCT BANKS INSTALLED UNDER TRAVELED WAYS, ROADWAYS, AND TRANSITIONS INTO MANHOLES/HANDHOLES AND FOUNDATIONS. REFER TO SPECIFICATIONS FOR ADDITIONAL DETAILS.

3. WARNING TAPE SHALL BE DETECTABLE TYPE FOIL BACKED 4 MIL POLYETHYLENE WITH FADE RESISTANT "BURIED ELECTRIC LINE BELOW" A MINIMUM OF 12 INCHES ABOVE THE BURIED SERVICE. TAPE SHALL BE EQUAL TO T & B NAF-0705

RDK **TYPICAL ELECTRICAL DUCT DETAIL** E502



SECTION "A-A"
N.T.S.



SECTION "B-B"
N.T.S.

NOTES:
1. REFER TO TYPICAL ELECTRICAL DUCT DETAIL THIS SHEET FOR GENERAL CONSTRUCTION REQUIREMENTS.

2. REFER TO THE DUCT BANK CONDUIT SCHEDULE THIS SHEET FOR CONDUIT AND CONDUCTOR REQUIREMENTS ASSOCIATED WITH CONDUIT TAG.

RDK **ELECTRICAL DUCT SECTIONS** ES01

DUCT BANK CONDUIT SCHEDULE			
TAG	DESCRIPTION	CONDUIT	CONDUCTORS
P1	TRANSFORMER PRIMARY FEEDERS	5"C	BY NSTAR
S1	TRANSFORMER SECONDARY FEEDERS	4"C	REFER TO ONE LINE
SP5	SPARE	5"	NOTE 6
SP4	SPARE	4"	NOTE 6

NOTES:

1. REFER TO DUCT BANK SECTIONS FOR CORRESPONDING CONDUIT AND CONDUCTOR.
2. REFER TO THE TYPICAL DUCTBANK SECTION FOR DETAILS REQUIRED IN THE CONSTRUCTION OF THE DUCT BANK ENVELOPE.
3. REFER TO THE SPECIFICATIONS FOR ADDITIONAL INFORMATION INCLUDING BUT NOT LIMITED TO DUCT BANK REINFORCEMENT REQUIRED UNDER PAVED AREAS INTENDED FOR VEHICULAR TRAFFIC AND AT MANHOLE/BUILDING INTERFACES.
4. ALL CONDUCTORS INSTALLED IN DUCT SHALL BE SUITABLE FOR WET LOCATIONS.
5. ALL SERVICE ENTRANCE AND GENERATOR OUTPUT CONDUCTORS INSTALLED IN DUCT SHALL BE TYPE USE.
6. PROVIDE ALL EMPTY/SPARE CONDUIT WITH NYLON PULL STRING.

NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. REFER TO APPLICABLE DETAILS ON THIS SHEET AND E101 FOR ADDITIONAL SCOPE.

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL SITE PLAN

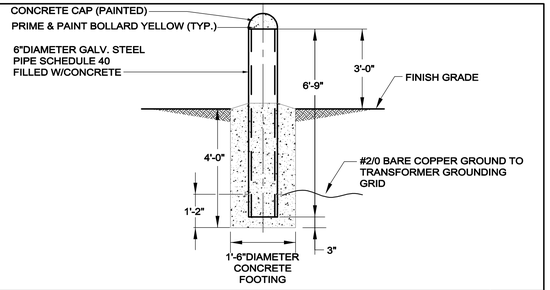
PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

E100

SHEET 120 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

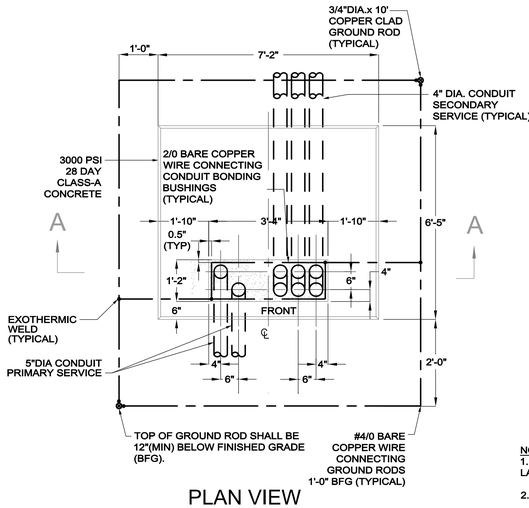


RDK

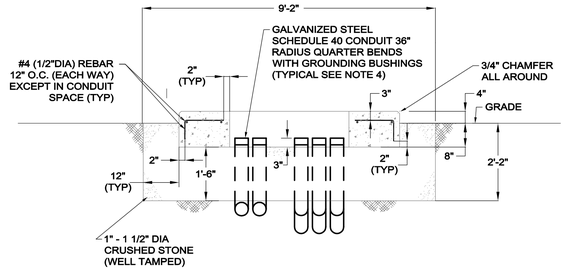
PROTECTION BOLLARD DETAIL

E512

* SEE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION



PLAN VIEW



SECTION "A-A"

NOTES:
1. REFER TO EXACT UTILITY COMPANY REQUIREMENTS FOR MODIFICATIONS THAT MAY BE REQUIRED TO THIS PAD LAYOUT.

2. ALL GROUND GRID CONNECTIONS SHALL BE EXOTHERMIC WELD.

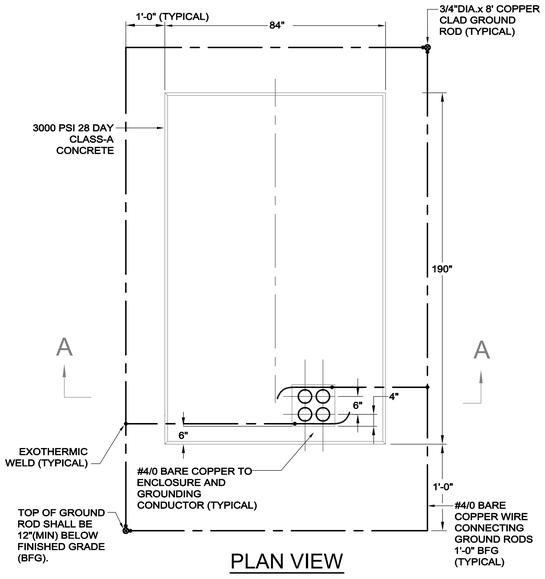
3. DO NOT ALLOW PRIMARY AND SECONDARY CONDUITS TO CROSS EACH OTHER INSIDE OR OUTSIDE THE PAD. LOCATE SECONDARY CONDUITS AS FAR TO THE RIGHT AS POSSIBLE IN THE PAD OPENING.

4. ALL QUARTER BENDS (PRIMARY AND SECONDARY) SHALL BE GALVANIZED STEEL SCHEDULE 40 WITH GROUNDING BUSHINGS. CAP ALL CONDUIT ENDS TO PREVENT MOISTURE AND DEBRIS FROM ENTERING CONDUITS PRIOR TO TRANSFORMER INSTALLATION.

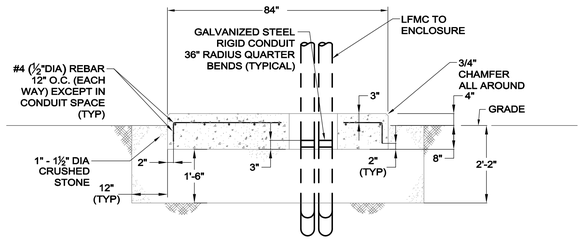
RDK

TRANSFORMER PAD DETAIL
THREE PHASE 112.5 THRU 750 KVA

E508



PLAN VIEW



SECTION "A-A"

NOTES:
1. REFER TO EXACT INSTALLATION REQUIREMENTS OF THE GENERATOR AND ASSOCIATED ENCLOSURE MANUFACTURER FOR MODIFICATIONS THAT MAY BE REQUIRED TO THIS PAD LAYOUT. THIS DETAIL IS INTENDED TO ILLUSTRATE GENERAL REQUIREMENTS. PAD SHALL EXTEND 1'-0" BEYOND ENCLOSURE ON ALL SIDES. PAD SHALL JOG OUT TO ACCOMMODATE STAIR LANDINGS.
2. ALL GROUND GRID CONNECTIONS SHALL BE EXOTHERMIC WELD.
3. CAP ALL CONDUIT ENDS TO PREVENT MOISTURE AND DEBRIS FROM ENTERING CONDUITS PRIOR TO GENERATOR INSTALLATION.
4. CRUSHED STONE SHALL EXTEND TO COVER GROUND AT SPECIFIED 18" DEPTH UNDER ALL AIR INTAKE LOUVER LOCATIONS.
5. EXTEND ALL RACEWAYS WITH LFMC TO GENERATOR ENCLOSURE CABINETS TO PROVIDE A COMPLETE RACEWAY SYSTEM.

RDK

GENERATOR PAD DETAIL

E511

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL SITE DETAILS

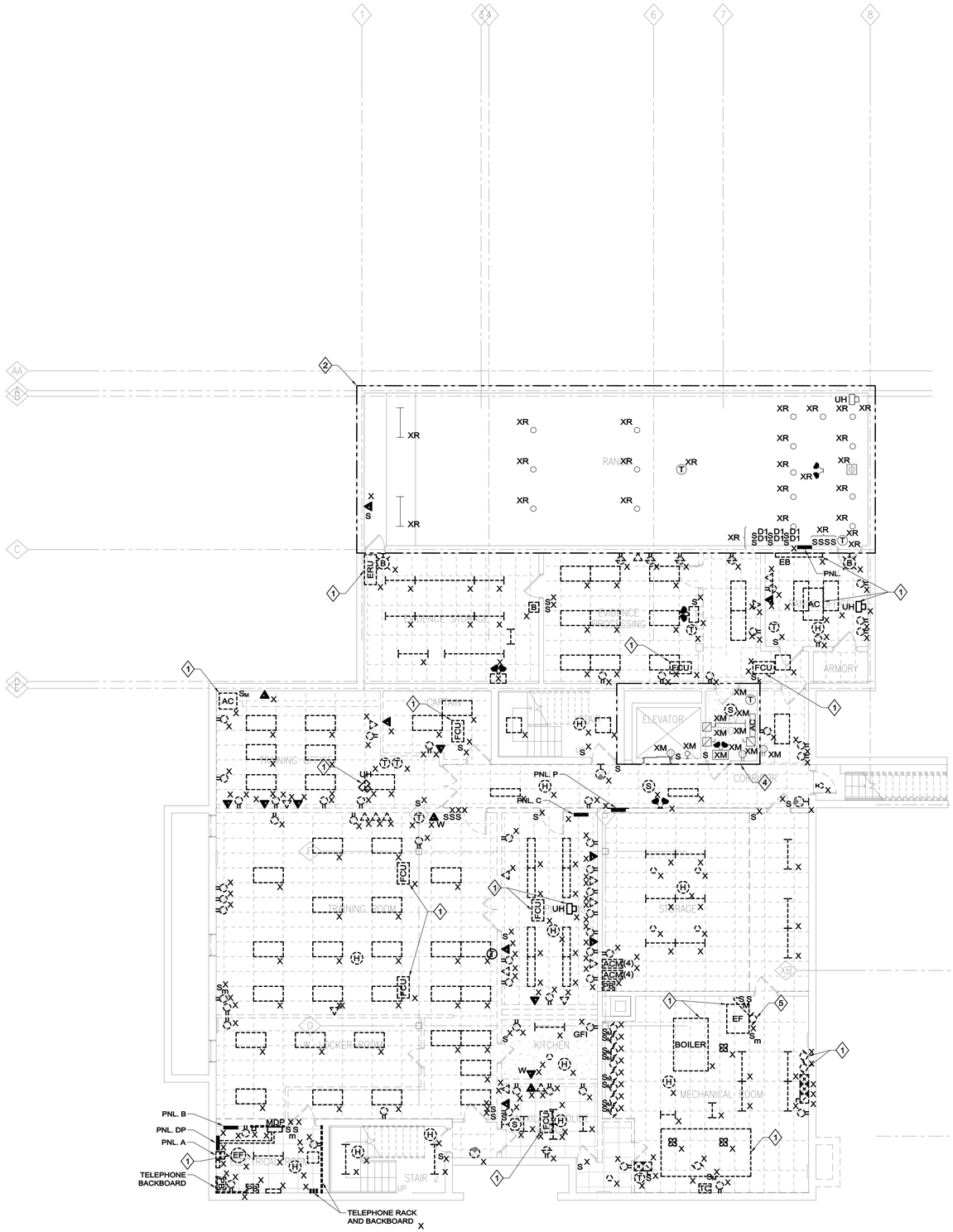
PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

E101

SHEET 121 **OF** 157

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



ELECTRICAL DEMOLITION NOTES

DEMOLITION NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, NOTES AND ABBREVIATIONS.
2. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXTENT OF THE DEMOLITION SCOPE OF WORK AND AREA. THE DEMOLITION PLANS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED.
3. VISIT THE SITE PRIOR TO SUBMISSION OF THE BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF THE WORK. UNFORESEEN DEMOLITION CONDITIONS AFTER SUBMISSION OF OF THE BIDS SHALL NOT BE AT ADDITIONAL COST TO THE OWNER.
4. TRACE AND LABEL ALL EXISTING SYSTEMS WITHIN THE DEMOLITION AREA AND BEYOND PRIOR TO DISCONNECTION AND REMOVAL TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION AREA IS AFFECTED. REVIEW IN DETAIL WITH THE GENERAL CONTRACTOR AND OWNER WHAT IS TO BE REMOVED AND REMAIN PRIOR TO WORK COMMENCING THE DEMOLITION.
5. NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING THE DEMOLITION.
6. ALL ITEMS REMOVED SHALL BE OFFERED TO THE OWNER FOR SALVAGE. IF THE OWNER DOES NOT TAKE POSSESSION, DISPOSE OF THE ITEMS IN A SAFE AND LEGAL MANNER. ALL ITEMS CLASSIFIED AS HAZARDOUS SHALL BE DISPOSED AS HAZARDOUS WASTES AND A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PROVIDED TO THE OWNER.
7. NOTIFY UTILITY COMPANIES IN ACCORDANCE WITH THEIR REQUIREMENTS PRIOR TO DEMOLITION. VERIFY THAT THE UTILITIES HAVE BEEN DISCONNECTED, CAPPED AND MADE SAFE PRIOR TO DEMOLITION.
8. ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
9. DO NOT USE CUTTING TORCHES UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS. AT CONCEALED SPACES, SUCH AS PIPE INTERIORS, VERIFY CONDITION AND CONTENTS OF HIDDEN SPACE BEFORE STARTING FLAME-CUTTING OPERATIONS. MAINTAIN FIRE WATCH AND PORTABLE FIRE-SUPPRESSION DEVICES DURING FLAME-CUTTING OPERATIONS. MAINTAIN ADEQUATE VENTILATION WHEN USING CUTTING TORCHES.
10. ALL DEMOLITION SCOPE ASSOCIATED WITH LOW VOLTAGE SYSTEMS INCLUDING BUT NOT LIMITED TO TELEPHONE, DATA, SECURITY, PAGING, CCTV, ETC. SHALL BE INCLUDED IN THIS CONTRACT.
11. DE-ENERGIZE AND REMOVE ALL CONDUCTORS AND RACEWAYS TO THEIR POINTS OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. RACEWAYS THAT ENTER MASONRY WALLS AND FLOORS SHALL BE CUT FLUSH AT THE SURFACE FOR PATCHING BY OTHERS. ALL CIRCUIT BREAKERS ASSOCIATED WITH THE DEMOLITION SCOPE SHALL BE DE-ENERGIZED AND LABELED SPARE.
12. REMOVED FLUORESCENT AND HID LAMPS AND BATTERIES SHALL BE RECYCLED BY A FACILITY APPROVED BY THE OWNER'S REPRESENTATIVE.
13. ALL BALLASTS IN LIGHTING FIXTURES TO BE DISPOSED SHALL BE VERIFIED TO BE PCB FREE. ALL BALLASTS MANUFACTURED PRIOR TO 1979 AND NOT LABELED AS PCB FREE SHALL BE CONSIDERED TO CONTAIN PCBS. PROVIDE WRITTEN VERIFICATION TO THE OWNER'S REPRESENTATIVE THAT CONFIRMS PCB FREE WASTE. WHERE PCB FREE WASTE CANNOT BE VERIFIED, BALLASTS SHALL BE RECYCLED BY A FACILITY APPROVED BY THE OWNER'S REPRESENTATIVE, WITH PCB COMPONENTS ELIMINATED BY A HIGH TEMPERATURE INCINERATION.
14. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

KEYNOTES

1	DISCONNECT AND MAKE SAFE FOR REMOVAL BY MECHANICAL. SEE MECHANICAL DRAWINGS.
2	EXISTING EQUIPMENT, UNLESS OTHERWISE NOTED, LOCATED WITHIN THE EXISTING GUN RANGE SHALL BE REUSED. INTERCEPT CIRCUITS TO BE REUSED. COORDINATE WITH ARCHITECTURAL AND OTHER TRADES.
3	NOTE NOT USED.
4	ALL EXISTING EQUIPMENT, UNLESS OTHERWISE NOTED, LOCATED WITHIN THE ELEVATOR AND MACHINE ROOM SHALL REMAIN AND BE REUSED. INTERCEPT BRANCH CIRCUITS TO BE REUSED. COORDINATE WITH ARCHITECTURAL AND OTHER TRADES.
5	DISCONNECT AND MAKE SAFE FOR REMOVAL BY PLUMBING. SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.

EXISTING EQUIPMENT LEGEND

XM	EXISTING EQUIPMENT TO REMAIN
X	EXISTING EQUIPMENT TO BE REMOVED
XR	EXISTING EQUIPMENT TO BE RELOCATED
XN	NEW LOCATION OF EXISTING RELOCATED EQUIPMENT
NR	EXISTING EQUIPMENT TO BE REMOVED AND NEW EQUIPMENT TO BE INSTALLED ON EXISTING BRANCH/FEEDER
	EXISTING EQUIPMENT FOR INFORMATION ONLY- INDICATED BY SYMBOL WITH LIGHT AND OUT OF FUNCTION LINE TYPE
	EXISTING EQUIPMENT TO BE REWORKED- INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

8' 16'

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL BASEMENT FLOOR DEMO PLAN

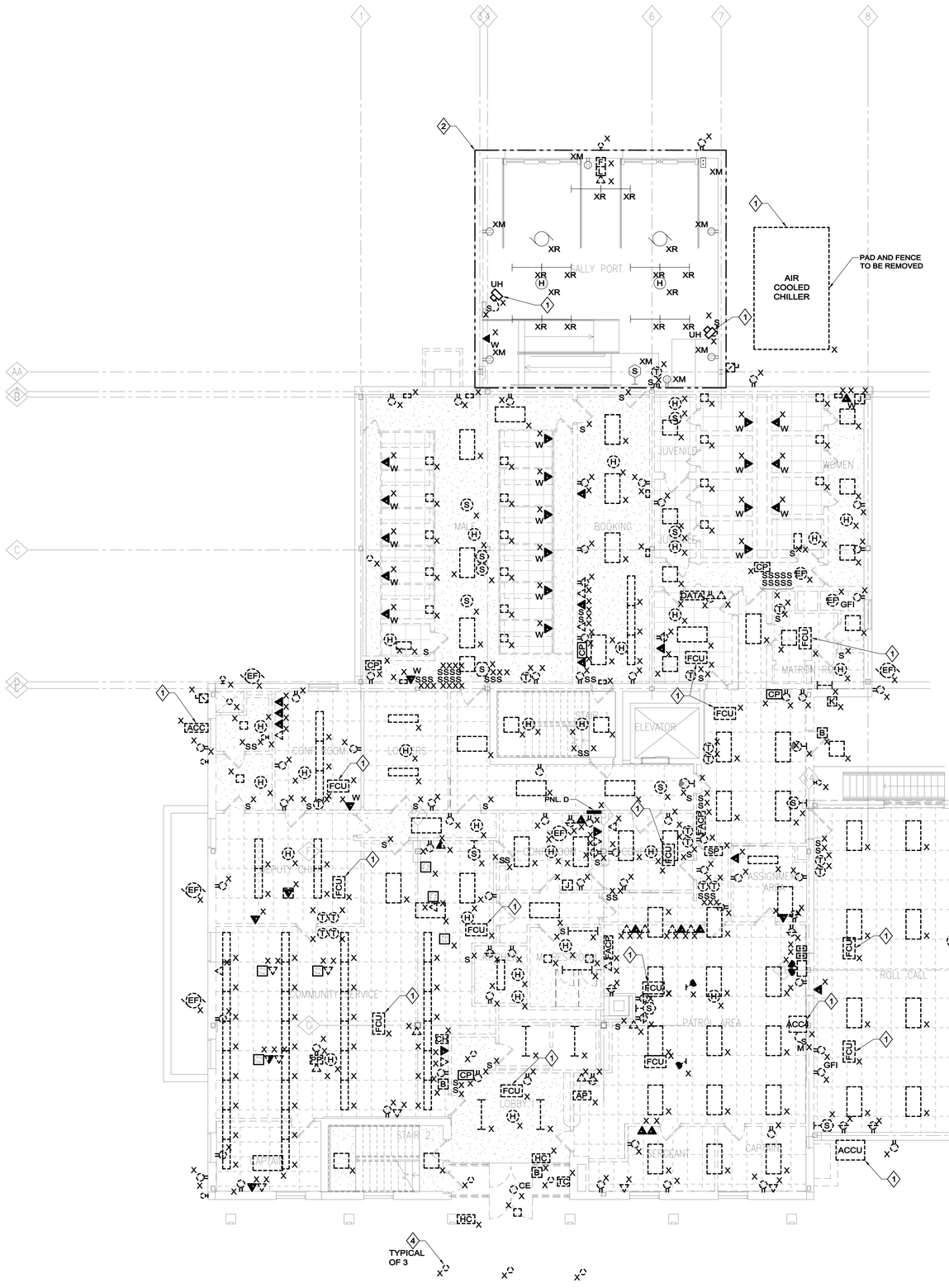
PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

ED101

SHEET 122 **OF** 157

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



KEYNOTES

1	DISCONNECT AND MAKE SAFE FOR REMOVAL BY MECHANICAL. SEE MECHANICAL DRAWINGS.
2	ALL EXISTING EQUIPMENT, UNLESS OTHERWISE NOTED, LOCATED WITHIN THE SALLY PORT AREA SHALL REMAIN AND BE REUSED. INTERCEPT BRANCH CIRCUITS TO BE REUSED. COORDINATE WITH ARCHITECTURAL AND OTHER TRADES.
3	ALL EXISTING EQUIPMENT, UNLESS OTHERWISE NOTED, LOCATED WITHIN THE VEHICLE BAY AREAS SHALL REMAIN AND BE REUSED. INTERCEPT CIRCUITS TO BE REUSED. COORDINATE WITH ARCHITECTURAL AND OTHER TRADES.
4	EXISTING FLOOD LIGHTS. VERIFY EXACT LOCATION IN FIELD.

EXISTING EQUIPMENT LEGEND

XM	EXISTING EQUIPMENT TO REMAIN
X	EXISTING EQUIPMENT TO BE REMOVED
XR	EXISTING EQUIPMENT TO BE RELOCATED
XN	NEW LOCATION OF EXISTING RELOCATED EQUIPMENT
NR	EXISTING EQUIPMENT TO BE REMOVED AND NEW EQUIPMENT TO BE INSTALLED ON EXISTING BRANCH/FEEDER
	EXISTING EQUIPMENT FOR INFORMATION ONLY- INDICATED BY SYMBOL WITH LIGHT AND OUT OF FUNCTION LINE TYPE
	EXISTING EQUIPMENT TO BE REWORKED- INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

ELECTRICAL DEMOLITION NOTES

DEMOLITION NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, NOTES AND ABBREVIATIONS.
2. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXTENT OF THE DEMOLITION SCOPE OF WORK AND AREA. THE DEMOLITION PLANS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED.
3. VISIT THE SITE PRIOR TO SUBMISSION OF THE BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF THE WORK. UNFORESEEN DEMOLITION CONDITIONS AFTER SUBMISSION OF OF THE BIDS SHALL NOT BE AT ADDITIONAL COST TO THE OWNER.
4. TRACE AND LABEL ALL EXISTING SYSTEMS WITHIN THE DEMOLITION AREA AND BEYOND PRIOR TO DISCONNECTION AND REMOVAL TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION AREA IS AFFECTED. REVIEW IN DETAIL WITH THE GENERAL CONTRACTOR AND OWNER WHAT IS TO BE REMOVED AND REMAIN PRIOR TO WORK COMMENCING THE DEMOLITION.
5. NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING THE DEMOLITION.
6. ALL ITEMS REMOVED SHALL BE OFFERED TO THE OWNER FOR SALVAGE. IF THE OWNER DOES NOT TAKE POSSESSION, DISPOSE OF THE ITEMS IN A SAFE AND LEGAL MANNER. ALL ITEMS CLASSIFIED AS HAZARDOUS SHALL BE DISPOSED AS HAZARDOUS WASTES AND A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PROVIDED TO THE OWNER.
7. NOTIFY UTILITY COMPANIES IN ACCORDANCE WITH THEIR REQUIREMENTS PRIOR TO DEMOLITION. VERIFY THAT THE UTILITIES HAVE BEEN DISCONNECTED, CAPPED AND MADE SAFE PRIOR TO DEMOLITION.
8. ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
9. DO NOT USE CUTTING TORCHES UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS. AT CONCEALED SPACES, SUCH AS PIPE INTERIORS, VERIFY CONDITION AND CONTENTS OF HIDDEN SPACE BEFORE STARTING FLAME-CUTTING OPERATIONS. MAINTAIN FIRE WATCH AND PORTABLE FIRE-SUPPRESSION DEVICES DURING FLAME-CUTTING OPERATIONS. MAINTAIN ADEQUATE VENTILATION WHEN USING CUTTING TORCHES.
10. ALL DEMOLITION SCOPE ASSOCIATED WITH LOW VOLTAGE SYSTEMS INCLUDING BUT NOT LIMITED TO TELEPHONE, DATA, SECURITY, PAGING, CCTV, ETC. SHALL BE INCLUDED IN THIS CONTRACT.
11. DE-ENERGIZE AND REMOVE ALL CONDUCTORS AND RACEWAYS TO THEIR POINTS OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. RACEWAYS THAT ENTER MASONRY WALLS AND FLOORS SHALL BE CUT FLUSH AT THE SURFACE FOR PATCHING BY OTHERS. ALL CIRCUIT BREAKERS ASSOCIATED WITH THE DEMOLITION SCOPE SHALL BE DE-ENERGIZED AND LABELED SPARE.
12. REMOVED FLUORESCENT AND HID LAMPS AND BATTERIES SHALL BE RECYCLED BY A FACILITY APPROVED BY THE OWNER'S REPRESENTATIVE.
13. ALL BALLASTS IN LIGHTING FIXTURES TO BE DISPOSED SHALL BE VERIFIED TO BE PCB FREE. ALL BALLASTS MANUFACTURED PRIOR TO 1979 AND NOT LABELED AS PCB FREE SHALL BE CONSIDERED TO CONTAIN PCBS. PROVIDE WRITTEN VERIFICATION TO THE OWNER'S REPRESENTATIVE THAT CONFIRMS PCB FREE WASTE. WHERE PCB FREE WASTE CANNOT BE VERIFIED, BALLASTS SHALL BE RECYCLED BY A FACILITY APPROVED BY THE OWNER'S REPRESENTATIVE, WITH PCB COMPONENTS ELIMINATED BY A HIGH TEMPERATURE INCINERATION.
14. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

8' 16'

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL FIRST FLOOR DEMO PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

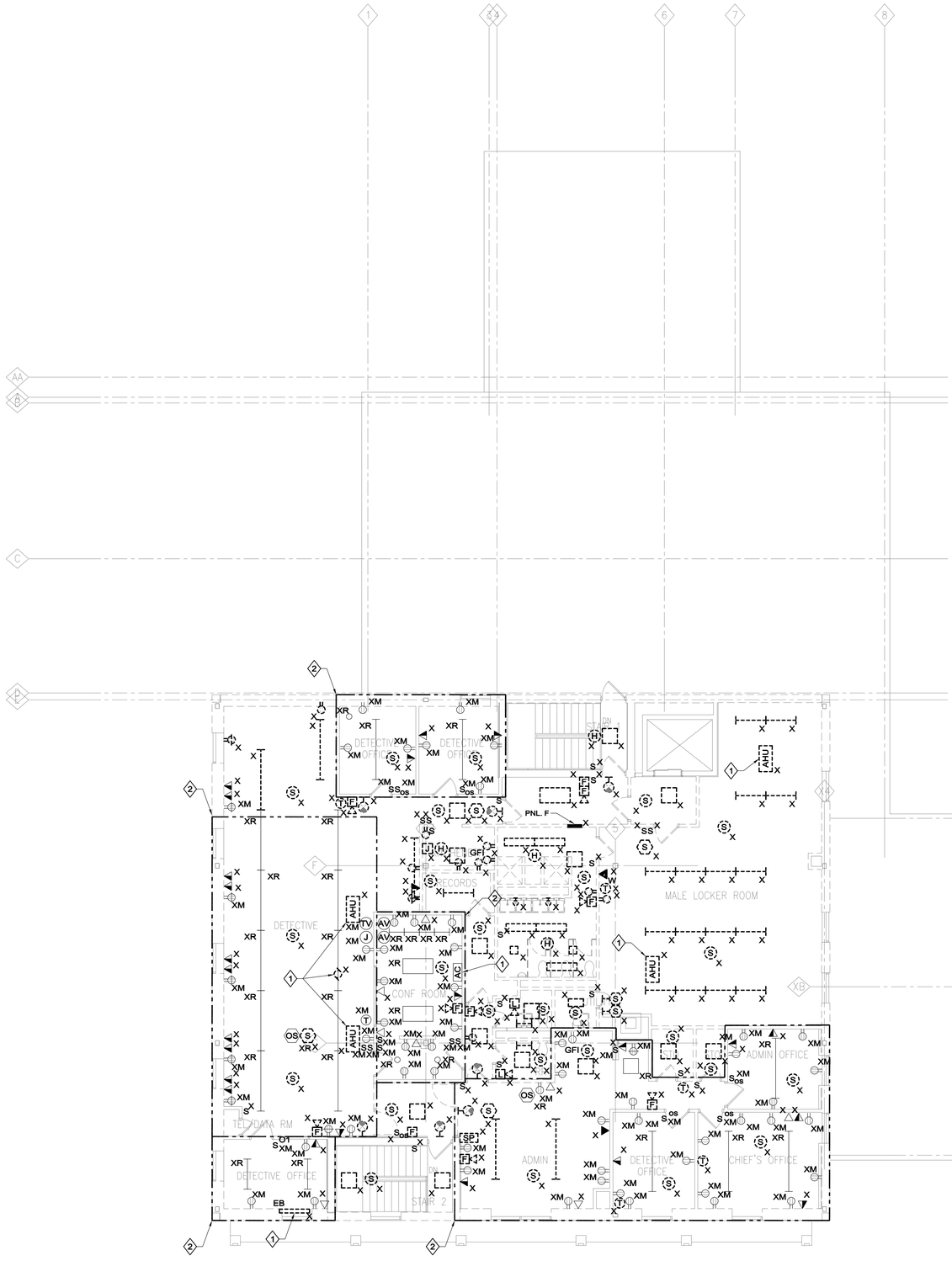
SHEET NUMBER:

ED102

SHEET 123 **OF** 157

G:\20130535 - Waltham Police HQ Renovation\1200 Drawings\1204 Electrical\Plot Files\20130535 ED102 ELECTRICAL FIRST FLOOR DEMOLITION PLAN.dwg [Work] July 14, 2014 - 5:42pm dfranzek

REVIEWED BY: CIVIL: ____ ARCH: ____ STRU: ____ PLUM: ____ FIRE: ____ MECH: ____ ELEC: ____



ELECTRICAL DEMOLITION NOTES

DEMOLITION NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, NOTES AND ABBREVIATIONS.
2. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXTENT OF THE DEMOLITION SCOPE OF WORK AND AREA. THE DEMOLITION PLANS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED.
3. VISIT THE SITE PRIOR TO SUBMISSION OF THE BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF THE WORK. UNFORESEEN DEMOLITION CONDITIONS AFTER SUBMISSION OF OF THE BIDS SHALL NOT BE AT ADDITIONAL COST TO THE OWNER.
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9. DO NOT USE CUTTING TORCHES UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS. AT CONCEALED SPACES, SUCH AS PIPE INTERIORS, VERIFY CONDITION AND CONTENTS OF HIDDEN SPACE BEFORE STARTING FLAME-CUTTING OPERATIONS. MAINTAIN FIRE WATCH AND PORTABLE FIRE-SUPPRESSION DEVICES DURING FLAME-CUTTING OPERATIONS. MAINTAIN ADEQUATE VENTILATION WHEN USING CUTTING TORCHES.
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14. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

KEYNOTES

1	DISCONNECT AND MAKE SAFE FOR REMOVAL BY MECHANICAL. SEE MECHANICAL DRAWINGS
2	ALL EXISTING EQUIPMENT, UNLESS OTHERWISE NOTED, LOCATED WITHIN HIGHLIGHTED AREAS SHALL REMAIN AND BE REUSED. INTERCEPT BRANCH CIRCUITS TO BE REUSED. COORDINATE WITH ARCHITECTURAL AND OTHER TRADES.

EXISTING EQUIPMENT LEGEND

XM	EXISTING EQUIPMENT TO REMAIN
X	EXISTING EQUIPMENT TO BE REMOVED
XR	EXISTING EQUIPMENT TO BE RELOCATED
XN	NEW LOCATION OF EXISTING RELOCATED EQUIPMENT
NR	EXISTING EQUIPMENT TO BE REMOVED AND NEW EQUIPMENT TO BE INSTALLED ON EXISTING BRANCH/FEEDER
	EXISTING EQUIPMENT FOR INFORMATION ONLY- INDICATED BY SYMBOL WITH LIGHT AND OUT OF FUNCTION LINE TYPE
	EXISTING EQUIPMENT TO BE REWORKED- INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

8' 16'

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL SECOND FLOOR DEMO PLAN

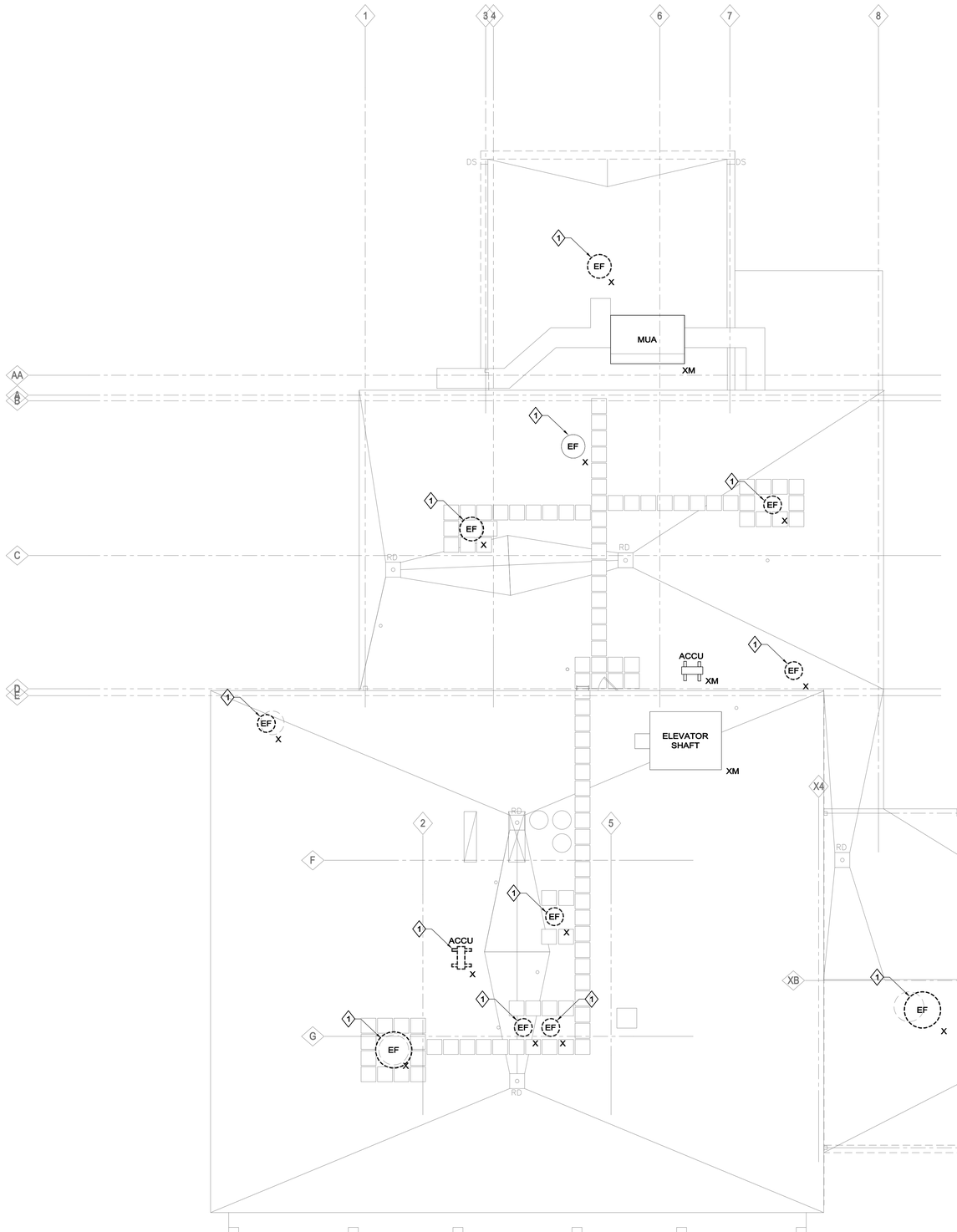
PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

ED103

SHEET 124 **OF** 157

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



ELECTRICAL DEMOLITION NOTES

DEMOLITION NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, NOTES AND ABBREVIATIONS.
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14. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

KEYNOTES

1	DISCONNECT AND MAKE SAFE FOR REMOVAL BY MECHANICAL. SEE MECHANICAL DRAWINGS

EXISTING EQUIPMENT LEGEND

XM	EXISTING EQUIPMENT TO REMAIN
X	EXISTING EQUIPMENT TO BE REMOVED
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XN	NEW LOCATION OF EXISTING RELOCATED EQUIPMENT
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	EXISTING EQUIPMENT FOR INFORMATION ONLY- INDICATED BY SYMBOL WITH LIGHT AND OUT OF FUNCTION LINE TYPE
	EXISTING EQUIPMENT TO BE REWORKED- INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

8' 16'

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL ROOF DEMOLITION PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

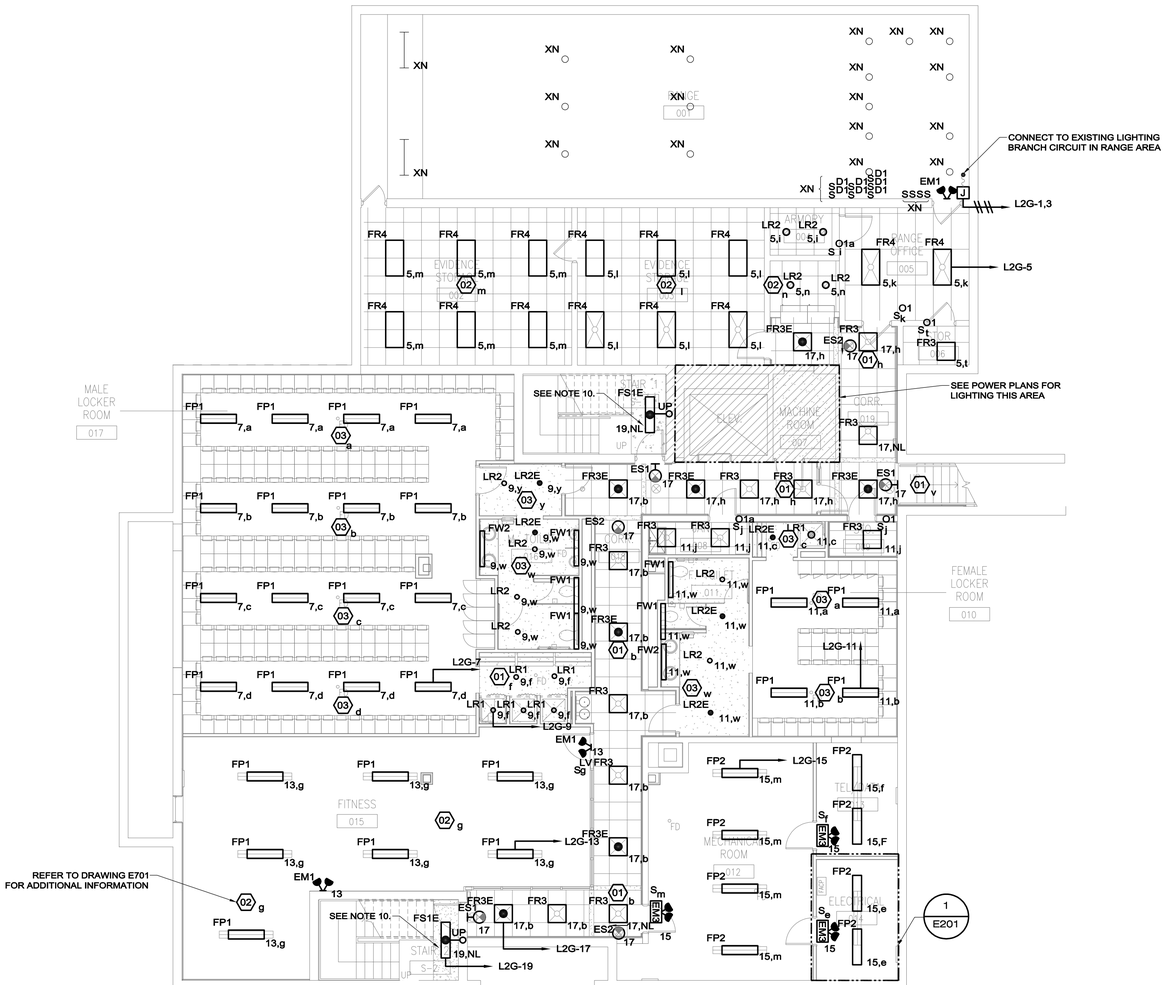
SHEET NUMBER:

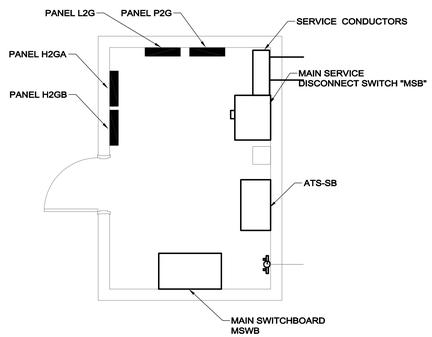
ED104

SHEET 125 **OF** 157

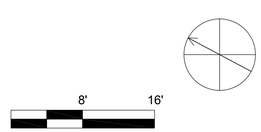
G:\2013\20130535 - Waltham Police HQ Renovation\1200 Drawings\1204 Electrical\Plot Files\20130535 ED104 ELECTRICAL ROOF DEMOLITION PLAN.dwg [Work] July 14, 2014 - 5:42pm dfranzak

REVIEWED BY: CIVIL:_____ ARCH:_____ STRU:_____ PLUM:_____ FIRE:_____ MECH:_____ ELEC:_____





1/201 ENLARGED ELECTRICAL ROOM PLAN
1/4" = 1'-0"



LIGHTING NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, SYMBOLS AND GENERAL NOTES.

2. REFER TO ARCHITECTURAL DRAWINGS, INCLUDING BUT NOT LIMITED TO, REFLECTED CEILING PLANS AND ELEVATIONS FOR ASSOCIATED NOTES, MOUNTING DETAILS AND EXACT LOCATIONS OF ALL LIGHTING FIXTURES.

3. PROVIDE COMMON FACE PLATE AND REQUIRED METAL INTERIOR BOX BARRIERS FOR ALL MULTIPLE GANG SWITCH LOCATIONS.

4. CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. THE ASSOCIATED CIRCUIT NUMBER AND SWITCH LEG NOMENCLATURE THAT ARE APPLIED TO EACH LIGHTING FIXTURE AND CONTROLLING DEVICE INFER INTERCONNECTING BRANCH CIRCUITRY.

5. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUIT AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V AND 175' FOR 277V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%.

6. COORDINATE THE PLACEMENT OF ALL PENDENT, SURFACE OR SEMI-FLUSH FIXTURES AND DEVICES WITH THE FIRE PROTECTION CONTRACTOR TO MAINTAIN NFPA 13 REQUIRED SEPARATION BETWEEN SPRINKLER HEADS AND OBSTRUCTIONS.

7. PROVIDE CONSTANTLY ENERGIZED (UNSWITCHED) BRANCH CIRCUIT TO ALL EXIT SIGNS AND EGRESS LIGHTS FROM THE DESIGNATED SOURCE.

8. LIGHTING BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANELBOARD TO THE FIRST OUTLET AND/OR WHERE EXPOSED. LIGHTING BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS OR IN METAL STUD WALLS.

9. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING LIGHTING TO REMAIN.

10. MOUNT STAIRS LIGHT AT LANDING CEILING.

2012 IECC STANDARD
INTERIOR LIGHTING SYSTEM POWER ALLOWANCE COMPLIANCE

TOTAL CONNECTED INTERIOR LIGHTING POWER: 17,579

TOTAL ALLOWED INTERIOR LIGHTING POWER: 18,183

VERIFIED UTILIZING COMCHECK SOFTWARE BY US DOE

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Andover, MA 01810-1488
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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

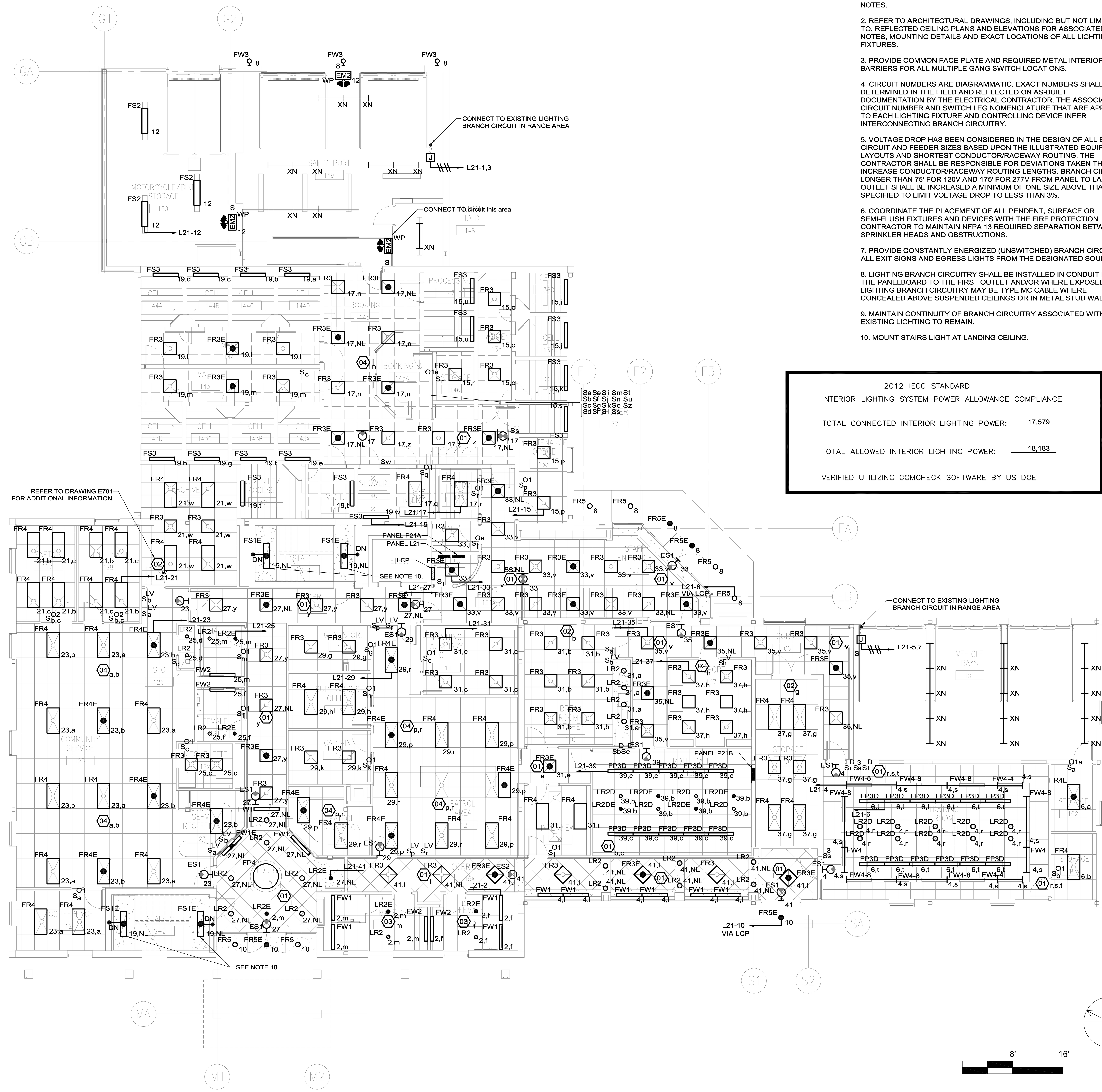
ELECTRICAL LIGHTING BASEMENT FLOOR PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

E201

SHEET 126 **OF** 157



LIGHTING NOTES:

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10. MOUNT STAIRS LIGHT AT LANDING CEILING.

2012 IECC STANDARD

INTERIOR LIGHTING SYSTEM POWER ALLOWANCE COMPLIANCE

TOTAL CONNECTED INTERIOR LIGHTING POWER: 17,579

TOTAL ALLOWED INTERIOR LIGHTING POWER: 18,183

VERIFIED UTILIZING COMCHECK SOFTWARE BY US DOE

8' 16'

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Durham, NC - Charlotte, NC
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Andover, MA 01810-1488
T. 978-296-6200

REVISIONS

Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

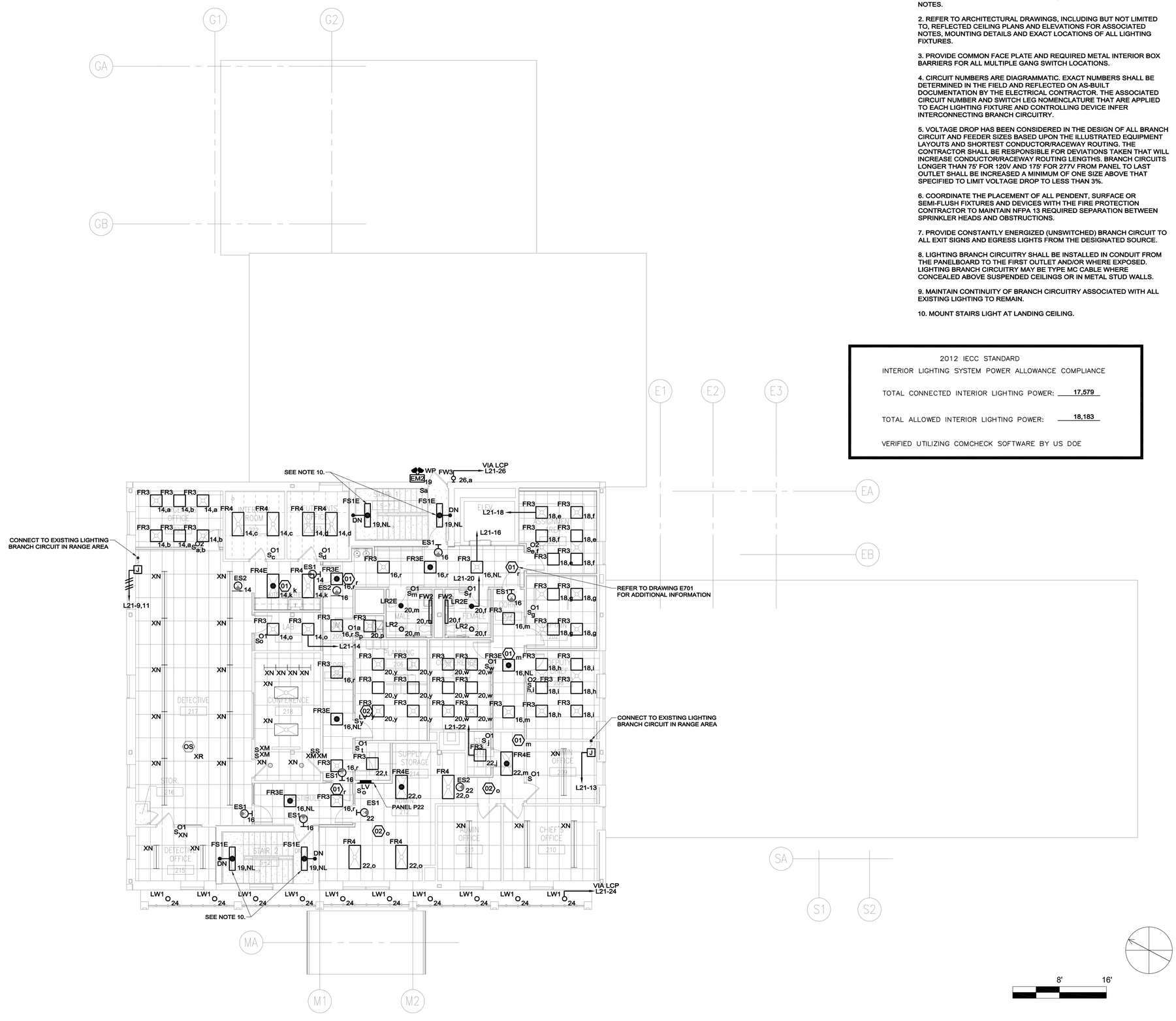
155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL LIGHTING FIRST FLOOR PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"
SHEET NUMBER:

E202

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:



LIGHTING NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, SYMBOLS AND GENERAL NOTES.

2. REFER TO ARCHITECTURAL DRAWINGS, INCLUDING BUT NOT LIMITED TO, REFLECTED CEILING PLANS AND ELEVATIONS FOR ASSOCIATED NOTES, MOUNTING DETAILS AND EXACT LOCATIONS OF ALL LIGHTING FIXTURES.

3. PROVIDE COMMON FACE PLATE AND REQUIRED METAL INTERIOR BOX BARRIERS FOR ALL MULTIPLE GANG SWITCH LOCATIONS.

4. CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. THE ASSOCIATED CIRCUIT NUMBER AND SWITCH LEG NOMENCLATURE THAT ARE APPLIED TO EACH LIGHTING FIXTURE AND CONTROLLING DEVICE INFER INTERCONNECTING BRANCH CIRCUITRY.

5. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUIT AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V AND 175' FOR 277V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%.

6. COORDINATE THE PLACEMENT OF ALL PENDENT, SURFACE OR SEMI-FLUSH FIXTURES AND DEVICES WITH THE FIRE PROTECTION CONTRACTOR TO MAINTAIN NFPA 13 REQUIRED SEPARATION BETWEEN SPRINKLER HEADS AND OBSTRUCTIONS.

7. PROVIDE CONSTANTLY ENERGIZED (UNSWITCHED) BRANCH CIRCUIT TO ALL EXIT SIGNS AND EGRESS LIGHTS FROM THE DESIGNATED SOURCE.

8. LIGHTING BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANELBOARD TO THE FIRST OUTLET AND/OR WHERE EXPOSED. LIGHTING BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS OR IN METAL STUD WALLS.

9. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING LIGHTING TO REMAIN.

10. MOUNT STAIRS LIGHT AT LANDING CEILING.

2012 IECC STANDARD

INTERIOR LIGHTING SYSTEM POWER ALLOWANCE COMPLIANCE

TOTAL CONNECTED INTERIOR LIGHTING POWER: 17,579

TOTAL ALLOWED INTERIOR LIGHTING POWER: 18,183

VERIFIED UTILIZING COMCHECK SOFTWARE BY US DOE

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL LIGHTING SECOND FLOOR PLAN

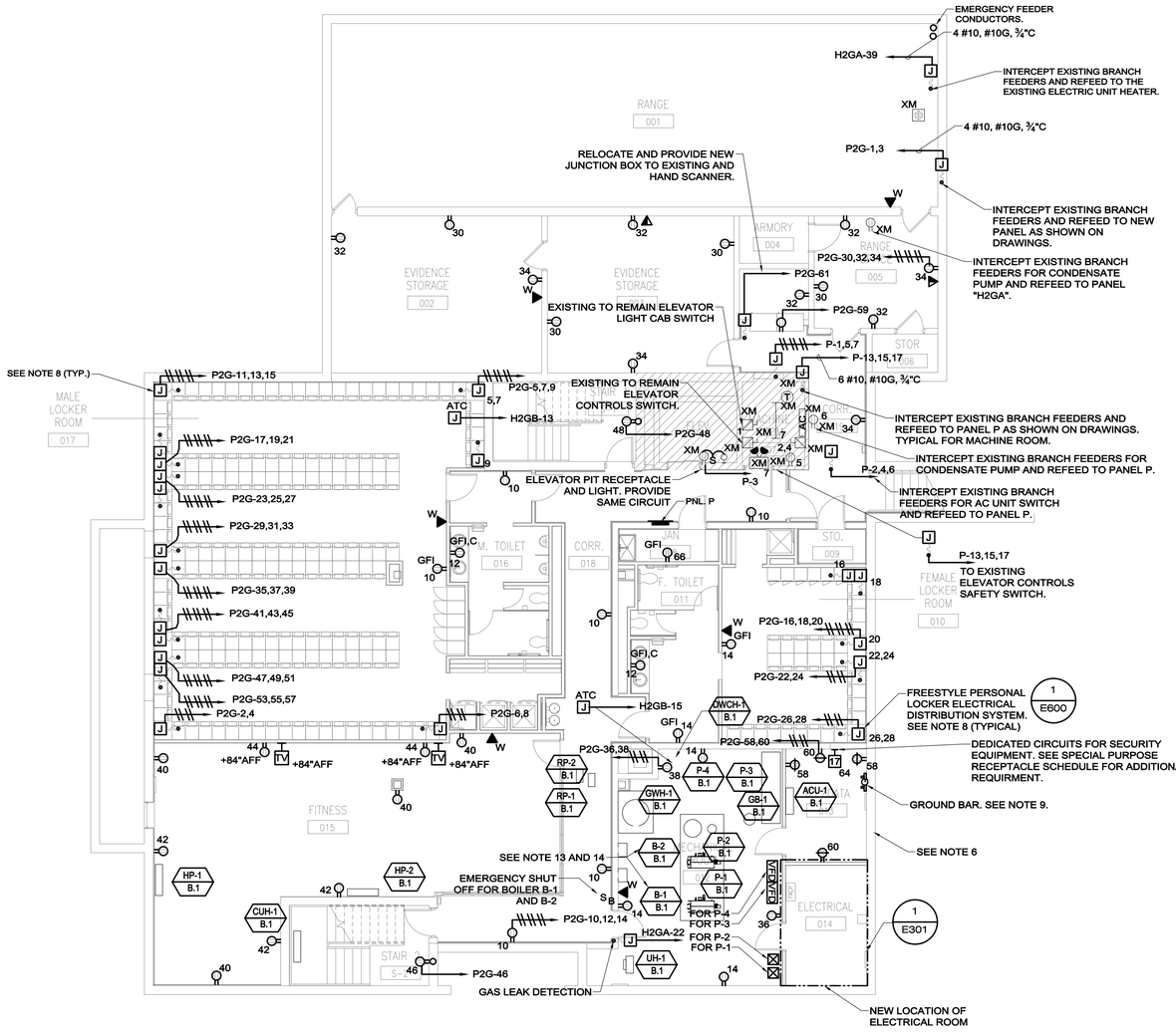
PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

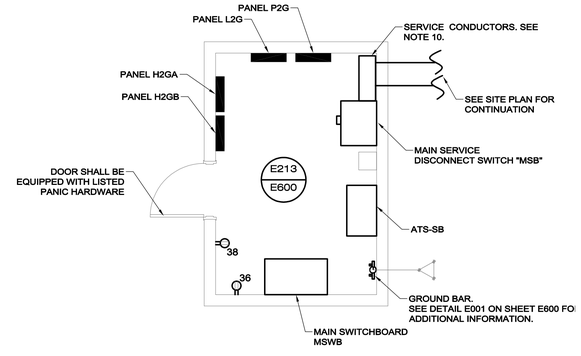
SHEET NUMBER:

E203

SHEET 128 **OF** 157

REVIEWED BY: CIVIL:_____ ARCH:_____ STRU:_____ PLUM:_____ FIRE:_____ MECH:_____ ELEC:_____





1 / 301 ENLARGED ELECTRICAL ROOM PLAN
1/4" = 1'-0"

8' 16'

POWER NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.
3. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO 2% DROP.
4. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
5. SWITCHBOARDS, PANELBOARDS, METER SOCKET AND SWITCHES SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS. THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT.
6. SEE SECURITY DRAWING FOR ADDITIONAL INFORMATION.
7. REFER TO THE TELECOMMUNICATIONS DRAWINGS FOR EXACT REQUIREMENTS FOR EACH DEVICE ILLUSTRATED. IN GENERAL, ALL DEVICES SHALL HAVE A TWO GANG BOX WITH PLASTER RING AND ¾" C TO SPACE ABOVE SUSPENDED CEILING. THE SUPPORT SYSTEM ABOVE THE SUSPENDED CEILING SHALL BE BY THE TELECOMMUNICATIONS INSTALLER.
8. PROVIDE BRANCH CIRCUITS AS SPECIFIED ON DRAWINGS FOR PERSONAL STORAGE LOCKER ELECTRICAL SYSTEM. LOCKERS SHALL BE TYPE "SENTINEL INFINITY LOCKER" AS MANUFACTURED BY TIFFIN OR EQUAL. LOCKERS SHALL BE PROVIDED WITH POWER SYSTEM "PLUG AND PLAY" AND POWER STRIP. SEE TYPICAL LOCKER "PLUG AND PLAY" ELECTRICAL LAYOUT DETAIL 1 ON SHEET E600.
9. PROVIDE AND INSTALL 24"X12" MASTER GROUND BAR. BOND TO BUILDING MAIN GROUNDING SYSTEM. SEE DETAIL E005 ON SHEET E600. VERIFY EXACT LOCATION IN THE FIELD.
10. PROVIDE CONDUIT SEALING BUSHING TO PREVENT ENTRANCE OF MOISTER AT EITHER END OF ENTRANCE OF BUILDING.
11. REFER TO SECURITY DRAWINGS FOR CARD READERS AND SECURITY CAMERAS INSTALLATION REQUIREMENTS.
12. REFER TO A/V DRAWINGS FOR AUDIO VISUAL INSTALLATION REQUIREMENTS.
13. PROVIDE BOILER SAFETY SWITCHES (FIROMATIC) MOUNTED ABOVE BOILER. SEE DETAIL E316 ON SHEET E601.
14. BOILER SERVICE SWITCH SHALL BE LOCKABLE AND INSTALLED ON OR AS CLOSE AS POSSIBLE TO THE BOILER.
15. RECEPTACLES SHALL NOT BE INSTALLED BACK TO BACK.

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

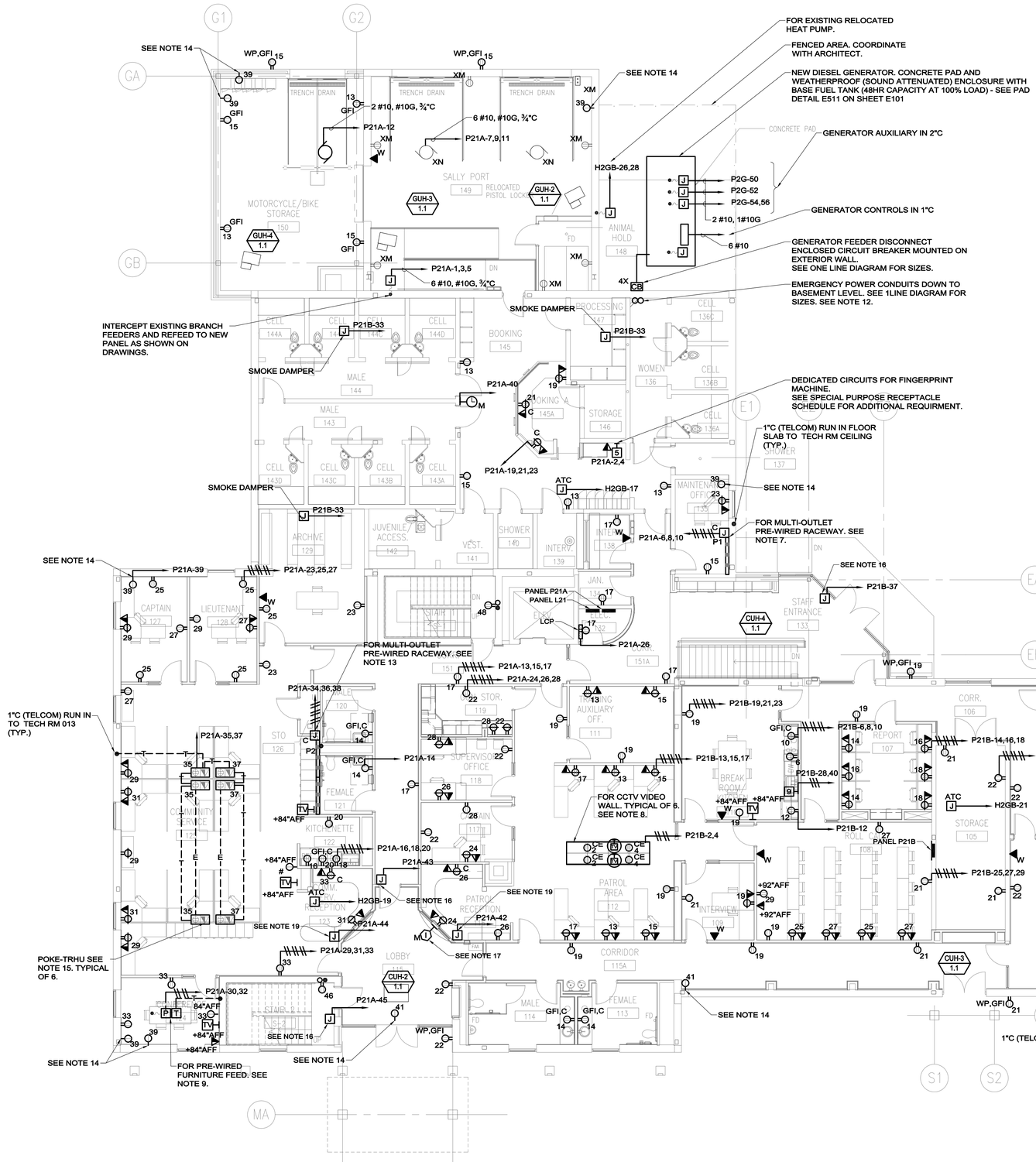
ELECTRICAL POWER BASEMENT FLOOR PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

E301

SHEET 129 **OF** 157



POWER NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.
3. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO 2% DROP.
4. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
5. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.
6. SWITCHBOARDS, PANELBOARDS, METER SOCKET ENCLOSURES AND MOTOR CONTROL CENTERS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS. THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT.
7. PROVIDE SURFACE WALL MOUNT RACEWAY TYPE ALA3000 SERIES WITH FRONT DUPLEX RECEPTACLE COVER PLATE AND DEVICES AS MANUFACTURED BY WIREMOLD/LEGRAND OR APPROVED EQUAL. VERIFY EXACT MOUNTING HEIGHT AND LOCATION IN FIELD.
8. PROVIDE POLE MOUNT DUPLEX RECEPTACLE AND SINGLE GANG BOX FOR TV MONITORS. PROVIDE 1"C STUBBED UP ABOVE FINISHED CEILING. COORDINATE IN FIELD WITH SECURITY AND ARCHITECT FOR MOUNTING INFORMATION.
9. PRE-WIRED FURNITURE PROVIDED BY OTHERS. VERIFY EXACT LOCATION IN FIELD. COORDINATED WITH ARCHITECT FOR ADDITIONAL REQUIREMENTS.
10. PROVIDE FLUSH MOUNTED 3 GANG FLOORBOX WITH (1) DUPLEX RECEPTACLE, (1) VOICE JACK, (2) DATA JACKS AND (3) RADIO JACKS TYPE "AF1" AS MANUFACTURED BY WIREMOLD/LEGRAND OR APPROVED EQUAL. COORDINATE WITH ARCHITECT FOR FINISHES REQUIREMENTS. VERIFY EXACT LOCATION IN FIELD.
11. PROVIDE WALL MOUNTED UP-DOWN SWITCH FOR MOTORIZED SCREEN. VERIFY EXACT LOCATION IN FIELD
12. PROVIDE CONDUIT SEALING BUSHING TO PREVENT ENTRANCE OF MOISTER AT EITHER END OF ENTRANCE OF BUILDING.
13. PROVIDE TWO SURFACE WALL MOUNT PRE-WIRED RACEWAY , ONE MOUNTED AT 4'-2" AND ONE MOUNTED AT 5'9", TYPE ALA3000 SERIESWITH FRONT DUPLEX RECEPTACLE COVER PLATE AND DEVICES AS MANUFACTURED BY WIREMOLD/LEGRAND OR APPROVED EQUAL. VERIFY EXACT MOUNTING HEIGHT AND LOCATION IN FIELD.
14. PROVIDE RECEPTACLES FOR OUTSIDE MOUNTED CAMERA LOW VOLTAGE TRANSFORMER. CAMERAS AND TRANSFORMERS BY OTHER.VERIFY EXACT LOCATION WITH SECURITY IN FIELD.
15. PROVIDE 2 GANG FLOOR BOX TYPE "880W2" AS MANUFACTURED BY WIREMOLD/LEGRAND OR APPROVED EQUAL. COORDINATE WITH ARCHITECT FOR FINISHES REQUIREMENTS. VERIFY EXACT LOCATION IN FIELD
16. PROVIDE JUNCTION BOX FOR THE DOOR SECURITY ACCESS. REFER TO SECURITY DRAWINGS FOR ADDITIONAL INFORMATION.
17. PROVIDE INTERCOM SYSTEM TYPE "LEM-1" FOR INTERIOR COMPONENT AND "LE-SS/A" FOR PUBLIC SIDE AS MANUFACTURED BY AIRPHONE OR EQUAL.
18. RECEPTACLES SHALL NOT BE INSTALLED BACK TO BACK.
19. PROVIDE JUNCTION BOX , WIRING AND APPURTENANCES TO THE FIRE COUNTER SHUTTER DOOR. COORDINATE IN FIELD WITH ARCHITECT FOR EXACT LOCATION.

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL POWER FIRST FLOOR PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

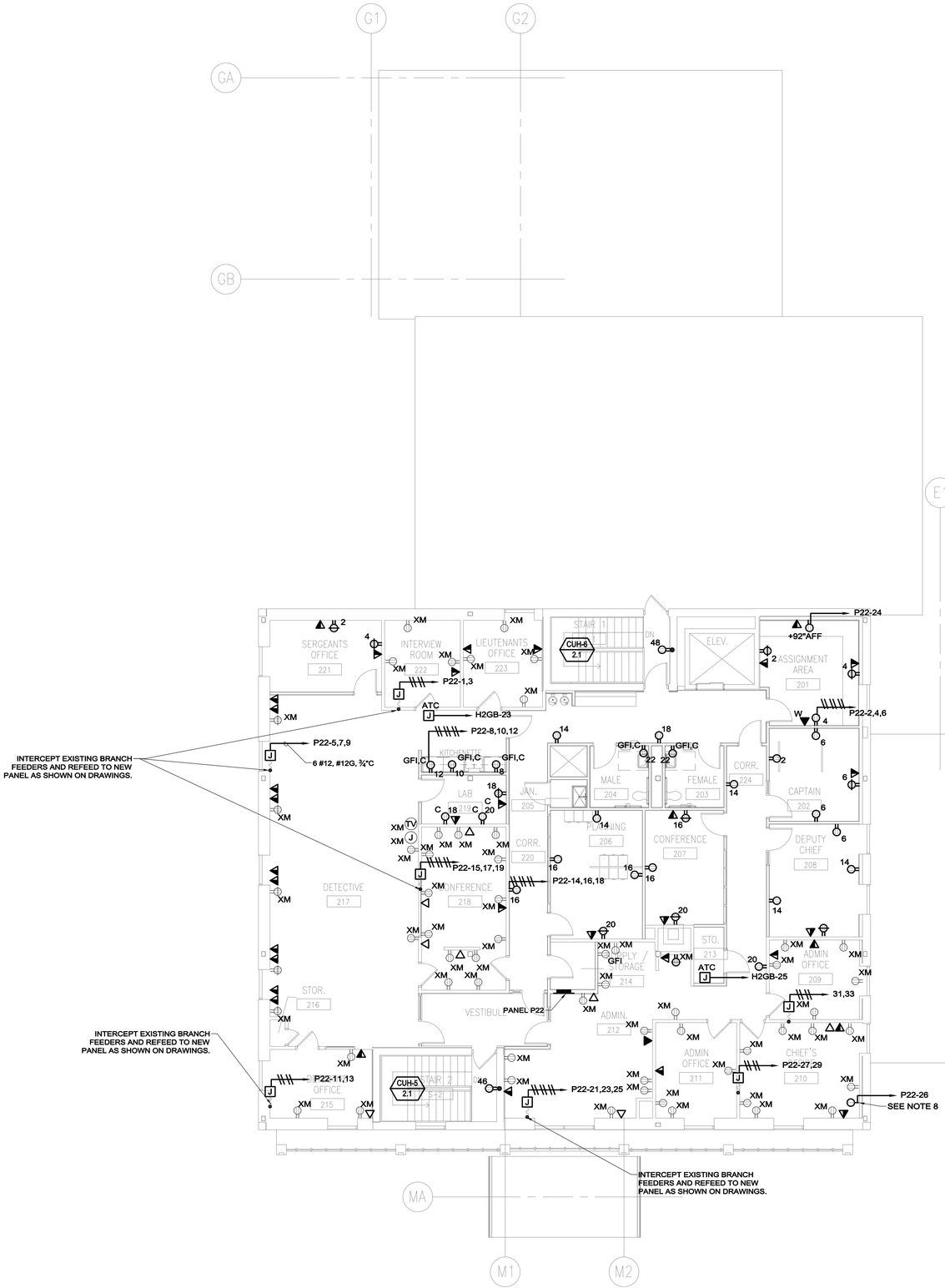
E302

SHEET 130 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

G:\2013\20130535 - Waltham Police HQ Renovation\1200 Drawings\1204 Electrical\Plot Files\20130535 E302 ELECTRICAL POWER FIRST FLOOR PLAN.dwg (Work) July 14, 2014 - 9:46pm dfranzak

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



POWER NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
2. REFER TO ARCHITECTURAL DRAWINGS FOR ASSOCIATED NOTES, MOUNTING DETAILS, HEIGHTS AND EXACT LOCATIONS OF ALL DEVICES.
3. CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.
4. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO 2% DROP.
5. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.
6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.
7. SWITCHBOARDS, PANELBOARDS, METER SOCKET ENCLOSURES AND MOTOR CONTROL CENTERS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS. THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMEN
8. PROVIDE RECEPTACLES FOR OUTSIDE MOUNTED CAMERA LOW VOLTAGE TRANSFORMER. CAMERAS AND TRANSFORMERS BY OTHER. VERIFY EXACT LOCATION WITH SECURITY IN FIELD.
9. RECEPTACLES SHALL NOT BE INSTALLED BACK TO BACK.

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL POWER SECOND FLOOR PLAN

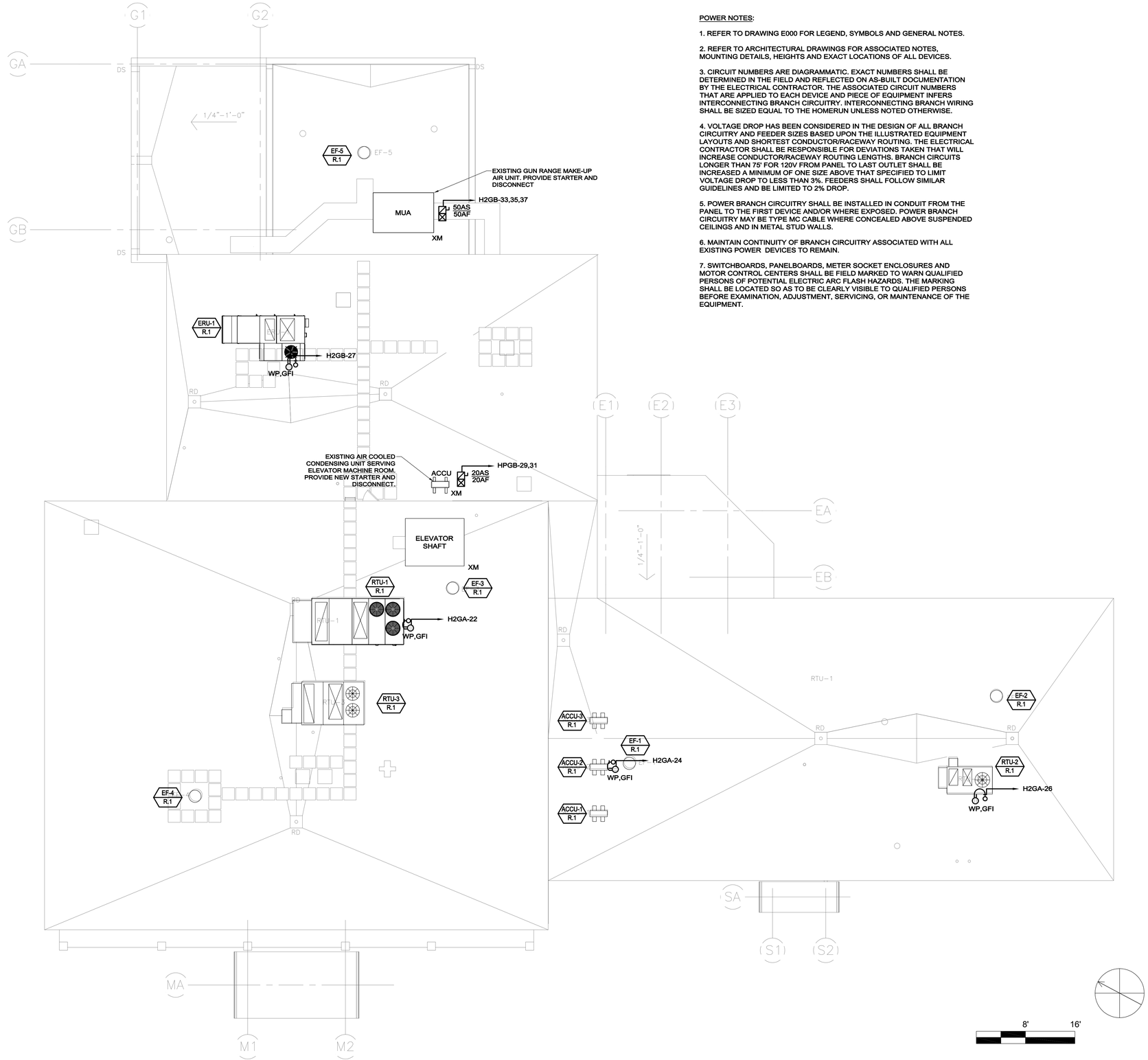
PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

E303

SHEET 131 **OF** 157

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



POWER NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, SYMBOLS AND GENERAL NOTES.

2. REFER TO ARCHITECTURAL DRAWINGS FOR ASSOCIATED NOTES, MOUNTING DETAILS, HEIGHTS AND EXACT LOCATIONS OF ALL DEVICES.

3. CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.

4. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO 2% DROP.

5. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.

6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

7. SWITCHBOARDS, PANELBOARDS, METER SOCKET ENCLOSURES AND MOTOR CONTROL CENTERS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS. THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT.

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL POWER ROOF PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

E304

SHEET 132 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

FIRE ALARM NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, SYMBOLS AND GENERAL NOTES.

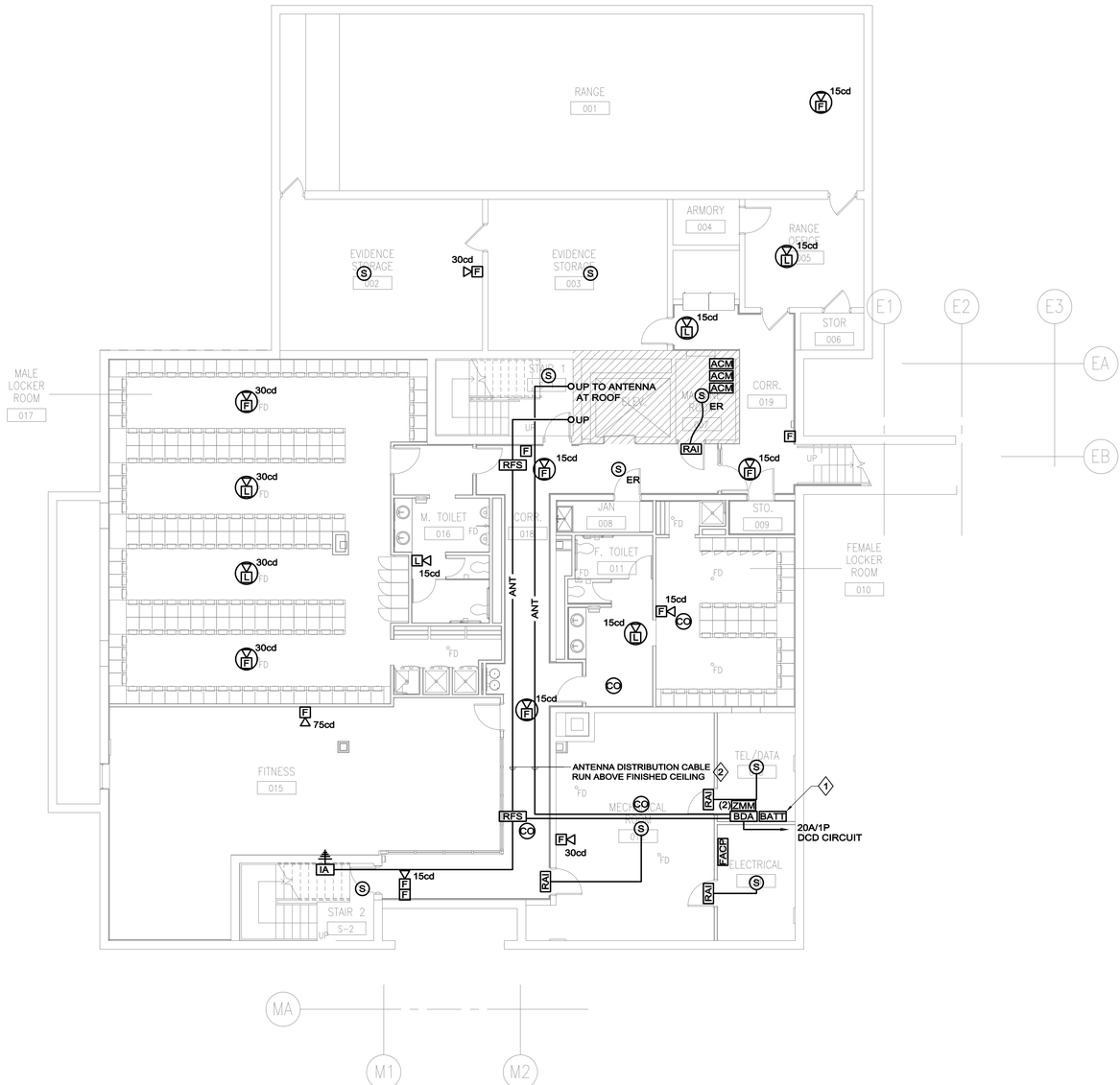
2. REFER TO ARCHITECTURAL DRAWINGS FOR ASSOCIATED NOTES, MOUNTING DETAILS, HEIGHTS AND EXACT LOCATIONS OF ALL DEVICES.

3. FIRE ALARM BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. FIRE ALARM BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.

4. MC CABLE FOR FIRE ALARM SERVICE SHALL HAVE A RED IDENTIFIER ALONG ITS ENTIRE LENGTH. JUNCTION BOX COVERS AND CONDUIT COUPLINGS FOR ALL FIRE ALARM WIRING RACEWAYS SHALL BE PAINTED RED PRIOR TO INSTALLATION.

5. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.

KEYNOTES	
1	PROVIDE (2) ZONE MONITORING MODULES (ZMM) FOR TROUBLE NOTIFICATION AT THE SUPERVISORY STATION.
2	CABLE SHALL BE SUPPORTED EVERY 4'-0" WITH APPROVED MOUNTING HARDWARE.



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200 Brickstone Square
Andover, MA 01810-1468
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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL FIRE ALARM BASEMENT FLOOR PLAN

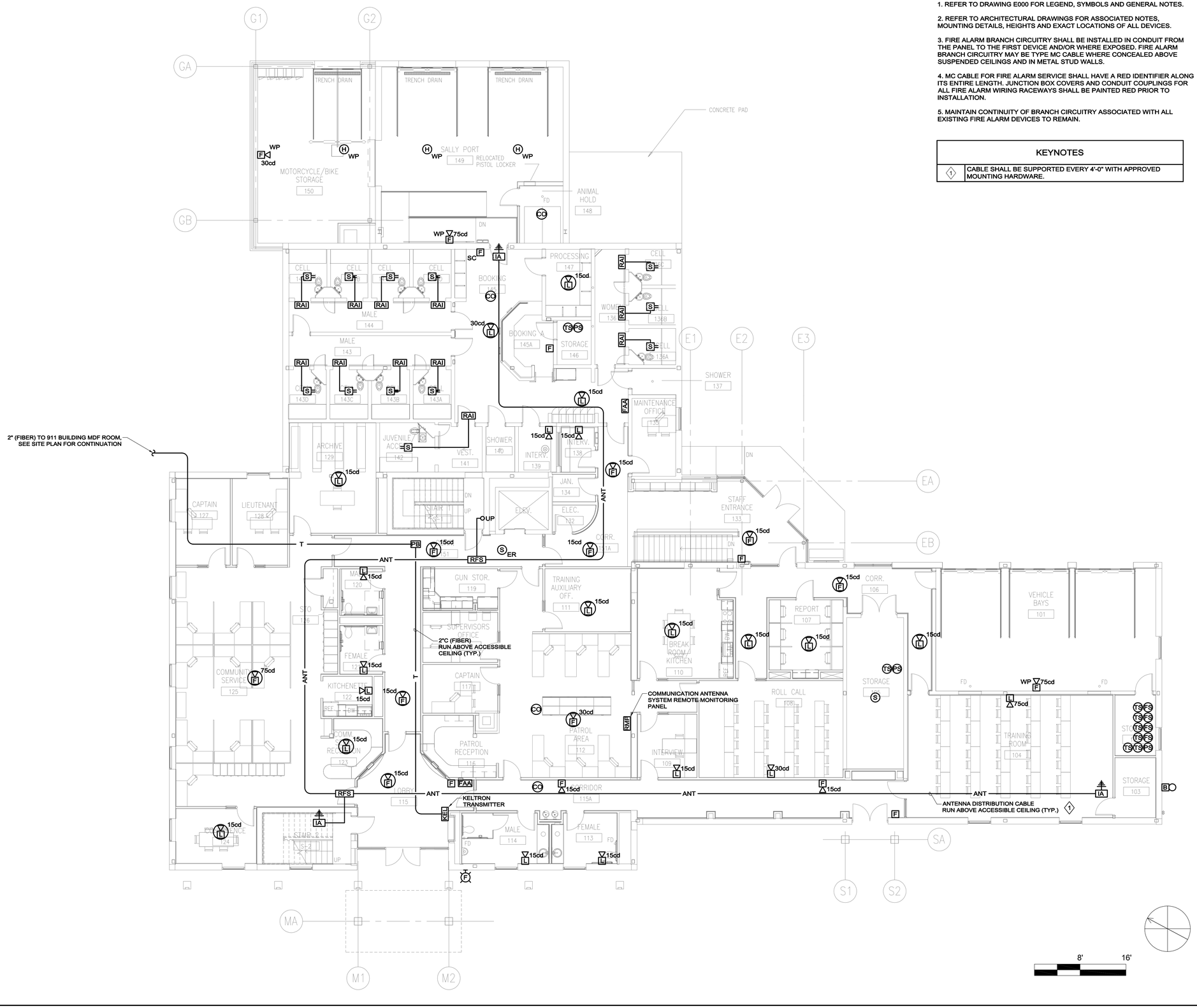
PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

E401

SHEET 133 **OF** 157

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



FIRE ALARM NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, SYMBOLS AND GENERAL NOTES.

2. REFER TO ARCHITECTURAL DRAWINGS FOR ASSOCIATED NOTES, MOUNTING DETAILS, HEIGHTS AND EXACT LOCATIONS OF ALL DEVICES.

3. FIRE ALARM BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. FIRE ALARM BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.

4. MC CABLE FOR FIRE ALARM SERVICE SHALL HAVE A RED IDENTIFIER ALONG ITS ENTIRE LENGTH. JUNCTION BOX COVERS AND CONDUIT COUPLINGS FOR ALL FIRE ALARM WIRING RACEWAYS SHALL BE PAINTED RED PRIOR TO INSTALLATION.

5. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.

KEYNOTES	
1	CABLE SHALL BE SUPPORTED EVERY 4'-0" WITH APPROVED MOUNTING HARDWARE.

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REVISIONS		
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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL FIRE ALARM FIRST FLOOR PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

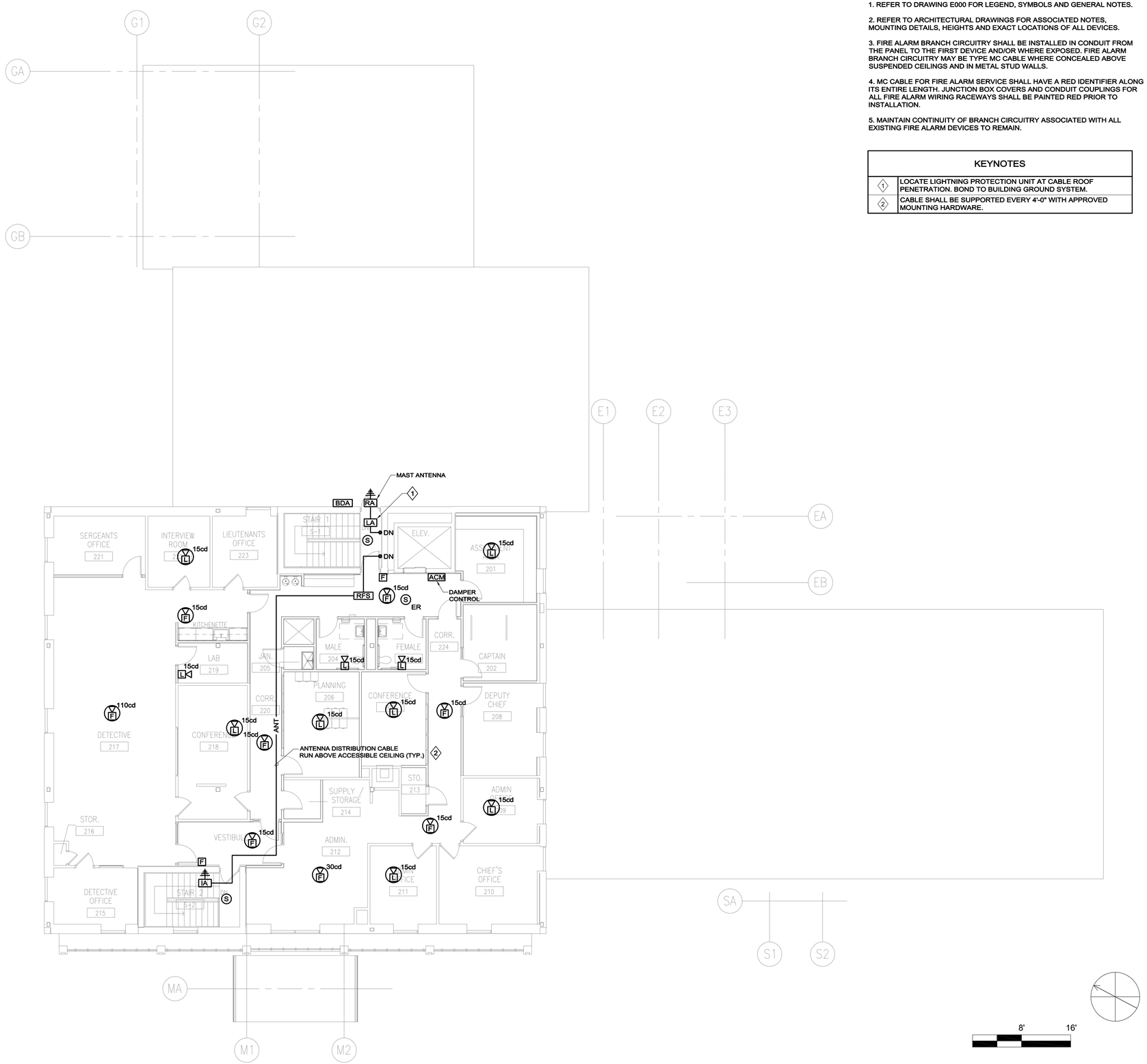
SHEET NUMBER:

E402

SHEET 134 **OF** 157

G:\20130535 - Waltham Police HQ Renovation\1200 Drawings\1204 Electrical\Pro Files\20130535 E402 ELECTRICAL FIRE ALARM FIRST FLOOR PLAN.dwg [Work] July 14, 2014 - 5:48pm dfarcek

REVIEWED BY: CIVIL: ____ ARCH: ____ STRU: ____ PLUM: ____ FIRE: ____ MECH: ____ ELEC: ____



FIRE ALARM NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, SYMBOLS AND GENERAL NOTES.

2. REFER TO ARCHITECTURAL DRAWINGS FOR ASSOCIATED NOTES, MOUNTING DETAILS, HEIGHTS AND EXACT LOCATIONS OF ALL DEVICES.

3. FIRE ALARM BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. FIRE ALARM BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.

4. MC CABLE FOR FIRE ALARM SERVICE SHALL HAVE A RED IDENTIFIER ALONG ITS ENTIRE LENGTH. JUNCTION BOX COVERS AND CONDUIT COUPLINGS FOR ALL FIRE ALARM WIRING RACEWAYS SHALL BE PAINTED RED PRIOR TO INSTALLATION.

5. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.

KEYNOTES	
1	LOCATE LIGHTNING PROTECTION UNIT AT CABLE ROOF PENETRATION. BOND TO BUILDING GROUND SYSTEM.
2	CABLE SHALL BE SUPPORTED EVERY 4'-0" WITH APPROVED MOUNTING HARDWARE.

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REVISIONS		
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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL FIRE ALARM SECOND FLOOR PLAN

PROJECT NUMBER: 20130535
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E403

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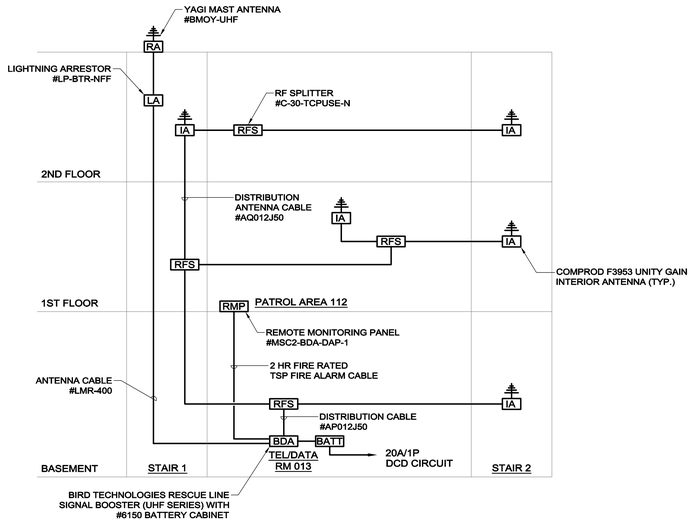
Q:\2013\20130535 - Waltham Police HQ Renovation\1200 Drawings\1204 Electrical\Plot Files\20130535 E403 ELECTRICAL FIRE ALARM SECOND FLOOR PLAN.dwg [Work] July 14, 2014 - 6:44pm dfranzak



FIRE ALARM NOTES:

1. RISER DIAGRAM IS SHOWN FOR INTENT PURPOSES. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL AMPLIFIERS, EQUIPMENT, LIGHTNING ARRESTORS, ANTENNAS, DECOUPLERS, CONNECTORS, CABLES, HANGERS, BRACKETS, BOOSTERS, ETC, FOR A COMPLETE SYSTEM. SYSTEM SHALL MEET ALL REQUIREMENTS OF THE WALTHAM FIRE/POLICE DEPARTMENT. EQUIPMENT SHALL BE MANUFACTURED BY COMTRONICS OR APPROVED EQUAL.

2. THE INTERIOR DISTRIBUTED ANTENNA SYSTEM SHALL BE A COMPLETE, UL LISTED AND APPROVED SYSTEM. ELECTRICAL CONTRACTOR TO VERIFY ALL CATALOG NUMBERS WITH MANUFACTURERS. PROVIDE ALL CABLE LENGTHS AS REQUIRED BASED ON MANUFACTURERS RECOMMENDATIONS.

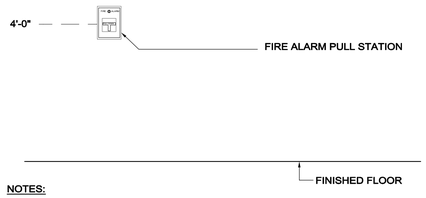
3. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING:

   a. POINT BY POINT WIRING DIAGRAMS INDICATING ALL CABLE LENGTHS, ANTENNAS, SPLITTERS, ETC.
   b. MANUFACTURERS CATALOG CUT SHEETS OF ALL COMPONENTS AND DEVICES.
   c. MANUFACTURER'S WARRANTY FOR MINIMUM OF 2 YEARS FROM DATE OF INSTALLATION ACCEPTANCE.

4. PROVIDE STARTUP AND TESTING UPON COMPLETION OF INSTALLATION BY FACTORY AUTHORIZED TECHNICIAN.

FIRE DEPARTMENT IN-BUILDING COMMUNICATION ANTENNA SYSTEM RISER DIAGRAM

EFKG1



NOTES:

1. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT EXIT SIGNS, CLOCKS, EMERGENCY LIGHTING AND FIRE ALARM A/V DEVICES.

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. STROBE HEIGHT ILLUSTRATED AT MINIMUM HEIGHT OF 80" AFF OR 6" BELOW CEILING, WHICHEVER IS LOWER. IN ACCORDANCE WITH NFPA 72 CRITERIA. THIS DOES NOT APPLY TO CEILING MOUNTED STROBES.

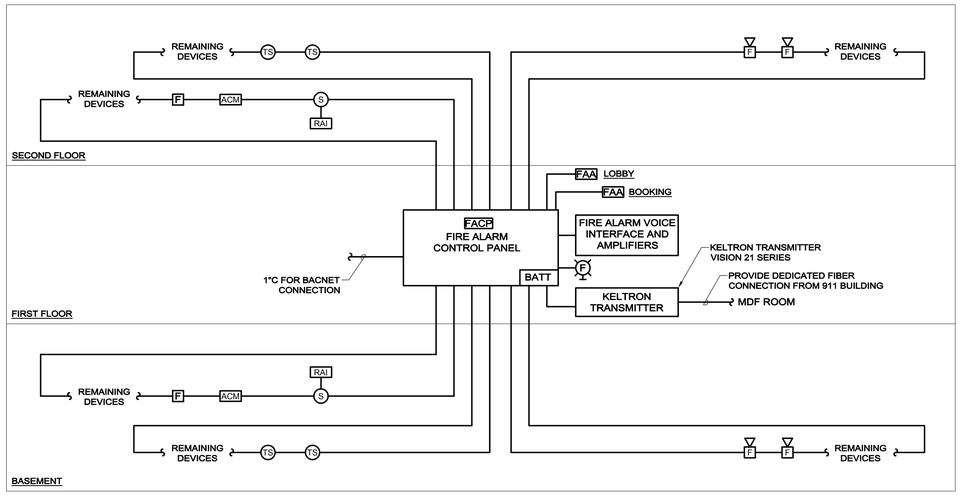
RDK

TYPICAL DEVICE MOUNTING HEIGHTS DETAIL

E201

FIRE ALARM LEGEND

FACP	FIRE ALARM CONTROL PANEL
FATC	FIRE ALARM TERMINAL CABINET
15cd L	FIRE ALARM VISUAL DEVICE
F SC	FIRE ALARM MANUAL PULL STATION "SC" INDICATES STOPPER COVER
TS	SPRINKLER TAMPER FLOW SWITCH
FS	SPRINKLER WATER FLOW SWITCH
PS	SPRINKLER LOW PRESSURE SWITCH
RAI	REMOTE ALARM INDICATOR
RTS	REMOTE TEST STATION
ACM	INDIVIDUAL ADDRESSABLE CONTROL MODULE
ZMM	ZONE MONITORING MODULE
110cd F WG	FIRE ALARM AUDIBLE AND VISUAL DEVICE, NUMERAL INDICATES CANDELA VALUE "WG" INDICATES WIRE GUARD "C" INDICATES CEILING MOUNTED
S	FIRE ALARM SMOKE DETECTOR, PHOTO ELECTRIC UNLESS NOTED OTHERWISE "ER" INDICATES ELEVATOR RECALL



TYPICAL FIRE ALARM RISER

N.T.S.

NOTES:

1. THIS DRAWING IS INTENDED TO ILLUSTRATE MAJOR EQUIPMENT AND THE INTENDED INTERCONNECTIONS. REFER TO THE FLOOR PLANS FOR EXACT LOCATIONS AND QUANTITIES OF DEVICES. REFER TO THE MANUFACTURER'S WIRING DIAGRAMS FOR INTERCONNECTION REQUIREMENTS. INTERCONNECTION DETAILS SHALL BE INCLUDED IN THE SHOP DRAWINGS WITH COMPONENT CUT SHEETS FOR REVIEW AND APPROVAL. THE SHOP DRAWING SUBMISSION SHALL INCLUDE DEVICE PLACEMENT LAYOUT DRAWINGS WITH ADDRESSES, RACEWAY AND WIRING INTERCONNECTION DETAILS ILLUSTRATED PHYSICALLY.

2. FIRE ALARM SYSTEM INSTALLATION SHALL BE IN CONFORMANCE WITH THE LATEST FIRE DEPARTMENT RULES, REGULATIONS, ALL APPLICABLE CODES, STANDARDS AND THE MANUFACTURES INSTALLATION INSTRUCTIONS.

3. PROVIDE AUDIO/VISUAL POWER SUPPLIES SIZED TO ACCOMMODATE NOTIFICATION APPLIANCE QUANTITIES ILLUSTRATED WITH 40% ADDITIONAL SPARE CAPACITY. DISTRIBUTED AMPLIFICATION SHALL NOT EXCEED THAT WHICH IS ILLUSTRATED ON THE ONE-LINE.

4. PROVIDE UL LISTED LOCKING DEVICE FOR POWER SOURCE CIRCUIT BREAKER AND LABEL AS "FIRE ALARM CONTROL CIRCUIT" IN THE PANELBOARD DIRECTORY.

5. VISUAL APPLIANCES WITHIN SAME ROOM OF FIELD OF VIEW SHALL BE SYNCHRONIZED.

6. PROVIDE A MINIMUM OF (2) NAC TO EACH EVACUATION ZONE. ALTERNATE CONNECTION OF CIRCUITS TO EVERY OTHER DEVICE SUCH THAT APPROXIMATELY 50% OF THE NOTIFICATION APPLIANCES IN EACH AREA ARE SERVICED VIA EACH CIRCUIT. WIRING SHALL ACCOMMODATE CONTINUED STROBE OPERATION WHEN AUDIBLE DEVICES SILENCED.

7. PROVIDE FAULT ISOLATION MODULES (IM) ON THE SLC TO PROTECT THE SYSTEM AGAINST LINE-TO-LINE FAULTS. PROVIDE (1) IM PER FLOOR OR (1) PER 20 DEVICES, WHICH EVER IS GREATER.

8. PROVIDE SIGNAL TO LIGHTING CONTROL PANELS TO ENERGIZE ALL LIGHTING DURING FIRE ALARM CONDITION.

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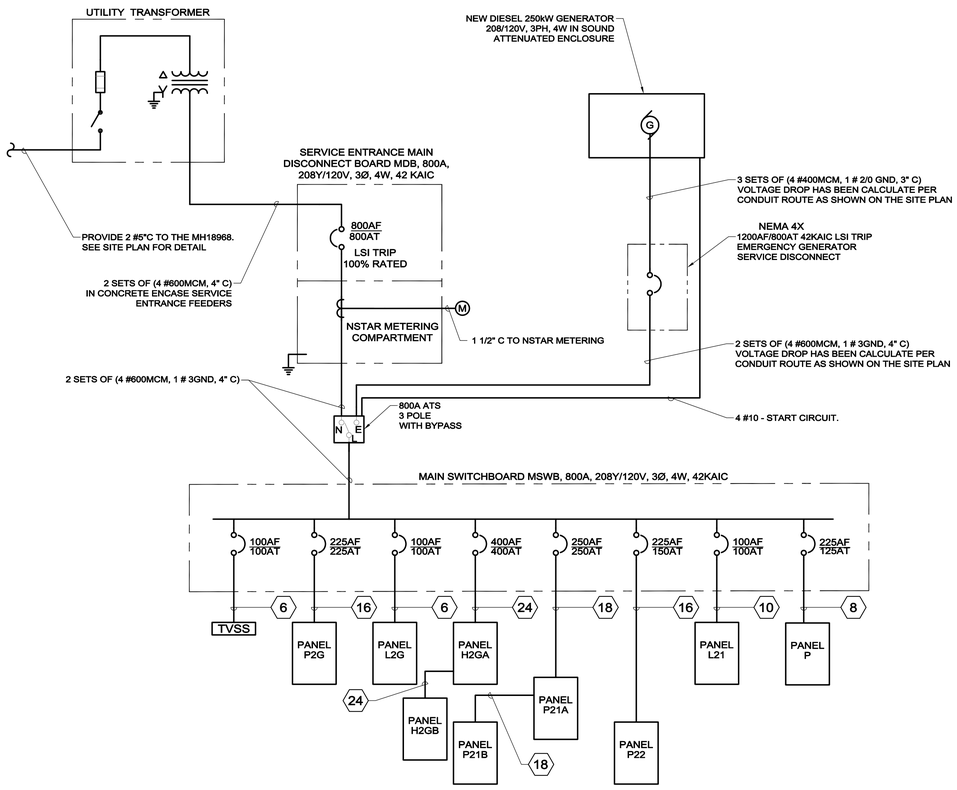
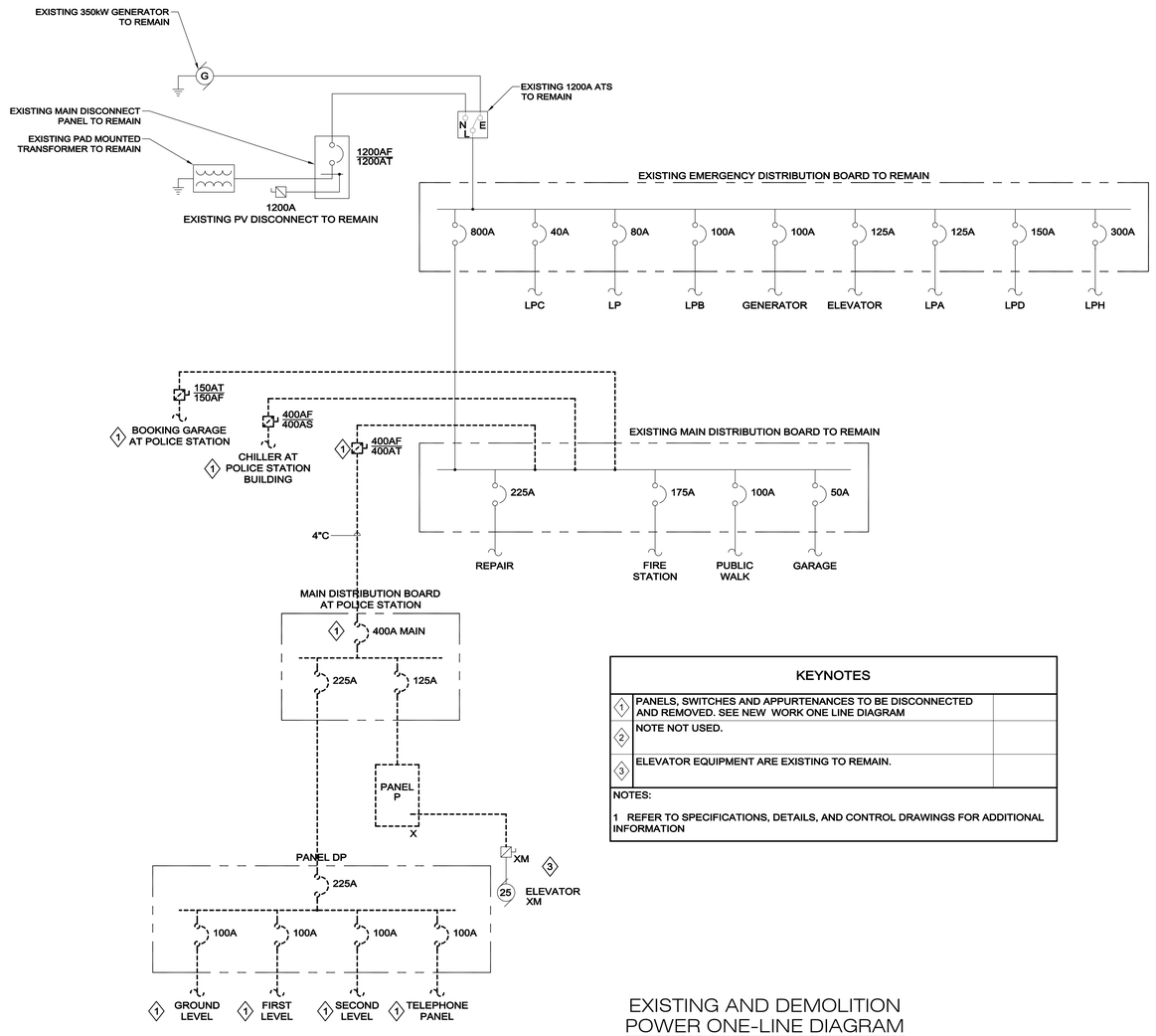


NEW WORK POWER ONE-LINE DIAGRAM

N.T.S.

LEGEND OF FEEDER SIZES - COPPER CONDUCTORS					
FEEDER SYMBOL	CONDUCTORS (3 PHASE, 3 WIRE) WITH GROUND	RACEWAY SIZE	CONDUCTORS (3 PHASE 4 WIRE) WITH GROUND	RACEWAY SIZE	NOMINAL AMPERE RATING
1	3#6 & 1#10G.	3/4"			60
2			4#6 & 1#10G.	1"	
3	3#4 & 1#8G.	1"			70
4			4#4 & 1#8G.	1 1/4"	
5	3#2 & #6G.	1 1/4"			100
6			4#2 & 1#8G.	1 1/2"	
7	3#1 & 1#6G.	1 1/2"			125
8			4#1 & 1#6G.	1 1/2"	
9	3#1/0 & 1#6G.	1 1/2"			150
10			4#1/0 & 1#6G.	2"	
11	3#2/0 & 1#6G.	2"			175
12			4#2/0 & 1#6G.	2"	
13	3#3/0 & 1#6G.	2"			200
14			4#3/0 & 1#6G.	2"	
15	3#4/0 & 1#4G.	2"			225
16			4#4/0 & 1#4G.	2 1/2"	
17	3#250kcmil & 1#4G.	2 1/2"			250
18			4#250kcmil & 1#4G.	3"	
19	3#350kcmil & 1#4G.	3"			300
20			4#350kcmil & 1#4G.	3"	
21	3#500kcmil & 1#3G.	3"			350
22			4#500kcmil & 1#3G.	4"	
23	3#500kcmil & 1#3G.	3"			400
24			4#500kcmil & 1#3G.	4"	

NOTES:
1) CONDUCTOR SIZES FOR THE ASSOCIATED NOMINAL AMPERE RATING ARE THE MINIMUM ALLOWED BASED UPON NEC TABLE 310.15(B)(16) WITH NO GREATER THAN THREE CURRENT CARRYING CONDUCTORS PER RACEWAY IN AN AMBIENT NOT TO EXCEED 30 DEGREES C. FEEDER TAGS MAY BE OVERSIZED FOR THE ASSOCIATED OVERCURRENT PROTECTION TO ACCOUNT FOR DERATING FACTORS OR LIMIT VOLTAGE DROP.
2) RACEWAY SIZES ARE THE MINIMUM ALLOWED BASED UPON NEC TABLE C1 FOR THHN/THWN CONDUCTORS IN EMT. RACEWAY SIZES SHALL BE INCREASED TO ACCOMMODATE DIFFERING INSULATION SYSTEMS AND RACEWAY TYPES TO LIMIT RACEWAY FILL TO LESS THAN 40%.
3) FEEDERS DESIGNATED IN MULTIPLE SETS SHALL HAVE THE REQUIRED SETS INSTALLED IN PARALLEL.



KEYNOTES		
1	PANELS, SWITCHES AND APPURTENANCES TO BE DISCONNECTED AND REMOVED. SEE NEW WORK ONE LINE DIAGRAM	
2	NOTE NOT USED.	
3	ELEVATOR EQUIPMENT ARE EXISTING TO REMAIN.	

NOTES:

1 REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION

EXISTING AND DEMOLITION POWER ONE-LINE DIAGRAM

N.T.S.

POWER RISER NEW WORK NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, SYMBOLS AND GENERAL NOTES THAT MAY PERTAIN TO THIS DRAWING.
2. REFER TO DRAWING E702 FOR SWITCHBOARD AND PANELBOARDS SCHEDULES
3. THIS DRAWING IS INTENDED TO ILLUSTRATE MAJOR EQUIPMENT AND REQUIRED INTERCONNECTIONS. REFER TO THE FLOOR PLANS FOR EXACT LOCATIONS AND THE SPECIFICATIONS FOR ADDITIONAL INSTALLATION REQUIREMENTS.
4. REFER TO THE LEGEND(S) OF FEEDER SIZES FOR CONDUCTOR AND RACEWAY REQUIREMENTS IDENTIFIED WITH FEEDER TAGS ON THE DRAWINGS.
5. THE SERVICE AND ALL SEPARATELY DERIVED SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 250 OF THE NEC. BOND ALL ELECTRICALLY CONDUCTIVE MATERIALS SUCH AS METAL PIPING SYSTEMS AND STRUCTURAL STEEL TO THE GROUNDING SYSTEM. REFER TO DETAILS FOR ADDITIONAL INFORMATION.
6. SERVICE ENTRANCE TVSS SHALL HAVE A MAXIMUM SURGE RATING CAPACITY OF 125KA PER MODE (250KA PER PHASE). TVSS SHALL BE INDIVIDUALLY MOUNTED IN A NEMA 1 ENCLOSURE CONNECTED TO THE SERVICE VIA A 60A-3P CIRCUIT BREAKER. PROVIDE WITH INDICATING LAMPS, SURGE COUNTER AND FORM C CONTACT FOR CONNECTION TO THE BUILDING AUTOMATION SYSTEM AS A GENERAL ALARM. INTERCONNECT THE TVSS WITH THE BUILDING AUTOMATION SYSTEM WITH 2313-3/4*C. TVSS SHALL BE TG SERIES AS MANUFACTURED BY CURRENT TECHNOLOGY, LM SERIES BY LIEBERT OR CPS SERIES FROM CUTLER HAMMER.

POWER RISER DEMOLITION NOTES:

1. VISIT THE SITE PRIOR TO SUBMISSION OF THE BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF THE WORK.
2. NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING THE DEMOLITION.
3. ALL ITEMS REMOVED SHALL BE OFFERED TO THE OWNER FOR SALVAGE. IF THE OWNER DOES NOT TAKE POSSESSION, DISPOSE OF THE ITEMS IN A SAFE AND LEGAL MANNER. ALL ITEMS CLASSIFIED AS HAZARDOUS SHALL BE DISPOSED AS HAZARDOUS WASTES AND A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PROVIDED TO THE OWNER.
4. NOTIFY UTILITY COMPANIES IN ACCORDANCE WITH THEIR REQUIREMENTS PRIOR TO DEMOLITION. VERIFY THAT THE UTILITIES HAVE BEEN DISCONNECTED, CAPPED AND MADE SAFE PRIOR TO DEMOLITION.
5. ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
6. DO NOT USE CUTTING TORCHES UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS. AT CONCEALED SPACES, SUCH AS PIPE INTERIORS, VERIFY CONDITION AND CONTENTS OF HIDDEN SPACE BEFORE STARTING FLAME-CUTTING OPERATIONS. MAINTAIN FIRE WATCH AND PORTABLE FIRE-SUPPRESSION DEVICES DURING FLAME-CUTTING OPERATIONS. MAINTAIN ADEQUATE VENTILATION WHEN USING CUTTING TORCHES.
7. DE-ENERGIZE AND REMOVE ALL CONDUCTORS AND RACEWAYS TO THEIR POINTS OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. RACEWAYS THAT ENTER MASONRY WALLS AND FLOORS SHALL BE CUT FLUSH AT THE SURFACE FOR PATCHING BY OTHERS. ALL CIRCUIT BREAKERS ASSOCIATED WITH THE DEMOLITION SCOPE SHALL BE DE-ENERGIZED AND LABELED SPARE.
8. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

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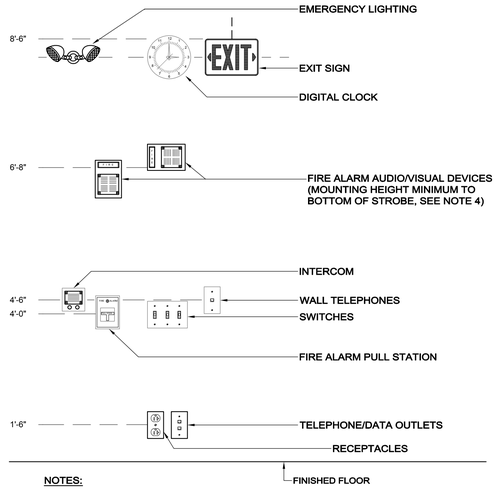


NOTES:

1. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT EXIT SIGNS, CLOCKS, EMERGENCY LIGHTING AND FIRE ALARM A/V DEVICES.

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

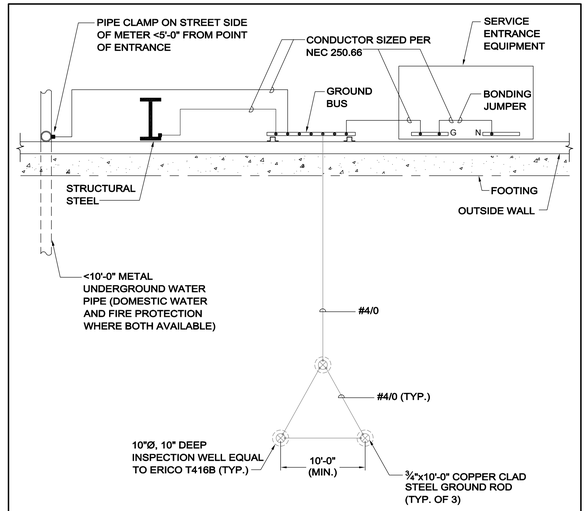
3. ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.

4. STROBE HEIGHT ILLUSTRATED AT MINIMUM HEIGHT OF 80" AFF OR 6" BELOW CEILING, WHICHEVER IS LOWER. IN ACCORDANCE WITH NFPA 72 CRITERIA. THIS DOES NOT APPLY TO CEILING MOUNTED STROBES.

RDK

TYPICAL DEVICE MOUNTING HEIGHTS DETAIL

E201B



NOTES:

1. THIS DRAWING IS INTENDED TO ILLUSTRATE THE SERVICE GROUNDING REQUIREMENTS. REFER TO NEC ARTICLE 250 FOR ADDITIONAL DETAILS.

2. ALL CONNECTIONS SHALL BE EXOTHERMIC WELDS WITH THE EXCEPTION OF MECHANICAL LUGS IN THE SERVICE ENTRANCE EQUIPMENT.

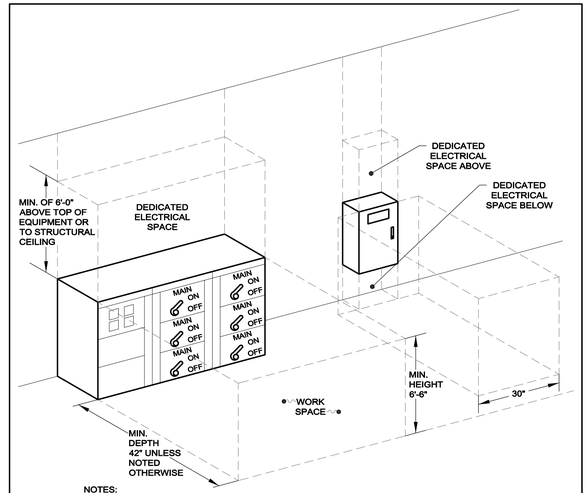
3. WALL MOUNTED COPPER 4"x24"x¼" GROUND BUS SHALL BE EQUAL TO ERICO EGB-A14424BB.

4. PROVIDE 20' #4 AWG BARE COPPER IN LIEU OF BONDING TO REBAR WHERE 20' OF BARE REBAR IS NOT INSTALLED.

RDK

ELECTRIC SERVICE GROUNDING ELECTRODE DETAIL

E001



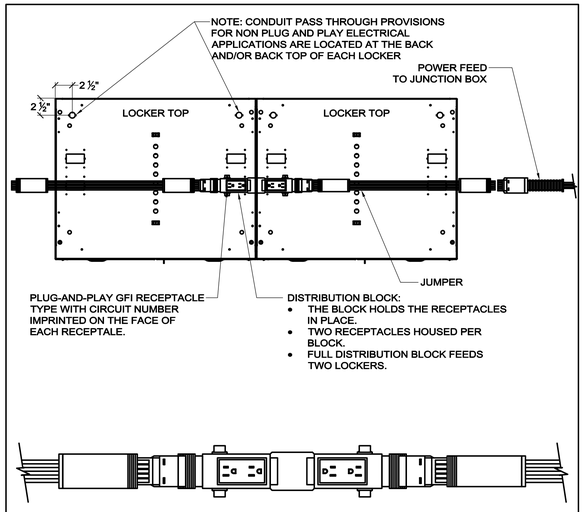
NOTES:

1. NO EQUIPMENT FOREIGN TO THE ELECTRICAL INSTALLATION (PIPING, DUCTS, ETC.) SHALL ENTER THE DEDICATED SPACE ABOVE OR BELOW ELECTRICAL POWER EQUIPMENT INCLUDING SWITCHGEAR, SWITCHBOARDS, PANELBOARDS, & MOTOR CONTROL CENTERS.
2. PIPING SYSTEMS INSTALLED ABOVE THE DEDICATED ELECTRICAL SPACE SHALL BE ALLOWED WHERE DRIP PANS ARE INSTALLED TO CAPTURE LEAKS, RUPTURES OR CONDENSATION DRIPS. THE PIPING AND DRIP PANS SHALL BOTH BE OUTSIDE THE DEDICATED SPACE ENVELOPE.
3. WORK SPACE SHALL BE PROVIDED AT ALL EQUIPMENT UNDER 600V REQUIRING ACCESS INCLUDING BUT NOT LIMITED TO PANELS, DISCONNECTS, STARTERS, CONTROL PANELS INTEGRATED INTO HVAC/PLUMBING/FP EQUIPMENT, ETC.
4. NO EQUIPMENT SHALL PROTRUDE INTO THE WORK SPACE.
5. WORK SPACE DEPTH BASED UPON NEC TABLE 110.26(A)(1) CONDITION 2 150V TO GROUND.

RDK

ELECTRICAL WORK AND DEDICATED SPACE

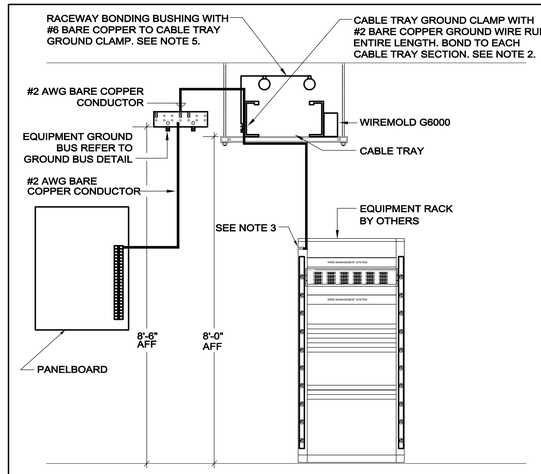
E213



RDK

TYPICAL LOCKER PLUG AND PLAY ELECTRICAL LAYOUT

1



NOTES:
1. REFER TO FLOOR PLANS FOR EXACT QUANTITIES OF RACKS.

2. PROVIDE GROUNDING CLAMPS AND LUGS AT ALL CONDUCTOR TERMINATIONS USING MECHANICAL CONNECTIONS. BOND TO EACH SECTION, AT MINIMUM INTERVALS OF 8'-0".

3. PROVIDE GROUND WIRE BONDING JUMPERS TO EACH RACK WITH BARE TINNED COPPER BRAID EQUAL TO ERICO MBJ16. BOND TO RACK WITH U.L. LISTED LUG.

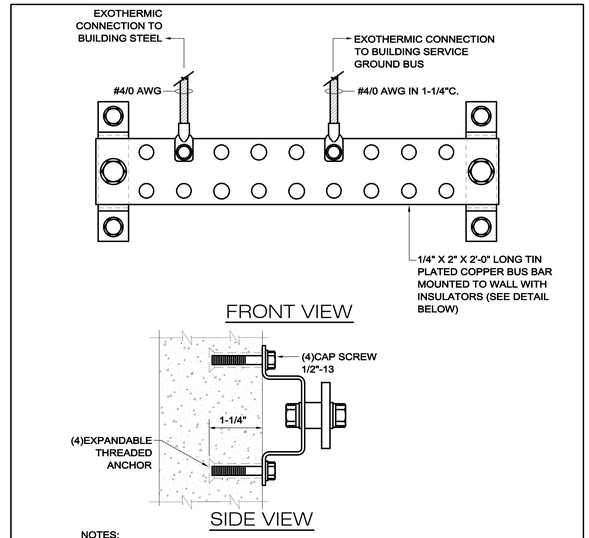
4. ALL GROUND WIRES SHALL BE RUN IN A NEAT MANNER PERPENDICULAR TO EQUIPMENT AND STRUCTURE. PROVIDE SUPPORT CLIPS AS REQUIRED.

5. ALL METAL RACEWAYS THAT ENTER ASSOCIATED ROOM SHALL BE BONDED TOGETHER

RDK

EQUIPMENT RACK GROUNDING OVERHEAD DETAIL

E603



NOTES:
1. BUS BAR ASSEMBLY SHALL BE EQUAL TO ERICO #TGB-A25L14P.
2. BOND PANELBOARD(S) WHICH SERVICES EQUIPMENT WITHIN ROOM GROUND BUS IS LOCATED.
3. CONDUCTORS ILLUSTRATED REPRESENT MINIMUM SIZES. CONDUCTORS SHALL BE INCREASED AS REQUIRED TO MATCH SOURCE PANELBOARD FEEDER GROUNDING CONDUCTOR SIZE.

RDK

EQUIPMENT ROOM GROUND BUS BAR INSTALLATION DETAIL

E005

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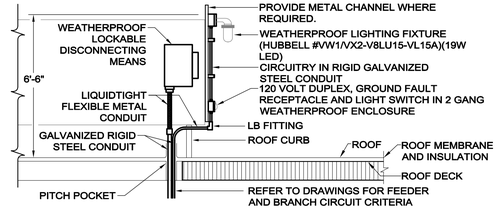
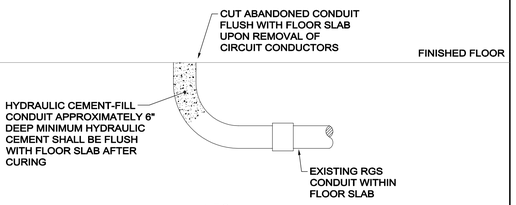
SHEET 138 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:



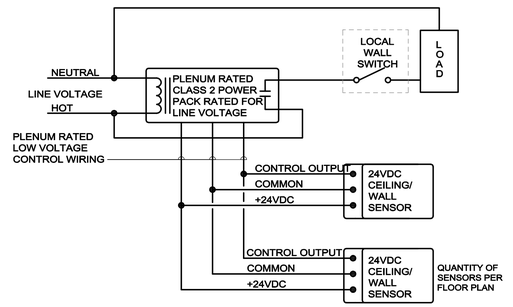
NOTES:
1. LOCATION OF RECEPTACLE AND DISCONNECT SWITCH IS REPRESENTATIVE AND SHALL BE INSTALLED PER MECHANICAL EQUIPMENT MANUFACTURERS RECOMMENDATIONS.
2. WORK SPACE IN ACCORDANCE WITH NEC 110.26 SHALL BE MAINTAINED.
3. REFER TO POWER PLAN FOR EXACT RACEWAY AND MOUNTING MATERIAL REQUIREMENTS.

RDK TYPICAL ROOF TOP MECHANICAL EQUIPMENT LIGHTING & RECEPTACLE DETAIL — E204



N.T.S.

RDK DEMOLITION DETAIL ABANDONED CONDUIT WITHIN FLOOR SLAB — E211



NOTES:
1. REFER TO MANUFACTURER'S WIRING DIAGRAMS FOR EXACT REQUIREMENTS.
2. THE ILLUSTRATED LOGIC UTILIZING HARDWIRED COMPONENTS MAY BE ACCOMPLISHED UTILIZING STAND ALONE DIGITAL COMPONENTS WITH CAT 5 RJ45 INTERCONNECTIONS. DIGITAL SYSTEMS SHALL NOT REQUIRE NETWORKING OF ROOM CONTROLS. PROVIDE ONE WIRELESS CONFIGURATION TOOL FOR EVERY (50) CONTROLLED ROOMS.
3. PROVIDE QUANTITY OF POWER PACKS NECESSARY TO SUPPORT THE QUANTITY OF ILLUSTRATED SENSORS, CONTROL ZONES, AND CIRCUITS.
4. OCCUPANCY SENSOR WILL TURN OFF LOAD, INDEPENDENT OF POSITION OF WALL SWITCH, AFTER PRESET TIME OUT WITH NO MOTION WITHIN SENSING RANGE.
5. LOCAL WALL SWITCH SHALL BE OMITTED WHERE NOT ILLUSTRATED ON FLOOR PLANS.

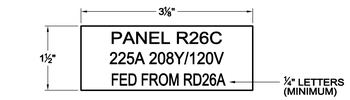
RDK AUTO "ON" OCCUPANCY CONTROL - MULTIPLE SENSORS — E708B

WARNING

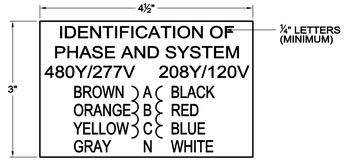
ARC FLASH AND SHOCK HAZARD
APPROPRIATE PPE REQUIRED

TYPICAL FLASH PROTECTION WARNING LABEL

PROVIDE ON ALL IN-LINE METER SOCKETS, SWITCHBOARDS, DISTRIBUTION PANELS, PANELBOARDS AND MOTOR CONTROL CENTERS IN ACCORDANCE WITH NEC 110.16.



TYPICAL NAMEPLATE DETAIL
UTILIZE MECHANICAL FASTENERS FOR ALL EXTERIOR LOCATIONS.
TYPICAL FOR "SWITCHBOARDS", "PANELBOARDS", "STARTERS", "DISCONNECTS", AND "TRANSFORMERS".

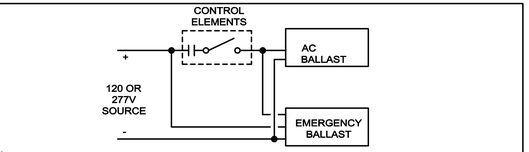


TYPICAL PANELBOARD CONDUCTOR NAMEPLATE DETAIL

TYPICAL FOR MOUNTING TO ALL DISTRIBUTION EQUIPMENT (SWITCHGEAR, SWITCHBOARDS, PANELBOARDS, ETC.)

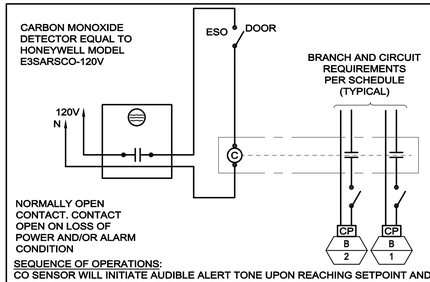
GENERAL NOTES:
1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
2. NAMEPLATE TO BE 1/16" THICK PLASTIC WITH WHITE CENTER LAMINATION. FACE SHALL BE BLACK, ENGRAVED LETTERS SHALL BE WHITE.
3. SECURE NAMEPLATE TO SURFACES WITH HIGH STRENGTH ADHESIVE CEMENT.

RDK TYPICAL NAMEPLATES DETAIL — E303C



NOTES:
1. THIS DETAIL ILLUSTRATES THE INTENT OF THE REQUIRED INTERCONNECTIONS FOR A BATTERY BACKED BALLAST. REFER TO MANUFACTURER'S INSTRUCTIONS FOR EXACT REQUIREMENTS.
2. EMERGENCY BALLAST SHALL BE PROVIDED IN ACCORDANCE WITH THE FIXTURE SCHEDULE AND MOUNTED WITHIN OR ADJACENT TO THE FIXTURE.
3. THE EMERGENCY BALLAST SHALL BE WIRED TO BOTH THE SWITCHED SOURCE AND THE UNSWITCHED SOURCE TO ENABLE FIXTURE CONTROL ON-OFF WITH OVER-RIDE "ON" DURING LOSS OF AC INPUT.
4. DELETE CONTROL ELEMENTS AND SWITCHED INPUT TO EMERGENCY BALLAST IN FIXTURE ON 24x7 (NIGHT LIGHT APPLICATION)

RDK EMERGENCY BALLAST WIRING DETAIL — E707

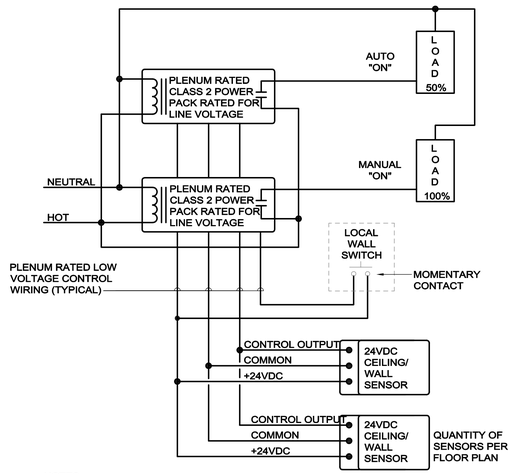


SEQUENCE OF OPERATIONS:
CO SENSOR WILL INITIATE AUDIBLE ALERT TONE UPON REACHING SETPOINT AND DISCONNECT POWER TO THE BOILER CONTROL PANEL FOR SYSTEM SHUTDOWN.

NOTES:
1. DISCONNECT SWITCHES MOUNTED AT 6'-0" AFF AT EACH ENTRY TO THE BOILER ROOM. PROVIDE RED BOILER SHUTOFF PLATES.

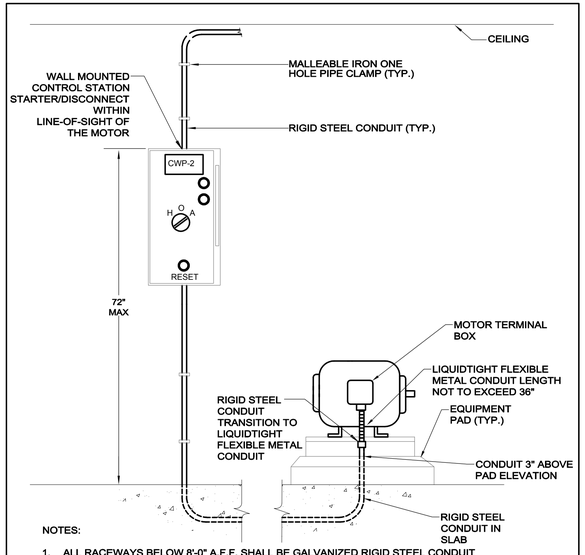
2. WIRE ALL ESO DISCONNECT SWITCHES IN SERIES TO SHUT DOWN BOILER IF ANY ON DISCONNECT IS OPENED.

RDK BOILER SHUT DOWN SCHEMATIC — E316



NOTES:
1. REFER TO MANUFACTURER'S WIRING DIAGRAMS FOR EXACT REQUIREMENTS.
2. THE ILLUSTRATED LOGIC UTILIZING HARDWIRED COMPONENTS MAY BE ACCOMPLISHED UTILIZING STAND ALONE DIGITAL COMPONENTS WITH CAT 5 RJ45 INTERCONNECTIONS. DIGITAL SYSTEMS SHALL NOT REQUIRE NETWORKING OF ROOM CONTROLS. PROVIDE ONE WIRELESS CONFIGURATION TOOL FOR EVERY (50) CONTROLLED ROOMS.
3. POWER PACK MUST RECEIVE A SWITCH INPUT TO TURN LOAD 100% ON. LOAD MAY BE TURNED OFF MANUALLY VIA THE SWITCH INPUT.
4. OCCUPANCY SENSOR WILL TURN OFF LOADS AFTER PRESET TIME OUT WITH NO MOTION WITHIN SENSING RANGE.

RDK MANUAL "ON" OCCUPANCY CONTROL - DUAL LEVEL WITH MULTIPLE SENSORS — E708D



NOTES:
1. ALL RACEWAYS BELOW 8'-0" A.F.F. SHALL BE GALVANIZED RIGID STEEL CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE.
2. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL BE SUPPORTED IN ACCORDANCE WITH N.E.C. ARTICLE 350 REQUIREMENTS, LENGTHS UP TO 36" MAY BE UNSUPPORTED WHERE FLEXIBILITY IS REQUIRED, SUCH AS AT THE MOTOR CONNECTION.
3. MAINTAIN WORK SPACE CLEARANCES AT STARTER IN ACCORDANCE WITH NEC 110.26

RDK MOTOR MOUNTING DETAIL (FEED FROM BELOW DIRECT CONNECT) — E206

CDR MAGUIRE
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Durham, NC · Charlotte, NC
RDK Engineers
200 Brickstone Square
Andover, MA 01810-1488
T. 978-296-6200

REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL DETAILS

PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

E601

SHEET 139 **OF** 157

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____

SPECIAL PURPOSE RECEPTACLE SCHEDULE

TAG	NEMA CONF.	RATING	CIRCUIT BREAKER	BRANCH CIRCUIT
1	5-30R	30A, 125V, 2P, 3W	30A-1P	2#10 & 1#10G. - 3/4"C.
2	5-50R	50A, 125V, 2P, 3W	50A-1P	2#6 & 1#10G. - 3/4"C.
3	6-15R	15A, 250V, 2P, 3W	15A-2P	2#12 & 1#12G. - 3/4"C.
4	6-20R	20A, 250V, 2P, 3W	20A-2P	2#12 & 1#12G. - 3/4"C.
5	6-30R	30A, 250V, 2P, 3W	30A-2P	2#10 & 1#10G. - 3/4"C.
6	6-50R	50A, 250V, 2P, 3W	50A-2P	2#6 & 1#10G. - 3/4"C.
7	14-20R	20A, 125/250V, 3P, 4W	20A-2P	3#12 & 1#12G. - 3/4"C.
8	14-30R	30A, 125/250V, 3P, 4W	30A-2P	3#10 & 1#10G. - 3/4"C.
9	14-50R	50A, 125/250V, 3P, 4W	50A-2P	3#6 & 1#10G. - 3/4"C.
10	14-60R	60A, 125/250V, 3P, 4W	60A-2P	3#6 & 1#10G. - 3/4"C.
11	15-20R	20A, 250V, 3P, 4W	20A-3P	3#12 & 1#12G. - 3/4"C.
12	15-30R	30A, 250V, 3P, 4W	30A-3P	3#10 & 1#10G. - 3/4"C.
13	15-50R	50A, 250V, 3P, 4W	50A-3P	3#6 & 1#10G. - 3/4"C.
14	15-60R	60A, 250V, 3P, 4W	60A-3P	3#6 & 1#10G. - 3/4"C.
15	L5-15R	15A, 125V, 2P, 3W	15A-1P	2#12 & 1#12G. - 3/4"C.
16	L5-20R	20A, 125V, 2P, 3W	20A-1P	2#12 & 1#12G. - 3/4"C.
17	L5-30R	30A, 125V, 2P, 3W	30A-1P	2#10 & 1#10G. - 3/4"C.
18	L6-15R	15A, 250V, 2P, 3W	15A-2P	2#12 & 1#12G. - 3/4"C.
19	L6-20R	20A, 250V, 2P, 3W	20A-2P	2#12 & 1#12G. - 3/4"C.
20	L6-30R	30A, 250V, 2P, 3W	30A-2P	2#10 & 1#10G. - 3/4"C.
21	L14-20R	20A, 125/250V, 3P, 4W	20A-2P	3#12 & 1#12G. - 3/4"C.
22	L14-30R	30A, 125/250V, 3P, 4W	30A-2P	3#10 & 1#10G. - 3/4"C.
23	L15-20R	20A, 250V, 3P, 4W	20A-3P	3#12 & 1#12G. - 3/4"C.
24	L15-30R	30A, 250V, 3P, 4W	30A-3P	3#10 & 1#10G. - 3/4"C.
25	L16-20R	20A, 480V, 3P, 4W	20A-3P	3#12 & 1#12G. - 3/4"C.
26	L16-30R	30A, 480V, 3P, 4W	30A-3P	3#10 & 1#10G. - 3/4"C.
27	L21-20R	20A, 208V, 4P, 5W	20A-3P	4#12 & 1#12G. - 3/4"C.
28	L21-30R	30A, 208V, 4P, 5W	30A-3P	4#10 & 1#10G. - 3/4"C.
29	L22-20R	20A, 480V, 4P, 5W	20A-3P	4#12 & 1#12G. - 3/4"C.
30	L22-30R	30A, 480V, 4P, 5W	30A-3P	4#10 & 1#10G. - 3/4"C.

NOTES:
1. DEVICE NEMA CONFIGURATION SHALL BE CONFIRMED PRIOR TO INSTALLATION. MATCH CONFIGURATION OF EQUIPMENT CORD CAP. NOTIFY OWNER'S REPRESENTATIVE OF RATING DISCREPANCY.
2. CONDUCTOR SIZES ARE THE MINIMUM ALLOWED BASED UPON NEC TABLE 310.15(B)(16) WITH NO GREATER THAN THREE CURRENT CARRYING CONDUCTORS PER RACEWAY IN AN AMBIENT NOT TO EXCEED 30 DEGREES C.
3. VOLTAGE DROP IS NOT CONSIDERED IN BRANCH CIRCUIT SIZES. ALL BRANCH CIRCUITS WHICH EXCEED 75 FEET SHALL BE INCREASED A MINIMUM OF ONE SIZE TO LIMIT VOLTAGE DROP TO LESS THAN 3%.
4. RACEWAY SIZES ARE THE MINIMUM ALLOWED BASED UPON NEC TABLE C1 FOR THHN/THWN CONDUCTORS IN EMT. RACEWAY SIZES SHALL BE INCREASED TO ACCOMMODATE DIFFERING INSULATION SYSTEMS AND RACEWAY TYPES TO LIMIT RACEWAY FILL TO LESS THAN 40%.

DISTRIBUTION PANEL SCHEDULE

PANEL: D2G | VOLT: 208/120V | 3 PHASE | 4 WIRE
BUS: 800 AMPS | MAIN: MLO AMPS | AIC: AMPS SYM

CIRCUIT NO.	LOAD DESIGNATION	OVERCURRENT DEVICE FRAME	OVERCURRENT DEVICE TRIP	OVERCURRENT DEVICE POLE	LOAD KVA	LOAD HP	REMARKS
1	TVSS	100	100	3	-	-	
2	PANEL P2G	225	225	3	55.25	-	
3	PANEL L2G	100	100	3	7.33	-	
4	PANEL H2GA H2GB	400	400	3	115.86	-	
5	PANEL P21A P21B	250	250	3	68.57	-	
6	PANEL L21	100	100	3	28.12	-	
7	PANEL P22	225	150	3	25.83	-	
8	PANEL P	225	125	3	30.79	-	

NOTES:
1. PROVIDE LUGS TO ACCOMMODATE FEEDER SIZES AS IDENTIFIED ON THE RISER DIAGRAM FOR SUPPLY AND ALL LOADS. (THIS NOTE APPLICABLE TO ALL TERMINATIONS.)
2. "SPACE" SHALL CONSTITUTE ALL REQUIRED BUS, SUPPORTS AND HARDWARE NECESSARY TO INSTALL THE PROTECTIVE DEVICE UP TO THE FRAME LIMITATION INDICATED.
3. NOTES 4-8 ARE OPTIONS WHICH SHALL BE SPECIFCALLY NOTED IN REMARKS FOR INCLUSION.
4. PROVIDE WITH FEED THRU LUGS.
5. PROVIDE WITH 200% NEUTRAL
6. PROVIDE WITH ISOLATED GROUND BUS.
7. PROVIDE SHUNT TRIP AUXILIARY ATTACHMENT TO THE CIRCUIT BREAKER.
8. PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSION. REFER TO SPECIFICATIONS FOR CLASS.

MECHANICAL EQUIPMENT SCHEDULE

LOAD TAG	STARTER LOCATION	LOAD HP	LOAD FLA	LOAD KVA	LOAD VOLT	LOAD PH	STARTER NEMA SIZE	STARTER TYPE	OVERCURRENT CB	OVERCURRENT RK1 FUSE	OVERCURRENT MCP	PB	HOA	INDICATING LIGHTS R	INDICATING LIGHTS G	INDICATING LIGHTS A	AUXILIARY CPT	AUXILIARY CONTACTS NO	AUXILIARY CONTACTS NC	POWER SOURCE PANEL	POWER SOURCE C/B	CONNECTION FLEX	CONNECTION JB	CONNECTION REC	CONNECTION DISC AS	CONNECTION DISC AF	CONNECTION DISC NEMA	BRANCH CIRCUIT	REMARKS
ACU-1	TEL/DATA013	-	0.36	0.07	208	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-1,3	15A-2P	X	-	-	30	-	1	2#12 & #12G - 3/4"C	
ACU-1 mini condensate Pump		-	-	0.08	120	1	-	-	-	-	-	-	-	-	-	-	-	-	-	H2GA-13	20A-1P			X	-	-	-	2#12 & #12G - 3/4"C	
ACCU-1	LOWER ROOF	-	0.75	0.16	208	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-9,11	25A-2P	X	-	-	30	-	3R	2#12 & #12G - 3/4"C	
HP-1	FITNESS 015	-	0.36	0.07	208	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-5,7	15A-2P	X	-	-	30	-	1	2#12 & #12G - 3/4"C	
HP-1 mini condensate Pump		-	-	0.08	120	1	-	-	-	-	-	-	-	-	-	-	-	-	-	H2GA-13	20A-1P			X	-	-	-	2#12 & #12G - 3/4"C	
ACCU-2	LOWER ROOF	-	0.75	0.16	208	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-31,35	25A-2P	X	-	-	30	-	3R	2#12 & #12G - 3/4"C	
HP-2	FITNESS 015	-	0.36	0.07	208	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-5,7	15A-2P	X	-	-	30	-	1	2#12 & #12G - 3/4"C	
HP-2 mini condensate Pump		-	-	0.08	120	1	-	-	-	-	-	-	-	-	-	-	-	-	-	H2GA-13	20A-1P	-	-	X	-	-	-	2#12 & #12G - 3/4"C	
ACCU-3	LOWER ROOF	-	0.75	0.16	208	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-35,37	25A-3P	X	-	-	30	-	3R	2#12 & #12G - 3/4"C	
RTU-1	UPPER ROOF	7.50	56.10	20.21	208	3	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-8,10,12	80A-3P	X	X	-	-	-	-	3#4, 1#8N & #8G - 1 1/4"C	NOTE 7,10
RTU-2	LOWER ROOF	1.00	32.20	11.60	208	3	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-14,16,18	45A-3P	X	X	-	-	-	-	4#8 & #10G - 3/4"C	NOTE 7,10
RTU-3	UPPER ROOF	5.00	72.00	25.94	208	3	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GB-1,3,5	90A-3P	X	X	-	-	-	-	3#2, 1#8N & #8G - 1 1/4"C	NOTE 7,10
UH-1	MECHANICAL RM	-	0.80	0.09	115	1	0	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-19	20A/1P	X	X	-	-	-	-	(2)#12 & (1)#12G - 3/4"C	NOTE 7
EF-1	LOWER ROOF	1/4	3.70	0.43	115	1	0	FVNR	15	-	7	-	X	X	X	X	-	2	2	H2GA-15	20A-1P	X	X	-	-	-	-	(2)#12 & (1)#12G - 3/4"C	NOTE 7
EF-2	LOWER ROOF	1/4	3.70	0.43	115	1	0	FVNR	15	-	7	-	X	X	X	X	-	2	2	H2GA-17	20A-1P	X	X	-	-	-	-	(2)#12 & (1)#12G - 3/4"C	NOTE 7
EF-3	UPPER ROOF	1/6	3.40	0.39	115	1	0	FVNR	15	-	7	-	X	X	X	X	-	2	2	H2GA-15	20A-1P	X	X	-	-	-	-	(2)#12 & (1)#12G - 3/4"C	NOTE 7
EF-4	NOT USED																												
EF-5	UPPER ROOF	1/4	3.70	0.43	115	1	0	FVNR	15	-	7	-	X	X	X	X	-	2	2	H2GA-15	20A-1P	X	X	-	-	-	-	(2)#12 & (1)#12G - 3/4"C	NOTE 7
ERU-1	LOWER ROOF	-	67.7	24.37	208	3	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GB-7,9,11	80A/3P	X	X	-	-	-	-	3#4, 1#8N & #8G - 1 1/4"C	NOTE 7,10
CUH-1	STAIR #2 BASEMENT	1/15	0.8	0.1	115	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-21	15A/1P	X	X	-	-	-	-	2#12 & #12G - 3/4"C	NOTE 7
CUH-2	LOBBY 115	1/10	1.4	0.2	115	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-21	15A/1P	X	X	-	-	-	-	2#12 & #12G - 3/4"C	NOTE 7
CUH-3	LOBBY 115	1/10	2.2	0.3	115	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-21	15A/1P	X	X	-	-	-	-	2#12 & #12G - 3/4"C	NOTE 7
CUH-4	STAFF ENTRANCE	1/10	2.2	0.3	115	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-23	15A/1P	X	X	-	-	-	-	2#12 & #12G - 3/4"C	NOTE 7
CUH-5	STAIR #2 2ND FLOOR	1/15	0.8	0.1	115	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-21	15A/1P	X	X	-	-	-	-	2#12 & #12G - 3/4"C	NOTE 7
CUH-6	STAIR #3 2ND FLOOR	1/15	0.8	0.1	115	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-23	15A/1P	X	X	-	-	-	-	2#12 & #12G - 3/4"C	NOTE 7
GUH-1	VEHICLE BAYS	1/8	2.2	0.3	115	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-2	15/1P	X	-	-	30	-	1	2#12 & #12G - 3/4"C	
GUH-2	SALLYPORT	1/8	1.3	0.1	115	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-4	15/1P	X	-	-	30	-	1	2#12 & #12G - 3/4"C	
GUH-3	SALLYPORT	1/8	1.3	0.1	115	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-4	15/1P	X	-	-	30	-	1	2#12 & #12G - 3/4"C	
GUH-4	MOTO/BIKE STORAGE	1/8	1.3	0.1	115	1	-	NOTE 8	-	-	-	-	-	-	-	-	-	-	-	H2GA-4	15/1P	X	-	-	30	-	1	2#12 & #12G - 3/4"C	
B-1	MECHANICAL RM	-	2.7	0.3	120	1	00	NOTE 8	15	-	7		X	X	X	X	-	2	2	H2GA-6	15A/1P	X	-	-	30	-	1	2#12 & #12G - 3/4"C	
B-2	MECHANICAL RM	-	2.7	0.3	120	1	00	NOTE 8	15	-	7		X	X	X	X	-	2	2	H2GA-8	15A/1P	X	-	-	30	-	1	2#12 & #12G - 3/4"C	
P-1	MECHANICAL RM	3/4	3.0	1.08	208	3	0	FVNR	30	-	15	-	X	X	X	X	-	2	2	H2GB-2,4,6	15A/3P	X	-	-	30	-	1	4#12 & #12G - 3/4"C	
P-2	MECHANICAL RM	3/4	3.0	1.08	208	3	0	FVNR	30	-	15	-	X	X	X	X	-	2	2	H2GB-8,10,12	15A/3P	X	-	-	30	-	1	4#12 & #12G - 3/4"C	
P-3	MECHANICAL RM	1 1/2	6.6	2.38	208	3	-	VFD	-	-	-	-	X	X	X	X	-	2	2	H2GB-14,16,18	15A/3P	X	-	-	30	-	1	4#12 & #12G - 3/4"C	NOTE 6
P-4	MECHANICAL RM	1 1/2	6.6	2.38	208	3	-	VFD	-	-	-	-	X	X	X	X	-	2	2	H2GB-20,22,24	15A/3P	X	-	-	30	-	1	4#12 & #12G - 3/4"C	NOTE 6
RP-1	MECHANICAL RM	1/8	1.2	0.13	115	1	00	FVNR	15	-	7	-	X	X	X	-	-	2	2	H2GA-25	15A/1P	X	-	-	30	-	1	2#12 & #12G - 3/4"C	
RP-2	MECHANICAL RM	1/8	1.2	0.13	115	1	00	FVNR	15	-	7	-	X	X	X	-	-	2	2	H2GA-27	15A/1P	X	-	-	30	-	1	2#12 & #12G - 3/4"C	
GWH-1	MECHANICAL RM	-	-	0.12	120	1	-	-	-	-	-	-	-	-	-	-	-	-	-	H2GA-29	20A/1P	X	X	-				2#12 & #12G - 3/4"C	
DWCH-1	MECHANICAL RM	-	9.0	1.0	115	1	-	-	-	-	-	-	-	-	-	-	-	-	-	H2GA-20	20/1P	X	X	-	-	-	-	2#12 & #12G - 3/4"C	
GB-1	MECHANICAL RM	1/2	3.0	1.08	208	3	0	FVNR	30	-	15	-	X	X	X	X	-	2	2	H2GB-30,32,34	20A/3P	X	-	-	30	-	1	4#12 & #12G - 3/4"C	

NOTES
1. NOTES 2-6 APPLY TO ALL APPLICABLE LOADS.
2. PROVIDE THERMAL OVERLOAD UNITS FOR ALL STARTERS SIZED TO MATCH LOAD NAMEPLATE AND NEC REQUIREMENTS.
3. BRANCH CIRCUIT WIRING METHODS SHALL BE AS NOTED ON THE DRAWINGS AND/OR SPECIFICATIONS FOR THE APPLICABLE LOCATION. THE FINAL THREE FEET (MAXIMUM) SHALL BE FLEXIBLE METAL OR LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
4. COPPER BRANCH CIRCUIT CONDUCTOR SIZING BASED UPON NEC TABLE 310.15(B)(16). MAKE ADJUSTMENTS TO CONDUCTORS FOR TEMPERATURE OR VOLTAGE DROP THAT EXCEED NEC AND SPECIFICATION CRITERIA.
5. RACEWAY SIZES ARE BASED UPON GRSC AND LFMC WITH THWN CONDUCTORS.
6. VFD SHALL BE CONTROLLED VIA REMOTE 4-20mA OR 0-5V SIGNAL PROVIDED BY THE HVAC ATC CONTRACTOR.
7. REQUIRED DISCONNECT IS PROVIDED INTEGRAL/PREWIRED TO MECHANICAL EQUIPMENT.
8. REQUIRED STARTER IS PROVIDED INTEGRAL/PREWIRED TO MECHANICAL EQUIPMENT.
9. DISCONNECT FOR 2S1W AND 2S2W MOTORS SHALL BE SIX POLE.
10. PROVIDE NEUTRAL FROM SOURCE TO STARTER ONLY FOR 120V CONTROL POWER OF 208V 3PH UNITS.
11. FUSES FOR DISCONNECT SWITCHES SHALL BE CLASS RK5

KEY:

FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
2S1W	TWO SPEED SINGLE WINDING
2S2W	TWO SPEED TWO WINDING
RVAT	REDUCED VOLTAGE AUTOTRANSFORMER
RVPW	REDUCED VOLTAGE PART WINDING
RVDOT	REDUCED VOLTAGE WYE DELTA OPEN TRANSITION
RVDCT	REDUCED VOLTAGE WYE DELTA CLOSED TRANSITION
MMS	MANUAL MOTOR STARTER
CB	CIRCUIT BREAKER
MCP	MOTOR CIRCUIT PROTECTOR
PB	START AND STOP PUSH BUTTON
HOA	HAND-OFF-AUTOMATIC SELECTOR SWITCH
CPT	CONTROL POWER TRANSFORMER
VFD	VARIABLE FREQUENCY DRIVE W/O BYPASS
VFD/B	VARIABLE FREQUENCY DRIVE W/ BYPASS
CNTCR	CONTACTOR - NO THERMAL OVERLOAD

SCHEDULE OF PANELBOARDS

PANEL TAG	SERVICE	MAINS MCB	MAINS MLO	MTG	AIC	TOTAL POLES	BRANCH CIRCUIT BREAKERS 1-POLE 15	20	25	30	40	50	2-POLE 15	20	25	30	40	50	3-POLE 15	20	25	30	40	50	60	70	80	90	100	125	150	175	200	REMARKS (REFER TO ASSOCIATED NOTES)
P2G	208/120V, 3PH, 4W		225A	S	10,000	80		77						1																			
L2G	208/120V, 3PH, 4W		100A	S	10,000	30		25																									
H2GA	208/120V, 3PH, 4W		400A	S	10,000	42	5	17					2		3									2			1						NOTE 6
H2GB	208/120V, 3PH, 4W		400A	S	10,000	42		19						1					4	1							1	1					
P21A	208/120V, 3PH, 4W		250A	S	10,000	72		78							1																		NOTE 6
P21B	208/120V, 3PH, 4W		250A	S	10,000	72		72																									
L21	208/120V, 3PH, 4W		100A	R	10,000	42		42																									
P22	208/120V, 3PH, 4W		150A	R	10,000	42		41																									
P	208/120V, 3PH, 4W		250A	R	10,000	18		12							1															1			

NOTES:
1. NOTES 2 & 3 APPLY TO ALL PANELBOARDS.
2. PROVIDE LUGS TO ACCOMMODATE FEEDER SIZES AS IDENTIFIED ON THE RISER DIAGRAM FOR SUPPLY AND ALL LOADS. (THIS NOTE APPLICABLE TO ALL TERMINATIONS.)
3. PANEL SHALL BE FULLY RATED UNLESS NOTE 5 REFERENCED IN THE REMARKS SECTION.
4. NOTES 5-13 ARE OPTIONS WHICH SHALL BE SPECIFICALLY NOTED IN REMARKS FOR INCLUSION.
5. INTERRUPTING CAPABILITY BY UL LISTED SERIES RATED SYSTEM. PROVIDE NAMEPLATES IN ACCORDANCE WITH NEC REQUIREMENTS IDENTIFYING SERIES RATING APPLICATION.
6. PROVIDE WITH FEED-THRU LUGS.
7. PROVIDE WITH 200% NEUTRAL BUS.
8. PROVIDE WITH ISOLATED GROUND BUS.
9. 120V SHUNT TRIP MAIN CIRCUIT BREAKER.
10. GROUND FAULT CIRCUIT INTERRUPTER RATED FOR 4-6 ma FOR PERSONNEL PROTECTION.
11. GROUND FAULT EARTH LEAKAGE BREAKER RATED FOR 30 ma FOR EQUIPMENT PROTECTION.
12. ARC FAULT CIRCUIT INTERRUPTER.
13. TRANSIENT VOLTAGE SURGE SUPPRESSION. REFER TO SPECIFICATIONS FOR CLASS.

KEY:
MCB = MAIN CIRCUIT BREAKER
MLO = MAIN LUGS ONLY
S = SURFACE MOUNTED
F = FLUSH MOUNTED
AIC = MINIMUM INTERRUPTING RATING OF CIRCUIT BREAKERS INSTALLED IN REFERENCED PANEL.

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REVISIONS

Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL SCHEDULES

PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

E700

SHEET 140 **OF** 157

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURERS	CATALOG NUMBER	DESCRIPTION	LAMPS				BALLAST				INPUT		REMARKS
				QTY	TYPE	COLOR	CRI	QTY	BF	LUMENS	TYPE	WATTS	VOLTS	
LR1	GOTHAM	EVO 35/10 6DFR 120	6" RECESSED APERATURE LED DOWNLIGHT. UL LISTED WET LOCATION	1	LED	3500K	83	1		661	LED	22	120	
	INDY	SD6-11351-SAQF3 SD6-SAQF-PF/WET HB-TL												
	H.E. WILLIAMS	LEDSL60-OS11/835-EDD*OS-120												
LR2	GOTHAM	AF 1/32TRT 6WR 120	6" RECESSED COMPACT FLUORESCENT DOWNLIGHT	1	32W TRT			1		2400	ELB	32	120	
	INDY	C6H-126-42T C650-CL-WH HB-TL												
	H.E. WILLIAMS	PBD60-1-32T-CS-EB1-120												
LW1	PHILIPS	COLORGRAZE MX4 POWERCORE	EXTERIOR LED DECORATIVE UPLIGHT		LED						LED	37	120	
	OR EQUAL													
LR2E	GOTHAM	AF 1/32TRT 6WR 120 EL	6" RECESSED COMPACT FLUORESCENT DOWNLIGHT WITH EMERGENCY BALLAST	1	32W TRT			1		2400	ELB	32	120	SEE NOTE 12
	INDY	C6H-126-42T-BR C650-CL-WH HB-TL												
	H.E. WILLIAMS	PBD60-1-32T-CS-EM-EB1-120												
LR2D	GOTHAM	AF 1/32TRT 6WR 120 ECOS	6" RECESSED COMPACT FLUORESCENT DIMMABLE DOWNLIGHT	1	32W TRT			1		2400	ELB	32	120	SEE NOTE 10
	INDY	C6H-126-42T-D10 C650-CL-WH HB-TL												
	H.E. WILLAIAMS	PBD60-1-32T-CS-EBD1-120												
FP1	LITECONTROL	P-ID-5924T8-PBCWM-TCWM-ELB-1CWQ-120	ARCOS ID 4' PENDANT-MOUNTED INDIRECT/DIRECT	2	T8			1			ELB	59	120	
	PINNACLE	G9CA-2T8-4'-AC48G1-UNV-1C-W												
	PEERLESS	PRM4-2-32-WHR-OPD-WPB-4-R4-120-GEB10-SCT-LP835-F3												
FP2	LITHONIA	L 2 32 120	4' SUSPENDED INDUSTRIAL STRIP LIGHT	2	T8			1	.88	2900	ELB	55	120	
	H.E. WILLIAMS	80-4-2 32-VBY-2-EB2-UNV												
	LIGHTOLIER	KW 48 S 2 32 120 SO AH5 CSP												
FP2E	LITHONIA	L 2 32 120 EL	4' SUSPENDED INDUSTRIAL STRIP LIGHT WITH EMERGENCY BATTERY PACK	2	T8			1	.88	2900	ELB	55	120	SEE NOTE 12
	H.E. WILLIAMS	80-4-2 32-VBY-2-EB2-UNV-EM1400(T8)/1												
	LIGHTOLIER	KW 48 S 2 32 120 SO AH5 CSP EM												
FP3	LITECONTROL	P-ID-5234T8-PBSS-CWM-ELB-1CWQ-120	CIROS 4' PENDANT-MOUNTED INDIRECT/DIRECT	3	T8			1			ELB	86	120	
	FINELITE	S12-ID-DCO-6-3T8-SC-91W-OPEN-120-FA-FE-C1-0.88												
	LIGHTOLIER	EG-1-3-B-H-P-4-1-W												
FP3D	LITECONTROL	P-ID-5234T8-PBSS-CWM-DIM-1CWQ-120	CIROS 4' PENDANT-MOUNTED INDIRECT/DIRECT DIMMABLE	3	T8			1			ELB	86	120	SEE NOTE 10
	FINELITE	S12-ID-DCO-6-3T8-CRD-91W-OPEN-120-FA-FE-C1-0.88												
	LIGHTOLIER	EG-1-3-B-H-P-4-1-W												
FP4	PRUDENTIAL LIGHTING	P3940 7T5 PRA YGW D9 SC 120 CA48 X1	4' DIAMETER SUSPENDED	7	T5			7		2850	ELB	145	120	
	FOCAL POINT	FSD 44 D 7T5 E 120 C48 CX WH												
	H.E. WILLIAMS	RNDP-4-5-32U-FXA-EB4/1-UNV												
FR3	LITECONTROL	G-D-LRC222T8-PFO-CWM-ELB-120	2' x 2' RECESSED INDIRECT	2	T8/T5			1			ELB	33	120	
	PINNACLE	LU22A-2T5-G1-UNV-1C-W												
	LIGHTOLIER	H9-S-2-G-L-R-2-17-120-HI												
FR3E	LITECONTROL	G-D-LRC222T8-PFO-CWM-ELB-EF-120	2' X 2' RECESSED INDIRECT WITH EMERGENCY BALLAST	2	T8/T5			1			ELB	33	120	SEE NOTE 12
	PINNACLE	LU22A-2T5-G1-UNV-1E-W												
	LIGHTOLIER	H9-S-2-G-L-R-2-17-120-HI-EM												
FR4	LITECONTROL	G-D-LRC242T8-PFO-CWM-ELB-120	2' x 4' RECESSED INDIRECT	2	T8/T5			1			ELB	55	120	
	PINNACLE	LU24A-2T5-G1-UNV-1C-W												
	LIGHTOLIER	H9-S-2-G-L-R-2-32-120-HI												
FR4E	LITECONTROL	G-D-LRC242T8-PFO-CWM-ELB-EF-120	2' x 4' RECESSED INDIRECT WITH EMERGENCY BALLAST	2	T8/T5			1			ELB	55	120	SEE NOTE 12
	PINNACLE	LU24A-2T5-G1-UNV-1E-W												
	LIGHTOLIER	H9-S-2-G-L-R-2-32-120-HI-EM												
FR5	DESIGNPLAN	RDL-8-E8-4-01-C-C-0	FLUORESCENT DOWNLIGHT	1	2-26W	3500K		1			ELB	52	120	
	LITHONIA	LF6N 2/26DTT F602A 120												
	JUNO LIGHTING	CH6-226Q-650C-WH												
FR5E	DESIGNPLAN	RDL-8-E8-4-01-C-C-1	FLUORESCENT DOWNLIGHT WITH EMERGENCY BALLAST	1	2-26W	3500K		1			ELB	52	120	SEE NOTE 12
	LITHONIA	LF6N 2/26DTT F602A 120 EL												
	JUNO LIGHTING	CH6-226Q-650C-WH-PLK-E												
FS1	COOPER LIGHTING	MC-228T5A-120-EBT1	1' x 4' SURFACE MOUNTED ACRYLIC LENS FLUORESCENT	2	T5			1	1.0		ELB	60	120	
	H.E. WILLIAMS	11-4-2 28T5S-F A12125-EB2-UNV												
	LITHONIA	M 2 28T5 A12 MVOLT GEB10PS												
FS2	COOPER LIGHTING	ICF-232-120V-EL4-EB81	4' INDUSTRIAL STRIP FLUORESCENT	2	T8			1		2850	ELB	53	120	
	H.E. WILLIAMS	80-4-2 32-EB2-UNV												
	LITHONIA	L 2 32 MVOLT GEB10PS												
FS3	COOPER LIGHTING	FCC-X-232-120-EB51-SPK	8" x 48" CORNER MOUNTED FLUORESCENT WITH MICROPHONE VANDAL RESISTANT - CORRECTIONAL GRADE	2	T8			1			ELB	71	120	
	CD LIGHTING	DCA-4-T-2-32-120-EB-18CP												
	KENALL	CD 4 1/1 2 32 RS 120 1/G 1 SK												
FW1	LITECONTROL	2114T5-CWM-ELB/PS-DP	48" RECESSED PERIMETER	1	T5			1			ELB	32	120	
	LINEAR LIGHTING	WW5-D-1SG-ET5-120-NNS-R-BW-4'												
	LIGHTOLIER	PTS5-1-S-O-120-4												
FW1E	LITECONTROL	2114T5-CWM-ELB/PS-DP-EF-120	48" RECESSED PERIMETER WITH EMERGENCY BALLAST	1	T5			1			ELB	32	120	SEE NOTE 12
	LINEAR LIGHTING	WW5-D-1SG-ET5-120-NNS-R-BW-EC-4'												
	LIGHTOLIER	PTS5-1-S-O-E1-4												
FW2	LITHONIA	CA 2 32 MVOLT	48" WALL MOUNT CORRIDOR	2	T8			1	.88	2850	ELB	61	120	
	H.E. WILLIAMS	20-4-232-A-EB2-UNV												
	COOPER	23DW-2T8-4-1EB												
FW3	LITHONIA	TWA 42TRT 120 PE DBL LPI	MINI WALL-PACK	1	42W TRT			1			ELB	48	120	
	COOPER	CF-WP-PL-42-120-PE												
	H.E. WILLIAMS	WL5-1 42T-GX24Q-4-120												
FW4-#	PHILIPS LIGHTOLIER	CL08-T01-E-N-#-1-D-E-W	COVE UPLIGHT	1	T8			1		2950	ELB	32	120	# INDICATES FIXTURE LENGTH
	CORELITE	AW-SN-1T8-1C-120-SU-WA-8'-ET												
	OR EQUAL													
EM1	LITHONIA	ELM	GENERAL PURPOSE EMERGENCY LIGHT	2								1.2	120	
	COOPER	LEMR2												
	H.E. WILLIAMS	EMER/MR16/CP-WHT												
EM2	LITHONIA	ELA T QWP L0304	WEATHERPROOF DUAL REMOTE EMERGENCY HEAD	2	LED						LED	1.44	120	
	JUNO LIGHTING	NRL-WP-2-GY-SD												
	HOLOPHANE	ELA-CZ11-WP-L0304												
EM3	LITHONIA	ELM2 LED SD WRS	6V EMERGENCY BATTERY UNIT WITH DUAL LED HEADS	2	LED						LED	1.5	120	
	H.E. WILLIAMS	EMER/CP/ADJ/LED WHT												
	JUNO LIGHTING	NRL-SQ-2-WH-SD												

NOTES:

1. NOTES 2-9 APPLY TO ALL APPLICABLE LIGHTING FIXTURES. THE REMARKS COLUMN SHALL NOTE ADDITIONAL REQUIREMENTS.
2. FIXTURES SPECIFIED WITH CATALOG NUMBERS ESTABLISH QUALITY LEVEL FOR EQUAL FIXTURES FROM MANUFACTURERS LISTED WITHOUT CATALOG NUMBERS. WHERE ONLY ONE MANUFACTURER LISTED, THERE SHALL BE NO SUBSTITUTION.
3. VERIFY EXACT MOUNTING CONDITIONS AND PROVIDE APPROPRIATE ACCESSORIES AND HARDWARE TO ACCOMMODATE REQUIREMENTS.
4. FIXTURE TYPE INDICATED ONCE ON A CONTINUOUS ROW SHALL BE TYPICAL OF ALL FIXTURES IN THE ROW UNLESS NOTED OTHERWISE.
5. CONTINUOUS ROWS OF FIXTURES SHALL BE PROVIDED WITH ALL NECESSARY HARDWARE AND FILLERS TO PROVIDE THE EXACT LENGTHS AS INDICATED ON THE PLANS. FIXTURES IN SOFFITS SHALL BE CONTINUOUS END TO END.
6. PROVIDE ALL FLUORESCENT FIXTURES WITH ELECTRONIC BALLASTS WITH MAXIMUM THD OF 10%, PF GREATER THAN 97% AND BF GREATER THAN 0.88. BALLASTS SHALL BE PROGRAMMED RAPID START WITH END-OF-LAMP-LIFE PROTECTION UNLESS NOTED OTHERWISE. BALLASTS SHALL BE UL LISTED AND MANUFACTURED BY ADVANCE ELECTRIC, GE, OSRAM SYLVANIA OR UNIVERSAL.
7. BALLAST EFFICIENCY SHALL BE GREATER THAN THAT REQUIRED TO ENSURE THAT THE VALUE LISTED FOR INPUT WATTS IS NOT EXCEEDED.
8. FLUORESCENT LAMPS SHALL HAVE A MINIMUM CRI OF 82. LAMP SHALL BE MANUFACTURED BY OSRAM SYLVANIA, GE OR PHILLIPS.
9. PROVIDE EXIT SIGNS WITH ARROWS AND MOUNTING ACCESSORIES AS INDICATED ON THE PLANS.
10. FLUORESCENT DIMMING BALLAST SHALL HAVE FULL RANGE ENERGY MANAGEMENT CAPABILITIES FROM 10% TO 100% EQUAL TO LUTRON.
11. FLUORESCENT DIMMING BALLAST SHALL HAVE FULL RANGE ARCHITECTURAL CAPABILITIES FROM 1% TO 100% EQUAL TO LUTRON HILUME SERIES. COORDINATE SPECIFIED DIMMER CONTROL TO MATCH REQUIREMENTS FOR OPTIMAL CONTROL OF THE SUPPLIED SYSTEM.
12. BATTERY BACKED FLUORESCENT BALLASTS SHALL PROVIDE 600-1325 LUMENS OF ILLUMINATION FROM (1) ST/DN OR HO T5/T8 LAMP FOR 90 MINUTES. BALLAST SHALL UL LISTED, COMPATIBLE TO THE SPECIFIED LAMPS AND BE EQUAL TO TYPE LP600 BY BODINE.

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURERS	CATALOG NUMBER	DESCRIPTION	LAMPS				BALLAST				INPUT		REMARKS
				QTY	TYPE	COLOR	CRI	QTY	BF	LUMENS	TYPE	WATTS	VOLTS	
ES1	LITHONIA	LQC-W1R-ELN	SINGLE FACED SELF CONTAINED LED EXIT SIGN	1	LED							.71	UNIV	NOTE 9
ES2	LITHONIA	LQC-W2R-ELN	DOUBLE FACED SELF CONTAINED LED EXIT SIGN	1	LED							.71	UNIV	NOTE 9

NOTES:

1. NOTES 2-9 APPLY TO ALL APPLICABLE LIGHTING FIXTURES. THE REMARKS COLUMN SHALL NOTE ADDITIONAL REQUIREMENTS.
2. FIXTURES SPECIFIED WITH CATALOG NUMBERS ESTABLISH QUALITY LEVEL FOR EQUAL FIXTURES FROM MANUFACTURERS LISTED WITHOUT CATALOG NUMBERS. WHERE ONLY ONE MANUFACTURER LISTED, THERE SHALL BE NO SUBSTITUTION. FIXTURES SHALL BE DLC COMPLAINT UNLESS OTHERWISE INDICATED.
3. VERIFY EXACT MOUNTING CONDITIONS AND PROVIDE APPROPRIATE ACCESSORIES AND HARDWARE TO ACCOMMODATE REQUIREMENTS.
4. FIXTURE TYPE INDICATED ONCE ON A CONTINUOUS ROW SHALL BE TYPICAL OF ALL FIXTURES IN THE ROW UNLESS NOTED OTHERWISE.
5. CONTINUOUS ROWS OF FIXTURES SHALL BE PROVIDED WITH ALL NECESSARY HARDWARE AND FILLERS TO PROVIDE THE EXACT LENGTHS AS INDICATED ON THE PLANS. FIXTURES IN SOFFITS SHALL BE CONTINUOUS END TO END.
6. PROVIDE ALL FLUORESCENT FIXTURES WITH ELECTRONIC BALLASTS WITH MAXIMUM THD OF 10%, PF GREATER THAN 97% AND BF GREATER THAN 0.88. BALLASTS SHALL BE PROGRAMMED RAPID START WITH END-OF-LAMP-LIFE PROTECTION UNLESS NOTED OTHERWISE. BALLASTS SHALL BE UL LISTED AND MANUFACTURED BY ADVANCE ELECTRIC, GE, OSRAM SYLVANIA OR UNIVERSAL.
7. BALLAST EFFICIENCY SHALL BE GREATER THAN THAT REQUIRED TO ENSURE THAT THE VALUE LISTED FOR INPUT WATTS IS NOT EXCEEDED.
8. FLUORESCENT LAMPS SHALL HAVE A MINIMUM CRI OF 82. LAMP SHALL BE MANUFACTURED BY OSRAM SYLVANIA, GE OR PHILLIPS.
9. PROVIDE EXIT SIGNS WITH ARROWS AND MOUNTING ACCESSORIES AS INDICATED ON THE PLANS.
10. FLUORESCENT DIMMING BALLAST SHALL HAVE FULL RANGE ENERGY MANAGEMENT CAPABILITIES FROM 10% TO 100% EQUAL TO LUTRON.
11. FLUORESCENT DIMMING BALLAST SHALL HAVE FULL RANGE ARCHITECTURAL CAPABILITIES FROM 1% TO 100% EQUAL TO LUTRON HILUME SERIES. COORDINATE SPECIFIED DIMMER CONTROL TO MATCH REQUIREMENTS FOR OPTIMAL CONTROL OF THE SUPPLIED SYSTEM.
12. BATTERY BACKED FLUORESCENT BALLASTS SHALL PROVIDE 600-1325 LUMENS OF ILLUMINATION FROM (1) ST/DN OR HO T5/T8 LAMP FOR 90 MINUTES. BALLAST SHALL UL LISTED, COMPATIBLE TO THE SPECIFIED LAMPS AND BE EQUAL TO TYPE LP600 BY BODINE.
13. ALL FIXTURES SHALL BE DLC COMPLIANT.
14. PROVIDE MOUNTING BRACKET FOR CCTV CAMERA.

LIGHTING CONTROL SCHEDULE

TYPE	MANUFACTURERS	MODEL #	DESCRIPTION	APPLICATION	MOUNTING	TECHNOLOGY	COVERAGE	VOLTAGE	NOTES
O1	WATTSTOPPER	WT-2250	ULTRASONIC CEILING SENSORS	CORRIDOR	CEILING	ULTRASONIC	360° TWO-SIDED, 90 LINEAR FT	24VDC	
	OR EQUAL		AUTO ON/OFF						
O2	WATTSTOPPER	DT-355	DUAL TECHNOLOGY CEILING SENSORS	BREAKROOM	CEILING	PASSIVE INFRARED (PIR) AND ULTRASONIC TECHNOLOGIES	1,000FT2	120V	
	OR EQUAL		AUTO ON/OFF	LARGE STORAGE					
O3	WATTSTOPPER	UT-300-1	ULTRASONIC CEILING SENSORS	RESTROOMS/ SHOWER/LOCKERS	CEILING	ULTRASONIC	500 FT2	24VDC	PROVIDE WITH ADDITIONAL
	OR EQUAL		AUTO ON/OFF						RELAY FOR EF CONTROL
O4	WATTSTOPPER	WT-2200	ULTRASONIC CEILING SENSORS WITH ISOLATED RELAY	OPEN LARGE OFFICE	CEILING	ULTRASONIC	2,000FT2	24VDC	PROVIDE LOW VOLTAGE
	OR EQUAL		MANUAL ON/ AUTO OFF SWITCH.	DUAL LEVEL					SWITCHING FOR MANUAL ON
S O1a	WATTSTOPPER	UW-100-W	ULTRASONIC WALL SWITCH SENSOR	SMALL STORAGE	WALL	ULTRASONIC	MAJOR MOTION: 20' X 20' MINOR MOTION: 15' X 15	120V	
	OR EQUAL		AUTO ON/OFF SWITCH.	INDIVIDUAL RESTROOM					
S O1	WATTSTOPPER	DW-100-W	WALL SWITCH SENSOR. SINGLE CIRCUIT	SMALL OFFICE/SMALL BREAK ROOM	WALL	PASSIVE INFRARED (PIR) AND ULTRASONIC TECHNOLOGIES	MAJOR MOTION, PIR 35' X 30', ULTRASONIC 20' X 20' MINOR MOTION, PIR 20' X 15', ULTRASONIC 15' X 15	120V	
	OR EQUAL		MANUAL ON/ AUTO OFF SWITCH.	SMALL STORAGE/SINGLE LEVEL					
S O2	WATTSTOPPER	UW-200-W	ULTRASONIC DUAL RELAY WALL SWITCH SENSOR. WITH TWO RELAYS FOR CONTROL OF TWO CIRCUITS.	SMALL OFFICE/	WALL	PASSIVE INFRARED (PIR) AND ULTRASONIC TECHNOLOGIES	MAJOR MOTION, PIR 35' X 30', ULTRASONIC 20' X 20' MINOR MOTION, PIR 20' X 15', ULTRASONIC 15' X 15	120V	PROMDE WITH ADDITIONAL
	OR EQUAL		MANUAL ON/ AUTO OFF SWITCH.	DUAL LEVEL					RELAY FOR HVAC CONTROL

LIGHTING CONTROL CABINET

PANEL: LC1A RELAYS: 4

RELAY	ZONE	SERVICE	CIRCUIT	CONTROL
1	1	FRONT BUILDING	L21-8	NOTE 4.
2	2	BACK BUILDING	L21-10	NOTE 5.
3	3	LED DISPLAY LIGHTING	L21-24	NOTE 5.
4	4	ROOF LIGHTING	L21-26	NOTE 3.

NOTES:
1 "ZONE" INDICATES SWITCH CONTROL ASSOCIATION
2 LIGHTING ENERGIZED CONTINUOUSLY.
3 LIGHTING ON/OFF VIA SWITCH INPUT, OFF VIA TIMED SWEEP.
4 LIGHTING ON/OFF VIA PHOTOCELL.
5 LIGHTING ON VIA PHOTOCELL, OFF VIA TIME CLOCK.

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300 Brickstone Square
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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

ELECTRICAL SCHEDULES

PROJECT NUMBER: 20130535
DESIGNED BY: AM
DRAWN BY: DF
CHECKED BY: GM
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

E701

SHEET 141 **OF** 157

ELEC: ____ MECH: ____ FIRE: ____ PLUM: ____ STRU: ____ ARCH: ____ CIVIL: ____ REVIEWD BY:

Q:\2013\20130535 - Waltham Police HQ Renovation\1200 Drawings\1204 Electrical\Pod Files\20130535 E701 ELECTRICAL SCHEDULES.dwg [Work] July 14, 2014 - 6:43pm dfranzak

REVIEWED BY: CIVIL:_____ ARCH:_____ STRU:_____ PLUM:_____ FIRE:_____ MECH:_____ ELEC:_____

AUDIOVISUAL COORDINATION LEGEND

	GENERAL CONTRACTOR	ELECTRICAL CONTRACTOR	AUDIOVISUAL CONTRACTOR	TELECOM CONTRACTOR	FURNITURE CONTRACTOR	OWNER
VIDEO: PROJECTION SCREENS						
PROJECTION SCREENS FURNISHED BY				X		
PROJECTION SCREENS INSTALLED BY				X		
ELECTRIC PROJECTION SCREEN LVC AND SWITCH FURNISHED BY				X		
ELECTRIC PROJECTION SCREEN LVC AND SWITCH INSTALLED BY				X		
VIDEO: PROJECTIONS						
VIDEO PROJECTOR FURNISHED BY				X		
VIDEO PROJECTOR INSTALLED BY				X		
CEILING MOUNTED/LIFT FURNISHED BY				X		
CEILING MOUNTED/LIFT INSTALLED BY				X		
UNISTRUT FURNISHED BY				X		
UNISTRUT INSTALLED BY				X		
VIDEO: LCD/PLASMA DISPLAY						
DISPLAY FURNISHED BY				X		
DISPLAY INSTALLED BY				X		
DISPLAY MOUNT FURNISHED BY				X		
DISPLAY MOUNT INSTALLED BY				X		
DISPLAY WALL BLOCKING PROVIDED BY	X					
AUDIO: LOUDSPEAKERS AND MICROPHONES						
CEILING LOUDSPEAKER FURNISHED BY				X		
CEILING LOUDSPEAKER INSTALLED BY				X		
CEILING LOUDSPEAKER BACK BOXES FURNISHED BY						
CEILING LOUDSPEAKER BACK BOXES (IF ANY) INSTALLED BY						
IN-WALL LOUDSPEAKER FURNISHED BY						
IN-WALL LOUDSPEAKER BACK BOX (IF ANY) INSTALLED BY						
DISPLAY MOUNTED SPEAKERS FURNISHED BY						
DISPLAY MOUNTED SPEAKERS INSTALLED BY						
TABLETOP WIRED MICROPHONES FURNISHED BY						
TABLETOP WIRED MICROPHONES INSTALLED BY						
NETWORK / IT						
LAN OUTLETS REQUIRED FOR AV EQUIPMENT FURNISHED BY					X	
LAN OUTLETS REQUIRED FOR AV EQUIPMENT INSTALLED BY					X	
NETWORK BACKBONE FURNISHED BY					X	
NETWORK BACKBONE INSTALLED BY					X	
ELECTRICAL: AV CABLE						
AV HIGH-VOLTAGE CABLE FURNISHED BY		X				
AV HIGH-VOLTAGE CABLE INSTALLED BY		X				
AV LOW-VOLTAGE CABLE FURNISHED BY				X		
AV LOW-VOLTAGE CABLE INSTALLED BY				X		
AV CONDUIT & CONDUIT SLEEVE REQUIREMENTS FURNISHED BY	X					
AV CONDUIT & CONDUIT SLEEVE INSTALLED WITH PULL STRINGS BY	X					
AV HIGH-VOLTAGE PROJECTION SCREEN WIRING PROVIDED BY	X					
AV LOW-VOLTAGE PROJECTION SCREEN WIRING PROVIDED BY	X					
WALL MOUNTED JUNCTION BOXES FOR AV REQUIREMENTS FURNISHED BY	X					
WALL MOUNTED JUNCTION BOXES FOR AV REQUIREMENTS INSTALLED BY	X					
FLOOR BOXES FOR AV REQUIREMENTS FURNISHED BY	X					
FLOOR BOXES FOR AV REQUIREMENTS INSTALLED BY	X					
POKE-THROUGH FOR AV REQUIREMENTS FURNISHED BY	X					
POKE-THROUGH FOR AV REQUIREMENTS INSTALLED BY	X					
AV FURNITURE:						
VENTILATED AV FURNITURE/CREDENZAS FURNISHED BY						
VENTILATED AV FURNITURE/CREDENZAS INSTALLED BY						
AV FURNITURE/CREDENZAS ADDITIONAL COOLING AV FANS FURNISHED BY						
AV FURNITURE/CREDENZAS ADDITIONAL COOLING AV FANS INSTALLED BY						
AV FURNITURE/CREDENZAS CUTTING CORING FOR AV CABLE PATHWAYS BY						
AV FURNITURE/TABLETOP CUTTING CORING FOR AV DEVICES BY						
PROGRAMMING / AV CONTROL:						
AV LIGHTING SYSTEM FURNISHED AND INSTALLED BY						
AV LIGHTING SYSTEM PROGRAMMED BY						
LIGHTING SCENES SETTINGS BY						
AV SHADE SYSTEM FURNISHED AND INSTALLED BY						
AV SHADE SYSTEM PROGRAMMED BY						
AV CONTROL SYSTEMS FURNISHED BY						
AV CONTROL SYSTEMS INSTALLED AND PROGRAMMED BY						
CATV / CABLE						
CATV HOME RUN CABLE SUPPLIED BY					X	
CATV HOME RUN CABLE INSTALLED BY					X	
CATV BACKBONE SUPPLIED BY					X	
CATV BACKBONE INSTALLED BY					X	
CABLE/SAT TUNER BOXES FURNISHED BY						
CABLE/SAT TUNER BOXES INSTALLED BY						
WALL PLATES BY:						
AV WALL PLATES FOR AV REQUIREMENTS FURNISHED BY				X		
AV WALL PLATES FOR AV REQUIREMENTS INSTALLED BY				X		
LAN WALL PLATES REQUIRED FOR AV EQUIPMENT FURNISHED BY					X	
LAN WALL PLATES REQUIRED FOR AV EQUIPMENT INSTALLED BY					X	
ELECTRICAL WALL PLATES FOR AV REQUIREMENTS FURNISHED BY		X				
ELECTRICAL WALL PLATES FOR AV REQUIREMENTS INSTALLED BY		X				

GENERAL AUDIOVISUAL ABBREVIATIONS

AC	ALTERNATING CURRENT	NEC	NATIONAL ELECTRICAL CODE		
ADA	AMERICANS WITH DISABILITIES ACT	NEXT	NEAR END CROSS TALK		
AFF	ABOVE FINISH FLOOR	NIC	NOT IN CONTRACT		
AIA	AMERICAN INSTITUTE OF ARCHITECTS	OFE	OWNER FURNISHED EQUIPMENT		
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION		
AWG	AMERICAN WIRE GAUGE	PABX	PRIVATE AUTOMATIC BRANCH EXCHANGE		
BICSI	BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL	PBX	PRIVATE BRANCH EXCHANGE		
BTU	BRITISH THERMAL UNIT	POTS	PLAIN OLD TELEPHONE SERVICE		
CATV	CABLE TELEVISION	PR	PAIR		
CO	CENTRAL OFFICE	PVC	POLYVINYL CHLORIDE		
CODEC	CODER DECODER	RCDD	REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER		
CTS	CERTIFIED TECHNOLOGY SPECIALIST	REF	REFERENCE		
CPU	CENTRAL PROCESSING UNIT	RFI	RADIO FREQUENCY INTERFERENCE		
dB	DECIBEL	RFP	REQUEST FOR PROPOSAL		
DC	DIRECT CURRENT	RFQ	REQUEST FOR QUOTE		
DEMARC	DEMARCATION POINT	RMS	RACK MOUNT SPACE		
EIA	ELECTRONICS INDUSTRIES ASSOCIATION	SP	SERVICE PROVIDER		
EMC	ELECTROMAGNETIC COMPATIBILITY	STP	SHIELDED TWISTED-PAIR		
EMI	ELECTROMAGNETIC INTERFERENCE	SWB	SWITCHBOARD		
EMR	ELECTROMAGNETIC RADIATION	SYS	SYSTEM		
EMT	ELECTRIC METALLIC TUBING	TB	TERMINAL BLOCK		
FCC	FEDERAL COMMUNICATIONS COMMISSION	TEL	TELEPHONE		
FEXT	FAR END CROSS TALK	TELCO	TELEPHONE COMPANY		
GEC	GROUNDING ELECTRODE CONDUCTOR	TYP	TYPICAL		
GND	GROUND	UG	UNDERGROUND		
HC	HORIZONTAL CROSS-CONNECT	UL	UNDERWRITERS LABORATORIES, INC.		
HF	HIGH FREQUENCY	UPS	UNINTERRUPTIBLE POWER SUPPLY		
HH	HANDHOLE	UTP	UNSHIELDED TWISTED-PAIR		
HVAC	HEATING, VENTILATION, AND AIR-CONDITIONING	WA	WORK AREA		
Hz	HERTZ	WP	WATERPROOF OUTLET		
ICIA	INTERNATIONAL COMMUNICATIONS INDUSTRIES ASSOCIATION, INC.	X	CROSS-CONNECT		
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.	RESOLUTION DISPLAY:			
ISDN	INTEGRATED SERVICES DIGITAL NETWORK	VGA	640 x 480	VIDEO RESOLUTION	4:3 ASPECT RATIO
ISO	INTERNATIONAL STANDARDS ORGANIZATION	SVGA	800 x 600	VIDEO RESOLUTION	4:3 ASPECT RATIO
kHz	KILOHERTZ	XGA	1024 x 768	VIDEO RESOLUTION	4:3 ASPECT RATIO
kwh	KILOWATT-HOURS	QVGA	1280 x 800	VIDEO RESOLUTION	4:3 ASPECT RATIO
LAN	LOCAL AREA NETWORK	WXGA	1280 x 960	VIDEO RESOLUTION	16:9 ASPECT RATIO
LCD	LIQUID CRYSTAL DISPLAY	WXGA+	1440 x 900	VIDEO RESOLUTION	16:9 ASPECT RATIO
LED	LIGHT-EMMITTING DIODE	SXGA	1280 x 1024	VIDEO RESOLUTION	16:9 ASPECT RATIO
MH	MANHOLE	SXGA+	1400 x 1050	VIDEO RESOLUTION	4:3 ASPECT RATIO
MODEM	MODULATOR DEMODULATOR	UXGA	1600 x 1200	VIDEO RESOLUTION	4:3 ASPECT RATIO
MTT	MAIN TELEPHONE TERMINAL	WSXGA+	1680 x 1050	VIDEO RESOLUTION	16:9 ASPECT RATIO

GENERAL AUDIOVISUAL NOTES

1. REFER TO ELECTRICAL DRAWINGS FOR PROPOSED PATHWAYS.
2. THIS CONTRACTOR SHALL COORDINATE EXACT MOUNTING HEIGHTS AND LOCATION OF EQUIPMENT WITH ARCHITECT.
3. REFER TO AUDIOVISUAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
4. THIS CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS FOR ALL AUDIOVISUAL DEVICES PRIOR TO INSTALLATION.
5. ALL VOICE/DATA/VIDEO CABLES SHALL BE PLENUM RATED.
6. VERIFY LABELING STANDARD WITH OWNER, SUBMIT LABELING SCHEME FOR APPROVAL. LABELING SHALL BE IN ACCORDANCE WITH ANSI/EIA/TIA-606A STANDARDS.
7. THIS CONTRACTOR SHALL PROVIDE ALL NECESSARY FITTINGS, PLATES AND INSERTS TO ACCEPT THE CONNECTIVITY PRODUCTS WITHIN THE ELECTRICAL CONTRACTOR PROVIDED FLOOR BOXES, POKE THRU BOXES AND SURFACE RACEWAY.
8. THIS CONTRACTOR SHALL PROVIDE ALL NECESSARY FITTINGS, PLATES AND INSERTS TO ACCEPT THE CONNECTIVITY PRODUCTS WITHIN THE CONFERENCE ROOM CABLE CUBBY DEVICES.

AUDIOVISUAL STANDARD CABLE TYPES

DESIGNATION	APPLICATION	MANUFACTURER	MODEL NUMBER	NOMINAL O.D. (INCHES)	UNIT AREA (INCHES)	CABLE CODED IDENTIFIERS
A	AUDIO/MICROPHONE	WEST PENN	25292	0.143	0.016	MXXX
C	RS-232 CONTROL/CONTACT CLOSURE	WEST PENN	253270B	0.183	0.026	CXXX
CT	CRESTRON CRESNET	CRESTRON	CRESNET-P	0.216	0.037	CTXXX
IR	INFRA RED EMITTER PROBE	CRESTRON	IRP2	-	-	IRXXX
NT6	CATEGORY 6	MOHAWK	M58281	0.208	0.037	NTXXX
P	DC REMOTE POWER	WEST PENN	25224	0.141	0.016	PXXX
QM	QUICK MEDIA CABLE	CRESTRON	CRESCAT-QM-P	0.431	0.146	QMXXX
RGBHV	RGBHV/VGA	EXTRON	22-103-02 (MHR-5P)	0.304	0.072	RGBHXXX
RF	WIRELESS MICROPHONE ANTENNA	BELDEN	88240	0.159	0.019	RFXXX
S	SPEAKER, 70V	WEST PENN	25224	0.141	0.016	SXXX
SS	SPEAKER, 8 OHM	WEST PENN	25227	0.221	0.038	SSXXX
UTP	SKEW FREE A/V TWISTED PAIR	EXTRON	22-142-03 (UTP23SF-4P)	0.240	0.045	UTPXXX
V	COMPOSITE VIDEO	EXTRON	22-146-02 (RG59P)	0.204	0.033	VXXX
YC	S-VIDEO	EXTRON	22-129-02 (MHR-2P)	0.245	0.047	YCXXX
RGB	COMPONENT VIDEO	EXTRON	22-103-02 (MHR-5P)	0.304	0.072	RGBXXX

AUDIOVISUAL LEGEND

- WALL MOUNTED A/V CONTROL PANEL "XG" - INDICATES THE SIZE OF BOX
- INTERACTIVE WHITEBOARD "XG" - INDICATES THE SIZE OF BOX
- FOUR COMPARTMENT MULTI-SERVICE RECESSED WALL BOX, WIREMOLD LEGRAND EVOLUTION SERIES #EFSB4. PROVIDE ALL REQUIRED ACCESSORIES FOR A COMPLETE INSTALLATION, BY ELECTRICAL CONTRACTOR INCLUDING TWO (2) EFB-MAAP. AV-INDICATES FOR AV RACK
- TWO COMPARTMENT MULTI-SERVICE RECESSED WALL BOX, WIREMOLD LEGRAND EVOLUTION SERIES #EFSB2. PROVIDE ALL REQUIRED ACCESSORIES FOR A COMPLETE INSTALLATION, BY ELECTRICAL CONTRACTOR. VD-INDICATES FOR VIDEO DISPLAY
- AUDIO SPEAKER, CEILING MOUNTED
- WALL MOUNTED A/V CONNECTION PLATE
- AUDIO VIDEO RACK LOCATION, SEE DETAILS
- VIDEO PRESENTATION CAMERA (CEILING MOUNTED)

LAN / NETWORK CONNECTIONS

ROOM	LOCATION	CONNECTIONS
LOBBY	SINGLE DISPLAY -WALL MOUNTED	NONE

REQUIRED LAN/NETWORK CONNECTIONS

THE LAN / NETWORK CONNECTION PROVISIONS FOR CONFERENCE ROOMS SHOULD BE SUFFICIENT TO HANDLE COMMUNICATIONS THAT ARE NEEDED BY THE AUDIOVISUAL SYSTEM COMPONENTS WITHIN THE CONFERENCE ROOM.

CHART INDICATES REQUIRED LAN/NETWORK CONNECTIONS FOR AUDIOVISUAL EQUIPMENT. LAN/NETWORK OUTLET CABLING, FACEPLATE AND JACK SHALL BE BY LOW VOLTAGE CONTRACTOR. LAN/NETWORK CABLE TYPE AND PERFORMANCE LEVEL (CAT5e, cat6) SHALL BE THE SAME TYPE AS THE STANDARD TELECOMMUNICATIONS OUTLET. SEE TELECOMMUNICATIONS DRAWINGS/SPECIFICATIONS FOR DETAILS. AV INSTALLER TO COORDINATE EXACT LOCATIONS OF LAN/NETWORK LOCATION(S) WITH ARCHITECT AND LOW VOLTAGE CONTRACTOR.

AUDIOVISUAL STANDARD PRE-MADE CABLE TYPES

DESIGNATION	APPLICATION	MANUFACTURER	MODEL NUMBER
PM3	HDMI MALE TO MALE, 3', MICRO	EXTRON	26-667-03
PM4	RGBHV / 5-WAY BNC /6'	EXTRON	26-260-01
PM12	3.5 MM STEREO AUDIO MALE TO MALE, 50'	CABLES TO GO	2233
PM14	MALE TO MALE VGA MICRO HR CABLE, W/ AUDIO, 6'	EXTRON	26-566-02
PM17	HDMI, MALE TO MALE, 6'	EXTRON	26-663-06
PM19	HDMI, MALE TO MALE, 15'	EXTRON	26-663-15
PM24	MALE TO MALE VGA WITH AUDIO CABLE, PLENUM, 35'	CABLES TO GO	40683
PM25	HDMI, MALE TO MALE, PLENUM, 35'	CABLE TO GO	41192
PM62	UTP PATCH CABLE, CATEGORY 5E, 3'	OTRONICS	OR-MC5E03-00
PM64	HDMI MALE TO MALE, PLENUM, 50'	CABLES TO GO	41193

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

AUDIOVISUAL LEGEND, NOTES & ABBRVS.

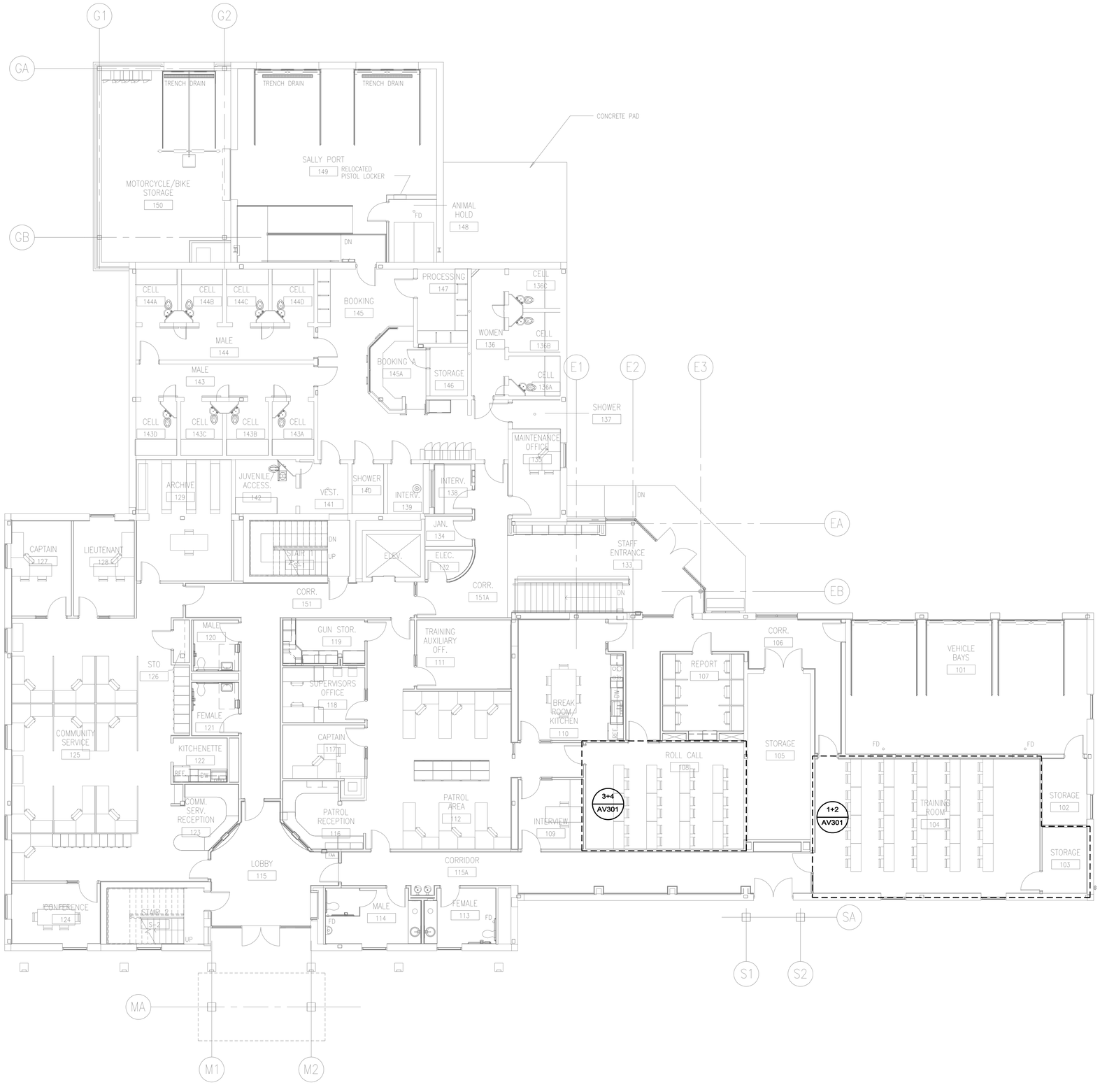
PROJECT NUMBER: 20130535
DESIGNED BY: MH
DRAWN BY: MH
CHECKED BY: PC
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

AV000

SHEET 152 **OF** 157

REVIEWED BY: CIVIL:_____ ARCH:_____ STRU:_____ PLUM:_____ FIRE:_____ MECH:_____ ELEC:_____



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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

AUDIOVISUAL FIRST FLOOR PLAN

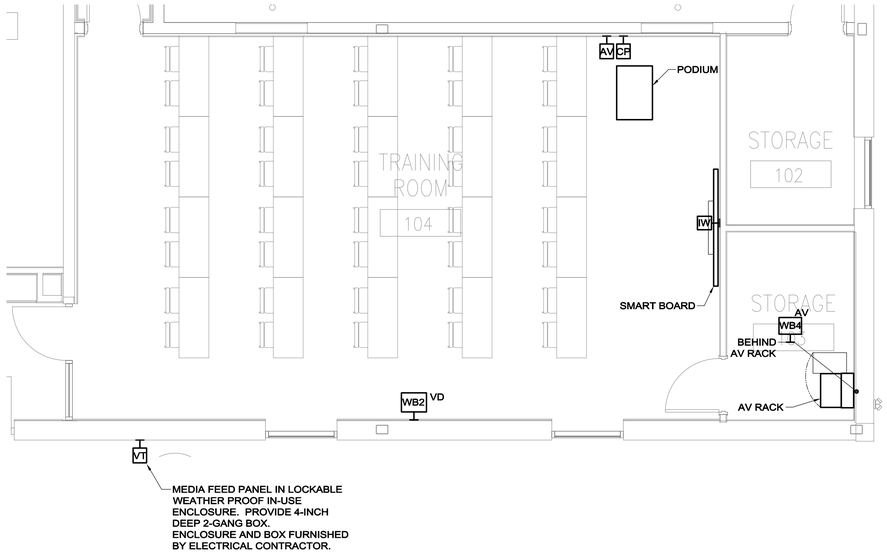
PROJECT NUMBER: 20130535
DESIGNED BY: MH
DRAWN BY: MH
CHECKED BY: PC
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

AV202

SHEET 153 **OF** 157

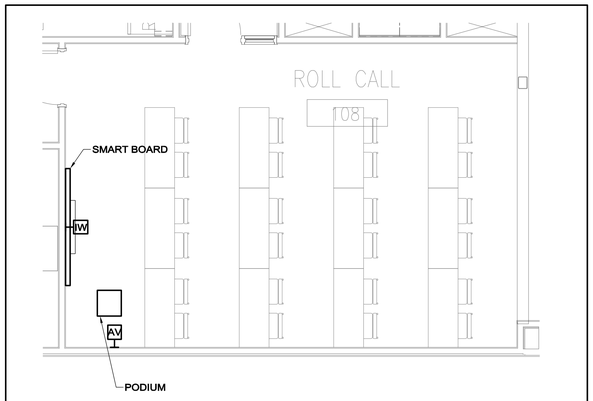
REVIEWED BY: CIVIL:_____ ARCH:_____ STRU:_____ PLUM:_____ FIRE:_____ MECH:_____ ELEC:_____



RDK

104 TRAINING ROOM & 103 STORAGE
PART PLAN
SCALE: 1/4"=1'-0"

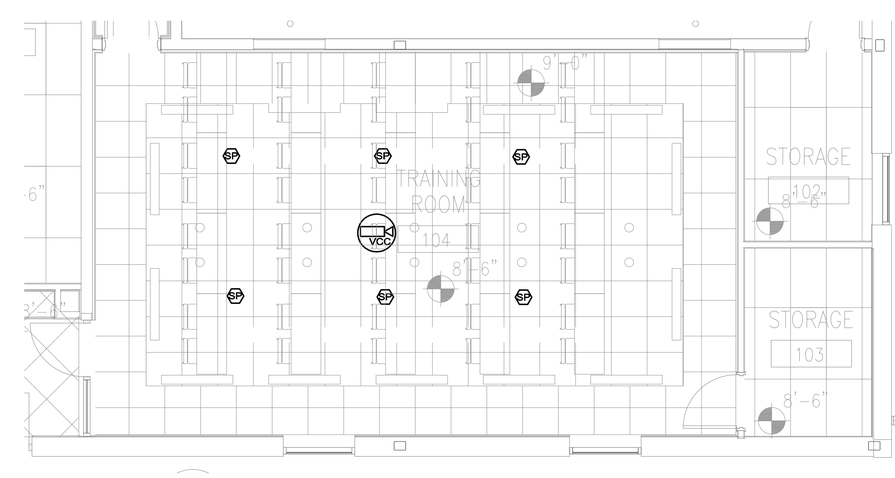
1



RDK

108 ROLL CALL ROOM
PART PLAN
SCALE: 1/4"=1'-0"

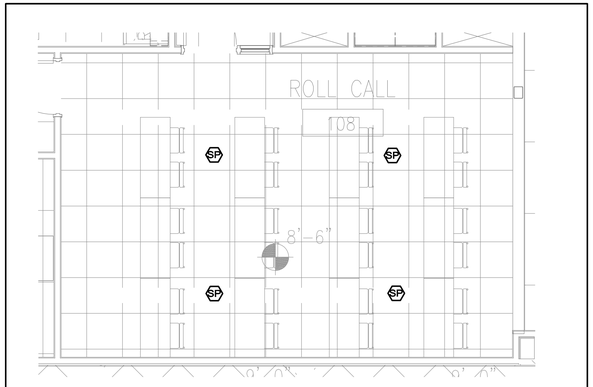
3



RDK

104 TRAINING ROOM & 103 STORAGE
RCP PLAN
SCALE: 1/4"=1'-0"

2



RDK

108 ROLL CALL ROOM
RCP PLAN
SCALE: 1/4"=1'-0"

4

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

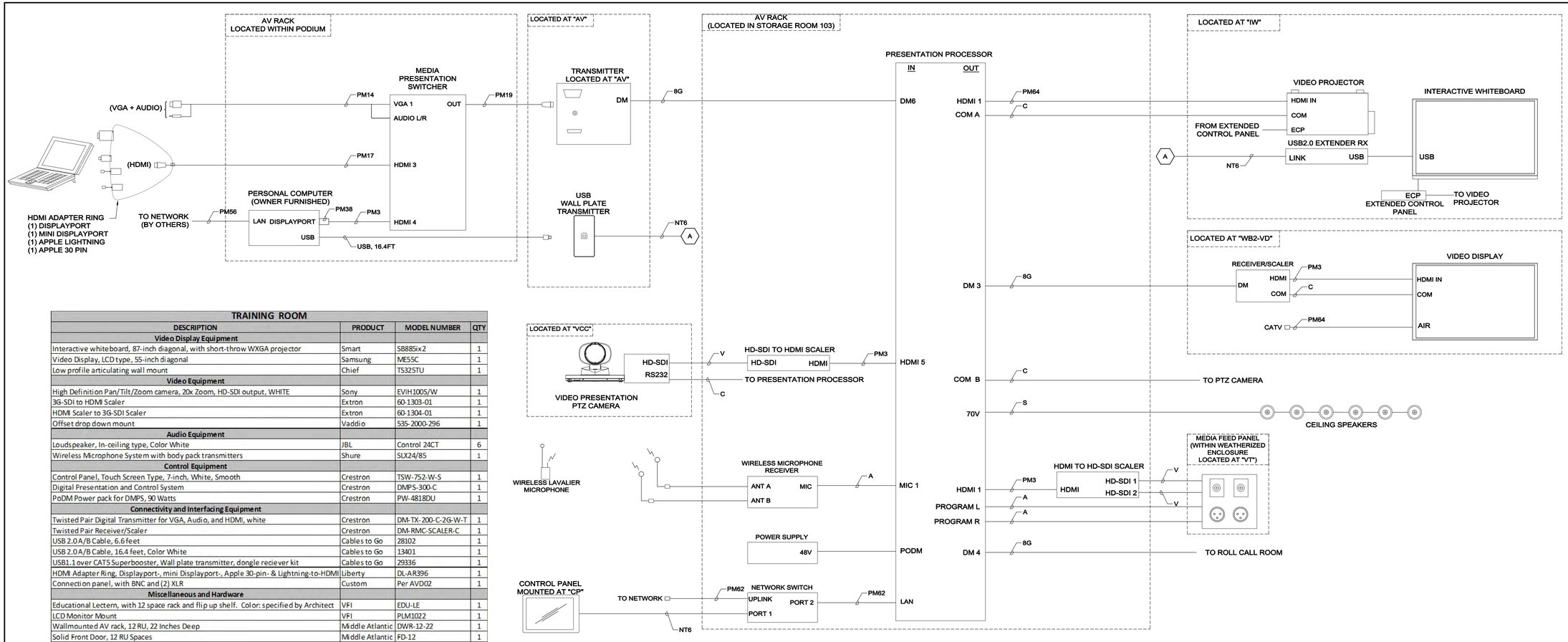
AUDIOVISUAL PART PLANS

PROJECT NUMBER: 20130535
DESIGNED BY: MH
DRAWN BY: MH
CHECKED BY: PC
DATE: July 11, 2014
SCALE: 1/4" = 1'-0"

SHEET NUMBER:

AV301

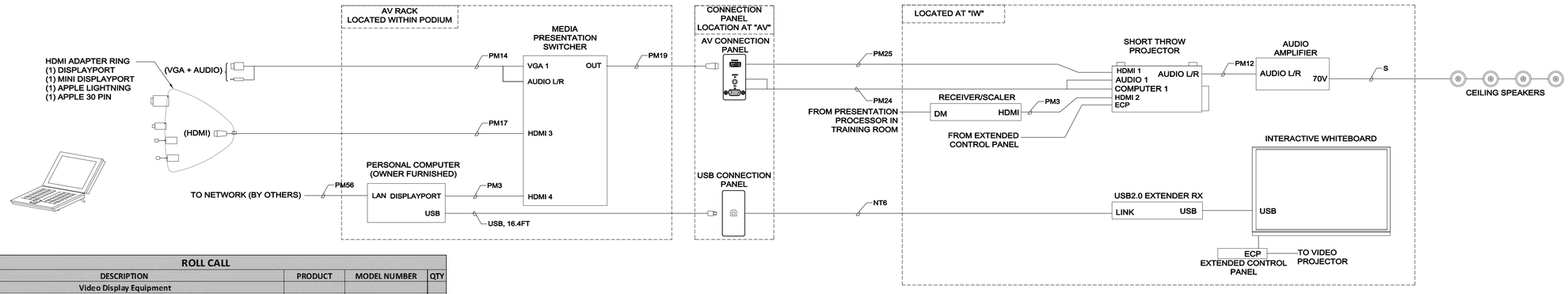
SHEET 154 **OF** 157



TRAINING ROOM

DESCRIPTION	PRODUCT	MODEL NUMBER	QTY
Video Display Equipment			
Interactive whiteboard, 87-inch diagonal, with short-throw WXGA projector	Smart	SB885ix2	1
Video Display, LCD type, 55-inch diagonal	Samsung	ME55C	1
Low profile articulating wall mount	Chief	TS325TU	1
Video Equipment			
High Definition Pan/Tilt/Zoom camera, 20x Zoom, HD-SDI output, WHITE	Sony	EVIH100S/W	1
3G-SDI to HDMI Scaler	Extron	60-1303-01	1
HDMI Scaler to 3G-SDI Scaler	Extron	60-1304-01	1
Offset drop down mount	Vaddio	535-2000-296	1
Audio Equipment			
Loudspeaker, In-ceiling type, Color White	JBL	Control 24CT	6
Wireless Microphone System with body pack transmitters	Shure	SLX24/85	1
Control Equipment			
Control Panel, Touch Screen Type, 7-inch, White, Smooth	Crestron	TSW-752-W-S	1
Digital Presentation and Control System	Crestron	DMPS-300-C	1
PoDM Power pack for DMPS, 90 Watts	Crestron	PW-4818DU	1
Connectivity and Interfacing Equipment			
Twisted Pair Digital Transmitter for VGA, Audio, and HDMI, white	Crestron	DM-TX-200-C-2G-W-T	1
Twisted Pair Receiver/Scaler	Crestron	DM-RMC-SCALER-C	1
USB 2.0 A/B Cable, 6.6 feet	Cables to Go	28102	1
USB 2.0 A/B Cable, 16.4 feet, Color White	Cables to Go	13401	1
USB1.1 over CAT5 Superbooster, Wall plate transmitter, dongle reciever kit	Cables to Go	29336	1
HDMI Adapter Ring, Displayport-, mini Displayport-, Apple 30-pin- & Lightning-to-HDMI	Liberty	DL-AR396	1
Connection panel, with BNC and (2) XLR	Custom	Per AVD02	1
Miscellaneous and Hardware			
Educational Lectern, with 12 space rack and flip up shelf. Color: specified by Architect	VFI	EDU-LE	1
LCD Monitor Mount	VFI	PLM1022	1
Wallmounted AV rack, 12 RU, 22 Inches Deep	Middle Atlantic	DWR-12-22	1
Solid Front Door, 12 RU Spaces	Middle Atlantic	FD-12	1
Rack mounted power strip, 8 plugs	Middle Atlantic	PD-815-RPL	1
Rack blank, 1 RU	Middle Atlantic	FEB-1	3
Rack blank, 2 RU	Middle Atlantic	FEB-2	1
Universal Rack shelf, 9 inches deep	Extron	60-190-01	1

TRAINING, ROOM 104
SIGNAL FLOW DIAGRAM
SCALE: N.T.S.



ROLL CALL

DESCRIPTION	PRODUCT	MODEL NUMBER	QTY
Video Display Equipment			
Interactive whiteboard, 87-inch diagonal, with short-throw WXGA projector	Smart	SB885ix2	1
Audio Equipment			
Mono Amplifier, 70V, 200W	Extron	60-850-01	1
Loudspeaker, In-ceiling type, Color White	JBL	Control 24CT	4
Connectivity and Interfacing Equipment			
Twisted Pair Receiver/Scaler	Crestron	DM-RMC-SCALER-C	1
AV connection plate, with VGA, 3.5mm Audio and HDMI, Color White	Cables to Go	41031	1
USB1.1 over CAT5 Superbooster, Wall plate transmitter, dongle reciever kit	Cables to Go	29336	1
USB 2.0 A/B Cable, 6.6 feet	Cables to Go	28102	1
USB 2.0 A/B Cable, 16.4 feet, Color White	Cables to Go	13401	1
HDMI Adapter Ring, Displayport-, mini Displayport-, Apple 30-pin- & Lightning-to-HDMI	Liberty	DL-AR396	1
Miscellaneous and Hardware			
Deluxe Lectern Color: specified by Architect	VFI	LE3040	1
14RU Rack Mount Frame Kit	VFI	RMT14	1
LCD Monitor Mount	VFI	PLM1022	1

ROLL CALL, ROOM 108
SIGNAL FLOW DIAGRAM
SCALE: N.T.S.

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200 Brickstone Square
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REVISIONS		
Number	Description	Date

ISSUED FOR
BID

WALTHAM POLICE
STATION
RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

AUDIOVISUAL
SIGNAL FLOW
DIAGRAM

PROJECT NUMBER: 20130535
DESIGNED BY: MH
DRAWN BY: MH
CHECKED BY: PC
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

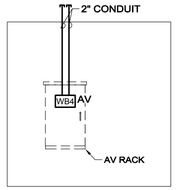
AV400

SHEET 155 **OF** 157

ELEC: MECH: FIRE: PLUM: STRU: ARCH: CIVIL: REVIEWD BY:

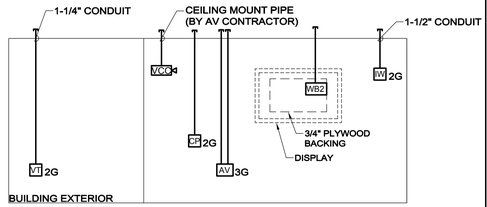
Q:\20130\130535 - Waltham Police HQ Renovation\1200 Drawings\1208 AV\Plot Files\20130535 AV400 AUDIOVISUAL SIGNAL FLOWS.dwg (Wed) July 14, 2014 - 5:37pm dtmacek

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



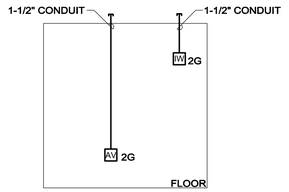
NOTE:
1. ALL CONDUIT IS 3/4" UNLESS OTHERWISE NOTED.
2. ALL CONDUIT PROVIDED BY ELECTRICAL CONTRACTOR.

RDK | 103 STORAGE CONDUIT RISER | AVE01



NOTE:
1. ALL CONDUIT IS 3/4" UNLESS OTHERWISE NOTED.
2. ALL CONDUIT PROVIDED BY ELECTRICAL CONTRACTOR.

RDK | TRAINING ROOM 104 CONDUIT RISER | AVE02



NOTE:
1. ALL CONDUIT IS 3/4" UNLESS OTHERWISE NOTED.
2. ALL CONDUIT PROVIDED BY ELECTRICAL CONTRACTOR.

RDK | ROLL CALL 108 CONDUIT RISER | AVE03

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

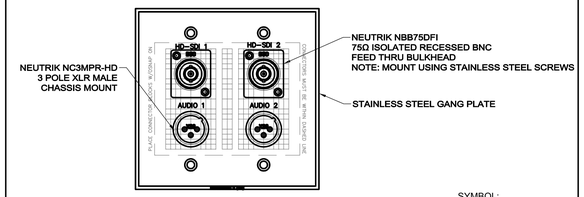
AUDIOVISUAL CONDUIT RISER

PROJECT NUMBER: 20130535
DESIGNED BY: MH
DRAWN BY: MH
CHECKED BY: PC
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

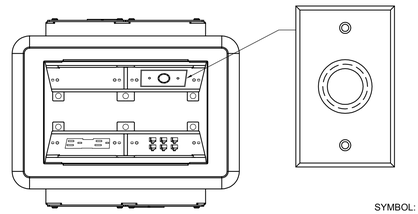
AV500

SHEET 156 **OF** 157



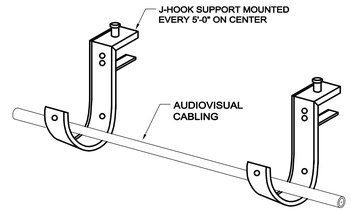
SYMBOL: VT 2G

RDK MEDIA FEED PANEL DETAIL AVD01

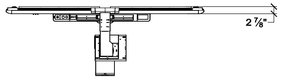


SYMBOL: AV WB4-H

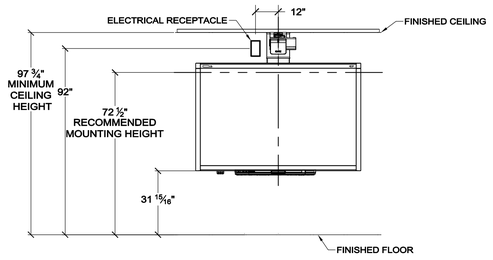
RDK WALL BOX DETAIL AVD02



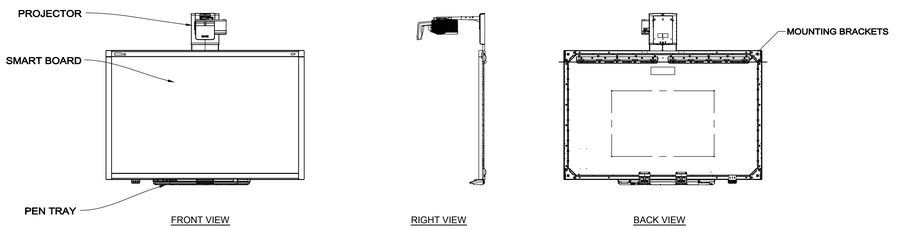
RDK J-HOOK DETAIL AVD03



TOP VIEW

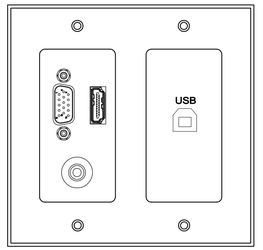


ELEVATION DETAIL



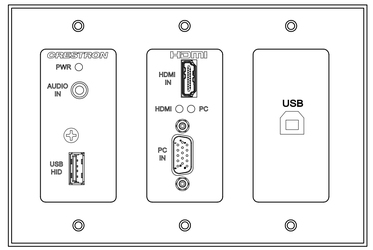
FRONT VIEW RIGHT VIEW BACK VIEW

RDK INTERACTIVE WHITE BOARD MOUNTING DETAIL AVD04



SYMBOL: AV 2G

RDK ROLL CALL CONNECTION PANEL DETAIL AVD07

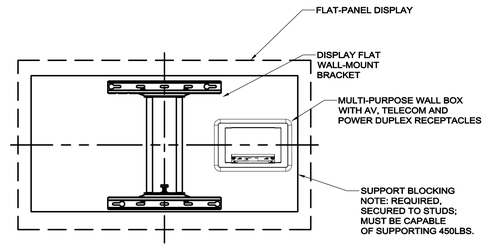


SYMBOL: AV 3G

RDK TRAINING ROOM CONNECTION PANEL PANEL DETAIL AVD06

12	RACK ID
11	WIRELESS MIC RECIEVER
10	BLANK
9	PRESENTATION PROCESSOR
8	
7	
6	BLANK
5	HD-SDI/HDMI SCALERS
4	BLANK
3	BLANK
2	
1	POWER DISTRIBUTION

RDK TRAINING ROOM RACK ELEVATION AVD10



RDK DISPLAY MOUNTING DETAIL AVD04

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

AUDIOVISUAL DETAILS

PROJECT NUMBER: 20130535
DESIGNED BY: MH
DRAWN BY: MH
CHECKED BY: PC
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

AV700

SHEET 157 **OF** 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

ELECTRONIC SECURITY COORDINATION LEGEND

	GENERAL CONTRACTOR	ELECTRICAL CONTRACTOR	SECURITY CONTRACTOR	TELECOM CONTRACTOR	DOOR HARDWARE CONTRACTOR	OWNER VENDOR
PATHWAYS:						
IN HARD WALL DEVICE BOXES, DEVICE RINGS, PROVIDED BY			X			
JUNCTION BOXES, CONDUIT, CONDUIT SLEEVES PROVIDED BY			X			
LADDER RACK INSIDE SECURITY ROOM PROVIDED BY				X		
DOOR HARDWARE:						
ELECTRONIC LOCKS & ELECTRIFIED HINGES PROVIDED BY					X	
ELECTRONIC LOCKS & ELECTRIFIED HINGES WIRED BY				X		
ELECTRONIC LOCKING DEVICE POWER SUPPLIES PROVIDED BY				X		
ELECTRONIC LOCKING DEVICE POWER SUPPLY LOW VOLTAGE WIRING BY				X		
ELECTRONIC LOCKING DEVICE POWER SUPPLY 120 VOLTAGE WIRING BY			X			
SECURITY SYSTEMS ROOM:						
PLYWOOD BACKBOARD PROVIDED BY		X				
GROUND BAR PROVIDED BY			X			
RACK AND TRAY GROUNDING PROVIDED BY			X			
120V POWER PROVIDED BY			X			
LAN CONNECTIONS TO CONTROL PNL EQUIP PROVIDED BY					X	
DEVICES:						
REX, CARD READERS, MAG CONTACTS, CCTV CAMERAS, ETC. PROVIDED BY				X		
HEAD END POWER SUPPLIES, RECORDING EQUIP, CNTRL PNLS, BY				X		

SECURITY LEGEND

SE07	DOOR DETAIL, NUMBER CORRESPONDS TO DETAIL DRAWING NUMBER
DR	DOOR RELEASE BUTTON
DC	DOOR CONTACT
CR	CARD READER
RD	REQUEST TO EXIT MOTION DET
ES	ELECTRIC DOOR STRIKE
ML	MAGNETIC LOCK
MH	MORTISE HINGE/DOOR HARDWARE
EL	ELECTRIC LOCK
PB	PUSH BUTTON
ACP	ACCESS CONTROL PANEL
CCTV (PTZ / A)	CCTV CAMERA "A" - INDICATES AUDIO "PTZ" - INDICATES PAN / TILT / ZOOM
NVR	NETWORK VIDEO RECORDER-NVR
MON	MONITOR
UPS	UPS
MD (CCTV)	MOTION DETECTOR "CCTV" - INDICATES CCTV SYSTEM DETECTOR
PS	POWER SUPPLY
OH	OVERHEAD DOOR CONTACT
RB	PNEUMATIC DOOR RELEASE BUTTON
BHR	BIOMETRIC HAND READER
M	CCTV MICROPHONE
DB	DURESS BUTTON
S	DURESS STROBE

NOTE: REFER TO DETAIL DRAWINGS FOR EXACT QUANTITY OF CABLES AND DEVICES REQUIRED AT EACH TYPICAL DOOR.

GENERAL SECURITY ABBREVIATIONS

AC	ALTERNATING CURRENT	Hz	HERTZ	RMS	RACK MOUNT SPACE
ADA	AMERICANS WITH DISABILITIES ACT	IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.	ScTP	SCREENED TWISTED-PAIR
AFF	ABOVE FINISH FLOOR	ISDN	INTEGRATED SERVICES DIGITAL NETWORK	SP	SERVICE PROVIDER
ACU	ACCESS CONTROL UNIT	ISO	INTERNATIONAL STANDARDS ORGANIZATION	STP	SHIELDED TWISTED-PAIR
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	kHz	KILOHERTZ	SWB	SWITCHBOARD
AWG	AMERICAN WIRE GAUGE	kwh	KILOWATT-HOURS	SYS	SYSTEM
BICSI	BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL	LAN	LOCAL AREA NETWORK	SCP	SECURITY CONTROL PANEL
BTU	BRITISH THERMAL UNIT	LASER	LIGHT AMPLIFICATION BY STIMULATED EMISSION OF RADIATION	TB	TERMINAL BLOCK
CATV	CABLE TELEVISION	LED	LIGHT-EMMITTING DIODE	TBB	TELECOMMUNICATIONS BONDING BACKBONE
CCTV	CLOSED CIRCUIT TELEVISION	MC	MAIN CROSS-CONNECT	TBBC	TELECOMMUNICATIONS BACKBONE BONDING CONDUCTOR
dB	DECIBEL	MDF	MAIN DISTRIBUTION FRAME	TR	TELECOMMUNICATIONS ROOM
DC	DIRECT CURRENT	MH	MANHOLE	TEL	TELEPHONE
DEMARC	DEMARCATION POINT	MODEM	MODULATOR DEMODULATOR	TELCO	TELEPHONE COMPANY
DVMS	DIGITAL VIDEO MANAGEMENT SYSTEM	MTT	MAIN TELEPHONE TERMINAL	TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
EIA	ELECTRONICS INDUSTRIES ASSOCIATION	NEC	NATIONAL ELECTRICAL CODE	TIA	TELECOMMUNICATIONS INDUSTRIES ASSOCIATION
ESS	ELECTRONIC SECURITY SYSTEM	NESC	NATIONAL ELECTRICAL SAFETY CODE	TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
EMI	ELECTROMAGNETIC INTERFERENCE	NEXT	NEAR END CROSSTALK	TO	TELECOMMUNICATIONS OUTLET
EMR	ELECTROMAGNETIC RADIATION	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION	TSB	TELECOMMUNICATIONS SYSTEM BULLETIN
EMT	ELECTRIC METALLIC TUBING	OSP	OUTSIDE PLANT	TYP	TYPICAL
EL	ELECTRIC LOCK	PABX	PRIVATE AUTOMATIC BRANCH EXCHANGE	UG	UNDERGROUND
FCC	FEDERAL COMMUNICATIONS COMMISSION	PBX	PRIVATE BRANCH EXCHANGE	UL	UNDERWRITERS LABORATORIES, INC.
FEXT	FAR END CROSSTALK	POTS	PLAIN OLD TELEPHONE SERVICE	UPS	UNINTERRUPTIBLE POWER SUPPLY
GEC	GROUNDING ELECTRODE CONDUCTOR	PR	PAIR	UTP	UNSHIELDED TWISTED-PAIR
GND	GROUND	PVC	POLYVINYL CHLORIDE	WA	WORK AREA
HC	HORIZONTAL CROSS-CONNECT	RCDD	REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER	WP	WATERPROOF OUTLET
HF	HIGH FREQUENCY	REF	REFERENCE	X	CROSS-CONNECT
HH	HANDHOLE	REX	REQUEST TO EXIT		
ICP	INTRUSION CONTROL PANEL	RFI	RADIO FREQUENCY INTERFERENCE		
HVAC	HEATING, VENTILATION, AND AIR-CONDITIONING	RFQ	REQUEST FOR QUOTE		

GENERAL SECURITY NOTES

1. REFER TO DRAWINGS FOR PROPOSED PATHWAYS.
2. COORDINATE WITH CONTRACTORS, UTILITIES, TRADES, AND ARCHITECT AS REQUIRED.
3. REFER TO ELECTRONIC SECURITY DRAWINGS AND SPECIFICATIONS FOR DETAILS.
4. FIELD VERIFY EXACT LOCATIONS OF ALL ELECTRONIC SECURITY DEVICES.
5. PROVIDE SUPERVISED INPUTS AND END OF LINE SUPERVISION COMPONENTS CONNECTED TO EACH DEVICE TO MONITOR DEVICE. CONNECT MONITOR DEVICE AT FAR END AND PROVIDE 4-STATE SUPERVISION.
6. ALL ELECTRONIC SECURITY CABLING SHALL BE PLENUM RATED.
7. VERIFY LABELING STANDARD WITH OWNER, SUBMIT LABELING SCHEME FOR APPROVAL. LABELING SHALL BE IN ACCORDANCE WITH ANSI/EIA/TIA-606A STANDARDS.
8. SECURITY CONTRACTOR SHALL PROVIDE ALL NECESSARY FITTINGS, PLATES AND INSERTS TO ACCEPT THE CONNECTIVITY AND DEVICE PRODUCTS WITHIN THE ELECTRICAL CONTRACTOR PROVIDED BOXES, CONDUIT, AND SURFACE RACEWAY.
9. REFER TO DOOR DETAIL DRAWINGS FOR EXACT QUANTITY OF CABLES AND DEVICES REQUIRED AT EACH DOOR.
10. SECURITY CONTRACTOR SHALL COORDINATE ALL ELECTRONIC LOCKING HARDWARE WITH ARCHITECTURAL DOOR HARDWARE SCHEDULE.

EXISTING EQUIPMENT LEGEND

XM	EXISTING EQUIPMENT AND CABLING TO REMAIN
X	EXISTING EQUIPMENT AND CABLING TO BE REMOVED
XR	EXISTING EQUIPMENT AND CABLING TO BE RELOCATED
XN	EXISTING EQUIPMENT AND CABLING TO BE REMOVED AND NEW CABLING TO BE INSTALLED IN EXISTING OUTLET
XNL	EXISTING EQUIPMENT AND CABLING TO BE RELOCATED TO THIS LOCATION

CCTV CAMERA MATRIX

	CAMERA									STORAGE				
ID #	I/O RATING	LOCATION	TYPE	RESOLUTION	LENS TYPE	IR	IPS	ALARM IPS	MOUNTING	RECORDING	MOTION	AUDIO	COMPRESSION	TIMEFRAME
1	EXTERIOR		FIXED	3MP	3-9MM	YES	7		GOOSENECK WALL MOUNT	100%			H.264	30 DAYS
2	EXTERIOR		PTZ	2MP/1080P	4.7-94MM	NO	7		GOOSENECK WALL MOUNT	100%			H.264	30 DAYS
3	INTERIOR	CELL ROOM	FIXED	720P	1.8MM	YES	15		CORNER	10%		INTERNAL	H.264	90 DAYS
4	INTERIOR	INTERVIEW ROOM	FIXED	720P	1.8	NO	7	15	CEILING	10%	EXTERNAL	EXTERNAL	H.264	30 DAYS
5	INTERIOR	GARAGE BAY	FIXED	720P	3-9MM	NO	7		WALL	30%	INTERNAL		H.264	30 DAYS
6	INTERIOR	HALLWAY	FIXED	720P	3-9MM	NO	7		CEILING	50%	INTERNAL		H.264	30 DAYS
7	INTERIOR	OPEN AREA	FIXED	720P	2.8	NO	7		CEILING	50%	INTERNAL		H.264	30 DAYS
8	INTERIOR	STAIRWELL	FIXED	720P	3-9MM	NO	7		WALL	20%	INTERNAL		H.264	30 DAYS
9	INTERIOR	BOOKING	FIXED	720P	3-9MM	NO	7	15	CEILING	10%	INTERNAL	EXTERNAL	H.264	1 YEAR

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECURITY LEGEND, NOTES & ABBRVS.

PROJECT NUMBER: 20130535
DESIGNED BY: CM
DRAWN BY: JD
CHECKED BY: BP
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

ES000

SHEET 142 **OF** 157

ELEC: MECH: FIRE: PLUM: STRU: ARCH: CIVIL: REVIEWED BY:

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____

DEMOLITION NOTES

1. DISCONNECT AND MAKE SAFE ALL ESS CABLING IDENTIFIED FOR REMOVAL FROM DEVICE COMPLETELY BACK TO SOURCE. THE ESS SCOPE MAY EXTEND BEYOND THE AREA DEFINED BY THE ARCHITECTURAL DEMOLITION LIMITS TO FULLY COMPLY WITH VARIOUS REQUIREMENTS DEFINED BY THESE NOTES.

2. THE ESS DEMOLITION PLANS AND DETAILS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. THE ESS CONTRACTOR SHALL VISIT THE SITE PRIOR TO THE SUBMISSION OF BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF WORK. DEVICES AND EQUIPMENT LOCATED ON WALLS AND/OR CEILINGS TO BE REMOVED SHALL BE DISCONNECTED AND MADE SAFE. THE ESS CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF UNFORESEEN ITEMS AT NO ADDITIONAL COST.

3. THE ESS CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED DURING THE EXECUTION OF THE WORK. DAMAGE SHALL INCLUDE BUT NOT BE LIMITED TO DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR TO BE SALVAGED.

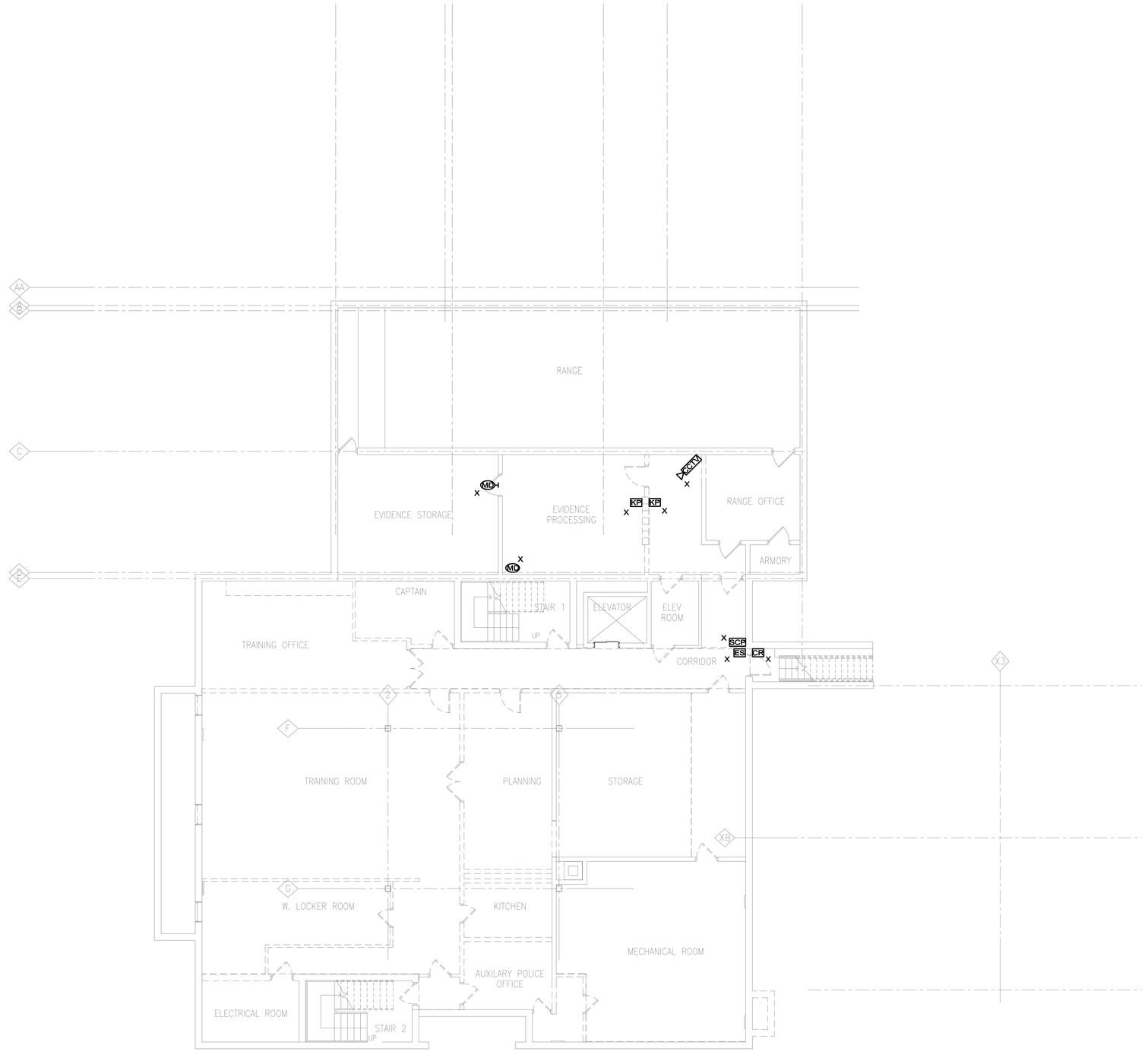
4. THE ESS CONTRACTOR SHALL COORDINATE ALL DEMO WITH TELECOM DEPT PRIOR TO DEMO. COORDINATE BETWEEN ELECTRICAL DEMO AND THIS SCOPE. THE ESS CONTRACTOR SHALL CIRCUIT TRACE AND LABEL ALL EXISTING HORIZONTAL CABLING WITHIN THE AREA OF DEMOLITION SCOPE PRIOR TO DISCONNECTION.

5. THE ESS CONTRACTOR SHALL IDENTIFY ALL HORIZONTAL AND BACKBONE CABLING SYSTEM COMPONENTS, WHICH ARE TO REMAIN WITHIN THE AREA OF DEMOLITION SCOPE. THERE SHALL BE NO INTERRUPTION OF SERVICE TO ANY AREA OUTSIDE THE SCOPE LIMITS WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE. EXISTING EQUIPMENT TO REMAIN SHALL BE LEFT IN A CODE COMPLIANT MANNER.

6. THE ESS CONTRACTOR SHALL REMOVE ALL CABLING TO THEIR POINTS OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. EXISTING CABLING SHALL BE REMOVED BACK TO EACH RESPECTIVE HEAD END LOCATION.

7. ALL REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF.

8. THE ESS CONTRACTOR SHALL REMOVE THE ENTIRE ACCESS CONTROL AND CCTV SYSTEM. CONTRACTOR SHALL COORDINATE EXISTING CCTV SYSTEM HEAD END DECOMMISSION AND RETURN TO OWNER.



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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECURITY BASEMENT DEMOLITION PLAN

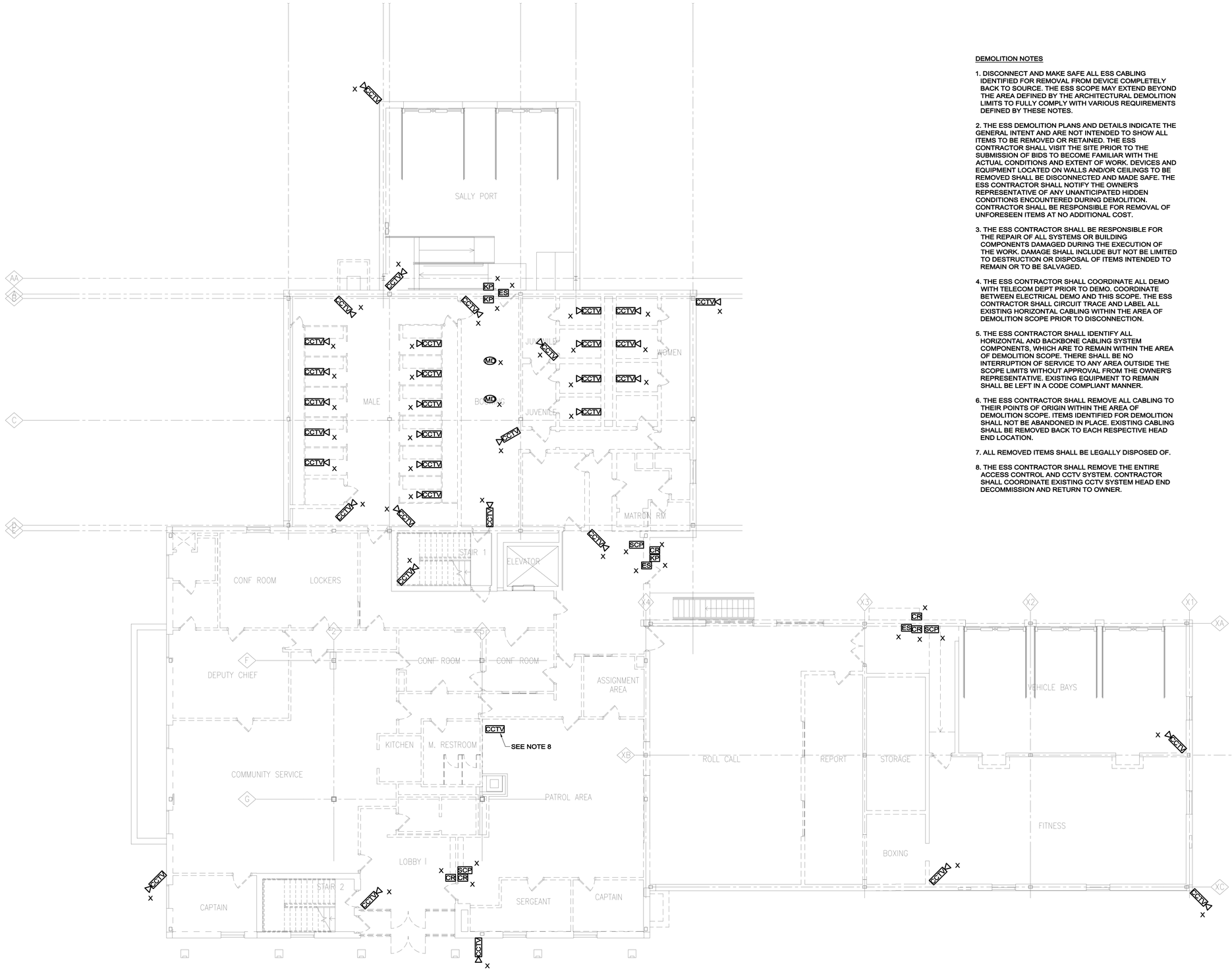
PROJECT NUMBER: 20130535
DESIGNED BY: CM
DRAWN BY: CM
CHECKED BY: BP
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

ESD101

SHEET 143 **OF** 157

REVIEWED BY: CIVIL:_____ ARCH:_____ STRU:_____ PLUM:_____ FIRE:_____ MECH:_____ ELEC:_____



DEMOLITION NOTES

1. DISCONNECT AND MAKE SAFE ALL ESS CABLING IDENTIFIED FOR REMOVAL FROM DEVICE COMPLETELY BACK TO SOURCE. THE ESS SCOPE MAY EXTEND BEYOND THE AREA DEFINED BY THE ARCHITECTURAL DEMOLITION LIMITS TO FULLY COMPLY WITH VARIOUS REQUIREMENTS DEFINED BY THESE NOTES.

2. THE ESS DEMOLITION PLANS AND DETAILS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. THE ESS CONTRACTOR SHALL VISIT THE SITE PRIOR TO THE SUBMISSION OF BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF WORK. DEVICES AND EQUIPMENT LOCATED ON WALLS AND/OR CEILINGS TO BE REMOVED SHALL BE DISCONNECTED AND MADE SAFE. THE ESS CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF UNFORESEEN ITEMS AT NO ADDITIONAL COST.

3. THE ESS CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED DURING THE EXECUTION OF THE WORK. DAMAGE SHALL INCLUDE BUT NOT BE LIMITED TO DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR TO BE SALVAGED.

4. THE ESS CONTRACTOR SHALL COORDINATE ALL DEMO WITH TELECOM DEPT PRIOR TO DEMO. COORDINATE BETWEEN ELECTRICAL DEMO AND THIS SCOPE. THE ESS CONTRACTOR SHALL CIRCUIT TRACE AND LABEL ALL EXISTING HORIZONTAL CABLING WITHIN THE AREA OF DEMOLITION SCOPE PRIOR TO DISCONNECTION.

5. THE ESS CONTRACTOR SHALL IDENTIFY ALL HORIZONTAL AND BACKBONE CABLING SYSTEM COMPONENTS, WHICH ARE TO REMAIN WITHIN THE AREA OF DEMOLITION SCOPE. THERE SHALL BE NO INTERRUPTION OF SERVICE TO ANY AREA OUTSIDE THE SCOPE LIMITS WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE. EXISTING EQUIPMENT TO REMAIN SHALL BE LEFT IN A CODE COMPLIANT MANNER.

6. THE ESS CONTRACTOR SHALL REMOVE ALL CABLING TO THEIR POINTS OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. EXISTING CABLING SHALL BE REMOVED BACK TO EACH RESPECTIVE HEAD END LOCATION.

7. ALL REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF.

8. THE ESS CONTRACTOR SHALL REMOVE THE ENTIRE ACCESS CONTROL AND CCTV SYSTEM. CONTRACTOR SHALL COORDINATE EXISTING CCTV SYSTEM HEAD END DECOMMISSION AND RETURN TO OWNER.

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECURITY FIRST FLOOR DEMOLITION PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: CM
DRAWN BY: CM
CHECKED BY: BP
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

ESD102

SHEET 144 **OF** 157

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____

DEMOLITION NOTES

1. DISCONNECT AND MAKE SAFE ALL ESS CABLING IDENTIFIED FOR REMOVAL FROM DEVICE COMPLETELY BACK TO SOURCE. THE ESS SCOPE MAY EXTEND BEYOND THE AREA DEFINED BY THE ARCHITECTURAL DEMOLITION LIMITS TO FULLY COMPLY WITH VARIOUS REQUIREMENTS DEFINED BY THESE NOTES.

2. THE ESS DEMOLITION PLANS AND DETAILS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. THE ESS CONTRACTOR SHALL VISIT THE SITE PRIOR TO THE SUBMISSION OF BIDS TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF WORK. DEVICES AND EQUIPMENT LOCATED ON WALLS AND/OR CEILINGS TO BE REMOVED SHALL BE DISCONNECTED AND MADE SAFE. THE ESS CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF UNFORESEEN ITEMS AT NO ADDITIONAL COST.

3. THE ESS CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED DURING THE EXECUTION OF THE WORK. DAMAGE SHALL INCLUDE BUT NOT BE LIMITED TO DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR TO BE SALVAGED.

4. THE ESS CONTRACTOR SHALL COORDINATE ALL DEMO WITH TELECOM DEPT PRIOR TO DEMO. COORDINATE BETWEEN ELECTRICAL DEMO AND THIS SCOPE. THE ESS CONTRACTOR SHALL CIRCUIT TRACE AND LABEL ALL EXISTING HORIZONTAL CABLING WITHIN THE AREA OF DEMOLITION SCOPE PRIOR TO DISCONNECTION.

5. THE ESS CONTRACTOR SHALL IDENTIFY ALL HORIZONTAL AND BACKBONE CABLING SYSTEM COMPONENTS, WHICH ARE TO REMAIN WITHIN THE AREA OF DEMOLITION SCOPE. THERE SHALL BE NO INTERRUPTION OF SERVICE TO ANY AREA OUTSIDE THE SCOPE LIMITS WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE. EXISTING EQUIPMENT TO REMAIN SHALL BE LEFT IN A CODE COMPLIANT MANNER.

6. THE ESS CONTRACTOR SHALL REMOVE ALL CABLING TO THEIR POINTS OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. EXISTING CABLING SHALL BE REMOVED BACK TO EACH RESPECTIVE HEAD END LOCATION.

7. ALL REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF.

8. THE ESS CONTRACTOR SHALL REMOVE THE ENTIRE ACCESS CONTROL AND CCTV SYSTEM. CONTRACTOR SHALL COORDINATE EXISTING CCTV SYSTEM HEAD END DECOMMISSION AND RETURN TO OWNER.

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECURITY SECOND FLOOR DEMOLITION PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: CM
DRAWN BY: CM
CHECKED BY: BP
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

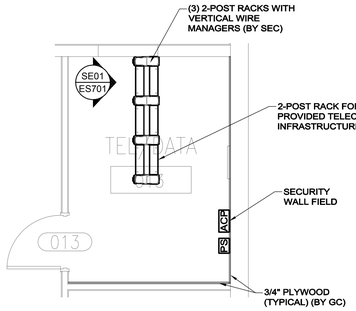
SHEET NUMBER:

ESD103

SHEET 145 **OF** 157

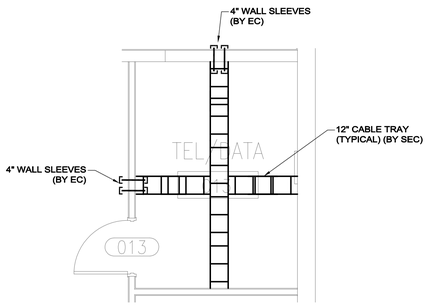
Q:\2013\20130535 - Waltham Police HQ Renovation\1200 Drawings\1207 Security\Plot Files\20130535 ESD103 SECURITY SECOND FLOOR DEMOLITION PLAN.dwg [24x36] July 14, 2014 - 5:38pm dfranzak

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:



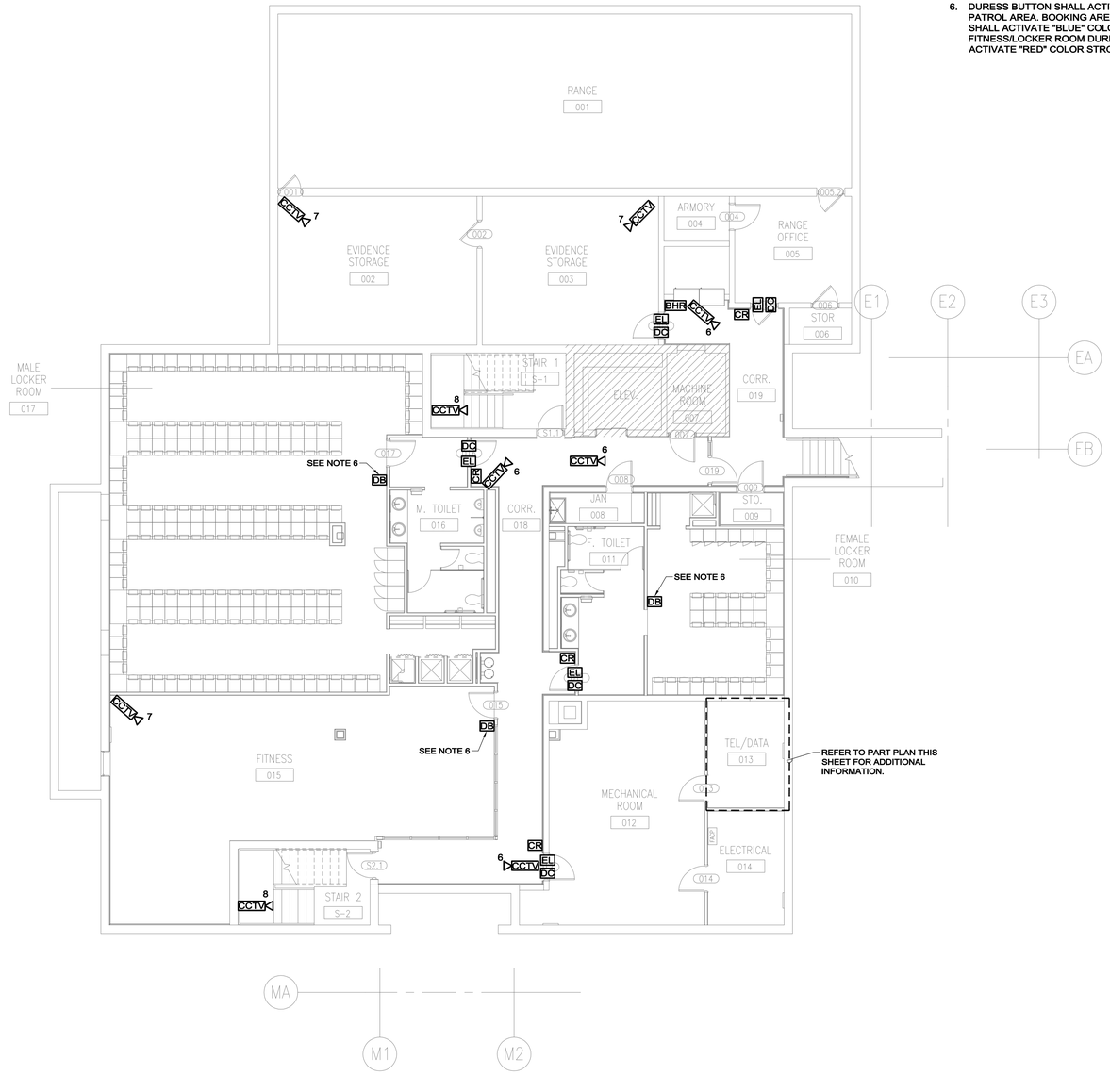
TEL/DATA ROOM 013 ENLARGED PART PLAN

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



TEL/DATA ROOM 013 ENLARGED OVERHEAD PLAN

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



NOTES:

1. FOR GENERAL LEGEND, NOTES AND ABBREVIATIONS REFER TO ELECTRONIC SECURITY DRAWING ES000.
2. ALL ESS DEVICES SHOWN ON THIS DRAWING SHALL BE WIRED BACK TO TEL/DATA ROOM 013.
3. THIS CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF ALL PANEL AND POWER SUPPLY TERMINATION LOCATIONS AND ASSOCIATED TELECOMMUNICATIONS HARDWARE WITH THE OWNER'S INFORMATION TECHNOLOGY REPRESENTATIVE PRIOR TO INSTALLATION. THIS CONTRACTOR SHALL PROVIDE DIMENSIONED DRAWINGS OF LAYOUT COORDINATION TO ENGINEER FOR RECORD.
4. THIS CONTRACTOR SHALL PROVIDE ALL ELECTRONIC LOCKING POWER SUPPLIES AND COORDINATE EXACT LOCATIONS WITH DOOR HARDWARE VENDOR.
5. DEVICE LOCATIONS ARE APPROXIMATE. THIS CONTRACTOR SHALL COORDINATE AND MAKE FINAL ADJUSTMENTS AND VIEWING ANGLES AND DETECTION RANGES TO OPTIMIZE THE PERFORMANCE AND OPERATION OF THE SYSTEM.
6. DURESS BUTTON SHALL ACTIVATE STROBE WITHIN PATROL AREA. BOOKING AREA DURESS BUTTONS SHALL ACTIVATE "BLUE" COLOR STROBE. FITNESS/LOCKER ROOM DURESS BUTTONS SHALL ACTIVATE "RED" COLOR STROBE.

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECURITY BASEMENT PLAN

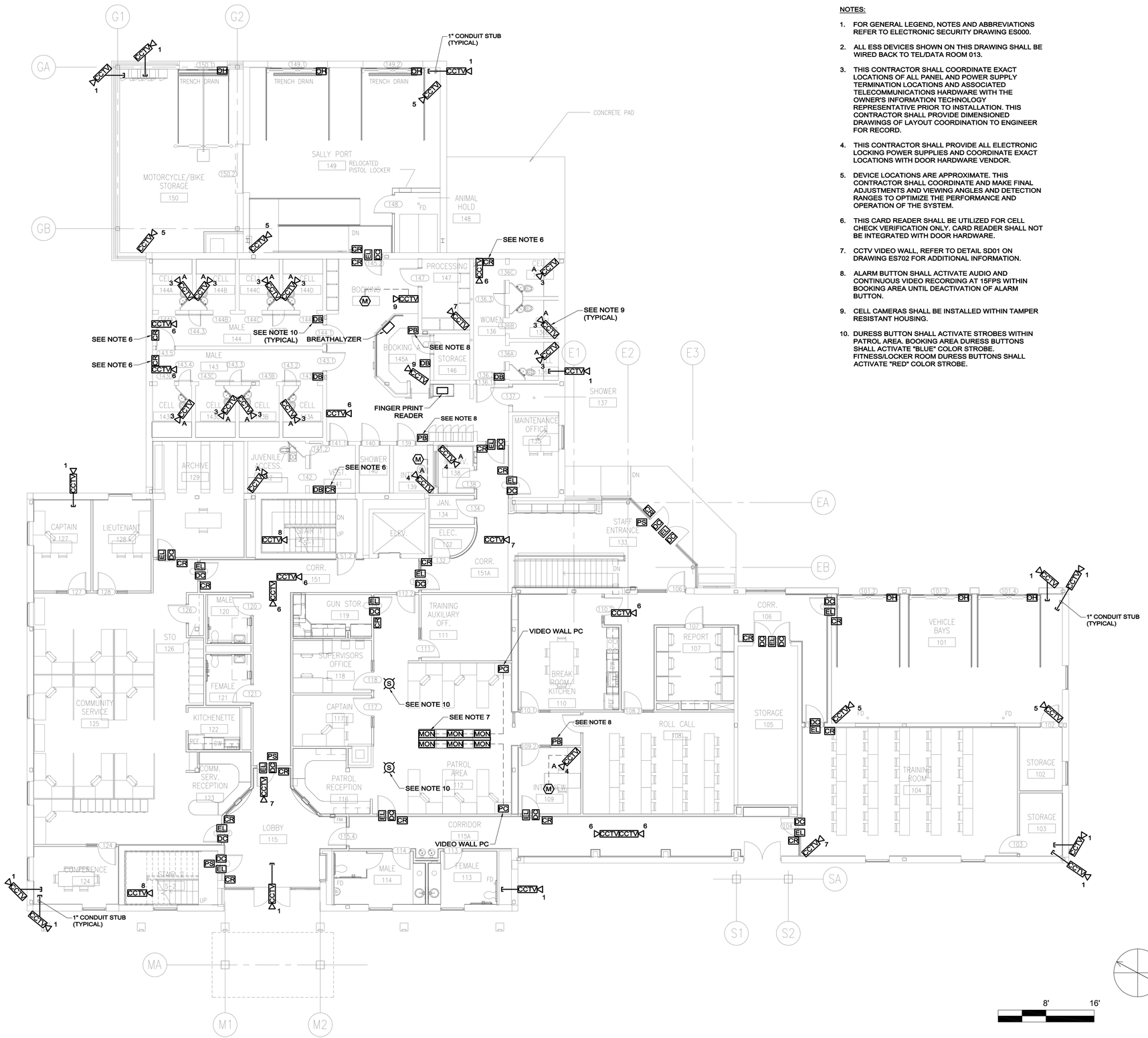
PROJECT NUMBER: 20130535
DESIGNED BY: CM
DRAWN BY: CM
CHECKED BY: BP
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

ES101

SHEET 146 **OF** 157

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



NOTES:

1. FOR GENERAL LEGEND, NOTES AND ABBREVIATIONS REFER TO ELECTRONIC SECURITY DRAWING ES000.
2. ALL ESS DEVICES SHOWN ON THIS DRAWING SHALL BE WIRED BACK TO TEL/DATA ROOM 013.
3. THIS CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF ALL PANEL AND POWER SUPPLY TERMINATION LOCATIONS AND ASSOCIATED TELECOMMUNICATIONS HARDWARE WITH THE OWNER'S INFORMATION TECHNOLOGY REPRESENTATIVE PRIOR TO INSTALLATION. THIS CONTRACTOR SHALL PROVIDE DIMENSIONED DRAWINGS OF LAYOUT COORDINATION TO ENGINEER FOR RECORD.
4. THIS CONTRACTOR SHALL PROVIDE ALL ELECTRONIC LOCKING POWER SUPPLIES AND COORDINATE EXACT LOCATIONS WITH DOOR HARDWARE VENDOR.
5. DEVICE LOCATIONS ARE APPROXIMATE. THIS CONTRACTOR SHALL COORDINATE AND MAKE FINAL ADJUSTMENTS AND VIEWING ANGLES AND DETECTION RANGES TO OPTIMIZE THE PERFORMANCE AND OPERATION OF THE SYSTEM.
6. THIS CARD READER SHALL BE UTILIZED FOR CELL CHECK VERIFICATION ONLY. CARD READER SHALL NOT BE INTEGRATED WITH DOOR HARDWARE.
7. CCTV VIDEO WALL, REFER TO DETAIL SD01 ON DRAWING ES702 FOR ADDITIONAL INFORMATION.
8. ALARM BUTTON SHALL ACTIVATE AUDIO AND CONTINUOUS VIDEO RECORDING AT 15FPS WITHIN BOOKING AREA UNTIL DEACTIVATION OF ALARM BUTTON.
9. CELL CAMERAS SHALL BE INSTALLED WITHIN TAMPER RESISTANT HOUSING.
10. DURESS BUTTON SHALL ACTIVATE STROBES WITHIN PATROL AREA. BOOKING AREA DURESS BUTTONS SHALL ACTIVATE "BLUE" COLOR STROBE. FITNESS/LOCKER ROOM DURESS BUTTONS SHALL ACTIVATE "RED" COLOR STROBE.

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Number	Description	Date

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECURITY FIRST FLOOR PLAN

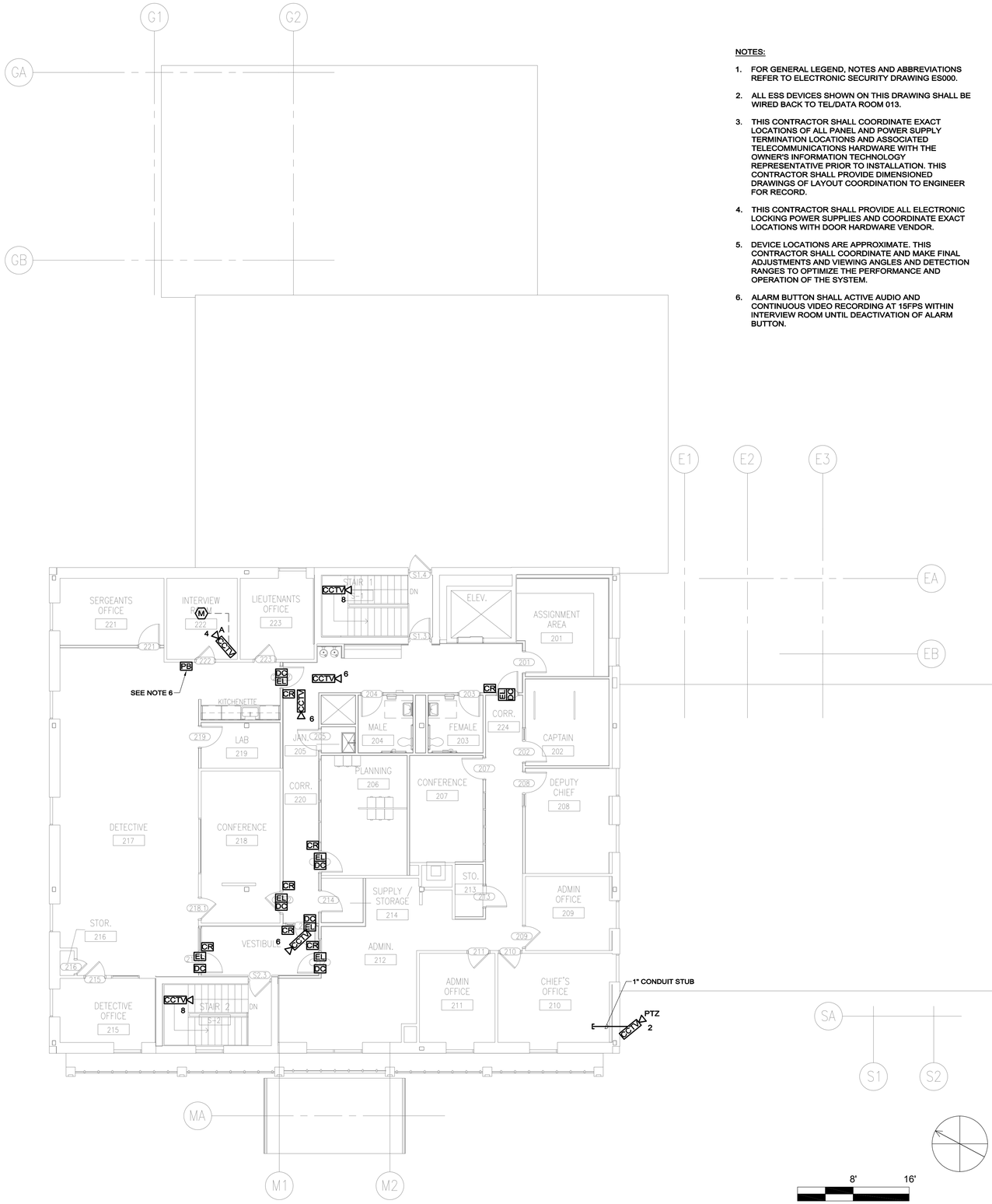
PROJECT NUMBER: 20130535
DESIGNED BY: CM
DRAWN BY: CM
CHECKED BY: BP
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

ES102

SHEET 147 **OF** 157

REVIEWED BY: CIVIL: _____ ARCH: _____ STRU: _____ PLUM: _____ FIRE: _____ MECH: _____ ELEC: _____



NOTES:

1. FOR GENERAL LEGEND, NOTES AND ABBREVIATIONS REFER TO ELECTRONIC SECURITY DRAWING ES000.
2. ALL ESS DEVICES SHOWN ON THIS DRAWING SHALL BE WIRED BACK TO TEL/DATA ROOM 013.
3. THIS CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF ALL PANEL AND POWER SUPPLY TERMINATION LOCATIONS AND ASSOCIATED TELECOMMUNICATIONS HARDWARE WITH THE OWNER'S INFORMATION TECHNOLOGY REPRESENTATIVE PRIOR TO INSTALLATION. THIS CONTRACTOR SHALL PROVIDE DIMENSIONED DRAWINGS OF LAYOUT COORDINATION TO ENGINEER FOR RECORD.
4. THIS CONTRACTOR SHALL PROVIDE ALL ELECTRONIC LOCKING POWER SUPPLIES AND COORDINATE EXACT LOCATIONS WITH DOOR HARDWARE VENDOR.
5. DEVICE LOCATIONS ARE APPROXIMATE. THIS CONTRACTOR SHALL COORDINATE AND MAKE FINAL ADJUSTMENTS AND VIEWING ANGLES AND DETECTION RANGES TO OPTIMIZE THE PERFORMANCE AND OPERATION OF THE SYSTEM.
6. ALARM BUTTON SHALL ACTIVE AUDIO AND CONTINUOUS VIDEO RECORDING AT 15FPS WITHIN INTERVIEW ROOM UNTIL DEACTIVATION OF ALARM BUTTON.

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Number	Description	Date

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WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

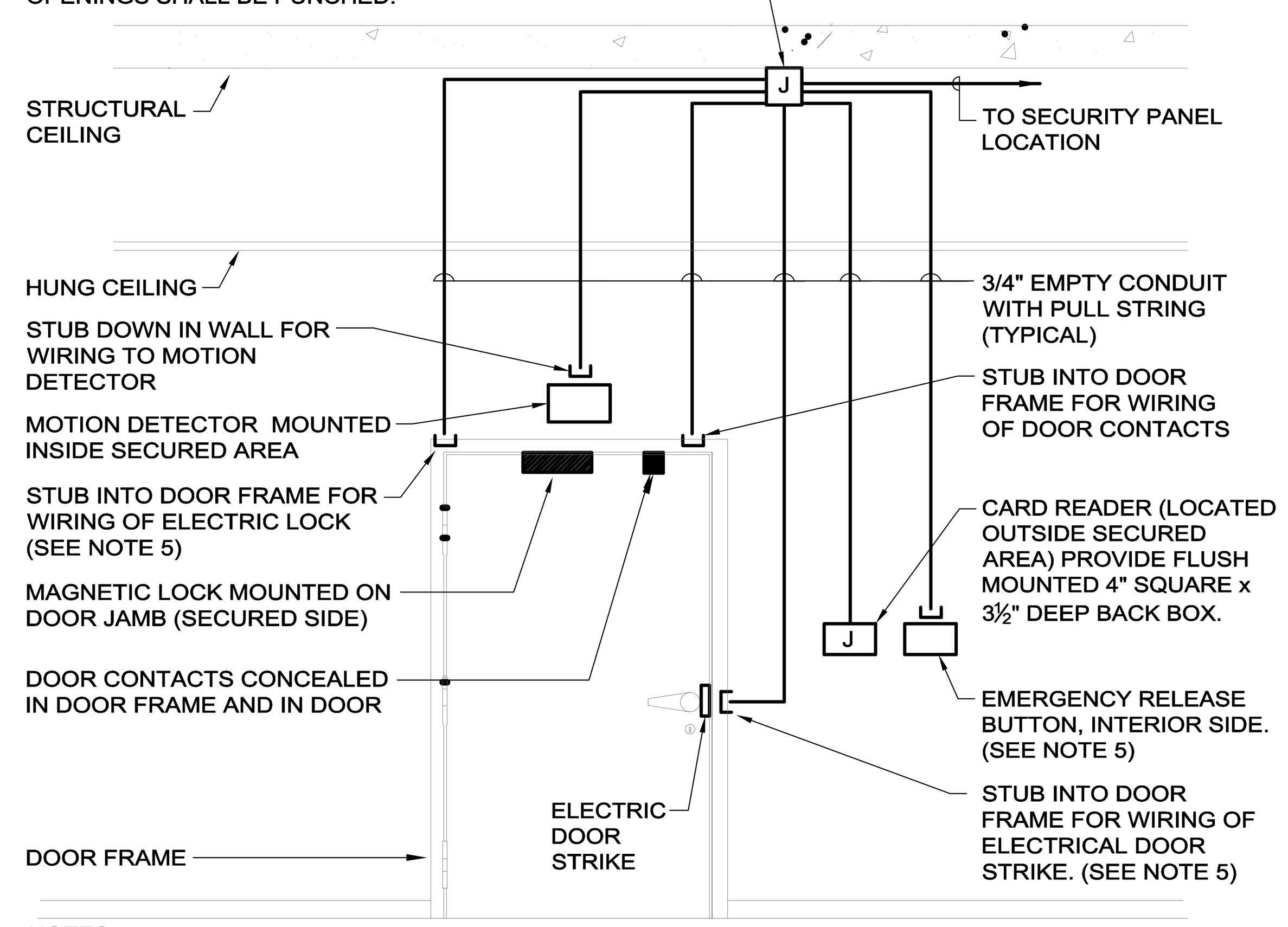
SECURITY SECOND FLOOR PLAN

PROJECT NUMBER: 20130535
DESIGNED BY: CM
DRAWN BY: CM
CHECKED BY: BP
DATE: July 11, 2014
SCALE: 1/8" = 1'-0"

SHEET NUMBER:

ES103

SHEET 148 **OF** 157



NOTES:

1. ALL LOW VOLTAGE WIRING AND SECURITY EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE SECURITY SYSTEM SUPPLIER. COORDINATE RACEWAY AND BOX SIZES PRIOR TO INSTALLATION.
2. COORDINATE EXACT LOCATIONS AND MOUNTING REQUIREMENTS OF ALL DEVICES WITH ARCHITECTURAL DRAWINGS AND SECURITY SYSTEM SUPPLIER.
3. PROVIDE INSULATED BUSHINGS ON ALL CONDUITS. CONCEALED RACEWAY MAY BE EMT. ALL EXPOSED RACEWAY SHALL BE GALVANIZED RIGID METAL CONDUIT.
4. THE SCOPE ILLUSTRATED (RACEWAY AND BACKBOXES) FOR A DOUBLE DOOR IS IDENTICAL WITH ONE DOOR CONTACT AND MAG LOCK PER DOOR.
5. DETAIL INDICATED ABOVE INCLUDES CONDUIT PATHWAYS FOR MULTIPLE DOOR HARDWARE SCENARIOS. THIS CONTRACTOR CAN ELIMINATE CONDUIT IN COORDINATION WITH DOOR SECURITY HARDWARE SELECTION. (I.E. CONDUIT FOR ELECTRIC LOCK IS NOT REQUIRED IF DOOR IS SELECTED TO USE ELECTRIC STRIKE. EMERGENCY RELEASE BUTTON CONDUIT IS NOT REQUIRED IF MAGNETIC LOCKS ARE NOT SELECTED.

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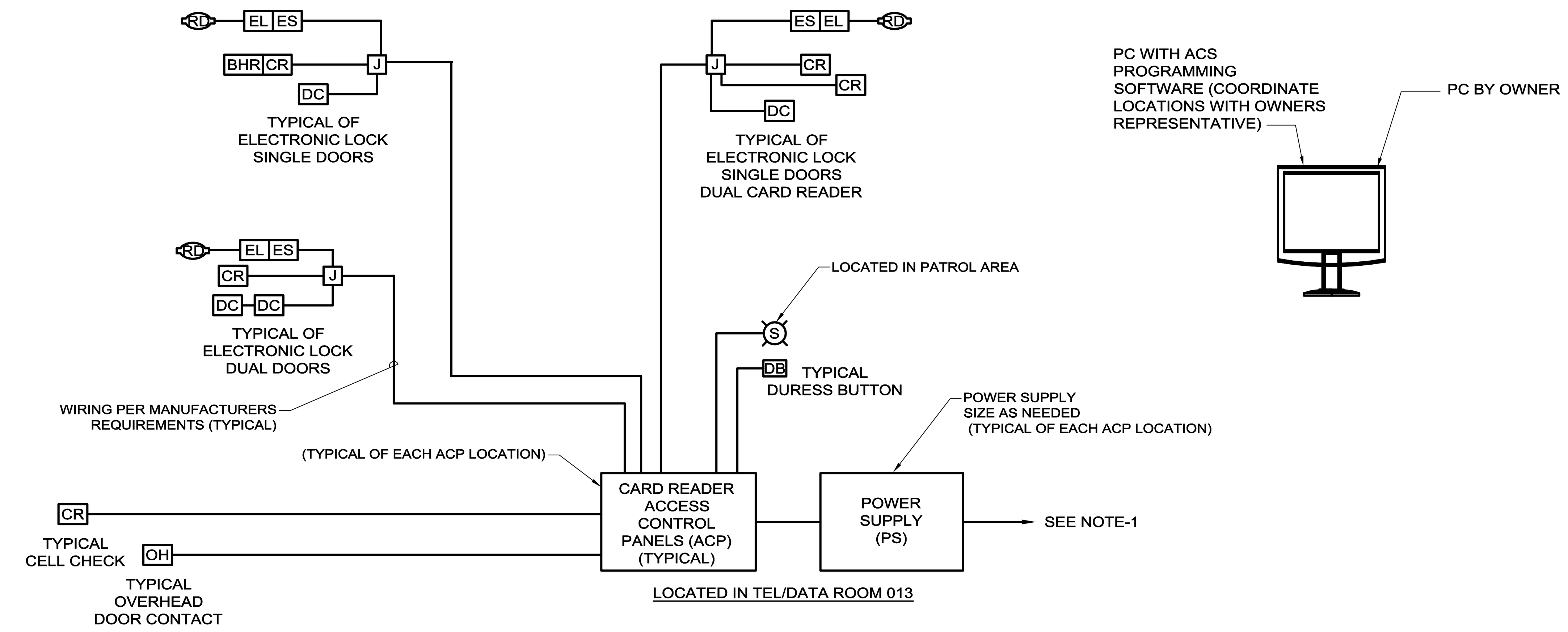
TYPICAL DOOR SECURITY DETAIL

ED01



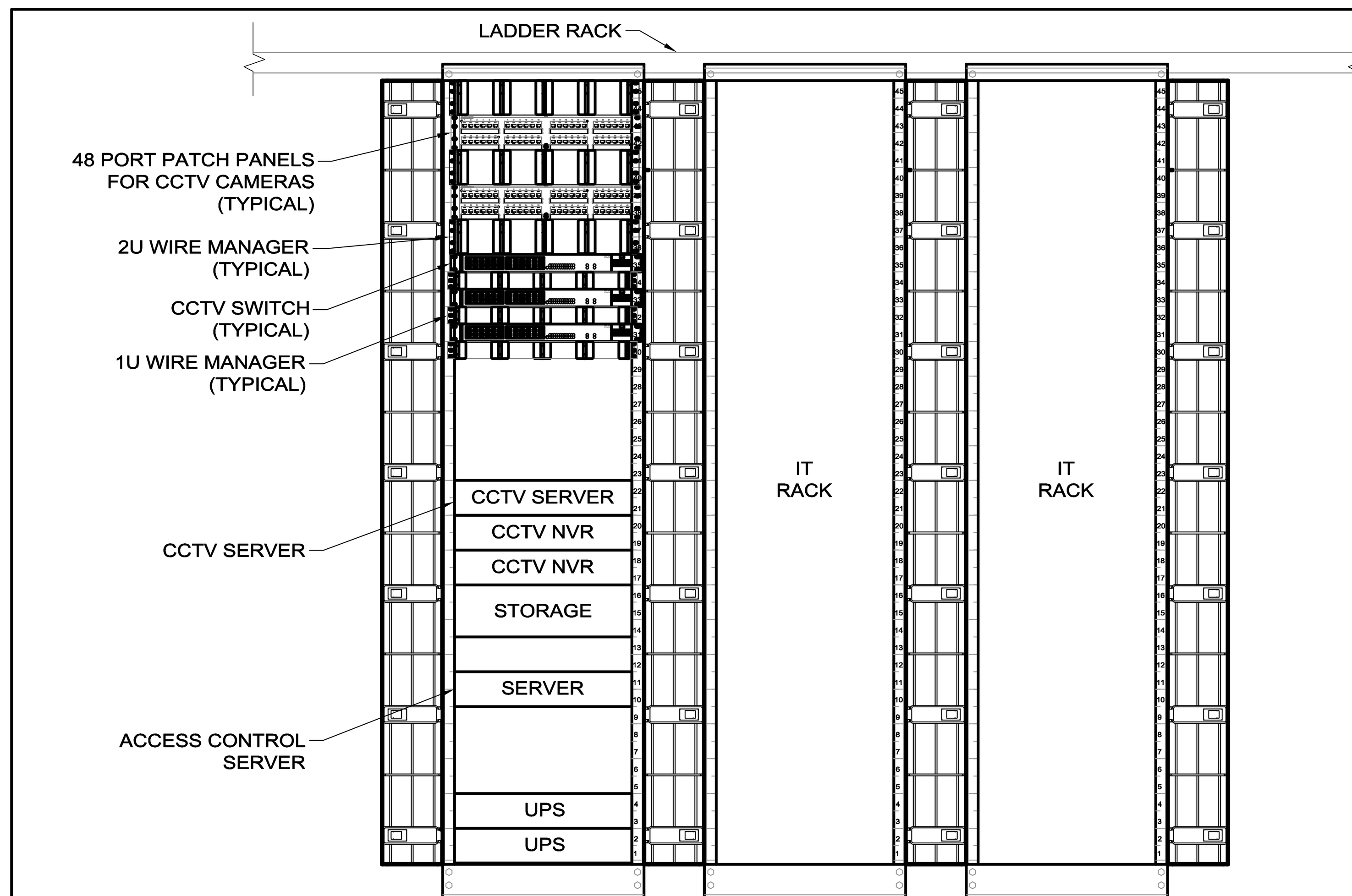
RISER DIAGRAM NOTES:

1. PROVIDE "LOCKABLE" CIRCUIT BREAKER TO PREVENT ACCIDENTAL SHUTOFF. CIRCUIT BREAKER SHALL BE CLEARLY MARKED "DOOR SECURITY SYSTEM CONTROL CIRCUIT" IN PANEL DIRECTORY.
2. PROVIDE NEW ACCESS CONTROL SYSTEM CONTROL PANELS AND POWER SUPPLIES.
3. PROVIDE ACCESS CONTROL SYSTEM CARD READER SYSTEM AND ALL RELATED EQUIPMENT.
4. PROVIDE ACCESS CONTROL SYSTEM CABLING AS RECOMMENDED BY EQUIPMENT MANUFACTURER.
5. PROVIDE TESTING AND CERTIFICATION BY EQUIPMENT MANUFACTURER UPON COMPLETION OF WORK.
6. PROVIDE SIGNAL TO CARD READER SYSTEM(S) TO UNLOCK ALL (EQUIPPED WITH CARD READERS) DOORS DURING FIRE ALARM CONDITION, AS REQUIRED BY EGRESS CODE.
7. PROVIDE DOOR RELEASE PUSHBUTTONS AT REQUIRED DOORS (SEE FLOOR PLANS FOR QUANTITY AND LOCATIONS). PUSHBUTTON SHALL AUTOMATICALLY/MOMENTARILY RELEASE ASSOCIATED DOOR LOCKING DEVICE WHEN BUTTON IS PRESSED. PROVIDE ALL WIRING AND INTERCONNECTIONS WITH ACCESS CONTROL SYSTEM AS REQUIRED FOR PROPER OPERATION.

RDK

SECURITY CARD ACCESS RISER DIAGRAM

SE02



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TEL/DATA ROOM 013 RACK ELEVATION

SE01

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MECH:
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G:\2013\20130535 - Waltham Police HQ Renovation\1200 Drawings\1207 Security\Plot Files\20130535 ES701 SECURITY DETAILS.dwg [24x36] July 14, 2014 - 5:38pm dfranzek

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

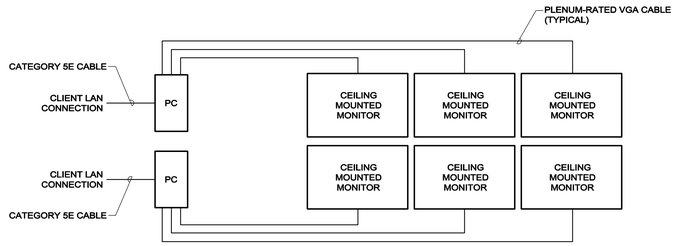
SECURITY DETAILS

PROJECT NUMBER: 20130535
DESIGNED BY: CM
DRAWN BY: JD
CHECKED BY: BP
DATE: July 11, 2014
SCALE: N.T.S.
SHEET NUMBER:

ES701

SHEET 149 OF 157

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:



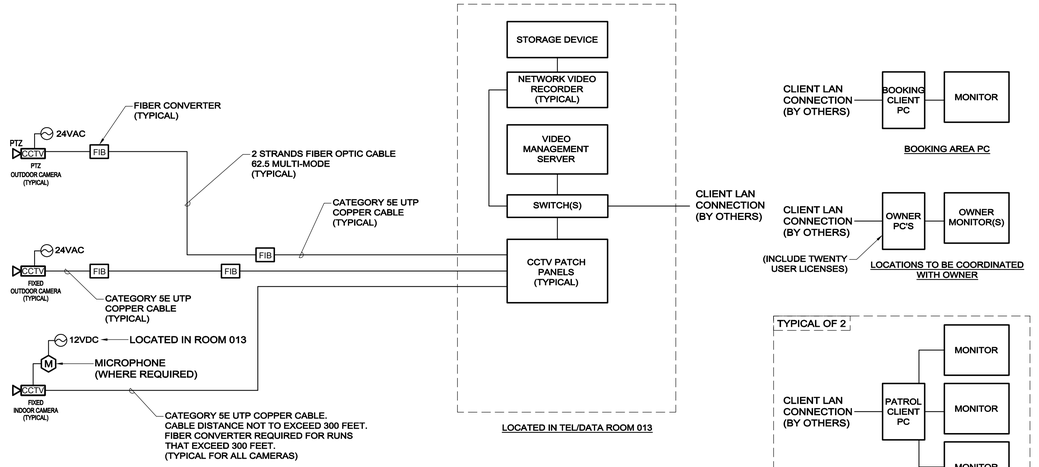
VIDEO WALL DIAGRAM NOTES:

1. PROVIDE MONITORS, CLIENT PCS WITH ASSOCIATED SOFTWARE AND CABLING TO YIELD A COMPLETE AND FULLY FUNCTIONAL SYSTEM.
2. PROVIDE SECURITY SYSTEM CABLING AS RECOMMENDED BY EQUIPMENT MANUFACTURER.
3. PROVIDE TESTING AND CERTIFICATION BY EQUIPMENT MANUFACTURER UPON COMPLETION OF WORK. PROVIDE FINAL TESTING IN ACCORDANCE WITH INDUSTRY STANDARDS.
4. SEE FLOOR PLANS FOR ADDITIONAL INFORMATION.
5. CONTRACTOR SHALL COORDINATE CLIENT LAN CONNECTIONS WITH OWNER PRIOR TO INSTALLATION.

RDK

PATROL VIDEO WALL WIRING DIAGRAM

SD01



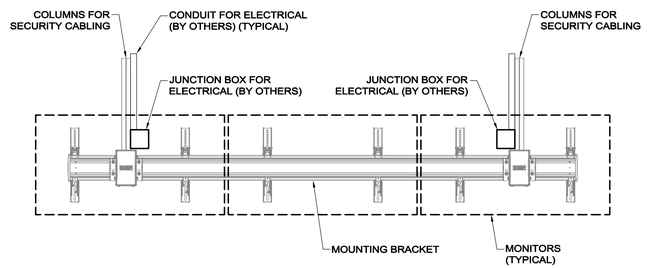
CCTV WIRING DIAGRAM NOTES:

1. PROVIDE SECURITY SYSTEM CABLING AS RECOMMENDED BY EQUIPMENT MANUFACTURER.
2. PROVIDE TESTING AND CERTIFICATION BY EQUIPMENT MANUFACTURER UPON COMPLETION OF WORK. PROVIDE FINAL TESTING IN ACCORDANCE WITH INDUSTRY STANDARDS.
3. SEE RISER DIAGRAM AND FLOOR PLANS FOR ADDITIONAL INFORMATION.
4. PROVIDE WHITE AND BLACK CAMERAS INDICATED ON FLOOR PLANS TO MATCH ARCHITECTS COLOR SCHEME.
5. CONTRACTOR SHALL COORDINATE CLIENT LAN CONNECTIONS WITH OWNER PRIOR TO INSTALLATION.

RDK

CCTV WIRING DIAGRAM

SD02



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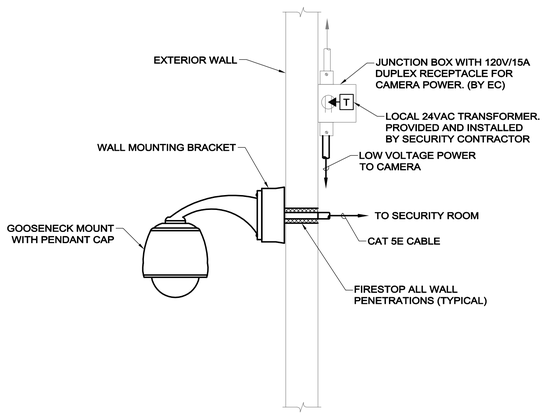
PATROL DISPLAY MOUNTING DETAIL

SD05



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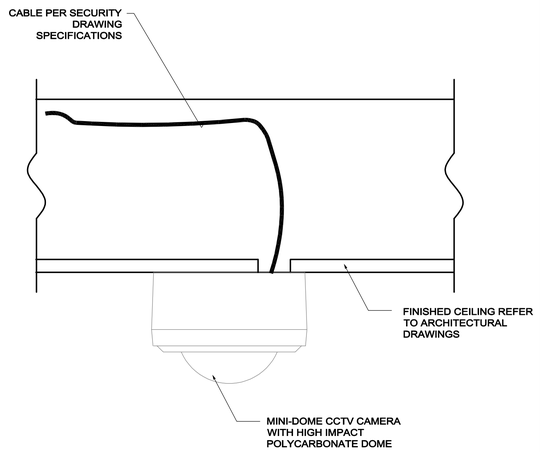
EXTERIOR WALL MOUNT CAMERA DETAIL

SD04



NOTES:
1. COORDINATE EXACT LOCATIONS AND MOUNTING REQUIREMENTS OF ALL DEVICES WITH ARCHITECTURAL DRAWINGS.
2. REFER TO ELECTRICAL DRAWINGS FOR CONDUIT PATHWAYS AND POWER

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INTERIOR CEILING MOUNTED CCTV MINI-DOME CAMERA

SD03

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

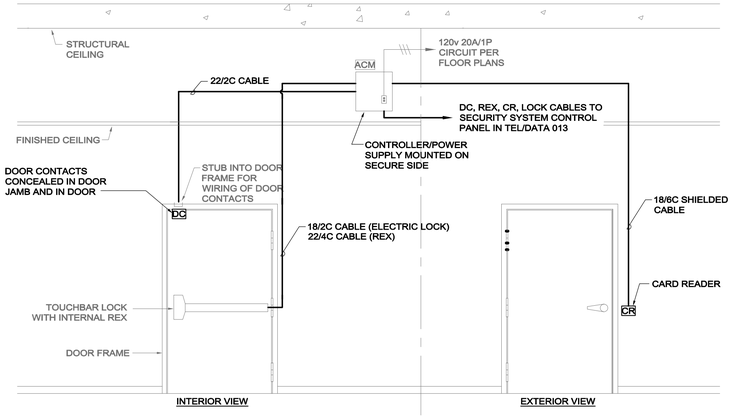
SECURITY DETAILS

PROJECT NUMBER: 20130535
DESIGNED BY: CM
DRAWN BY: JD
CHECKED BY: BP
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

ES702

SHEET 150 **OF** 157

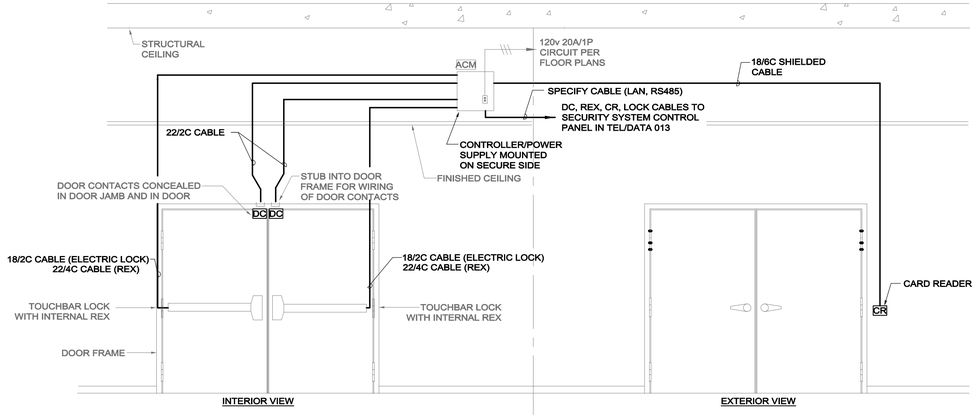


NOTES:
1. COORDINATE EXACT LOCATIONS AND MOUNTING REQUIREMENTS OF ALL DEVICES WITH ARCHITECTURAL DRAWINGS.
2. REFER TO ELECTRICAL DRAWINGS FOR CONDUIT PATHWAYS AND POWER
3. COORDINATE DOOR HARDWARE CONNECTIONS AND VERIFY ALL VOLTAGE REQUIREMENTS WITH DOOR HARDWARE VENDOR.

RDK

ELECTRIC TOUCHBAR LOCK -WITH INTERNAL REX STANDARD SINGLE DOOR ELEVATION

SE02

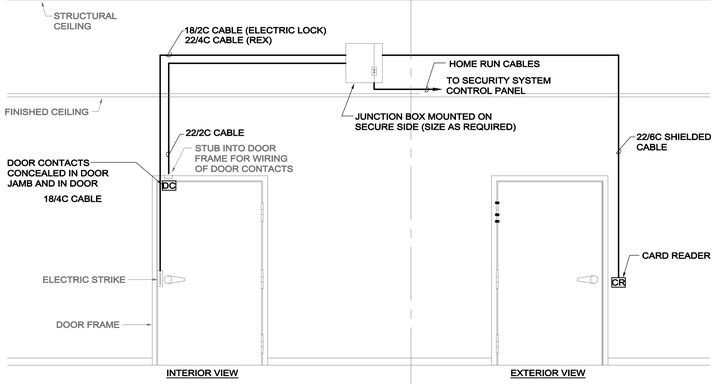


NOTES:
1. COORDINATE EXACT LOCATIONS AND MOUNTING REQUIREMENTS OF ALL DEVICES WITH ARCHITECTURAL DRAWINGS.
2. REFER TO ELECTRICAL DRAWINGS FOR CONDUIT PATHWAYS AND POWER
3. COORDINATE DOOR HARDWARE CONNECTIONS AND VERIFY ALL VOLTAGE REQUIREMENTS WITH DOOR HARDWARE VENDOR.

RDK

ELECTRIC TOUCHPAD LOCK-WITH INTERNAL REX STANDARD DOUBLE DOOR ELEVATION

SE01

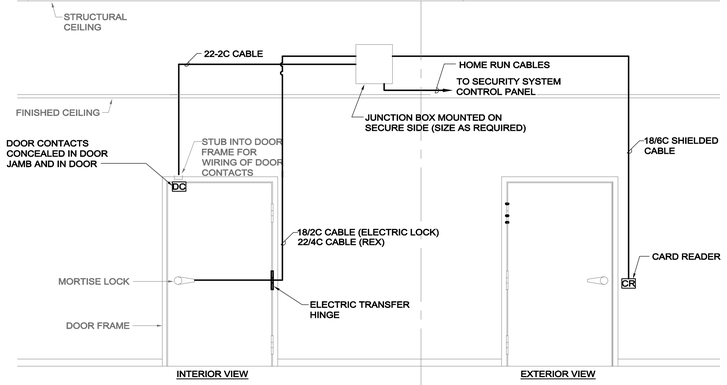


NOTES:
1. COORDINATE EXACT LOCATIONS AND MOUNTING REQUIREMENTS OF ALL DEVICES WITH ARCHITECTURAL DRAWINGS.
2. REFER TO ELECTRICAL DRAWINGS FOR CONDUIT PATHWAYS AND POWER
3. COORDINATE DOOR HARDWARE CONNECTIONS AND VERIFY ALL VOLTAGE REQUIREMENTS WITH DOOR HARDWARE VENDOR.

RDK

ELECTRIC STRIKE-INTERNAL REX-LOCAL CONTROLLER/PS STANDARD SINGLE DOOR ELEVATION

SE04



NOTES:
1. COORDINATE EXACT LOCATIONS AND MOUNTING REQUIREMENTS OF ALL DEVICES WITH ARCHITECTURAL DRAWINGS.
2. REFER TO ELECTRICAL DRAWINGS FOR CONDUIT PATHWAYS AND POWER
3. COORDINATE DOOR HARDWARE CONNECTIONS AND VERIFY ALL VOLTAGE REQUIREMENTS WITH DOOR HARDWARE VENDOR.

RDK

ELECTRIC MORTISE LOCK-INTERNAL REX-CENTRALIZED CONTROLLER/PS STANDARD SINGLE DOOR ELEVATION

SE03

REVIEWED BY: CIVIL: ARCH: STRU: PLUM: FIRE: MECH: ELEC:

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REVISIONS		
Number	Description	Date

ISSUED FOR BID

WALTHAM POLICE STATION RENOVATION

155 LEXINGTON STREET
WALTHAM, MASSACHUSETTS

SECURITY DETAILS

PROJECT NUMBER: 20130535
DESIGNED BY: CM
DRAWN BY: JD
CHECKED BY: BP
DATE: July 11, 2014
SCALE: N.T.S.

SHEET NUMBER:

ES703

SHEET 151 **OF** 157

Q:\2013\20130535 - Waltham Police HQ Renovation\1200 Drawings\1207 Security\Plot Files\20130535 ES703 SECURITY DETAILS.dwg [24x36] July 14, 2014 - 5:39pm dfranzak