UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY RENOVATION

985 NORTH 500 WEST, BRIGHAM CITY, UTAH

PROJECT No. 09226470

DECEMBER 15, 2009

UTAH MAP

BRIGHAM CITY MAP

ARCHITECT	STRUCTURAL ENGINEER	MECHANICAL ENGINEER	ELECTRICAL ENGINEER	APPROVALS:
EFT ARCHITECTS 265 EAST 100 SOUTH, SUITE 350 SALT LAKE CITY , UTAH 84111 PH: 801.521.8564 FAX: 801.355.2938	INTERMOUNTAIN STRUCTURAL ENGINEERING 4625 SOUTH 2300 EAST, SUITE 105 HOLLADAY , UTAH 84117 PH: 801.274.2831 FAX: 801.274.2832 www.iseutah.com	VAN BOERUM & FRANK 330 SOUTH 300 EAST SALT LAKE CITY , UTAH 84111 PH: 801.530.3148 FAX: 801.530.3150 www.vbfa.com	SPECTRUM ENGINEERS 175 SOUTH MAIN STREET, SUITE 300 SALT LAKE CITY , UTAH 84111 PH: 801.328.5151 FAX: 801.328.5155 www.spectrum-engineers.com	Prime Agency ____ Date ____ DFCM ____ Date ____ APPROVAL DOES NOT RELIEVE A/E OF DESIGN LIABILITY

CODE ANALYSIS

APPLICABLE CODES

	YEAR		YEAR
INTERNATIONAL BUILDING CODE	2006	NATIONAL ELECTRICAL CODE	2008
INTERNATIONAL MECHANICAL CODE	2006	ADA ACCESSIBILITY GUIDELINES	1994
INTERNATIONAL FUEL GAS CODE	2006		
INTERNATIONAL PLUMBING CODE	2006		
INTERNATIONAL FIRE CODE	2006		
INTERNATIONAL ENERGY CONSERVATION CODE	2006		

A. OCCUPANCY AND GROUP: A-3 B S-1

CHANGE IN USE: YES____NO__X__MIXED OCCUPANCY: YES__X__NO____

SPECIAL USE AND OCCUPANCY (E.G. HIGH RISE, COVERED MALL): __NO__

B. SEISMIC DESIGN CATEGORY: __D__ DESIGN WIND SPEED: __90__MPH

C. TYPE OF CONSTRUCTION (CIRCLE ONE):

I A | I B | II A | II B | III A | (III B) | IV HT | V A | V B

D. FIRE RESISTANCE RATING REQUIREMENTS FOR THE EXTERIOR WALLS BASED ON THE FIRE SEPARATION DISTANCE (IN HOURS):

NORTH:__0__SOUTH:__0__EAST:__0__WEST:__0__

E. MIXED OCCUPANCIES:____NONSEPARATED USES:__X__

F: SPRINKLERS:

REQUIRED:__NO*__ PROVIDED:__NO__

*REASON: THE STATE BUILDING OFFICIAL HAS DETERMINED THAT THE ALTERATION WILL NOT TRIGGER A REQUIREMENT FOR INSTALLING A NEW AUTOMATIC SPRINKLER SYSTEM THROUGHOUT THE EXISTING BUILDING. ALTHOUGH THE FIRE AREA IN THE EXISTING BUILDING EXCEEDS THE CURRENT ALLOWABLE AREAS FOR THE MOST RESTRICTIVE NON-SEPERATED OCCUPANCY (A-3), A NEW AUTOMATIC SPRINKLER SYSTEM WOULD NOT BE JUSTIFIED OR REQUIRED DUE TO THE LIMITED IMPACT OF THE ALTERATION ON THE EXISTING BUILDING.

TYPE OF SPRINKLER SYSTEM (IBC 903.3.1)__N/A__

G: NUMBER OF STORIES:__1__BUILDING HEIGHT:__23__

H: ACTUAL AREA PER FLOOR (SQUARE FEET): B = 618 (EXIST) L1 = 13,080 (EXIST)

I: TABULAR AREA: (TABLE 503): 9.500 A-3 MOST RESTRICTIVE

J: AREA MODIFICATIONS:

A) $A_a = \{ A_t + [A_1 \times I_f] + [A_1 \times I_s] \}$ $I_f = [F/P - 0.25] W/30$

9,500 + 7125 = 16,625 512/512 - 0.25 X 1 = 0.75

B) SUM OF THE RATIO CALCULATIONS FOR MIXED OCCUPANCIES:

ACTUAL AREA / ALLOWABLE ≦1 NA (NON-SEPERATED OCCUPANCIES)

C) TOTAL ALLOWABLE AREA FOR:

1) ONE STORY:__16,625__

2) TWO STORY: $A_a(2)$__N/A__

3) THREE STORY: $A_a(3)$__N/A__

D) UNLIMITED AREA BUILDING: YES____NO__X__CODE SECTION:____

K. FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS).

ELEMENT	HOURS	ASSEMBLY LISTING	ELEMENT	HOURS	ASSEMBLY LISTING
EXTERIOR BEARING WALLS	2	EXIST*	FLOORS - CEILING FLOORS	2	EXIST*
INTERIOR BEARING WALLS	0	N/A	ROOFS - CEILING ROOFS	0	N/A
EXTERIOR NON-BEARING WALLS	0	N/A	SHAFT ENCLOSURES	0	N/A
STRUCTURAL FRAME	0	N/A	FIRE WALLS	0	N/A
PARTITIONS - PERMANENT	0	N/A	FIRE BARRIERS	0	N/A
FIRE BARRIERS	0	N/A	SMOKE PARTITIONS	0	N/A
EXTERIOR DOORS AND WINDOWS	0	N/A			

* 2 HOUR ASSUMED FOR EXISTING BRICK/CMU WALLS

L. DESIGN OCCUPANT LOAD: EXIST

EXIT WIDTH REQUIRED: EXIST

EXIT WIDTH PROVIDED: EXIST + 57* NEW

M. MINIMUM NUMBER OF REQUIRED PLUMBING FACILITIES:

A) WATER CLOSETS - REQUIRED (M) 2 EX (F) 2 EX PROVIDED (M) 2(N) (F) 2(N)

B) URINALS - REQUIRED (M) 2 EX (F) N/A PROVIDED (M) 4(N) (F) N/A

C) LAVATORIES - REQUIRED (M) 3 EX (F) 2 EX PROVIDED (M) 3(N) (F) 2(N)

D) BATH TUBS OR SHOWERS: 3 MEN, 1 WOMEN

E) DRINKING FOUNTAINS: 3(4(N) SERVICE SINKS: 1(E)

(E) = EXISTING (TO BE REMOVED)
(N) = NEW

FOOTNOTES:

1) IN CASE OF CONFLICT WITH THE U.S. DEPARTMENT OF JUSTICE FEDERAL REGISTERS PARTS Ⅰ THROUGH Ⅳ - ADA GUIDELINES AND SPECIFIC REFERENCE TO THE INTERNATIONAL BUILDING CODE ACCESSIBILITY CHAPTERS, THE MORE RESTRICTIVE REQUIREMENT SHALL GOVERN.

2) ADDITIONAL CODE INFORMATION SHALL BE PROVIDED AT THE DISCRETION OF THE BUILDING OFFICIAL FOR COMPLEX BUILDINGS. INCLUDING, BUT NOT LIMITED TO:

A) HIGH RISE REQUIREMENTS.
B) ATRIUMS.
C) PERFORMANCE BASED CRITERIA.
D) MEANS OR EGRESS ANALYSIS.
E) FIRE ASSEMBLY LOCATOR SHEET.
F) EXTERIOR AND INTERIOR ACCESSIBILITY ROUTE.
G) FIRE STOPPING, INCLUDING TESTED DESIGN NUMBER.

STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

DIVISION OF FACILITIES & CONSTRUCTION AND MANAGEMENT

4110 STATE OFFICE BUILDING SALT LAKE CITY, UTAH 84111 801.538.3018

DRAWING INDEX

GENERAL
COVER SHEET
GL 001 INDEX / CODE SHEET

CIVIL
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C102 EXISTING SITE PLAN
ER101 SWPPP PLAN
ER102 BMP DETAILS
D101 DETAILS

LANDSCAPE
L101 LANDSCAPE PLAN
L102 IRRIGATION PLAN
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ARCHITEC
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AD100 SITE DEMOLITION PLAN
AD101 MAIN LEVEL DEMO. PLAN
AD201 EXTERIOR ELEV. DEMO. EL PLAN
AE111 MAIN RCP PLAN
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AE 211 INTERIOR ELEVATIONS
AE 212 INTERIOR ELEVATIONS
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S001 GENERAL STRUCTURAL NOTES
S101 FOUNDATION PLAN & SCHEDULES
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M101 MECHANICAL DEMOLITION PLAN
M201 MECHANICAL PLAN
M202 MECHANICAL ROOF PLAN
M301 MECHANICAL DETAILS
M302 MECHANICAL DETAILS
M303 KITCHEN HOOD DETAILS
M304 KITCHEN HOOD DETAILS
M305 MECHANICAL DETAILS
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P303 ENLARGED PLUMB. PLANS
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EE501 ELECTRICAL DETAILS
EE502 ELECTRICAL DETAILS
EE503 PAD VAULT DETAIL
ES101 ELECTRICAL SITE DEMOLITION PLAN
ES102 ELECTRICAL SITE PLAN
ED101 ELECTRICAL DEMOLITION PLAN
EP101 POWER PLAN
EP102 ROOF POWER PLAN
EP501 ELECTRICAL SCHEDULE
EP502 ELECTRICAL SCHEDULE
EP601 ONE-LINE DIAGRAM
EL101 LIGHTING PLAN
EL501 LIGHTING CONTROL DIAGRAMS
EL601 LIGHTING FIXTURE SCHEDULE
ET101 TECHNOLOGY PLAN
ET601 TECHNOLOGY DETAILS
ET602 VOICE DATA ROUGH-IN
FA101 FIRE PROTECTION PLAN
FA601 FIRE ALARM RISER

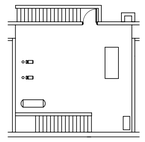
PALADIN CANOPY CODE ANALYSIS

OCCUPANCY: S-1
TYPE OF CONSTRUCTION: IIB.
TABULAR ALLOWABLE AREA: 17,500 S.F.
ACTUAL AREA: 3,000 S.F.
FIRE RESISTANCE OF EXTERIOR WALLS: NONE REQUIRED. FIRE SEPARATION DISTANCE GREATER THAN 10 FT ALL SIDES [TABLE 601 AND 602].
PROTECTION OF OPENINGS AT PERIMETER: UNLIMITED UNPROTECTED OPENINGS PERMITTED [TABLE 704.8 FOOTNOTE I]. FIRE SEPARATION DISTANCE GREATER THAN 10 FT ALL SIDES.
ALLOWABLE HEIGHT: 3 STORIES, 55 FT. [TABLE 503]
ACTUAL HEIGHT: 1 STORY, 25 FT.
AUTOMATIC SPRINKLER SYSTEM REQUIRED: NO.

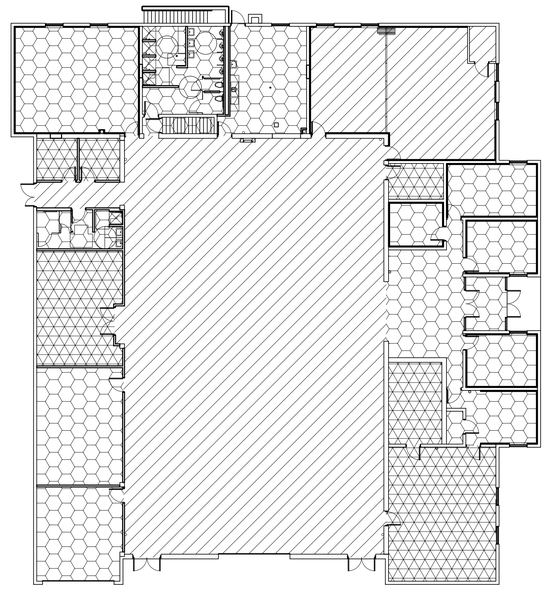
DEFERRED SUBMITTALS	ESTIMATED SUBMITTAL DATE
FIRE ALARM	FEBRUARY 2010
MECHANICAL & ELECTRICAL	FEBRUARY 2010
SEISMIC BRACING	

SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS

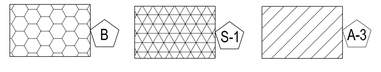
DESIGN AND INSTALLATION OF SEISMIC RESTRAINTS SYSTEMS FOR NONSTRUCTURAL COMPONENTS (E.G. ARCHITECTURAL, MECHANICAL, AND ELECTRICAL) IS TO COMPLY WITH THE 2006 INTERNATIONAL BUILDING CODE (IBC), ASCE 7-05 AS REFERENCED IN THE IBC, SEISMIC CONTROL SPECIFICATIONS, DETAILS ON THE DRAWINGS. CALCULATIONS ARE TO BE PREPARED BY A PROFESSIONAL ENGINEER LICENSED IN STATE OF UTAH.



LOWER LEVEL
EXISTING MECHANICAL ROOM



MAIN LEVEL



EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
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CONSULTANT INFORMATION

STATE OF UTAH
ERIC R. THOLEN
129665
LICENSED ARCHITECT
12.15.09

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY
RENOVATION
985 NORTH 500 WEST
BRIGHAM CITY, UTAH 84302-1540

SHEET TITLE
INDEX & CODE SHEET

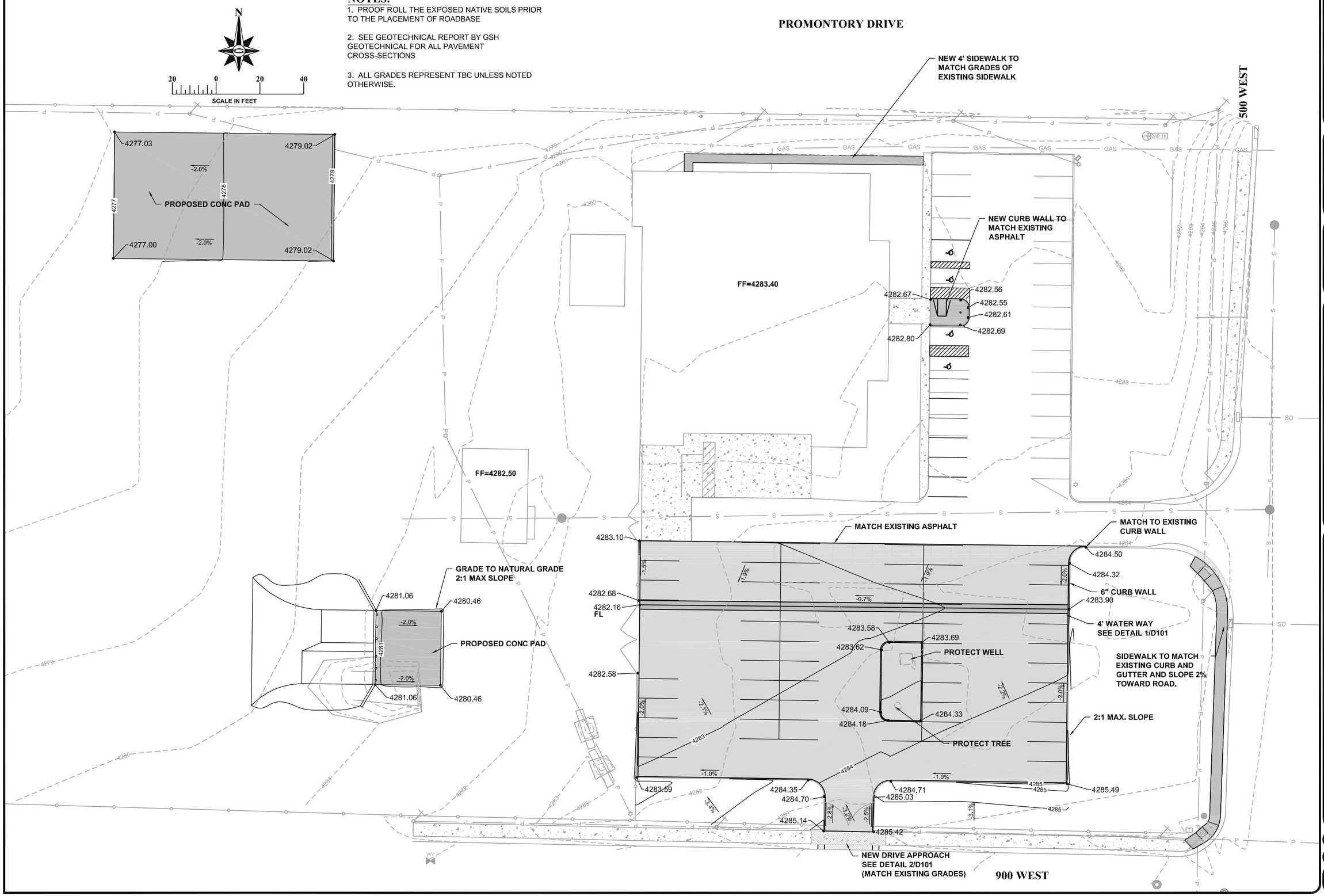
	DATE	BY	DESCRIPTION
△			
△			
△			
△			

DRAWN BY CRO CHECKED BY ERT
PROJECT NO. 09226470
DRAWING NO. GL001
DATE 12.15.09

Utah National Guard - Brigham City Armory - Renovation

NOTES:

1. PROOF ROLL THE EXPOSED NATIVE SOILS PRIOR TO THE PLACEMENT OF ROADBASE
2. SEE GEOTECHNICAL REPORT BY GSH GEOTECHNICAL FOR ALL PAVEMENT CROSS-SECTIONS
3. ALL GRADES REPRESENT TBC UNLESS NOTED OTHERWISE.



CONSULTING ENGINEERS AND SURVEYORS

GILSON ENGINEERING INC.

12401 SOUTH 450 EAST
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PHONE: (801) 571-6414
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REVISIONS

REV	DATE	BY	COMMENTS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: 12-10-09
DRAWING NAME: EFT.010 ..PLANSET/ C103 GRADING.DWG
DESIGNED/DRAWN BY: JMC
CHECKED: JJ
APPROVED: JJ

GRADING PLAN

UTAH NATIONAL GUARD
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REVISION: A
PROJ. # EFT.010
C.101

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NATIONAL GUARD UTAH

REVISIONS

REV	DATE	BY	COMMENTS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: 12-10-09
DRAWING NAME: EFT.010....PLANSET\C010 EXISTING
DESIGNED/DRAWN BY: JMC
CHECKED: JJ
APPROVED: JJ

EXISTING SITE PLAN

UTAH NATIONAL GUARD
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REVISION: A
PROJ. # EFT.010
C.102

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EROSION CONTROL NOTES

1. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING AND CONTROLLING EROSION DUE TO WIND AND RUNOFF. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR MAINTAINING THE EROSION CONTROL FACILITIES SHOWN ON THE PLAN.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING DRAINAGE AND EROSION CONTROL FACILITIES AS REQUIRED. STREETS SHALL BE KEPT CLEAN OF DEBRIS FROM TRAFFIC FROM THE SITE.

3. CONTRACTOR SHALL USE VEHICLE TRACKING CONTROL AT ALL LOCATIONS WHERE VEHICLES WILL ENTER OR EXIT THE SITE. CONTROL FACILITIES WILL BE MAINTAINED WHILE CONSTRUCTION IS IN PROGRESS, MOVED WHEN NECESSARY, AND REMOVED WHEN THE SITE IS PAVED.

4. INLET PROTECTION DEVICES SHALL BE INSTALLED IMMEDIATELY UPON INDIVIDUAL INLETS BECOMING FUNCTIONAL.

5. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, ETC.) SHALL BE DISPOSED IN A MANNER THAT PREVENTS CONTACT WITH STORM WATER DISCHARGES FROM THE SITE.

6. FUGITIVE DUST AREAS SHALL BE CONTROLLED BY SPRAYING WATER ON THE DRY AREAS OF THE SITE.

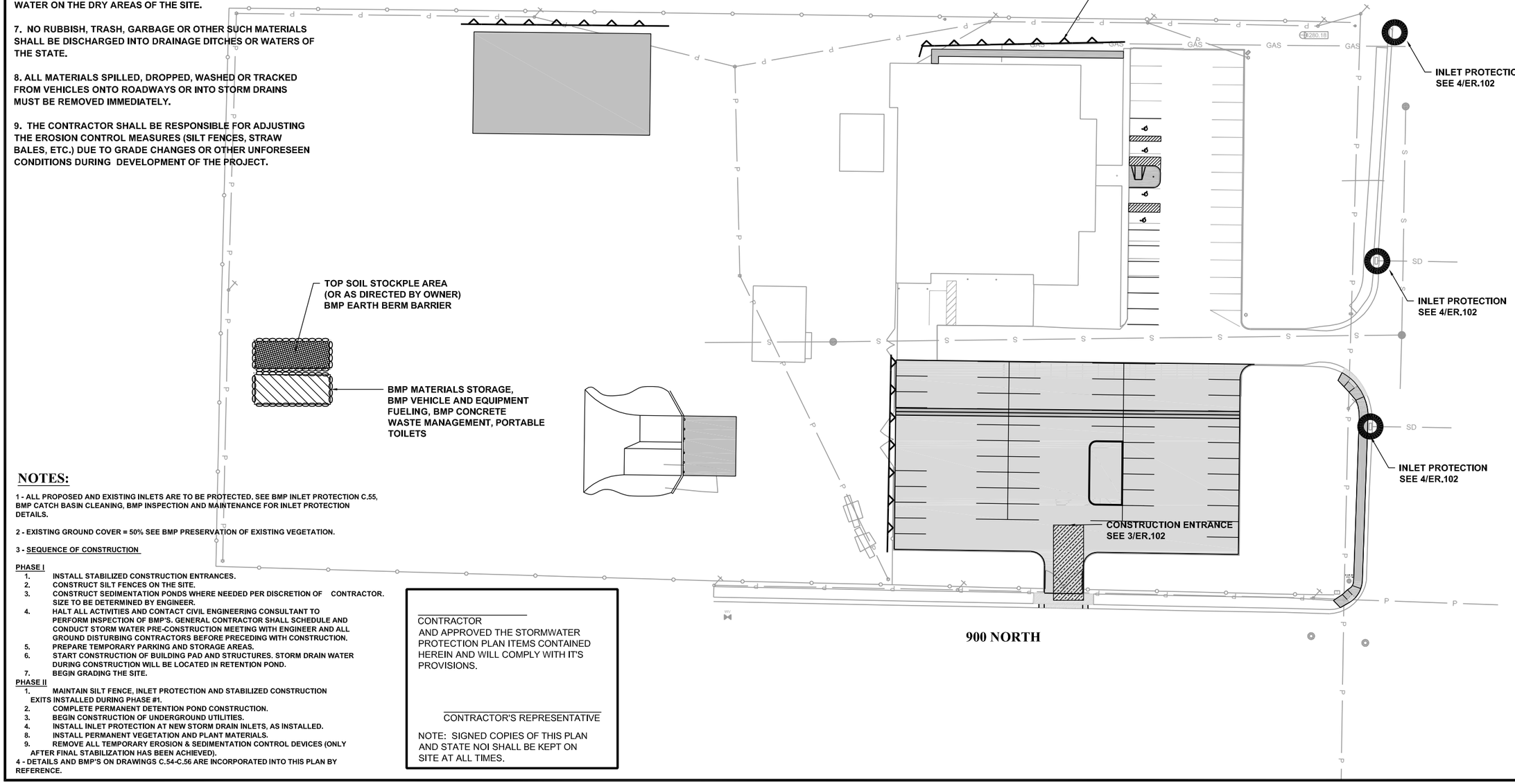
7. NO RUBBISH, TRASH, GARBAGE OR OTHER SUCH MATERIALS SHALL BE DISCHARGED INTO DRAINAGE DITCHES OR WATERS OF THE STATE.

8. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, STRAW BALES, ETC.) DUE TO GRADE CHANGES OR OTHER UNFORESEEN CONDITIONS DURING DEVELOPMENT OF THE PROJECT.

LEGEND

- -BMP SILT FENCE ER.102
- -BMP INSPECTIOIN AND MAINTENANCE, BMP STABILIZED CONSTRUCTION ENTRANCE AND WASH AREA ER.01-ER.02
- -TOPSOIL STOCKPILE AREA (OR AS DIRECTED BY OWNER) BMP EARTH BERM BARRIER ER.01
- -BMP MATERIALS STORAGE, BMP VEHICLE AND EQUIPMENT FUELING, BMP CONCRETE WASTE MANAGEMENT, BMP PORTABLE TOILETS, BMP EARTH BERM BARRIER ER.01-ER.02
- -CURB AND INLET PROTECTION SEE DETAIL 4/ER.102



NOTES:

1 - ALL PROPOSED AND EXISTING INLETS ARE TO BE PROTECTED. SEE BMP INLET PROTECTION C.55, BMP CATCH BASIN CLEANING, BMP INSPECTION AND MAINTENANCE FOR INLET PROTECTION DETAILS.

2 - EXISTING GROUND COVER = 50% SEE BMP PRESERVATION OF EXISTING VEGETATION.

3 - SEQUENCE OF CONSTRUCTION

PHASE I

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES.
2. CONSTRUCT SILT FENCES ON THE SITE.
3. CONSTRUCT SEDIMENTATION PONDS WHERE NEEDED PER DISCRETION OF CONTRACTOR. SIZE TO BE DETERMINED BY ENGINEER.
4. HALT ALL ACTIVITIES AND CONTACT CIVIL ENGINEERING CONSULTANT TO PERFORM INSPECTION OF BMP'S. GENERAL CONTRACTOR SHALL SCHEDULE AND CONDUCT STORM WATER PRE-CONSTRUCTION MEETING WITH ENGINEER AND ALL GROUND DISTURBING CONTRACTORS BEFORE PRECEDING WITH CONSTRUCTION.
5. PREPARE TEMPORARY PARKING AND STORAGE AREAS.
6. START CONSTRUCTION OF BUILDING PAD AND STRUCTURES. STORM DRAIN WATER DURING CONSTRUCTION WILL BE LOCATED IN RETENTION POND.
7. BEGIN GRADING THE SITE.

PHASE II

1. MAINTAIN SILT FENCE, INLET PROTECTION AND STABILIZED CONSTRUCTION EXITS INSTALLED DURING PHASE #1.
2. COMPLETE PERMANENT DETENTION POND CONSTRUCTION.
3. BEGIN CONSTRUCTION OF UNDERGROUND UTILITIES.
4. INSTALL INLET PROTECTION AT NEW STORM DRAIN INLETS. AS INSTALLED.
8. INSTALL PERMANENT VEGETATION AND PLANT MATERIALS.
9. REMOVE ALL TEMPORARY EROSION & SEDIMENTATION CONTROL DEVICES (ONLY AFTER FINAL STABILIZATION HAS BEEN ACHIEVED).

4 - DETAILS AND BMP'S ON DRAWINGS C.54-C.56 ARE INCORPORATED INTO THIS PLAN BY REFERENCE.

_____
CONTRACTOR
AND APPROVED THE STORMWATER PROTECTION PLAN ITEMS CONTAINED HEREIN AND WILL COMPLY WITH IT'S PROVISIONS.

_____
CONTRACTOR'S REPRESENTATIVE

NOTE: SIGNED COPIES OF THIS PLAN AND STATE NOI SHALL BE KEPT ON SITE AT ALL TIMES.

CONSULTING ENGINEERS AND SURVEYORS
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RIVERDALE, UT 84405
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FAX: (801) 773-2099

NATIONAL GUARD UTAH

REV	DATE	BY	COMMENTS

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: 12-10-09
DRAWING NAME: EFT.010....PLANSET\C010 ER.DWG
DESIGNED/DRAWN BY: JMC
CHECKED: JJ
APPROVED: JJ

SWPPP PLAN

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY RENOVATION
985 NORTH 500 WEST BRIGHAM CITY, UTAH 84302-1540

REVISION: A
PROJ. # EFT.010

ER.101

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BMP: VEHICLE AND EQUIPMENT FUELING

DESCRIPTION:
PREVENT FUEL SPILLS AND LEAKS, AND REDUCE THEIR IMPACTS TO STORM WATER BY USING OFF-SITE FACILITIES, FUELING IN DESIGNATED AREAS ONLY, ENCLOSING OR COVERING STORED FUEL, IMPLEMENTING SPILL CONTROLS, AND TRAINING EMPLOYEES AND SUBCONTRACTORS.

INSTALLATION / APPLICATION:
- USE OFF-SITE FUELING STATIONS AS MUCH AS POSSIBLE. FUELING VEHICLES AND EQUIPMENT OUTDOORS OR IN AREAS WHERE FUEL MAY SPILL/LEAK ONTO PAVED SURFACES OR INTO DRAINAGE PATHWAYS CAN POLLUTE STORM WATER. IF YOU FUEL A LARGE NUMBER OF VEHICLES OR PIECES OF EQUIPMENT, CONSIDER USING AN OFF-SITE FUELING STATION. THESE BUSINESSES ARE BETTER EQUIPPED TO HANDLE FUEL SPILLS PROPERLY. PERFORMING THIS WORK OFF-SITE CAN ALSO BE ECONOMICAL BY ELIMINATING THE NEED FOR A SEPARATE FUELING AREA AT YOUR SITE.
- IF FUELING MUST OCCUR ON-SITE, USE DESIGNATED AREAS, LOCATED AWAY FROM DRAINAGE COURSES, TO PREVENT THE RUN-ON OF STORM WATER AND THE RUNOFF OF SPILLS. DISCOURAGE "TOPPING-OFF" OF FUEL TANKS.
- ALWAYS USE SECONDARY CONTAINMENT, SUCH AS A DRAIN PAN OR DROP CLOTH, WHEN FUELING TO CATCH SPILLS/LEAKS. PLACE A STOCKPILE OF SPILL CLEANUP MATERIALS WHERE IT WILL BE READILY ACCESSIBLE. USE ADSORBENT MATERIALS ON SMALL SPILLS RATHER THAN HOSING DOWN OR BURYING THE SPILL. REMOVE THE ADSORBENT MATERIALS PROMPTLY AND DISPOSE OF PROPERLY.
- CARRY OUT ALL FEDERAL AND STATE REQUIREMENTS REGARDING STATIONARY ABOVE GROUND STORAGE TANKS. (40 CF SUB. J) AVOID MOBILE FUELING OF MOBILE CONSTRUCTION EQUIPMENT AROUND THE SITE; RATHER, TRANSPORT THE EQUIPMENT TO DESIGNATED FUELING AREAS. WITH THE EXCEPTION OF TRACKED EQUIPMENT SUCH AS BULLDOZERS AND PERHAPS FORKLIFTS, MOST VEHICLES SHOULD BE ABLE TO TRAVEL TO A DESIGNATED AREA WITH LITTLE LOST TIME. TRAIN EMPLOYEES AND SUBCONTRACTORS IN PROPER FUELING AND CLEANUP PROCEDURES.

LIMITATIONS:
- SENDING VEHICLES/EQUIPMENT OFF-SITE SHOULD BE DONE IN CONJUNCTION WITH STABILIZED CONSTRUCTION ENTRANCE.

MAINTENANCE:
- KEEP AMPLE SUPPLIES OF SPILL CLEANUP MATERIALS ON-SITE.
- INSPECT FUELING AREAS AND STORAGE TANKS ON A REGULAR SCHEDULE.

OBJECTIVES
- ☒ HOUSEKEEPING PRACTICES
- ☐ CONTAIN WASTE
- ☐ MINIMIZE DISTURBED AREAS
- ☐ STABILIZE DISTURBED AREAS
- ☐ PROTECT SLOPE/CHANNELS
- ☐ CONTROL SITE PERIMETER
- ☐ CONTROL INTERNAL EROSION

TARGETED POLLUTANTS
- ☐ SEDIMENT
- ☐ NUTRIENTS
- ☒ TOXIC MATERIALS
- ☒ OIL & GREASE
- ☐ FLOATABLE MATERIALS
- ☐ OTHER WASTE

■ HIGH IMPACT
☒ MEDIUM IMPACT
☐ LOW OR UNKNOWN IMPACT

IMPLEMENTATION REQUIREMENTS
- ☒ CAPITAL COSTS
- ☐ O&M COSTS
- ☒ MAINTENANCE
- ☒ TRAINING

■HIGH ☒MEDIUM ☐LOW

BMP: PRESERVATION OF EXISTING VEGETATION

GENERAL DESCRIPTION:
CAREFULLY PLANNED PRESERVATION OF EXISTING VEGETATION MINIMIZES THE POTENTIAL OF REMOVING OR INJURING EXISTING TREES, VINES, SHRUBS, AND/OR GRASSES THAT SERVE AS EROSION CONTROLS.

APPLICATIONS:
THIS TECHNIQUE IS APPLICABLE TO ALL TYPES OF SITES. AREAS WHERE PRESERVING VEGETATION CAN BE PARTICULARLY BENEFICIAL ARE FLOODPLAINS, WETLANDS, STREAM BANKS, STEEP SLOPES, AND OTHER AREAS WHERE EROSION CONTROLS WOULD BE DIFFICULT TO ESTABLISH, INSTALL, OR MAINTAIN.

INSTALLATION / APPLICATION CRITERIA:
- CLEARLY MARK, FLAG OR FENCE VEGETATION OR AREAS WHERE VEGETATION SHOULD BE PRESERVED.
- PREPARE LANDSCAPING PLANS WHICH INCLUDE AS MUCH EXISTING VEGETATION AS POSSIBLE AND STATE PROPER CARE DURING AND AFTER CONSTRUCTION.
- DEFINE AND PROTECT WITH BERMS, FENCING, SIGNS, ETC. A SETBACK AREA FROM VEGETATION TO BE PRESERVED.
- PROPOSE LANDSCAPING PLANS WHICH DO NOT INCLUDE PLANT SPECIES THAT COMPETE WITH THE EXISTING VEGETATION.
- DO NOT LOCATE CONSTRUCTION TRAFFIC ROUTES, SPOIL PILES, ETC. WHERE SIGNIFICANT ADVERSE IMPACT ON EXISTING VEGETATION MAY OCCUR.

LIMITATIONS:
- REQUIRES FORWARD PLANNING BY THE OWNER/DEVELOPER, CONTRACTOR AND DESIGN STAFF.
- FOR SITES WITH DIVERSE TOPOGRAPHY, IT IS OFTEN DIFFICULT AND EXPENSIVE TO SAVE EXISTING TREES WHILE GRADING THE SITE SATISFACTORILY FOR THE PLANNED DEVELOPMENT.
- MAY NOT BE COST EFFECTIVE WITH HIGH LAND COSTS.

MAINTENANCE:
- INSPECTION AND MAINTENANCE REQUIREMENTS FOR PROTECTION OF VEGETATION ARE LOW.
- MAINTENANCE OF NATIVE TREES OR VEGETATION SHOULD CONFORM TO LANDSCAPE PLAN SPECIFICATIONS.

OBJECTIVES
- ☐ HOUSEKEEPING PRACTICES
- ☐ CONTAIN WASTE
- ☒ MINIMIZE DISTURBED AREAS
- ☒ STABILIZE DISTURBED AREAS
- ☒ PROTECT SLOPE/CHANNELS
- ☒ CONTROL SITE PERIMETER
- ☐ CONTROL INTERNAL EROSION

TARGETED POLLUTANTS
- ■ SEDIMENT
- ☐ NUTRIENTS
- ☐ TOXIC MATERIALS
- ☐ OIL & GREASE
- ☐ FLOATABLE MATERIALS
- ☐ OTHER WASTE

■ HIGH IMPACT
☒ MEDIUM IMPACT
☐ LOW OR UNKNOWN IMPACT

IMPLEMENTATION REQUIREMENTS
- ☒ CAPITAL COSTS
- ☐ O&M COSTS
- ☐ MAINTENANCE
- ☐ TRAINING

■HIGH ☒MEDIUM ☐LOW

BMP: MATERIALS STORAGE

1. CONTROLLED STORAGE LOCATION
2. BERM AROUND PERIMETER IMPOUNDMENT
3. STORAGE OFF GROUND
4. COVER WHEN NOT IN USE

DESCRIPTION:
CONTROLLED STORAGE OF ON-SITE MATERIALS.

APPLICATION:
- STORAGE OF HAZARDOUS, TOXIC, AND ALL OTHER CHEMICAL SUBSTANCES.
- ANY CONSTRUCTION SITE WITH OUTSIDE STORAGE OF MATERIALS.

INSTALLATION/APPLICATION CRITERIA:
- DESIGNATE A SECURED AREA WITH LIMITED ACCESS AS THE STORAGE LOCATION. ENSURE NO WATERWAYS OR DRAINAGE PATHS ARE NEARBY.
- CONSTRUCT COMPACTED EARTHEN BERM (SEE EARTH BERM BARRIER INFORMATION SHEET OR SIMILAR PERIMETER CONTAINMENT AROUND STORAGE LOCATION FOR IMPOUNDMENT IN THE CASE OF SPILLS.
- ENSURE ALL ON-SITE PERSONNEL UTILIZE DESIGNATED STORAGE AREA. DO NOT STORE EXCESSIVE AMOUNTS OF MATERIAL THAT WILL NOT BE UTILIZED ON SITE.
- FOR ACTIVE USE OF MATERIALS AWAY FROM THE STORAGE AREA ENSURE MATERIALS ARE NOT SET DIRECTLY ON THE GROUND AND ARE COVERED WHEN NOT IN USE. PROTECT STORM DRAINAGE DURING USE.

LIMITATIONS:
- DOES NOT PREVENT CONTAMINATION DUE TO MISHANDLING OF PRODUCTS.
- SPILL PREVENTION AND RESPONSE PLAN STILL REQUIRED.
- ONLY EFFECTIVE IF MATERIALS ARE ACTIVELY STORED IN CONTROLLED LOCATION.

MAINTENANCE:
- INSPECT DAILY AND REPAIR ANY DAMAGE TO PERIMETER IMPOUNDMENT OR SECURITY FENCING.
- VERIFY THAT ALL MATERIALS ARE BEING CORRECTLY STORED (I.E. STANDING UPRIGHT, IN LABELED CONTAINERS, TIGHTLY CAPPED) AND THAT NO MATERIALS ARE BEING STORED AWAY FROM THE DESIGNATED LOCATION.

OBJECTIVES
- ☒ HOUSEKEEPING PRACTICES
- ☒ CONTAIN WASTE
- ☐ MINIMIZE DISTURBED AREAS
- ☐ STABILIZE DISTURBED AREAS
- ☐ PROTECT SLOPES/CHANNELS
- ☐ CONTROL SITE PERIMETER
- ☐ CONTROL INTERNAL EROSION

TARGETED POLLUTANTS
- ☐ SEDIMENT
- ☐ NUTRIENTS
- ■ TOXIC MATERIALS
- ☐ OIL & GREASE
- ☐ FLOATABLE MATERIALS
- ☒ OTHER WASTE

■ HIGH IMPACT
☒ MEDIUM IMPACT
☐ LOW OR UNKNOWN IMPACT

IMPLEMENTATION REQUIRED
- ☒ CAPITAL COSTS
- ☒ O&M COSTS
- ☒ MAINTENANCE
- ■ TRAINING

■HIGH ☒MEDIUM ☐LOW

BMP: SILT FENCE

DESCRIPTION:
A TEMPORARY SEDIMENT BARRIER CONSISTING OF ENTRENCHED FILTER FABRIC STRETCHED ACROSS AND SECURED TO SUPPORTING POSTS.

APPLICATION:
- PERIMETER CONTOL: PLACE BARRIER AT DOWNGRADIENT LIMITS OF DISTURBANCE
- SEDIMENT BARRIER: PLACE BARRIER AT TOE OF SLOPE OR SOIL STOCKPILE
- PROTECTION OF EXISTING WATERWAYS: PLACE BARRIER NEAR TOP OF STREAM BANK
- INLET PROTECTION: PLACE FENCE SURROUNDING CATCHBASINS

INSTALLATION / APPLICATION CRITERIA:
- PLACE POSTS 6 FEET APART ON CENTER ALONG CONTOUR (OR USE PREASSEMBLED UNIT) AND DRIVE 1 FOOT MINIMUM INTO GROUND. EXCAVATE AN ANCHOR TRENCH IMMEDIATELY UPGRADIENT OF POSTS.
- SECURE WIRE MESH (14 GAGE MIN. WITH 6 INCH OPENINGS) TO UPSLOPE SIDE OF POSTS. ATTACH WITH HEAVY DUTY 1 INCH LONG WIRE STAPLES, TIE WIRES OR HOG RINGS.
- CUT FABRIC TO REQUIRED WIDTH, UNROLL ALONG LENGTH OF BARRIER AND DRAPE OVER BARRIER. SECURE FABRIC TO MESH WITH TWINE, STAPLES, OR SIMILAR, WITH TRAILING EDGE EXTENDING INTO ANCHOR TRENCH.
- BACKFILL TRENCH OVER FILTER FABRIC TO ANCHOR.

LIMITATIONS:
- RECOMMEND MAXIMUM DRAINAGE AREA OF 0.5 ACRE PER 100 FEET OF FENCE
- RECOMMEND MAXIMUM UPGRADIENT SLOPE LENGTH OF 150 FEET
- RECOMMEND MAXIMUM UPHILL GRADE OF 2:1 (50%)
- RECOMMEND MAXIMUM FLOW RATE OF 0.5 CFS
- PONDING SHOULD NOT BE ALLOWED BEHIND FENCE

MAINTENANCE:
- INSPECT IMMEDIATELY AFTER ANY RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
- LOOK FOR RUNOFF BYPASSING ENDS OF BARRIERS OR UNDERCUTTING BARRIERS.
- REPAIR OR REPLACE DAMAGED AREAS OF THE BARRIER AND REMOVE ACCUMULATED SEDIMENT.
- REANCHOR FENCE AS NECESSARY TO PREVENT SHORTCUTTING.
- REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ½ THE HEIGHT OF THE FENCE.

APPLICATIONS
- ☐ HOUSEKEEPING PRACTICES
- ☐ CONTAIN WASTE
- ☐ MINIMIZE DISTURBED AREAS
- ☐ STABILIZE DISTURBED AREAS
- ☒ PROTECT SLOPES/CHANNNELS
- ☒ CONTROL SITE PERIMETER
- ☒ CONTROL INTERNAL EROSION

TARGETED POLLUTANTS
- ■ SEDIMENT
- ☐ NUTRIENTS
- ☐ TOXIC MATERIALS
- ☐ OIL & GREASE
- ☐ FLOATABLE MATERIALS
- ☐ OTHER WASTE

■ HIGH IMPACT
☒ MEDIUM IMPACT
☐ LOW OR UNKNOWN IMPACT

IMPLEMENTATION REQUIREMENTS
- ☒ CAPITAL COSTS
- ☒ O&M COSTS
- ☒ MAINTENANCE
- ☐ TRAINING

■HIGH ☒MEDIUM ☐LOW

BMP: STABILIZED CONSTRUCTION ENTRANCE AND WASH AREA

DESCRIPTION:
A STABILIZED PAD OF CRUSHED STONE LOCATED WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES THE SITE FROM OR TO THE PAVED SURFACE. THE AREA CAN BE USED TO SPRAY OFF VEHICLES BEFORE THEY LEAVE THE SITE.

APPLICATION:
AT ANY POINT OF INGRESS OR EGRESS AT A CONSTRUCTION SITE WHERE ADJACENT TRAVELED WAY IS PAVED. GENERALLY APPLIES TO SITES OVER 2 ACRES UNLESS SPECIAL CONDITIONS EXIST.

INSTALLATION/APPLICATION CRITERIA:
- CLEAR AND GRUB AREA AND GRADE TO PROVIDE MAXIMUM SLOPE OF 2%.
- COMPACT SUB GRADE AND PLACE FILTER FABRIC IF DESIRED (RECOMMENDED FOR ENTRANCES TO REMAIN FOR MORE THAN 3 MONTHS).
- PLACE COARSE AGGREGATE, 1 TO 2 1/2 INCHES IN SIZE, TO A MINIMUM DEPTH OF 8 INCHES.
- PROVIDE WATER TO THE AREA THAT CAN BE USED TO SPRAY OFF VEHICLES AS NEEDED TO PREVENT THE TRACKING OF MUD OFF OF THE CONSTRUCTION SITE. THIS MAY NOT BE NEEDED DURING DRY PERIODS OF WORK, BUT IS NEEDED WHEN CONSTRUCTION IS PROCEEDING UNDER WET CONDITION.
- PROVIDE BERMS AS NEEDED TO PREVENT SEDIMENT LADEN WASH WATER FROM ENTERING STORM WATER FACILITIES OR OTHER WATER BODIES, OR LEAVING THE SITE.

LIMITATIONS:
- REQUIRES PERIODIC TOP DRESSING WITH ADDITIONAL STONES.
- SHOULD BE USED IN CONJUNCTION WITH STREET SWEEPING ON ADJACENT PUBLIC RIGHT-OF-WAY.
- MUST BE SITUATED SUCH THAT WASTE WATER DOES NOT RUN OFF SITE.

MAINTENANCE:
- INSPECT DAILY FOR LOSS OF GRAVEL OR SEDIMENT BUILDUP.
- INSPECT ADJACENT ROADWAY FOR SEDIMENT DEPOSIT AND CLEAN BY SHOVELING AND SWEEPING.
- REPAIR ENTRANCE AND REPLACE GRAVEL AS REQUIRED TO MAINTAIN CONTROL IN GOOD WORKING CONDITION.
- EXPAND STABILIZED AREA AS REQUIRED TO ACCOMMODATE TRAFFIC AND PREVENT EROSION AR DRIVEWAYS.

OBJECTIVES
- ☒ HOUSEKEEPING PRACTICES
- ☐ CONTAIN WASTE
- ☐ MINIMIZE DISTURBED AREAS
- ☐ STABILIZE DISTURBED AREAS
- ☐ PROTECT SLOPES/CHANNELS
- ☒ CONTROL SITE PERIMETER
- ☐ CONTROL INTERNAL EROSION

TARGETED POLLUTANTS
- ■ SEDIMENT
- ☐ NUTRIENTS
- ☐ TOXIC MATERIALS
- ☐ OIL & GREASE
- ☐ FLOATABLE MATERIALS
- ☐ OTHER CONSTRUCTION WASTE

■ HIGH IMPACT
☒ MEDIUM IMPACT
☐ LOW OR UNKNOWN IMPACT

IMPLEMENTATION REQUIRED
- ☒ CAPITAL COSTS
- ☒ O&M COSTS
- ☒ MAINTENANCE
- ☐ TRAINING

■HIGH ☒MEDIUM ☐LOW

BMP: Inlet Protection - Silt Fence or Straw Bale

IPS

SEE INDIVIDUAL BMP INFORMATION SHEETS FOR INSTRUCTIONS FOR CONSTRUCTION OF STRAW BALE BARRIER AND SILT FENCE.

Description:
Sediment barrier erected around storm drain inlet.

Application:
Construct at storm drainage inlets located downgradient of areas to be disturbed by construction (for inlets in paved areas see other information sheets for inlet protection).

Installation/Application Criteria:
- Provide upgradient sediment controls, such as silt fence during construction of inlet.
- When construction of inlet is complete, erect straw bale barrier or silt fence surrounding perimeter of inlet. Follow instructions and guidelines on individual BMP information sheets for straw bale barrier and silt fence construction.

Limitations:
- Recommended maximum contributing drainage area of one acre.
- Limited to inlets located in open unpaved areas.
- Requires shallow slopes adjacent to inlet.

Maintenance:
- Inspect inlet protection following storm event and at a minimum of once monthly.
- Remove accumulated sediment when it reaches 4-inches in depth.
- Repair or realign barrier/fence as needed.
- Look for bypassing or undercutting and recompact soil around barrier/fence as required.

Objectives
- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

Targeted Pollutants
- ■ Sediment
- ☐ Nutrients
- ☐ Toxic Materials
- ☐ Oil & Grease
- ■ Floatable Materials
- ☐ Other Waste

■ High Impact
☒ Medium Impact
☐ Low or Unknown Impact

Implementation Requirements
- ☒ Capital Costs
- ☐ O&M Costs
- ☒ Maintenance
- ☐ Training

■ High ☒ Medium ☐ Low

CONSULTING ENGINEERS AND SURVEYORS
GILSON ENGINEERING INC.
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5440 SOUTH 1700 WEST
RIVERDALE, UT. 84405
PHONE: (801)773-1191
FAX: (801)773-0091

REV	DATE	BY	COMMENTS

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: 12-10-09
DRAWING NAME: DIRECTORY1 DIRECTORY2
DESIGNED/DRAWN BY: JMC
CHECKED: JJ
APPROVED: JJ

BMP DETAILS
UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY RENOVATION
985 NORTH 500 WEST BRIGHAM CITY, UTAH 84302-1540

REVISION: A
PROJ. # EFT.010
ER.102

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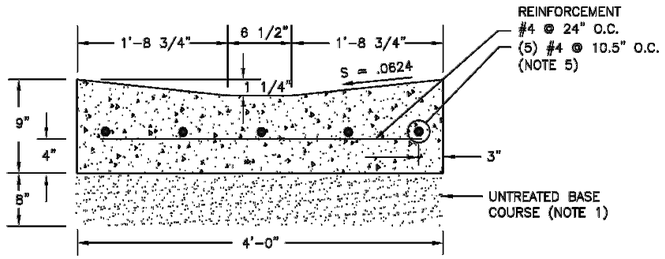
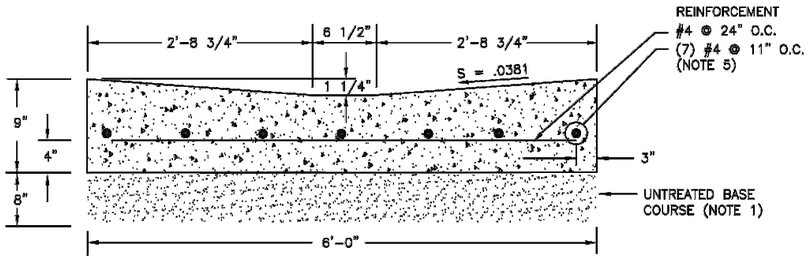


CONCRETE AREA = 2.764 SQ. FT.

4'-0" WATERWAY



CONCRETE AREA = 4.16 SQ. FT.

6'-0" WATERWAY

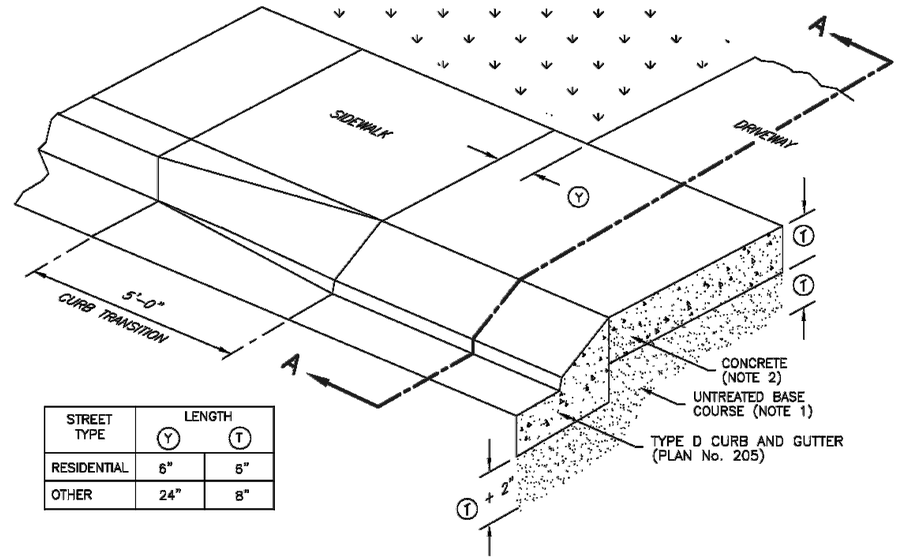
Plan No.
211

Waterway

January 2003

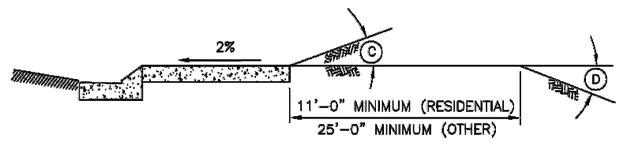
31

4' WATER WAY 1 / C.102
SCALE: 1" = 1'



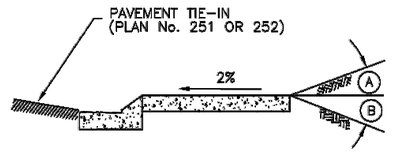
STREET TYPE	LENGTH Y	LENGTH T
RESIDENTIAL	6"	6"
OTHER	24"	8"

OBLIQUE



STREET TYPE	BREAKOVER ANGLE (MAXIMUM) C	BREAKOVER ANGLE (MAXIMUM) D
RESIDENTIAL	16%	13%
OTHER	6%	10%

SECTION A-A – APPROACH REQUIRING SERVICE TRUCK ACCESS



STREET TYPE	BREAKOVER ANGLE (MAXIMUM) A	BREAKOVER ANGLE (MAXIMUM) B
RESIDENTIAL	16%	12%
OTHER	6%	8%

SECTION A-A – TYPICAL DRIVEWAY APPROACH

Plan No.
216

Mountable curb driveway approach

December 2005

37

DRIVEWAY APPROACH 2 / C.102
SCALE: 1" = 1'

CONSULTING ENGINEERS AND SURVEYORS
GILSON ENGINEERING INC.
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FAX: (801) 773-0091

REVISIONS

REV	DATE	BY	COMMENTS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: 12-10-09
DRAWING NAME: EFT.010...PLANSET/D101 D102
DESIGNED/DRAWN BY: JMC
CHECKED: JJ
APPROVED: JJ

DETAILS

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY RENOVATION
985 NORTH 500 WEST BRIGHAM CITY, UTAH 84302-1540

REVISION: A
PROJ. # EFT.010
D.101

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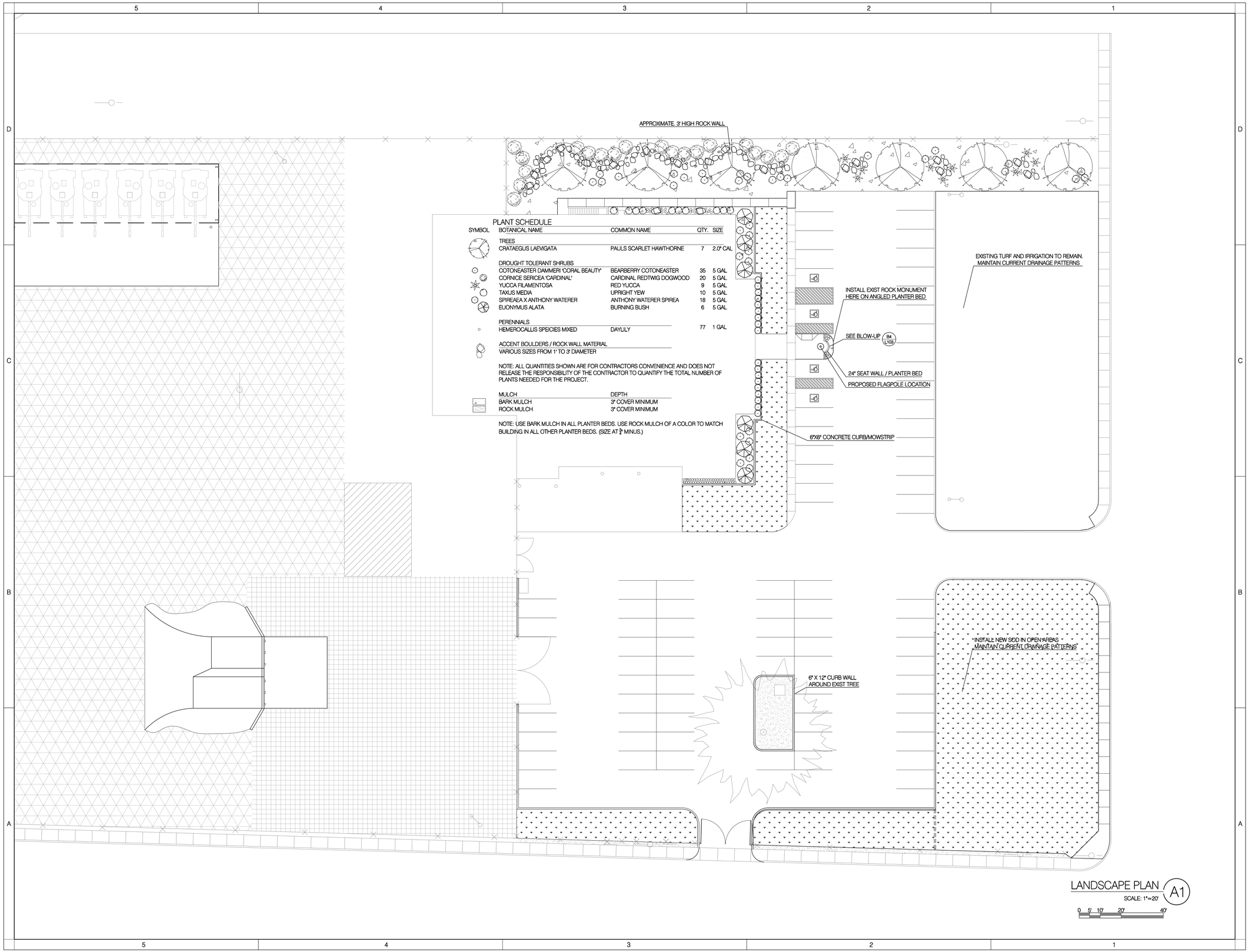

PLANT SCHEDULE

SYMBOL	BOTANICAL NAME	COMMON NAME	QTY.	SIZE
	TREES			
	CRATAEGUS LAEVIGATA	PAULS SCARLET HAWTHORNE	7	2.0" CAL
	DROUGHT TOLERANT SHRUBS			
	COTONEASTER DAMMERI 'CORAL BEAUTY'	BEARBERRY COTONEASTER	35	5 GAL
	CORNICE SERICEA 'CARDINAL'	CARDINAL REDTWIG DOGWOOD	20	5 GAL
	YUCCA FILAMENTOSA	RED YUCCA	9	5 GAL
	TAXUS MEDIA	UPRIGHT YEW	10	5 GAL
	SPIREAEA X ANTHONY WATERER	ANTHONY WATERER SPIREA	18	5 GAL
	EUONYMUS ALATA	BURNING BUSH	6	5 GAL
	PERENNIALS			
	HEMEROCALLIS SPEICIES MIXED	DAYLILY	77	1 GAL
	ACCENT BOULDERS / ROCK WALL MATERIAL			
	VARIOUS SIZES FROM 1' TO 3' DIAMETER			

NOTE: ALL QUANTITIES SHOWN ARE FOR CONTRACTORS CONVENIENCE AND DOES NOT RELEASE THE RESPONSIBILITY OF THE CONTRACTOR TO QUANTIFY THE TOTAL NUMBER OF PLANTS NEEDED FOR THE PROJECT.

MULCH	DEPTH
BARK MULCH	3" COVER MINIMUM
ROCK MULCH	3" COVER MINIMUM

NOTE: USE BARK MULCH IN ALL PLANTER BEDS. USE ROCK MULCH OF A COLOR TO MATCH BUILDING IN ALL OTHER PLANTER BEDS. (SIZE AT $\frac{3}{4}$" MINUS.)

LANDSCAPE PLAN A1

SCALE: 1"=20'

0 5' 10' 20' 40'

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

CONSULTANT INFORMATION

STATE OF UTAH
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129665
LICENSED ARCHITECT
12.15.09

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY
RENOVATION
985 NORTH 500 WEST
BRIGHAM CITY, UTAH 84302-1540

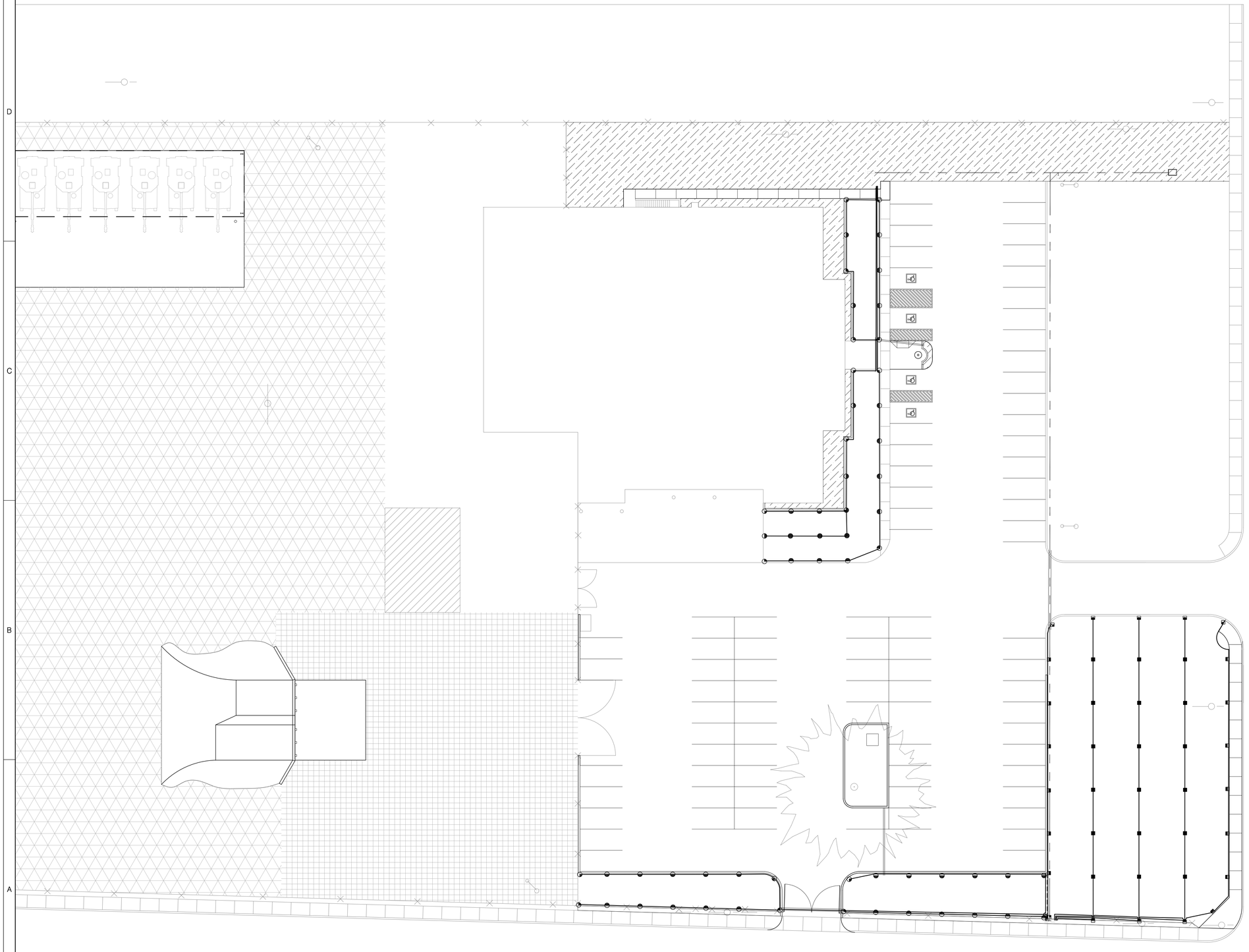
SHEET TITLE

LANDSCAPE PLAN

	DATE	BY	DESCRIPTION
△	-	-	-
△	-	-	-
△	-	-	-
△	-	-	-

DRAWN BY CTT	CHECKED BY ERT
PROJECT NO. 09226470	DRAWING NO. L101
DATE 12.15.09	

Utah National Guard - Brigham City Armory - Renovation



LANDSCAPE PLAN A1

SCALE: 1"=20'

0 5' 10' 20' 40'

EFT
ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

CONSULTANT INFORMATION

STATE OF UTAH
ERIC R. THOLEN
129665
LICENSED ARCHITECT
12.15.09

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY
RENOVATION
985 NORTH 500 WEST
BRIGHAM CITY, UTAH 84302-1540

SHEET TITLE
IRRIGATION PLAN

	DATE	BY	DESCRIPTION
1	-	-	-
2	-	-	-
3	-	-	-
4	-	-	-

DRAWN BY CTT
CHECKED BY ERT
PROJECT NO. 09226470
DRAWING NO. L102
DATE 12.15.09

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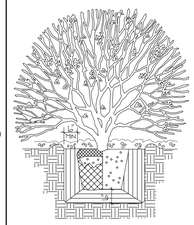


PROVIDE WATER SAUCER AT LIP OF EACH HOLE UNDER MULCH.

3" DEEP SHREDDED BARK MULCH.

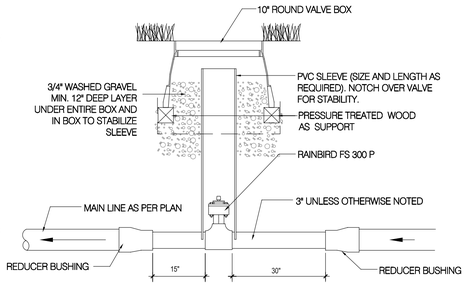
SCARIFY SIDES OF HOLE IF AUGURED.

CUT AND LAY BACK BURLAP FROM TOP 1/3 OF BALL OR REMOVE FROM METAL CONTAINER, OR IF BARE ROOT STOCK SPREAD ROOTS IN THEIR NORMAL POSITION.

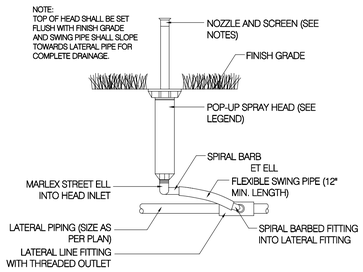
PLANTING MIX TO CONSIST OF 1/3 NATIVE SOIL FROM ORIGINAL HOLE, 1/3 SAND, AND 1/3 HUMUS i.e. PEAT OR SOIL-AID. MIX THOROUGHLY AND PLACE 6" ALL AROUND.

ON LEGGY SHRUBS WHERE GROUND COVER IS USED, PLANT GROUND COVER UP TO TRUNK.

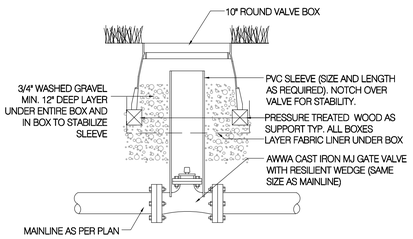
SHRUB DETAIL D5
SCALE: NO SCALE



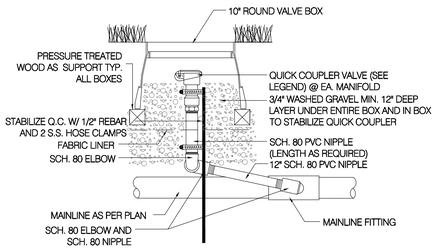
FLOW SENSOR D4
SCALE: NO SCALE



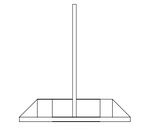
POP-UP SPRAY HEAD D3
SCALE: NO SCALE

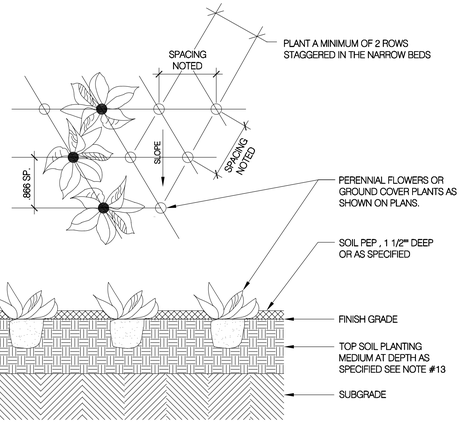


MAINLINE ISOLATION VALVE D2
SCALE: NO SCALE

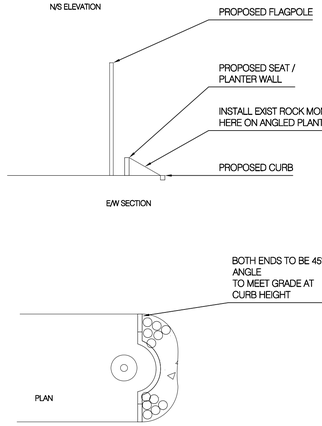


QUICK COUPLER VALVE D1
SCALE: NO SCALE

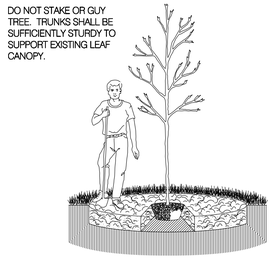




PERENNIAL PLANTING DE
LE B5



SEAT WALL DETAIL B4
SCALE: NO SCALE



THIS APPLIES TO ALL CONIFER. & DECID. TREES.

AMEND SOIL WITH ONE LARGE BALE OF PEAT PER TREE PIT. DISTRIBUTE UNIFORMLY INTO TOP 12" OF ROTO-TILLED SOIL THROUGHOUT PIT.

REMOVE ALL ROPES, CORDS & WIRE BASKETS FROM ROOT BALLS.

TREES WITH INJURED TRUNKS WILL BE REJECTED OUTRIGHT.

APPLY ANTI-DESSICANT SPRAY. THIN BRANCHES BY 1/3. TREES WITH CUT LEADERS WILL BE REJECTED.

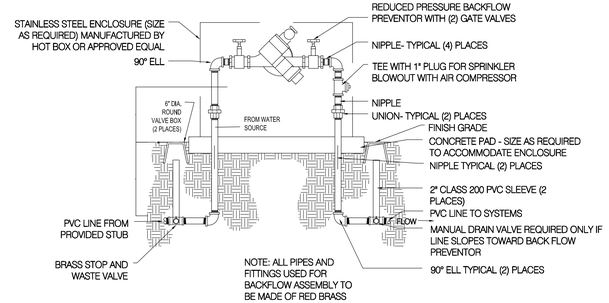
REMOVE SHIPPERS TREE WRAP BEFORE FINAL ACCEPTANCE.

PLANTING AREA SHALL BE 3 TO 5 TIMES ROOT BALL DIAMETER. USE A ROTO-TILLER OR SHOVEL TO LOOSEN & MIX SOIL IN THIS ENTIRE AREA. DIG A SHALLOW HOLE IN WHICH TO STABILIZE ROOT BALL. SET BALL ON SOLID GROUND.

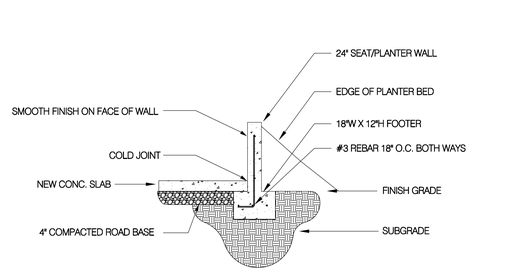
MAINTAIN 3' DIAMETER GRASS-FREE MULCH RING AROUND TRUNK IN LAWN AREAS.

3" MINIMUM LAYER OF SHREDDED BARK MULCH.

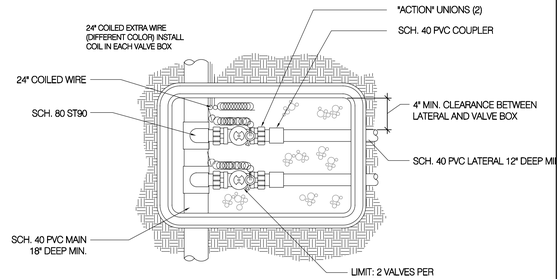
DECIDUOUS TREE DETAIL C3
SCALE: NO SCALE



BACK FLOW PREVENTION ASSEMBLY C1
SCALE: NO SCALE

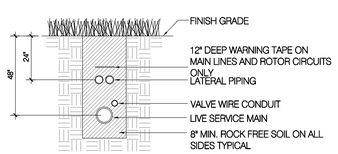


CONCRETE SEAT WALL DETAIL B3
SCALE: NO SCALE

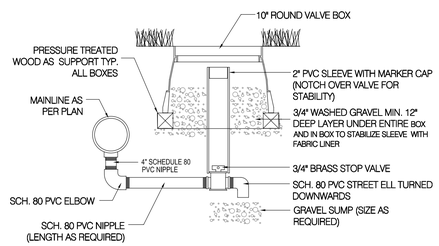


NOTE: INSTALL TAN COLORED VALVE BOXES IN PLANTING BEDS AND GREEN COLORED VALVE BOXES IN LAWN AREAS.

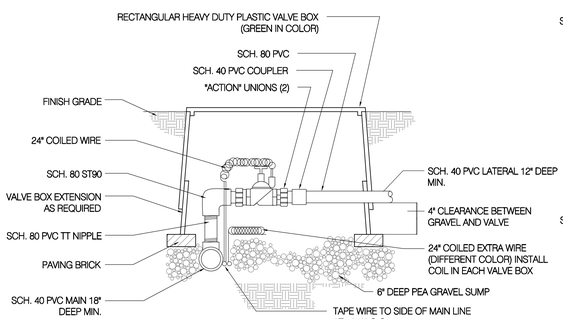
TOP VIEW OF VALVE ASSEMBLY

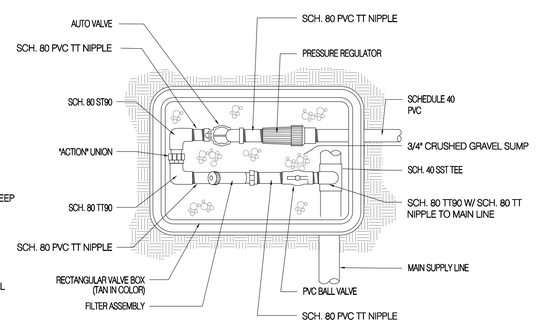


TRENCH DETAIL A5
SCALE: NO SCALE



MAINLINE DRAIN A4
SCALE: NO SCALE





CONTROL VALVE MANIFOLD A1
SCALE: NO SCALE

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CONSULTANT INFORMATION

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SHEET TITLE
LANDSCAPE DETAILS

	DATE	BY	DESCRIPTION
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DRAWN BY: CTT
CHECKED BY: ERT
PROJECT NO.: 09226470
DATE: 12.15.09
DRAWING NO.: L103

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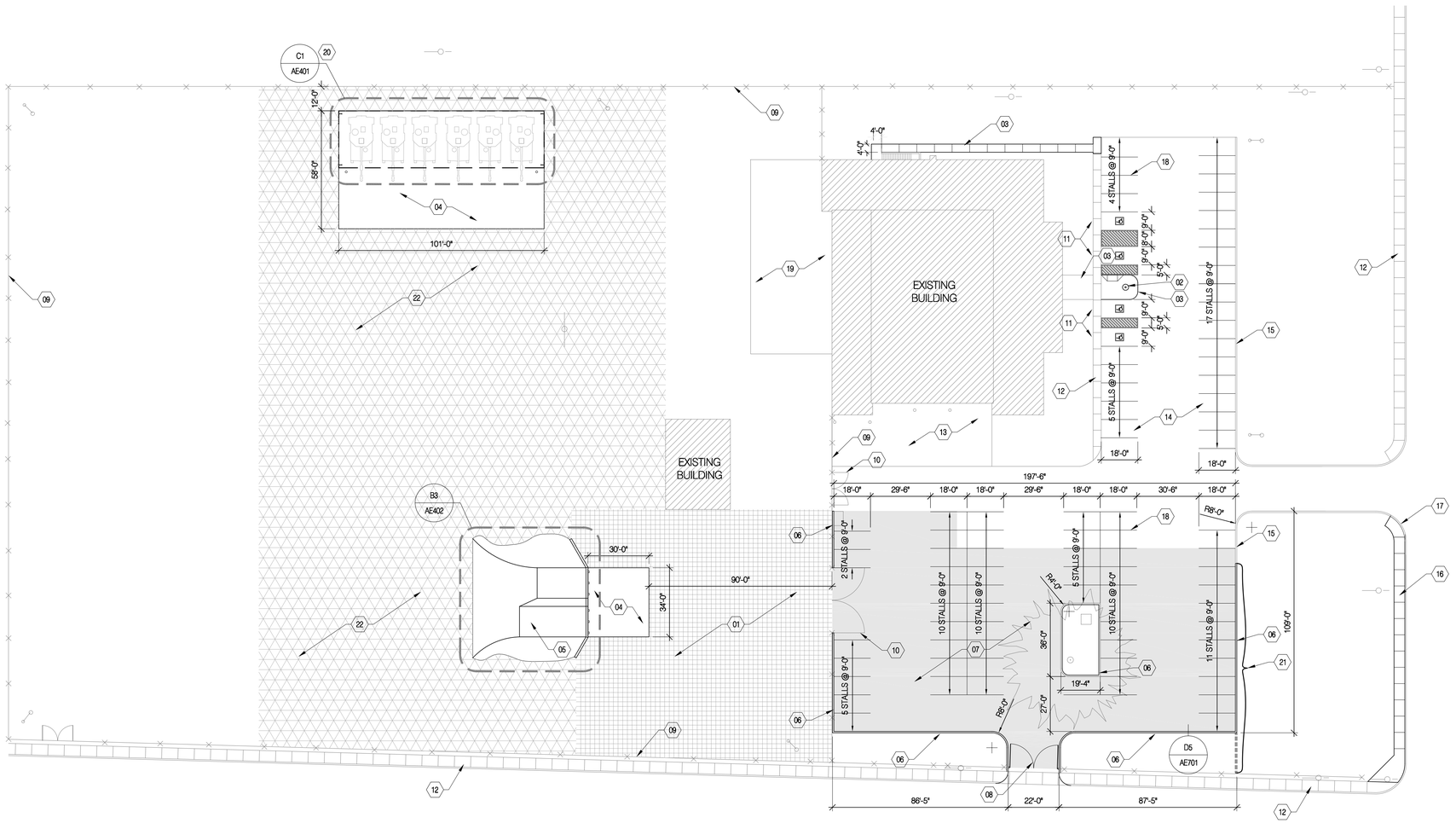

NORTH

SITE PLAN A1
SCALE: 1"=30'

0 7.5' 15' 30' 60'

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CONSULTANT INFORMATION

1. ROAD BASE OR CRUSHED AGGREG
   PULL FLAG POLE AND AND CONCRETE BASE
3. CONCRETE SIDEWALK
4. CONCRETE SLAB W/ 27 TON CAPACITY.
5. LOADING DOCK, CENTER DOCK ON ACCESS GATE, SEE AE402
6. CONCRETE CURB (ALTERNATE #1)
7. ASPHALT PAVING (ALTERNATE #1)
8. LOCKABLE CHAINLINK GATE TIE INTO EXISTING FENCE. (ALTERNATE #1)
9. EXISTING FENCE
10. EXISTING GATE REPAIR OR REPLACE DAMAGED PARTS
11. ADA SIGNAGE SEE A5/AE301
12. EXISTING SIDEWALK
13. EXISTING CONCRETE SLAB
14. EXISTING ASPHALT PAVING TO BE RESURFACED (ALTERNATE #2)
15. EXISTING CURB TO REMAIN
16. CONCRETE SIDEWALK, MATCH WIDTH OF EXISTING SIDEWALK TO THE NORTH ALONG THE ROAD.
17. ACCESSIBLE CURB CUT
18. STRIPE PARKING AS SHOWN
19. EXISTING ASPHALT PAVING
20. PALADIN SHED ROOF AND CONCRETE SLAB (ALTERNATE #4)
21. CONCRETE CURB INSTALLED TO FENCE LINE. (IF ALTERNATE #1 IS NOT PREFORMED)
22. ROAD BASE OR CRUSHED AGGREGATE. (ALTERNATE #3)

DRAWING LEGEND:

- ASPHALT PAVING (ALTERNATE #1)
- ROAD BASE OR CRUSHED AGGREGATE
- ROAD BASE OR CRUSHED AGGREGATE (ALTERNATE # 3)

GENERAL NOTES:

1. REPLACE EXISTING MAILBOX AT ROAD
2. ALL LANDSCAPING, SPRINKLER SYSTEMS, ASPHALT, CONCRETE WALKS, WALLS, FLOOR STRIPING, ECT. DAMAGED OR REMOVED TO MAKE SPACE FOR CONSTRUCTION TO BE REPAIRED OR REPLACED.
3. CONCRETE REMOVED, SHOULD BE REMOVED TO THE NEAREST EXPANSION JOINT
4. SITE VERIFY ALL DIMENSIONS.

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SHEET TITLE
SITE PLAN

	DATE	BY	DESCRIPTION
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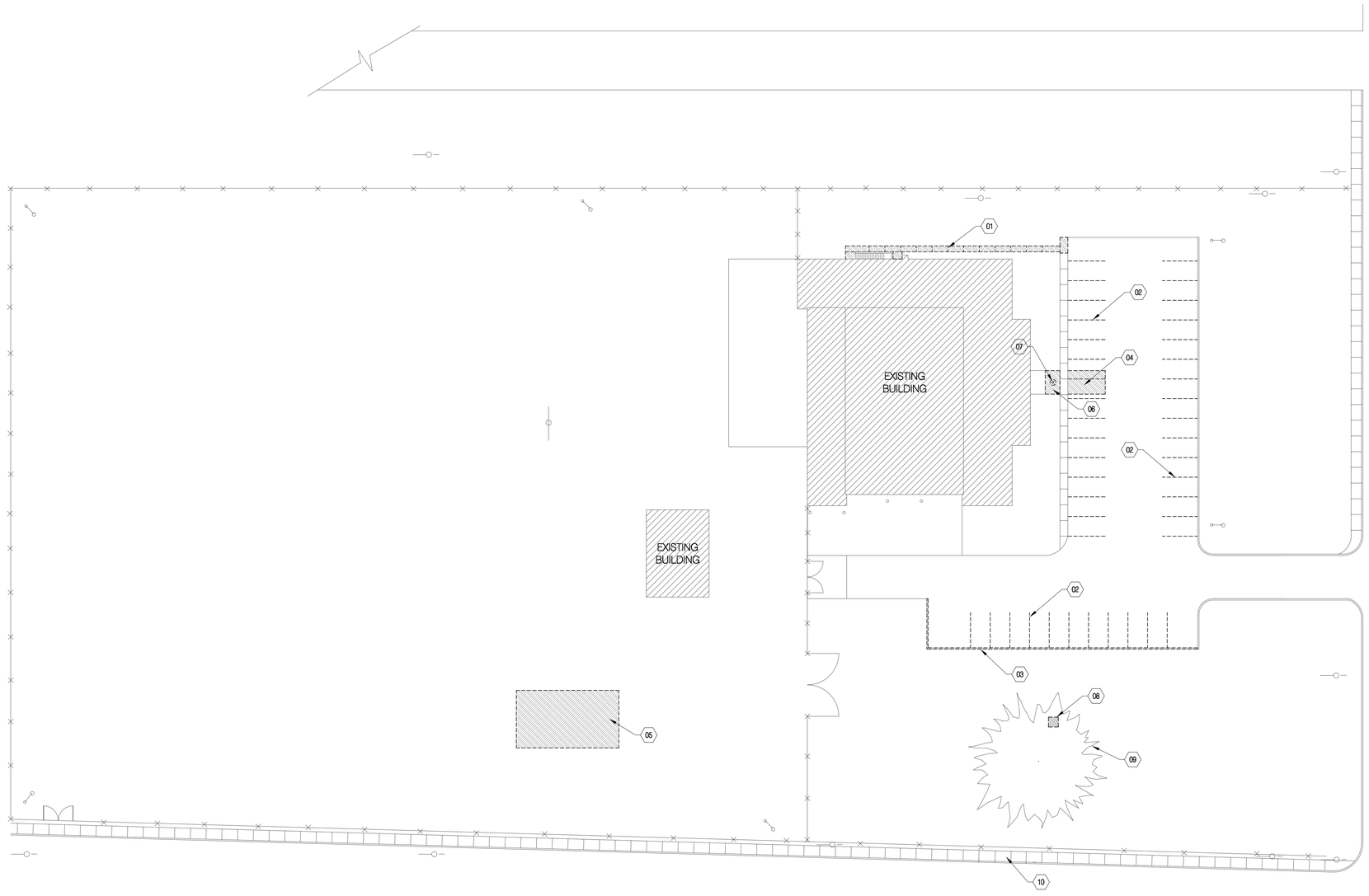

DEMO SITE PLAN A1

SCALE:1"=30'

0 7.5' 15' 30' 60'

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CONSULTANT INFORMATION

1. REMOVE CONCRETE SIDEWALK
2. REMOVE PARKING STRIPING
3. REMOVE CURB (ONLY WITH ALTERNATE #1)
4. REMOVE ASPHALT PAVING
5. REMOVE EXISTING DOCK
6. REMOVE CONCRETE SLAB AROUND FLAG POLE
7. REMOVE FLAG POLE AND CONCRETE BASE
8. REMOVE CONCRETE WALL AROUND WELL. PROTECT CONCRETE WELL ENCLOSURE.
9. EXISTING TREE TO REMAIN, PROTECT
10. DEMO CURB AND SIDEWALK AS NEEDED FOR NEW PARKING ENTRANCE.

GENERAL NOTES:

1. ALL LANDSCAPING, SI[illegible]S, ASPHALT, CONCRETE WALKS, WALLS, FLOOR STRIPING, ECT. DAMAGED OR REMOVED TO MAKE SPACE FOR CONSTRUCTION TO BE REPAIRED OR REPLACED.
2. CONCRETE REMOVED, SHOULD BE REMOVED TO THE NEAREST EXPANSION JOINT

STATE OF UTAH
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SHEET TITLE
SITE DEMO PLAN

	DATE	BY	DESCRIPTION
1	-	-	-
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PROJECT NO. 09226470
DRAWING NO. AD100
DATE 12.15.09

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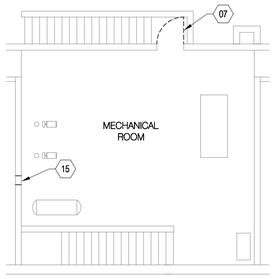
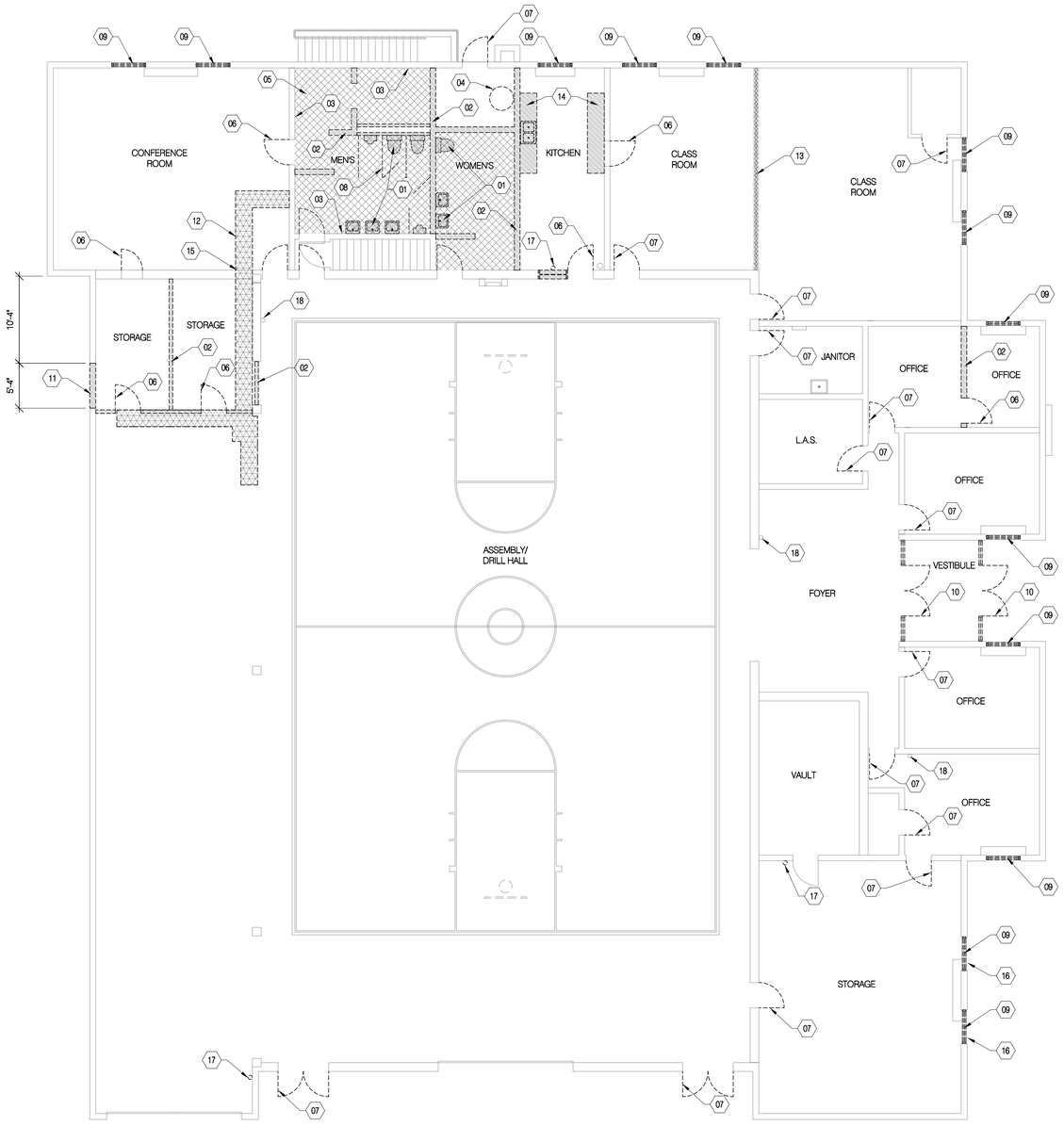


LOWER LEVEL DEMO PLAN D5

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

0 2' 4' 8' 16'



MAIN LEVEL DEMO PLAN A1

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

0 2' 4' 8' 16'

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CONSULTANT INFORMATION

1. REMOVE EXISTING FIXTURES SHOWN DASHED AND ASSOCIATED PLUMBING.
2. REMOVE EXISTING WALLS SHOWN DASHED
3. REMOVE EXISTING TILE FROM MASONRY WALLS - TAKE CARE NOT TO DAMAGE MASONRY WALLS.
4. REMOVE EXISTING WATER HEATER & ASSOCIATED VENT PIPE
5. REMOVE EXISTING FLOOR TILE AND THICK SET IN AREA SHOWN HATCHED
6. REMOVE EXISTING DOOR, FRAME & HARDWARE
7. REMOVE EXISTING DOOR, HARDWARE LEAVE FRAME FOR REUSE.
8. REMOVE EXISTING TOILET PARTITIONS
9. REMOVE EXISTING WINDOWS
10. REMOVE EXISTING STEEL FRAME DOOR AND SIDELITE SYSTEM
11. SAW CUT AND REMOVE C.M.U. SIZE TO ACCEPT INSTALLATION OF DOOR : SEE DOOR SCHEDULE
12. SAW CUT AND REMOVE CONCRETE SLAB IN PREPARATION TO INSTALL PLUMBING.
13. REMOVE OPERABLE PARTITION
14. REMOVE EXISTING KITCHEN EQUIPMENT AND RELATED ELECTRICAL AND PLUMBING SALVAGE AND PROTECT FOR REINSTALLATION
15. CORE OUT FOUNDATION FOR PLUMBING LOCATE AS NEEDED FOR PLUMBING INSTALLATION
16. REMOVE EXISTING SECURITY BARS SAVE AND PROTECT TO BE REFINISHED AND REINSTALLED
17. REMOVE FIRE EXTINGUISHER, TO BE SALVAGED AND REINSTALLED TO NEW LOCATION.
18. FIRE EXTINGUISHER TO REMAIN

GENERAL NOTES:

1. REMOVE CARPET FROM THE OFFICES AND CONFERENCE ROOM.
2. ALL LANDSCAPING, SPRINKLER SYSTEMS, ASPH/ S, WALLS, FLOOR STRIPING, ECT. DAMAGED OR REMOVED TO MAKE SPACE FOR CONSTRUCTION TO BE REPAIRED OR REPLACED.
3. CONCRETE REMOVED, SHOULD BE REMOVED TO THE NEAREST EXPANSION JOINT

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SHEET TITLE
MAIN LEVEL DEMO PLAN

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DRAWING NO. AD101
DATE 12.15.09

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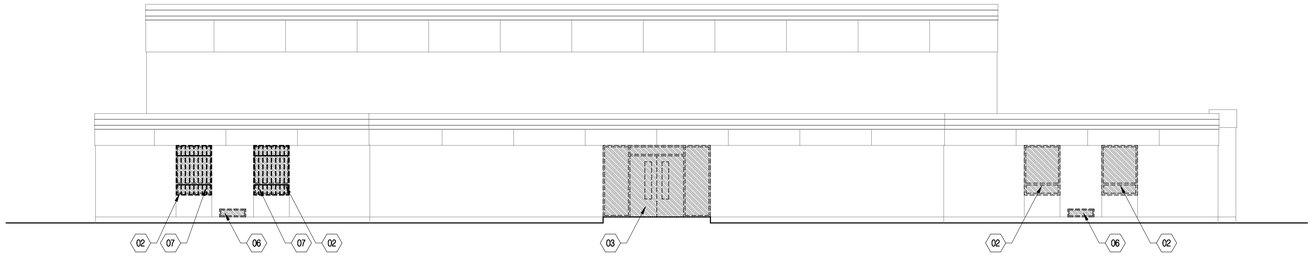
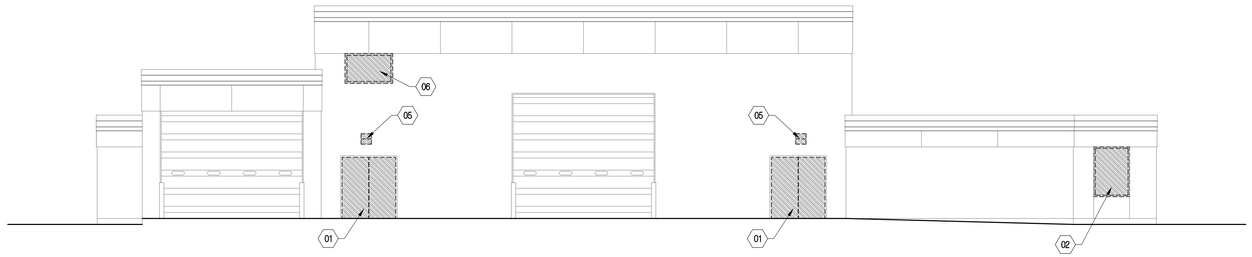
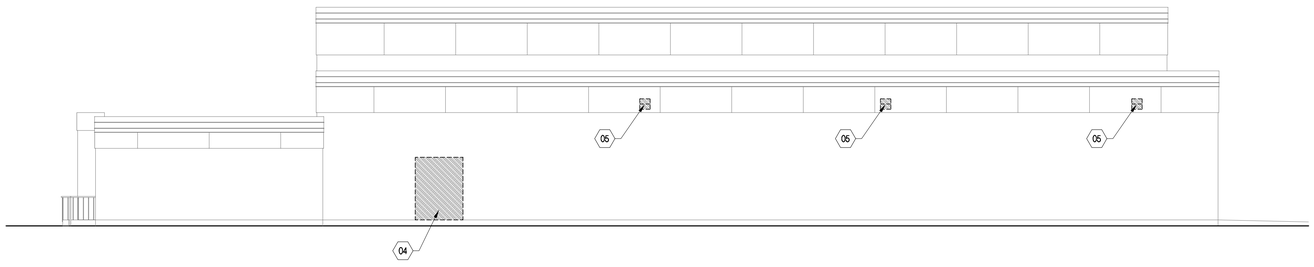


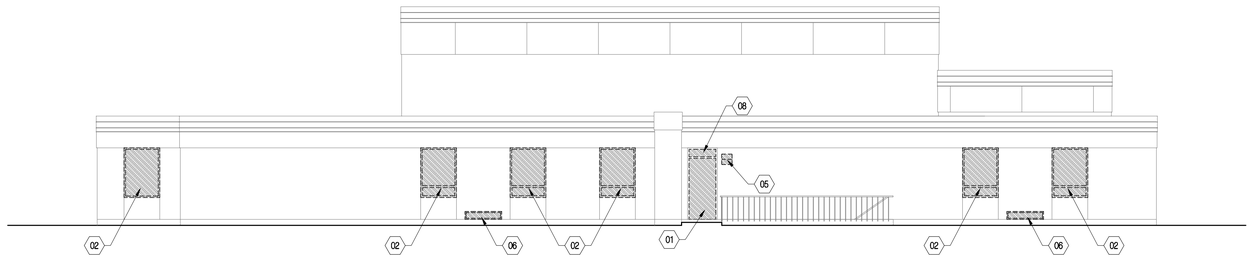
EAST ELEVATION D1
SCALE: 1/8"-1'-0"
0 2' 4' 8' 16'



SOUTH ELEVATION C1
SCALE: 1/8"-1'-0"
0 2' 4' 8' 16'



WEST ELEVATION B1
SCALE: 1/8"-1'-0"
0 2' 4' 8' 16'



NORTH ELEVATION A1
SCALE: 1/8"-1'-0"
0 2' 4' 8' 16'

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CONSULTANT INFORMATION

1. REMOVE EXISTING DOOR, HARDWARE LEAVE FRAME FOR REUSE.
2. REMOVE EXISTING WINDOWS
3. REMOVE EXISTING STEEL FRAME DOOR AND SIDELITE SYSTEM
4. SAW CUT AND REMOVE C.M.U. SIZE TO ACCEPT INSTALLATION OF DOOR : SEE DOOR SCHEDULE
5. REMOVL C
6. REMOVE LOUVERED VENT
7. REMOVE EXISTING SECURITY BARS SAVE AND PROTECT TO BE REFINISHED AND REINSTALLED
8. REMOVE VENT

GENERAL NOTES:

1. ALL LANDSCAPING, SPRINKLER SYSTEMS, ASPHALT, CONCRETE WALKS, WALLS, FLOOR STRIPING, ECT. DAMAGED OR REMOVED TO MAKE SPACE FOR CONSTRUCTION TO BE REPAIRED OR REPLACED.

STATE OF UTAH
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SHEET TITLE
EXTERIOR ELEVATIONS DEMO

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DRAWING NO. AD201
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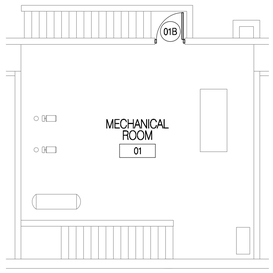
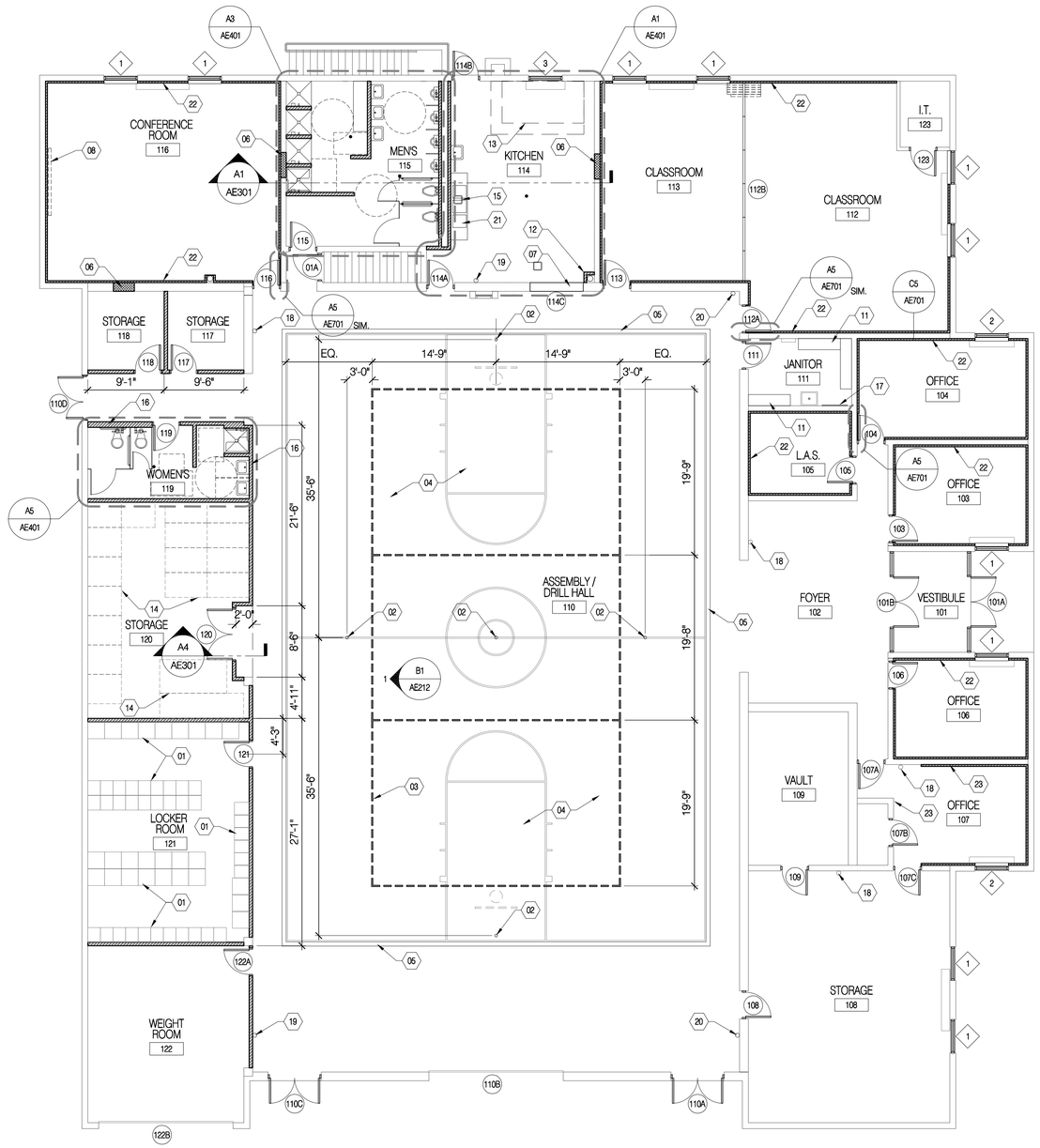


LOWER LEVEL PLAN D5

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

0 2' 4' 8' 16'



MAIN LEVEL PLAN A1

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

0 2' 4' 8' 16'

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CONSULTANT INFORMATION

1. EXISTING LOCKERS TO BE PROTECTED DURING CONSTRUCTION AND INSTALLED IN NEW LOCKER ROOM.
2. VOLLEYBALL SLEEVE
3. PAINT VOLLEYBALL COURT TO BE DASHED AS SHOWN
4. REFINISH DRILL HALL FLOOR, REPAINT BASKETBALL COURT - NEW LOGO CONSULT WITH GUARD UNIT ON DESIGN
5. REPLACE ALUMINUM TRIM AROUND DRILL HALL FLOOR SEE DETAIL C5/AE301
6. FILL IN FORMER DOOR OPENING W/ C.M.U. TO MATCH EXISTING
7. FILL IN BOTTOM OF FORMER DOOR WAY W/ C.M.U. TO FORM NEW PASS THRU WINDOW
8. LCD FLAT SCREEN TV
9. NOT USED
10. NOT USED
11. 16" DEEP METAL SHELVING
12. BOX IN ROOF DRAIN W/ GYP BD. METAL STUD FRAMING
13. KITCHEN EXHAUST HOOD W/ ANSUL FIRE SUPPRESSION SYSTEM
14. REPRESENTATION OF STORED EQUIPMENT N.I.C.
15. FLOOF

NUATION BATTS

17. MOP AND BROOM HOLDER: TBA #12
18. EXISTING FIRE EXTINGUISHER
19. RELOCATED FIRE EXTINGUISHER
20. FIRE EXTINGUISHER
21. THREE COMPARTMENT SINK
22. FUR OUT WALLS USING 2" Z-FURRING STUDS W/ 1 ½" RIDGED INSULATION ON EXTERIOR WALLS.
23. ⅝" GYP. BOARD ADHERED TO CMU WALL.

GENERAL NOTES:

1. REPAIR AND FILL CRACKS AND HOLES IN C.M.U. WALLS
2. REPAIR REFINISH AND PAINT ALL EXISTING DOOR FRAMES.

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SHEET TITLE
MAIN LEVEL PLAN

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PROJECT NO. 09226470	DRAWING NO. AE101
DATE 12.15.09	

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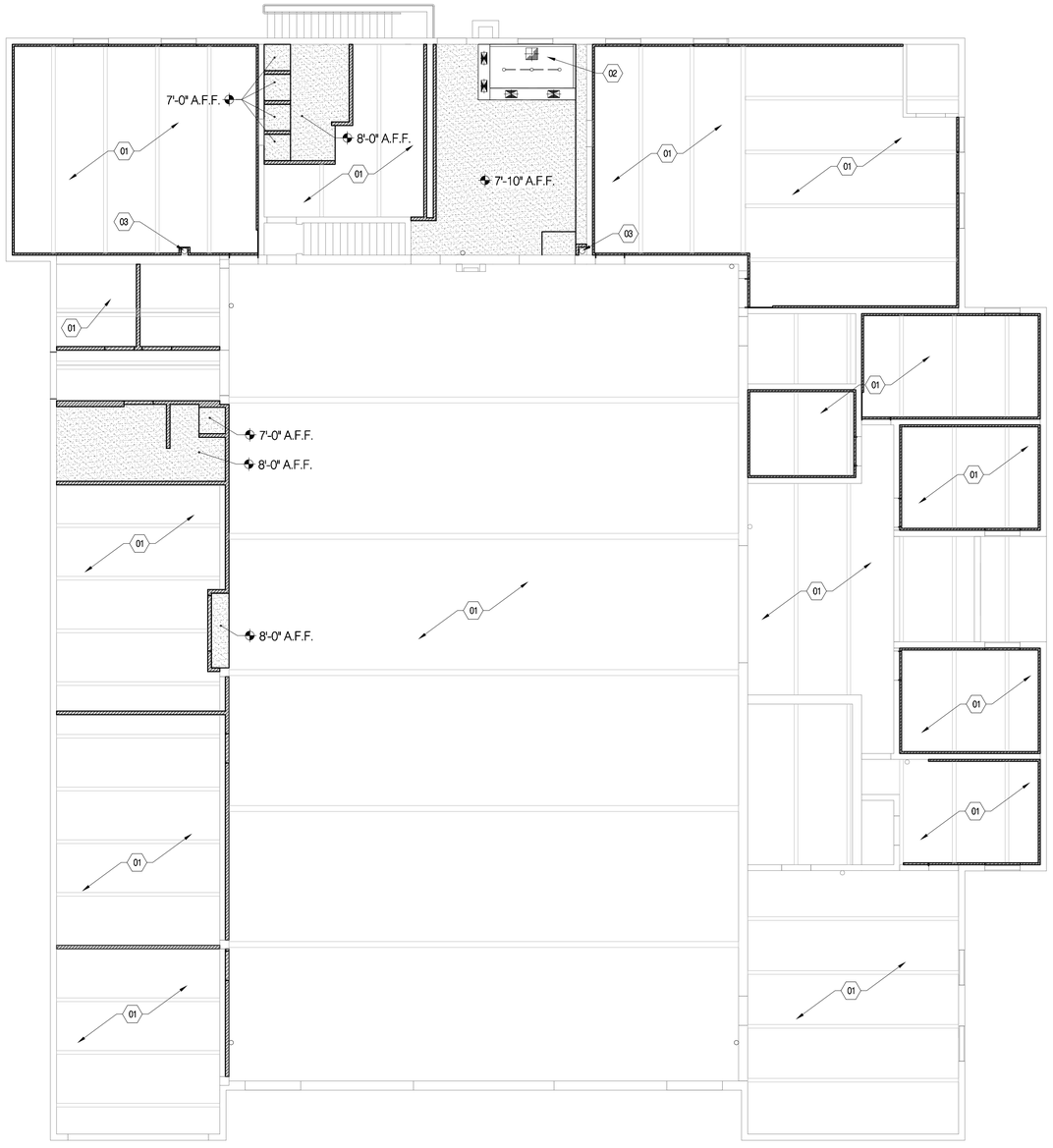

MAIN LEVEL RCP PLAN A1
SCALE: 1/8"=1'-0"
0 2' 4' 8' 16'

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CONSULTANT INFORMATION

1. EXISTING CEILING TO BE RESTAINED AND REVARNISHED WHERE DAMAGED.
2. KITCHEN EXHAUST HOOD
3. ROOF DRAIN

DRAWING LEGEND:

GYP BOARD CEILING

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SHEET TITLE
MAIN RCP PLAN

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PROJECT NO. 09226470
DRAWING NO. AE111
DATE 12.15.09

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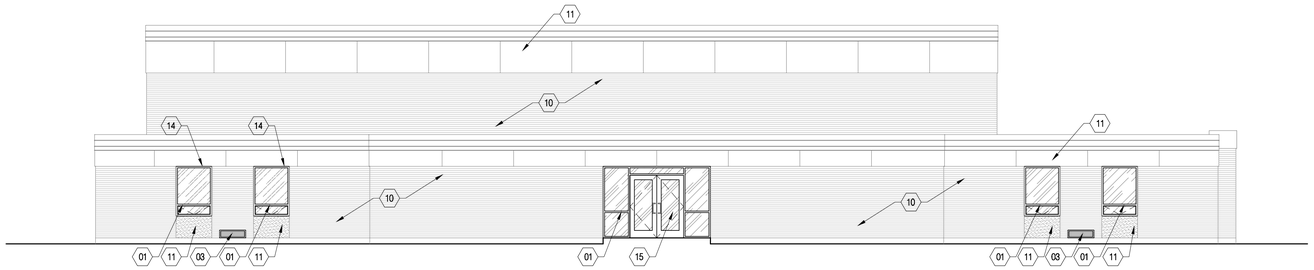
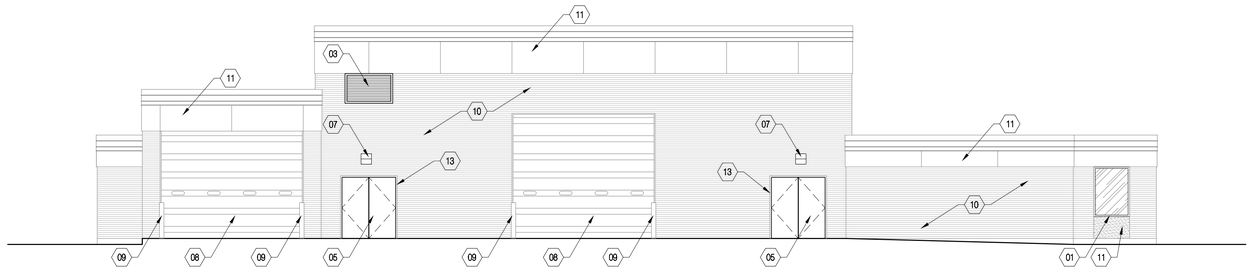
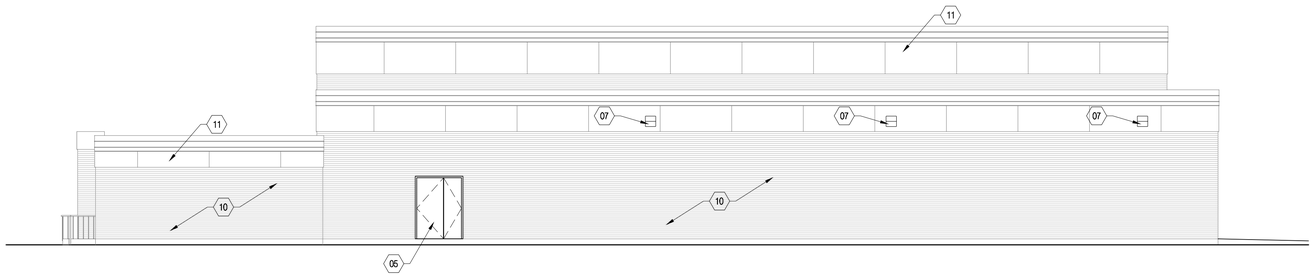


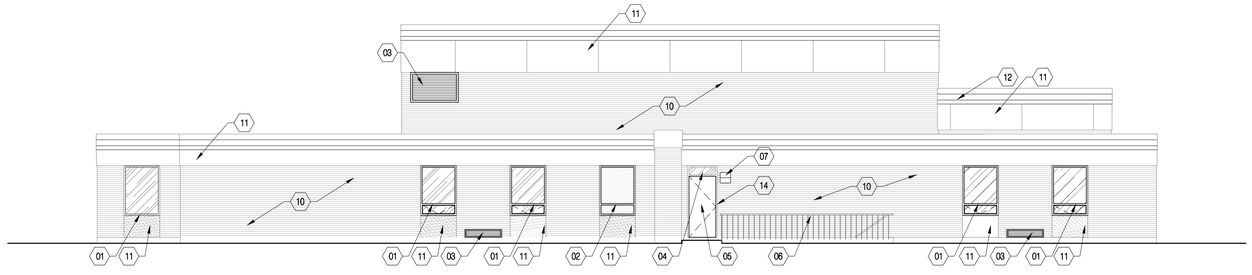
EAST ELEVATION D1
SCALE: 1/8"-1'-0"
0 2' 4' 8' 16'



SOUTH ELEVATION C1
SCALE: 1/8"-1'-0"
0 2' 4' 8' 16'



WEST ELEVATION B1
SCALE: 1/8"-1'-0"
0 2' 4' 8' 16'



NORTH ELEVATION A1
SCALE: 1/8"-1'-0"
0 2' 4' 8' 16'

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CONSULTANT INFORMATION

1. ALUMINUM WINDOW
2. ALUMINUM WINDOW W/ SPANDREL GLAZING
3. ALUMINUM LOUVERED VENT
4. GLAZING IN EXISTING FRAME: IG-1
5. SCHEDULED DOOR
6. REFINISH AND PAINT RAILING
7. EXTERIOR LIGHTING
8. REPAIR REFINISH AND PAINT OVERHEAD DOOR, REPLACE ANY BROKEN GLAZING.
9. PAINT BOLLARDS
10. CLEAN AND REPOINT BRICK.
11. CLEAN CONCRETE FASCIA
12. NOT USED
13. REPAIR F OOR FRAME
14. REINSTALL REFINISHED (HOT DIP GALVANIZED AND POWDER COATED) SECURITY BARS W/ WITH TAMPER PROOF ANCHORS. WELD IN NEW TABS TO TIGHTEN MOUNTING AT TOP OF BARS. REPAIR AND PAINT STEEL IN SILL AND HEADER.
15. ALUMINUM STOREFRONT ENTRANCE

STATE OF UTAH
ERIC R. THOLEN
129665
LICENSED ARCHITECT
12.15.09

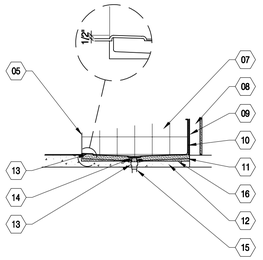
UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY
RENOVATION
985 NORTH 500 WEST
BRIGHAM CITY, UTAH 84302-1540

SHEET TITLE
EXTERIOR ELEVATIONS

	DATE	BY	DESCRIPTION
△	-	-	-
△	-	-	-
△	-	-	-
△	-	-	-

DRAWN BY CRO
CHECKED BY ERT
PROJECT NO. 09226470
DRAWING NO. AE201
DATE 12.15.09

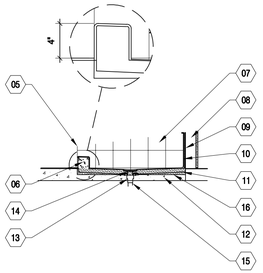
Utah National Guard - Brigham City Armory - Renovation



ACCESSIBLE SHOWER BASE C5

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

0 6" 1' 2' 4'



STANDARD SHOWER BASE C5

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

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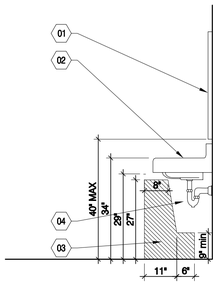

WALL MOUNTED SINK B5

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

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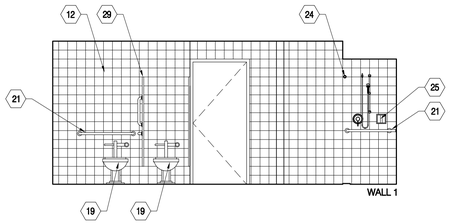
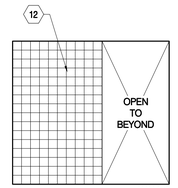
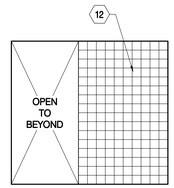


WALL 1



WALL 2



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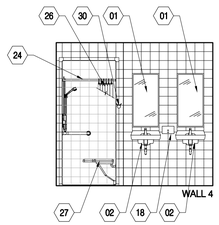

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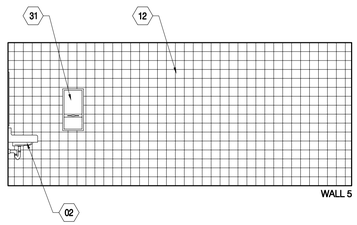

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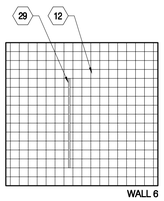
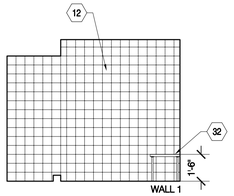


WALL 6

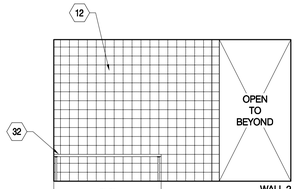
WOMEN'S RESTROOM ELEVATIONS C1

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

0 1' 2' 4' 8'



WALL 1



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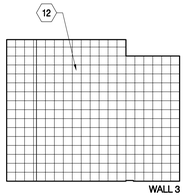

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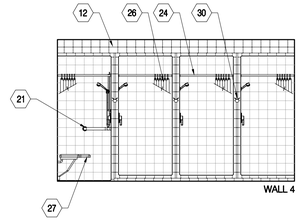

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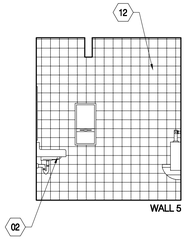

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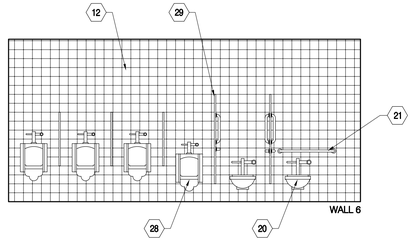
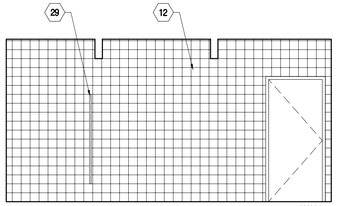
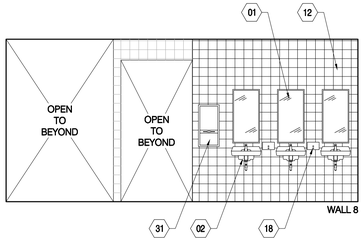


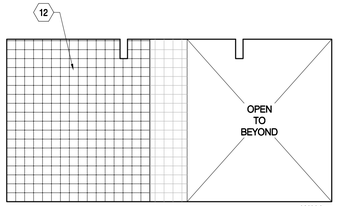
WALL 6



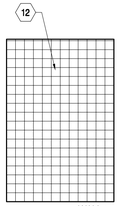
WALL 7



WALL 8



WALL 9



WALL 10

MEN'S RESTROOM ELEVATIONS A1

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

0 1' 2' 4' 8'

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

CONSULTANT INFORMATION

1. 18 W X 36 H MIRROR - TBA #6
2. WALL HUNG HAND SINK W/ UNDER LAVATORY GUARD TBA #11
3. ACCESSIBLE KNEE SPACE - KEEP CLEAR OF ALL OBSTRUCTIONS.
4. P-TRAP WITH UNDER LAVATORY GUARD - TBA #11
5. 2 X 6 CERAMIC TILE TRIM.
6. SHOWER CURB AT STANDARD SHOWER - 4" HIGH.
7. 6" X 6" CERAMIC TILE: CT-3
8. 6" METAL STUD
9. CEMENT BOARD
10. CERAMIC TILE
11. BLOCK OUT CONCRETE FLOOR AT SHOWER FOR CONCRETE MORTAR BASE SHOWER PAN LINER
12. CONCRETE FLOOR
13. ADJUSTABLE DRAIN
14. LOCKING RING
15. DRAIN BODY
16. SHOWER PAN LINER
17. SHOWER CURB AT ACCESSIBLE SHOWER - MAX 1/2" HIGH.
18. LIQUID SOAP DISPENSER - TBA #3
19. ACCESSIBLE FLOOR MOUNTED TOILET
20. ACCESSIBLE WALL MOUNTED TOILET
21. GRAB BAR - TBA #4
22. TOILET TISSUE DISPENSER - TBA #1
23. SANITARY NAPKIN DISPOSAL - TBA #5
24. CURTAIN ROD - TBA #7
25. SOAP DISH
26. SHOWER CURTAIN - TBA #8
27. FOLDING SHOWER SEAT - TBA #9
28. ACCESSIBLE URINAL
29. TOILET PARTITION
30. ROBE HOOK - TBA #10
31. PAPER TOWEL DISPENSER - TBA #2
32. ACCESSIBLE BENCH
33. PAINTED GYP BOARD

GENERAL NOTES:

1. SEE D1/AE212 FOR TYPICAL MOUNTING LOCATION OF RESTROOM FIXTURES AND EQUIPMENT.

STATE OF UTAH
ERIC R. THOLEN
129665
LICENSED ARCHITECT
12.15.09

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY
RENOVATION
985 NORTH 500 WEST
BRIGHAM CITY, UTAH 84302-1540

SHEET TITLE

INTERIOR ELEVATIONS

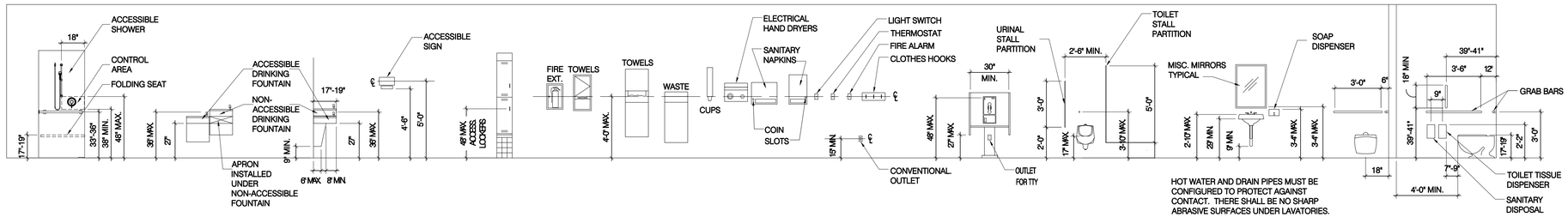
	DATE	BY	DESCRIPTION
1	-	-	-
2	-	-	-
3	-	-	-
4	-	-	-

DRAWN BY CRO | CHECKED BY ERT

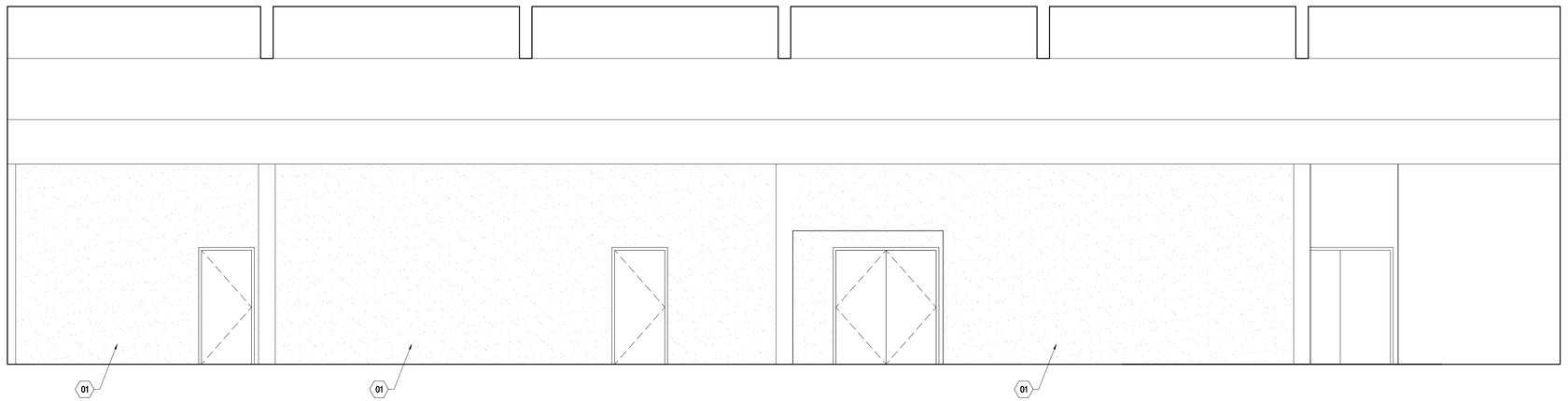
PROJECT NO. 09226470 | DRAWING NO. AE211

DATE 12.15.09

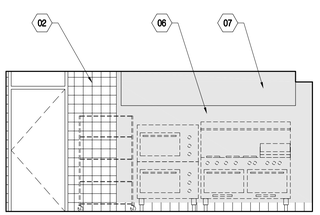
Utah National Guard - Brigham City Armory - Renovation

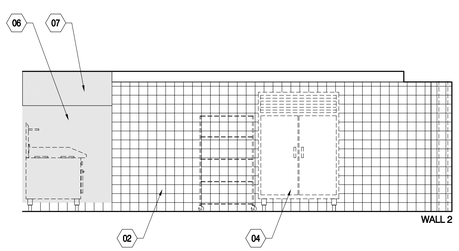


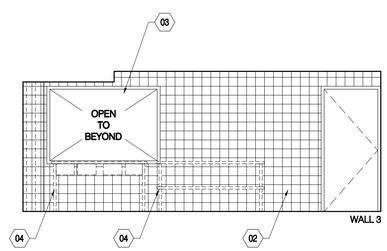
TYPICAL MOUNTING HEIGHTS D1
NO SCALE

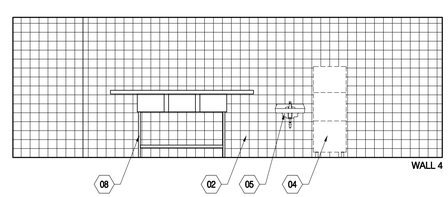


DRILL HALL ELEVATIONS B1
SCALE: 1/4"=1'-0"
0 1' 2' 4' 8'









KITCHEN ELEVATIONS A1
SCALE: 1/4"=1'-0"
0 1' 2' 4' 8'

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

CONSULTANT INFORMATION

1. PAINTED GYP BOARD
2. 6 X 6 CERAMIC TILE
3. PASS THRU OPENING
4. PROPOSED KITCHEN EQUIPMENT N.I.C.
5. WALL HUNG HAND SINK W/ UNDER LAVATORY GUARD TBA #11
6. STAINLESS STEEL PANEL
7. EXHAUST HOOD
8. THREE COMPARTMENT SINK.

STATE OF UTAH ERIC R. THOLEN 129665 LICENSED ARCHITECT
12.15.09

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY
RENOVATION
985 NORTH 500 WEST
BRIGHAM CITY, UTAH 84302-1540

SHEET TITLE
INTERIOR ELEVATIONS

	DATE	BY	DESCRIPTION
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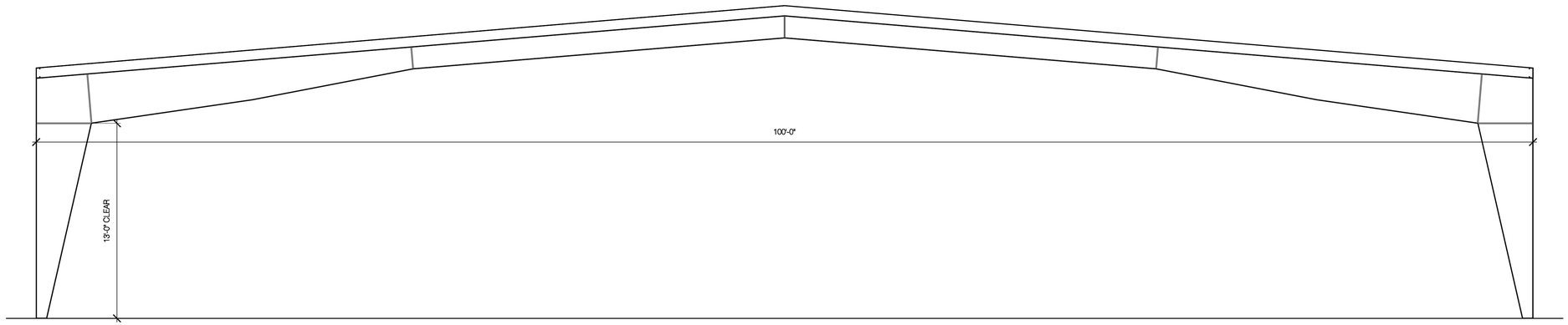
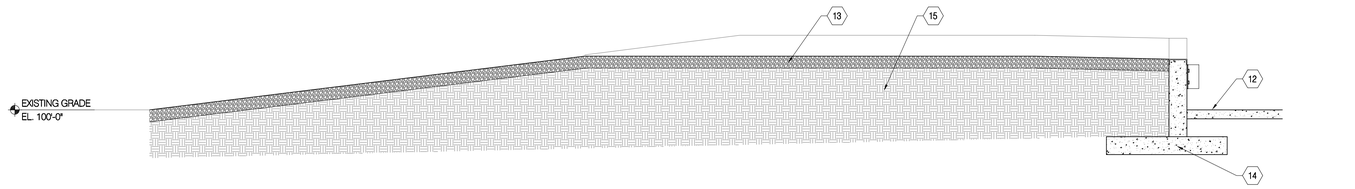
DRAWN BY CRO
CHECKED BY ERT
PROJECT NO. 09226470
DRAWING NO. AE212
DATE 12.15.09

Utah National Guard - Brigham City Armory - Renovation



PALADIN SHED ROOF SECTION (ALTERNATE #4) D1
SCALE: 1/4"=1'-0"



LOWER DOCK SECTION C1
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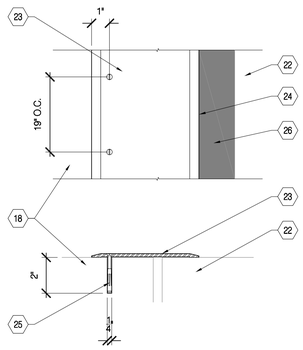
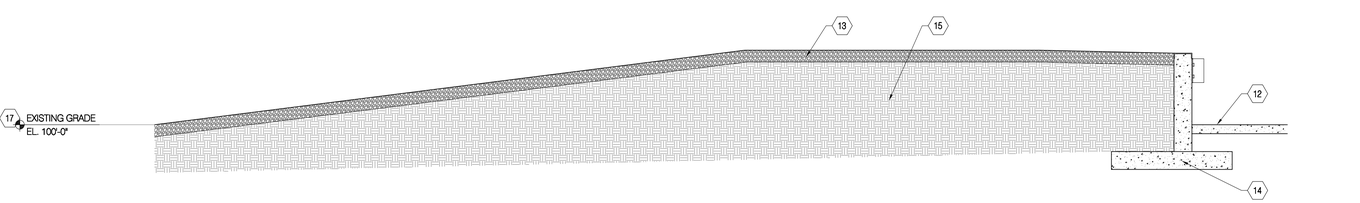
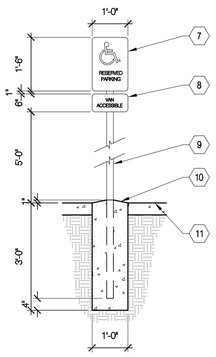


EXPANSION JOINT COVER A1
SCALE: 3"=1'-0"

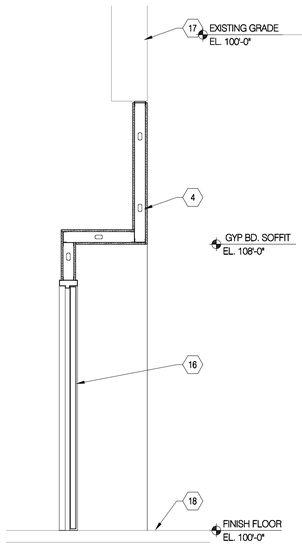


UPPER DOCK SECTION B1
SCALE: 1/4"=1'-0"

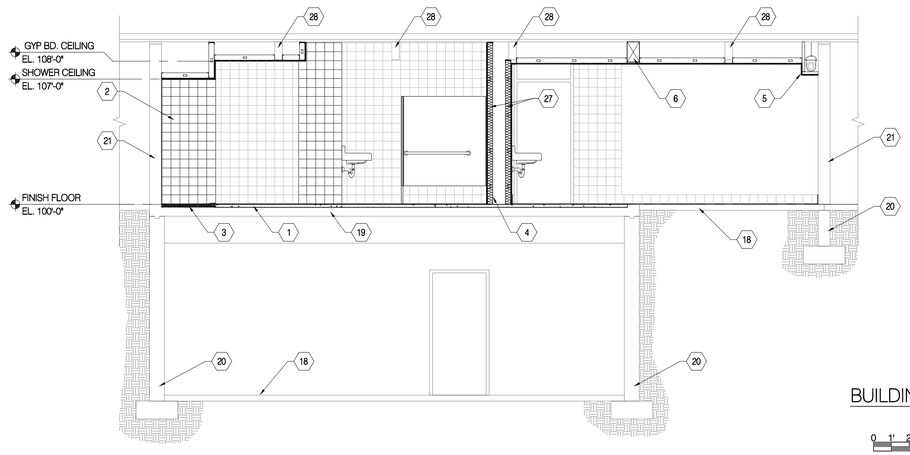


ELEVATION

ACCESSIBLE SIGNAGE A5
SCALE: 1/2"=1'-0"



WALL SECTION A4
SCALE: 1/2"=1'-0"



BUILDING SECTION A1
SCALE: 1/4"=1'-0"

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

CONSULTANT INFORMATION

1. CONCRETE TOPPING SLAB SLOPE TO DRAINS
2. 6 X 6 CERAMIC TILE
3. THICK SET TILE W/ SHOWER PAN LINER
4. GYP BOARD METAL STUD WALL
5. BOX IN EXISTING ROOF OVER FLOW DRAIN, WITH GYP BD. OVER METAL FRAMING
6. STRUCTURAL WOOD BEAM SEE STRUCTURAL DRAWINGS
7. .08 ALUMINUM PLAQUE W/ ROUNDED CORNERS: STANDARD BLUE REFLECTIVE BACKGROUND, WHITE REFLECTIVE SYMBOL
8. .08 ALUMINUM PLAQUE W/ ROUNDED CORNERS; STANDARD BLUE REFLECTIVE BACKGROUND, WHITE REFLECTIVE TEXT: "VAN ACCESSIBLE"
9. 2" SQ. ALUMINUM POST; PREFINISHED
10. STEEL TROWEL FINISH
11. TOP OF WALK (OR A/C OR GRADE WHERE OCCURS)
12. CONCRETE SLAB, SEE STRUCTURAL
13. 8" UBC COMPACTED TO 95% MODIFIED PROCTOR
14. CONCRETE FOOTING AND FOUNDATION, SEE A2/AE402, B2/AE402
15. STRUCTURAL FILL COMPACTED TO 95% OF MODIFIED PROCTOR PER ASTM D-1557
16. SCHEDULED DOOR AND FRAME
17. EXITING CONCRETE BEAM
18. EXISTING CONCRETE SLAB
19. EXISTING SUSPENDED SLAB
20. EXISTING FOOTING AND FOUNDATION
21. EXISTING C.M.U WALL
22. EXISTING WOOD FLOOR
23. EXPANSION JOINT COVER
24. LINE UP EDGE OF EXPANSION JOINT COVER WITH EDGE OF OUT OF BOUNDS LINE FOR THE BASKETBALL COURT.
25. EXPANSION ANCHOR: 1/4" DIA. DRILL SIZE
26. PAINTED OUT OF BOUNDS LINE
27. SOUND ATTENUATION BATTS
28. EXISTING BEAM

STATE OF UTAH
ERIC R. THOLEN
129665
LICENSED ARCHITECT
12.15.09

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY
RENOVATION
985 NORTH 500 WEST
BRIGHAM CITY, UTAH 84302-1540

SHEET TITLE
SECTIONS & DETAILS

	DATE	BY	DESCRIPTION
1	-	-	-
2	-	-	-
3	-	-	-
4	-	-	-

DRAWN BY CRO | CHECKED BY ERT
PROJECT NO. 09226470 | DRAWING NO. AE301
DATE 12.15.09

Utah National Guard - Brigham City Armory - Renovation

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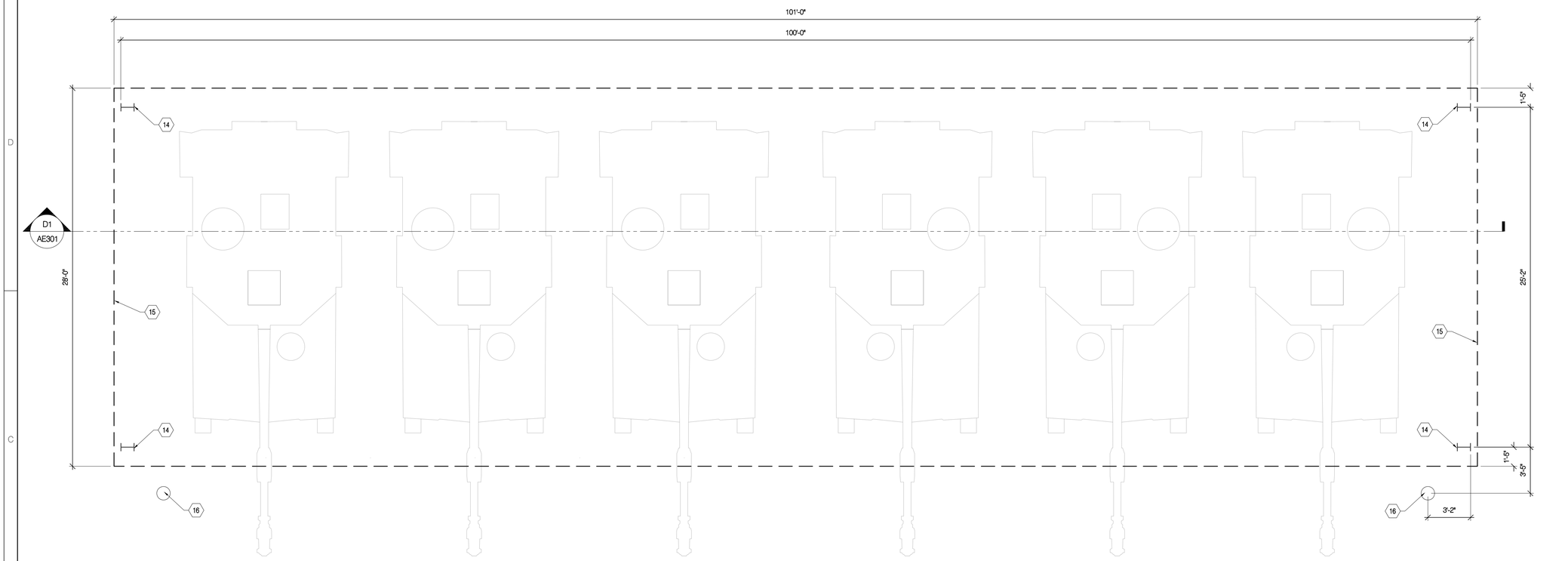
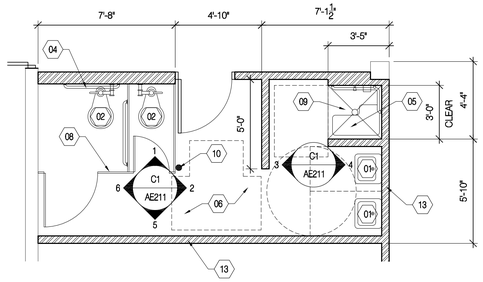


ENLARGED PALADIN SHED ROOF (ALTERNATE #4) C1

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

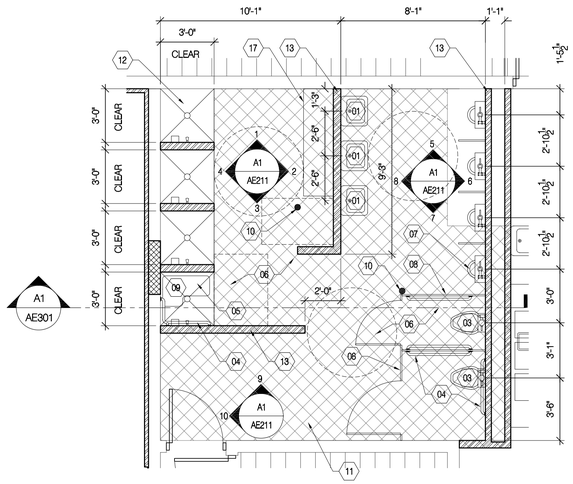
0 1' 2' 4' 8'



ENLARGED WOMEN'S RESTROOM - 119 A5

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

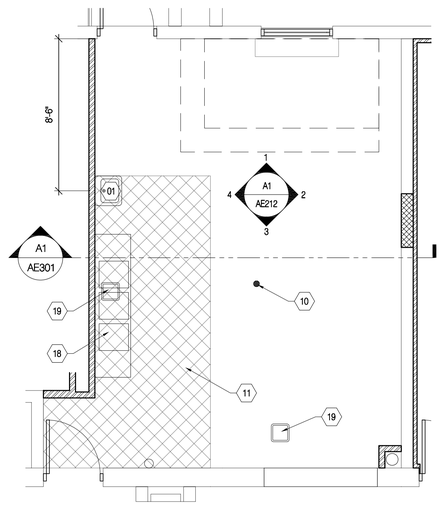
0 1' 2' 4' 8'



ENLARGED MEN'S RESTROOM - 115 A3

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

0 1' 2' 4' 8'



ENLARGED KITCHEN PLAN - 114 A1

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

0 1' 2' 4' 8'

EFT ARCHITECTS

265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

CONSULTANT INFORMATION

1. WALL HUNG HAND SINK W/ UNDER LAVATORY GUARD TBA #11
2. ACCESSIBLE FLOOR MOUNTED TOILET
3. ACCESSIBLE WALL MOUNTED TOILET
4. GRAB BAR - TBA #4
5. FOLDING SHOWER SEAT - TBA #9
6. CERAMIC TILE FLOOR
7. ACCESSIBLE URINAL
8. TOILET PARTITION
9. ACCESSIBLE SHOWER
10. FLOOR DRAIN SLOPE FLOOR TO DRAIN, FLOOR SURFACE IN FRONT OF SHOWER SHALL NOT SLOPE MORE THAN ¼" PER FOOT.
11. HATCHED AREA TO HAVE CONCRETE TOPPING TO FILL FORMER THICKSET FLOOR RECESS
12. BLOCK OUT SHOWER AREA FROM TOPPING SLAB
13. GYP BOARD WALL W/ 3 5/8" STUDS
14. STEEL COLUMN
15. ROOF LINE ABOVE
16. GALVANIZED STEEL BOLLARD, PAINTED, SEE STRUCTURAL
17. ACCESSIBLE BENCH
18. THREE COMPARTMENT SINK
19. FLOOR SINK, SEE MECHANICAL

GENERAL NOTES:

1. SEE D1/AE212 FOR TYPICAL MOUNTING LOCATION OF RESTROOM FIXTURES AND EQUIPMENT.
2. SEE MECHANICAL & ELECTRICAL FOR PLUMBING AND ELECTRICAL HOOKUPS FOR KITCHEN EQUIPMENT.
3. PAINT ALL EXPOSED METAL ON PALADIN SHED ROOF

STATE OF UTAH · ERIC R. THOLEN · 129665 · LICENSED ARCHITECT

12.15.09

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY
RENOVATION
985 NORTH 500 WEST
BRIGHAM CITY, UTAH 84302-1540

SHEET TITLE ENLARGED PLANS SECTIONS

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DRAWN BY CRO | CHECKED BY ERT

PROJECT NO. 09226470 | DRAWING NO. AE401

DATE 12.15.09

Utah National Guard - Brigham City Armory - Renovation

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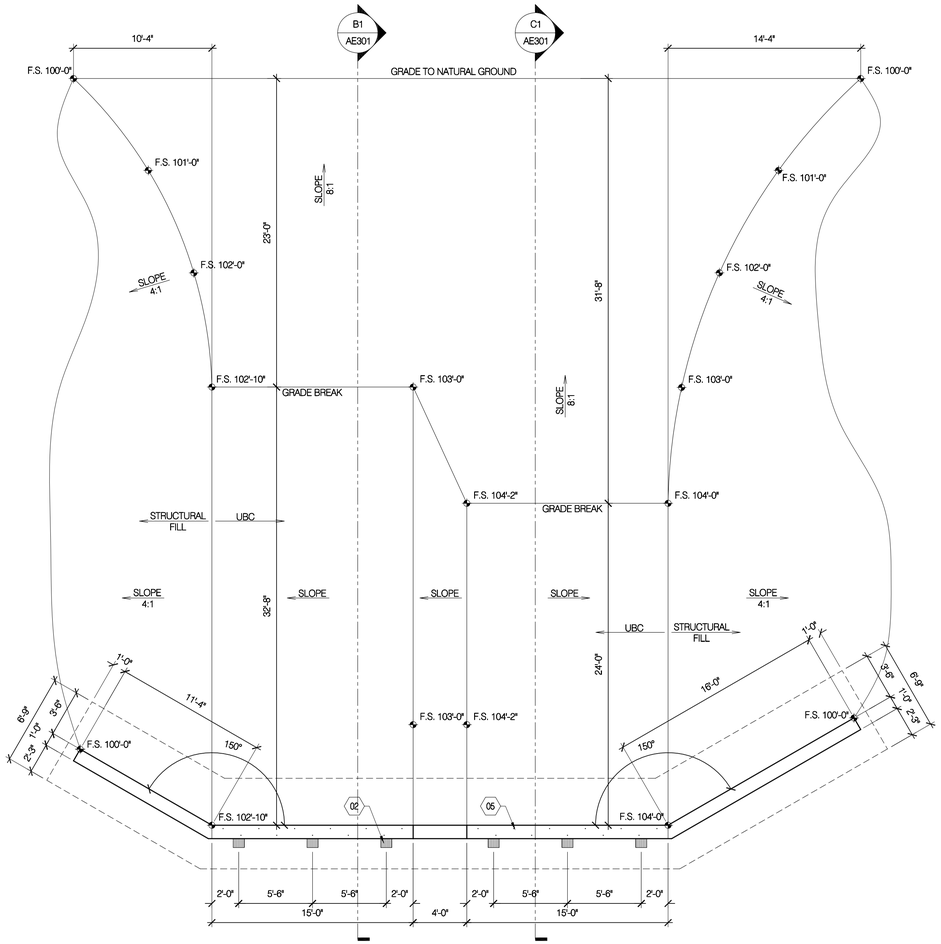
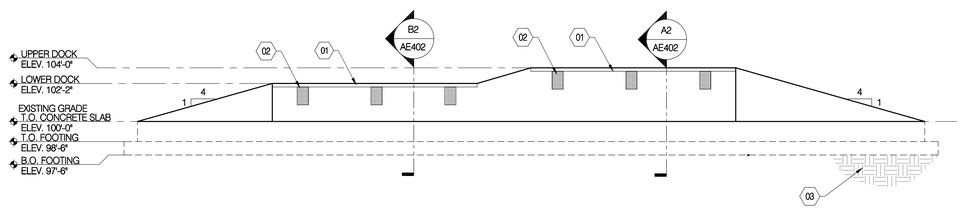
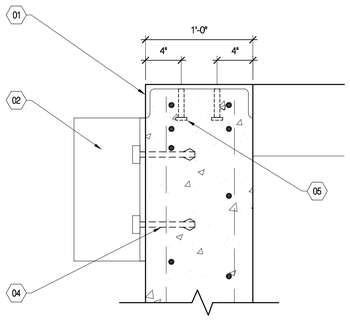


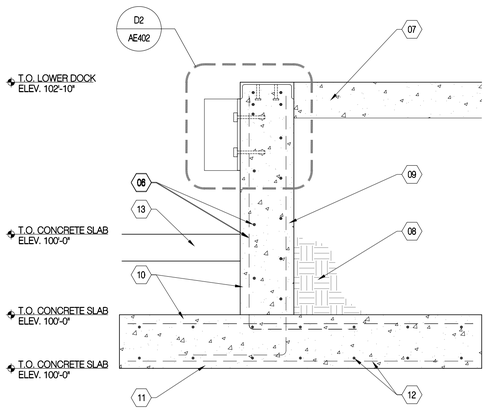
LOADING DOCK PLAN B3
SCALE: 3/16=1'-0"
0 2'-8" 5'-4" 10'-8"



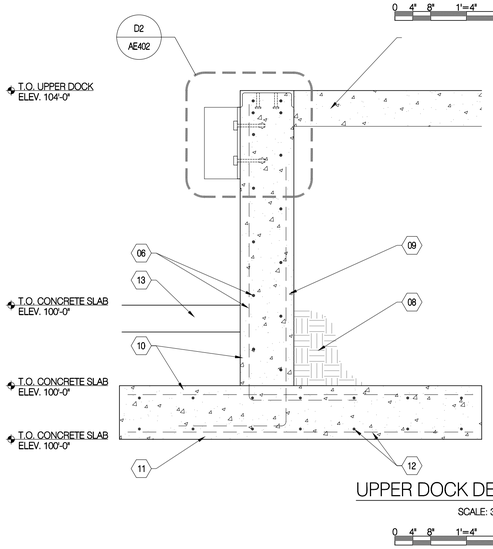
LOADING DOCK ELEVATION A3
SCALE: 3/16=1'-0"
0 2'-8" 5'-4" 10'-8"



T.O. WALL DETAIL D2
SCALE:1 1/2"=1'-0"
0 2" 4" 8" 1'-4"



LOWER DOCK DETAIL B2
SCALE: 3/4"=1'-0"
0 4" 8" 1'=4" 2'-8"



UPPER DOCK DETAIL A2
SCALE: 3/4"=1'-0"
0 4" 8" 1'=4" 2'-8"

NOTES:
1 - STRUCTURAL FILL - THE STRUCTURAL FILL EMBANKMENT SHALL CONSIST OF HARD DURABLE PARTICLES OR FRAGMENTS OF GRANULAR AGGREGATES. THIS MATERIAL SHALL BE MIXED OR BLENDED WITH FINE SAND, CLAY, STONE DUST OR OTHER SIMILAR BINDING OR FILLER MATERIALS PRODUCED FROM APPROVED SOURCES. THIS MIXTURE SHALL BE UNIFORM AND SHALL COMPLY WITH THE REQUIREMENTS OF THESE SPECIFICATIONS AS TO GRADATION, SOIL CONSTANTS, AND SHALL BE CAPABLE OF BEING COMPACTED INTO A DENSE AND STABLE SUBBASE. THE PORTION OF THE MATERIAL PASSING THE #40 SIEVE SHALL HAVE A LIQUID LIMIT OF NOT MORE THAN 20 AND A PLASTICITY INDEX OF NOT MORE THAN 6 WHEN TESTED IN ACCORDANCE WITH ASTM D-4318.

TABLE 1-1
GRADATION REQUIREMENTS:

SIEVE DESIGNATION (SQUARE OPENINGS) AS PER ASTM D-2940	PASSING % BY WEIGHT
4"	100
2"	70-95
3/4"	45-95
#4	28-75
#10	20-26
#40	5-40
#200	0-15

NO BRUSH, ROOTS, SOD, OR OTHER PERISHABLE OR UNSUITABLE MATERIALS SHALL BE PLACED IN MATERIAL CONTAINING SAND IN SUCH PROPORTION AS TO PREVENT IT FROM COMPACTING PROPERLY SHALL NOT BE USED, EXCEPT WITH PRIOR APPROVAL. CLODS OR HARD LUMPS OF EARTH HAVING MAXIMUM DIMENSIONS OF MORE THAN 8 INCHES SHALL BE BROKEN UP BEFORE OR AFTER BEING PLACED ON THE EMBANKMENTS. WHERE THERE IS A CHOICE OF MATERIALS, THE BEST SHALL BE USED ON THE TOP OF THE EMBANKMENTS FOR AT LEAST 12 INCHES IN DEPTH. NO MATERIAL SHALL BE PLACED IN THE EMBANKMENTS WHEN EITHER THE MATERIAL OR THE SURFACE ON WHICH IT WOULD BE PLACED IS FROZEN.

ALL MATERIAL SHALL BE DEPOSITED IN EMBANKMENTS SO THAT ROCK, COBBLES, AND GRAVEL WILL BE WELL DISTRIBUTED THROUGH THE OTHER MATERIALS AND NOT NESTED IN ANY POSITION WITHIN OR UNDER THE EMBANKMENTS. EMBANKMENT SHALL BE BUILT CAREFULLY SO THAT THE LARGER ROCK WILL BE WELL DISTRIBUTED AND THE UNFILLED SPACES SHALL BE FILLED COMPLETELY WITH SMALLER ROCK AND EARTH SO AS TO FORM A DENSE, STABLE EMBANKMENT.

THE EMBANKMENTS SHALL BE PLACED IN CONTINUOUS, APPROXIMATELY HORIZONTAL LAYERS NOT MORE THAN 8 INCHES IN LOOSE THICKNESS PRIOR TO BEING COMPACTED.

2 - UNTREATED BASE COURSE - UBC SHALL BE CLEAN, HARD, TOUGH, DURABLE AND SOUND MINERAL AGGREGATES THAT CONSIST OF CRUSHED STONE, CRUSHED GRAVEL, OR CRUSHED SLAG; FREE OF DETRIMENTAL AND ORGANIC MATTER; AND COMPLIES WITH THE FOLLOWING:

TABLE 2-1
AGGREGATE PROPERTIES

DRY RODDED UNIT WEIGHT	NOT LESS THAN 75 16/FC³	AASHTO T 19
MATERIAL PASSING #40 SIEVE	NON PLASTIC	AASHTO T 90
AGGREGATE WEAR	NOT TO EXCEED 50 PERCENT	AASHTO T 96
DRY WEIGHT VALUES	WITHIN BANDS SHOWN IN TABLE 2-2 (BELOW)	
GRADATION LIMITS	TABLE 2-2 (BELOW)	AASHTO T 11 AASHTO T 27

TABLE 2-2
GRADATION - SINGLE VALUE JOB - MIX FORMULA

SIEVE SIZE	PERCENT PASSING OF TOTAL AGGREGATE (DRY WEIGHT)		
	1 ½"	1"	¾"
1 ½"	100		
1"		100	
¾"	81-91		100
½"	67-77	79-91	
⅜"			78-92
4"	43-53	49-61	55-67
16"	23-29	27-35	28-38
200"	6-10	7-11	7-11

COMPACTION OF THE UBC SHALL BE TWO 4 INCH HORIZONTAL LAYERS (FINISHED) DENSITY VERIFICATION TESTING OF THE UNDER LYING 4 INCH LAYER MUST BE APPROVED PRIOR TO PLACEMENT OF THE OVERLYING LAYER.

3 - LAMINATED RUBBER DOCK BUMPERS - BUMPERS SHALL BE MADE OF RESILIENT RUBBERIZED FABRIC TRUCK TIRES CUT TO UNIFORM SIZE PADS, IN STAND OUT THICKNESS OF 8-INCHES AND PUNCHED TO RECEIVE A 3/4" SUPPORT ROD. ALL BUMPERS ARE CLOSED WITH TWO 1/4" STEEL FORMED PLATES UNDER 1,500 POUNDS OF PRESSURE AND ANCHORED WITH 5/8-INCH STAINLESS STEEL ANCHOR BOLTS. FORMED PLATES ARE CLOSED WITH THREADED RODS AND NUTS AT BOTH ENDS. FINISH OF EXPOSED METAL SHALL BE BLACK LEAD FREE ENAMEL.

4 - CONCRETE - ALL CONCRETE SHALL BE TYPE I, READY MIX CONCRETE CONFORMING TO ASTM C-94, WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI. PER ASTM C192 AND ASTM C39. THE MAXIMUM SLUMP FOR VIBRATED CONCRETE IS 4-INCHES IN ACCORDANCE WITH ASTM C143. THE CONCRETE MIX SHALL HAVE A MAXIMUM AGGREGATE SIZE OF 3/4 INCH, AIR ENTRAINMENT OF BETWEEN 4 TO 8 PERCENT, AND A MAXIMUM WATER TO CEMENT RATIO OF 0.50. ADDITIONAL AD MIXTURES OR CURING ACCELERATORS WILL NOT BE PERMITTED. ALL FINS OR BURRS SHALL BE REMOVED FROM ALL EXPOSED CONCRETE SURFACES.

5 - STEEL REINFORCEMENT - ALL STEEL REINFORCEMENT SHALL BE GRADE 60 BARS WITH THE BAR DESIGNATIONS, SPACINGS AND CLEARANCES AS SHOWN.

6 - DESIGN ASSUMPTIONS - THIS DESIGN ASSUMES A RELATIVELY FLAT SITE WITH A MINIMUM SOIL BEARING CAPACITY OF 1,500 LBS/FT² . THE DESIGN LOADING IS AN M88 RECOVERY VEHICLE WITH A WEIGHT OF 112,000 POUNDS.

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

CONSULTANT INFORMATION

1. C 12 X 30
2. 8" THICK BY 10" WIDE BY 16" LONG LAMINATED RUBBER DOCK BUMPER. SEE NOTE #3
3. UNDISTURBED SOIL OR 1'-6" STRUCTURAL FILL LAYER COMPACTED TO 95% OF MODIFIED PROCTOR PER ASTM D-1557. (SEE NOTE 1)
4. ⅝" STAINLESS STEEL ANCHOR BOLTS
5. 4" NELSON STUDS AT 16" O.C. ALTERNATING AS SHOWN IN PLAN.
6. #5 BARS @ 9" O.C. E.W.
7. 8" UBC COMPACTED TO 95% MODIFIED PROTRACTOR, SEE NOTE #2
8. STRUCTURAL FILL COMPACTED TO 95% OF MODIFIED PROCTOR PER ASTM D-1557, SEE NOTE #1
9. 1 ¾" CLEARANCE
10. 2" CLEARANCE
11. 3" CLEARANCE
12. #5 BARS @ 12" O.C. E.W.
13. CONCRETE PAD SEE STRUCTURAL

GENERAL NOTES:

1. REPAIR AND FILL CRACKS AND HOLES IN C.M.U. WALLS
2. REPAIR REFINISH AND PAINT ALL EXISTING DOOR FRAMES.

STATE OF UTAH · ERIC R. THOLEN · 129665 · LICENSED ARCHITECT
12.15.09

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY
RENOVATION
985 NORTH 500 WEST
BRIGHAM CITY, UTAH 84302-1540

SHEET TITLE
LOADING DOCK

	DATE	BY	DESCRIPTION
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DRAWING NO. AE402
DATE 12.15.09

Utah National Guard - Brigham City Armory - Renovation

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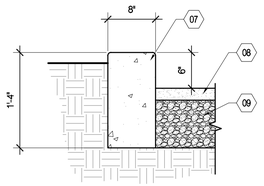
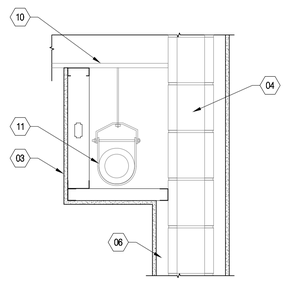


CURB DETAIL D5

SCALE: 1"=1'-0"

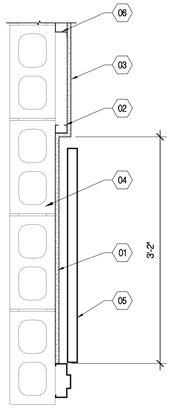
0 3" 6" 1' 2'



ROOF OVERFLOW DRAIN DETAIL C5

SCALE: 1"=1'-0"

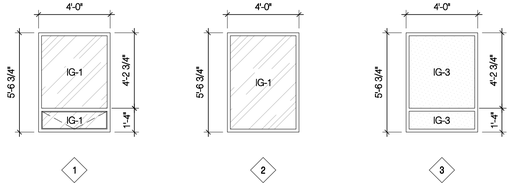
0 3" 6" 1' 2'



WALL FURRING @ DOORS A5

SCALE: 1"=1'-0"

0 3" 6" 1' 2'



* ALUMINUM STOREFRONT

NOTE: FIELD VERIFY DIMENSIONS

WINDOW SCHEDULE A3

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

0 1' 2' 4' 8'

FINISH SCHEDULE

DOOR #	ROOM NAME	BASE	FLOOR	WALLS NORTH	WALLS EAST	WALLS SOUTH	WALLS WEST	CEILING TYPE	CEILING HEIGHT	MISC. NOTES
				MATERIAL & FINISH	MATERIAL & FINISH	MATERIAL & FINISH	MATERIAL & FINISH	MATERIAL & FINISH		
101	VESTIBULE	RB	CTW	P	P	P	P	ST	EX	1
102	FOYER	RB	C	P	P	P	P	ST	EX	1
103	OFFICE	RB	C	P	P	P	P	ST	EX	1
104	OFFICE	RB	C	P	P	P	P	ST	EX	1
105	L.A.S.	RB	EX	P	P	P	P	ST	EX	1
106	OFFICE	RB	C	P	P	P	P	ST	EX	1
107	OFFICE	RB	C	P	P	P	P	ST	EX	1
108	STORAGE	RB	EP	P	P	P	P	ST	EX	1
109	VAULT	RB	EX	P	P	P	P	ST	EX	1
110	ASSEMBLY / DRILL HALL	N/A	EP / W	P	P	P	P	ST	EX	1, 2, 3
111	JANITOR	RB	EP	P	P	P	P	ST	EX	1,3
112	CLASSROOM	RB	C	P	P	P	P	ST	EX	1
113	CLASSROOM	RB	C	P	P	P	P	ST	EX	1
114	KITCHEN	CT-4	CT-4	CT-1 / SS	CT-1 / SS	CT-1	CT-1	P	8'-0"	1
115	MEN'S	CT-2	CT-1	CT-2	CT-2	CT-2	CT-2	ST / P	8'-0" / EX	1
116	CONFERENCE ROOM	RB	C	P	P	P	P	ST	EX	1
117	STORAGE	RB	EP	P	P	P	P	ST	EX	1, 3
118	STORAGE	RB	EP	P	P	P	P	ST	EX	1, 3
119	WOMEN'S	CT-2	CT-1	CT-2	CT-2	CT-2	CT-2	P	8'-0"	1
120	STORAGE	RB	EP	P	P	P	P	ST	EX	1, 3
121	LOCKER ROOM	RB	EP	P	P	P	P	ST	EX	1, 3
122	WEIGHT ROOM	RB	C	P	P	P	P	ST	EX	1
123	I.T.	RB	VCT	P	P	P	P	ST	EX	1
	\	N/A	EX	EX	EX	EX	EX	EX	EX	1

WALLS
P = PAINTED
CT-2 = CERAMIC TILE
EX = EXISTING TO REMAIN
FRP = FIBERGLASS REINFORCED PANEL
SS = STAINLESS STEEL

FLOOR
CT-1 = CERAMIC TILE
CT-3 = PAVER TILE AT ENTRY
CT-4 = QUARRY TILE
C = CARPET TILE
VCT = VINYL TILE
EX = EXISTING TO REMAIN
CTW = CARPET TILE (WALK OFF)
W = WOOD SPORTS FLOOR REFINISH
EP = EPOXY FLOOR SYSTEM

BASE
RB = RESILIENT BASE
CT-4 =QUARRY TILE
EX = EXISTING TO REMAIN

CEILING
P = PAINTED GYP BOARD
EX = EXISTING TO REMAIN
ST = REFINISH AND STAIN

GENERAL NOTES:
1. REPAIR AND FILL CRACKS AND HOLES IN C.M.U. WALLS
2. REFINISH DRILL HALL FLOOR, REPAINT BASKETBALL COURT, PAINT VOLLEYBALL COURT AS SHOWN ON AE101
3. PATCH AND REPAIR FLOOR WHERE NEEDED

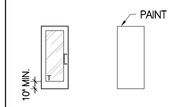
DOOR SCHEDULE

DOOR #	ROOM NAME	DOOR TYPE	DOOR NEW DOOR	DOOR SIZE	DOOR FRAME TYPE	HARDWARE GROUP	FIRE RATING	REMARKS
101A	VESTIBULE - 101	A	X	S1	1	1		
101B	VESTIBULE - 101	A	X	S1	2	4		
103	OFFICE - 103	W	X	S2		2		REPAIR AND PAINT EXISTING FRAME
104	OFFICE - 104	W	X	S2		2		REPAIR AND PAINT EXISTING FRAME
105	L.A.S. - 105	W	X	S2		2		REPAIR AND PAINT EXISTING FRAME SEE DETAIL A5/AE701
106	OFFICE - 106	W	X	S2		2		REPAIR AND PAINT EXISTING FRAME
107A	OFFICE - 107	W	X	S2		2		REPAIR AND PAINT EXISTING FRAME
107B	OFFICE - 107	W	X	S2		2		REPAIR AND PAINT EXISTING FRAME
107C	OFFICE - 107	W	X	S2		5		REPAIR AND PAINT EXISTING FRAME
108	STORAGE - 108	W	X	S2		5		REPAIR AND PAINT EXISTING FRAME
109	VAULT - 109					4		PAINT EXISTING DOOR
110A	ASSEMBLY / DRILL HALL - 110	M	X	S1		6		REPAIR AND PAINT EXISTING FRAME
110B	ASSEMBLY / DRILL HALL - 110					4		REPAIR AND PAINT EXISTING OVERHEAD DOOR
110C	ASSEMBLY / DRILL HALL - 110	M	X	S1		6		REPAIR AND PAINT EXISTING FRAME
110D	ASSEMBLY / DRILL HALL - 110	M	X	S3	3	12		
111	JANITOR - 111	W	X	S2		3		REPAIR AND PAINT EXISTING FRAME
112A	CLASSROOM - 112	W	X	S2		3		REPAIR AND PAINT EXISTING FRAME SEE DETAIL A5/AE701
112B	CLASSROOM - 112		X			4		OPERABLE WALL, FIELD MEASURE FOR SIZE
113	CLASSROOM - 113	W	X	S2		3		REPAIR AND PAINT EXISTING FRAME
114A	KITCHEN - 114	W	X	S2		3		REPAIR AND PAINT EXISTING FRAME
114B	KITCHEN - 114	M	X	S2		9		REPAIR AND PAINT EXISTING FRAME
114C	KITCHEN - 114					4		ALUMINUM ROLL-UP COUNTER DOOR FIELD MEASURE FOR SIZE
115	MENS - 115	W	X	S2		8		REPAIR AND PAINT EXISTING FRAME
116	CONFERENCE ROOM - 116	W	X	S2		3		REPAIR AND PAINT EXISTING FRAME SEE DETAIL A5/AE701
117	STORAGE - 117	W	X	S2	3	3		
118	STORAGE - 118	W	X	S2	3	3		
119	WOMENS - 119	W	X	S2	3	8		
120	STORAGE - 120	W	X	S2	3	11		
121	LOCKER ROOM - 121	W	X	S2	3	3		
122A	WEIGHT ROOM - 122	W	X	S2	3	3		
122B	WEIGHT ROOM - 122					4		REPAIR AND PAINT EXISTING OVERHEAD DOOR
123	I.T. - 123	W	X	S2		5		REPAIR AND PAINT EXISTING FRAME
01A	MECHANICAL ROOM - 01	W	X	S2		5	1 HR	REPAIR AND PAINT EXISTING FRAME
01B	MECHANICAL ROOM - 01	M	X	S2		10		REPAIR AND PAINT EXISTING FRAME

DOOR SIZE
S1: 2-3'-0" X 7'-0" X 1¾"
S2: 3'-0" X 6'-10" X 1¾"
S3: 2'-0", 3'-0" X 6'-10" X 1¾"

GENERAL NOTES:
1. DOORS TO BE SET TO CLEAR FINISHED FLOOR SURFACE BY 1/2"
2. FIELD VERIFY SIZE OF DOORS TO BE INSTALLED IN EXISTING FRAMES.

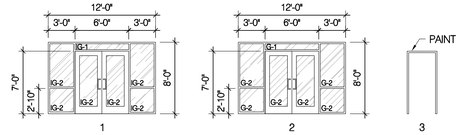
DOOR TYPES



A = STOREFRONT M = METAL W = WOOD

FRAME TYPES

NOTE: FIELD VERIFY DIMENSIONS



ALUMINUM STOREFRONT ALUMINUM STOREFRONT STEEL

EFT ARCHITECTS
265 EAST 100 SOUTH SUITE 350
SALT LAKE CITY, UTAH 84111-1604
801.521.8564 WWW.EFTARCH.COM

CONSULTANT INFORMATION

1. 5/8" GYP ADHERED TO CMU WALL.
2. 2" METAL STUDS
3. 5/8" GYP BOARD.
4. EXISTING CMU WALL.
5. SCHEDULED DOOR.
6. 2" Z-FURRING STUD
7. CONCRETE CURB
8. ASPHALT PAVING
9. COMPACTED ROAD BASE
10. EXISTING T & G WOOD CEILING
11. EXISTING ROOF OVERFLOW DRAIN AND BRACKETS
12. ALUMINUM WINDOW
13. SOLID SURFACE WINDOW SILL
14. 1 ½" RIDGED INSULATION
15. EXISTING CONCRETE WALL

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SHEET TITLE
SCHEDULES

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2	-	-	-
3	-	-	-
4	-	-	-

DRAWN BY CRO
CHECKED BY ERT
PROJECT NO. 09226470
DRAWING NO. AE701
DATE 12.15.09

Utah National Guard - Brigham City Armory - Renovation

GENERAL

1. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE DRAWINGS OF ALL OTHER DISCIPLINES AND THE SPECIFICATIONS FOR THIS PROJECT. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO SLEEVES, CHASES, HANGERS, INSERTS, ANCHORS, HOLES AND OTHER ITEMS TO BE PLACES OR SET IN THE STRUCTURAL WORK. THE CONTRACTOR SHALL COORDINATE WITH ALL TRADES ALL ITEMS THAT ARE TO BE INTEGRATED INTO THE STRUCTURAL SYSTEM. ORDER OF CONSTRUCTION TO BE THE RESPONSIBILITY OF THE CONTRACTOR. HE SHALL PROVIDE ALL ITEMS NECESSARY FOR HIS CHOSEN PROCEDURE.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL SAFETY PRECAUTIONS AND REGULATIONS DURING THE WORK. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE STANDARDS OF OSHA, CHAPTER 33 OF THE IBC 2006, AND LOCAL ORDINANCES AND CODES. THE ENGINEER WILL NOT ADVISE ON NOR ISSUE DIRECTION AS TO SAFETY PRECAUTIONS AND PROGRAMS.

3. THE STRUCTURAL DRAWINGS HEREIN REPRESENT THE FINISH STRUCTURE. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY GUYING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL ALL STRUCTURAL WORK AND CONNECTIONS HAVE BEEN COMPLETED. THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY AND INSPECTION OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

4. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE METHODS, TECHNIQUES AND SEQUENCES OF PROCEDURES TO PERFORM THE WORK. THE SUPERVISION OF THE WORK IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT BE CONSTRUED AS INSPECTION, NOR AS APPROVAL OF CONSTRUCTION.

5. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO APPROVAL BY THE ENGINEER.

6. ALL STRUCTURAL SYSTEMS WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH THE SUPPLIER'S INSTRUCTIONS AND REQUIREMENTS.

7. LOADING APPLIED TO THE STRUCTURE DURING THE PROCESS OF CONSTRUCTION SHALL NOT EXCEED THE SAFE LOAD-CARRYING CAPACITY OF THE STRUCTURAL MEMBERS. THE LIVE LOADINGS USED IN THE DESIGN OF THIS STRUCTURE ARE INDICATED IN THE "DESIGN CRITERIA NOTES". DO NOT APPLY ANY CONSTRUCTION LOADS UNTIL STRUCTURAL FRAMING IS PROPERLY CONNECTED TOGETHER AND UNTIL ALL TEMPORARY BRACING IS IN PLACE.

8. ALL ASTM AND OTHER REFERENCES ARE PER THE LATEST EDITIONS OF THESE STANDARDS, UNLESS OTHERWISE NOTED. SHOP DRAWINGS AND OTHER ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. ALL SHOP DRAWINGS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR BEFORE SUBMITTAL. THE ENGINEER'S REVIEW IS TO BE FOR CONFORMANCE WITH THE DESIGN CONCEPTS AND GENERAL COMPLIANCE WITH THE RELEVANT CONTRACT DOCUMENTS. THE ENGINEER'S REVIEW DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW, CHECK AND COORDINATE THE SHOP DRAWINGS PRIOR TO SUBMISSION. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, DIMENSION, ETC.

9. SUBMIT SHOP DRAWINGS IN THE FORM OF TWO SETS OF PRINTS AND ONE SET OF REPRODUCIBLE DRAWINGS TO BE USED AS SHOP DRAWINGS. AS A MINIMUM, SUBMIT THE FOLLOWING ITEMS FOR REVIEW:
   - 9.1. CONCRETE MIX DESIGN(S).
   - 9.2. REINFORCING STEEL SHOP DRAWINGS.
   - 9.3. STRUCTURAL STEEL SHOP DRAWINGS.
   - 9.4. PRE-ENGINEERED METAL BUILDING SYSTEM.

   OTHER SUBMITTALS MAY BE REQUIRED PER THE "SPECIAL INSPECTION" NOTES CONTAINED HEREIN.

10. CONTRACTORS SHALL VISIT THE SITE PRIOR TO BID TO ASCERTAIN CONDITIONS WHICH MAY ADVERSELY AFFECT THE WORK OR COST THEREOF.

DESIGN LOADS & CRITERIA

DESIGN CODES	BUILDING CODE	IBC 2006 ASCE 7-05
	REINFORCED CONCRETE	ACI 318-05
	STRUCTURAL STEEL	AISC 13th Ed
	WOOD FRAMING	NDS 2005
SEISMIC	OCCUPANCE CATAGORY (ASCE 7-05 TABLE 1-1)	II
	IBC SEISMIC IMPORTANCE FACTOR (ASCE 7-05 TABLE 9.1.4 pg 97)	I_E = 1.0
	MAPPED SPECTRAL RESPONSE ACCELERATION:	
	LIMIT MAX S_S TO 1.5 PER ASCE 7-05 9.5.5.2.1	S_S = 1.389
	LIMIT MAX S_1 TO 0.60 PER ASCE 7-05 9.5.5.2.1	S_1 = 0.545
	SITE CLASS (SEE ASCE 7-05 TABLE 9.4.1.2, PER ASCE 7-05 , USE CLASS D UNLESS OTHER INFORMATION IS PROVIDED)	D
	DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS	S_{DS}= 0.926 S_{D1} = 0.545
	SEISMIC DESIGN CATEGORY (ASCE 7-05 11.6)	D
WIND	IBC SIMPLIFIED METHOD PER SECTION 1609.6	
	WIND SPEED (3 SECOND GUST) =	90 M.P.H.
	EXPOSURE CATEGORY	C
	WIND IMPORTANCE FACTOR (ASCE 7-05 TABLE 6.1)	I_W = 1.0
ROOF	ROOF SNOW LOAD (VALUE SHOWN DOES NOT INCLUDE DRIFT LOAD)	30 P.S.F.
	LIVE LOAD	20 P.S.F.
	SNOW IMPORTANCE FACTOR (ASCE 7-05 TABLE 7.4)	I_S = 1.0
SOIL BEARING	(TO BE VERIFIED BY SOILS REPORT)	1500 P.S.F.

EXISTING CONSTRUCTION

1. BEFORE PROCEEDING WITH ANY WORK WITHIN THE EXISTING FACILITY, THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH EXISTING STRUCTURAL AND OTHER CONDITIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL NECESSARY BRACING, SHORING AND OTHER SAFEGUARDS TO MAINTAIN ALL PARTS OF THE EXISTING WORK IN A SAFE CONDITION DURING THE PROCESS OF DEMOLITION AND CONSTRUCTION AND TO PROTECT FROM DAMAGE THOSE PORTIONS OF THE EXISTING WORK WHICH ARE TO REMAIN.

2. THE CONTRACTOR SHALL FIELD VERIFY THE DIMENSIONS, ELEVATIONS, ETC. NECESSARY FOR THE PROPER CONSTRUCTION AND ALIGNMENT OF THE NEW PORTIONS OF THE WORK TO THE EXISTING WORK. THE CONTRACTOR SHALL MAKE ALL MEASUREMENTS NECESSARY FOR FABRICATION AND ERECTION OF STRUCTURAL MEMBERS. ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER OF RECORD.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND ERECTION OF ALL SHORING NECESSARY TO SAFEGUARD THE EXISTING STRUCTURE.. THE SHORING SHOWN IS A PARTIAL AND SCHEMATIC REPRESENTATION OF THAT REQUIRED. THE CONTRACTOR SHALL SUBMIT A DETAILED PLAN FOR SHORING, BRACING AND PROTECTION OF THE EXISTING CONSTRUCTION. THE PLAN SHALL INCLUDE A CONSTRUCTION SEQUENCE, BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATED THE PROJECT IS TO BE CONSTRUCTED IN AND BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW PRIOR TO BEGINNING THE WORK.

EARTHWORK

1. STRIP THE TOP 12" TO 18" OF TOP SOIL AND REMOVE ANY AND ALL UNSUITABLE FILL, DEBRIS AND VEGETATION. ANY UNSUITABLE SOILS SHALL BE STRIPPED DOWN TO NATURAL UNDISTURBED SOILS AND REPLACED WITH STRUCTURAL FILL AS REQUIRED.

2. All EXISTING FOUNDATIONS SHALL BE REMOVED.

3. ALL SOFT SPOTS SHALL BE REMOVED AND REPLACED WITH COMPACTED STRUCTURAL FILL.

4. STRUCTURAL FILL SHALL BE WELL GRADED GRANULAR MATERIAL WITH A MAXIMUM SIZE LESS THAN 4" AND WITH NOT MORE THAN 10% PASSING A NO. 200 SIEVE. FILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM LABORATORY DENSITY AS DETERMINED BY ASTM D 1557. THE CONTRACTOR SHALL HAVE ALL FILL TESTED.

5. ALL INTERIOR CONCRETE SLABS-ON-GRADE SHALL BE UNDERLAIN WITH 4" OF FREE DRAINING GRANULAR FILL.

FOUNDATIONS

1. ALL FOOTINGS HAVE BEEN DESIGNED BASED UPON AN ASSUMED SOIL BEARING PRESSURE OF 1,500 psf. ALL FOOTINGS SHALL BEAR ON UNDISTURBED, FIRM NATURAL SOIL OR COMPACTED FILL. ALL FOUNDATION EXCAVATIONS SHALL BE EVALUATED BY THE GEOTECHNICAL ENGINEER/ TESTING AGENCY PRIOR TO POURING FOUNDATION CONCRETE.

2. TOP OF FOOTING ELEVATION SHALL BE AS SHOWN ON THE FOUNDATION PLAN. THESE ELEVATIONS ARE A MAXIMUM AND SHALL BE LOWERED AS REQUIRED TO OBTAIN THE REQUIRED DESIGN BEARING PRESSURE.

3. THE BOTTOM OF ANY FOOTINGS EXPOSED TO THE FREEZE THAW CYCLE SHALL BE PLACED A MINIMUM OF 30 INCHES BELOW GRADE FOR FROST PROTECTION.

4. NO UNBALANCED BACK FILLING SHALL BE DONE AGAINST FOUNDATION WALLS UNLESS WALLS ARE SECURELY BRACED AGAINST OVERTURNING, EITHER BY TEMPORARY BRACING OR BY PERMANENT CONSTRUCTION.

5. PRIOR TO COMMENCING ANY FOUNDATION WORK, COORDINATE WORK WITH ANY EXISTING UTILITIES. FOUNDATIONS SHALL BE LOWERED WHERE REQUIRED TO AVOID UTILITIES.

CONCRETE

1. CONCRETE SHALL HAVE THE FOLLOWING MATERIALS UNLESS NOTED OTHERWISE:
   - 1.1. CEMENT: CEMENT SHALL CONFORM TO "SPECIFICATION FOR PORTLAND CEMENT", (ASTM C150). CEMENT SHALL BE TYPE ONE UNLESS EXPOSED TO SULFATES. WHERE CEMENT IS EXPOSED TO SULFATES, CEMENT SHALL MEET THE REQUIREMENTS OF ACI 318 SECTION 4.3.
   - 1.2. NORMAL WEIGHT AGGREGATE — ASTM C-33.
   - 1.3. REINFORCING STEEL — ASTM A-615,
     - 1.3.a. GRADE 60 — Fy = 60 ksi.
     - 1.3.b. GRADE 40 — Fy = 40 ksi. (field bent dowels with spacings reduced by 1/3.)
   - 1.4. DEFORMED BAR ANCHORS (DBA) — ASTM A-496.
   - 1.5. HEADED STUD ANCHORS (HAS) — ASTM A-108.

2. ANCHOR BOLTS:
   - 2.1. GRAVITY BOLTS — ASTM A-307.
   - 2.2. HEAVY HEX NUTS & WASHERS — ASTM A-563.

3. ADMIXTURES:
   - 3.1. AIR ENTRAINMENT — ASTM C-260 (provide as specified in ACI 318 SECTION 4.2)
   - 3.2. CALCIUM CHLORIDE — NOT PERMITTED.
   - 3.3. ALUMINUM PRODUCTS — NOT PERMITTED

4. CONCRETE SHALL HAVE THE FOLLOWING COMPRESSIVE STRENGTHS:

CONCRETE	MINIMUM f'c (28 DAYS)	SLUMP	W/C RATIO
COLUMNS	4000 psi	3" TO 5"	0.46
FOOTINGS	4000 psi	3" TO 5"	0.46
SLAB-ON-GRADE	3500 psi	3" TO 5"	0.50

SLUMP: CONCRETE w/o ADMIXTURES SHALL HAVE A MAXIMUM SLUMP OF 4".

5. AT THE CONTRACTOR'S OPTION, AN APPROVED ADMIXTURE MAY BE USED TO PRODUCE FLOWABLE CONCRETE. MAXIMUM SLUMP SHALL NOT EXCEED 8 INCHES. THE CONTRACTOR SHALL SUBMIT TEST RESULTS OF THE PROPOSED CONCRETE MIXES ALONG WITH THE MANUFACTURER'S TECHNICAL DATA FOR APPROVAL PRIOR TO POURING CONCRETE. SEE ACI 301-05 4.2.2.2 FOR SPECIFIC SLUMP REQUIREMENTS.

6. THE CONTRACTOR IS ALLOWED TO HAVE ONLY ONE TYPE OF CONCRETE ON THE JOB SITE AT ONE TIME.

7. ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE".

8. HOT WEATHER CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 305. COLD WEATHER CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 306.

9. WELDING OF REINFORCING BARS IS NOT PERMITTED. REBAR SHALL NOT BE SUBSTITUTED FOR ANY OTHER TYPE OF REINFORCEMENT. SUBSTITUTION OF REINFORCING BARS OF ANY KIND SHALL BE AT THE ENGINEER OF RECORD'S WRITTEN CONSENT.

10. ALL REINFORCING STEEL SHALL BE SET AND TIED IN PLACE PRIOR TO POURING OF CONCRETE, EXCEPT THAT VERTICAL DOWELS FOR MASONRY WALL REINFORCING MAY BE "FLOATED" IN PLACE. DO NOT FIELD BEND BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE UNLESS SPECIFICALLY INDICATED OR APPROVED BY THE ENGINEER OF RECORD.

11. REINFORCING STEEL, INCLUDING HOOKS AND BENDS, SHALL BE DETAILED IN ACCORDANCE WITH ACI 315. ALL REINFORCING STEEL INDICATED AS BEING CONTINUOUS (CONT.) SHALL BE LAPPED WITH A TYPE 2 LAP SPLICE UNLESS OTHERWISE NOTED. ALL WELDED WIRE FABRIC SHALL LAP AT LEAST ONE FULL MESH.

12. UNLESS NOTED OTHERWISE, THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:
   - 12.1. CONCRETE EXPOSED TO EARTH OR WEATHER:
     - 12.1.a. #6 THROUGH #18 BARS — 2"
     - 12.1.b. #5 BAR, W31 OR D31 WIRE & SMALLER — 1 1/2"
   - 12.2. CONCRETE NOT EXPOSED TO THE EARTH OR WEATHER:
     - 12.2.a. WALLS, ELEVATED SLABS (JOISTS) — 3/4"
     - 12.2.b. BEAMS AND COLUMNS — 1 1/2"
   - 12.3. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO THE EARTH: — 3"

13. BAR SUPPORTS AND HOLDING BARS SHALL BE PROVIDED FOR ALL REINFORCING STEEL TO INSURE MINIMUM CONCRETE COVER. BAR SUPPORTS SHALL BE PLASTIC TIPPED OR STAINLESS STEEL.

14. UNLESS OTHERWISE APPROVED, ALL WELDED WIRE FABRIC SHALL BE BLOCKED INTO THE POSITION INDICATED WITH PRECAST CONCRETE BLOCKS HAVING A COMPRESSIVE STRENGTH EQUAL TO THAT OF THE SLAB.

15. FORM WORK SHALL COMPLY WITH THE REQUIREMENTS OF ACI STANDARD PUBLICATION #347 AND SHALL REMAIN IN PLACE UNTIL CONCRETE HAS OBTAINED AT LEAST 90% OF ITS 28-DAY COMPRESSIVE STRENGTH. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, DETAIL PLACEMENT AND REMOVAL OF ALL FORM WORK, SHORING AND RE-SHORING.

16. SLABS TO BE PERMANENTLY EXPOSED TO WEATHER SHALL BE AIR ENTRAINED AS SPECIFIED ABOVE.

17. CONSTRUCTION AND CONTROL JOINTS SHALL BE INSTALLED IN THE SLABS ON GRADE SO THAT THE LENGTH TO WIDTH RATIOS IS NOT MORE THAN 1.25 TO 1. CONTROL JOINTS SHALL BE COMPLETED WITHIN 12 HOURS OF THE PLACEMENT OF THE CONCRETE. CONTROL JOINTS SHALL BE CUT INTO THE SLABS OR TOOLED IN THE SLABS A DEPTH OF 1/4 THE DEPTH OF THE SLAB. INSTALL JOINTS IN THE SLABS ON GRADE AT A SPACING NOT TO EXCEED 30 TIMES THE SLAB THICKNESS OF THE SLAB IN ANY DIRECTION UNLESS SPECIFICALLY INDICATED IN THE CONTRACT DOCUMENTS. CONSTRUCTION JOINTS SHALL BE LIMITED TO A SPACING OF NOT MORE THAN 125'-0" IN ANY DIRECTION.

18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PLACEMENT AND LOCATION OF ANY AND ALL EMBED ITEMS INCLUDING PLATES, BOLTS, AND OTHER INSERTS SPECIFIED IN THE DRAWINGS. REINFORCING STEEL FOR PRECAST CONCRETE PANELS SHOWN ON THE DRAWINGS ARE FOR THE GRAVITY, SEISMIC AND WIND LOADS ONLY. LIFTING PROCEDURES OF ALL PRECAST PANELS SHALL BE THE CONTRACTORS RESPONSIBILITY. THE CONTRACTOR SHALL SUBMIT A COPY OF THE DESIGN CALCULATIONS AND SHOP DRAWINGS TO THE ENGINEER OF RECORD FOR ALL PRECAST CONCRETE REINFORCEMENT AND LIFTING HARDWARE ASSOCIATED WITH HIS CHOSEN INSTALLATION PROCEDURE.

19. REFER TO THE "SPECIAL INSPECTION" SECTION OF THE GENERAL STRUCTURAL NOTES FOR INSPECTION REQUIREMENTS.

EPOXY

1. USE SIMPSON SET HIGH STRENGTH EPOXY-TIE ANCHORING SYSTEMS FOR ANY EPOXY ANCHORING INTO MASONRY OR CONCRETE, U.N.O ON PLANS OR IN DETAILS, OR EQUIVALENT EPOXY MEETING ASTM C-881.
2. HOLES SHALL BE DRILLED TO THE REQUIRED DEPTHS LISTED ABOVE USING ROTARY HAMMER DRILLS AND CARBIDE-TIPPED DRILL BITS, COMPLYING W/ ANSI B212.15-1994. THE BIT DIAMETERS MUST COMPLY WITH THOSE LISTED ON SHEET S601.
3. USE MINIMUM GRADE A307 GRADED THREADED ANCHORS U.N.O., AND ALL ROD THREADS MUST COMPLY W/ ANSI B1.1-74.
4. THE MINIMUM INSTALLATION TEMPERATURE FOR THESE SYSTEMS IS 0 DEGREES FAHRENHEIT.
5. AFTER DRILLING, ALL HOLES MUST BE CLEANED FROM THE BOTTOM W/ FORCED AIR. A WIRE BRUSH SHALL THEN BE USED TO CLEAN DUST AND SLURRY FROM THE HOLE. FOLLOW THIS BY ANOTHER CLEANING W/ FORCED AIR, ENSURING THAT THERE ARE NO LOOSE DEBRIS NOR MATERIALS IN THE HOLE.
6. ADHESIVE SHALL THEN BE PUMPED INTO THE HOLE AND ANCHORS OR BARS INSTALLED, PER MANUFACTURER'S SPECIFICATIONS. ANCHORS OR BARS SHALL BE INSERTED BY ROTATING A MINIMUM OF TWO TURNS TO EVENLY DISTRIBUTE EPOXY.
7. CURE TIMES SHALL BE DETERMINED PER MANUFACTURER'S RECOMMENDATIONS. REFER TO ICC EVALUATION REPORT ESR 1772.
8. PER ICBO REQUIREMENTS, CONTINUOUS SPECIAL INSPECTION IS REQUIRED FOR ALL ADHESIVE ANCHOR INSTALLATIONS. THE SPECIAL INSPECTOR SHALL RECORD AND SUBMIT COMPLIANCE OF THE FOLLOWING:
   - A. DRILL BIT TYPE AND SIZE, PER ANSI B212.15-1994
   - B. HOLE DEPTH AND CLEANLINESS
   - C. PRODUCT DESCRIPTION, INCLUDING PRODUCT NAME, ROD DIAMETER, AND LENGTH
   - D. ADHESIVE EXPIRATION DATE
   - E. VERIFICATION OF ANCHOR INSTALLATION PER THE MANUFACTURER'S PUBLISHED INSTRUCTIONS
9. THESE CONDITIONS ONLY APPLY WHEN ANCHORS OR BARS ARE INSTALLED IN NORMAL-WEIGHT CONCRETE OR GROUT - FILLED CONCRETE MASONRY WALLS.

PRE-ENGINEERED METAL BUILDING

1. THE DESIGN, FABRICATION, AND ERECTION OF ALL PREFABRICATED ELEMENTS WITH THEIR ASSOCIATED HARDWARE SHALL COMPLY WITH THE LATEST REQUIREMENTS OF THE IBC, AISC, SDI, AND AISI.

2. PRIOR TO FABRICATION AND INSTALLATION OF ANCHOR BOLTS, THE METAL BUILDING SUPPLIER SHALL SUBMIT COMPLETE SHOP DRAWINGS AND CALCULATIONS INCLUDING REACTIONS BEARING THE STAMP OF A REGISTERED PROFESSIONAL ENGINEER, LICENSED IN THE SAME STATE AS THE BUILDING IS TO BE BUILT.

3. DO NOT MODIFY ANY STRUCTURAL ELEMENT OF THE PREFABRICATED METAL BUILDING WITHOUT WRITTEN CONSENT AND DIRECTION FROM THE MANUFACTURER. SEND COPIES OF THE CONSENT AND MODIFICATIONS TO THE ARCHITECT-ENGINEER.

4. ALL OF THE ANCHOR BOLTS AND BASE PLATE CONNECTION OF THE PREFABRICATED COLUMNS, AND MISCELLANEOUS FRAMING MEMBERS TO THE FOUNDATIONS, SHALL BE OF THE NUMBER, MATERIAL, DIAMETER AND LAYOUT SHOWN IN THE PREFABRICATED METAL BUILDING DESIGNER/SUPPLIER/MANUFACTURERS DRAWINGS. THE DEPTH OF EMBEDMENT FOR THE ANCHOR BOLTS AND ANY OTHER MODIFICATIONS REQUIRED ARE SHOWN IN THESE STRUCTURAL CONTRACT DRAWINGS.

5. THE FOUNDATION PLAN AND ASSOCIATED FOUNDATION DETAILS ON SHEETS S101 ARE BASED SOLELY UPON COLUMN AND WALL LOADS PROVIDED FOR THEIR DESIGN. INTERMOUNTAIN STRUCTURAL ENGINEERING llc. IS RESPONSIBLE ONLY FOR SUPPORTING THE LOADS PROVIDED BY THE PREFABRICATED BUILDING MANUFACTURER AND ACCEPTS NO RESPONSIBILITY FOR THE DESIGN OF MEMBERS AND CONNECTIONS OF THE SUPERSTRUCTURE.

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL HAVE THE FOLLOWING MATERIALS UNLESS NOTED OTHERWISE.

OTHER ROLLED SHAPES AND PLATES	ASTM A36
STRUCTURAL STEEL PIPES	ASTM A53, TYPE E or S GRADE B
STRUCTURAL STEEL TUBES	ASTM A500 GRADE B (46 KSI)
HEADED STUD ANCHORS (HAS)	ASTM A307 WITH ASTM A563 HEAVY HEX
DEFORMED BAR ANCHORS (DBA)	ASTM A496
THREADED ROD	ASTM A307
ANCHOR BOLTS	ASTM A307
NUTS	ASTM A563 (heavy hex)
WASHERS	GRADE A (hardened)

2. THE FABRICATION AND CONSTRUCTION OF ALL STRUCTURAL STEEL SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING CODES:
   - IBC 2006 SECTION 2205
   - AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL BUILDINGS.
   - AISC CODE OF STANDARD PRACTICE EXCLUDING SECTIONS 3.4, 4.4, AND 4.4.1.
   - AISC SPECIFICATIONS FOR STRUCTURAL JOINTS.
   - AWS WELDING CODE.
   - AISC SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS.
   - PROVIDE SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION. ALL SHOP FABRICATION BE BY AISC-APPROVED FABRICATORS.

3. ALL STRUCTURAL WELDING SHALL CONFORM WITH THE FOLLOWING SPECIFICATIONS:

WELDING RODS	E-70 XX (typical) E-60 XX (roof decks)
STRUCTURAL WELDING	AWS D1.1 (performed by AWS certified welder)
STRUCTURAL CUTTING	AWS CERTIFIED WELDER
HSA's/DBA's	MANUFACTURERS SPECIFICATIONS
REINFORCING BARS (REBAR)	DO NOT WELD REBAR
ANCHOR BOLTS	DO NOT WELD ANCHOR BOLTS (including tack welds)

4. ANY SUBSTITUTION OF ANY MEMBERS SHALL BE AT THE WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.

5. HARDENED WASHERS SHALL BE PROVIDED AT ALL TURNED ELEMENTS OF BOLTED CONNECTIONS. IF THE CONNECTION IS SLOPED OR SKEWED THEN PROVIDE BEVELED WASHERS AS REQUIRED. PROVIDE WASHERS THAT COMPLETELY COVER ANY OVERSIZED HOLES OR SLOTS ER ASTM F-436.

6. BOLTS MUST BE LONG ENOUGH FOR THREADS TO BE FLUSH WITH THE OUTSIDE FACE OF THE BOLT AFTER TIGHTENING. NO MORE THAN 5 THREADS OF "STICKOUT" ARE PERMITTED. THE "TURN OF THE NUT" METHOD IS DESCRIBED BELOW (THIS IS FOR PERPENDICULAR SURFACES ONLY):
   - 6.1 THE TURN OF THE NUT METHOD IS NOT TO BE USED FOR BOLTS LONGER THEN 12 BOLT DIAMETERS. TIGHTEN ALL BOLTS IN THE CONNECTION TO THE SNUG, TIGHT CONDITION. FROM THE SNUG, TIGHT CONDITION, TIGHTEN EACH BOLT AS SPECIFIED BELOW:

BOLT LENGTH:	AMOUNT OF TURN APPLIED TO NUT.
UP TO AND INCLUDING 4 DIAMETERS	1/3 TURN OF THE NUT
OVER 4 DIAMETERS BUT NOT EXCEEDING 8 DIAMETERS	1/2 TURN OF THE NUT
OVER 8 DIAMETERS BUT NOT EXCEEDING 12 DIAMETERS	2/3 TURN OF THE NUT

7. DO NOT REUSE BOLTS, NUTS OR WASHERS.

8. HOLES IN STEEL SHALL BE DRILLED OR PUNCHED. ALL SLOTTED HOLES SHALL BE PROVIDED WITH SMOOTH EDGES. BURNING OF HOLES AND TORCH CUTTING AT THE SITE IS NOT PERMITTED.

9. THE STRUCTURAL STEEL ERECTOR SHALL PROVIDE ANY REQUIRED TEMPORARY GUYING AND BRACING REQUIRED. COLUMNS, ANCHOR BOLTS, BASE PLATES, ETC. HAVE BEEN DESIGNED FOR THE FINAL COMPLETED CONDITION AND HAVE NOT BEEN INVESTIGATED FOR POTENTIAL LOADINGS ENCOUNTERED DURING STEEL ERECTION AND CONSTRUCTION. ANY INVESTIGATION OF THE COLUMNS, ANCHOR BOLTS, BASE PLATES, ETC.. FOR ADEQUACY DURING THE STEEL ERECTION AND CONSTRUCTION PROCESS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

10. REFER TO THE "SPECIAL INSPECTION" SECTION OF THE GENERAL STRUCTURAL NOTES FOR ANY INSPECTION REQUIREMENTS.

SPECIAL INSPECTION

SPECIAL INSPECTION AND QUALITY ASSURANCE, AS REQUIRED BY SECTION 1704 OF THE IBC, SHALL BE PROVIDED BY AN INDEPENDENT AGENCY EMPLOYED BY THE OWNER UNLESS WAIVED BY THE BUILDING OFFICIAL. THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH THE REQUIRED INSPECTIONS. ALL TESTING AND INSPECTION REPORTS SHALL BE SENT TO THE ENGINEER OF RECORD FOR REVIEW. ITEMS REQUIRING SPECIAL INSPECTION AND QUALITY ASSURANCE ARE:

1. SOILS PER IBC SECTION 1704.7
   - 1.1. SPECIAL INSPECTION SHALL BE PROVIDED PRIOR TO POURING CONCRETE FOOTINGS.
   - 1.2. SPECIAL INSPECTION SHALL BE PROVIDED PRIOR TO PLACEMENT OF FILL AND DURING PLACEMENT OF FILL.
2. CONCRETE PLACEMENTS PER IBC SECTION 1704.4
   - 2.1. CONTINUOUS SPECIAL INSPECTION SHALL BE PROVIDED
   - 2.2. CYLINDERS, SLUMP AND AIR-ENTRAINMENT TEST SHALL BE PERFORMED FOR EVERY 50 CUBIC YARDS OR EACH DAY'S PRODUCTION IF LESS THAN 50 CUBIC YARDS. TEST SHALL BE PERFORMED IN ACCORDANCE WITH ASTM C31 AND C39.
3. A-BOLTS INSTALLED IN CONCRETE SECTION 1704.4
   - 3.1. ALL A-BOLTS SHALL BE INSPECTED PRIOR TO AND DURING CONCRETE PLACEMENT.
4. CONCRETE REINFORCING STEEL PLACEMENT IBC SECTION 1704.4
   - 4.1. REINFORCING SHALL BE INSPECTED PRIOR TO CONCRETE PLACEMENT.
5. STRUCTURAL WELDING IBC SECTION 1704.3
   - 5.1. PERIODIC SPECIAL INSPECTION OF SINGLE PASS FILLET WELDS LESS THAN OR EQUAL TO 5/16".
   - 5.2. CONTINUOUS SPECIAL INSPECTION OF SINGLE PASS FILLET WELDS GREATER THAN 5/16" AND MULTI-PASS FILLET WELDS.
   - 5.3. CONTINUOUS SPECIAL INSPECTION OF COMPLETE AND PARTIAL PENETRATION WELDS.
6. EPOXY ANCHORS_IBC SECTION 1701.3.13
   - 6.1. SPECIAL INSPECTIONS SHALL VERIFY ALL DRILLED HOLES SIZE AND DEPTH PRIOR TO INSTALLATION OF EPOXY AND ANCHOR ROD.

DEFERRED SUBMITTALS

FOR THE PURPOSE OF THIS SECTION, DEFERRED SUBMITTALS ARE DEFINED AS PER SECTION 106.3.4.2 OF THE IBC. SUBMITTAL DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBJECTED TO THE ENGINEER/ARCHITECT FOR THEIR REVIEW FOR GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. DEFERRED STRUCTURAL SUBMITTALS FOR THIS PROJECT ARE:

1. PREFABRICATED METAL BUILDING.

A STRUCTURAL OBSERVATION SHALL BE PERFORMED AND A WRITTEN REPORT SHALL BE SUBMITTED IN ACCORDANCE WITH IBC SECTION 1709.1 & 1709.2. THE SPECIAL INSPECTIONS ARE REPAIRED BY THE IBC CODE SECTION 1704.

MARKS AND ABBREVIATIONS

AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
ADJ	ADJACENT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
APA	AMERICAN PLYWOOD ASSOCIATION
ARCH	ARCHITECT
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS
AWSA	AMERICAN WELDING SOCIETY
BF-X	BRACED FRAME MARK
BLDG	BUILDING
BLW	BELOW
BM	BEAM
BOT	BOTTOM
BRG	BEARING
BTWN	BETWEEN
CB-X	CONCRETE BEAM MARK
CC-X	CONCRETE COLUMN MARK
CGB-X	CONCRETE GRADE BEAM MARK
C.J.	CONST. OR CONTROL JOINT
CL-X	CONCRETE LINTEL MARK
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
CP-X	CONCRETE PIER MARK
CRW-X	CONCRETE RETAINING WALL MARK
CSW-X	CONCRETE SHEAR WALL MARK
CW-X	CONCRETE WALL MARK
DBA	DEFORMED BAR ANCHOR
DBE	DECK BEARING ELEVATION
DBL	DOUBLE
DET	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DL	DEAD LOAD
DWG	DRAWING
DWL	DOWEL
E	EXISTING
EA	EACH
E.F.	EACH FACE
E.J.	EXPANSION JOINT
EL	EARTH QUAKE LOAD
ELEV	ELEVATION
EQ	EQUAL
E.W.	EACH WAY
EXP	EXPANSION
EXT	EXTERIOR
FC-X	FOOTING CONTINUOUS MARK
FND	FOUNDATION
FL	FLOOR
FM-X	MAT FOOTING MARK
FR-X	RECTANGULAR FOOTING MARK
FS-X	SQUARE FOOTING MARK
FTG	FOOTING
FTS-X	THICKENED SLAB FOOTING MARK
GA	GAUGE
GAL	GALVANIZED
GLB	GLUE LAMINATED BEAM
GR	GRADE
GSN	GENERAL STRUCTURAL NOTES
HB	HORIZONTAL BRIDGING
HDG	HOT DIP GALVANIZED
HORIZ	HORIZONTAL
HSA	HEADED STUD ANCHOR
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS
BC	INTERNATION BUILDING CODE
I.F.	INTERIOR FACE
IN.	INCH
INT	INTERIOR
JST	JOIST
K	KIP = 1000 POUNDS
KLF	KIPS PER LINEAL FOOT
KSF	KIPS PER SQUARE FOOT
LBS	POUNDS
LF	LINEAL FOOT
LL	LIVE LOAD
LVL	LAMINATED VENEER LUMBER
MAS	MASONRY
MAX	MAXIMUM
MCJ	MASONRY CONTROL JOINT
MC-X	MASONRY COLUMN MARK
MECH	MECHANICAL
MF-X	MOMENT FRAME
MIN	MINIMUM
MISC	MISCELLANEOUS
ML-X	MASONRY LINTEL MARK
MP-X	MASONRY PIER MARK
MW-X	MASONRY WALL MARK
NTS	NOT TO SCALE
O.C.	ON CENTER
O.F.	OUTSIDE FACE
OPP	OPPOSITE
PL	PLATE
PLF	POUNDS PER LINEAL FOOT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALAM BEAM
REINF	REINFORCING
REQ'D	REQUIRED
R.D.	ROOF DRAIN
SAD	SEE ARCHITECTURAL DRAWINGS
SBP-X	STEEL BASE PLATE
SC-X	STEEL COLUMN MARK
SCP-X	STEEL CAP PLATE
SER	STRUCTURAL ENGINEER OF RECORD
SHT	SHEET
SI	SPECIAL INSPECTION
SIM	SIMILAR
SJI	STEEL JOIST INSTITUTE
SL	SNOW LOAD
SOG	SLAB ON GRADE
SQ	SQUARE
STAG	STAGGERED
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STR	STRUCTURAL
STSDS	SELF TAPPING SELF DRILLING SCREWS
SW-X	SHEAR WALL MARK
T&B	TOP AND BOTTOM
TEMP	TEMPERATURE
THK	THICKNESS
T.O.	TOP OF
TOC	TOP OF CONCRETE
TOD	TOP OF DECK
TOF	TOP OF FOOTING
TOW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
WD-X	WOOD DIAPHRAGM MARK
WL	WINDLOAD
WT	WEIGHT
WWF	WELDED WIRE FABRIC
WWPA	WESTERN WOODS PROJECT ASSOCIATION

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RENOVATION
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84302-1540

SHEET TITLE
GENERAL STRUCT NOTES

DATE	BY	DESCRIPTION

DRAWN BY NAT — CHECKED BY DMF
PROJECT NO. 09226470 — DRAWING NO. S001
DATE 12.15.2009

Utah National Guard – Brigham City Armory – Renovation

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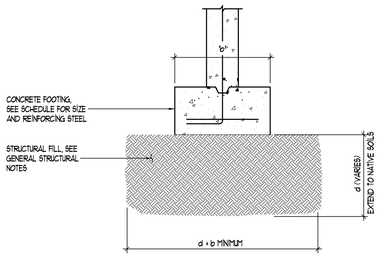
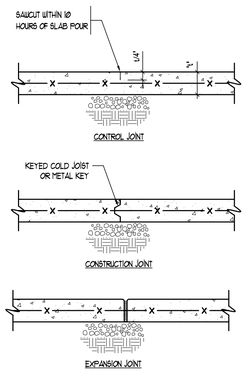
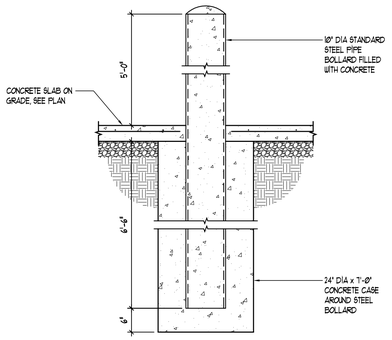


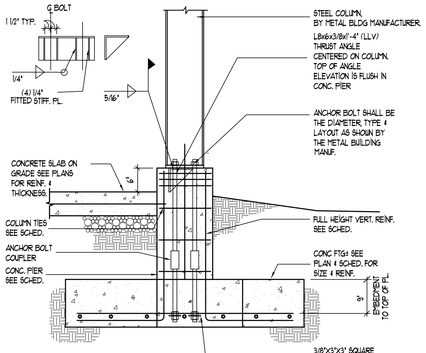
1 STRUCTURAL FILL DETAIL
Struct Fl
NO SCALE



2 CONST./CONTROL JT. IN CONC. S.O.G.
Detail.dwg
NO SCALE

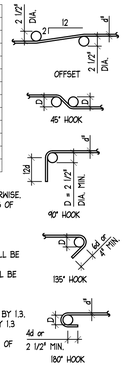


3 PIPE BOLLARD DETAIL
DETAIL.DWG
NO SCALE



4 CONCRETE PIER DETAIL
Sd Col-1
NO SCALE

BAR SIZE	f'c = 3000 PSI				f'c = 4000 PSI				f'c = 5000 PSI				f'c = 6000 PSI			
	REG.		TOP		REG.		TOP		REG.		TOP		REG.		TOP	
	CLASS		CLASS		CLASS		CLASS		CLASS		CLASS		CLASS		CLASS	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
#3	13"	17"	17"	21"	12"	16"	16"	21"	12"	16"	16"	21"	12"	16"	16"	21"
#4	18"	24"	24"	31"	15"	19"	19"	25"	14"	19"	19"	24"	13"	17"	17"	22"
#5	22"	29"	29"	38"	19"	25"	25"	33"	17"	22"	22"	29"	16"	21"	21"	27"
#6	27"	36"	36"	46"	24"	31"	31"	40"	21"	28"	28"	36"	20"	25"	25"	33"
#7	39"	51"	51"	66"	34"	44"	44"	56"	30"	39"	39"	51"	27"	35"	35"	46"
#8	49"	64"	64"	82"	42"	55"	55"	71"	38"	49"	49"	64"	35"	45"	45"	58"
#9	62"	80"	80"	104"	54"	70"	70"	90"	48"	62"	62"	81"	44"	57"	57"	74"
#10	78"	102"	102"	132"	68"	88"	88"	115"	61"	79"	79"	102"	56"	72"	72"	94"
#11	96"	125"	125"	162"	83"	108"	108"	141"	76"	97"	97"	126"	68"	88"	88"	115"



NOTES:
1. THESE NOTES SHALL BE USED FOR ALL SPLICES, UNLESS NOTED OTHERWISE.
2. CLASS 'A' SPLICES MAY BE USED ONLY IN CASSES WHERE 50% OR LESS OF THE BARS ARE SPLICED WITHIN THE LAP SPLICE LENGTH.
3. CLASS 'B' SPLICES SHALL BE USED FOR ALL SPLICES UNLESS THE REQUIREMENTS OF NOTE #2 ABOVE ARE MET.
4. TIES AND STIRRUPS SHALL NOT BE SPLICED.
5. a. FOR BUNDLED BARS OF THREE OR LESS, LAP SPLICE LENGTHS SHALL BE MULTIPLIED BY 1.2.
   b. FOR BUNDLED BARS OF FOUR OR MORE, LAP SPLICE LENGTHS SHALL BE MULTIPLIED BY 1.33.
   c. INDIVIDUAL BAR SPLICES WITHIN A BUNDLE SHALL NOT OVERLAP.
   d. ENTIRE BUNDLES SHALL NOT BE LAP SPLICED.
6. FOR ALL LIGHTWEIGHT CONCRETE, LAP LENGTHS SHALL BE MULTIPLIED BY 1.3.
7. FOR ALL EPOXY COATED BARS, LAP LENGTHS SHALL BE MULTIPLIED BY 1.3 FOR TOP BARS AND 1.5 FOR REGULAR BARS.
8. TOP BARS ARE CLASSIFIED AS HORIZONTAL BARS WHERE 12", IR MORE, OF FRESH CONCRETE IS CAST BELOW THE REINFORCING BAR.

5 CONCRETE REBAR LAP SPLICE SCHEDULE
...\e2CNC-REBAR-LAP-SPLICE.dwg
NO SCALE

EPOXY ANCHORING SCHEDULE				
THREADED ROD ANCHOR		GRADE 60 REINFORCING BAR		REQUIRED
ROD DIAMETER	BIT DIAMETER	BAR DIAMETER	BIT DIAMETER	EMBEDMENT DEPTH
3/8"	7/16"	NO. 3 (0.375")	7/16"	3 1/2"
1/2"	9/16"	NO. 4 (0.5")	5/8"	4 1/4"
5/8"	11/16" or 3/4"	NO. 5 (0.625")	3/4"	5 1/2"
3/4"	13/16" or 7/8"	NO. 6 (0.75")	7/8"	6 3/4"
7/8"	1"	NO. 7	1"	8"
1"	1 1/8" or 1 1/8"	NO. 8 (1.0")	1 1/8"	9"
1 1/4"	1 5/16" or 1 3/8"	NO. 10 (1.27")	1 1/2"	11 1/4"

8 EPOXY DOWEL EMBEDMENT SCHEDULE
...\REPORT-DOWEL-EMBED.dwg
NO SCALE

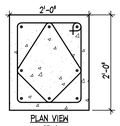
MARK	WIDTH	LENGTH	THICKNESS	CROSSWISE REINFORCING				LENGTHWISE REINFORCING				REMARKS
				NO.	SIZE	LENGTH	SPACE	NO.	SIZE	LENGTH	SPACE	
FS8.0	8'-0"	8'-0"	18"	7	#6	7'-6"	15"	7	#6	7'-6"	15"	T & B

NOTES:
1. PLACE ALL FOOTING REINFORCING IN BOTTOM OF FOOTING WITH 3" CLEAR CONCRETE COVER U.N.O.
2. TOP REINFORCING, WHERE SPECIFIED, SHALL BE PLACE IN THE TOP OF THE FOOTING W/ 2" CLEAR CONCRETE COVER.
3. THE SCHEDULED FOOTINGS ARE NOT NECESSARILY ALL USED.
4. FS-SQUARE FOOTING

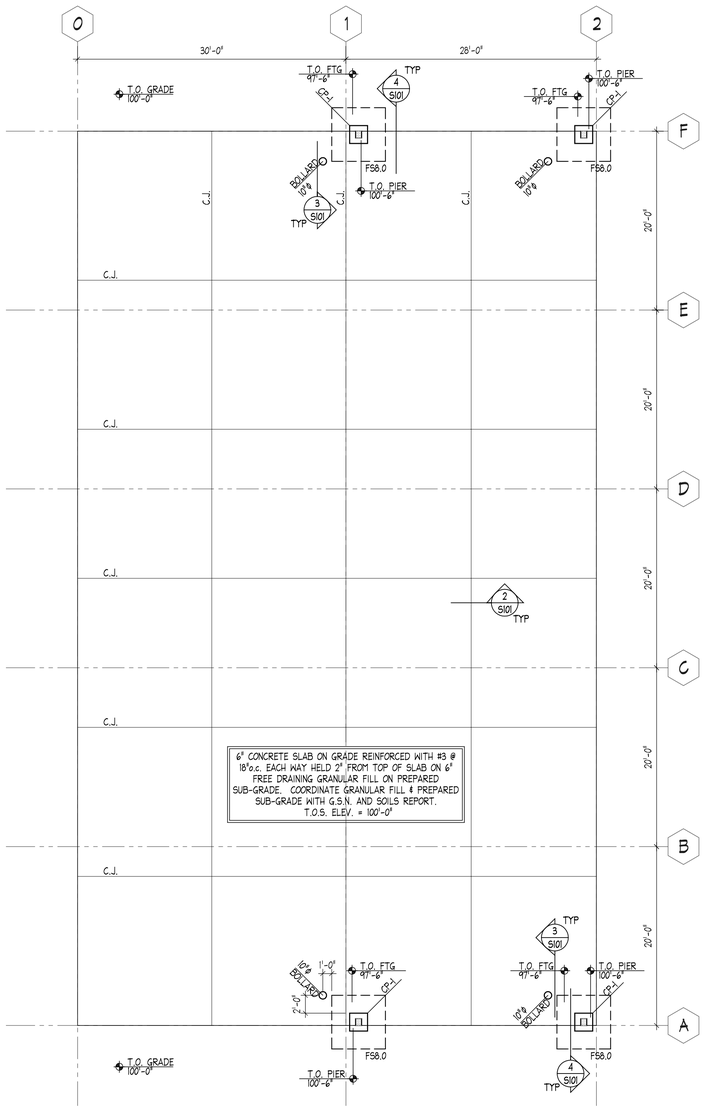
6 CONCRETE FOOTING SCHEDULE
...\e2CNC-FTG.1.SPSF_3.0PSI.dwg
NO SCALE

MARK	DIMENSIONS	f'c psi	VERT REINF	DOWELS TO FOOTING	TIE REINF	TIES AT TOP
CP-1	24"x24"	4000	-	(8) #8 (FULL HEIGHT)	#4 AT 8"o.c.	(3) #4 AT 2"o.c.

RUN ALL FOUNDATION WALL REINFORCEMENT THRU ALL CONCRETE PIERS.



7 CONCRETE PIER SCHEDULE
...\e2CNC-PIER.dwg
NO SCALE



FOOTING & FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

FOOTING & FOUNDATION PLAN NOTES

1. COORDINATE LOCATION OF SLOPED SLABS W/ ARCH DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS AND CIVIL DRAWINGS FOR EXTERIOR CONCRETE WORK AT DOORS, SIDEWALKS, ETC.
3. SEE DETAIL 1/S501 FOR FILL BENEATH FOOTINGS.
4. COORDINATE ALL SLAB CONTROL JOINTS & CONSTRUCTION JOINTS W/ DETAIL 2/S501. SEE ARCHITECTURAL DRAWINGS FOR SPACINGS.

LEGEND

- DETAIL MARK / SHEET NUMBER
- C.J. — INDICATES CONTROL/CONSTRUCTION JOINT. SEE DETAILS 6/S501 & 7/S501
- F5-x — INDICATES SPOT FOOTING SEE SCHEDULE ON SHEET S301

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SHEET TITLE
FDN PLAN & SCHEDULES

	DATE	BY	DESCRIPTION
△			
△			
△			
△			

DRAWN BY NAT | CHECKED BY DMF
PROJECT NO. 09226470
DATE 12.15.2009
DRAWING NO. S101

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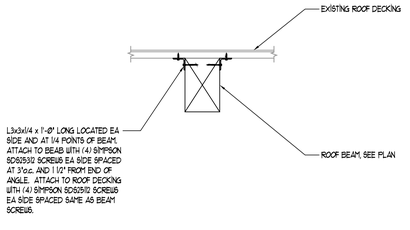
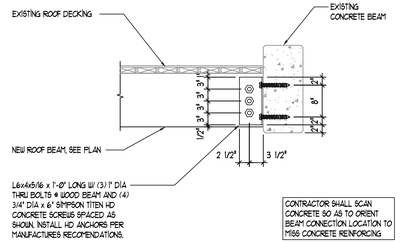
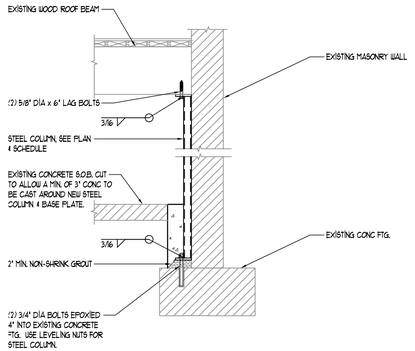


1 DETAILING — NEW ROOF BEAM CONNECTION TO EXISTING DECKING — NO SCALE



2 DETAILING — NEW ROOF BEAM CONNECTION TO EXISTING CONCRETE BEAM — NO SCALE

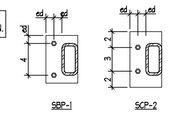


3 DETAILING — NEW STEEL COLUMN CONNECTION DETAIL — NO SCALE

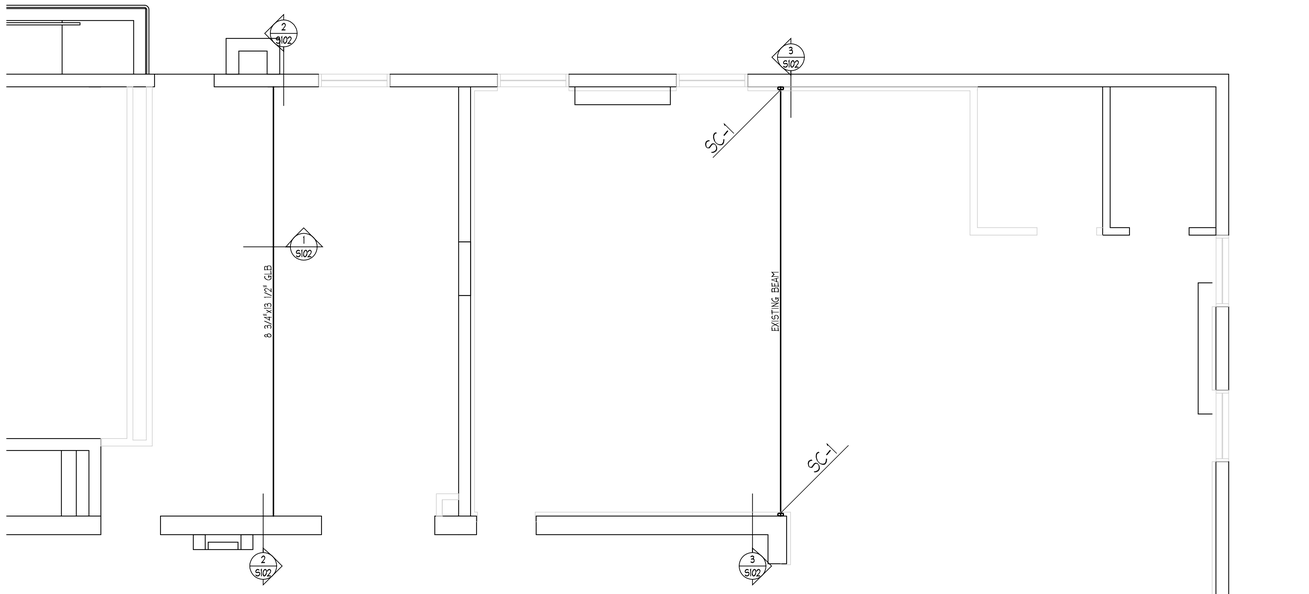
MARK	COLUMN SIZE	STEEL BASE PL	STEEL CAP PL	COMMENTS
SC-1	HSS 4x2x1/4"	1/2" SBP-1	1/2" SCP-1	

NOTES:
1. SEE "GENERAL STRUCTURAL NOTES" (GSN) FOR GRADES AND OTHER SPECIFICATIONS.

BASE & CAP PLATE DIMENSIONS
ed = EDGE DISTANCE 1 1/2" MIN.



4 _MISTEEL-COLUM.dwg — STEEL COLUMN SCHEDULE — NO SCALE



ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"

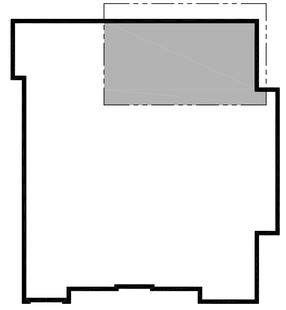
LEGEND

DETAIL MARK / SHEET NUMBER

GLB GLUED LAMINATED BEAM

ROOF PLAN NOTES

1. VERIFY ROOF SLOPES, DRAINS, AND DECK BEARING ELEVATIONS WITH ARCH DRAWINGS.



KEY PLAN
SCALE: N.A.

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SHEET TITLE
ROOF PLAN & DETAILS

	DATE	BY	DESCRIPTION
1			
2			
3			
4			

DRAWN BY NAT
CHECKED BY DMF
PROJECT NO. 09226470
DRAWING NO. S102
DATE 12.15.2009

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LEGEND OF MECHANICAL SYMBOLS AND ABBREVIATIONS

MECHANICAL

- POSITIVE PRESSURE DUCT - RISE
- POSITIVE PRESSURE DUCT - DROP
- NEGATIVE PRESSURE DUCT - RISE
- NEGATIVE PRESSURE DUCT - DROP
- ROUND DUCT - RISE
- ROUND DUCT - DROP
- TURNING VANES
- FRESH AIR LOUVER
- RELIEF AIR OR EXHAUST AIR LOUVER
- 12X12 / 200 — CEILING SUPPLY DIFFUSER
- 22X22 / 200 — CEILING RETURN REGISTER
- 12X12 / 200 — CEILING EXHAUST REGISTER, (BALANCE TO MATCH SUPPLY IF RETURN CFM IS NOT SPECIFIED)
- 24X10 / 200 — SIDEWALL SUPPLY REGISTER
- 24X10 / 200 — SIDEWALL EXHAUST OR RETURN REGISTER
- 12X12 / 200 — CEILING SUPPLY DIFFUSER WITH FLEXIBLE DUCT
- 12X12 / 200 — CEILING AIR GRILLE WITH FLEXIBLE DUCT
- CEILING RETURN AIR GRILE W/ SOUND BOOT

  TOP FIGURES INDICATE NECK SIZE. BOTTOM FIGURE INDICATES CFM.
- 3-1" SLOTS @ 48" 400 — LINEAR DIFFUSER WITH PLENUM AND FLEXIBLE DUCT CONNECTION. NO. OF SLOTS & SIZE OF SLOT ON TOP, ACTIVE LENGTH AND CFM ON BOTTOM
- FLEXIBLE DUCT CONNECTION
- FLEXIBLE DUCT
- FAN
- 12/8 — RECTANGULAR DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES.
- 12ø — ROUND DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES.
- UP — INCLINED RISE
- DN — INCLINED DROP

  WITH RESPECT TO AIR FLOW 15° NOMINAL INCLINE WITH RADIUS TURNS=DEPTH OF DUCT.
- R/W=1. ROUND DUCT SIMILAR TO RECTANGULAR
- 12/12 8/8 — RECTANGULAR TO RECTANGULAR OR ROUND TO ROUND DUCT TRANSFORMATION MAXIMUM 15° INCLUDED ANGLE EXCEPT WHERE SHOWN OTHERWISE.
- 12/12 12ø — RECTANGULAR TO ROUND DUCT TRANSFORMATION
- BRANCH DUCT SPLIT WITH 6" WIDTH AND MIN. R=WIDTH OF BRANCH DUCT DOWNSTREAM. ELBOW TURNING VANE OPTIONAL. TAP ENTRY AREA EQUALS 150% OF BRANCH AREA
- 12ø 12/12 — HIGH EFFICIENCY FITTING
- MANUAL VOLUME DAMPER
- FD — FIRE DAMPER IN DUCT, W/ ACCESS PANEL REQD.
- FSD — COMBINATION FIRE/SMOKE DAMPER W/ ACCESS PANEL
- SD — SMOKE DAMPER W/ ACCESS PANEL
- BDD — BACK DRAFT DAMPER
- ATCD DR — ATC DAMPER
- AD — ACCESS PANEL IN DUCT OR PLENUM
- HEATING OR COOLING COIL IN DUCT
- SINGLE DUCT AIR TERMINAL BOX VARIABLE OR CONSTANT VOLUME. MIN. 1-1/2 TERMINAL INLET SIZE STRAIGHT DUCT AT TERMINAL INLET.
- 4-WAY BLOW PATTERN
- 3-WAY BLOW PATTERN
- 2-WAY BLOW PATTERN
- 2-WAY BLOW PATTERN
- 1-WAY BLOW PATTERN
- SD — DUCT SMOKE DETECTOR
- UNIT HEATER

PLUMBING

- FLOOR SINK
- FLOOR DRAIN
- FCO / CDTG — FLOOR CLEAN-OUT OR CLEAN-OUT TO GRADE
- ROOF DRAIN
- DOWNSPOUT NOZZLE
- ARROW INDICATES DIRECTION OF FLOW IN PIPE
- CHECK VALVE
- PRESSURE REDUCING, EXTERNAL PRESSURE VALVE
- PRESSURE REDUCING, SELF CONTAINED VALVE
- ATC VALVE - 2 WAY
- ATC VALVE - 3 WAY
- SOLENOID VALVE
- GATE VALVE
- MANUAL BALL VALVE
- GLOBE VALVE
- TEMPERATURE AND PRESSURE TEST PORT
- PRESSURE SWITCH
- LUBRICATED PLUG VALVE
- CALIBRATED BALANCING VALVE WITH GPM INDICATED
- 00 GPM — FLOW CONTROL VALVE
- BRANCH - BOTTOM CONNECTION
- BRANCH - TOP CONNECTION
- BRANCH - SIDE CONNECTION
- RISE OR DROP
- RISER - DOWN (ELBOW)
- RISER - DOWN (ELBOW)
- VTR — VENT THRU ROOF
- WATER HAMMER ARRESTOR
- INLINE PUMP
- INLINE PUMP
- CLEAN-OUT
- RELIEF VALVE
- ANGLE VALVE
- FLOW METER
- UNION
- GAS COCK
- SHUT-OFF COCK FOR USE WITH PRESSURE GAUGE
- FLEXIBLE EXPANSION JOINT
- THERMOMETER - TEMP RANGE AS INDICATED
- PRESSURE GAUGE WITH SHUT-OFF COCK
- PRESSURE GAUGE WITH PIGTAIL
- LATERAL STRAINER WITH BLOW-OFF VALVE. PROVIDE HOSE END WITH CAP WHERE DISCHARGE IS NOT PIPED TO DRAIN
- BRASS VALVE (PIPE SIZES 2" AND SMALLER) BUTTERFLY VALVE (PIPE SIZES 2-1/2" AND LARGER)
- MOTOR OPERATED BUTTERFLY VALVE
- VALVE IN RISE
- AIR VENT-MANUAL
- AIR VENT-AUTO
- FLOW SWITCH
- REDUCER
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER

PLUMBING CONT.

- HOSE BIBB
- PIPE CAP
- SWITCH
- SENSOR
- THERMOSTAT
- NIGHT THERMOSTAT
- FILL PORT
- DRAIN PAN AND P-TRAP
- (NAME) — FIXTURE FROM LEVEL ABOVE
- GPM / LB/HR — FLOW METER ORIFICE
- FLANGE
- 90° ELBOW
- 45° ELBOW
- DN — LEADER INDICATES DOWNWARD SLOPE

LINETYPES

- CF — CHEMICAL FEED
- DOMESTIC COLD WATER (DCW)
- DOMESTIC HOT WATER (DHW)
- DOMESTIC HOT WATER RETURN (DHWR)
- GS — GEOTHERMAL SUPPLY
- GR — GEOTHERMAL RETURN
- G — NATURAL GAS
- HWR — HEATING HOT WATER RETURN
- HWS — HEATING HOT WATER SUPPLY
- RD — ROOF DRAIN
- RDO — ROOF DRAIN OVERFLOW
- SEWER (BELOW GRADE)
- SEWER (ABOVE GRADE)
- VENT (SEWER)

SYMBOLS

- P-1 — PLUMBING FIXTURES
- POINT OF CONNECTION
- A / M-101 — SECTION TAG - TOP FIGURE IS SECTION NO. BOTTOM FIGURE IS SHEET NO.
- A / M101 — DETAIL TAG - TOP FIGURE IS DETAIL NO. BOTTOM FIGURE IS SHEET NO.
- EF / 1 — EQUIPMENT IDENTIFICATION
- 1 — KEYED NOTE IDENTIFICATION
- 1 — KITCHEN EQUIPMENT IDENTIFICATION

FIRE

- HOSE VALVE
- NRS GATE VALVE WITH SUPERVISION
- FLOW SWITCH
- FIRE RISER
- SPRINKLER HEAD
- FIRE SPRINKLER WATER

KEYED NOTES

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VBFA Project Number:9344_

LICENSED PROFESSIONAL ENGINEER
CLIFFORD DEE HOLMES
12/11/09
NUMBER 309570
STATE OF UTAH

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY
RENOVATION
985 NORTH 500 WEST
BRIGHAM CITY, UTAH
84302-1540

SHEET TITLE: MECHANICAL SYMBOLS & ABBREVIATIONS

	DATE	BY	DESCRIPTION
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DRAWN BY: TJ
CHECKED BY: CDH
PROJECT NO.: 09226470
DRAWING NO.: M000
DATE: DEC. 22, 2008

Utah National Guard - Brigham City Armory - Renovation

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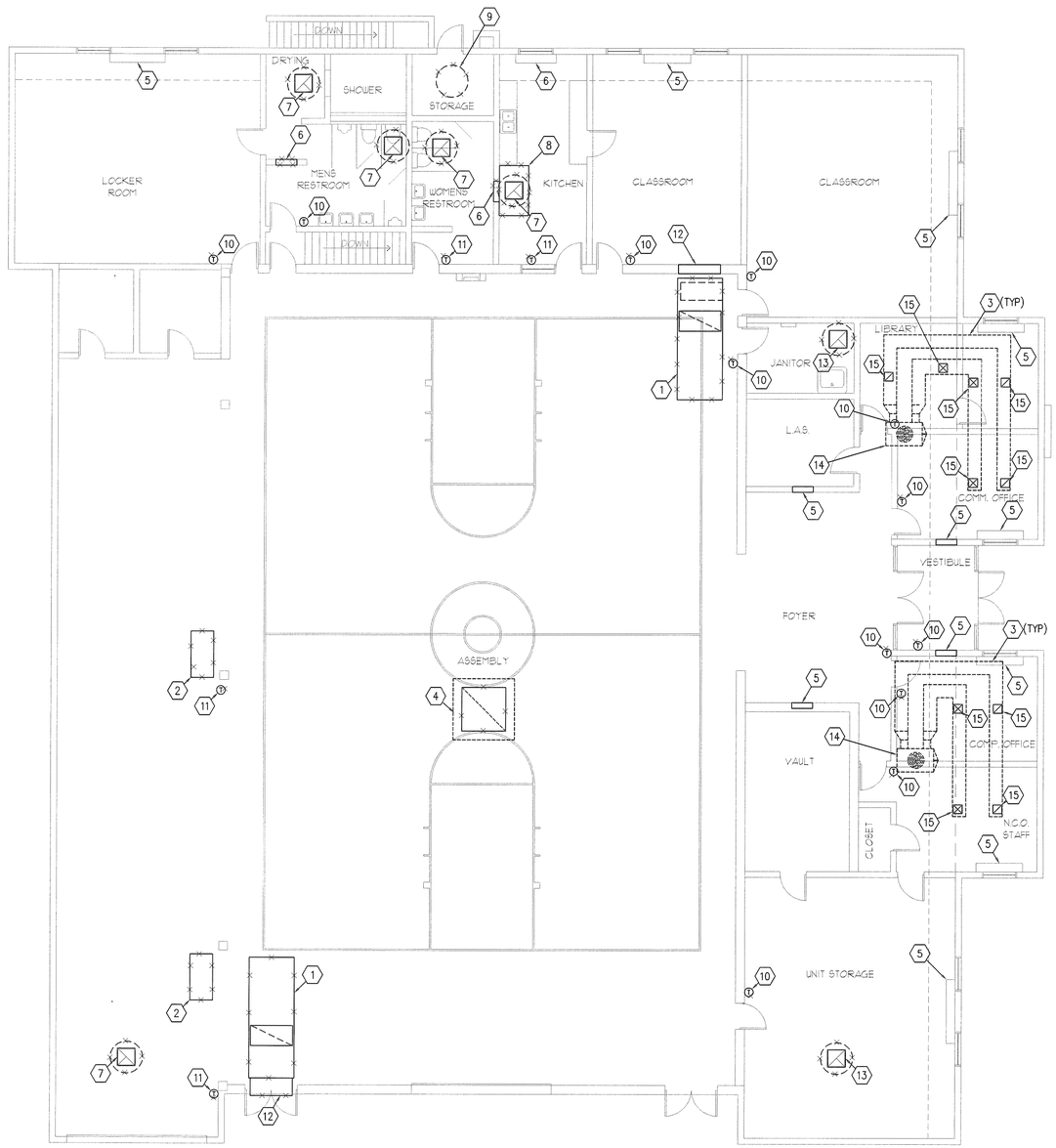

N

M101 MECHANICAL DEMOLITION PLAN

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

0' 8' 16'

EFT ARCHITECTS

265 East 100 South Suite 350
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KEYED NOTES

1. EXISTING HEATING AND VENTILATING UNIT SHALL BE REMOVED IN IT'S ENTIRETY. TEMPORARILY CAP HOT WATER HEATING PIPING IN PREPARATION TO INSTALL NEW UNIT IN SAME LOCATION.
2. REMOVE EXISTING CABINET TYPE UNIT HEATER IN IT'S ENTIRETY. CAP HOT WATER HEATING PIPING AT MAIN AND REMOVE PIPING.
3. EXISTING ROOF MOUNTED DUCT WORK TO REMAIN.
4. EXISTING RELIEF AIR HOOD TO REMAIN. REMOVE EXISTING MOTORIZED CONTROL DAMPER AND REPLACE WITH NEW IN SAME LOCATION. CONFIRM EXACT LOCATION.
5. EXISTING HOT WATER HEATING CONVECTOR TO REMAIN. REMOVE EXISTING CONTROL VALVE AND INSTALL NEW CONTROL VALVE PROVIDED BY ATC CONTROLS CONTRACTOR.
6. REMOVE EXISTING HOT WATER HEATING CONVECTOR IN IT'S ENTIRETY.
7. REMOVE EXISTING ROOF MOUNTED EXHAUST FAN IN IT'S ENTIRETY. PATCH AND REPAIR ROOF.
8. REMOVE EXISTING KITCHEN GREASE HOOD IN IT'S ENTIRETY. REMOVE DUCT TO ROOF AND PATCH AND REPAIR ROOF.
9. REMOVE EXISTING WATER HEATER FLUE THRU ROOF. PATCH AND REPAIR ROOF.
10. EXISTING THERMOSTAT SHALL BE REMOVED AND REPLACED WITH NEW IN SAME LOCATION. CONFIRM EXACT LOCATION.
11. REMOVE EXISTING THERMOSTAT AND DISCARD. PATCH AND REPAIR WALL AND ABANDON.
12. REMOVE EXISTING OUTSIDE AIR LOUVER IN ITS ENTIRETY AND REPLACE WITH NEW IN SAME LOCATION. FIELD VERIFY EXACT LOCATION.
13. REMOVE EXISTING ROOF MOUNTED EXHAUST FAN AND REPLACE WITH NEW IN SAME LOCATION. CONFIRM EXACT LOCATION.
14. EXISTING ROOF MOUNTED AIR CONDITIONING UNIT TO REMAIN.
15. EXISTING DIFFUSERS AND GRILLES TO REMAIN.

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PROJECT NO. 09226470
DRAWING NO. M101
DATE DEC. 22, 2008

Brigham City Armory Renovation

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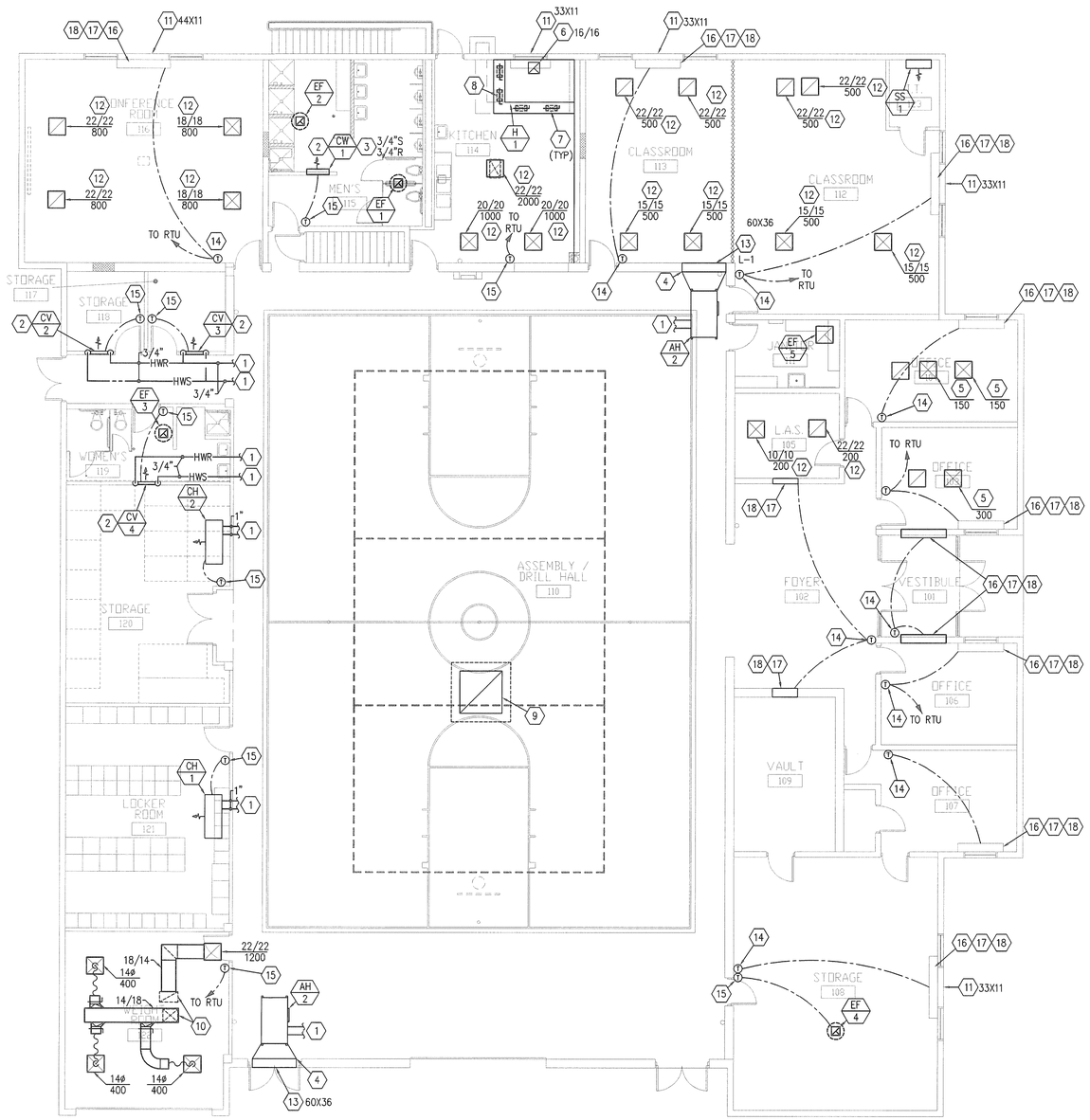

GENERAL NOTES

1. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL DIFFUSERS AND RETURN GRILLES. COORDINATE FRAME STYLE WITH CEILING TYPE.
2. BRANCH DUCTS SHALL MATCH DIFFUSER NECK SIZE. TYP.
3. COORDINATE LOCATION OF DUCT, DIFFUSERS AND GRILLES WITH LIGHTING, ELECTRICAL AND OTHER TRADES.
4. MAINTAIN SERVICE AREAS AROUND ROOF MOUNTED EQUIPMENT AS REQUIRED BY CODE AND UNIT MANUFACTURERS. DO NOT INSTALL DUCTS, PIPING, CONDUIT OR OTHER EQUIPMENT IN SERVICE AREA.
5. COORDINATE ALL ROOF PENETRATIONS WITH STRUCTURE.

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M201 MECHANICAL PLAN
SCALE: 1/8" = 1'-0"

0' 8' 16'

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295 East 100 South Suite 350
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(#) KEYED NOTES

1. MAKE CONNECTION TO EXISTING HEATING HOT WATER SUPPLY AND RETURN PIPING IN THIS AREA. FIELD VERIFY EXACT LOCATION.
2. INSTALL WALL MOUNTED CONVECTORS AT 18" AFF TO BOTTOM OF UNIT.
3. RISE WITH HEATING HOT WATER SUPPLY AND RETURN PIPING IN WALL FROM MECHANICAL ROOM BELOW.
4. MAKE CONNECTION OF NEW AIRHANDLER TO EXISTING OUTSIDE AIR DUCT. PROVIDE NEW DAMPER CONTROLLED BY ATC.
5. RE-BALANCE EXISTING SYSTEM TO AIR FLOWS INDICATED.
6. HOOD EXHAUST DUCT UP THRU ROOF TO EXHAUST FAN ON ROOF. MAKE DUCT CONNECTION AT HOOD PER SPECIFICATIONS, HOOD MANUFACTURER AND CODE. PROVIDE REQUIRED CLEARANCES TO COMBUSTIBLES.
7. MAKE-UP AIR DUCT FROM MAKE-UP AIR UNIT ON ROOF. DROP THRU ROOF TO DISTRIBUTION DUCT BELOW.
8. DROP FROM MAKE-UP AIR DISTRIBUTION DUCT TO MAKE CONNECTION TO HOOD MAKE-UP AIR PLENUM. CONFIRM EXACT LOCATIONS, SIZES OF HOOD CONNECTIONS AND METHOD OF CONNECTION. PROVIDE BALANCING DAMPERS.
9. PROVIDE NEW RELIEF AIR MOTORIZED DAMPER IN EXISTING RELIEF AIR HOOD. FIELD VERIFY EXACT LOCATION AND SIZE. CONTROL WITH BUILDING ATC SYSTEM.
10. RISE THRU ROOF WITH SUPPLY AND RETURN AIR DUCTING TO ROOF TOP UNIT ABOVE. SEE ROOF PLAN FOR UNIT LOCATION.
11. INSTALL NEW OUTSIDE AIR LOUVER. ANCHOR SECURELY AND SEAL IN PLACE, SEE DETAIL. VERIFY EXACT SIZE.
12. DROP THRU ROOF FROM DUCTING ON ROOF WITH SUPPLY/RETURN AIR DUCT TO DIFFUSER/RETURN AIR GRILLE. INSTALL DIFFUSER/GRILLE. SEE DETAIL. TRANSITION FROM DUCT TO DIFFUSER/GRILLE AS REQUIRED.
13. INSTALL NEW SIDEWALL OUTSIDE AIR INTAKE LOUVER IN SAME LOCATION AS EXISTING. CONFIRM EXACT LOCATION.
14. INSTALL NEW THERMOSTAT IN SAME LOCATION AS EXISTING.
15. INSTALL NEW THERMOSTAT AT 48"AFF. COORDINATE W/LIGHT SWITCHES.
16. EXISTING CABINET HEATER SHALL BE REMOVED TO ALLOW FURRING OF EXTERIOR WALL. RE-INSTALL IN SAME LOCATION AFTER WALL FINISH IS APPLIED.
17. REFURBISH CONVECTOR COVER. REPAIR ACCESS DOORS AND REPAINT TO MATCH WALL.
18. VERIFY OPERATION OF EXISTING CABINET HEATER. REPORT DEFICIENCY TO ARCHITECT.

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84302-1540

SHEET TITLE
MECHANICAL PLAN

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CHECKED BY CDH
PROJECT NO. 09226470
DRAWING NO. M201
DATE DEC. 22, 2008

Utah National Guard - Brigham City Armory - Renovation

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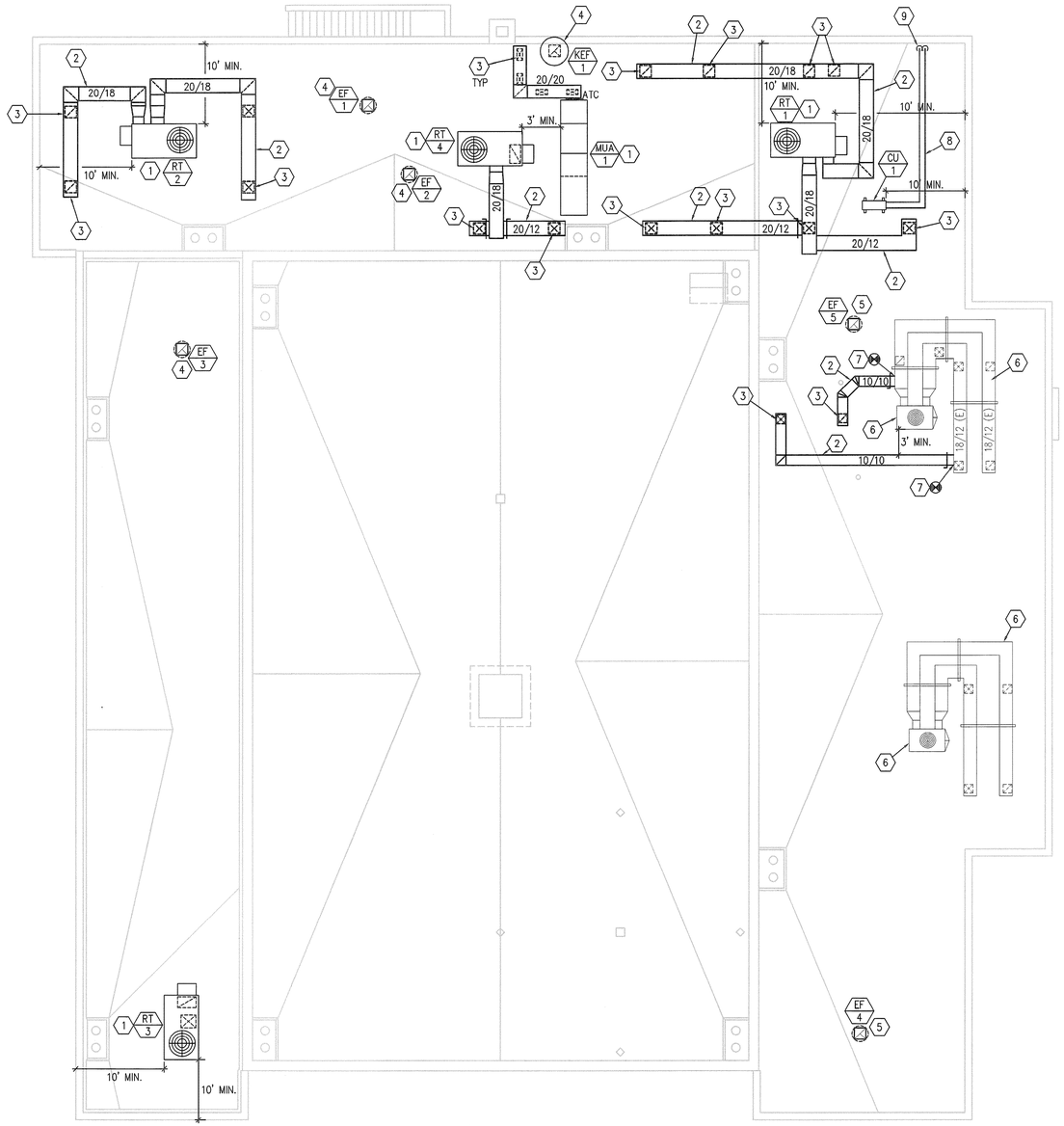

MECHANICAL PLAN

M202 SCALE: 1/8" = 1'-0"

0' 8' 16'

EFT ARCHITECTS

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KEYED NOTES

1. MOUNT ROOF TOP UNIT ON MANUFACTURERS CURB.
2. RUN NEW DUCTWORK ON ROOF PER SPECIFICATIONS.
3. DROP THRU ROOF WITH DUCT TO DIFFUSER/RA GRILLE BELOW. PROVIDE BALANCING DAMPER AT ROOF. SEAL ROOF PENETRATION PER ROOFING CONTRACTOR.
4. INSTALL NEW EXHAUST FAN IN NEW LOCATION. SEAL ROOF PENETRATION PER ROOFING CONTRACTOR. PROVIDE NEW MANUFACTURER'S CURB.
5. INSTALL NEW EXHAUST FAN IN SAME LOCATION AS EXISTING. CONFIRM EXACT LOCATION.
6. EXISTING ROOF MOUNTED AIR CONDITIONING UNIT AND ASSOCIATED DUCTWORK TO REMAIN.
7. MAKE CONNECTION TO EXISTING DUCT ON ROOF WITH NEW DUCT IN THIS AREA AND EXTEND AS INDICATED. FIELD VERIFY EXACT LOCATION.
8. ROUTE NEW REFRIGERANT PIPING ON ROOF TO DROP TO INDOOR UNIT. PROVIDE PIPE SUPPORTS SUCH AS MANUFACTURED BY MIRO INDUSTRIES.
9. DROP THRU ROOF TO INDOOR MINI-SPLIT SYSTEM BELOW. SEAL ROOF PENETRATION PER ROOFING MANUFACTURER.

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SHEET TITLE
MECHANICAL ROOF PLAN

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DATE DEC. 22, 2008

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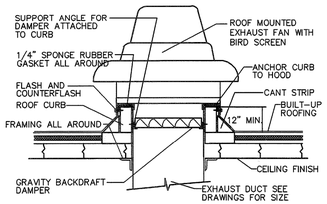
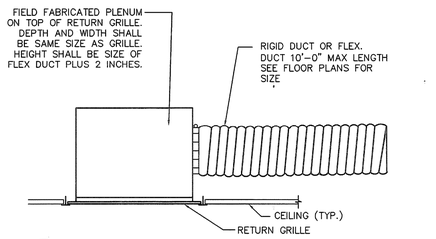
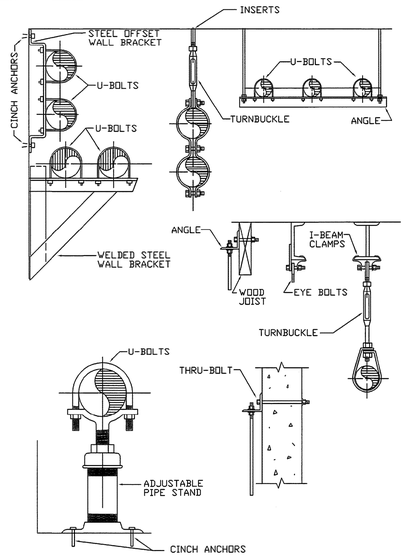


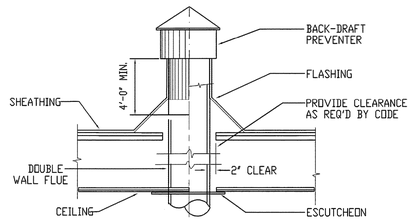
14 / M301 ROOF MOUNTED EXHAUST FAN
NO SCALE



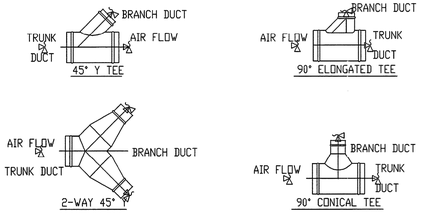
15 / M301 RETURN GRILLE DETAIL
NO SCALE



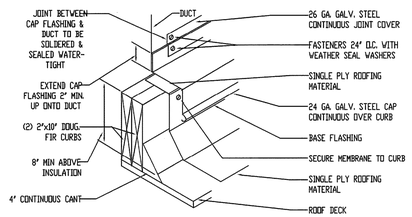
11 / M301 TYPICAL PIPE SUPPORT DETAIL
NO SCALE



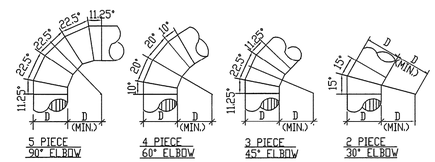
12 / M301 FLUE THRU ROOF DETAIL
NO SCALE



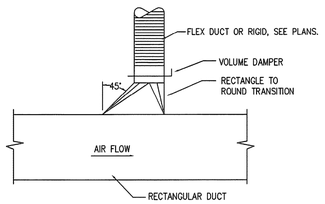
6 / M301 ROUND DUCT BRANCH TAKE-OFF DETAILS
NO SCALE



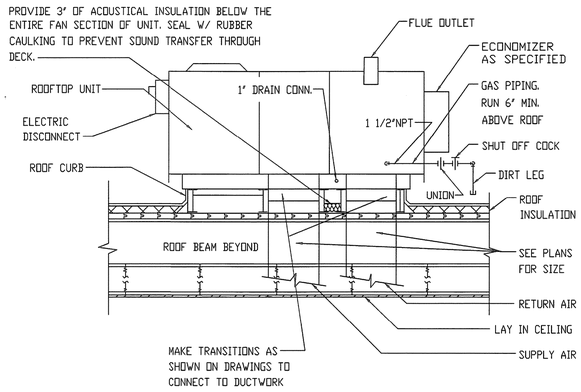
7 / M301 ROOF CURB DETAIL
NO SCALE



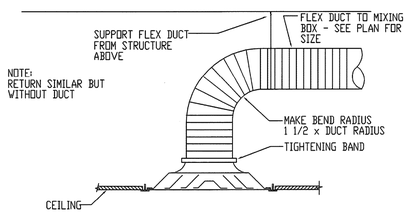
8 / M301 ROUND DUCT ELBOW DETAILS
NO SCALE



9 / M301 HIGH EFFICIENCY TAKE-OFF DETAIL
NO SCALE



13 / M301 ROOFTOP UNIT WITH GAS FIRED HEATING
NO SCALE



10 / M301 DIFFUSER CONNECTION DETAIL-A
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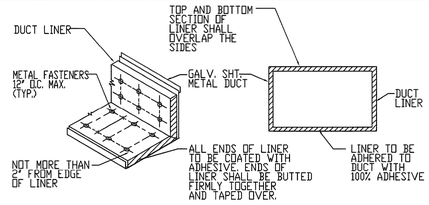
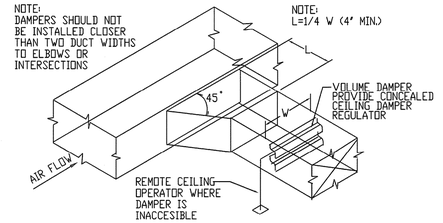
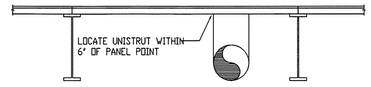


1 / M301 DUCT LINER DETAIL
NO SCALE



2 / M301 BRANCH DUCT TAKE-OFF & DAMPER DETAIL
NO SCALE



3 / M301 SUPPORT DETAIL
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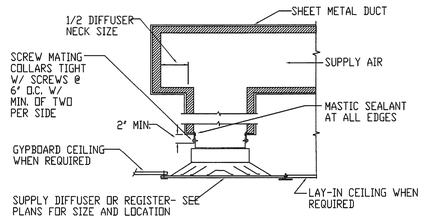
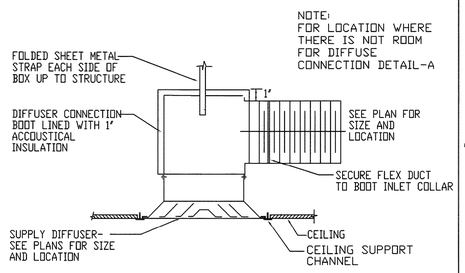


4 / M301 TYPICAL CEILING DIFFUSER DETAIL
NO SCALE



5 / M301 SUPPLY DIFFUSER W/ FLEX DUCT DETAIL-B
NO SCALE

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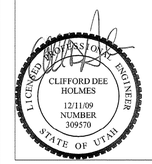
KEYED NOTES



UTAH NATIONAL GUARD
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SHEET TITLE: MECHANICAL DETAILS

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Utah National Guard - Brigham City Armory - Renovation

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SCHEDULE FOR TYPICAL CONNECTIONS TO STRUCTURAL SUPPORTING MEMBERS

TYPE	MAX. LOAD CAPACITY POUNDS	PHILLIP'S REDHEAD ANCHORS TO CONC. LT. WT.	PHILLIP'S REDHEAD ANCHORS TO CONC. HARD ROCK	CONC. CAST-IN PLACE INSERT	BOLT OF STL.BM. CLAMP
I	500	3/8"	3/8"	3/8"	3/8"
II	1000	3/8"	3/8"	1/2"	3/8"
III	1500	3/8"	3/8"	1/2"	3/8"
IV	2000	1/2"	1/2"	5/8"	1/2"
V	3000	2-1/2"	2-1/2"	2-1/2"	5/8"
VI	4000	2-5/8"	2-5/8"	2-5/8"	5/8"

TYPE	SPREADER SIZE	BOLT THRU WOOD	SPAN-CRETE ROD	ANGLE TO SUPPORTING STRUCTURAL MEMBER	ROD SIZE FOR PIPES
I	C4X5.4	1/2"	3/8"	3X2X1/4"X0'-3" LLH	1/2"
II	C5X6.7	3/4"	3/8"	3-1/2X2-1/2X5/16X0'-3" LLH	1/2"
III	C6X8.5	***	1/2"	3-1/2X2-1/2X7/16X0'-4" LLH	5/8"
IV	C8X11.5	***	1/2"	5X3X1/2X0'-4" LLH	3/4"
V	C9X13.4	***		2-3-1/2X2-1/2X7/16X0'-4"	7/8" *
VI	C10X15.3			2-5X3X1/2X0'-4"	7/8" **

NOTES:

1 FOR SLABS LESS THAN 5" THICK ONLY, THIN SLAB INSERTS MAY BE USED.

*2 FOR USE W/CONC. CAST-IN PLACE INSERTS OR PHILLIPS REDHEAD IN HARD ROCK ONLY.

**3 FOR USE WITH CONC. CAST-IN PLACE INSERTS ONLY.

***4 WHERE TYPE III CONNECTIONS ARE REQUIRED FOR WOOD SYSTEMS, TYPE II CONNECTIONS SHALL BE USED WITH REDUCED RESTRAINT SPACING TO 20 FT. O.C. WHERE TYPE IV CONNECTIONS ARE REQUIRED FOR WOOD SYSTEMS, TYPE II CONNECTIONS SHALL BE USED WITH REDUCED RESTRAINT SPACING TO 15 FT. O.C. WHERE TYPE V CONNECTIONS ARE REQUIRED FOR WOOD SYSTEMS, TYPE II CONNECTIONS SHALL BE USED WITH REDUCED RESTRAINT SPACING TO 10 FT. O.C.

5 THE MECHANICAL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE STRUCTURAL ENGINEER AND THEN TO THE MECHANICAL ENGINEER, SHOWING CONNECTION TYPE AND LOCATION OF ALL RESTRAINT CONNECTIONS TO THE STRUCTURE.

6 FOR ESSENTIAL FACILITIES WHERE CONCRETE ANCHOR BOLTS OF THE 'REDHEAD' EXPANSION TYPE ARE LOADED IN PULL OUT, 50 PERCENT OF THE BOLTS (ALTERNATE BOLTS IN ANY GROUP ARRANGEMENT) SHALL BE PROOF TESTED TO TWICE THE ALLOWABLE LOAD. IF THERE ARE FAILURES, THE IMMEDIATELY ADJACENT BOLTS MUST THEN ALSO BE TESTED.

& 'HILTI' AND 'RAMSET' ANCHORS ARE EQUAL SUBSTITUTES FOR 'REDHEAD'.

PIPE BRACING GENERAL NOTES

1 DETAILS SHOWN PROVIDE GENERAL GUIDELINES FOR A LATERAL BRACING SYSTEM. A TYPICAL VERTICAL SUPPORT SYSTEM MUST ALSO BE USED.

2 BRACE ALL PIPES 1-1/2" I.D. AND LARGER.

3 CABLE RESTRAINTS AND BRACING NOT TO EXCEED 30'-0" CENTERS AND SHALL BE PROVIDED AT ALL CHANGES IN DIRECTION OF PIPE. ALL DROPS TO EQUIPMENT, AND ON EACH SIDE OF FLEXIBLE CONNECTIONS. BRACE POINTS SHALL NOT EXCEED 15'-0" FROM FLEXIBLE CONNECTION.

4 ALL HOLES IN ANGLES ARE TO BE 1/16 INCH OVERSIZED. PLACE STANDARD CUT WASHERS BETWEEN SHEET METAL ANGLES AND NUT.

5 EQUIPMENT WHICH ATTACHES TO THE PIPING SYSTEM SHALL BE BRACED INDEPENDENTLY OF THE PIPES.

6 ALL SHEET METAL FOR BRACING TO BE FY=33 KSI MINIMUM. GAUGE FOR SHEET METAL BRACING SHALL BE AS FOLLOWS:

16 GA = (0.0598 INCH)
14 GA = (0.0747 INCH)
12 GA = (0.1046 INCH)

7 MINIMUM DISTANCE FROM EDGE OF ANGLE TO BOLTS SHALL BE AS FOLLOWS:

BOLT DIAMETER	DISTANCE FROM EDGE
1/4" TO 1/2"	1"
5/8"	1 1/8"
3/4"	1 1/4"
7/8"	1 1/2"

8 DO NOT FASTEN RESTRAINT SYSTEM TO TWO DISSIMILAR PARTS OF A BUILDING THAT MAY RESPOND IN A DIFFERENT MODE DURING AN EARTHQUAKE. FOR EXAMPLE, A WALL AND A ROOF.

9 PROVIDE LARGE ENOUGH PIPE SLEEVES THROUGH WALLS OR FLOORS TO ALLOW FOR ANTICIPATED DIFFERENTIAL MOVEMENTS.

10 DO NOT FASTEN ONE RIGID PIPING SYSTEM TO TWO DISSIMILAR PARTS OF A BUILDING THAT MAY RESPOND IN A DIFFERENT MODE DURING AN EARTHQUAKE. FOR EXAMPLE, A WALL AND A ROOF.

11 BRACING DETAILS, SCHEDULE AND NOTES ARE TO BE USED WITH THE FOLLOWING TYPES OF PIPE: STEEL PIPE SCHEDULE 40 AND 80, COPPER PIPE TYPE K,L,M (ONLY SILVER SOLDERED BRAZED JOINTS TO BE USED WITH COPPER PIPE).

12 FOR GAS PIPING, THE BRACING DETAILS, SCHEDULES AND NOTES MAY BE USED EXCEPT THAT RESTRAINTS SHALL BE INSTALLED AT EVERY 20'-0" O.C. ALSO ALL PIPE 1 INCH AND LARGER SHALL BE BRACED.

13 WASTE, VENT AND ROOF DRAINAGE PIPING SYSTEMS 4" AND LARGER ARE TO BE BRACED FOLLOWING THE RESTRAINT GUIDELINES.

14 ALTERNATE EVERY OTHER CABLE RESTRAINT IN OPPOSITE DIRECTION (SHOWN DOTTED).

PIPE SEISMIC BRACING SCHEDULE

PIPE SIZE	HANGER ROD SIZE	MAX. ROD LENGTH	HANGER TYPE	BOLTS TO ANGLE	ANGLE CLIP	ANGLE BRACE	ANCHOR CONN. TYPE	ANCHOR BOLT OR INSERT
1-1/2"	1/2"	25"	CLEVIS	3/8"	3x3x1/4	2x2x16GA	I	3/8"
2"	1/2"	25"	CLEVIS	3/8"	3x3x1/4	2x2x16GA	I	3/8"
2-1/2"	5/8"	31"	CLEVIS	3/8"	3x3x1/4	2x2x16GA	I	3/8"
3"	5/8"	31"	CLEVIS	3/8"	3x3x1/4	2-1/2x2-1/2x 16 GA	II	1/2"
3-1/2"	5/8"	31"	CLEVIS	3/8"	3x3x1/4	2-1/2x2-1/2x 16 GA	II	1/2"
4"	3/4"	37"	CLEVIS	3/8"	3x3x1/4	2-1/2x2-1/2x 16 GA	II	1/2"
5"	3/4"	37"	CLEVIS	1/2"	5x3x1/2	2-1/2x2-1/2x 16 GA	III	3/4"
6"	3/4"	37"	CLEVIS	5/8"	5x3x1/2	2-1/2x2-1/2x 16 GA	IV	3/4"
8"	7/8"	43"	CLEVIS	5/8"	2-5x3x1/2	3x3x12 GA	V	2-5/8"
10"	7/8"	43"	CLEVIS	3/4"	2-5x3x1/2	3x3x12 GA	VI	2-5/8"

FOR ANCHOR CONNECTIONS SEE LIST.

SEE PIPE BRACING DETAIL

*1-5/8"x1-5/8"x12 GA CHANNEL MAY BE USED

4 / M302 **HOT WATER CONVECTOR DETAIL**
NO SCALE

NOTES:

1. CABLES, THIMBLES, CLIPS, GROMMETS & FLAT WASHERS ARE TO BE FURNISHED BY RESTRAINT MANUFACTURER. ALL OTHER HARDWARE TO BE PROVIDED BY CONTRACTOR.
2. ENTIRE SYSTEM TO BE EQUAL TO AMBER BOOTH.
3. CABLE CLIPS MUST BE ORIENTED AS SHOWN WITH SHORT END OF CABLE ON THE CURVED PART OF THE CLIP.

CABLE SCHEDULE

CABLE DIA.	CABLE DESIGN	A	B	C	BOLT SIZE	ALLOWABLE LOAD (lbf)	BREAKING STRENGTH (lbf)
1/8"	7X19 GALV.	5-1/4"	1-5/8"	5/8"	3/8"	660	2000
3/16"	7X19 GALV.	5-3/4"	1-7/8"	5/8"	3/8"	1400	4200
1/4"	7X19 GALV.	6-3/4"	2-3/8"	11/16"	3/8"	2330	7000
5/16"	7X19 GALV.	7-3/8"	2-5/8"	13/16"	5/8"	3260	9800
3/8"	7X19 GALV.	8-7/8"	3-1/4"	1"	5/8"	4800	14400
7/16"	6X19 IWRC	17"	3-5/8"	1"	5/8"	5920	17800
1/2"	6X19 IWRC	18"	3-7/8"	1-1/8"	3/4"	7660	23000

CABLE RESTRAINT DETAIL 3 / ME303
NO SCALE

HEAT PUMP CABLE BRACING SCHEDULE

BOX WEIGHT	BOLT SIZE	*CABLE DIA.	**CABLE DESIGN	ANCHOR CONN. TYPE
UP TO 300#	3/8"	1/8"	7 X 19 GALV	I
400#	3/8"	1/8"	7 X 19 GALV	I
600#	3/8"	3/16"	7 X 19 GALV	II
800#	3/8"	3/16"	7 X 19 GALV	II

1. *FOUR CABLES REQUIRED, ONE AT EACH CORNER. EACH CABLE TO BE INSTALLED 45 TO HORIZONTAL AND 45 TO LONGITUDINAL DIRECTION.
2. **CABLE SYSTEMS TO BE EQUAL TO AMBER BOOT C/W THIMBLES, CLAMPS AND GROMMETS.

DUCT BRACING GENERAL NOTES

1 DETAILS SHOWN PROVIDE GENERAL GUIDELINES FOR A LATERAL BRACING SYSTEM. A TYPICAL VERTICAL SUPPORT SYSTEM MUST ALSO BE USED.

2 BRACE ALL RECTANGULAR DUCTS OF AREA 6 SQ. FT. AND LARGER. BRACE ALL ROUND DUCTS 28" IN DIAMETER AND LARGER.

3 CABLE RESTRAINTS AND BRACING NOT TO EXCEED 30'-0" CENTERS AND SHALL BE PROVIDED AT EACH TURN, AT THE END OF EACH DUCT RUN, AND ON EACH SIDE OF FLEXIBLE CONNECTIONS. BRACE POINTS SHALL NOT EXCEED 15'-0" FROM FLEXIBLE CONNECTION.

4 WHEN COMBINING DUCT GROUPS ON COMMON BRACING SYSTEMS, USE WEIGHTS AND DIMENSIONS FROM BRACING LIST.

5 ALL HOLES IN ANGLES ARE TO BE 1/16 INCH OVERSIZED. PLACE STANDARD CUT WASHERS BETWEEN SHEET METAL ANGLES AND NUT.

6 DUCTS NOT BRACED SHALL BE INSTALLED WITH A 6" MIN. CLEARANCE TO VERTICAL CEILING HANGER WIRES.

7 REHEAT BOXES AND OTHER ITEMS WHICH ATTACH TO THE DUCT SYSTEM SHALL BE BRACED INDEPENDENTLY OF THE DUCTS.

8 ALL SHEET METAL FOR BRACING TO BE FY = 33 KSI MINIMUM. GAUGE FOR SHEET METAL BRACING SHALL BE AS FOLLOWS:

16 GA = (0.0598 INCH)
14 GA = (0.0747 INCH)
12 GA = (0.1046 INCH)

9 MINIMUM DISTANCE FROM EDGE OF ANGLE TO BOLTS SHALL BE AS FOLLOWS:

BOLT DIAMETER	DISTANCE FROM EDGE
1/4" TO 1/2"	1"
5/8"	1 1/8"
3/4"	1 1/4"
7/8"	1 1/2"

10 DO NOT FASTEN RESTRAINT SYSTEM TO TWO DISSIMILAR PARTS OF A BUILDING THAT MAY RESPOND IN A DIFFERENT MODE DURING AN EARTHQUAKE. FOR EXAMPLE, A WALL AND A ROOF.

11 ALTERNATE EVERY OTHER CABLE RESTRAINT IN OPPOSITE DIRECTION (SHOWN DOTTED).

EQUIPMENT ANCHORAGE TO CONCRETE FLOOR LIST

EQUIPMENT WEIGHT PER ANCHOR BOLT	MINIMUM ANCHOR DIAMETER (INCHES)	MINIMUM DEPTH OF EMBEDMENT (INCHES)	ICBO ALLOWABLE SHEAR PER BOLT (LBF)	ICBO ALLOWABLE TENSION PER BOLT (LBF)
UP TO 150#	1/4"	1-1/2"	380	215
300#	3/8"	2-1/2"	860	355
600#	1/2"	3"	1710	665
900#	5/8"	4-1/2"	2500	855
1300#	3/4"	6"	3050	1585
2000#	1"	6"	6280	2020

1 THE SIZES AND EMBEDMENT ARE FOR ANCHORS INSTALLED IN STONE AGGREGATE CONCRETE HAVING A FC = 2000 PSI ULTIMATE COMPRESSIVE STRENGTH AT THE TIME OF INSTALLATION. ALL BOLTS ARE TO BE INSTALLED PER MANUFACTURER INSTRUCTIONS AND TO BE INSTALLED NO CLOSER THAN 12 DIAMETERS ON CENTER AND WITH A MINIMUM EDGE DISTANCE OF 6 DIAMETERS.
2 EACH EQUIPMENT SUPPORT LEG WILL BE ANCHORED AND ALL EQUIPMENT WILL BE ANCHORED AT ALL CORNERS. A MINIMUM OF TWO ANCHORS WILL BE REQUIRED FOR ALL EQUIPMENT.
3 EQUIPMENT WEIGHT PER ANCHOR IS THE TOTAL OPERATING OF EQUIPMENT PLUS BASES AND SUPPORTS DIVIDED BY THE NUMBER OF ANCHORS.
4 ANCHORAGE IS TO PREVENT HORIZONTAL MOVEMENT, IF EQUIPMENT GEOMETRY IS SUCH THAT THE VERTICAL DISTANCE FROM SUPPORT LEG TO CENTER OF GRAVITY IS GREATER THAN FOUR TIMES THE SHORTEST DISTANCE FROM A SUPPORT LEG TO THE CENTER OF GRAVITY, ADDITIONAL ANCHORAGE AND RESTRAINTS WILL BE REQUIRED TO PREVENT OVERTURNING.

PIPING RESTRAINT DETAIL 1 / ME303
NO SCALE

DOMESTIC STORAGE TANK ANCHORAGE 2 / ME303
NO SCALE

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(#) KEYED NOTES

LICENSED PROFESSIONAL ENGINEER CLIFFORD DEE HOLMES 12/11/09 NUMBER 309570 STATE OF UTAH

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY
RENOVATION
985 NORTH 500 WEST
BRIGHAM CITY, UTAH
84302-1540

SHEET TITLE: MECHANICAL DETAILS

	DATE	BY	DESCRIPTION
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DRAWN BY TJ	CHECKED BY CDH
PROJECT NO. 09226470	DRAWING NO. M302
DATE DEC. 22, 2008	

Utah National Guard - Brigham City Armory - Renovation

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HOOD INFORMATION

HOOD NO.	MODEL	LENGTH	MAX. COOKING TEMP.	EXHAUST PLENUM TOTAL EXH. CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG.	DIA.	CFM	S.P.	SUPPLY PLENUM TOTAL SUP. CFM	SUPPLY PLENUM RISER(S) WIDTH	LENG.	DIA.	CFM	S.P.	HOOD CONSTRUCTION	HOOD CONFIG. END TO END	ROW
H 1	CAPTIVE AIRE 6012 SND-2-PSP-FS	9' 6.00"	450 Deg.	2612	10"	25"		2612	-0.569"	2090						430 SS Where Exposed	ALONE	ALONE

HOOD INFORMATION

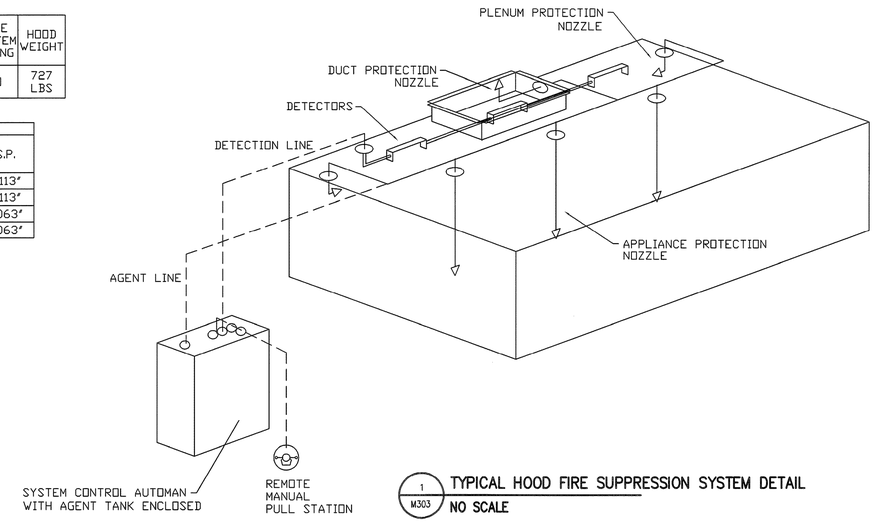
HOOD NO.	FILTER(S) TYPE	QTY.	HEIGHT	LENGTH	LIGHT(S) QTY.	TYPE	WIRE GUARD	UTILITY CABINET(S) LOCATION	FIRE SYSTEM TYPE	FIRE SYSTEM SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	SWITCHES LOCATION	FIRE SYSTEM PIPING	HOOD WEIGHT
H 1	SS Baffle with Handles	2	16"	16"	3	Incandescent Light Fixt	NO							NO	727 LBS
		4	16"	20"											

HOOD OPTIONS

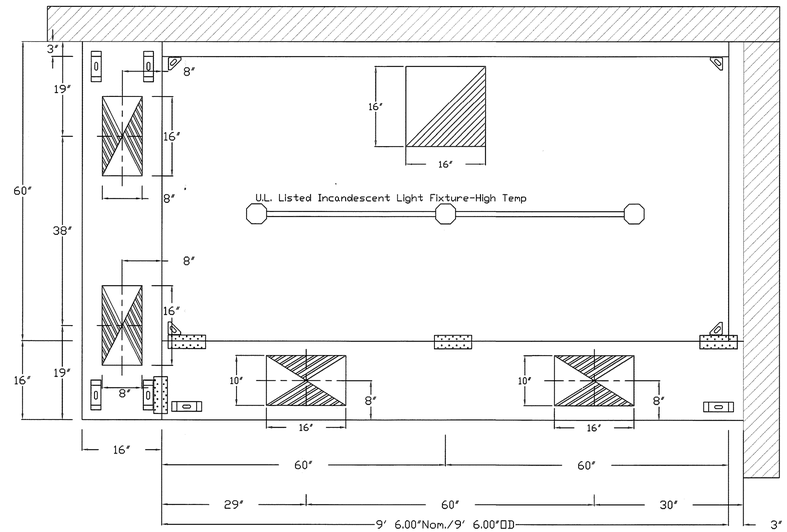
HOOD NO.	OPTION
H 1	RIGHT END STANDOFF(FIN/SLP) 3" Wide
	BACKSPLASH 110.00" High X 135.00" Long 430 SS
	BACKSPLASH - INSIDE CORNER 110.00" High X 4.00" Long 430 SS
	RIGHT SIDESPLASH 110.00" High X 78.00" Long 430 SS
	FIELD WRAPPER 4.00" High Front, Left
	TOP INSULATION

PERFORATED SUPPLY PLENUM(S)

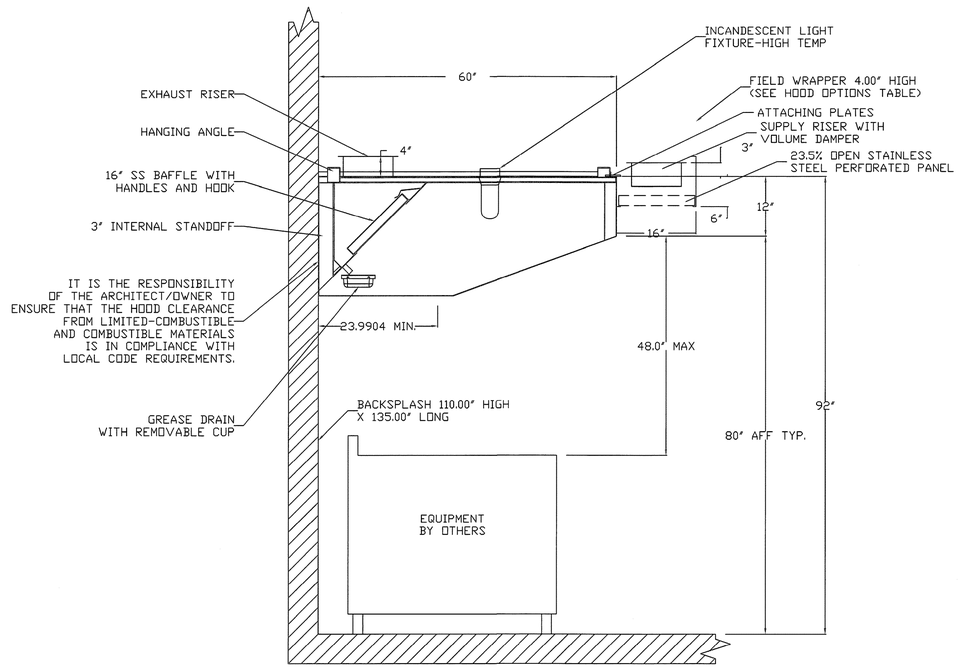
HOOD NO.	POS.	LENGTH	WIDTH	HEIGHT	RISER(S) WIDTH	LENG.	DIA.	CFM	S.P.
1	Front	117"	16"	6"	10"	16"		633	0.113"
					10"	16"		633	0.113"
	Left	76"	16"	6"	8"	16"		411	0.063"
					8"	16"		411	0.063"



1 M303 TYPICAL HOOD FIRE SUPPRESSION SYSTEM DETAIL
NO SCALE



3 M303 HOOD PLAN VIEW
NO SCALE
DETAIL



2 M303 HOOD SECTIONAL VIEW
NO SCALE
DETAIL

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SHEET TITLE: KITCHEN HOOD DETAILS

	DATE	BY	DESCRIPTION
1			
2			
3			
4			

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DRAWING NO.: M303
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EXHAUST FAN INFORMATION

FAN UNIT NO.	FAN UNIT MODEL #	MODEL	CFM	S.P.	RPM	H.P.	ø	VOLT	FLA	WEIGHT (LBS.)
KEF 1	CAPTIVE AIRE NCA16HPFA	NCA16HPFA	2612	1.100	1297	1.500	3	208	4.7	194.06

HEATER/MUA FAN INFORMATION

FAN UNIT NO.	FAN UNIT MODEL #	BLOWER	HOUSING	CFM	S.P.	RPM	H.P.	ø	VOLT	FLA	WEIGHT (LBS.)
MUA 1	CAPTIVE AIRE A1-D.250-G10	G10	A1-D.250	2090	0.500	1250	1.500	3	208	4.7	906.30

GAS FIRED MAKE-UP AIR UNIT(S)

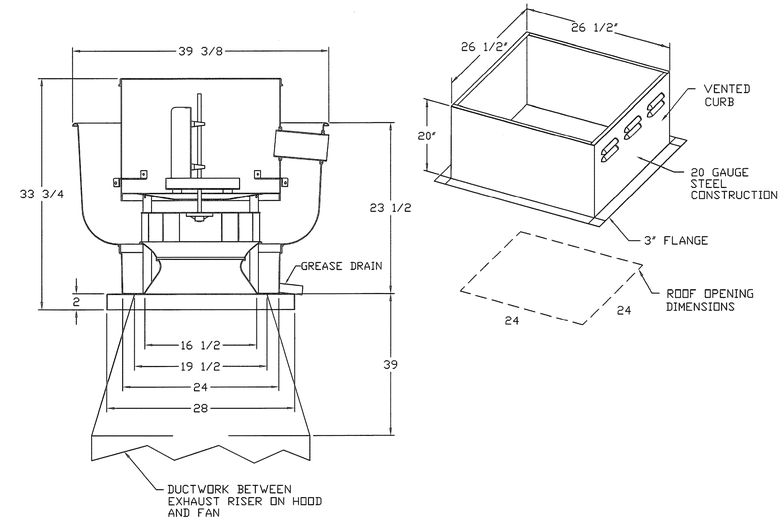
FAN UNIT NO.	INPUT BTUs	OUTPUT BTUs	TEMP. RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE
MUA 1	166110	152821	78 deg F	7 in. w.c. - 14 in. w.c.	Natural

FAN OPTIONS

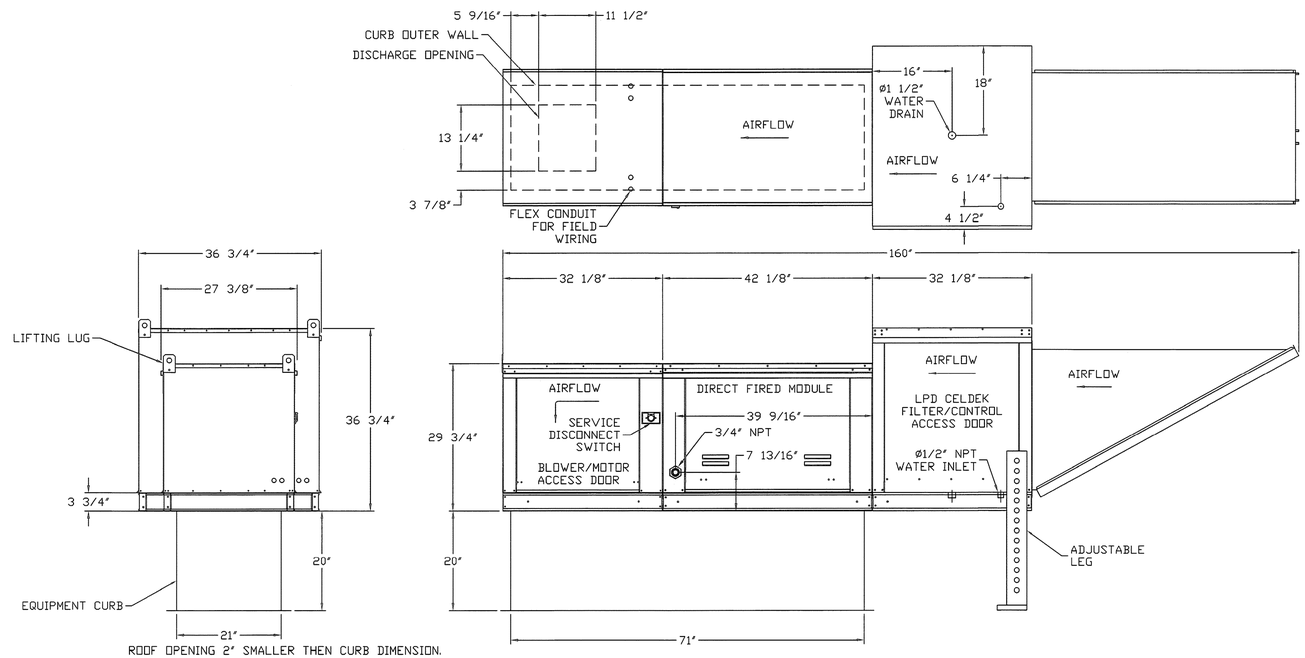
FAN UNIT NO.	OPTION (Qty. - Descr.)
KEF 1	1 - Grease Box
	1 - Full Crating For Exhaust Fans
MUA 1	1 - Inlet Pressure Gauge, 0-35"
	1 - Full Crating For Commercial Heater
	1 - Low Fire Start
	1 - Manifold Pressure Gauge, -5 to 15" wc
	1 - Freeze Protection Drain Kit for Evaporative Coolers
	1 - Motorized Backdraft Damper for A1-D Housing

FAN ACCESSORIES

FAN UNIT NO.	FAN UNIT TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
KEF 1		YES						
MUA 1							YES	



1 M304 KITCHEN EXHAUST FAN DETAIL
NO SCALE
DETAIL



2 M304 KITCHEN MAKE-UP AIR UNITDETAIL
NO SCALE
DETAIL

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SHEET TITLE KITCHEN HOOD DETAILS

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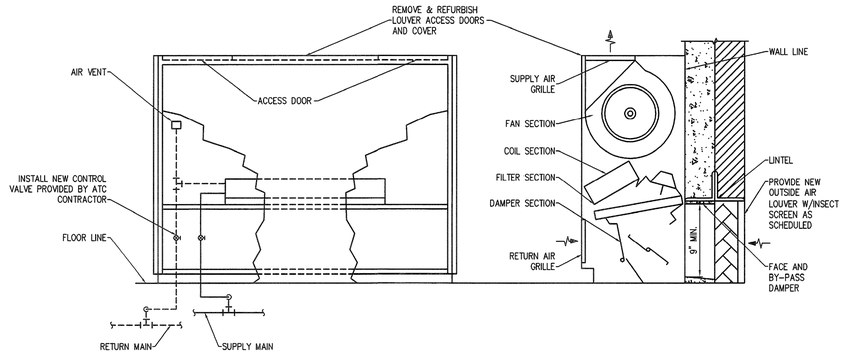
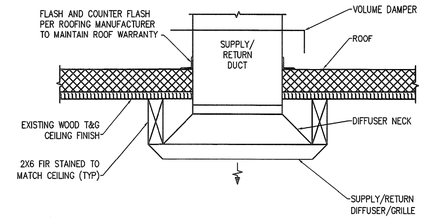
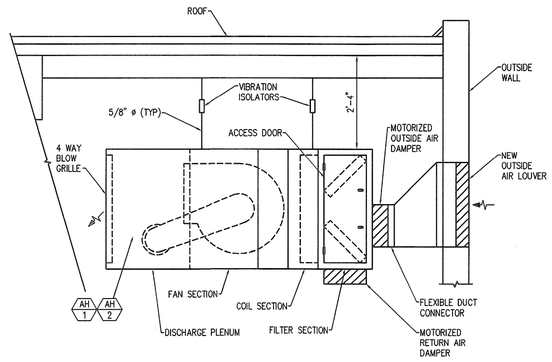


1 / M305 EXISTING UNIT VENTILATOR
NO SCALE



2 / M305 DIFFUSER INSULATION DETAIL
NO SCALE



3 / M305 AIR HANDLER INSTALLATION
NO SCALE

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SHEET TITLE MECHANICAL DETAILS

	DATE	BY	DESCRIPTION
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CONVECTOR UNITS

			AIR			FLUID				PHYSICAL		
ID	MANUFACTURER AND MODEL NUMBER	TYPE	LOAD (BTU/H)	ENTERING TEMP. DB (°F)	LEAVING TEMP. DB (°F)	FLOW RATE (GPM)	ENTERING/ LEAVING TEMP. (°F)	WORKING FLUID	HEAD LOSS (FT)	DIMENSIONS H/L/W INCH	WEIGHT LBS.	NOTES
CV-1	RITTLING PL-32	HYDRONIC	8,200	65	102	1	200/180	WATER	2.5	40/20/6	N/A	1, 2
CV-2,3,4	RITTLING PL-14	HYDRONIC	1,900	65	102	0.5	200/180	WATER	2.5	28/18/4	N/A	1, 3

1. CAPACITY AT 4500 FEET ELEVATION.
2. WALL MOUNTED, FULLY RECESSED. UP FEED

AIR HANDLER

		SUPPLY FAN				HEATING COIL 1				ELECTRICAL						
ID	MANUFACTURER AND MODEL NUMBER	AIRFLOW RATE (CFM)	EXTERNAL STATIC PRESSURE (IN. WATER)	FAN SPEED (RPM)	FACE VELOCITY (FPM)	HEATING LOAD (MBH)	ENTERING/ LEAVING DRY BULB (F)	WATER FLOW RATE (GPM)	FLUID PRESSURE DROP (FT WG)	TOTAL MCA	TOTAL MOCP	FAN H.P.	SINGLE POINT VOLT/PH/HZ	PHYSICAL DIMENSIONS LxWxH (IN)	WEIGHT (LBS)	MINIMUM OUTSIDE AIR (CFM)	NOTES
AH-1	CARRIER 39LG	6,000	0.5	673	495	257	60/106	25.7	2.1	11	20	3	208/230/3/60	72x65x40	889	800	1,2,3,4,5
AH-1	CARRIER 39LG	6,000	0.5	673	495	257	60/106	25.7	2.1	11	20	3	208/230/3/60	72x65x40	889	800	1,2,3,4,5

1. SELECTION BASED ON 4500 FT.
2. PROVIDE WITH R-13 DOUBLE WALL SEALED PANELS; REAR OUTSIDE AIR INLET PREMIUM OPPOSED BLADE DAMPER, BOTTOM RETURN AIR PREMIUM PARALLEL DAMPER.
PROVIDE RETURN AIR AND OUTSIDE AIR DAMPERS WITH ELECTRONIC ACTUATORS, REMOTE CO2 SENSOR, THERMOSTAT.
3. PROVIDE WITH MIXING BOX WITH 2" FILTER ANGLED FRAME, PLEATED FILTERS.
4. PROVIDE FACTORY START-UP AND SERVICE.

MINI-SPLIT SYSTEM UNIT SCHEDULE

		SUPPLY FAN	COOLING			ELECTRICAL			
ID	MANUFACTURER AND MODEL NUMBER	AIR FLOW RATE (CFM)	SENSIBLE MINIMUM COOLING LOAD (BTUH)	SEER	SENSIBLE HEAT FACTOR	SUPPLY FAN FLA	SUPPLY FAN MOTOR MCA (AMP)	V/PH	NOTES
SS-1	MITSUBISHI PKA-A12NHA	290	12,000	15.2	0.81	0.33	1	208/230/1	1,2,3,4,5,6

1. SELECTION BASED ON 4500 FT
2. PROVIDE WITH VIBRATION ISOLATORS AND MOUNTING BRACKET.
3. PIPE CONDENSATE TO ROOF ABOVE. PROVIDE MINI-CONDENSATION PUMP.
4. SEE SPECIFICATIONS FOR REQUIRED COMPONENTS.
5. WALL MOUNTED
6. PROVIDE WITH WIRELESS REMOTE CONTROLLER AND THERMOSTAT.

MINI-SPLIT CONDENSING UNIT SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	REFRIGERANT	TOTAL CAPACITY (BTUH)	COMPRESSOR RATED LOAD AMPS (RLA)	CONDENSER FAN FULL LOAD AMPS (FLA)	MINIMUM CIRCUIT AMPACITY (MCA)	MOCP	SEER	VOLT / PH	HEIGHT / WIDTH / DEPTH (IN)	WEIGHT (LBS)	NOTES
CU-1	MITSUBISHI PUY-ANHA3	R410A	12,000	12	0.35	13	15	15.2	208/230/1	32/14/24	90	1, 2

1. PROVIDE MANUFACTURER'S UNIT ROOF MOUNTING PAD.
COORDINATE WITH OWNER'S ROOFING CONTRACTOR TO COMPLY WITH ROOF WARRANTY.
2. PROVIDE WITH LOW AMBIENT CONTROLS FOR OPERATION DOWN TO 0 DEGREES F.

GRILLES, REGISTERS AND DIFFUSERS

ID	MANUFACTURER	MODEL	MAX NC	DESCRIPTION
CEILING SUPPLY	EH PRICE	SCDA	30	LOUVER FACE (4-CONE) CEILING DIFFUSERS. ADJUSTABLE AIR PATTERN, C.W./O.B.D. FRAME SHALL BE FOR SURFACE OR LAY-IN MOUNTING AS REQUIRED BY CEILING TYPE. LAY-IN FRAMES SHALL BE 24" x 24", 24" x 12" OR 12" x 12" AS REQUIRED TO FIT CEILING TILE SPACE AVAILABLE. PROVIDE ROUND NECK ADAPTER.
RETURN/ EXHAUST	EH PRICE	PDR	30	EXTRUDED ALUMINUM, PERFORATED FACE RETURN AIR UNIT, REMOVABLE FACE & CORE. FRAME SHALL BE FOR SURFACE OR LAY-IN MOUNTING AS REQUIRED BY CEILING TYPE. LAY-IN FRAMES SHALL BE 24" x 24", 24" x 12" OR 12" x 12" AS REQUIRED TO FIT CEILING TILE SPACE AVAILABLE. AIR QUANTITY SHALL MATCH ROOM SUPPLY OR EXHAUST AIR QUANTITY.
LARGE OUTSIDE AIR LOUVER	AIROLITE	K6776	NA	6" DEEP, DRAINABLE, STATIONARY, EXTRUDED ALUMINUM, BLADES AND FRAME SHALL BE 0.081 INCH THICK EXTRUDED ALUMINUM; BLADES SHALL BE SPACED AT 4-1/2" O.C. 3-COAT FLUOROPOLYMER COLOR PER ARCHITECT
SMALL OUTSIDE AIR LOUVER	AIROLITE	AC420	NA	1-1/2" DEEP, STATIONARY, EXTRUDED ALUMINUM; BLADES AND FRAME SHALL BE 0.063 INCH THICK. BLADES SHALL BE SPACED 3/4" O.C. PROVIDE WITH INSECT SCREEN. 3-COAT FLUOROPOLYMER COLOR PER ARCHITECT.

PACKAGED ROOFTOP UNIT SCHEDULE

		SUPPLY FAN		HEATING SECTION			COOLING SECTION				ELECTRICAL			PHYSICAL			
ID	MANUFACTURER AND MODEL NUMBER	AIRFLOW RATE (CFM)	EXTERNAL STATIC PRESSURE (IN. WATER)	HEATING LOAD (BTU/H)	AFUE	FUEL	COOLING LOAD (BTU/H)	COOLING LOAD (TONS)	EER	SEER	TOTAL MCA	TOTAL MOCP	SINGLE POINT VOLT/PH/HZ	PHYSICAL DIMENSIONS LxWxH (IN)	WEIGHT (LBS)	MINIMUM OUTSIDE AIR (CFM)	NOTES
RTU-1	CARRIER 48PG	2000	0.5	75,000	81%	NAT. GAS	58,500	5	12	14.6	34.9	50	208/230/3/60	90x48x44	1471	940	1,2,3,4
RTU-2	CARRIER 48PG	1600	0.5	75,000	81%	NAT. GAS	47,500	4	12	14.8	30.7	45	208/230/3/60	90x48x44	1336	600	1,2,3,4
RTU-3	CARRIER 48PG	1200	0.5	75,000	81%	NAT. GAS	35,800	3	11.7	14	25.1	30	208/230/3/60	90x48x44	1336	80	1,2,3,4
RTU-4	CARRIER 48PG	2000	0.5	75,000	81%	NAT. GAS	58,500	5	12	14.6	34.9	50	208/230/3/60	90x48x44	1471	80	1,2,3,4

1. SELECTION BASED ON 4500 FT.
2. PROVIDE WITH POWERED CONVENIENCE OUTLET AND NON-FUSED DISCONNECT.
3. PROVIDE WITH CO2 SENSOR CONTROLLED ECONOMIZER AND POWER EXHAUST.
4. PROVIDE WITH WINTER START KIT AND LOW AMBIENT OPERATION DOWN TO 0 DEG. F..

EXHAUST FAN SCHEDULE

				AIR		FAN	ELECTRICAL			PHYSICAL		
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	MAXIMUM AIRFLOW RATE (CFM)	STATIC PRESSURE (IN. WATER)	FAN SPEED (RPM)	MOTOR SIZE (HP)	VOLT/PH/HZ	FULL LOAD AMPS	LENGTH/ WIDTH/ HEIGHT (IN)	WEIGHT (LBS)	NOTES
EF-1	GREENHECK GB-091-4	MENS TOILET	ROOF	900	0.3	1445	1/4	120/1/60	5.8	24/24/24	58	1,2,4
EF-2	GREENHECK GB-091-4	MENS SHOWER	ROOF	800	0.3	1445	1/4	120/1/60	5.8	24/24/24	58	1,2,4
EF-3	GREENHECK GB-081-6	WOMENS	ROOF	450	0.3	1088	1/6	120/1/60	4.4	24/24/24	58	1,2,4
EF-4	GREENHECK GB-091-4	SUPPLY ROOM	ROOF	1000	0.3	1100	1/4	120/1/60	5.8	24/24/24	58	1,2,5
EF-5	GREENHECK GB-081-6	JANITOR	ROOF	370	0.3	1088	1/6	120/1/60	4.4	24/24/24	58	1,2,6
KEF-1	SEE HOOD DETAIL SHEETS AND SPECIFICATIONS											3

1. SPUN ALUMINUM, ROOF MOUNTED, BELT DRIVEN, DOWNBLAST CENTRIFUGAL
2. PROVIDE WITH DISCONNECT; ROOF CURB; DAMPER.
3. CONTROL BY BUILDING ENERGY MANAGEMENT SYSTEM. SEE SPECIFICATIONS.
4. CONTROL BY BUILDING ENERGY MANAGEMENT SYSTEM TO RUN DURING OCCUPIED MODE.
5. CONTROL WITH THERMOSTAT WITH FAN-ON-AUTO SUB-BASE

CABINET UNIT HEATER SCHEDULE

			AIR				FLUID				ELECTRICAL			PHYSICAL		
ID	MANUFACTURER AND MODEL NUMBER	TYPE	AIRFLOW RATE (CFM)	LOAD (BTU/H)	ENTERING TEMP. DB (°F)	LEAVING TEMP. DB (°F)	FLOW RATE (GPM)	ENTERING/ LEAVING TEMP. (°F)	WORKING FLUID	HEAD LOSS (FT)	MOTOR SIZE (HP)	MOTOR SPEED (RPM)	VOLT/PH/HZ	DIMENSIONS H/L/W INCH	WEIGHT LBS.	NOTES
CH-1,2	RITTLING 06 RC-400	HYDRONIC	700	49,300	60	102	5.2	200/180	WATER	2.5	1/15	1180	120/1/60	64/24/10	140	1, 2

1. CAPACITY AT 4500 FEET ELEVATION.
2. HEATER TO BE INSTALLED AT 12' AFF OR AS DIRECTED. SIDE SUPPLY, BOTTOM RETURN, HINGED ACCESS DOOR TO FILTERS.

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VBFA Project Number:9344_

KEYED NOTES

LICENSED PROFESSIONAL ENGINEER
CLIFFORD DEE HOLMES
12/11/09
NUMBER 309570
STATE OF UTAH

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY
RENOVATION
985 NORTH 500 WEST
BRIGHAM CITY, UTAH
84302-1540

SHEET TITLE: MECHANICAL SCHEDULES

DATE	BY	DESCRIPTION

DRAWN BY: TJ
CHECKED BY: CDH
PROJECT NO.: 09226470
DRAWING NO.: M401
DATE: DEC. 22, 2008

Utah National Guard - Brigham City Armory - Renovation

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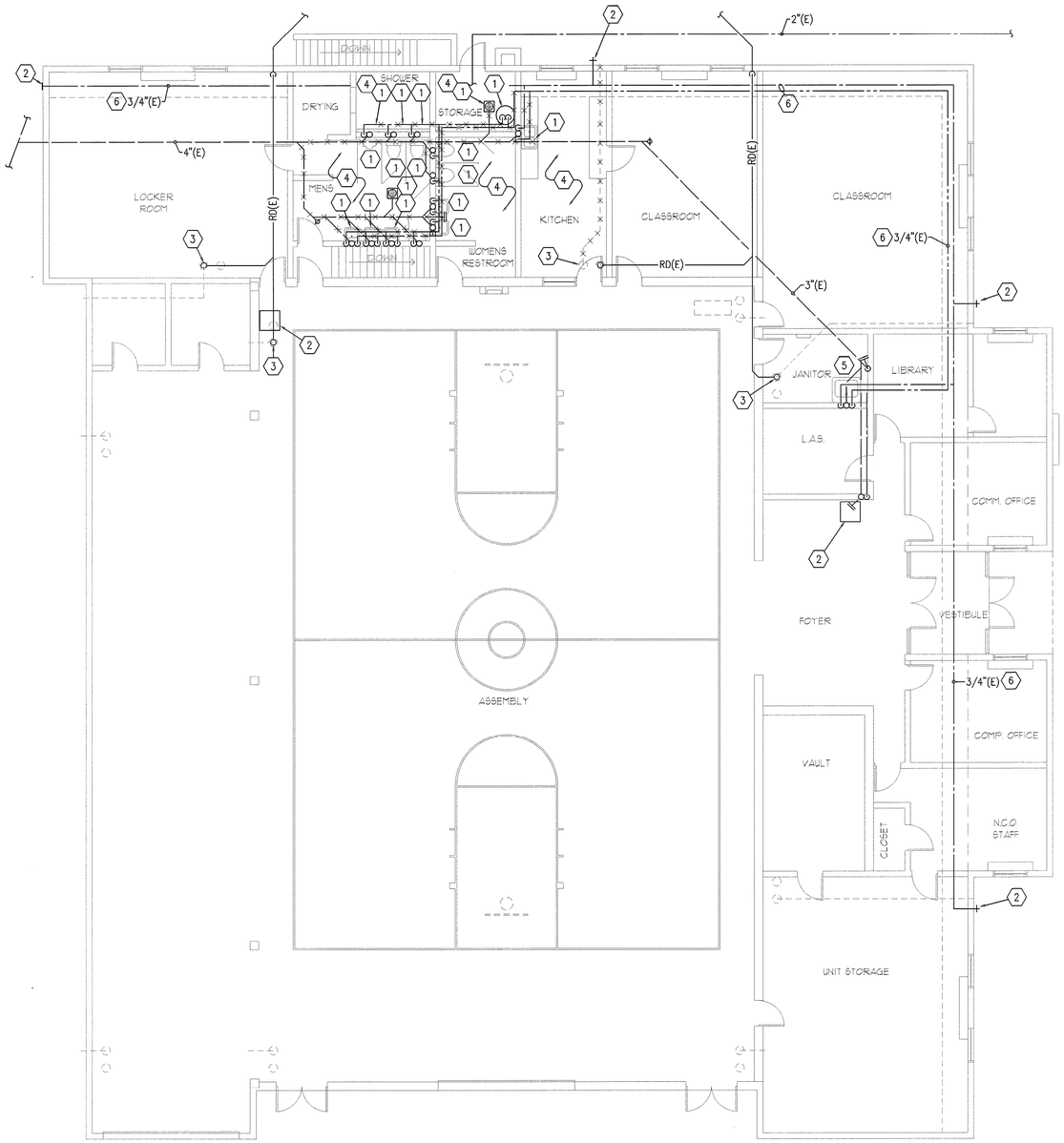

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P101 PLUMBING DEMOLITION PLAN

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

0' 8' 16'

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KEYED NOTES

1. EXISTING FIXTURE SHALL BE REMOVED IN ITS ENTIRETY. CAP PIPING BELOW FLOOR, BEHIND WALL AND/OR ABOVE CEILING AND ABANDON.
2. EXISTING FIXTURE SHALL BE REMOVED AND A NEW FIXTURE INSTALLED IN SAME LOCATION.
3. EXISTING ROOF DRAIN AND OVERFLOW DRAIN PIPING SHALL REMAIN.
4. EXISTING SANITARY SEWER, VENT, HOT AND COLD WATER PIPING SHALL BE COMPLETELY REMOVED IN THIS AREA.
5. EXISTING FIXTURE TO REMAIN.
6. EXISTING DOMESTIC WATER PIPING IN TUNNEL TO REMAIN.

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SHEET TITLE
PLUMBING DEMOLITION PLAN

	DATE	BY	DESCRIPTION
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2			
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DRAWN BY TJ
CHECKED BY CDH
PROJECT NO. 09226470
DRAWING NO. P101
DATE DEC. 22, 2008

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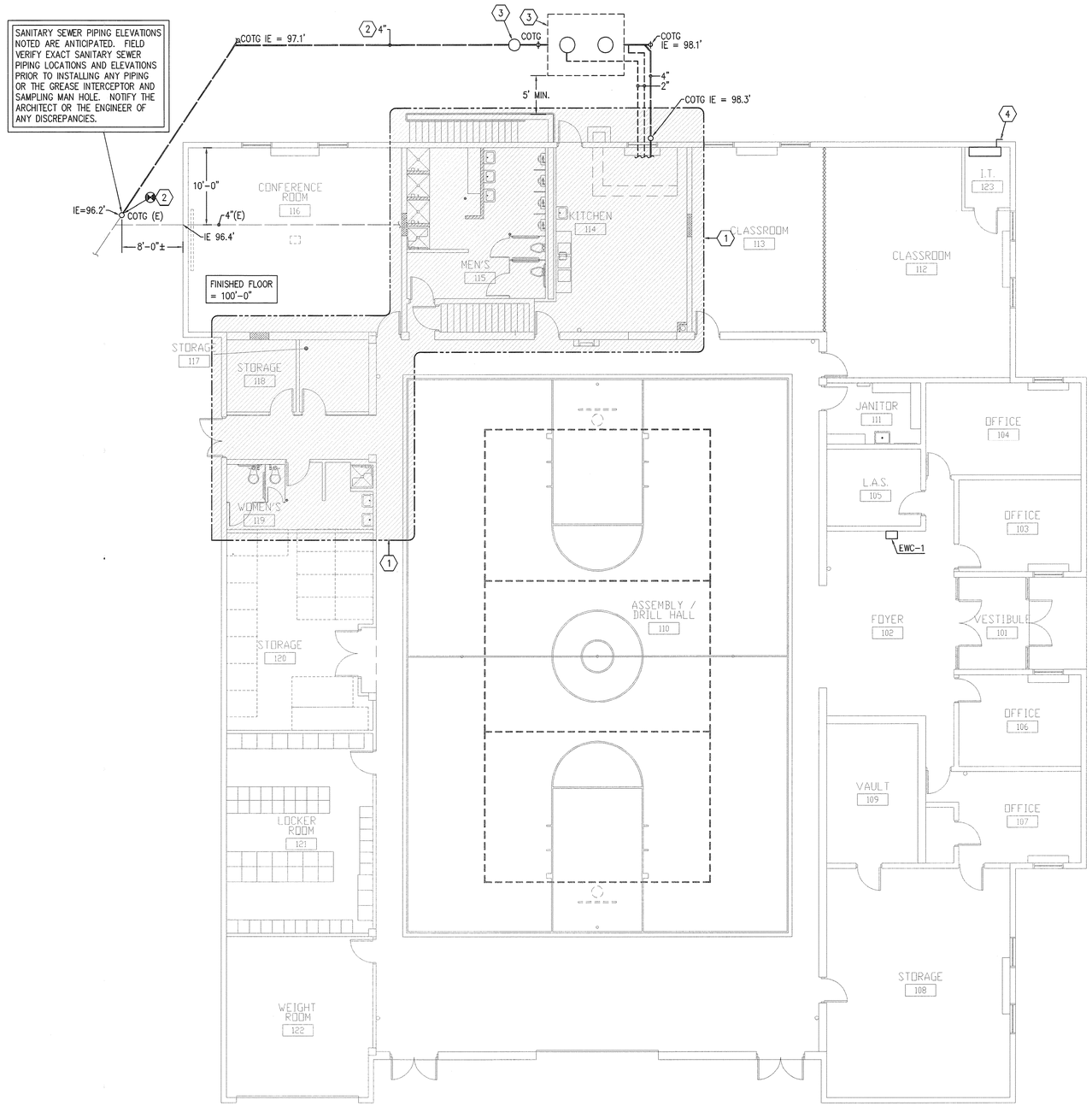

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P201 PLUMBING PLAN

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

0' 8' 16'

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VBFA Project Number:9344_

(#) KEYED NOTES

1. SEE LARGE SCALE PLUMBING PLANS FOR PIPING IN THIS AREA.
2. EXTEND AND MAKE CONNECTION TO EXISTING SANITARY SEWER LINE IN THIS AREA. CONFIRM EXACT LOCATION AND ELEVATION BEFORE INSTALLING ANY PIPING.
3. GREASE INTERCEPTOR AND SAMPLING MANHOLE. SEE DETAIL. COORDINATE LOCATION WITH EXISTING UTILITIES AND ROOF DRAIN PIPING IN THIS AREA. FIELD VERIFY BEST LOCATION.
4. MAKE CONDENSATE DRAIN CONNECTION TO MINI SPLIT INDOOR UNIT. DROP DOWN WALL TO 6" AFF, TURN, PENETRATE EXTERIOR WALL & DISCHARGE THRU 90° ELBOW TO GROUND. PROVIDE HEAT TAPE IN LINE TO PREVENT FREEZING. SEAL WALL PENETRATION.

GENERAL NOTES

1. SANITARY SEWER PIPING ELEVATIONS NOTED ARE ANTICIPATED. FIELD VERIFY EXACT SANITARY SEWER PIPING LOCATIONS AND ELEVATIONS PRIOR TO INSTALLING ANY PIPING OR THE GREASE INTERCEPTOR AND SAMPLING MAN HOLE. NOTIFY THE ARCHITECT OR THE ENGINEER OF ANY DISCREPANCIES.

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SHEET TITLE
PLUMBING PLAN

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PROJECT NO. 09226470
DRAWING NO. P201
DATE DEC. 22, 2008

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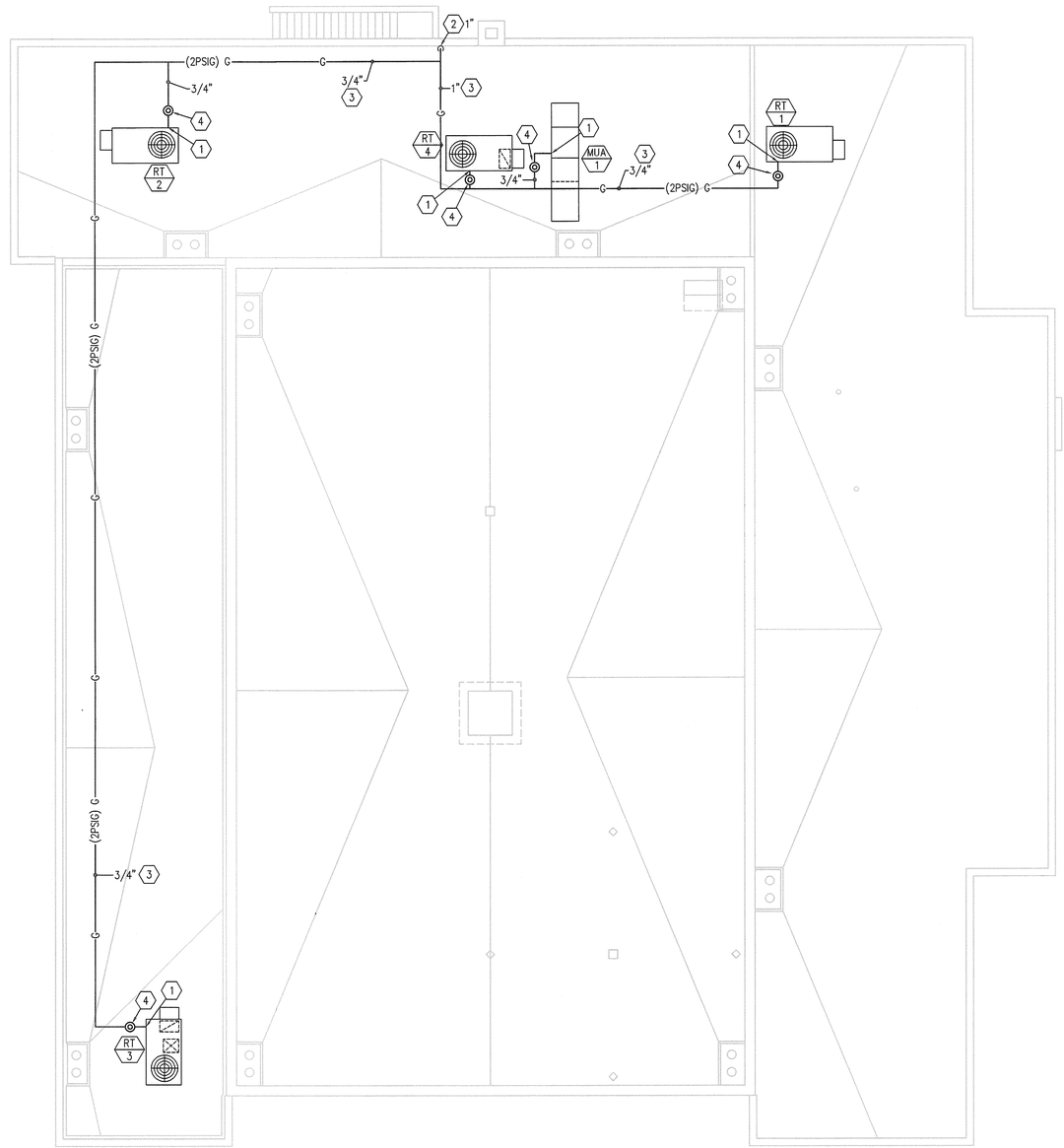

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P202 PLUMBING ROOF PLAN
SCALE: 1/8" = 1'-0"

0' 8' 16'

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KEYED NOTES

1. MAKE GAS CONNECTION TO ROOF MOUNTED EQUIPMENT THRU GAS SHUT OFF VALVE, UNION AND FLEX CONNECTOR.
2. RISE FROM BELOW WITH GAS PIPING.
3. ROUTE GAS PIPING ON ROOF. SUPPORT AS SPECIFIED WITH PIPING SUPPORTS SUCH AS MANUFACTURED BY MIRO INDUSTRIES. WOOD BLOCKING WILL NOT BE ACCEPTABLE.
4. GAS PRESSURE REGULATOR TO REGULATE GAS PRESSURE FROM 2PSI TO 4"W.C.

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SHEET TITLE
PLUMBING ROOF PLAN

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PROJECT NO. 09226470	DRAWING NO. P202
DATE DEC. 22, 2008	

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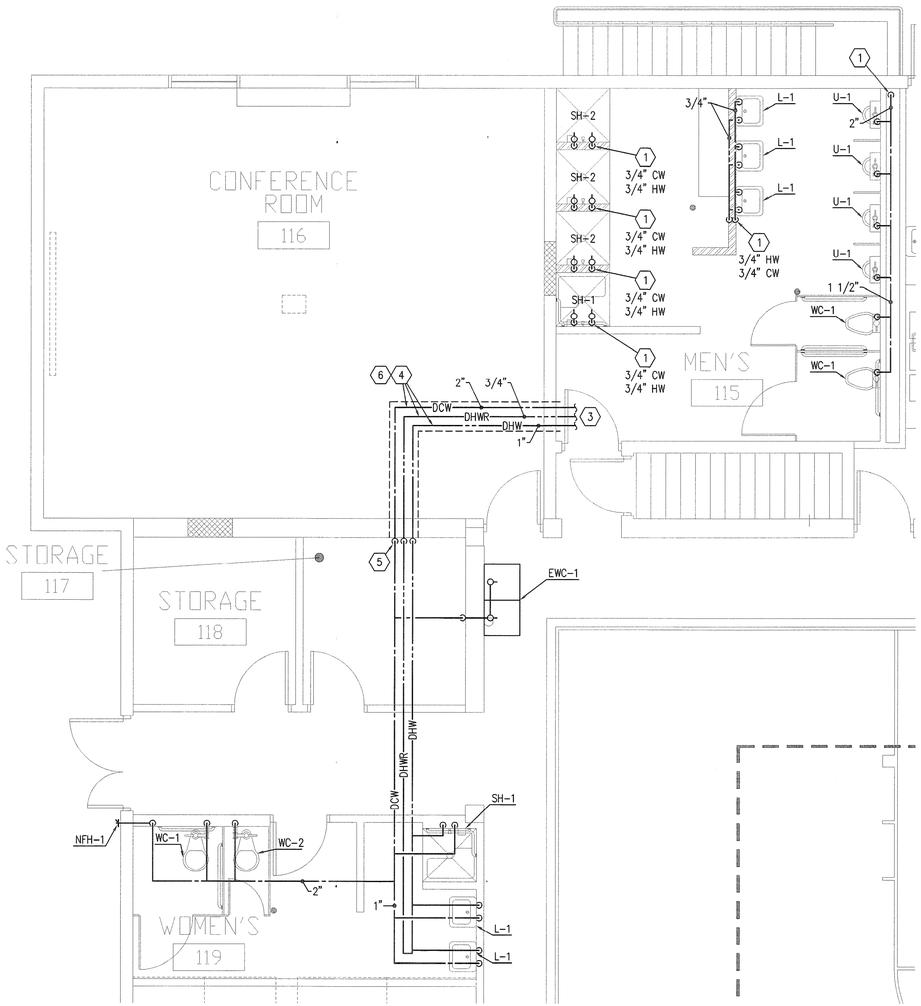
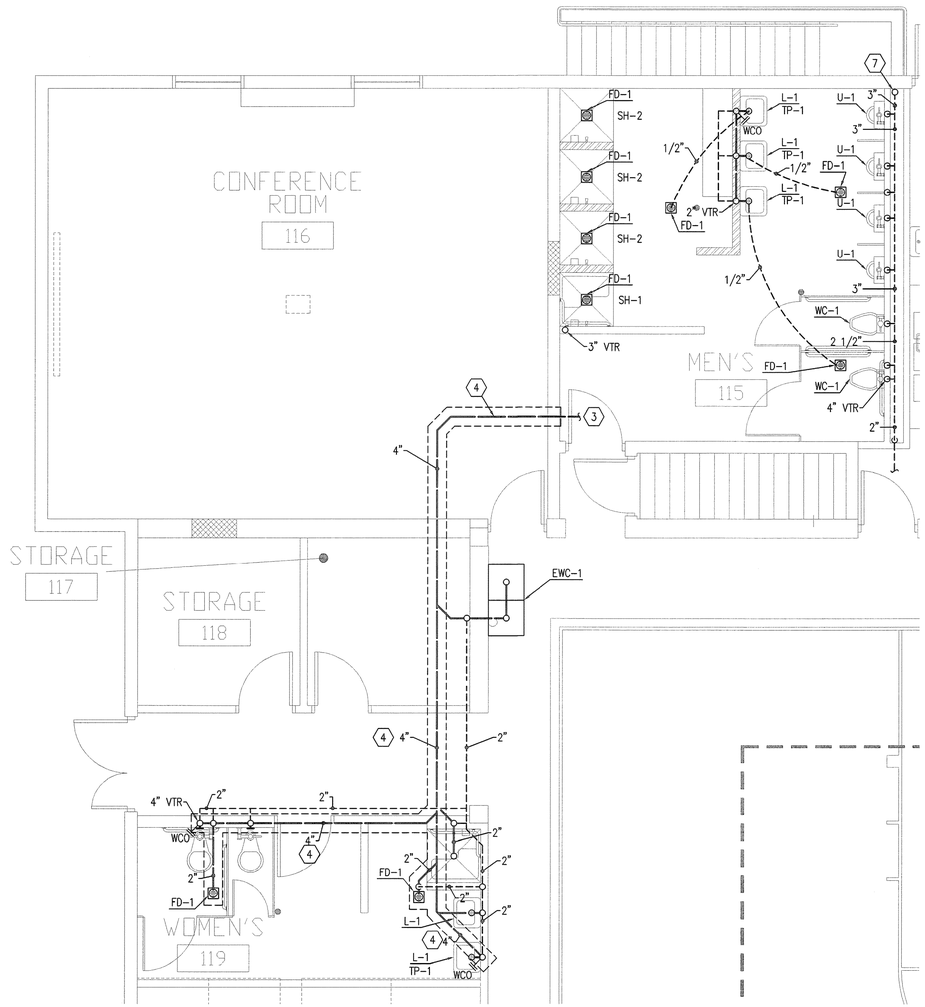


1 P301 LARGE SCALE WATER PLAN
SCALE: 1/4" = 1'-0"
0' 4' 8'



2 P301 LARGE SCALE WASTE AND VENT PLAN
SCALE: 1/4" = 1'-0"
0' 4' 8'

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KEYED NOTES

1. RISE THROUGH FLOOR WITH DOMESTIC HOT AND/OR COLD WATER LINES FROM BOILER ROOM BELOW.
2. RISE FROM BELOW FLOOR WITH DOMESTIC HOT AND/OR COLD WATER LINES.
3. CONTINUED ON BASEMENT LEVEL MECHANICAL PLAN.
4. SAW CUT FLOOR TO INSTALL DOMESTIC WATER PIPING AND WASTE AND VENT PIPING.
5. RISE FROM BELOW FLOOR WITH HOT, HOT RETURN AND COLD WATER LINES. RISE TO CEILING SPACE AND ROUTE AS INDICATED.
6. RUN DOMESTIC WATER PIPING ABOVE THE SANITARY SEWER PIPING A MIN. OF 12".
7. RISE FROM BELOW WITH SANITARY VENT.

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SHEET TITLE
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PROJECT NO. 09226470
DATE DEC. 22, 2008
DRAWING NO. P301

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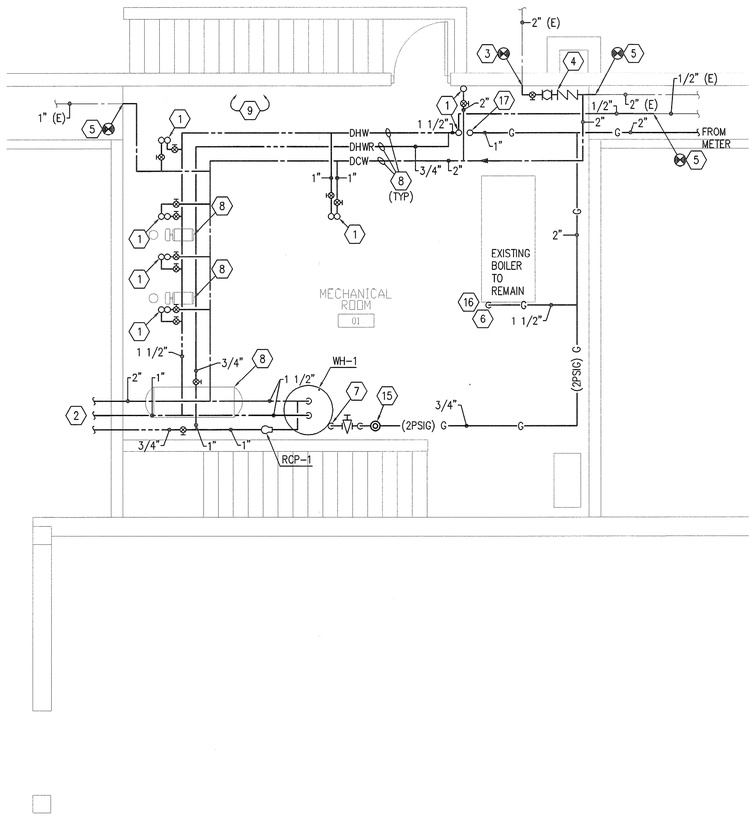
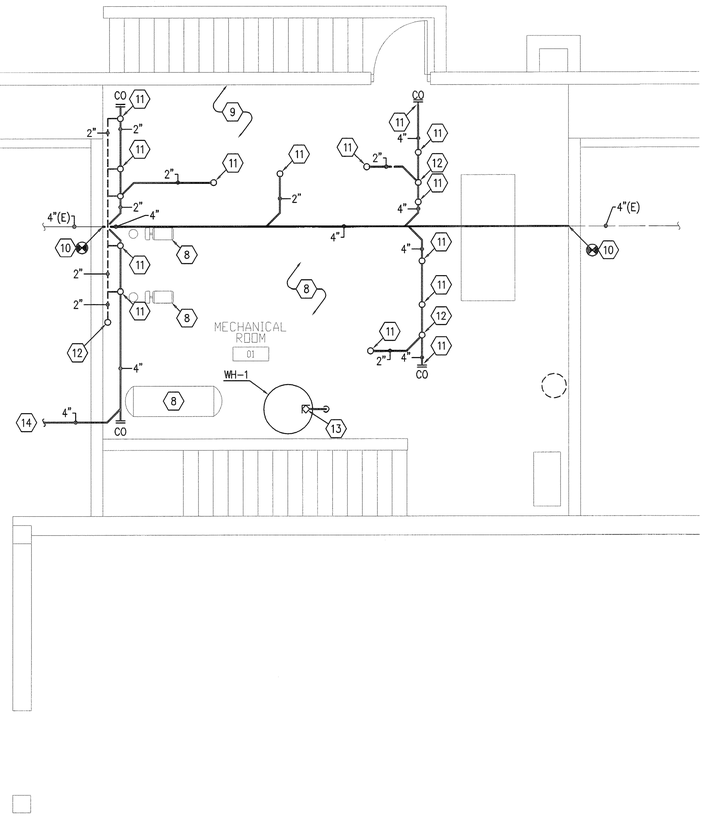


1 P302 LARGE SCALE BOILER ROOM WATER PLAN

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

0' 4' 8'



2 P302 LARGE SCALE BOILER ROOM WASTE & VENT PLAN

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

0' 4' 8'

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KEYED NOTES

1. RISE TO LEVEL ABOVE WITH DOMESTIC HOT AND/OR COLD WATER LINES. PROVIDE BALL SHUT OFF ISOLATION VALVES IN THIS ROOM.
2. EXTEND DOMESTIC WATER PIPING THROUGH WALL, UNDER FLOOR, TO FIXTURES BEYOND. SEE MAIN LEVEL PLUMBING PLANS FOR CONTINUATION.
3. MAKE CONNECTION TO EXISTING DOMESTIC WATER SUPPLY PIPING AT BASEMENT WALL IN THIS AREA. CONFIRM EXACT LOCATION.
4. INSTALL NEW BUILDING MAIN SHUT OFF VALVE, DOUBLE CHECK BACK FLOW DEVICE AND PRESSURE REGULATOR. SEE DETAIL.
5. MAKE CONNECTION TO EXISTING DOMESTIC WATER PIPING IN THIS AREA. CONFIRM EXACT LOCATION.
6. MAKE CONNECTION TO EXISTING GAS PIPING IN THIS AREA WITH NEW GAS PIPING. EXTEND TO FIXTURE INDICATED.
7. MAKE GAS CONNECTION TO GAS APPLIANCE THROUGH GAS SHUT OFF VALVE UNION AND FLEX CONNECTOR. CONFIRM EXACT LOCATION.
8. COORDINATE PIPE ROUTING WITH EXISTING HEATING WATER PIPING AND EQUIPMENT IN THIS AREA. CONFIRM EXACT LOCATIONS.
9. DO NOT RUN WATER OR WASTE PIPING OVER ELECTRICAL PANELS IN THIS AREA. CONFIRM EXACT LOCATIONS. MAINTAIN CODE REQUIRED CLEARANCES. COORDINATE WITH ELECTRICAL CONTRACTOR.
10. MAKE CONNECTION TO EXISTING SANITARY SEWER PIPING IN THIS AREA. CONFIRM EXACT LOCATION.
11. WASTE THROUGH FLOOR FROM FIXTURE ABOVE. CONFIRM EXACT LOCATION.
12. RISE TO LEVEL ABOVE WITH SANITARY SEWER VENT.
13. WATER HEATER P & T ROUTED TO DRAIN INDIRECTLY INTO EXISTING SUMP. CONFIRM EXACT ROUTING AND LOCATION.
14. EXTEND SANITARY SEWER LINE UNDER FLOOR TO FIXTURES INDICATED.
15. GAS PRESSURE REGULATOR TO REGULATE GAS PRESSURE FROM 2PSI TO 4"W.C.
16. ADJUST GAS TRAIN PRESSURE REGULATORS TO HANDLE 2PSI INCOMING GAS PRESSURE.
17. RISE IN WALL ABOVE WITH GAS LINE TO ROOF. CONFIRM EXACT LOCATION.

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SHEET TITLE
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PROJECT NO. 09226470
DRAWING NO. P302
DATE DEC. 22, 2008

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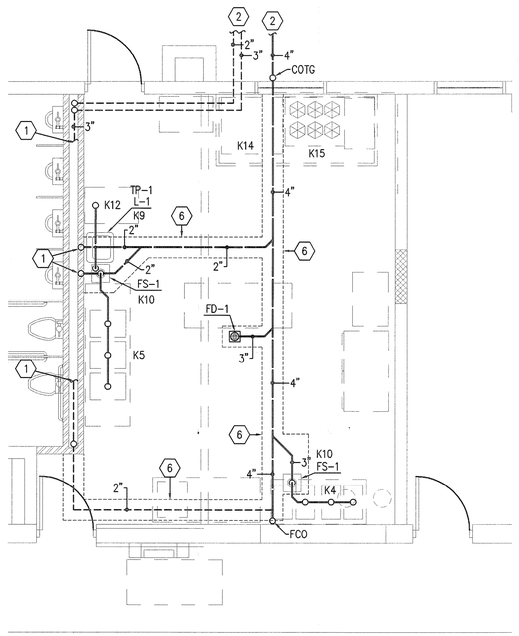
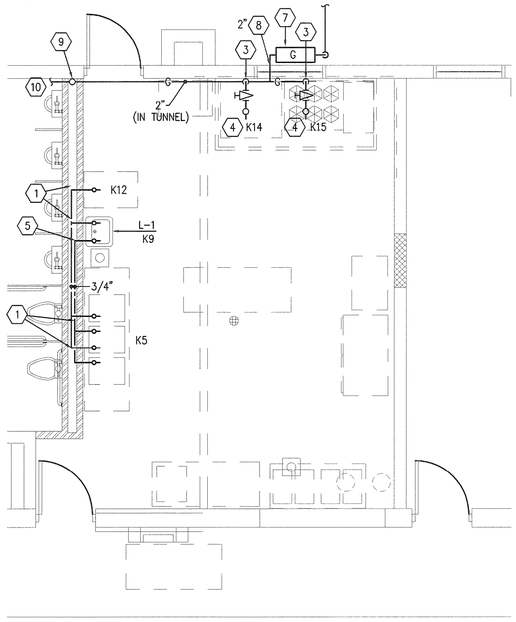


1 P303 LARGE SCALE KITCHEN PLUMBING PLAN
WASTE AND VENT
SCALE: 1/4" = 1'-0"

0' 4' 8'



2 P303 LARGE SCALE KITCHEN PLAN
WATER AND GAS
SCALE: 1/4" = 1'-0"

0' 4' 8'

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KEYED NOTES

1. CONTINUED PLUMBING LARGE SCALE PLANS.
2. EXTENDED TO MAKE CONNECTION TO SITE GREASE INTERCEPTOR. COORDINATE WITH GAS METER IN THIS AREA.
3. RISE FROM GAS LINE IN TUNNEL TO MAKE GAS CONNECTION TO UNIT INDICATED.
4. MAKE GAS CONNECTION TO KITCHEN EQUIPMENT WITH SHUT OFF VALVE, UNION AND FLEXIBLE CONNECTOR.
5. RISE FROM MECHANICAL ROOM BELOW WITH DOMESTIC HOT WATER LINE. RUN TO MAKE CONNECTION TO FIXTURES INDICATED.
6. SAW CUT EXISTING CONCRETE FLOOR AS REQUIRED TO INSTALL NEW PIPING.
7. EXISTING GAS METER. VERIFY WITH GAS COMPANY THAT EXISTING METER IS ADEQUATE TO HANDLE EXISTING GAS LOAD AS WELL AS NEW GAS LOAD.
8. FROM METER EXTEND NEW GAS LINE THRU FOUNDATION INTO TUNNEL. SEAL WALL PENETRATION. RUN NEW GAS LINE IN EXISTING TUNNEL TO MAKE CONNECTION TO GAS APPLIANCES.
9. RISE IN WALL WITH NEW GAS LINE TO ROOF. SEAL ROOF PENETRATION.
10. CONTINUED LARGE SCALE BOILER ROOM PLAN.

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SHEET TITLE
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DRAWING NO. P303
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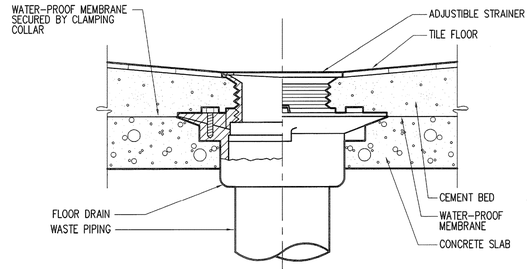
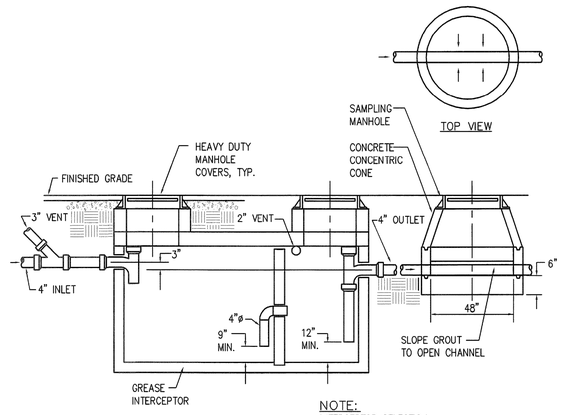
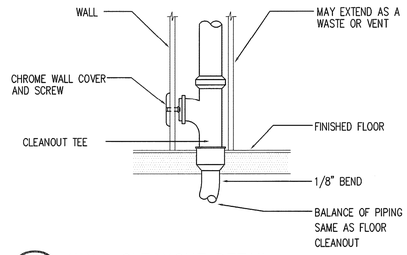


4 / P401 FLOOR / SHOWER DRAIN DETAIL
NOT TO SCALE

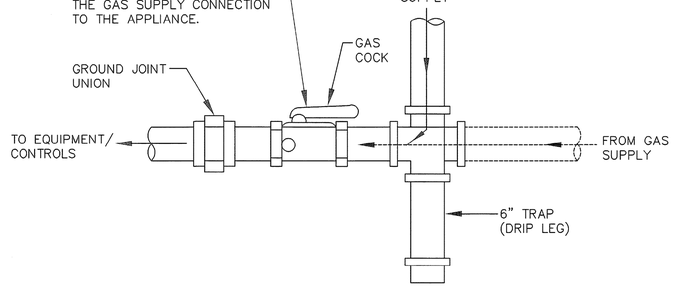


NOTE:
INTERCEPTOR SELECTION BASED ON "AMCOR" OR EQUIVALENT BY DURACRETE.
MINIMUM CAPACITY = 1500 GALLON

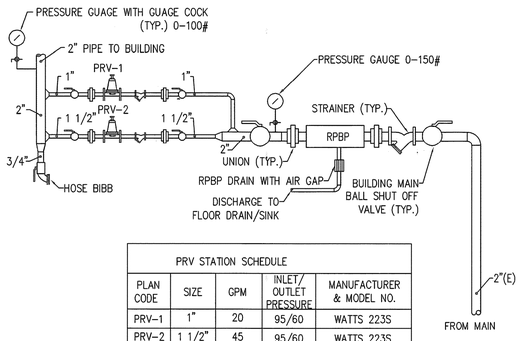
1 / P401 GREASE INTERCEPTOR DETAIL
NOT TO SCALE



5 / P401 WALL CLEANOUT DETAIL
NO SCALE

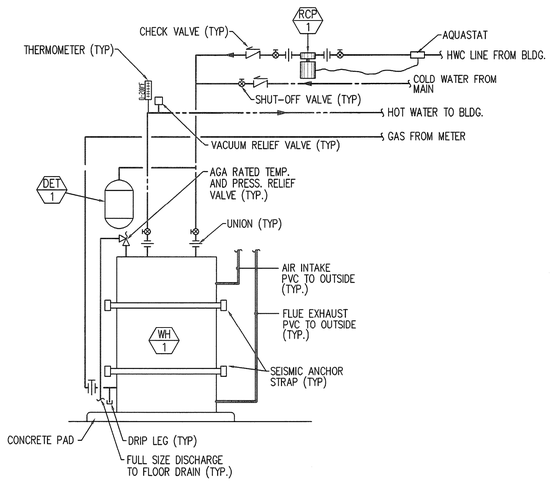


2 / P401 GAS CONNECTION DETAIL
NO SCALE

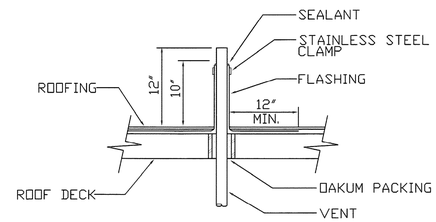


PRV STATION SCHEDULE				
PLAN CODE	SIZE	GPM	INLET/ OUTLET PRESSURE	MANUFACTURER & MODEL NO.
PRV-1	1"	20	95/60	WATTS 223S
PRV-2	1 1/2"	45	95/60	WATTS 223S
RPBP	2"	65	-	WATTS 009

7 / P401 PRV STATION DETAIL
NO SCALE



6 / P401 GAS WATER HEATER
NO SCALE



3 / P401 VENT THRU ROOF FLASHING & SLEEVING DETAIL
NO SCALE

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VBFA Project Number:9344_

KEYED NOTES

LICENSED PROFESSIONAL ENGINEER
CLIFFORD DEE HOLMES
12/11/09
NUMBER 309570
STATE OF UTAH

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY RENOVATION
985 NORTH 500 WEST
BRIGHAM CITY, UTAH
84302-1540

SHEET TITLE PLUMBING DETAILS

	DATE	BY	DESCRIPTION
△			
△			
△			
△			

DRAWN BY TJ
CHECKED BY CDH
PROJECT NO. 09226470
DATE DEC. 22, 2008
DRAWING NO. P401

Utah National Guard - Brigham City Armory - Renovation

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KITECHEN EQUIPMENT SCHEDULE

ID	DESCRIPTION	GAS	GAS LOAD BTUH	CW	HW	WASTE	VENT	INDIRECT WASTE	NOTES
K4	PORTABLE STEAM TABLE	-.-	-.-	-.-	-.-	-.-	-.-	1"	1
K5	S.S. THREE COMP. SINK	-.-	-.-	2)1/2"	2)1/2"			1 1/2"	1, 2
K9	HAND SINK	-.-	-.-	1/2"	1/2"	1-1/2"	1-1/2"	-.-	4
K10	FLOOR DRAIN	-.-	-.-	-.-	-.-	2"	2"	-.-	4
K11	FLOOR SINK	-.-	-.-	-.-	-.-	2"	2"	-.-	4
K12	ICE MACHINE	-.-	-.-	1/2"	-.-	-.-	-.-	1"	1, 2
K14	STACKED CONVECTION OVEN	3/4"	120,000	-.-	-.-	-.-	-.-	-.-	3
K15	4-BURNER STOVE	3/4"	230,000	-.-	-.-	-.-	-.-	-.-	3

1. INDIRECT WASTE TO FLOOR SINK THROUGH LEGAL AIR GAP.
2. MAKE WATER CONNECTIONS THROUGH STOPS AND FLEXIBLE CONNECTORS SPECIFIED FOR PLUMBING FIXTURES.
3. MAKE GAS CONNECTION THROUGH GAS SHUT OFF VALVE AND FLEXIBLE CONNECTOR.
4. SEE PLUMBING FIXTURE SCHEDULE FOR SPECIFICATION.

DOMESTIC EXPANSION TANK SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	SYSTEM SERVED	TYPE	WORKING FLUID	TANK SIZE (GAL)	RELIEF VALVE (PSIG)	DIA./ HEIGHT (IN)	NPT FITTING (IN)	NOTES
DET-1	AMTROL ST-25V	DOMESTIC	BLADDER	WATER	10.3	125	16/20	1	1

1. TANK LINER SUITABLE FOR POTABLE WATER

GAS LOADS

EQUIP ID	EQUIPMENT DESCRIPTION	LOAD (BTU)	LOAD (CFH)
WH-1	WATER HEATER	199,000	224
K11	4-BURNER STOVE	230,000	258
K13	CONVECTION OVEN	120,000	135
MUA-1	MAKE-UP AIR UNIT	170,000	191
RT-1	GAS ROOF TOP UNIT	75,000	84
RT-2	GAS ROOF TOP UNIT	75,000	84
RT-3	GAS ROOF TOP UNIT	75,000	84
RT-4	GAS ROOF TOP UNIT	75,000	84
	EXISTING BOILER	1,500,000	1685
	TOTALS	2,519,000	2830

PLUMBING FIXTURE SCHEDULE

ID	FIXTURE	CW (IN)	HW (IN)	W (IN)	V (IN)	NOTES	SPECIFICATIONS
EWC-1	ELECTRIC WATER COOLER	1/2	1/2	1 1/2	1 1/2	ADA, DUAL STATION	ELECTRIC WATER COOLER: ELKAY EZTLR8C DUAL STATION, WALL MOUNTED, BARRIER FREE, ADA ELECTRIC WATER COOLER WITH FLEXIBLE BUBBLER GUARD AND STAINLESS STEEL BOWLS. COMPRESSOR TO BE 115V, 60 HZ WITH CAPACITY TO DELIVER AT LEAST 8.0 GPH OF 50□F WATER. 1-7" CAST BRASS CHROME-PLATED P-TRAPS. PROVIDE GLASS FILLER OPTION. ADA SIDE TO BE ON THE LEFT. PROVIDE LKAPREZL APRON INSTALLED UNDER UPPER UNIT.
FD-1	FLOOR DRAIN	-.-	-.-	2	2	-.-	FLOOR DRAIN: SMITH FIGURE 2010-BP CAST IRON BODY AND FLASHING COLLAR WITH SQUARE NICKEL BRONZE ADJUSTABLE STRAINER HEAD WITH SECURED SQUARE HOLE GRATE AND TRAP PRIMER CONNECTION.
FS-1	FLOOR SINK	-.-	-.-	2	2	-.-	FLOOR SINK: SMITH FIGURE 3100Y CAST IRON FLANGED RECEPTOR WITH ACID RESISTANT INTERIOR COATING, NICKEL BRONZE RIM, SECURED HALF GRATE AND ALUMINUM DOME BOTTOM STRAINER.
HB-1	HOSE BIB	3/4	-.-	-.-	-.-	RESTROOM HOSE BOX	HOSE BIBB BOX: ACORN 8141 STAINLESS STEEL HOSE VALVE BOX WITH HOSE BIBB WITH VACUUM BREAKER, 3/4" MALE HOSE THREAD AND LOOSE KEY HANDLE.
L-1	LAVATORY	1/2	1/2	1 1/2	1 1/2	WALL HUNG, SENSOR FAUCET	LAVATORY (WALL HUNG): KOHLER K-2032 GREENWICH 20" X 18", "D" SHAPED BOWL, VITREOUS CHINA, WALL-MOUNT LAVATORY WITH DUAL FRONT OVERFLOW, 4" FAUCET CENTERS; K-7715 OPEN GRID STRAINER; TECHNICAL CONCEPTS 500484 MILANO BATTERY POWERED SENSOR FAUCET. FAUCET TO BE PROVIDED WITH FACTORY MIXING VALVE WITH 3/8" COMPRESSION CONNECTIONS AND IN-LINE CHECKS. PROVIDE WATTS NO. 7 DUAL CHECKS IN HOT AND COLD SUPPLIES. PROVIDE VANDAL RESISTANT AERATOR. PROVIDE LOOSE KEY ANGLE STOPS AND CHROME PLATED COPPER SUPPLIES AND 17 GA. CAST BRASS, CHROME PLATED "P" TRAP. COVER ALL EXPOSED PIPING WITH WHITE "HANDI-LAV GUARD" PROTECTOR TO MEET ADA REQUIREMENTS.
NFH-1	NON FREEZE WALL HYDRANT	3/4	-.-	-.-	-.-	-.-	NON-FREEZE HYDRANT: SMITH 5609QT NON-FREEZE WALL HYDRANT FOR WALL THICKNESS SHOWN ON PLAN. BRONZE HYDRANT, 3/4-INCH CONNECTION WITH BRASS CASING, INTEGRAL SELF-DRAINING VACUUM BREAKER, AND LOOSE KEY.
SH-1	SHOWER	1/2	1/2	2	2	ADA	SHOWER: SYMMONS BP-500-B30-V TEMPTROL II SHOWER SYSTEM WITH PRESSURE BALANCING MIXING VALVE WITH LEVER HANDLE, ADJUSTABLE STOP SCREW, INTEGRAL SERVICE STOPS, LEVER DIVERTER VALVE, WALL/HAND SHOWER WITH FLEXIBLE METAL HOSE, IN-LINE VACUUM BREAKER, WALL CONNECTION AND FLANGE, 30" SLIDE BAR FOR HAND SHOWER AND OXYGENICS MODEL 630 1.5 GPM SHOWER HEAD; SMITH 2005Y-A-NB ROUND TOP DRAIN WITH 6" NICKEL BRONZE STRAINER, CAST-IRON BODY, 2" OUTLET AND NO-HUB CONNECTION.
SH-2	SHOWER	1/2	1/2	2	2	-.-	SHOWER: SYMMONS BP-56-1 TEMPTROL II SHOWER SYSTEM WITH RESSURE BALANCING MIXING VALVE WITH LEVER HANDLE, ADJUSTBABLE STOP SCREW, INTEGRAL SERVICE STOPS AND 2.5 GPM CLEAR-FLO SHOWER HEAD WITH ARM AND FLANGE; SMITH FIGURE 2005Y FLOOR DRAIN WITH CAST IRON BODY AND FLASHING COLLAR WITH ROUND NICKEL BRONZE ADJUSTABLE STRAINER HEAD WITH SECURED GRATE.
S-1	SINK	1/2	1/2	2	1 1/2	SINGLE AND 3-COMPARTMENT	CHICAGO 786-GN2FC FAUCET, NO. 317 4" WRIST BLADES, GN2 RIGID/SWING CONVERTIBLE GOOSE NECK WITH 1.6 GPM FC LAMINAR FLOW CONTROL AND PLAIN END SPOUT RING. FLEXIBLE STAINLESS STEEL SUPPLIES WITH LOOSE KEY ANGLE STOPS. JUST J-35 STAINLESS STEEL CUP STRAINER AND CAST BRASS P-TRAP WITH CLEAN-OUT PLUG.
SS-1	SERVICE SINK	3/4	3/4	3	2	-.-	KOHLER K6710, WHITBY, 28 X 28-INCH, ENAMELED CAST IRON FLOOR-MOUNTED CORNER MODEL, K9146-3" DRAIN WITH STRAINER, NO. K8940 REMOVABLE VINYL-COATED RIM GUARD; KOHLER K-8905 FAUCET WITH VACUUM BREAKER, SCREWDRIVER STOPS IN SHANKS, 5 FOOT RUBBER HOSE AND WALL HOOK, 853.
TP-1	TRAP PRIMER	1/2	-.-	-.-	-.-	-.-	PRECISION PLUMBING PRODUCTS, INC. (PPP) PR-500 SERIES AUTOMATIC TRAP PRIMING MANIFOLD. PROVIDE DISTRIBUTION UNITS AS NEEDED FOR THE NUMBER OF TRAPS CONNECTED. 7" DIAMETER COPPER TUBE CONNECTION TO P-TRAP, INSTALL PER MANUFACTURER'S INSTRUCTIONS. PROVIDE ACCESS COVER.
U-1	URINAL	3/4	-.-	2	2	WALL HUNG, SENSOR FLUSH VALVE	URINAL: KOHLER K-5016-ET VITREOUS CHINA ADA URINAL WITH 7" TOP SPUD; SLOAN OPTIMA SMO REGAL MODEL 186-0.5-SMO EXPOSED, BATTERY POWERED, SIDE MOUNT SENSOR OPERATED, 0.5 GPF FLUSH VALVE. SMITH 0637 URINAL SUPPORT. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.
WC-1	WATER CLOSET	1	-.-	4	2	WALL HUNG, SENSOR FLUSH VALVE, ADA	KOHLER K-4330 KINGSTON VITREOUS CHINA, WALL MOUNTED, ELONGATED BOWL, WITH K-4670-C LUSTRA OPEN FRONT SEAT; SLOAN REGAL OPTIMA SMO MODEL 111-SMO LOW CONSUMPTION EXPOSED, BATTERY POWERED, SIDE MOUNT SENSOR OPERATED, 1.6 GPF FLUSH VALVE; SMITH 0210 HORIZONTAL (LEFT OR RIGHT HAND AS REQUIRED) OR SMITH 0230 VERTICAL ADJUSTABLE CARRIER WITH FOOT SUPPORT; INSTALL ACTUATOR ON WIDE SIDE OF STALL TO MEET ADA REQUIREMENTS; SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.
WC-2	WATER CLOSET	1	-.-	4	2	WALL HUNG, SENSOR FLUSH VALVE	KOHLER K-4330 KINGSTON VITREOUS CHINA, WALL MOUNTED, ELONGATED BOWL, WITH K-4670-C LUSTRA OPEN FRONT SEAT; SLOAN REGAL OPTIMA SMO MODEL 111-SMO LOW CONSUMPTION EXPOSED, BATTERY POWERED, SIDE MOUNT SENSOR OPERATED, 1.6 GPF FLUSH VALVE; SMITH 0210 HORIZONTAL (LEFT OR RIGHT HAND AS REQUIRED) OR SMITH 0230 VERTICAL ADJUSTABLE CARRIER WITH FOOT SUPPORT; SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.

1. ALL UNDER GROUND WASTE AND VENT SHALL BE 2" OR GREATER PER DRAWINGS.

GAS FIRED WATER HEATER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	SERVICE	EFFICIENCY (%)	TYPE	GAS RATING (BTU)	RECOVERY RATE @ 100 F DELTA T	TANK SIZE (GAL)	FLUE/ CA INTAKE SIZE (IN)	LENGTH/ WIDTH/ HEIGHT (IN)	ELECTRICAL (AMP)	ELECTRICAL V/PH	NOTES
WH-1	AO SMITH BTH-199	DOMESTIC HOT WATER	90%	GAS FIRED	199,999	230	100	4/4.	28/75	10	120/1	1

1. PROVIDE VERTICAL CONCENTRIC VENT KIT THROUGH ROOF.

DOMESTIC PUMP SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FLUID FLOW RATE (GPM)	FLUID WORKING FLUID	HEAD LOSS (FT)	ELECTRICAL MOTOR SIZE (W)	ELECTRICAL MOTOR SIZE (HP)	ELECTRICAL MOTOR SPEED (RPM)	VOLT/PH/HZ	NOTES
RCP-1	GRUNDFOS UPS 40-80/4	MECHANICAL ROOM	KITCHEN RECIRCULATION	3.0	DOMESTIC WATER	20.0	485	1/2	1587	120/1/60	-.-
											-.-

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VBFA Project Number:9344_

KEYED NOTES

1. ---

LICENSED PROFESSIONAL ENGINEER
CLIFFORD DEE HOLMES
12/11/09
NUMBER 309570
STATE OF UTAH

UTAH NATIONAL GUARD
BRIGHAM CITY ARMORY
RENOVATION
985 NORTH 500 WEST
BRIGHAM CITY, UTAH
84302-1540

SHEET TITLE: PLUMBING SCHEDULES

	DATE	BY	DESCRIPTION
1			
2			
3			
4			

DRAWN BY: TJ
CHECKED BY: CDH
PROJECT NO.: 09226470
DATE: DEC. 22, 2008
DRAWING NO.: P501

Utah National Guard - Brigham City Armory - Renovation

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SYMBOL LEGEND

SYMBOL	DESCRIPTION
REFERENCE AND LINE SYMBOLS	
A5 / E–501	DETAIL INDICATOR: A5 INDICATES DETAIL NUMBER, E–501 INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
A5 / E–201	ELEVATION OR SECTION INDICATOR, EXTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E–201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
A5 / E–201	ELEVATION OR SECTION INDICATOR, INTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E–201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
100	ROOM OR SPACE NUMBER.
1	KEYNOTE INDICATOR.
1	REVISION INDICATOR.
CU–1	EQUIPMENT INDICATOR.
	BREAK, STRAIGHT: TO BREAK PARTS OF DRAWING.
	BREAK, ROUND.
	NEW LINE: MEDIUM LINE.
	HIDDEN FEATURES LINE: HIDDEN, THIN LINE.
	EXISTING TO REMAIN LINE: THIN LINE.
	DEMOLITION LINE: DASHED, MEDIUM LINE.
WIRING METHODS	
	WIRING.
A–1,3,5	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN THE ELECTRICAL SPECIFICATIONS.
1 A–1,3,5	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. NUMBER IN BOX REFERS TO THE CONDUCTOR AND CONDUIT SCHEDULE. FOR BRANCH WIRING USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN THE ELECTRICAL SPECIFICATIONS.
— X —	WIRING AND/OR RACEWAY: THIN LINE. WHERE "X" = : CATV = CABLE TELEVISION CCTV = CLOSED CIRCUIT TELEVISION FA = FIRE ALARM FO = FIBER OPTICS I = INTERCOM NC = NURSE CALL P = POWER RC = RIGID CONDUIT S = SOUND T = TELEPHONE TV = TELEVISION OTHERS AS NOTED IN OTHER SCHEDULES. RACEWAYS AND WIRING SHALL BE SIZED AS SHOWN AND/OR SPECIFIED.
	LOW VOLTAGE WIRING: DIVIDE, MEDIUM LINE.
	CONDUIT STUB. DIMENSION RECORD DRAWINGS AND MARK.
1	CONDUCTOR & CONDUIT ("CC") SCHEDULE INDICATOR. REFER TO ONE–LINE DIAGRAM.
	JUNCTION BOX.
	EARTH GROUND (ONE–LINE DIAGRAM).
LIGHTING (REFER TO FIXTURE SCHEDULE FOR SYMBOLS)	
(W–3)	FIXTURE IDENTIFICATION: (W–3) INDICATES FIXTURE TYPE AS SCHEDULED.
(W–3)	FIXTURE IDENTIFICATION, EMERGENCY WITH BATTERY PACK, CONNECTED TO GENERATOR AS INDICATED: (W–3) INDICATES FIXTURE TYPE AS SCHEDULED.
EM	EMERGENCY.
NL	NIGHT LIGHT: DO NOT SWITCH.
	EGRESS DIRECTION ARROW.
LIGHTING CONTROL	
	OCCUPANCY SENSOR, DUAL TECHNOLOGY, OMNI–DIRECTIONAL, CEILING.
	OCCUPANCY SENSOR, DUAL TECHNOLOGY, DIRECTIONAL.
P	PHOTOCELL.
TC	TIME CLOCK.
STRUCTURED CABLING	
	OUTLET, BUILDING STANDARD COMBINATION TELEPHONE/ DATA COMMUNICATION.
	TELEPHONE TERMINAL BOARD, FIRE TREATED PLYWOOD PAINTED.
	LAN RACK, FLOOR STANDING.

SYMBOL LEGEND

SYMBOL	DESCRIPTION
ELECTRICAL POWER AND DISTRIBUTION	
	DISCONNECT, FUSED (ONE–LINE DIAGRAM).
	DISCONNECT, NONFUSED (ONE–LINE DIAGRAM).
	CIRCUIT BREAKER, MOLDED CASE (ONE–LINE DIAGRAM).
	CIRCUIT BREAKER, SOLID STATE (ONE–LINE DIAGRAM).
	MOTOR.
	TRANSFORMER (ONE–LINE DIAGRAM).
225/3 "1H"	PANELBOARD WITH MAIN LUGS ONLY. BUS SIZE AND PHASE AS SHOWN (ONE–LINE DIAGRAM).
225/3 "1H" 225/3 "1H"	PANELBOARD WITH SUB FEED LUGS (ONE–LINE DIAGRAM).
	CT CABINET PER UTILITY'S REQUIREMENTS (ONE–LINE DIAGRAM).
	SERVICE ENTRANCE SURGE PROTECTION (ONE–LINE DIAGRAM).
M	METER.
	DISCONNECT SWITCH, FUSED.
	DISCONNECT SWITCH, UNFUSED.
	STARTER, COMBINATION WITH DISCONNECT SWITCH.
	STARTER OR MOTOR CONTROLLER.
	PUSHBUTTON.
	PUSHBUTTONS, MOTOR CONTROL.
	PANELBOARD CABINET, FLUSH MOUNTED.
	PANELBOARD CABINET, SURFACE MOUNTED, 1 SECTION.
	PANELBOARD CABINET, SURFACE MOUNTED, 2 SECTION.
DP#—	DISTRIBUTION PANEL OR SWITCHBOARD.
$ST	SWITCH, TOGGLE MOTOR STARTER WITH OVERLOAD PROTECTION.
75	TRANSFORMER: NUMBER INDICATES kVA.
	RELAY CONTACT, NORMALLY CLOSED (ONE–LINE DIAGRAM).
	RELAY CONTACT, NORMALLY OPEN (ONE–LINE DIAGRAM).
HC	ACCESSIBLE DOOR ENTRY PUSH PLATE OPERATOR.
WIRING DEVICES	
	RECEPTACLE, DUPLEX: NEMA 5–20R.
A	RECEPTACLE, DUPLEX, ABOVE COUNTER: NEMA 5–20R.
C	RECEPTACLE, DUPLEX, CEILING: NEMA 5–20R.
D	RECEPTACLE, DUPLEX, DEDICATED CIRCUIT: NEMA 5–20R.
P	RECEPTACLE, DUPLEX, PEDESTAL MOUNTED: NEMA 5–20R.
DF	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, DRINKING FOUNTAIN: CONCEAL WATER COOLER RECEPTACLE BEHIND WATER COOLER. SEE MECHANICAL/PLUMBING SHOP DRAWINGS FOR INSTALLATION REQUIREMENTS.
	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER: NEMA 5–20R.
WP	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WEATHERPROOF: NEMA 5–20R.
	RECEPTACLE, QUADRAPLEX: NEMA 5–20R.
	RECEPTACLE, SPECIAL PURPOSE. PROVIDE RECEPTACLE TO MATCH EQUIPMENT PLUG.
	SWITCH, DIMMER.
X $	SWITCH, SINGLE POLE ("x" INDICATES FIXTURES CONTROLLED).
X $3	SWITCH, THREE–WAY ("x" INDICATES FIXTURES CONTROLLED).
X $4	SWITCH, FOUR–WAY ("x" INDICATES FIXTURES CONTROLLED).
CS#	CONTROL STATION

SYMBOL LEGEND

SYMBOL	DESCRIPTION
FIRE ALARM	
FSA	FIRE SYSTEM ANNUNCIATOR.
FCP	FIRE ALARM CONTROL PANEL, SEMI–RECESSED.
CM	CONTROL MODULE.
MM	MONITOR MODULE.
P	FIRE ALARM MANUAL PULL STATION.
R	SHUT DOWN RELAY: INSTALL RELAY IN CONTROL CIRCUIT OF EQUIPMENT TO BE CONTROLLED IN THE EVENT OF A FIRE.
	DETECTOR, SMOKE.
	DETECTOR, SMOKE, DUCT WITH HOUSING AND SAMPLING TUBE.
	DETECTOR, HEAT.
75	STROBE. SUBSCRIPT INDICATES CANDELA RATING.
WP	ALARM, HORN/SPEAKER, WEATHERPROOF.
75	ALARM, HORN/STROBE, ONE ASSEMBLY. SUBSCRIPT INDICATES CANDELA RATING.
75	ALARM, HORN/STROBE, ONE ASSEMBLY, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
75	ALARM, HORN, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
75	ALARM, STROBE, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
	DETECTOR, FLOW SWITCH: FLOW SWITCHES SHALL BE PROVIDED AND INSTALLED WITH FIRE SPRINKLER SYSTEM AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.
	DETECTOR, TAMPER SWITCH WITH VALVE: TAMPER SWITCHES SHALL BE PROVIDED AND INSTALLED WITH FIRE SPRINKLER SYSTEM AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.
SD	SMOKE DAMPER.
FSD	FIRE AND SMOKE DAMPER.
	BELL (GONG).
	COBRA HEAD LIGHT FIXTURE.

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB–SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC...

ELECTRICAL SHEET INDEX

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EE501	ELECTRICAL DETAILS
EE502	ELECTRICAL DETAILS
EE503	PAD VAULT DETAIL
ES101	ELECTRICAL SITE DEMOLITION PLAN
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EP102	ROOF POWER PLAN
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EP601	ONE–LINE DIAGRAM
EL101	LIGHTING PLAN
EL501	LIGHTING CONTROL DIAGRAMS
EL601	LIGHTING FIXTURE SCHEDULE
ET101	TECHNOLOGY PLAN
ET601	TECHNOLOGY DETAILS
ET602	VOICE–DATA ROUGH IN DETAILS
FA101	FIRE PROTECTION PLAN
FA601	FIRE ALARM RISER

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

1P	SINGLE POLE
1PH	SINGLE–PHASE
1WAY	ONE–WAY
2/C	TWO–CONDUCTOR
2WAY	TWO–WAY
3/C	THREE–CONDUCTOR
3PH	THREE–PHASE
3WAY	THREE–WAY
4OUT	QUADRUPLE RECEPTACLE OUTLET
4PDT	FOUR–POLE DOUBLE THROW
4PST	FOUR–POLE SINGLE THROW
4W	FOUR–WIRE
4WAY	FOUR–WAY
A	ABOVE COUNTER
AC	ARMORED CABLE
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
ALUM	ALUMINUM
AMP	AMPERE
ANN	ANNUNCIATOR
AP	ACCESS POINT (WIRELESS DATA)
AR	AS REQUIRED
ASC	AMPS SHORT CIRCUIT
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO VISUAL
AWG	AMERICAN WIRE GAGE
BB XFMR	BUCK–BOOST TRANSFORMER
C	CEILING MOUNTED
CATV	COMMUNITY ANTENNA TELEVISION
CB	CIRCUIT BREAKER
CCBA	CUSTOM COLOR AS SELECTED BY ARCHITECT
CCTV	CLOSED CIRCUIT TELEVISION
CFBA	CUSTOM FINISH AS SELECTED BY ARCHITECT
CF/CI	CONTRACTOR FURNISHED/ CONTRACTOR INSTALLED
CF/OI	CONTRACTOR FURNISHED/ OWNER INSTALLED
CKT	CIRCUIT
CM	CONSTRUCTION MANAGER
CND	CONDUIT
CO	CONVENIENCE OUTLET
COR	CONTRACTING OFFICER'S REPRESENTATIVE
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
CTV	CABLE TELEVISION
CU	COPPER
dBA	UNIT OF SOUND LEVEL
DPDT	DOUBLE POLE DOUBLE THROW
DS	DISCONNECT SWITCH
EA	EACH
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENT	ELECTRICAL NONMETALLIC TUBING
EPO	EMERGENCY POWER OFF
EQUIP	EQUIPMENT
EX	EXISTING
F	FURNITURE MOUNTED
FA	FIRE ALARM
FCP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
FMC	FLEXIBLE METALCONDUIT
FOB	FREIGHT ON BOARD
FVNR	FULL VOLTAGE NON–REVERSING
FVR	FULL VOLTAGE REVERSING
G	GROUND
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HD	HEAVY DUTY
HID	HIGH INTENSITY DISCHARGE
HOA	HAND–OFF–AUTOMATIC
HP	HORSE POWER
HPF	HIGH POWER FACTOR
HPS	HIGH PRESSURE SODIUM
HV	HIGH VOLTAGE
HZ	HERTZ
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
IN/IS	INSULATED/ISOLATED
I/O	INPUT/OUTPUT
IR	INFRARED
J–BOX	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT AMPERE
kVAR	KILOVOLT AMPERE REACTIVE
kW	KILOWATT
kWh	KILOWATT HOUR
LED	LIGHT EMITTING DIODE
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
LFNC	LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT
LPS	LOW PRESSURE SODIUM
LRA	LOCKED ROTOR AMPS
LTG	LIGHTING
LV	LOW VOLTAGE
MATV	MASTER ANTENNA TELEVISION SYSTEM
MAX	MAXIMUM
MC	METAL CLAD
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTION
MDP	MAIN DISTRIBUTION PANEL
MG	MOTOR GENERATOR
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFC	NATIONAL FIRE CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OCP	OVER CURRENT PROTECTION
OF/CI	OWNER FURNISHED/ CONTRACTOR INSTALLED
OF/OI	OWNER FURNISHED/ OWNER INSTALLED
OFP	OBTAIN FROM PLANS
OH DR	OVERHEAD (COILING) DOOR
OL	OVERLOAD
PB	PUSHBUTTON
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
PT	POTENTIAL TRANSFORMER
PTZ	PAN/TILT/ZOOM
QTY	QUANTITY
R	REMOVE
RCP	REFLECTED CEILING PLAN
RMC	RIGID METAL CONDUIT
RNC	RIGID NONMETALLIC CONDUIT
RPM	REVOLUTIONS PER MINUTE
RR	REMOVE AND RELOCATE
SCA	SHORT CIRCUIT AMPS
SCBA	STANDARD COLOR AS SELECTED BY ARCHITECT
SF	SQUARE FOOT (FEET)
SFBA	STANDARD FINISH AS SELECTED BY ARCHITECT
SPDT	SINGLE POLE, DOUBLE THROW
SPEC	SPECIFICATION
SPST	SINGLE POLE, SINGLE THROW
S/S	START/STOP
ST	SINGLE THROW
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TL	TWIST LOCK
TP	TELEPHONE POLE
TP	TWISTED PAIR
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
TYP	TYPICAL
UF	UNDERFLOOR
UGND	UNDERGROUND
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPERE
VFC/VFD	VARIABLE FREQUENCY MOTOR CONTROLLER
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
XFMR	TRANSFORMER

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GENERAL ELECTRICAL NOTES

1. CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC, SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.
2. OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT AS INDICATED IN THE CONTRACT DOCUMENTS TO BE INCORPORATED INTO THE WORK. THESE ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLATION ARE INCLUDED IN THE CONTRACT SUM.
   A. THE INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT.
   B. THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS WITH THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S FIELD SERVICES, AND THE DELIVERY OF MANUFACTURER'S WARRANTIES AND BONDS TO THE INSTALLER.
   C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES OF OWNER FURNISHED ITEMS AND FOR RECEIVING, UNLOADING AND HANDLING OWNER FURNISHED ITEMS AT THE SITE. THE INSTALLER IS RESPONSIBLE FOR PROTECTING OWNER FURNISHED ITEMS FROM DAMAGE, INCLUDING DAMAGE FROM EXPOSURE TO THE ELEMENTS, AND TO REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF HIS OPERATIONS.
3. EXPOSED STRUCTURE AREAS (EXCLUDING MECHANICAL, ELECTRICAL, AND COMMUNICATION SPACES): INSTALL RACEWAYS BETWEEN DECK AND STRUCTURE WHEREVER POSSIBLE IN EXPOSED STRUCTURE CEILING AREAS. ROUTE RACEWAYS IN CONCEALED AREAS WHEREVER POSSIBLE. REFER ALL CONDITIONS WHERE RACEWAYS MUST BE INSTALLED WHICH CANNOT COMPLY WITH THESE REQUIREMENTS TO THE ARCHITECT.
4. SUBMITTALS: PROVIDE SUBMITTALS IN THREE RING BINDERS WITH JOB NAME, SUBCONTRACTOR, AND VOLUME ON THE BINDING. PREPARE TABS FOR EACH SPECIFICATION SECTION REQUIRING SUBMITTALS. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH TAB.
5. REFLECTED CEILING PLANS: COORDINATE THE LOCATION OF LIGHT FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER.

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LICENSED PROFESSIONAL ENGINEER
No. 7083854
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STATE OF UTAH
12-15-2009

SHEET TITLE
ELECTRICAL SYMBOLS LEGEND AND GENERAL NOTES

REVISIONS	DATE	BY	DESCRIPTION
1			
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DRAWN BY: CDN
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PROJECT NO.:
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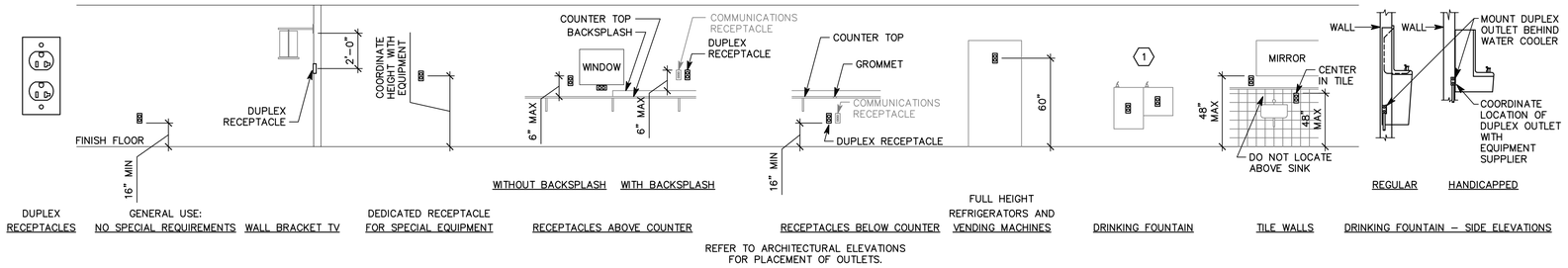
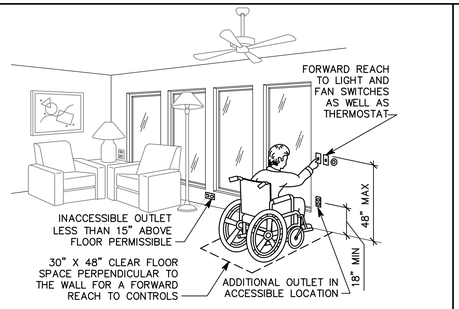
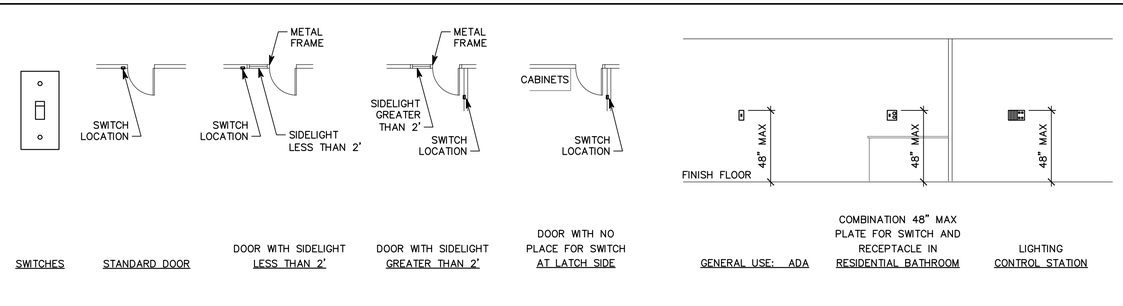


C18 RECEPTACLE MOUNTING DETAILS
NTS



F18 ADA DETAIL
NTS



F14 SWITCH MOUNTING DETAILS
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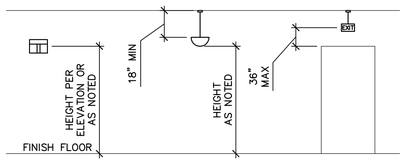

18 LIGHTING MOUNTING DETAILS
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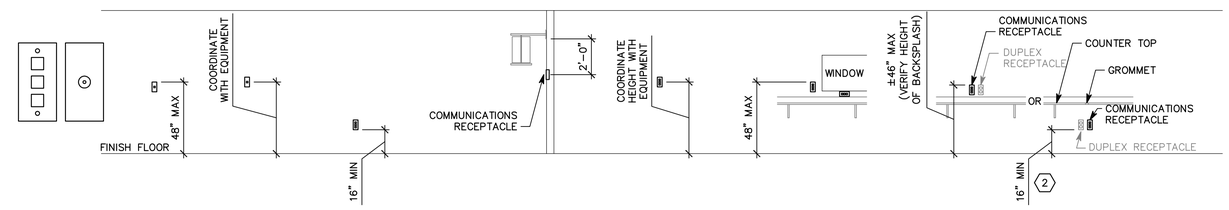

14 COMMUNICATION MOUNTING DETAILS
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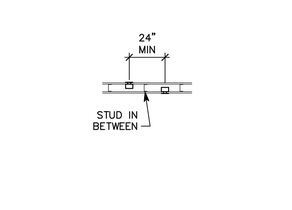

13 BOX MOUNTING DETAILS
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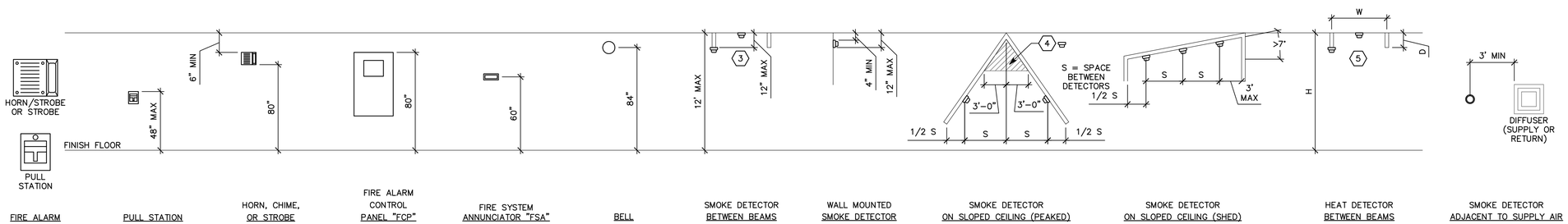

L18 FIRE ALARM MOUNTING DETAILS
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GENERAL NOTES

1. DETERMINE MOUNTING HEIGHTS OF ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE FOLLOWING ORDER OF PRIORITY:

   1 – ELEVATIONS (ARCHITECTURAL, ELECTRICAL, MECHANICAL, ETC).
   2 – EQUIPMENT SHOP DRAWINGS.
   3 – FIELD INSTRUCTIONS.

2. LOCATE RECEPTACLES SERVING THE SAME TYPE OF USE AT A UNIFORM HEIGHT UNLESS DIRECTED OTHERWISE.
3. MECHANICAL, ELECTRICAL, AND COMMUNICATION ROOMS: COORDINATE LOCATION OF LIGHTING AND POWER RECEPTACLES WITH EQUIPMENT, PIPING, AND DUCTWORK. DO NOT INSTALL RECEPTACLES BEHIND EQUIPMENT OR WHERE OTHERWISE INACCESSIBLE. POSITION LIGHTING REGARDLESS OF WHERE SHOWN ON DRAWING TO PROVIDE PROPER ILLUMINATION.
4. MOUNT RECEPTACLE BOXES FOR SWITCHES AND RECEPTACLES WITH LONG AXIS OF THE DEVICE VERTICAL UNLESS OTHERWISE INDICATED.
5. SET BOXES WITH PLASTER RINGS FLUSH WITH FINISHED SURFACE.
6. LOCATE BOX COVERS OR DEVICE PLATES SO THEY WILL NOT SPAN DIFFERENT TYPES OF BUILDING FINISHES EITHER VERTICALLY OR HORIZONTALLY.
7. VERIFY ALL DOOR CONDITIONS ON ARCHITECTURAL DRAWINGS PRIOR TO INSTALLING SWITCHES.
8. LOCATE WIRING DEVICES WHICH ARE ADJACENT AND ARE COMPATIBLE VOLTAGES IN ONE PLATE.

⬡ SHEET KEYNOTES

1. LOCATE RECEPTACLES BEHIND DRINKING FOUNTAINS.
2. REFER TO ARCHITECTURAL ELEVATIONS FOR PLACEMENT OF OUTLETS.
3. LOCATE AT BOTTOM OF BEAMS (OR JOISTS) OR AT CEILING. (REDUCE SPACING BY .5 PERPENDICULAR TO BEAM OR JOIST DIRECTION.) FOR OTHER CONDITIONS, REFER TO NFPA 72.
4. LOCATE SMOKE DETECTOR ANYWHERE IN SHADED AREA.
5. LOCATE AT BOTTOM OF BEAMS IF EITHER D/H < .1 OR W/H < .4; OTHERWISE, LOCATE IN BEAM POCKET.

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12-15-2009

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BRIGHAM CITY, UTAH

SHEET TITLE
ELECTRICAL DETAILS

REVISIONS	DATE	BY	DESCRIPTION
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PROJECT NO.:
DRAWING NO.: EE501
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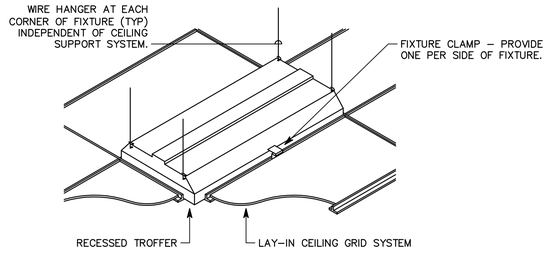
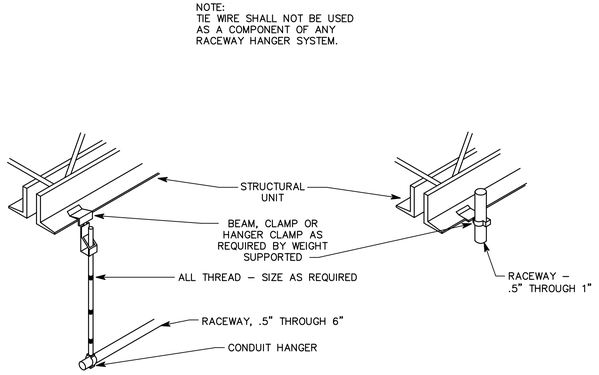
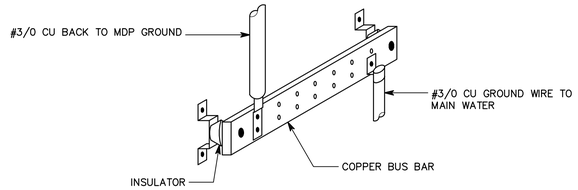


C12 RECESSED FIXTURE MOUNTING DETAIL
NTS

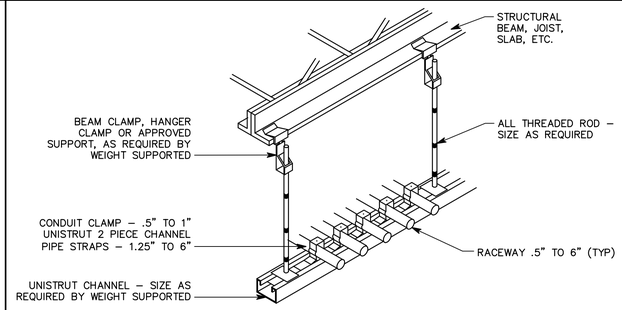


F6 TYPICAL RACEWAY SUPPORT METHODS DETAIL
NTS



F18 GROUND BUSBAR DETAIL
NTS

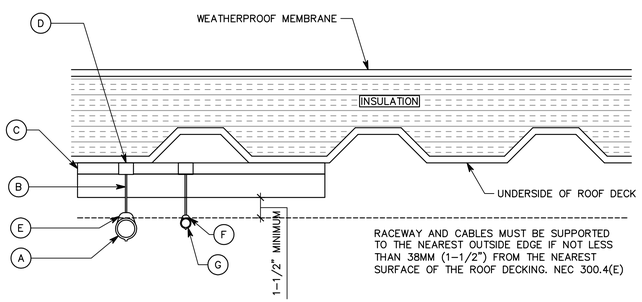
GB



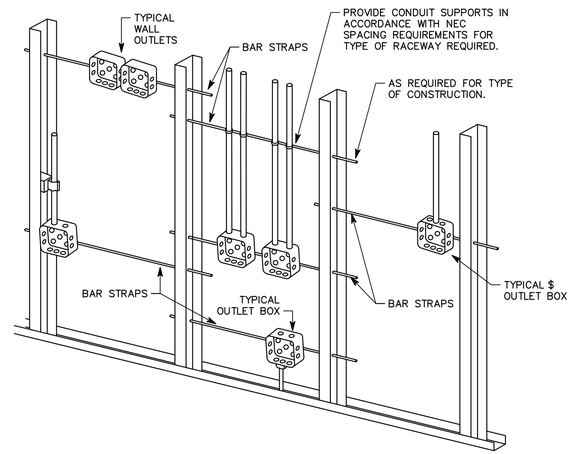
F12 TYPICAL CONDUIT RACK DETAIL
NTS

LEGEND

- (A) RACEWAY .5" TO 6" (TYP.).
- (B) ALL THREADED ROD. SIZE AS REQUIRED.
- (C) STRUCTURAL BEAM, JOIST, SLAB, ETC.
- (D) BEAM CLAMP, HANGER CLAMP OR APPROVED SUPPORT AS REQUIRED BY WEIGHT SUPPORTED.
- (E) CONDUIT CLAMP – .5" TO 1" PIPE STRAPS – 1.25" TO 6"
- (F) CABLE CLAMP.
- (G) CABLE.



L4 CABLES AND RACEWAYS INSTALLED UNDER ROOF DECKING
SCALE: N.T.S.



NOTES:

1. TYPICAL FOR WOOD AND METAL STUD ROUGH–IN.
2. PLASTER RINGS NOT SHOWN.
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND WITH ALL APPLICABLE SHOP DRAWINGS.
4. IN ACCORDANCE WITH IBC 711.3.2 EXCEPTION 1, OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE IN A RATED FIRE SEPARATION WALL MUST BE SEPARATED BY A MINIMUM OF 24" HORIZONTAL DISTANCE.
5. IN NON–RATED WALLS, OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS MUST BE SEPARATED BY 16" FOR SOUND ATTENUATION.

L6 TYPICAL ROUGH–IN REQUIREMENTS DETAIL
NTS

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SHEET TITLE
ELECTRICAL DETAILS

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CHECKED BY: SCL
PROJECT NO.:
DRAWING NO.: EE502
DATE: 10/14/2009

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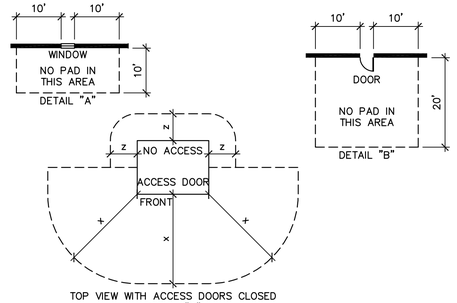


MINIMUM DISTANCE REQUIRED FROM PAD:

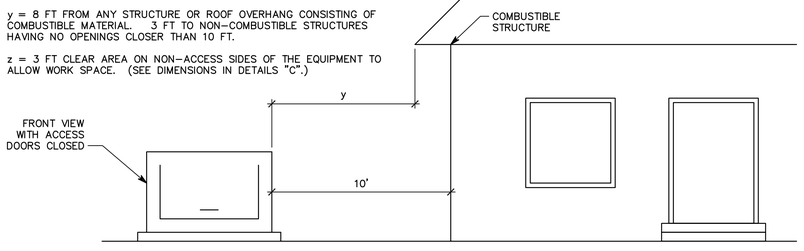
x = 10 FT. CLEAR AREA IN FRONT OF, ANY EQUIPMENT ACCESS DOOR OR OPENING TO ALLOW THE USE OF HOT STICKS. (SEE DIMENSIONS IN DETAIL "C". LOCATE PADMOUNTED EQUIPMENT WITH ACCESS DOORS AWAY FROM BUILDING WALLS OR OTHER BARRIERS TO ALLOW SAFE WORKING PRACTICES. IF THE EQUIPMENT ACCESS SIDE MUST FACE A WALL, ALLOW 10 FEET FOR WORKING CLEARANCE. NO VEGETATION OR TRIP HAZARDS IN THIS WORK SPACE ARE PERMITTED.)

y = 8 FT FROM ANY STRUCTURE OR ROOF OVERHANG CONSISTING OF COMBUSTIBLE MATERIAL. 3 FT TO NON-COMBUSTIBLE STRUCTURES HAVING NO OPENINGS CLOSER THAN 10 FT.

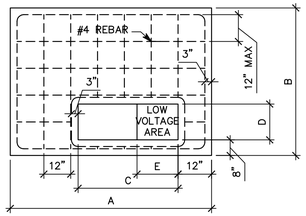
z = 3 FT CLEAR AREA ON NON-ACCESS SIDES OF THE EQUIPMENT TO ALLOW WORK SPACE. (SEE DIMENSIONS IN DETAILS "C".)

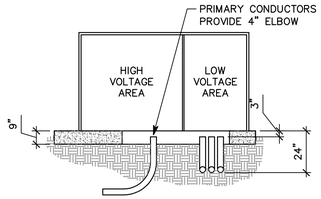
CLEARANCE GENERAL NOTES:

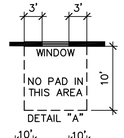
1. CLEARANCES: THE FRONT OF THE PAD SHOULD ALWAYS FACE AWAY FROM ADJACENT STRUCTURES AND BE FREE OF OBSTRUCTIONS. AT LEAST 3 FEET MUST SEPARATE THE EDGES OF THE PAD FROM ANY ADJACENT STRUCTURE. THE EDGES OF THE PAD MUST BE AT LEAST 10 FEET FROM ANY COMBUSTIBLE STRUCTURE. IF AN ADJACENT STRUCTURE HAS ANY OVERHANG OR EAVE WITHIN 27 VERTICAL FEET OF THE TOP OF THE PAD, CLEARANCES MUST BE MEASURED FROM THE OUTSIDE OF THE OVERHANG. THE PAD MUST NOT BE PLACED IN AN AREA 10 FEET IN LINE WITH OR 10 FEET TO EITHER SIDE OF ANY WINDOW IN AN ADJACENT STRUCTURE (SEE DETAIL "A"). CLEARANCE FOR A DOOR MUST BE 20 FEET IN LINE WITH IT AND 10 FEET ON THE SIDES (SEE DETAIL "B"). PADS MUST NOT BE PLACED WITHIN 15 FEET OF ANY VALVE OR WITHIN 25 FEET OF ANY PLUMBING OR STORAGE FACILITY CONTAINING FLAMMABLE MATERIAL. NO WALLS, FENCES, OR ANY OTHER OBSTRUCTIONS WILL BE PLACED WITHIN 3 FEET OF THE SIDES OR BACK OF THE PAD, OR WITHIN 10 FEET OF THE FRONT OF THE PAD (SEE DETAIL "C"). THE AREA IN FRONT OF THE PAD MUST HAVE 10 FEET OF CLEAR, LEVEL WORKING AREA FOR MAINTENANCE OF THE TRANSFORMER. THE PAD MAY NOT BE PLACED IN LINE WITH AN AIR INTAKE WITHIN 32 VERTICAL FEET OF THE SURFACE PAD. ALSO VERTICALLY, IT MUST NOT BE PLACED WITHIN 12 FEET OF A DOOR OR WINDOW. VAULTS SHALL BE LOCATED WITHIN 15 FEET OF A GRAVELED OR PAVED SURFACE SUITABLE FOR INCIDENTAL HEAVY TRUCK ACCESS.
2. BARRIERS: IF THE TRANSFORMER PAD IS TO BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC, (PARKING LOTS, DRIVEWAYS, ETC) CONTACT ROCKY MOUNTAIN POWER FOR PROTECTIVE BARRIER REQUIREMENTS.
3. IF THE TRANSFORMER WILL NOT COVER THE CABLE OPENINGS ON THESE STANDARD PADS, SEAL THE SIDES OF THE CABLE OPENING TO FIT THE TRANSFORMER USING SACKRETE OR COMPARABLE.

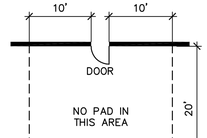


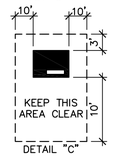
L12 CLEARANCE DETAIL
NTS











TRANSFORMER PAD DIMENSION CHART					
TRANSFORMER RATING	DIMENSIONS				
	A	B	C	D	E
75–500 KVA	96"	78"	48"	15"	20"
750–2500 KVA	100"	105"	60"	16"	30"

CONTRACTOR GENERAL NOTES:

1. COORDINATE ALL PAD MOUNTED TRANSFORMER REQUIREMENTS WITH BRIGHAM CITY UTILITY. CONTACT DAVE BENNETT (435)474–6623.
2. SITE PREPARATION. ALL SOIL BENEATH THE PAD SITE MUST BE COMPACTED AND LEVEL PRIOR TO SETTING OR POURING THE PAD TO PREVENT SETTLING.
3. CONCRETE. STEEL REINFORCEMENT SHALL BE #4 BARS, PLACED ACCORDING TO THE DRAWING. THE PAD MUST BE POURED AT LEAST SEVEN FULL DAYS PRIOR TO SETTING THE TRANSFORMER. THE FINISHED SURFACE MUST BE COMPLETELY FLAT AND LEVEL. SEE STANDARD 73 036 FOR CONCRETE SPECIFICATIONS.
4. PREFABRICATION. THE PAD MAY EITHER BE CONSTRUCTED ON THE SITE OR PREFABRICATED ACCORDING TO SPECIFICATIONS.
5. CONDUIT WINDOW LAYOUT. LOW VOLTAGE CONDUITS SHALL BE FORMED AS TIGHTLY AS POSSIBLE AGAINST THE RIGHT SIDE OF THE OPENING AND SHALL IN NO CASE EXTEND FURTHER THAN 20" FROM THE RIGHT SIDE OF THE CONDUIT WINDOW ON THE SMALL PAD OR 30" ON THE LARGE PAD. NO MORE THAN 8 CONDUITS WILL BE USED ON THE LOW VOLTAGE SIDE (NOT INCLUDING THE METERING CONDUIT). DO NOT PUT ANY CONCRETE IN OR UNDER THE CONDUIT WINDOW. USE SOIL TO SEPARATE CONDUITS. BELL ENDS ARE REQUIRED FOR ALL METAL CONDUIT, BUT NOT FOR PLASTIC CONDUIT.
6. CLEARANCES. THE FRONT OF THE PAD SHOULD ALWAYS FACE AWAY FROM ADJACENT STRUCTURES AND BE FREE OF OBSTRUCTIONS. AT LEAST 3 FEET MUST SEPARATE THE EDGES OF THE PAD FROM ANY ADJACENT STRUCTURE. THE EDGES OF THE PAD MUST BE AT LEAST 10 FEET FROM ANY COMBUSTIBLE STRUCTURE. IF AN ADJACENT STRUCTURE HAS ANY OVERHANG OR EAVE WITHIN 27 VERTICAL FEET OF THE TOP OF THE PAD, CLEARANCES MUST BE MEASURED FROM THE OUTSIDE OF THE OVERHANG. THE PAD MUST NOT BE PLACED IN AN AREA 10 FEET IN LINE WITH OR 3 FEET TO EITHER SIDE OF ANY WINDOW IN AN ADJACENT STRUCTURE (SEE DETAIL "A"). CLEARANCE FOR A DOOR MUST BE 20 FEET IN LINE WITH IT AND 10 FEET ON THE SIDES (SEE DETAIL "B"). PADS MUST NOT BE PLACED WITHIN 15 FEET OF ANY VALVE OR WITHIN 20 FEET OF ANY PLUMBING OR STORAGE FACILITY CONTAINING FLAMMABLE MATERIAL. NO WALLS, FENCES, OR ANY OTHER OBSTRUCTIONS WILL BE PLACED WITHIN 3 FEET OF THE SIDES OR BACK OF THE PAD, OR WITHIN 10 FEET OF THE FRONT OF THE PAD (SEE DETAIL "C"). THE AREA IN FRONT OF THE PAD MUST HAVE 10 FEET OF CLEAR, LEVEL WORKING AREA FOR MAINTENANCE OF THE TRANSFORMER. THE PAD MAY NOT BE PLACED IN LINE WITH AN AIR INTAKE WITHIN 32 VERTICAL FEET OF THE SURFACE PAD. ALSO VERTICALLY, IT MUST NOT BE PLACED WITHIN 12 FEET OF A DOOR OR WINDOW.
7. BARRIERS. IF THE TRANSFORMER PAD IS TO BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC, (PARKING LOTS, DRIVEWAYS, ETC) CONTACT UTAH POWER & LIGHT FOR PROTECTIVE BARRIER REQUIREMENTS.
8. IF THE TRANSFORMER WILL NOT COVER THE CABLE OPENINGS ON THESE STANDARD PADS, SEAL THE SIDES OF THE CABLE OPENING TO FIT THE TRANSFORMER USING SAKRETE OR COMPARABLE.

L9 TRANSFORMER PAD DETAIL
NTS

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12-15-2009

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BRIGHAM CITY, UTAH

SHEET TITLE
PAD VAULT DETAIL

REVISIONS	DATE	BY	DESCRIPTION
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PROJECT NO.
DATE 10/14/2009
DRAWING NO. EE503

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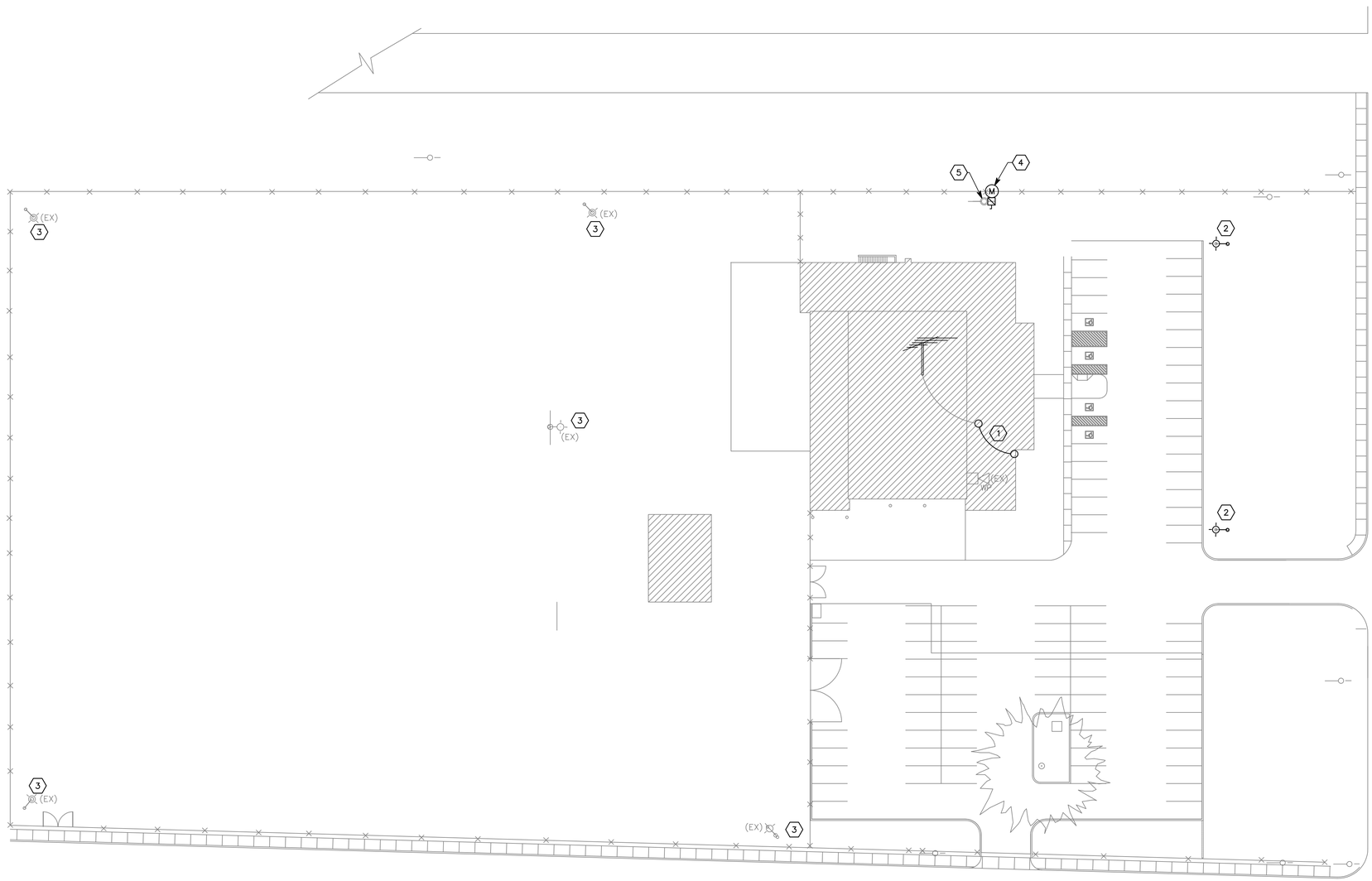

18 ELECTRICAL SITE DEMOLITION PLAN

1"=30'-0"

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GENERAL NOTES

1. COORDINATE WITH UTNG PRIOR TO ANY DEMOLITION.

SHEET KEYNOTES

1. RELOCATE EXISTING ANTENNA CABLE.
2. REMOVE EXISTING WOOD POLE AND COBRA HEAD LUMINAIRE. PROVIDE IN GROUND WEATHERPROOF JUNCTION BOX AT POLE LOCATION TO MAINTAIN CONTINUITY TO EQUIPMENT DOWNSTREAM OF POLE LIGHT. FIELD VERIFY.
3. EXISTING COBRA HEAD LUMINAIRE ON WOOD POLE TO REMAIN.
4. REMOVE EXISTING METER AND MAIN DISCONNECT. COORDINATE WITH BRIGHAM CITY POWER.
5. EXISTING POWER POLE TO REMAIN.

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SHEET TITLE
ELECTRICAL SITE DEMOLITION PLAN

REVISIONS	DATE	BY	DESCRIPTION
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DATE: 10/14/2009
DRAWING NO.: ES101

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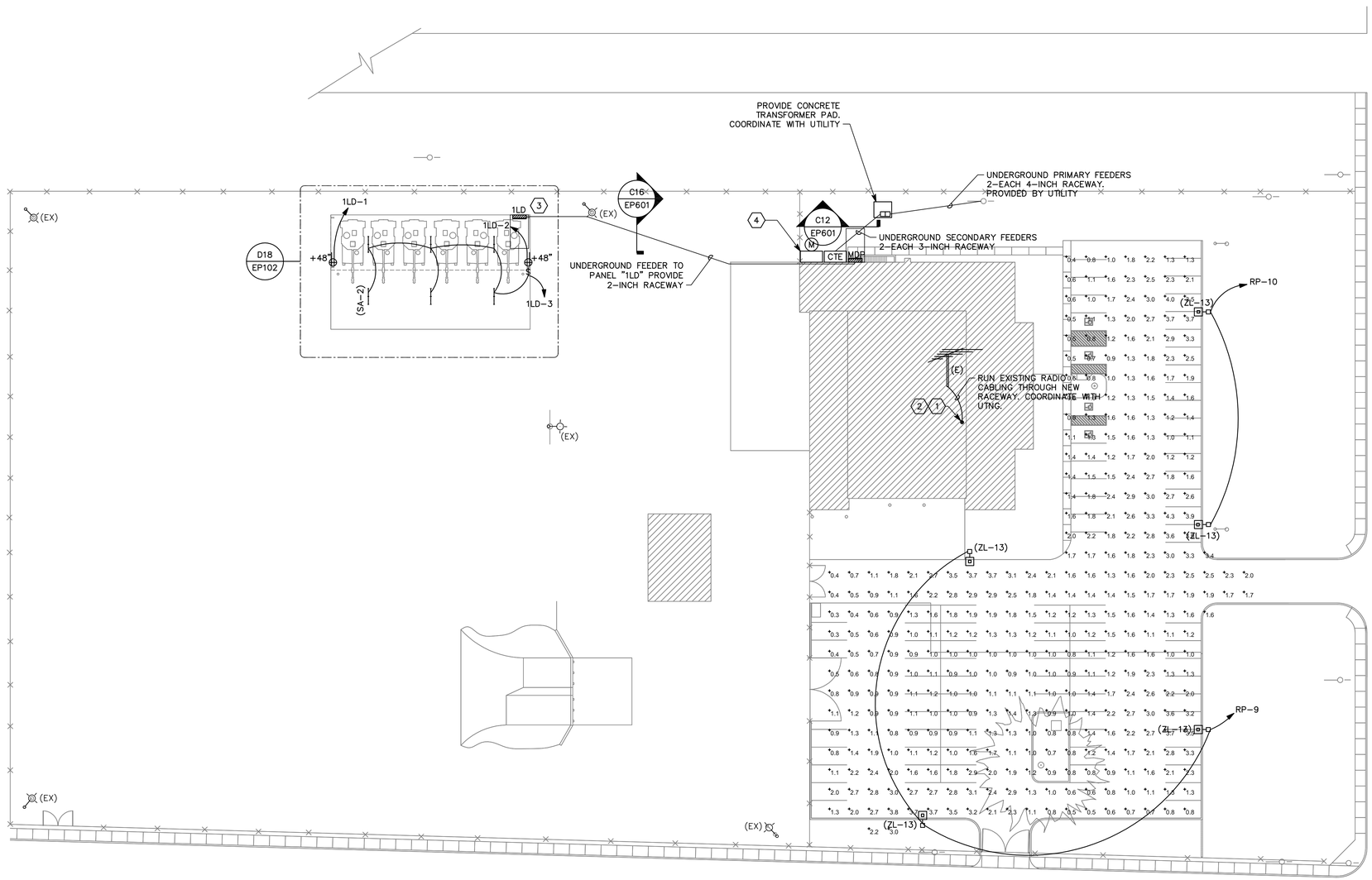

18 ELECTRICAL SITE PLAN

1"=30'-0"

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GENERAL NOTES

1. PRIOR TO BID, COORDINATE WITH BRIGHAM CITY POWER (435)474-6623. MEET ALL OF BRIGHAM CITY POWER'S REQUIREMENTS.
2. INSTALL PARKING LOT LIGHTS 3-FEET FROM BACKSIDE OF CURB TO FRONT EDGE OF CONCRETE LIGHT POLE BASE.

SHEET KEYNOTES

1. PROVIDE 2-INCH RACEWAY WITH WEATHER HEAD PENETRATE THROUGH ROOF FOR ANTENNA CABLES. COORDINATE WITH UTNG.
2. RELOCATE ANTENNA CABLES AND REROUTE THROUGH THE BUILDING. MAKE NEW TERMINATIONS ON BOTH ENDS OF THE CABLE.
3. PROVIDE A GROUNDING ELECTRODE TO BUILDING STEEL AND UFER GROUND IN CONCRETE. SEE ONE-LINE DIAGRAM.
4. CONTRACTOR SHALL INSTALL METER AND METER BASE FURNISHED BY BRIGHAM CITY POWER. COORDINATE WITH BRIGHAM CITY POWER.

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Utah National Guard
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SHEET TITLE
ELECTRICAL SITE PLAN

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DATE 10/14/2009	ES102

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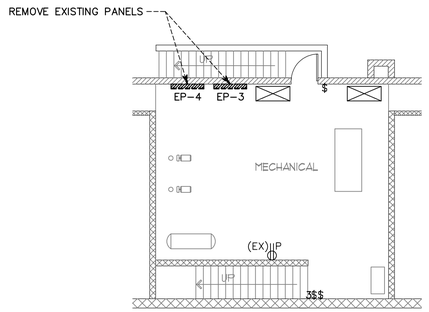
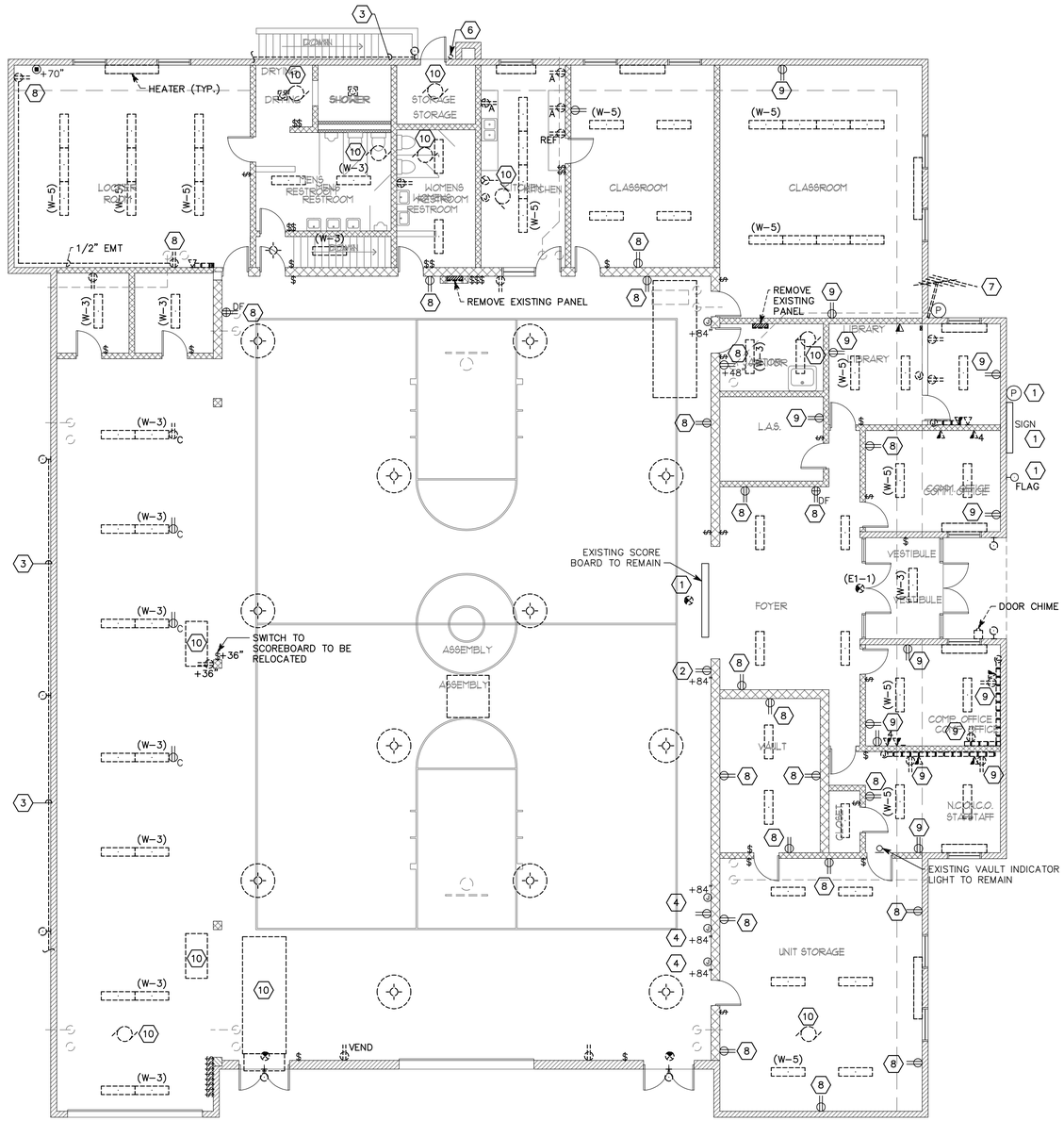


F18 MECHANICAL/ELECTRICAL ROOM DEMOLITION PLAN

1/8" = 1'-0"



12 DEMOLITION PLAN

1/8" = 1'-0"

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GENERAL NOTES

1. FIELD VERIFY.
2. REMOVE ALL LIGHT FIXTURES IN BUILDING.
3. REMOVE ALL LIGHT FIXTURES MOUNTED TO THE OUTSIDE OF THE BUILDING, UNLESS OTHERWISE NOTED.
4. REMOVE ALL ABANDONED RACEWAYS AND BOXES INSIDE THE BUILDING.
5. REMOVE ALL SURFACE MOUNTED RACEWAYS AND CABLES FROM LIGHT FIXTURES OR ANY OTHER DEVICES THAT ARE TO BE DEMOLISHED FROM THE EXTERIOR OF THE BUILDING.
6. REMOVE ALL DISCONNECTS, RACEWAYS AND CONDUCTORS TO MECHANICAL EQUIPMENT TO BE REMOVED. SEE MECHANICAL DEMOLITION DRAWINGS.

SHEET KEYNOTES

1. EXISTING TO REMAIN.
2. REMOVE EXISTING BOX. PROVIDE NEW 4-SQUARE EXTENSION BOX OVER EXISTING BLOCK CUT OUT. PROVIDE NEW OUTLET DEVICE.
3. REMOVE ASSOCIATED SURFACE MOUNTED CONDUIT.
4. REMOVE IF ABANDONED. OTHERWISE, KEEP.
5. REMOVE ALL ELECTRICAL DEVICES IN THIS ROOM. DEVICES SHOWN ARE FOR REFERENCE OF QUANTITIES ONLY.
6. REMOVE ABANDONED MAST.
7. REMOVE ANTENNA AND ALL ASSOCIATED RACEWAY AND CABLING AFTER WRITTEN APPROVAL FROM UTNG HAS BEEN OBTAINED.
8. REMOVE EXISTING DEVICE AND TRIM PLATE. RE-USE BOX, RACEWAY AND CONDUCTORS IF THEY ARE IN FULL WORKING CONDITION.
9. REMOVE EXISTING DEVICE AND TRIM PLATE. MODIFY BOX BY PROVIDING AN EXTENSION FOR NEW FURRED OUT WALLS.
10. REMOVE ALL ASSOCIATED ELECTRICAL FROM MECHANICAL EQUIPMENT TO BE REMOVED. SEE GENERAL NOTE #6.

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SHEET TITLE
ELECTRICAL DEMOLITION PLAN

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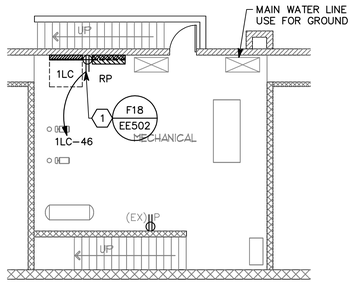
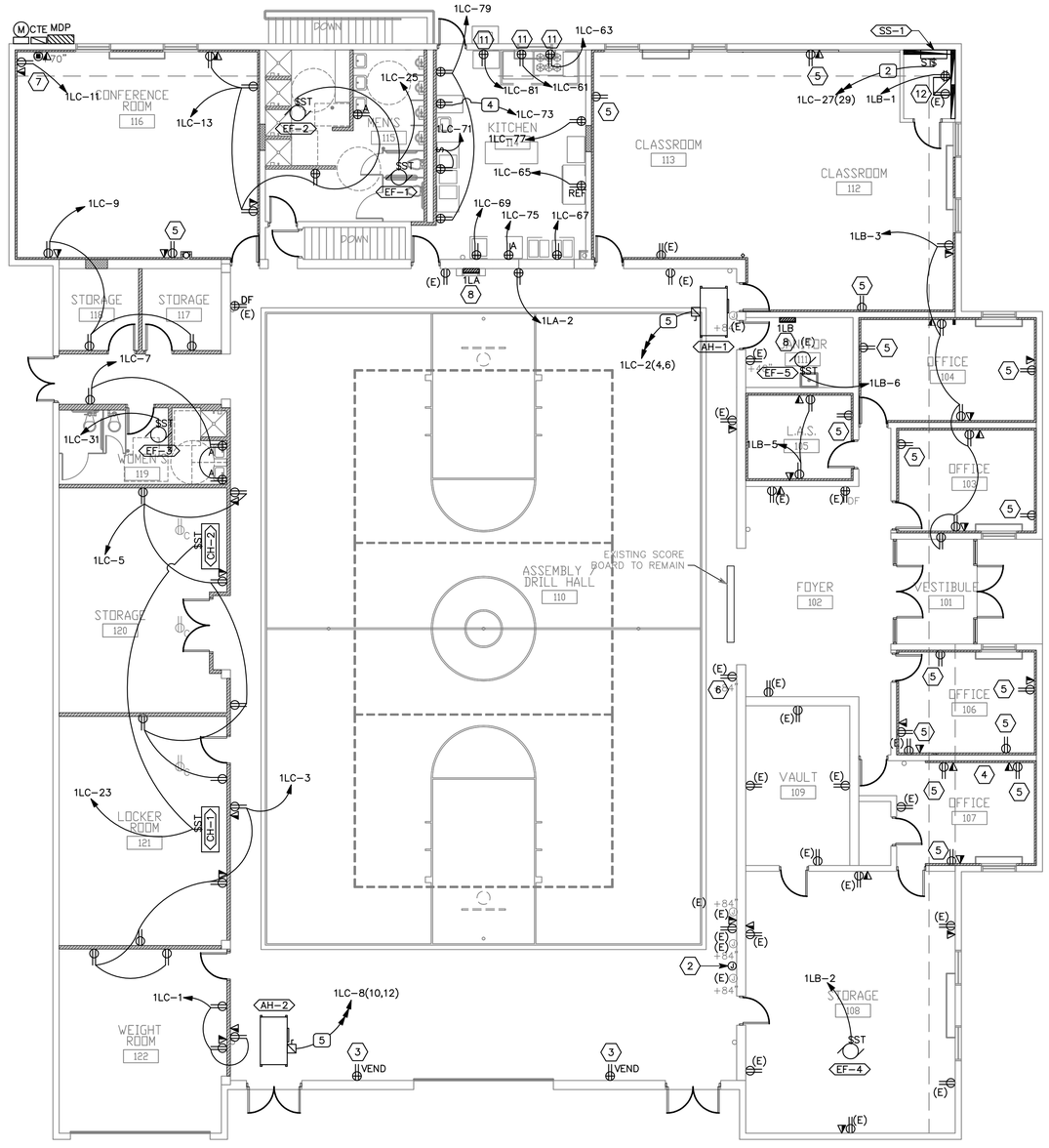


F18 MECHANICAL/ELECTRICAL ROOM POWER PLAN

1/8" = 1'-0"



L2 POWER PLAN

1/8" = 1'-0"

12-15-2009

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GENERAL NOTES

1. FIELD VERIFY PRIOR TO BID TO UNDERSTAND SCOPE OF WORK AND QUANTITIES OF DEVICES NOT SHOWN THAT ARE TO BE REPLACED.
2. PROVIDE NEW DEVICES IN ALL EXISTING DEVICE LOCATIONS IN EVERY SPACE. PROVIDE NEW TRIM PLATE AND DEVICE TYPE ACCORDING TO SCHEDULE AND COLOR SHALL BE COORDINATED WITH THE ARCHITECT.
3. PROVIDE DISCONNECT, RACEWAY AND CONDUCTORS TO ALL NEW MECHANICAL EQUIPMENT TO NAME PLATE RATING OF EQUIPMENT.
4. DEVICES LABELED WITH AN (E) PROVIDE NEW DEVICE AND TRIM PLATE IN EXISTING BOX. RE-USE BOX, RACEWAY, AND CONDUCTORS AS ABLE.

SHEET KEYNOTES

1. PROVIDE GROUNDING BUS NEAR MDP. SEE GROUNDING BUS DETAIL. F18/EE502.
2. ANTENNA RACEWAY PENETRATION THROUGH ROOF HERE. PROVIDE WEATHER HEAD. PROVIDE 2-INCH RACEWAY FROM ROOF TO N.C.O. STAFF OFF OF WHERE RADIO EQUIPMENT IS LOCATED. FIELD VERIFY. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE WITH THE UTNG THE REQUIREMENT OF PROVIDING NEW CABLE IF THE EXISTING CABLE IS TOO SHORT OR IS DAMAGED.
3. PROVIDE NEW GFI RECEPTACLE.
4. PROVIDE A #12 AWG GROUND TO RADIO EQUIPMENT. CONNECT GROUND TO GROUNDING BUS IN BOILER ROOM. RUN GROUND WIRE IN 3/4" CONDUIT.
5. PROVIDE NEW DEVICE AND TRIM PLATE IN EXISTING BOX. MODIFY BOX AND RACEWAY AS REQUIRED WITH NEW FURRED OUT WALL. PROVIDE NEW CONDUCTOR AS REQUIRED.
6. PROVIDE EXTENSION BOX FASTENED TO WALL. RECONNECT CONDUIT WITH PROPER BOX OFFSETS. PROVIDE NEW DEVICE AND TRIM PLATE.
7. MODIFY EXISTING CABLE TV CONNECTION TO NEW FURRED OUT WALL.
8. MODIFY EXISTING FEEDERS AND BRANCH CIRCUITS TO INSTALL NEW PANEL IN EXISTING PANEL LOCATION. TRACE OUT ALL CIRCUITS TO PROVIDE ACCURATE TYPE WRITTEN PANEL SCHEDULES.
9. PROVIDE CIRCUIT BREAKER, RECEPTACLE, CONDUIT AND CONDUCTOR TO MATCH NAME PLATE RATING OF KITCHEN EQUIPMENT. COORDINATE WITH KITCHEN INSTALLER.
10. PROVIDE CIRCUIT BREAKERS, RECEPTACLES, CONDUIT AND CONDUCTORS TO ALL KITCHEN EQUIPMENT AS REQUIRED. COORDINATE WITH KITCHEN INSTALLER.
11. CONNECT DEVICE TO SHUNT TRIP BREAKER. CONNECT SHUNT TRIP BREAKER THROUGH A RELAY TO THE FIRE SUPPRESSION SYSTEM. SEE FIRE ALARM DRAWINGS.
12. REMOVE EXISTING SURFACE MOUNT CONDUIT. PROVIDE A BOX EXTENSION ON EXISTING OUTLET BOX. INSTALL TELECOMMUNICATION BACKBOARD. REINSTALL CONDUIT AND CONDUCTORS.

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12-15-09
STATE OF UTAH

SHEET TITLE: POWER PLAN

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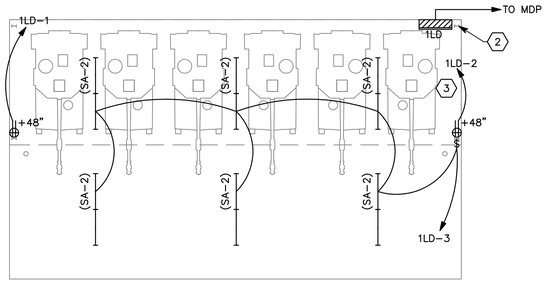
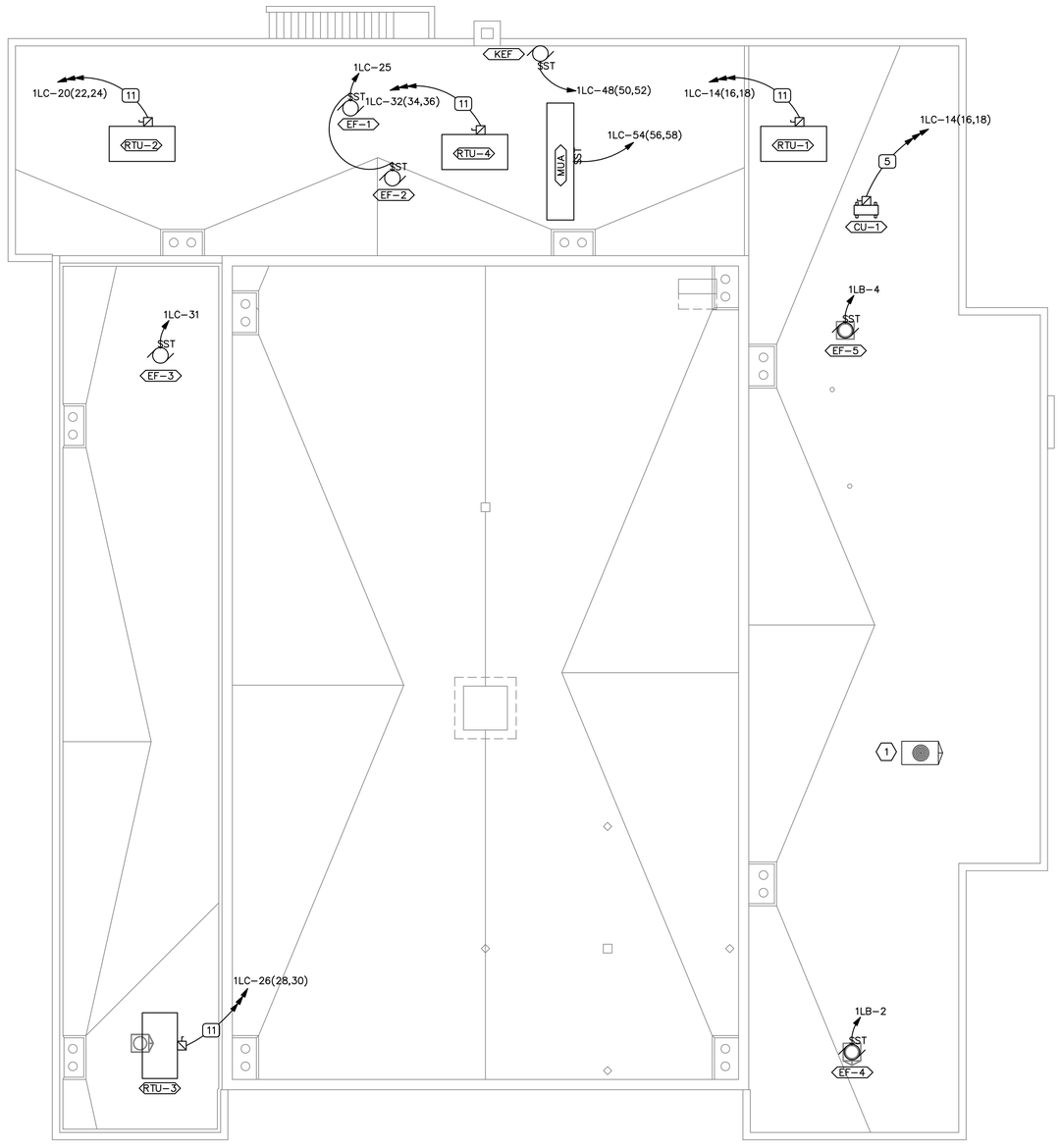


D18 ENLARGED TANK STORAGE
1/16" = 1'-0"



-12 ROOF POWER PLAN
1/8" = 1'-0"

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GENERAL NOTES

1. FIELD VERIFY PRIOR TO BID TO UNDERSTAND SCOPE OF WORK AND QUANTITIES OF DEVICES NOT SHOWN THAT ARE TO BE REPLACED.
2. PROVIDE NEW DEVICES IN ALL EXISTING DEVICE LOCATIONS IN EVERY SPACE. PROVIDE NEW TRIM PLATE AND DEVICE TYPE ACCORDING TO SCHEDULE AND COLOR SHALL BE COORDINATED WITH THE ARCHITECT.
3. PROVIDE NEW POWER TO ALL NEW MECHANICAL EQUIPMENT AS REQUIRED.
4. DEVICES LABELED WITH AN (E) PROVIDE NEW DEVICE AND TRIM PLATE IN EXISTING BOX. RE-USE BOX, RACEWAY, AND CONDUCTORS AS ABLE.

SHEET KEYNOTES

1. FIELD VERIFY EXISTING CONDITION OF POWER TO ROOF MOUNTED AIR CONDITIONING UNIT. PROVIDE NEW DISCONNECT, CIRCUIT BREAKER, RACEWAYS AND CONDUCTORS AS REQUIRED TO MEET CURRENT ELECTRICAL CODES.
2. BUILDING STEEL AND UFER GROUNDING CONNECTION. SEE ONE-LINE DIAGRAM.
3. PROVIDE NEW UFER GROUNDING ELECTRODE IN NEW SLAB. COORDINATE WITH CONCRETE INSTALLER.

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12-15-2009

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SHEET TITLE
ROOF POWER PLAN

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DRAWING NO.: EP102
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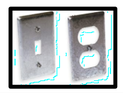
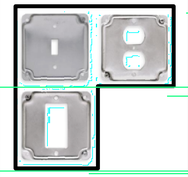
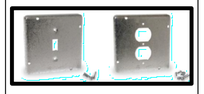
EQUIPMENT SCHEDULE

MARK	ITEM DESCRIPTION	LOAD DATA							WIRE AND CONDUIT SIZE (CC=INDICATES CONDUCTOR AND CONDUIT SCHEDULE)	OVERCURRENT PROTECTION									NOTES	MARK
										DISCONNECT SWITCH					CIRCUIT BREAKER					
		HP	KW	MCA	FLA	VOLT	PH	Hz		FURN BY	SWITCH TYPE	NEMA RATING	FUSED SWITCH	FUSE RATING	FUSE CLASS	CB	PANEL	RATING		
AH-1	AIR HANDLER	3		11	10.6	208	3	60	CC#5	E	30/3	3R	YES	20A	RK5	20/3	1LC	HACR	1	AH-1
AH-2	AIR HANDLER	3		11	1.06	208	3	60	CC#5	E	30/3	3R	YES	20A	RK5	20/3	1LC	HACR	1	AH-2
CU-1	CONDENSING UNIT			13		208	3	60	CC#5	E	30/3	3R	YES	20A	RK5	20/2	1LC	HACR	1	CU-1
CH-1	CABINET HEATER	1/15			4	120	1	60	CC#1	E	THERMAL SWITCH					20/1	1LC	HACR	1	CH-1
CH-2	CABINET HEATER	1/15			4	120	1	60	CC#1	E	THERMAL SWITCH					20/1	1LC	HACR	1	CH-2
EF-1	EXHAUST FAN	1/4			5.8	120	1	60	CC#1	E	THERMAL SWITCH					20/1	1LC	HACR	1	EF-1
EF-2	EXHAUST FAN	1/4			5.8	120	1	60	CC#1	E	THERMAL SWITCH					20/1	1LC	HACR	1	EF-2
EF-3	EXHAUST FAN	1/6			4.4	120	1	60	CC#1	E	THERMAL SWITCH					20/1	1LC	HACR	1	EF-3
EF-4	EXHAUST FAN	1/4			5.8	120	1	60	CC#1	E	THERMAL SWITCH					20/1	1LB	HACR	1	EF-4
EF-5	EXHAUST FAN	1/6			4.4	120	1	60	CC#1	E	THERMAL SWITCH					20/1	1LB	HACR	1	EF-5
KEF-1	KITCHEN HOOD	1.5			4.7	208	3	60	CC#5	E	30/3	3R	YES	10A	RK5	20/3	1LC	HACR	1	KEF-1
RTU-1	ROOFTOP UNIT			34.9		208	3	60	CC#11	E	60/3	3R	YES	40A	RK5	50/3	1LC	HACR	1	RTU-1
RTU-2	ROOFTOP UNIT			30.7		208	3	60	CC#11	E	60/3	3R	YES	40A	RK5	40/3	1LC	HACR	1	RTU-2
RTU-3	ROOFTOP UNIT			25.1		208	3	60	CC#11	E	60/3	3R	YES	30A	RK5	30/3	1LC	HACR	1	RTU-3
RTU-4	ROOFTOP UNIT			34.9		208	3	60	CC#11	E	60/3	3R	YES	40A	RK5	50/3	1LC	HACR	1	RTU-4
SS-1	SPLIT SYSTEM				1	208	1	60	CC#4	E	30/2	3R	YES	5A	RK5	20/2	1LC	HACR	1	SS-1
EWC-1	ELEC WATER COOLER					120	1	60	CC#1	E	THERMAL SWITCH					20/1	1LC	HACR	1	EWC-1
RCP-1	RECIRCULATING PUMP					120	1	60	CC#1	E	THERMAL SWITCH					20/1	1LC	HACR	1	RCP-1
MAU-1	MAKE-UP AIR UNIT	1.5			4.7	208	3	60	CC#5	E	30/3	3R	YES	10A	RK5	20/3	1LC	HACR	1	MAU-1
WH-1	WATER HEATER			10.0		120	1	60	CC#1	E	THERMAL SWITCH					20/1	1LC	HACR	1	WH-1

NOTES:
1. LOCATE DISCONNECT ADJACENT TO UNIT.

TRIM PLATE SCHEDULE

DESCRIPTION	TRIM	BOX	NOTES
HANDY BOXES			SURFACE MOUNTED
4-SQUARE SPECIALS (BOX W/ROUND CORNERS)			SURFACE MOUNTED
4-SQUARE (BOX W/SHARP 90° CORNERS)			SURFACE MOUNTED
PLASTER RING			FLUSH MOUNTED ONLY WHEN THE PLASTER RING IS RECESSED BEHIND WALL OF GYPSUM BOARD OR SOME OTHER MATERIAL MAY YOU PUT A THERMOPLASTIC TRIM PLATE ON A PLASTER RING.

SPECIALTY EQUIPMENT ELECTRICAL CONNECTION SCHEDULE

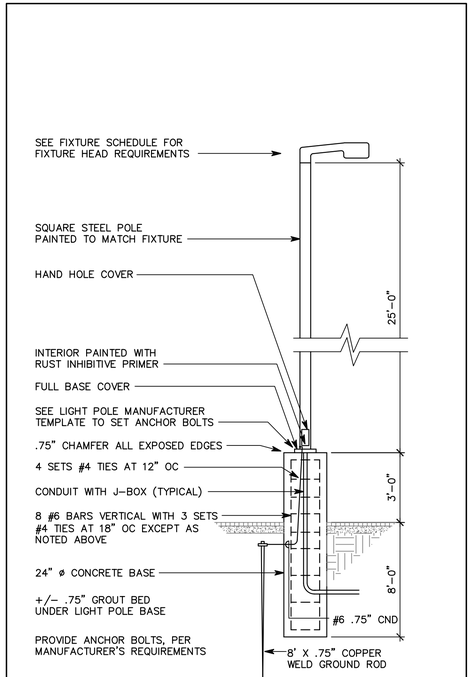
EQUIPMENT #	EQUIPMENT DESCRIPTION	VOLTAGE	PHASE	kva	FLA	OC PROTECTION	DISC.	NOTES
K1	PORTABLE COLD TABLE	120	1	1.2		20A/1P HACR BKR	C&P	1,2,3
K3	MIXER	120	1	1.2		20A/1P HACR BKR	C&P	1,2,3
K4	PORTABLE STEAM TABLE	120	1	1.2		20A/1P HACR BKR	C&P	1,2,3
K7	REFRIGERATOR	120	1	1.2		20A/1P HACR BKR	C&P	1,2,3
K12	ICE MACHINE	120	1	1.6	12.9	20A/1P HACR BKR	C&P	1,2,3
K14	STACKED CONVENTION OVEN	120	1	1.2		20A/1P HACR BKR SHUNT TRIP	C&P	1,2,3
K15	4-BURNER STOVE	120	1	1.2		20A/1P HACR BKR SHUNT TRIP	C&P	1,2,3

NOTES:
2. PROVIDE ALL CONNECTIONS PER MANUFACTURERS PUBLISHED DATA. FIELD VERIFY ALL CONDITIONS FOR EQUIPMENT.
3. VERIFY MAXIMUM OVERCURRENT PROTECTION WITH NAMEPLATE DATA.
4. NATURAL GAS

RELAY PANEL EC-RP

Control Schedule
Rev 1.0

Relay Number	Room	Description	Circuit	Load (Watts)	CS	OCC SES	TIME	PC
RP 1	ASSEMBLY HALL	HIGH BAY FLUORESCENT	1LA-1	1400				
RP 2	ASSEMBLY HALL	HIGH BAY FLUORESCENT	1LA-3	1400				
RP 3	ASSEMBLY HALL	HIGH BAY FLUORESCENT	1LA-5	1400				
RP 4	ASSEMBLY HALL	HIGH BAY FLUORESCENT	1LA-7	1400				
RP 5	ASSEMBLY HALL	HIGH BAY FLUORESCENT	1LA-9	1400				
RP 6	ASSEMBLY HALL	HIGH BAY FLUORESCENT	1LA-11	1400				
RP 7	EXTERIOR LIGHTS	WALL PACKS	1LA-13	434			X	X
RP 8	FRONT ENTRY	DECROTIVE, FLAG, SIGN	1LA-13	400			X	X
RP 9	PARKING LOT	POLE LIGHT	1LC-17	1350			X	X
RP 10	PARKING LOT	POLE LIGHT	1LC-19	900			X	X
RP 11	SPARE						X	X
RP 12	SPARE						X	X
RP 13	SPARE							
RP 14	SPARE							
RP 15	SPARE							
RP 16	SPARE							
RP 17	SPARE							
RP 18	SPARE							
RP 19	SPARE							
RP 20	SPARE							
RP 21	SPARE							
RP 22	SPARE							
RP 23	SPARE							
RP 24	SPARE							



L5 PARKING LOT LIGHT POLE BASE DETAIL (ZL-93)
NTS

EFT ARCHITECTS
265 East 100 South Suite 350
Salt Lake City, Utah 84111-1604
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www.spectrum-engineers.com

LICENSED PROFESSIONAL ENGINEER
No. 7083854
DAVID L. AFFLECK
STATE OF UTAH
12-15-2009

Utah National Guard
BRIGHAM CITY READINESS CENTER
985 NORTH 500 WEST
BRIGHAM CITY, UTAH

SHEET TITLE
ELECTRICAL SCHEDULES

REVISIONS	DATE	BY	DESCRIPTION
△			
△			
△			
△			

DRAWN BY: CDN
CHECKED BY: SCL
PROJECT NO.:
DRAWING NO.: EP501
DATE: 10/14/2009

Utah National Guard - Brigham City Armory

File Name: P:\2009\20090481\1Drawings\3Sheet\81EP501.dwg Last Plotted: 2009/12/15 @ 3:04 PM By: cdn

PANEL "1LB"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE & TYPE:	LOCATION:	CABINET:	NOTES:
120/208 V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN BKR		SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR, SUBFEED LUGS

CKT	OCP		LOAD (kVA)			DESCRIPTION	LCL	PHASE LOAD			LCL	DESCRIPTION	LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	CO	PWR		kVA	A	B	C	kVA		LTG	CO	PWR	AMP	POLE	NO
1	20	1			1.2	COMM ROOM	1.2	1.9			0.7	EF-4			0.7	20	1	2
3	20	1			1.0	CONF 112, OFFICE 104, 103	1.0		1.5		0.5	EF-5			0.5	20	1	4
5	20	1			0.4	LAS 105	0.4			0.9	0.5	EF-10			0.5	20	1	6
7	20	1	1.0			RM 112, 113 LIGHTS	1.2	1.8			0.8	EXISTING LOAD		0.8		20+	1	8
9	20	1	1.0			RM 111, 105, 104, 103, 101, 106, 102	0.2		1.8		0.8	EXISTING LOAD		0.8		20+	1	10
11	20+	1		0.8		EXISTING LOAD	0.8			1.6	0.8	EXISTING LOAD		0.8		20+	1	12
13	20+	1		0.8		EXISTING LOAD	0.8	1.6			0.8	EXISTING LOAD		0.8		20+	1	14
15	20+	1		0.8		EXISTING LOAD	0.8		1.6		0.8	EXISTING LOAD		0.8		20+	1	16
17	20+	1		0.8		EXISTING LOAD	0.8			1.6	0.8	EXISTING LOAD		0.8		20+	1	18
19	20+	1		0.8		EXISTING LOAD	0.8	1.6			0.8	EXISTING LOAD		0.8		20+	1	20
21	20+	1		0.8		EXISTING LOAD	0.8		1.6		0.8	EXISTING LOAD		0.8		20+	1	22
23	20+	1		0.8		EXISTING LOAD	0.8			1.6	0.8	EXISTING LOAD		0.8		20+	1	24
25	20+	1		0.8		EXISTING LOAD	0.8	1.6			0.8	EXISTING LOAD		0.8		20+	1	26
27	20+	1		0.8		EXISTING LOAD	0.8		1.6		0.8	EXISTING LOAD		0.8		20+	1	28
29	20+	1		0.8		EXISTING LOAD	0.8			1.6	0.8	EXISTING LOAD		0.8		20+	1	30
31	20+	1		0.8		EXISTING LOAD	0.8	1.6			0.8	EXISTING LOAD		0.8		20+	1	32
33	20+	1		0.8		EXISTING LOAD	0.8		1.6		0.8	EXISTING LOAD		0.8		20+	1	34
35	20+	1		0.8		EXISTING LOAD	0.8			1.6	0.8	EXISTING LOAD		0.8		20+	1	36
37	20	1				SPARE	0.0	0.0			0.0	SPARE				20	1	38
39	20	1				SPARE	0.0		0.0		0.0	SPARE				20	1	40
41	20	1				SPARE	0.0			0.0	0.0	SPARE				20	1	42
TOTALS:						CONNECTED kVA PER PHASE	10	10	9			CONNECTED TOTAL kVA	29					
						CONNECTED AMPS PER PHASE	84	81	74			CONNECTED AVERAGE AMPS PER PHASE	80					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING 2kVA @125% =	2 kVA	ALL OTHER LOADS @100% =	4 kVA	DIVERSIFIED TOTAL kVA =	23
RECEPTACLES 10kVA @100% =	10 kVA	25% OF LARGEST MOTOR =	0 kVA	AVERAGE AMPS PER PHASE =	64
REMAINDER 12kVA @ 50% =	6 kVA				

*-PROVIDE 30mA GFI CIRCUIT BREAKER FOR HEAT TRACE.
+-PROVIDE CIRCUIT BREAKER TO MATCH REQUIREMENTS OF NEW OR EXISTING LOAD. FIELD VERIFY.B59

PANEL "1LA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE & TYPE:	LOCATION:	CABINET:	NOTES:
120/208 V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUG		SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR, SUBFEED LUGS

CKT	OCP		LOAD (kVA)			DESCRIPTION	LCL	PHASE LOAD			LCL	DESCRIPTION	LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	CO	PWR		kVA	A	B	C	kVA		LTG	CO	PWR	AMP	POLE	NO
1	20	1	1.4			RP-1	1.8	2.2			0.8	WARMING TRAY			0.8	20	1	2
3	20	1	1.4			RP-2	1.8		2.2		0.8	EXISTING LOAD		0.8		20+	1	4
5	20	1	1.4			PR-3	1.8			2.2	0.8	EXISTING LOAD		0.8		20+	1	6
7	20	1	1.4			RP-4	1.8	2.2			0.8	EXISTING LOAD		0.8		20+	1	8
9	20	1	1.4			RP-5	1.8		2.2		0.8	EXISTING LOAD		0.8		20+	1	10
11	20	1	1.4			RP-6	1.8			2.2	0.8	EXISTING LOAD		0.8		20+	1	12
13	20	1	0.8			RP-7, RP-8	1.0	1.6			0.8	EXISTING LOAD		0.8		20+	1	14
15	20	1	1.4			RM 119, 120, 121, 122 LIGHTS	1.7		2.2		0.8	EXISTING LOAD		0.8		20+	1	16
17	20	1	0.5			KITCHEN LIGHTS	0.7			1.3	0.8	EXISTING LOAD		0.8		20+	1	18
19	20+	1		0.8		EXISTING LOAD	0.8	1.6			0.8	EXISTING LOAD		0.8		20+	1	20
21	20+	1		0.8		EXISTING LOAD	0.8		1.6		0.8	EXISTING LOAD		0.8		20+	1	22
23	20+	1		0.8		EXISTING LOAD	0.8			1.6	0.8	EXISTING LOAD		0.8		20+	1	24
25	20+	1		0.8		EXISTING LOAD	0.8	1.6			0.8	EXISTING LOAD		0.8		20+	1	26
27	20+	1		0.8		EXISTING LOAD	0.8		1.6		0.8	EXISTING LOAD		0.8		20+	1	28
29	20+	1		0.8		EXISTING LOAD	0.8			1.6	0.8	EXISTING LOAD		0.8		20+	1	30
31	20+	1		0.8		EXISTING LOAD	0.8	1.6			0.8	EXISTING LOAD		0.8		20+	1	32
33	20+	1		0.8		EXISTING LOAD	0.8		1.6		0.8	EXISTING LOAD		0.8		20+	1	34
35	20+	1		0.8		EXISTING LOAD	0.8			1.6	0.8	EXISTING LOAD		0.8		20+	1	36
37	20	1				SPARE	0.0	0.0			0.0	SPARE				20	1	38
39	20	1				SPARE	0.0		0.0		0.0	SPARE				20	1	40
41	20	1				SPARE	0.0			0.0	0.0	SPARE				20	1	42
TOTALS:						CONNECTED kVA PER PHASE	11	11	11			CONNECTED TOTAL kVA	33					
						CONNECTED AMPS PER PHASE	90	95	88			CONNECTED AVERAGE AMPS PER PHASE	91					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING 11kVA @125% =	14 kVA	ALL OTHER LOADS @100% =	1 kVA	DIVERSIFIED TOTAL kVA =	30
RECEPTACLES 10kVA @100% =	10 kVA	25% OF LARGEST MOTOR =	0 kVA	AVERAGE AMPS PER PHASE =	83
REMAINDER 11kVA @ 50% =	5 kVA				

*-PROVIDE 30mA GFI CIRCUIT BREAKER FOR HEAT TRACE.
+-PROVIDE CIRCUIT BREAKER TO MATCH REQUIREMENTS OF NEW OR EXISTING LOAD. FIELD VERIFY.B59

PANEL "1LD"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE & TYPE:	LOCATION:	CABINET:	NOTES:
120/208 V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	100 AMPERE MAIN LUG		SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR, SUBFEED LUGS

CKT	OCP		LOAD (kVA)			DESCRIPTION	LCL	PHASE LOAD			LCL	DESCRIPTION	LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	CO	PWR		kVA	A	B	C	kVA		LTG	CO	PWR	AMP	POLE	NO
1	20	1			0.2	OUTLET	0.2	0.2			0.0	SPARE				20	1	2
3	20	1			0.2	OUTLET	0.2		0.2		0.0	SPARE				20	1	4
5	20	1	1.0			LIGHTS	1.3			1.0	0.0	SPARE				20	1	6
7	20	1				SPARE	0.0	0.0			0.0	SPARE				20	1	8
9	20	1				SPARE	0.0		0.0		0.0	SPARE				20	1	10
11	20	1				SPARE	0.0			0.0	0.0	SPARE				20	1	12
13	20	1				BLANK	0.0	0.0			0.0	BLANK				20	1	14
15	20	1				BLANK	0.0		0.0		0.0	BLANK				20	1	16
17	20	1				BLANK	0.0			0.0	0.0	BLANK				20	1	18
19	20	1				BLANK	0.0	0.0			0.0	BLANK				20	1	20
21	20	1				BLANK	0.0		0.0		0.0	BLANK				20	1	22
23	20	1				BLANK	0.0			0.0	0.0	BLANK				20	1	24
TOTALS:						CONNECTED kVA PER PHASE	0	0	1			CONNECTED TOTAL kVA	1					
						CONNECTED AMPS PER PHASE	2	2	8			CONNECTED AVERAGE AMPS PER PHASE	4					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING 1kVA @125% =	1 kVA	ALL OTHER LOADS @100% =	0 kVA	DIVERSIFIED TOTAL kVA =	2
RECEPTACLES 0kVA @100% =	0 kVA	25% OF LARGEST MOTOR =	0 kVA	AVERAGE AMPS PER PHASE =	5
REMAINDER 0kVA @ 50% =	0 kVA				

*-PROVIDE 30mA GFI CIRCUIT BREAKER FOR HEAT TRACE.
+-PROVIDE CIRCUIT BREAKER TO MATCH REQUIREMENTS OF NEW OR EXISTING LOAD. FIELD VERIFY.B59

PANEL "1LC"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE & TYPE:	LOCATION:	CABINET:	NOTES:
120/208 V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	400 AMPERE MAIN BKR		SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR, SUBFEED LUGS

CKT	OCP		LOAD (kVA)			DESCRIPTION	LCL	PHASE LOAD			LCL	DESCRIPTION	LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	CO	PWR		kVA	A	B	C	kVA		LTG	CO	PWR	AMP	POLE	NO
1	20	1			0.6	WEIGHT ROOM	0.6	2.0			1.4	AH-1			1.4	20	3	2
3	20	1			1.0	LOCKER ROOM	1.0		2.4		1.4	---			1.4	–	–	4
5	20	1			1.2	STORAGE 120	1.2			2.6	1.4	---			1.4	–	–	6
7	20	1			0.6	WOMEN BATH	0.6	2.0			1.4	AH-2			1.4	20	3	8
9	20	1			0.6	STORAGE 117, 118	0.6		2.0		1.4	---			1.4	–	–	10
11	20	1				TV CONF 116	1.0			2.4	1.4	---			1.4	–	–	12
13	20	1				CONF 116, MENS BATH	1.0	5.2			4.2	RTU-1			4.2	50	3	14
15	20	1			0.2	BOILIER ROOM	0.2		4.4		4.2	---			4.2	–	–	16
17	20	1	1.4			PARKING LOT LIGHTS RP-9	1.8			5.6	4.2	---			4.2	–	–	18
19	20	1	0.9			PARKING LOT LIGHTS RP-10	1.1	4.6			3.7	RTU-2			3.7	40	3	20
21	20	1	1.3			RM 115, 116, 117, 118 LTGS	1.6		5.0		3.7	---			3.7	–	–	22
23	20	1			1.0	CH-1, CH-2	1.0			4.7	3.7	---			3.7	–	–	24
25	20	1			1.4	EF-1, EF-2	1.4	4.4			3.0	RTU-3			3.0	30	3	26
27	20	2			0.2	SS-1	0.2		3.2		3.0	---			3.0	–	–	28
29	–	–			0.2	---	0.2			3.2	3.0	---			3.0	–	–	30
31	20	1			0.2	RP-11	0.2	4.4			4.2	RTU-4			4.2	50	3	32
33	20	1			0.2	RP-12	0.2		4.4		4.2	---			4.2	–	–	34
35	20	1			0.2	RP-13	0.2			4.4	4.2	---			4.2	–	–	36
37	20	1			0.2	RP-14	0.2	0.2			0.0	SPARE				20	1	38
39	20	1				SPARE	0.0		0.0		0.0	SPARE				20	1	40
41	20	1				SPARE	0.0			0.0	0.0	SPARE				20	1	42
43	20+	1		0.8		EXISTING LOAD	0.8	1.2			0.5	BOILER ROOM LIGHTS	0.4			20	1	44
45	20+	1		0.8		EXISTING LOAD	0.8		1.0		0.2	BOILER ROOM OUTLET		0.2		20	1	46
47	20+	1		0.8		EXISTING LOAD	0.8			1.4	0.6	KEF-1			0.6	20	3	48
49	20+	1		0.8		EXISTING LOAD	0.8	1.4			0.6	---			0.6	–	–	50
51	20+	1		0.8		EXISTING LOAD	0.8		1.4		0.6	---			0.6	–	–	52
53	20+	1		0.8		EXISTING LOAD	0.8			1.4	0.6	MUA-1			0.6	20	3	54
55	20+	1		0.8		EXISTING LOAD	0.8	1.4			0.6	---			0.6	–	–	56
57	20+	1		0.8		EXISTING LOAD	0.8		1.4		0.6	---			0.6	–	–	58
59	20+	1		0.8		EXISTING LOAD	0.8			0.8	0.0	SPARE				20	1	60
61	20**	1			1.2	OVEN	1.2	1.2			0.0	SPARE				20	1	62
63	20**	1			1.2	STOVE	1.2		1.2		0.0	SPARE				20	1	64
65	20	1			1.2	REFRIGERATOR	1.2			1.2	0.0	SPARE				20	1	66
67	20	1			1.2	STEAM TABLE	1.2	1.2			0.0	SPARE				20	1	68
69	20	1			1.2	MIXER	1.2		1.2		0.0	BLANK				20	1	70
71	20	1			1.2	DISPOSER	1.2			1.2	0.0	BLANK				20	1	72
73	30	1			1.6	ICE MACHINE	1.6	1.6			0.0	BLANK				20	1	74
75	20	1			0.5	COUNTER TOP	0.5		0.5		0.0	BLANK				20	1	76
77	20	1		0.2		KITCHEN OUTLETS	0.2			0.2	0.0	BLANK				20	1	78
79	20	1		0.4		KITCHEN OUTLETS	0.4	0.4			0.0	BLANK				20	1	80
81	20**	1				KITCHEN OUTLETS	0.0		0.0		0.0	BLANK				20	1	82
83	20	1				SPARE	0.0			0.0	0.0	BLANK				20	1	84
TOTALS:						CONNECTED kVA PER PHASE	31	28	29			CONNECTED TOTAL kVA	88					
						CONNECTED AMPS PER PHASE	260	234	243			CONNECTED AVERAGE AMPS PER PHASE	246					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING 4kVA @125% =	5 kVA	ALL OTHER LOADS @100% =	72 kVA	DIVERSIFIED TOTAL kVA =	88
RECEPTACLES 10kVA @100% =	10 kVA	25% OF LARGEST MOTOR =	0 kVA	AVERAGE AMPS PER PHASE =	245
REMAINDER 2kVA @ 50% =	1 kVA				

*-PROVIDE 30mA GFI CIRCUIT BREAKER FOR HEAT TRACE.
**-PROVIDE SHUNT TRIP BREAKER. CONNECT SHUNT TRIP BREAKER TO FIRE SUPPRESSION SYSTERM THROUGH A RELAY.
+-PROVIDE CIRCUIT BREAKER TO MATCH REQUIREMENTS OF NEW OR EXISTING LOAD. FIELD VERIFY.B59

PANEL "MDP"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE & TYPE:	LOCATION:	CABINET:	NOTES:
120/208 V, 3 PH 4 WIRE	SWITCHBOARD	600 AMPERE MAIN BKR	OUTSIDE S.E. CORNER		

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR, INSULATED GROUND BAR, SUBFEED LUGS

CKT	OCP			LOAD (kVA)			DESCRIPTION	LCL	PHASE LOAD			LCL	DESCRIPTION	LOAD (kVA)			OCP		CKT
NO	AMP	POLE		LTG	CO	PWR		kVA	A	B	C	kVA		LTG	CO	PWR	AMP	POLE	NO
1	225	3		3.6	6.4	0.8	PANEL "1LA"	11.7	20.9			10.3	PANEL "1LB"	1.0	7.2	1.9	225	3	2
–	–	–		4.2	7.2	0.0	–	12.4		21.2		10.1	–	1.0	7.2	1.7	–	–	–
–	–	–		3.3	7.2	0.0	–	11.4			19.4	8.9	–	0.0	8.0	0.9	–	–	–
3	250	3		1.3	4.0	24.7	PANEL "1LC"	30.3	30.2			0.2	PANEL "1LD"	0.0	0.0	0.2	100	3	4
–	–	–		1.3	4.4	21.9	–	27.9		27.8		0.2	–	0.0	0.0	0.2	–	–	–
–	–	–		1.4	3.8	22.7	–	28.3			28.9	1.3	–	1.0	0.0	0.0	–	–	–
5	150	3					SPARE	0.0	0.0			0.0	BLANK				200	3	6
–	–	–					–	0.0		0.0		0.0	–				–	–	–
–	–	–					–	0.0			0.0	0.0	–				–	–	–
19	20	1					BLANK	0.0	0.0			0.0	BLANK				20	1	20
21	20	1						0.0		0.0		0.0					20	1	22
23	20	1						0.0			0.0	0.0					20	1	24
TOTALS:							CONNECTED kVA PER PHASE	51	49	48			CONNECTED TOTAL kVA	149					
							CONNECTED AMPS PER PHASE	426	409	403			CONNECTED AVERAGE AMPS PER PHASE	413					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING 18kVA @125% =	23 kVA	ALL OTHER LOADS @100% =	75 kVA	DIVERSIFIED TOTAL kVA =	130
RECEPTACLES 10kVA @100% =	10 kVA	25% OF LARGEST MOTOR =	0 kVA	AVERAGE AMPS PER PHASE =	362
REMAINDER 45kVA @ 50% =	23 kVA				

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STATE OF UTAH
12-15-2009

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SHEET TITLE
ELECTRICAL SCHEDULES

REVISIONS	DATE	BY	DESCRIPTION
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△			
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PROJECT NO.:
DRAWING NO.: EP502
DATE: 10/14/2009

Utah National Guard - Brigham City Armory

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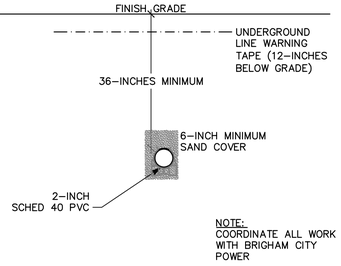
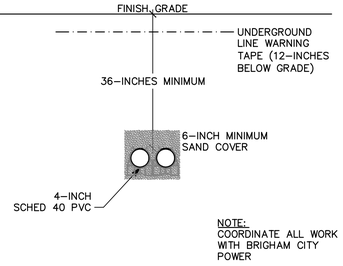


C16 UNDERGROUND SECONDARY DETAIL
NTS



C12 UNDERGROUND SECONDARY DETAIL
NTS

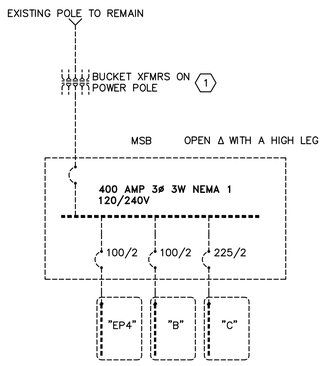
CONDUCTOR AND CONDUIT SCHEDULE

(**) SCHEDULE NUMBER
SUBSCRIPT (NOTE 5) (E.G.) (5)IG

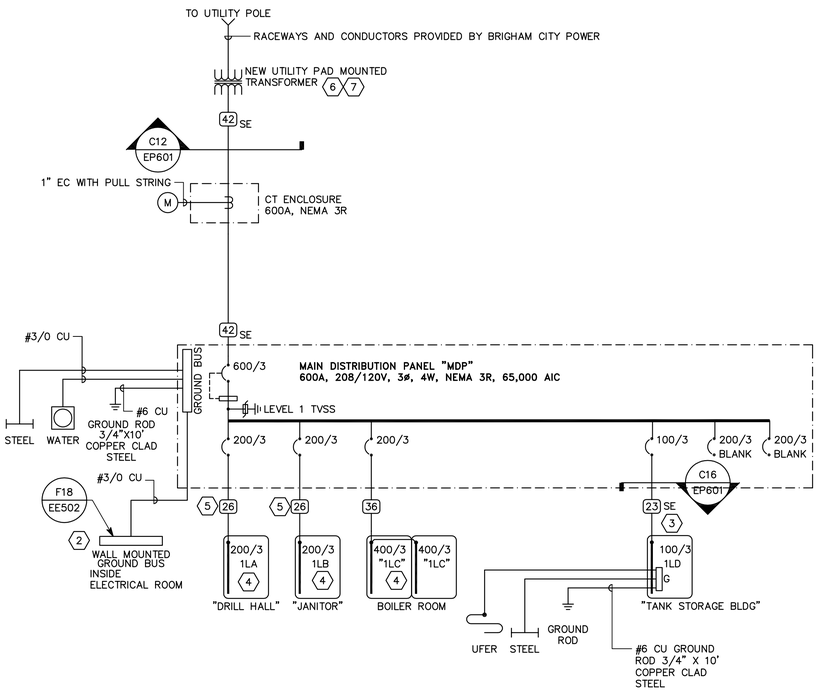
SYM	AMP	CONDUIT SIZE	CONDUCTOR(NOTE 1) QTY	SIZE	G	IG	SE	NOTES
1	20	.75	2	12	12	12	8	2
2	20	.75	3	12	12	12	8	2,3
3	20	.75	4	12	12	12	8	2,3
4	30	.75	2	10	10	10	8	2
5	30	.75	3	10	10	10	8	2
6	30	.75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
10	55	1	2	6	10	8	4	2
11	55	1	3	6	10	8	4	2
12	55	1.25	4	6	10	8	4	2
13	70	1	2	4	8	4	2	2
14	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
16	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
18	85	1.25	4	3	8	3	2	2
19	95	1.25	3	2	8	2	2	2
20	95	1.50	4	2	8	2	2	2
21	130	1.50	3	1	6	2	2	2
22	130	1.50	4	1	6	2	2	2
23	150	2	3	1/0	6	2	1/0	2
24	150	2	4	1/0	6	2	1/0	2
25	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
30	230	2.50	4	4/0	4	2	2/0	2
31	255	2.50	3	250	4	1	2/0	2
32	255	2.50	4	250	4	1	2/0	2
33	310	3	3	350	3	1/0	3/0	2
34	310	3	4	350	3	1/0	3/0	2
35	380	3.50	3	500	3	3/0	3/0	2
36	380	4	4	500	3	3/0	3/0	2
37	400	2 EA 2	3	3/0	3	3/0	3/0	2
38	400	2 EA 2.50	4	3/0	3	3/0	3/0	2
39	510	2 EA 2.50	3	250	1	4/0	3/0	2
40	510	2 EA 3	4	250	1	4/0	3/0	2
41	620	2 EA 3	3	350	1/0	4/0	3/0	2,4
42	620	2 EA 3	4	350	1/0	4/0	3/0	2,4
43	760	2 EA 3.50	3	500	1/0	4/0	3/0	2,4
44	760	2 EA 4	4	500	1/0	4/0	3/0	2,4
45	855	3 EA 3	3	300	2/0	4/0	3/0	2,4
46	855	3 EA 3	4	300	2/0	4/0	3/0	2,4
47	1000	3 EA 3.50	3	400	2/0	4/0	3/0	4
48	1000	3 EA 3.50	4	400	2/0	4/0	3/0	4
49	1140	3 EA 4	3	500	3/0	4/0	3/0	4
50	1140	3 EA 4	4	500	3/0	4/0	3/0	4
51	1240	4 EA 3	3	350	3/0	4/0	3/0	4
52	1240	4 EA 3	4	350	3/0	4/0	3/0	4
53	1675	5 EA 3.50	4	400	4/0	4/0	4/0	4
54	2010	6 EA 3.50	4	400	250	250	250	4
55	2660	7 EA 4	4	500	350	350	350	4
56	3040	8 EA 4	4	500	500	500	500	4
57	4180	11 EA 4	4	500	500	500	500	4
58		3 EA 4						6
59		5						6
60		10 EA 4						6

CONDUCTOR AND CONDUIT SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250–122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
4. GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
5. WHEN SYMBOL SUBSCRIPT INDICATES "IG", INCLUDE "IG" OR INSULATED GROUND CONDUCTOR SCHEDULED ALONG WITH GROUND OR EQUIPMENT GROUND CONDUCTOR. WHEN SYMBOL SUBSCRIPT INDICATES "SE", SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEMS.
6. RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.
7. PROVIDE 500 POUND PULL STRING.



C18 DEMOLITION ONE–LINE DIAGRAM
NTS



C12 ONE–LINE DIAGRAM
NO SCALE

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GENERAL SHEET NOTES

1. PROVIDE 2–EACH 4–INCH CONDUITS AND THE CONDUCTOR PER THE CONDUCTOR AND CONDUIT SCHEDULE.
2. CONTRACTOR SHALL PROVIDE POWER TO ALL EXISTING LOADS THAT WERE SERVED FROM EXISTING SERVICE AND BRANCH DISTRIBUTION.

⬡ KEYNOTES

1. COORDINATE REMOVAL OF EQUIPMENT WITH BRIGHAM CITY POWER.
2. SEE GROUNDING DETAIL F18/EE502.
3. PROVIDE 2–INCH CONDUIT.
4. PROVIDE CIRCUIT BREAKERS IN ELECTRICAL PANEL AS REQUIRED FOR EXISTING LOAD BEING SERVED FROM PANEL BOARD. FIELD VERIFY QUANTITIES PRIOR TO BID.
5. REUSE EXISTING RACEWAYS AS ABLE. FIELD VERIFY EXISTING CONDITIONS.
6. PROVIDE CONCRETE TRANSFORMER PAD ACCORDING TO BRIGHAM CITY REQUIREMENTS. COORDINATE WITH BRIGHAM CITY POWER.
7. PAD MOUNTED TRANSFORMER PROVIDED BY UTILITY.

12-15-2009

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SHEET TITLE
ONE-LINE DIAGRAM

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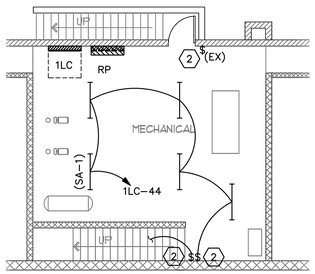
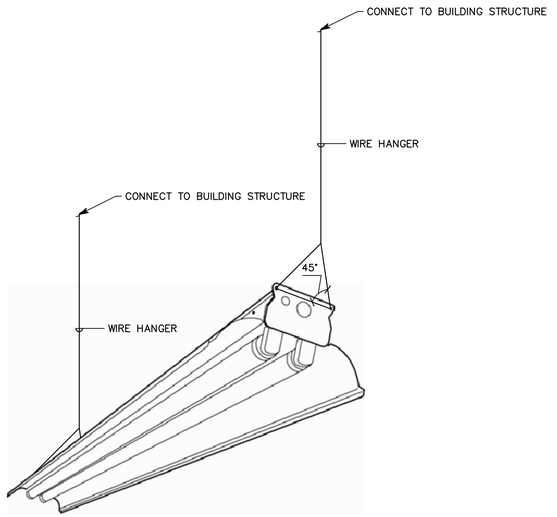


F18 MECHANICAL/ELECTRICAL ROOM LIGHTING PLAN

1/8" = 1'-0"

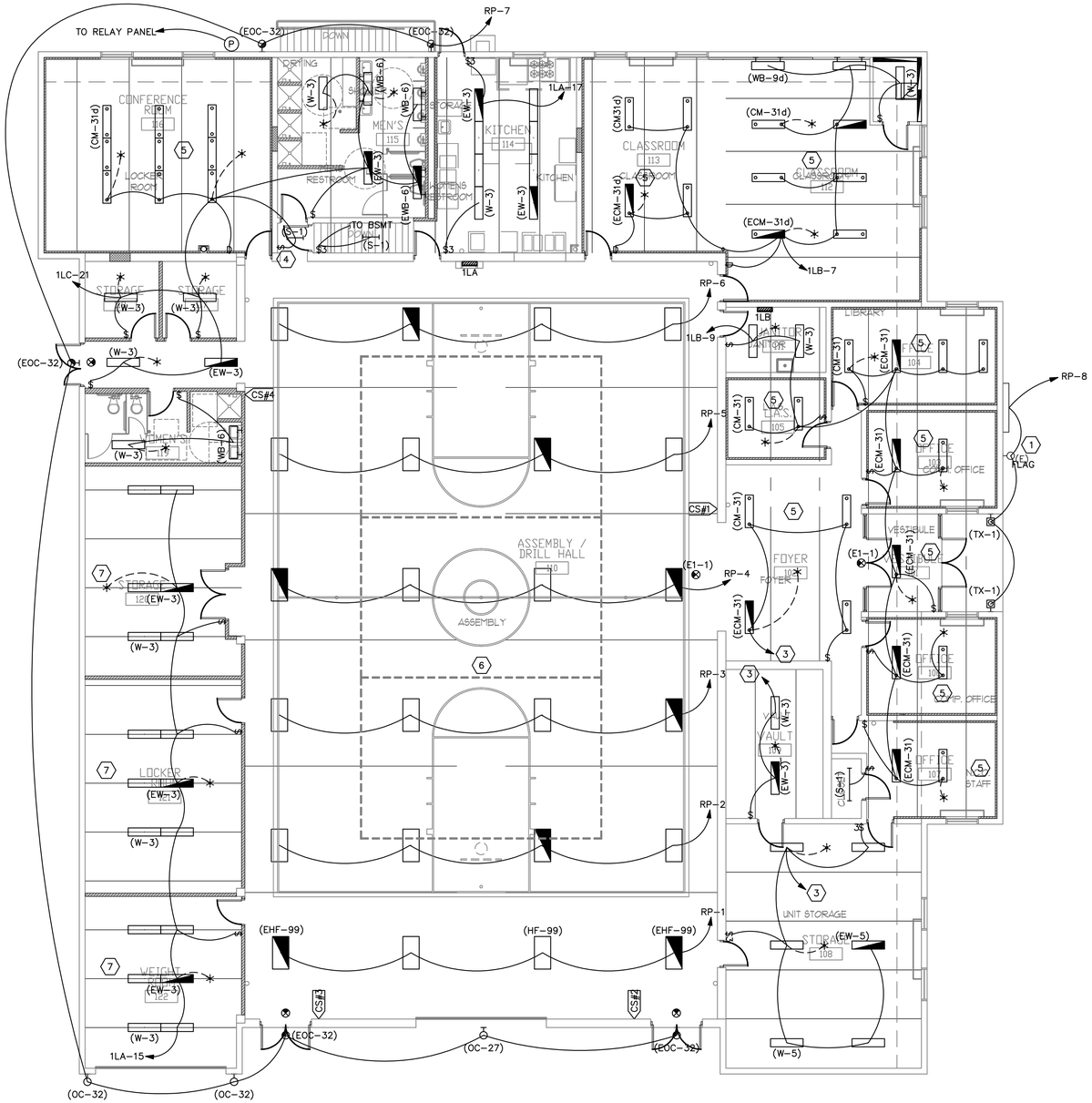


NOTES:

1. MOUNT ALL FIXTURES PER MANUFACTURER'S INSTRUCTIONS.
2. CONNECT WIRE HANGER TO EYELETS IN LIGHT FIXTURE.
3. CONFIRM EACH FIXTURE TYPE AND MOUNTING REQUIREMENTS WITH SEISMIC ENGINEER.
4. PROVIDE ADDITIONAL WIRE HANGERS AS REQUIRED BY MANUFACTURER'S INSTALLATION INSTRUCTIONS.

L18 OPEN CEILING LIGHT FIXTURE MOUNTING DETAIL

SCALE: N.T.S.



L12 LIGHTING PLAN

1/8" = 1'-0"

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GENERAL NOTES

1. CENTER LIGHT FIXTURES BETWEEN BEAMS.
2. REUSE EXISTING LIGHTING CIRCUITS AS ABLE. FIELD VERIFY CAPACITY OF EACH CIRCUIT PRIOR TO CONNECTING NEW LIGHTS.

SHEET KEYNOTES

1. ADJUST EXISTING FLAG POLE LIGHT TO AIM AT FLAG POLE.
2. PROVIDE NEW SWITCH IN EXISTING LOCATION.
3. CONNECT TO EXISTING LIGHTING CIRCUIT. FIELD VERIFY CAPACITY.
4. PROVIDE WALL SWITCH OCCUPANCY SENSOR TO CONTROL LIGHT FIXTURE IN CORRIDOR.
5. HANG PENDANT LIGHT FIXTURES SO THAT THE BOTTOM OF THE LUMINAIRE IS FLUSH WITH THE BOTTOM OF THE BEAMS.
6. HANG HF-99 LIGHT FIXTURES WITH AIRCRAFT CABLE 2-FEET FROM THE CEILING.
7. MOUNT LIGHT FIXTURES IN THIS ROOM ON THE BOTTOM OF BEAMS.

LICENSED PROFESSIONAL ENGINEER
No. 7083854
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12-15-2009

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SHEET TITLE
LIGHTING PLAN

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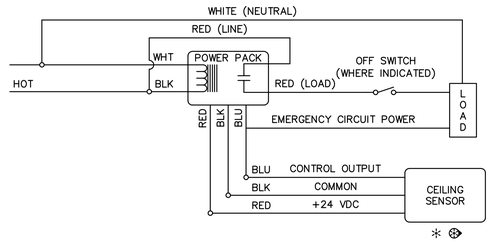
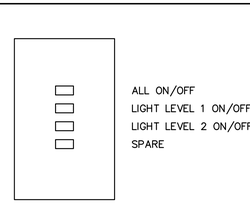


F6 ROOM WITH ONE CEILING SENSOR, WITH OR WITHOUT WALL SWITCH

NO SCALE

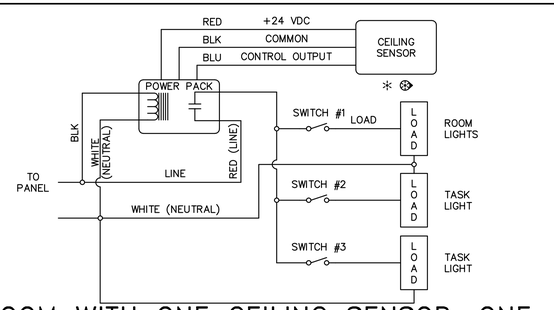


CONTROL STATION SHALL CONTROL RESPECTIVE ROOM/AREA. COORDINATE WITH USER FOR DESIRED CONTROL SCHEMES AND LABELING OF SWITCHES FOR EACH ROOM.

SCENE IS A USER PROGRAMMABLE LIGHTING SCHEME ALLOWING LIGHT LEVELS AVAILABLE TO BE CUSTOM PROGRAMMED (E.G. – A/V PRESENTATION, LECTURE, ENERGY SAVINGS MODE, ETC)

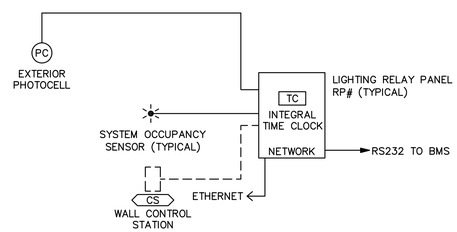
CS 110 WALL CONTROL STATION DETAIL

NTS



16 ROOM WITH ONE CEILING SENSOR, ONE CIRCUIT AND MULTIPLE SWITCHED LOADS

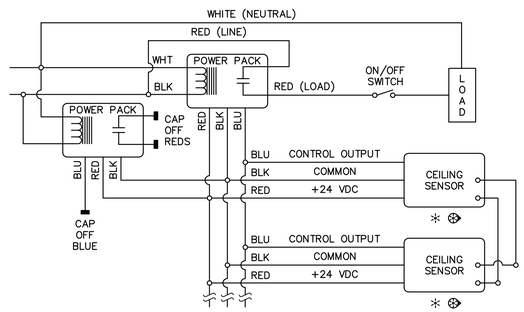
NO SCALE



CONTROL WIRING PER MANUFACTURER'S WRITTEN REQUIREMENTS. TYPICAL OF EACH RELAY PANEL PER TEAM AREA.

L3 RELAY PANEL DETAIL

NTS



L6 ROOM WITH MULTIPLE CEILING SENSORS

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SHEET TITLE
LIGHTING CONTROL DIAGRAMS

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LIGHTING FIXTURE SCHEDULE

NOTE TO BIDDERS: COMPLY WITH SECTIONS 16511, 16521, AND 16570 OF THE SPECIFICATIONS.
REFER TO SPECIFICATIONS FOR IMPORTANT TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES, BALLASTS, AND LAMPS. THE CATALOG NUMBERS LISTED BELOW HAVE BEEN CAREFULLY PREPARED TO ASSIST BIDDERS IN SELECTING PRODUCTS TO ACHIEVE THE DESIGN CONCEPT, HOWEVER, PRIOR TO BIDDING, EACH MANUFACTURER SHALL COMPARE THE CATALOG NUMBERS SHOWN WITH THE DESCRIPTION AND REQUIREMENTS ON THE DRAWINGS, AND SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES. SPECIFICALLY INCLUDED IN THIS EVALUATION SHALL BE THE VERIFYING OF PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS. NO ALLOWANCE OR REDRESS WILL BE ALLOWED FOR DISCREPANCIES THAT WERE NOT REPORTED TO THE ARCHITECT/ENGINEER IN TIME FOR CORRECTION OR CLARIFICATION BEFORE THE BID. THE REPORTING OF ANY AMBIGUITY IS THE RESPONSIBILITY OF THE BIDDER. PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES SHOWN WITHIN 48 BUSINESS HOURS OF THE BID DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES, WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER. SUBMITTAL PACKAGE SHALL INCLUDE LAMP MANUFACTURER AND CATALOG NUMBER ON EACH FIXTURE SHEET. ON ALL PENDANT MOUNTED FIXTURES, PROVIDE A SECOND SET OF PENDANTS, OF A DIFFERENT LENGTH, AS DIRECTED BY THE ARCHITECT/ENGINEER, PROVIDED AND INSTALLED AT NO ADDITIONAL CHARGE. ALL FIXTURES SHALL BE APPROVED BY UL OR ANOTHER ACCEPTABLE TESTING LAB FOR THE PURPOSE INTENDED AND WITH THE LAMP AND BALLAST PROPOSED. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED, CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT INCLUDE ANY TAXES. UNIVERSAL VOLTAGE (120/277) BALLASTS REQUIRED UNLESS NOTED OTHERWISE. DIMENSION SEQUENCE = (LENGTH X WIDTH X DEPTH) IN INCHES.

SYMBOL MARK	FIXTURE CHARACTERISTICS BODY / AIR / MOUNTING / DOOR LENS/LOUVER/REFLECTOR/OTHER	LAMP	WATTS	VOLTS	MANUFACTURER	CATALOG NUMBER	NOTES
CM	STEEL LINEAR FIXTURES: LENGTHS AND CONFIGURATIONS SHOWN ON THE DRAWINGS; LAMPS FOUR FOOT WHERE POSSIBLE; PROGRAM START ELECTRONIC BALLASTS; T8 LAMPS; INTERNAL CONCEALED FASTENERS; COLOR AS NOTED AND/OR APPROVED BY ARCHITECT; ORIENT FIXTURE ACCORDING TO ARCHITECTS/ ENGINEER'S INSTRUCTIONS. SWIVEL STEM MOUNT UNLESS NOTED OTHERWISE. INSTALL LEVEL AND STRAIGHT WITH INVISIBLE SPLICES. PROVIDE ALL REQUIRED HANGERS, SPLICERS, END CAPS, JOINTS, FEEDS, ETC., FOR A COMPLETE INSTALLATION.						
CM-31	MODULAR, INDIRECT MOSTLY, STEM MOUNT, SCULPTED PERFORATED SHAPE, NOMINALLY 3" X 13", 4' MODULES AS SHOWN. 3-WIRE DIMMING	1-28W T5 65W/4' RE835		277/120V	LIGHTOLIER NATIONAL PEERLESS LINEAR LITECONTROL PMC	F7 6 5 2 AL 28W DIMMING 1 4 OR EQUIVELENT	
E	E PREFIX INDICATES THAT FIXTURE IS PROVIDED WITH AN EMERGENCY BATTERY PACK TO PROVIDE POWER TO ANY 2, 3, 4 OR 8 FOOT FLOURESCENT LAMP COMPATIBLE WITH ALL STANDARD AND ELECTRONIC BALLASTS; COMPLETELY SELF-CONTAINED TO PROVIDE 90 MINUTES OF EMERGENCY POWER TO FIXTURE BALLAST; MINIMUM LIGHT OUTPUT FOR TYPICAL 4' LAMP SHALL BE 1100 LUMENS OR HIGHER;UNIVERSAL TRANSFORMER FOR 120 OR 277 VOLTS; LOW VOLTAGE PROTECTION, COMBINATION TEST SWITCH AND AC "ON" INDICATOR; 10 YEAR PRO-RATA WARRANTY; INSTALL TEST SWITCH IN A MANNER THAT REQUIRES NO DISASSEMBLY FOR TESTING.						
E	EMERGENCY BATTERY PACK.			120/277V3W	IOTA BODINE LITHONIA PRESCOLITE EELP CHLORIDE LIGHTOLIER SIDELITE	I-80 B50 PS-1400 EFPS-5 EB1400 (CONTRACTOR INSTALLED) CFP841 FBP50 S60F	
E1	EXIT SIGN: THERMOPLASTIC HOUSING; UNIVERSAL MOUNTING; UNIVERSAL ARROWS PER PLANS; EMERGENCY BATTERY PACK WITH 10 YEAR PRO-RATA WARRANTY; LED, DIFFUSE LENS PANEL; GREEN LETTERS ON WHITE BACKGROUND. MUST MEET NFPA ILLUMINATION STANDARDS.						
E1-1	SINGLE FACE: PROVIDE WIRE GUARD	LED	1W	120/277V	MCPHILBEN DUAL-LITE EELP LITHONIA SURE-LITES DAY-BRITE CHLORIDE LIGHTOLIER	CXXL-1-GW LXSGWE XE 1 GW EM LQM S W 1 G 120/277 ELN LPX70DGW CXL-1-GW-EM SLN1GW LTN1GW	
HF	SPECIAL FIXTURES AS INDICATED. MEET ALL REQUIREMENTS OF SPECIFICATIONS AND FIXTURE SCHEDULE VISUAL AND FINISH APPROVAL REQUIRED.						
HF-99	HIGH BAY FLOURESCENT PRVIDE WITH WIRE GUARD	6-F54T5 350W RE841		277/120V	DAYBRITE LA LIGHTING LITHONIA HE WILLIAMS METALUX	FBF-6-54HO-UNV-1/42EB-U-WG-FBF6 EBY400-6-4M-SR-WG11-2EH5-MVOLT FSB-654L-KD-MVOLT-2/3-WGI GL-4-654T5H-WG11-UP5-WD 2HB-6-54T5-WG-UNV-LAMPS-EBT2	
OC	WALL PACK: ADJUSTABLE CUT OFF; FULL PERIMETER GASKETING: WET LOCATION; STAINLESS STEEL HINGES AND LATCHES; PROJECTING LENS; HPF BALLAST; SEE ELEVATION FOR MOUNTING HEIGHT, COLOR AS SPECIFIED BY ARCHITECT.						
OC-27	(2) 42W CF, RECESSED J BOX. WIDE THROW, SQUARE, DECORATIVE	2-42W CF 84W		277/120V	MCPHILBEN LSI LITHONIA LUMARK	101-WT-2 42 CF-XX GBWS-3-2-42W-F-MT-XX-NO WST 2-42 CF WT TB MHIP-T-2 42 CF-MT-XX	
OC-32	CF42, RECESSED J BOX. MEDIUM THROW, SQUARE, DECORATIVE	CF42 50W RE835		277/120V	MCPHILBEN LSI LITHONIA LUMARK LIGHTWAY	101MT-42TRF-CBA-DT GBWS-FTM-42CFL-F-120/277-XX-NO WST 42TRT MD MVOLT PLIP-T-42-MT-XX WPHW-7 A 1T42 4 B99 CEG 21	
S	FLUORESCENT STRIP LIGHT: STEEL CONSTRUCTION; WHITE PAINTED FINISH; SUITABLE FOR MOUNTING ON LOW DENSITY CEILINGS; PROGRAM START ELECTRONIC BALLASTS; T8 LAMPS; ONE BALLAST PER FIXTURE WHERE POSSIBLE, UNLESS TWO LEVEL SWITCHING IS SHOWN ON THE PLANS.						
S-1	4', 1-LAMP. WITH LENS	1-F32T8 40W RE835		277/120V	LITHONIA LIGHTOLIER METALUX DAYBRITE HUBBELL COLUMBIA	C132-MVOLT-TUBRHP SW132-U-SOP SS-132-UNV-PROGRAM START T132-UNV-EB-SPEC S132UPS CS4-132-EB8120/277 PROG	
SA	GENERAL PURPOSE INDUSTRIAL: WHITE ENAMEL, APERTURED REFLECTOR; PROGRAM START ELECTRONIC BALLASTS; T8 LAMPS; ONE BALLAST PER FIXTURE WHERE POSSIBLE; UNLESS TWO LEVEL SWITCHING IS SHOWN ON THE PLANS; STEM MOUNTED WITH TONG HANGERS.						
SA-1	4', 2-LAMP.	2-F32T8 65W RE835		277/120V	LITHONIA LIGHTOLIER METALUX HUBBELL COLUMBIA DAYBRITE	EJA232-MVOLT-TUBRHP-THUN KWA232-U-SOP IA-232-UNV-PROGRAM START IG142R-PP10-UPS CSR4-232U-EB8120/277 PROG-CSTH IA232-UNV-1/2-EB-SPEC	

LIGHTING FIXTURE SCHEDULE

NOTE TO BIDDERS: COMPLY WITH SECTIONS 16511, 16521, AND 16570 OF THE SPECIFICATIONS.
REFER TO SPECIFICATIONS FOR IMPORTANT TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES, BALLASTS, AND LAMPS. THE CATALOG NUMBERS LISTED BELOW HAVE BEEN CAREFULLY PREPARED TO ASSIST BIDDERS IN SELECTING PRODUCTS TO ACHIEVE THE DESIGN CONCEPT, HOWEVER, PRIOR TO BIDDING, EACH MANUFACTURER SHALL COMPARE THE CATALOG NUMBERS SHOWN WITH THE DESCRIPTION AND REQUIREMENTS ON THE DRAWINGS, AND SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES. SPECIFICALLY INCLUDED IN THIS EVALUATION SHALL BE THE VERIFYING OF PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS. NO ALLOWANCE OR REDRESS WILL BE ALLOWED FOR DISCREPANCIES THAT WERE NOT REPORTED TO THE ARCHITECT/ENGINEER IN TIME FOR CORRECTION OR CLARIFICATION BEFORE THE BID. THE REPORTING OF ANY AMBIGUITY IS THE RESPONSIBILITY OF THE BIDDER. PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES SHOWN WITHIN 48 BUSINESS HOURS OF THE BID DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES, WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER. SUBMITTAL PACKAGE SHALL INCLUDE LAMP MANUFACTURER AND CATALOG NUMBER ON EACH FIXTURE SHEET. ON ALL PENDANT MOUNTED FIXTURES, PROVIDE A SECOND SET OF PENDANTS, OF A DIFFERENT LENGTH, AS DIRECTED BY THE ARCHITECT/ENGINEER, PROVIDED AND INSTALLED AT NO ADDITIONAL CHARGE. ALL FIXTURES SHALL BE APPROVED BY UL OR ANOTHER ACCEPTABLE TESTING LAB FOR THE PURPOSE INTENDED AND WITH THE LAMP AND BALLAST PROPOSED. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED, CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT INCLUDE ANY TAXES. UNIVERSAL VOLTAGE (120/277) BALLASTS REQUIRED UNLESS NOTED OTHERWISE. DIMENSION SEQUENCE = (LENGTH X WIDTH X DEPTH) IN INCHES.

SYMBOL MARK	FIXTURE CHARACTERISTICS BODY / AIR / MOUNTING / DOOR LENS/LOUVER/REFLECTOR/OTHER	LAMP	WATTS	VOLTS	MANUFACTURER	CATALOG NUMBER	NOTES
TX	SPECIAL FIXTURES AS INDICATED. MEET ALL REQUIREMENTS OF SPECIFICATIONS AND FIXTURE SCHEDULE. VISUAL AND FINISH APPROVAL REQUIRED.						
TX-1	ENTER DESCRIPTION WALL SCONCE WEATHER PROOF	LAMPS 1-32W CF 40W	WATTS	VOLTS 120	MANUF LIGHTWAY	CATALOG NUMBER MNBW-14 A 1T32 4 P2 WSP OR EQUIVELENT	
W	LOW PROFILE WRAPAROUND: SURFACE MOUNTED SUITABLE FOR MOUNTING ON LOW DENSITY CEILINGS WRAPAROUND ACRYLIC PRISMATIC DIFFUSER; WHITE ENAMEL ENDPLATES; MINIMUM CU OF 70 @ 80/50/20 AND RCR=1; PROGRAM START ELECTRONIC BALLASTS; T8 LAMPS; ONE BALLAST PER FIXTURE WHERE POSSIBLE, UNLESS TWO LEVEL SWITCHING IS SHOWN ON THE PLANS.						
W-3	NARROW BODY WRAPAROUND; 2-LAMP, APPROX; 3" X 10" X 48".	2-F32T8 65W RE835		277/120V	LITHONIA DAYBRITE METALUX LIGHTOLIER LSI COLUMBIA	LB232-MVOLT-TUBPHP CAN232-UNV-1/2-EB-SPEC WS-232A-UNV-PROGRAM START WA232-U-SOP PR 232 SS010PRS UE WC4-232-EBPS120/277	
W-5	WIDE BODY WRAPAROUND; 3-LAMP, APPROX; 3" X 16" X 48".	3-F32T8 95W RE835		277/120V	LITHONIA DAYBRITE METALUX LIGHTOLIER LSI COLUMBIA	LB332-1/3MVOLT-TUBPHP CAW332-UNV-1/3-EB-SPEC WSA-332A-UNV-PROGRAM START WB332-U-03P PR 332 SS010PRS UE WCW4-332-3EBPS120/277	
WB	WALL MOUNTED FLUORESCENT LOCATED ABOVE WALL ELEMENT (MIRROR/WHITEBOARD, ETC.): AS INDICATED ON DRAWINGS; WITH ACRYLIC INJECTION MOLDED; PROGRAM START ELECTRONIC BALLASTS; T8 LAMPS; ONE BALLAST PER FIXTURE WHERE POSSIBLE, UNLESS TWO LEVEL SWITCHING IS SHOWN ON THE PLANS.						
WB-6	2-LAMP, WALL MOUNT, 48", WRAPAROUND; ACRYLIC INJECTION MOLDED PRISMATIC DIFFUSER.	2-F32T8 65W RE835		277/120V	DAYBRITE LITHONIA WELLMADE METALUX LIGHTWAY DURAY LSI	WB232-CP-UNV-EB-SPEC WC 232 A12 MVOLT-TUBPHP 182-P-248T8-U-P BC-232-UNV-PROGRAM START VL232NL-120/277-PS WQ-6232-A-EBPS120/277 BR 232 SS010PRS UE	
WB-9d	1-LAMP, WALL MOUNT, 48", WRAPAROUND; ACRYLIC INJECTION MOLDED PRISMATIC DIFFUSER. 3-WIRE DIMMING	1-28W RE835	65W	120V	LIGHTOLIER LITECONTROL LINEAR NATIONAL PEERLESS PMC	FW7 6 5 1 AL 3 1 4 OR EQUIVELENT	
ZL	LIGHT POLES: TOTALLY ENCLOSED RAINTIGHT, DUST-TIGHT AND CORROSION RESISTANT; POLE AS SHOWN IN DETAIL WITH HANDHOLE, COVER, BOLT COVER, AND BASE; PAINTED (COLOR TO BE SELECTED BY ARCHITECT / ENGINEER WHICH MAY DIFFER FROM CATALOG NUMBER SHOWN). MTB= 120,208,240,277 VOLT MULTI-TAP BALLAST. ALL BALLASTS HPF. ARM MOUNT. HORIZONTAL LAMP, SEGMENTED OPTICS.						
ZL-13	SHOEBOX STYLE, CUTOFF LUMINAIRE SINGLE HEAD, MULTI-TAP BALLAST; TYPE IV DISTRIBUTION.400PSMH SEGMENTED REFLECTOR	400PSMH	450W	MTB	GARDCO SPERO HUBBELL WIDELITE SPAULDING LITHONIA LSI	H-19-1-4-400PSMH-MT-CBA S6M-400PSMH-4M-A-MT-CBA MSQ-A400W-HP8-1 TYPE 4 DIST S10P-400-4-QV-S-XXX CM-PM5-M400PS-IV-MT-SCBA KSF2 400M R4 TB SP04 SCWA CHHM-4-400PSMH-F-MT-XXX	

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STATE OF UTAH
12-15-2009

Utah National Guard
BRIGHAM CITY READINESS CENTER
985 NORTH 500 WEST
BRIGHAM CITY, UTAH

SHEET TITLE
LIGHTING FIXTURE SCHEDULE

REVISIONS	DATE	BY	DESCRIPTION
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DRAWN BY: CDN
CHECKED BY: SCL
PROJECT NO.:
DRAWING NO.: EL601
DATE: 10/14/2009

Utah National Guard - Brigham City Armory

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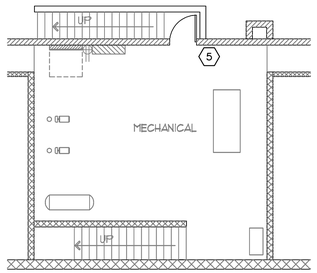
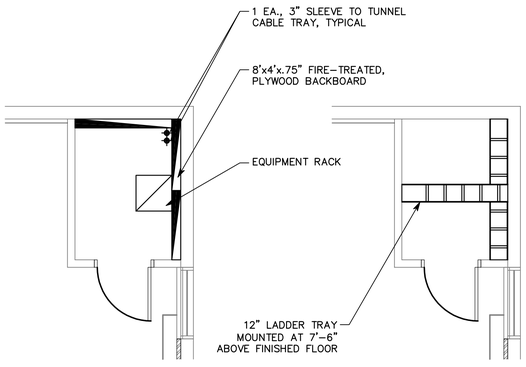


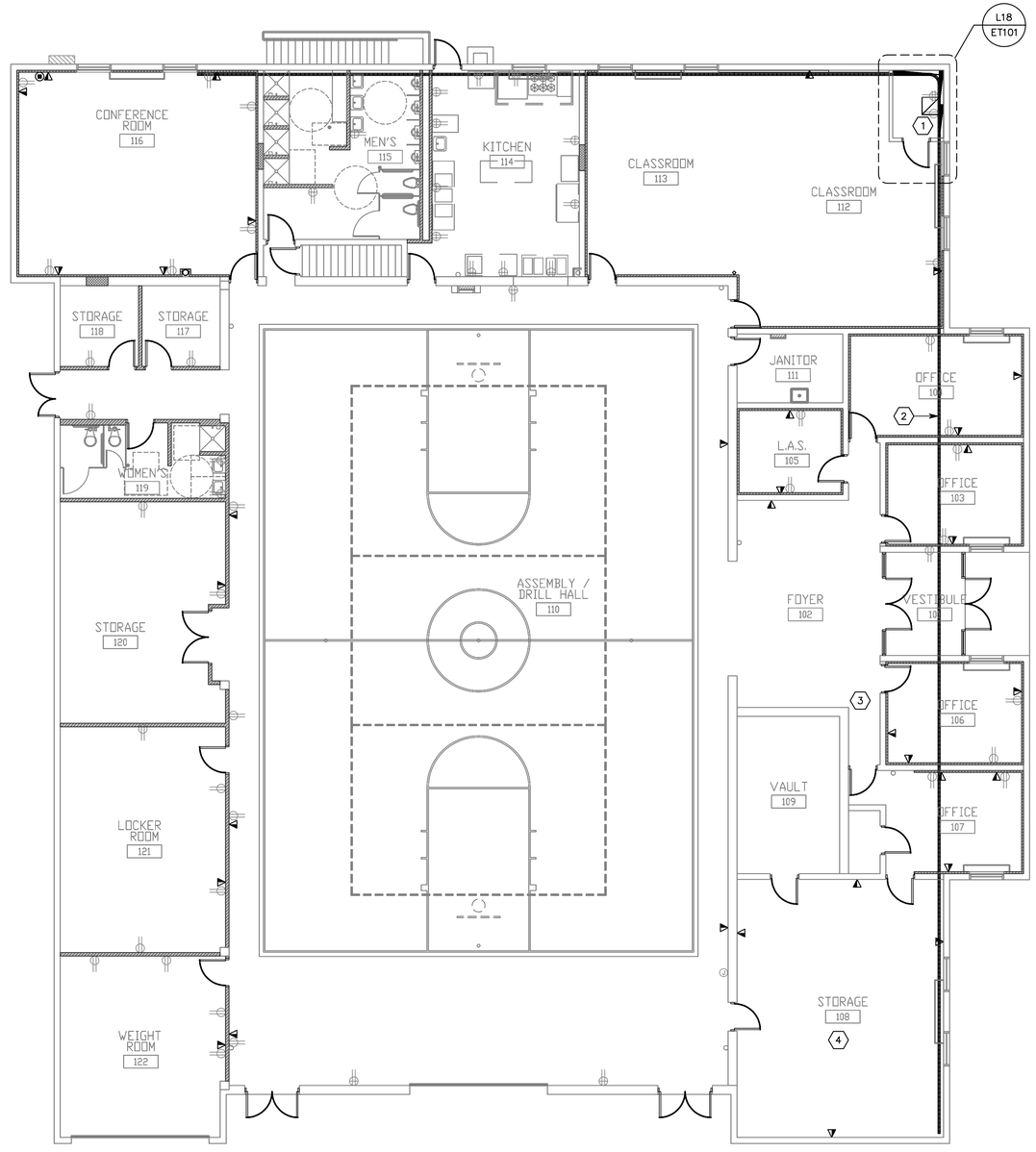
F18 MECHANICAL/ELECTRICAL ROOM TECHNOLOGY PLAN

1/8" = 1'-0"



E18 ENLARGED COMM ROOM TECHNOLOGY PLAN

1/4" = 1'-0"



T12 TECHNOLOGY PLAN

1/8" = 1'-0"

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GENERAL NOTES

1. ALL EXISTING WIREMOLD AND DATA CABLING IS TO BE REMOVED. INSTALLER SHALL FIELD VERIFY LOCATION PRIOR TO BID.
2. ALL CONDUIT FOR STRUCTURED CABLING SHALL COMPLY WITH TIA/EIA 569-A.

SHEET KEYNOTES

1. REMOVE EXISTING RACK AND MOUNT NEW RACK AS SHOWN. COORDINATE REMOVAL AND MOUNTING OF EQUIPMENT WITH GUARD PERSONNEL.
2. PROVIDE 4"x4" WIRE BASKET TRAY IN TUNNEL SPACE BELOW. VERIFY EXACT ROUTING PRIOR TO INSTALLATION. ENSURE CLEARANCE OF ALL PIPING.
3. REMOVE EXISTING PHONE JACK AND WIREMOLD.
4. WHERE RACEWAY CANNOT BE INSTALLED IN A CONCEALED MANNER, PROVIDE SURFACE RACEWAY. VERIFY ROUTING WITH ARCHITECT PRIOR TO INSTALLATION.
5. EXISTING TELECO DEMARC LOCATION.

LICENSED PROFESSIONAL ENGINEER
No. 7083854
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12-15-2009

Utah National Guard
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BRIGHAM CITY, UTAH

SHEET TITLE
TECHNOLOGY PLAN

REVISIONS	DATE	BY	DESCRIPTION
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DRAWN BY	CHECKED BY
CDN	SCL
PROJECT NO.	DRAWING NO.
DATE 10/14/2009	ET101

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Utah National Guard - Brigham City Armory

AV AND VOICE-DATA EQUIPMENT/CABLE LIST

SYMBOL	ITEM DESCRIPTION	MANUFACTURERS
X C6 VOICE	VOICE CABLING, CATEGORY 6	SEE SPECIFICATIONS (CAT6 YELLOW PLENUM RATED) ('X' INDICATES QUANTITY)
X C6 DATA	DATA CABLING, CATEGORY 6	SEE SPECIFICATIONS (CAT6 BLUE PLENUM RATED) ('X' INDICATES QUANTITY)
PPL	PATCH PANEL	SYSTIMAX VISIPATCH 112
V	BLUE METAL BACKBOARD (VOICE)	M183-B1 (VAR)
D	YELLOW METAL BACKBOARD (DATA)	M183-B5 (VAR)
SB	FULL SPOOL BOARDS	M187-B1 (VAR)
	WORK STATION OUTLET (1-LAN, 1-VOICE)	SEE SPECIFICATIONS
	BUS BAR, 10", 20", W/ LUGS & MOUNTING ACCESSORIES	CHATSWORTH 10622-010/020
	CABLE RUNWAY-12", BLACK	CHATSWORTH 10250-712
	CABLE RUNWAY RADIUS DROP, BLACK	CHATSWORTH 12100-712
	BUTT SPLICE KIT, BLACK	CHATSWORTH 11301-001
	JUNCTION SPLICE KIT, BLACK	CHATSWORTH 11302-001
	ADJ. JUNCTION SPLICE KIT, BLACK	CHATSWORTH 10616-001
	FOOT KIT, BLACK	CHATSWORTH 11309-701
	3" CHANNEL RACK TO RUNWAY, BLACK	CHATSWORTH 10595-712
	TRIANGLE BRACKETS 12", BLACK	CHATSWORTH
	EQUIPMENT RACK, 4 POST, 19" BLACK	CHATSWORTH 15053-703
	RACK SHELF, PROVIDE 4 EACH FOR EQUIPMENT MOUNTING	CHATSWORTH 15255-7XX
VWM	VERTICAL WIRE MANAGERS, BLACK, SIDE & CENTER	SEE SPECIFICATIONS
HWM	HORIZONTAL WIRE MANAGERS, BLACK, 2 RU	SEE SPECIFICATIONS
	COPPER CATEGORY 6 PATCH CABLES	SEE SPECIFICATIONS
	CAT 6 J-HOOKS	CADDY CAT32Z34
	CABLE TRAY, 4"x4", WIRE BASKET	SEE SPECIFICATIONS

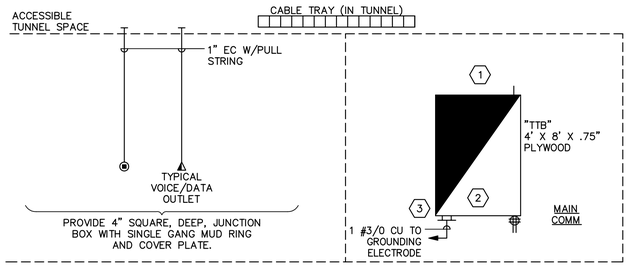
NOTE: ALL RACKS, LADDER, PATCH PANELS, AND ACCESSORIES LOCATED WITHIN COMMUNICATIONS ROOM SHALL BE BLACK IN COLOR

GENERAL VOICE-DATA NOTES

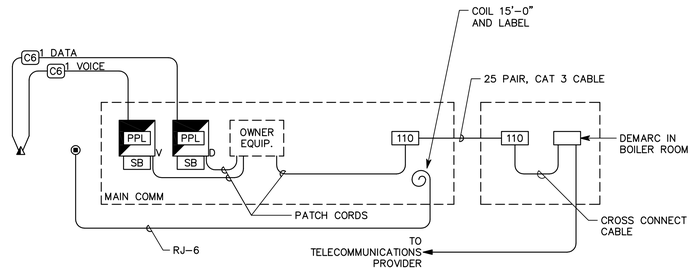
1. PROVIDE PLENUM RATED CABLE IN ALL AIR PLENUMS. IF A PLENUM RATED CABLE IS NOT SPECIFIED, PROVIDE THE PLENUM RATED EQUIVALENT TO THE SPECIFIED CABLE.
2. ALL CABLE, REGARDLESS OF LENGTH, INSTALLED UNDER THIS CONTRACT ARE TO BE LABELED.
3. THE EQUIPMENT LABELING IDENTIFIED ON DETAILS IN THESE DRAWINGS ARE EXAMPLES ONLY OF THE ACTUAL LABELING WHICH IS REQUIRED AS PART OF THIS CONTRACT. PRIOR TO FABRICATION, SUBMIT THE NOMENCLATURE FOR ALL LABELS TO THE OWNER FOR REVIEW. THIS REQUIREMENT INCLUDES BUT IS NOT LIMITED TO ALL CABLE LABELING, AND ALL EQUIPMENT LABELING.
4. FOR EVERY CABLE PULL SPECIFIED, COIL 10' OF EXCESS CABLE AT THE AT THE CLOSET END, NEATLY COIL, AND LABEL.
5. UNLESS OTHERWISE NOTED, INSTALL ALL CABLE INSIDE RACEWAY SYSTEMS. WHERE RACEWAY SYSTEMS HAVE NOT BEEN PROVIDED OR SPECIFIED, INSTALL CABLE THROUGH THE SPECIFIED "CADDY" CLIPS INSTALLED ABOVE ACCESSIBLE CEILINGS AT THE MINIMUM INTERVALS IDENTIFIED IN THE SPECIFICATIONS. SUPPORT "CADDY" CLIPS DIRECTLY FROM THE BUILDING STRUCTURE, NOT FROM OTHER BUILDING SYSTEM SUPPORT WIRES OR CABLE.
6. GROUND ALL EQUIPMENT RACKS AS DETAILED.
7. ALL CABLE, FIBER, AND UTP TO TERMINATE ON BOTH ENDS.
8. COORDINATE RACK LAYOUTS WITH OWNER PRIOR TO INSTALLATION.
9. WELL IN ADVANCE OF INSTALLATION, COORDINATE WORK WITH ALL OTHER TRADES SO THAT ELECTRICAL EQUIPMENT, OR ITS INTENDED USE, IS NOT OBSTRUCTED BY EQUIPMENT BEING PROVIDED BY OTHER DIVISIONS.
10. INSTALL ALL ELECTRONIC SYSTEMS EQUIPMENT IN COMPLIANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS, SEISMIC CODES, AND INDUSTRY WIDE ACCEPTED PRACTICES. SUPPORT EQUIPMENT WEIGHT FROM BUILDING STRUCTURE. DURING THE SUBMITTAL PROCESS, PROVIDE SHOP DRAWINGS WHICH DETAIL PROPOSED MOUNTING FOR ALL SUCH EQUIPMENT.
11. 'A' INDICATES MOUNTING ABOVE COUNTER. VERIFY HEIGHT OF POWER OUTLET AND MOUNT DATA OUTLET NEXT TO POWER OUTLET.
12. ALL WORK SHALL BE IN COMPLIANCE WITH UTNG STANDARD UT-G6-C.
13. ALL WORK SHALL BE COORDINATED WITH UTAH NATIONAL GUARD.
14. ALL CONDUIT FOR VOICE/DATA CABLE SHALL BE INSTALLED IN ACCORDANCE WITH ANSI/TIA/EIA569-A.
15. PRIOR TO INSTALLATION, VERIFY ROUGH-IN AND CABLE TRAY LAYOUT WITH OWNER.

SHEET KEYNOTES

1. CONTRACTOR SHALL PROVIDE A ELEVATION LAYOUT DRAWING OF THE INSIDE OF THE COMMUNICATIONS CABINET INDICATING THE EQUIPMENT TO BE INSTALLED TO MIKE HANSEN (UTNG) FOR COORDINATION. COORDINATE REQUIREMENTS FOR UTNG PROVIDED EQUIPMENT AND INCLUDE THAT EQUIPMENT IN THE ELEVATION DRAWING.
2. PROVIDE AND MOUNT A 4' X 8' X 0.75" FIRE RESISTANT PLYWOOD BACKBOARD IN THE BACK OF THE CABINET. TRIM THE EDGES OF THE PLYWOOD TO FIT IN THE BOX. PAINT THE PLYWOOD AS DIRECTED BY UTAH NATIONAL GUARD.
3. PROVIDE A 2" X 12" X 1/4" GROUNDING BUSBAR ON INSULATORS. SEE SPECIFICATIONS.



L18 TELECOMMUNICATIONS RACEWAY RISER DIAGRAM
NTS



L11 TELECOMMUNICATIONS CABLING RISER DIAGRAM
NTS

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SHEET TITLE
TECHNOLOGY ROUGH-IN

REVISIONS	DATE	BY	DESCRIPTION
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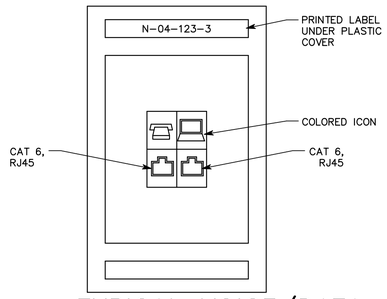
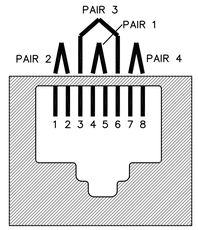


C1 TYPICAL VOICE/DATA PLATE DETAIL
NTS

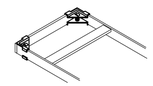


T568B

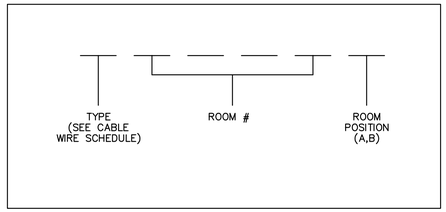
PAIR ID	PIN #
T1	5
R1	4
T2	1
R2	2
T3	3
R3	6
T4	7
R4	8

COLOR SCHEME
PAIR 1 – BLUE
PAIR 2 – ORANGE
PAIR 3 – GREEN
PAIR 4 – BROWN

C7 RJ45 WIRING DETAIL
NTS



C3 CABLE RUNWAY END CLOSING DETAIL
NTS

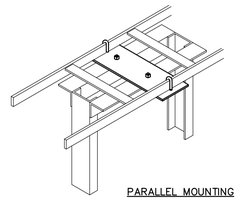


NOTES:

1. ALL CABLE/WIRE, REGARDLESS OF LENGTH, SHALL BE LABELED WITH A UNIQUE IDENTIFYING CODE. LABEL SHALL BE PERMANENT AND SHALL BE MACHINE PRINTED (NOT HAND PRINTED). SUBMIT PROPOSED LABEL MATERIAL FOR APPROVAL.

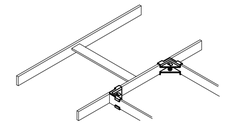
2. PRIOR TO LABEL CREATION, SUBMIT FOR APPROVAL PROPOSED ROOM NUMBER SCHEME FOR CABLE LABELS.

F14 CABLE LABEL DETAIL
NTS

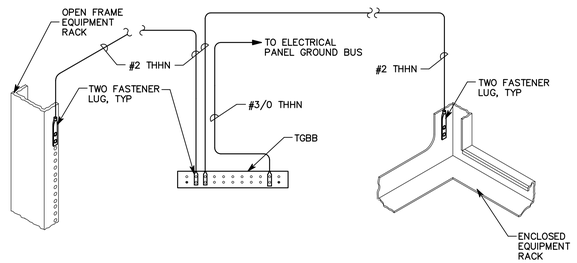


PARALLEL MOUNTING

F7 3" CHANNEL RACK-TO-RUNWAY MOUNT
NTS



F3 CABLE RUNWAY SPLICE DETAIL
NTS



I4 TYPICAL RACK GROUNDING DETAIL
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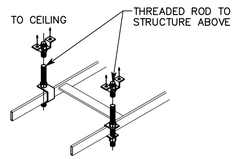
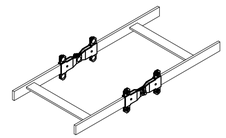
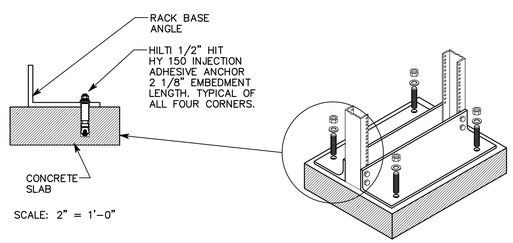


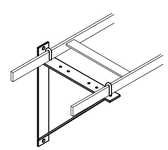
I7 OVERHEAD SUPPORT DETAIL
NTS



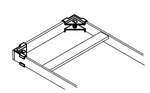
I3 SWIVEL SPLICE KIT FOR ELEVATION TRANSITION
NTS



L4 EQUIPMENT RACK ANCHORAGE DETAIL
NTS



L7 TRIANGLE BRACKET DETAIL
NTS



L3 CABLE RUNWAY END CLOSING DETAIL
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12-15-2009

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985 NORTH 500 WEST
BRIGHAM CITY, UTAH

SHEET TITLE
VOICE-DATA ROUGH-IN

REVISIONS	DATE	BY	DESCRIPTION
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PROJECT NO.:
DRAWING NO.: ET602
DATE: 10/14/2009

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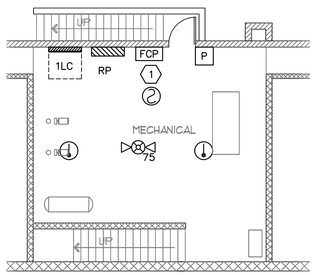
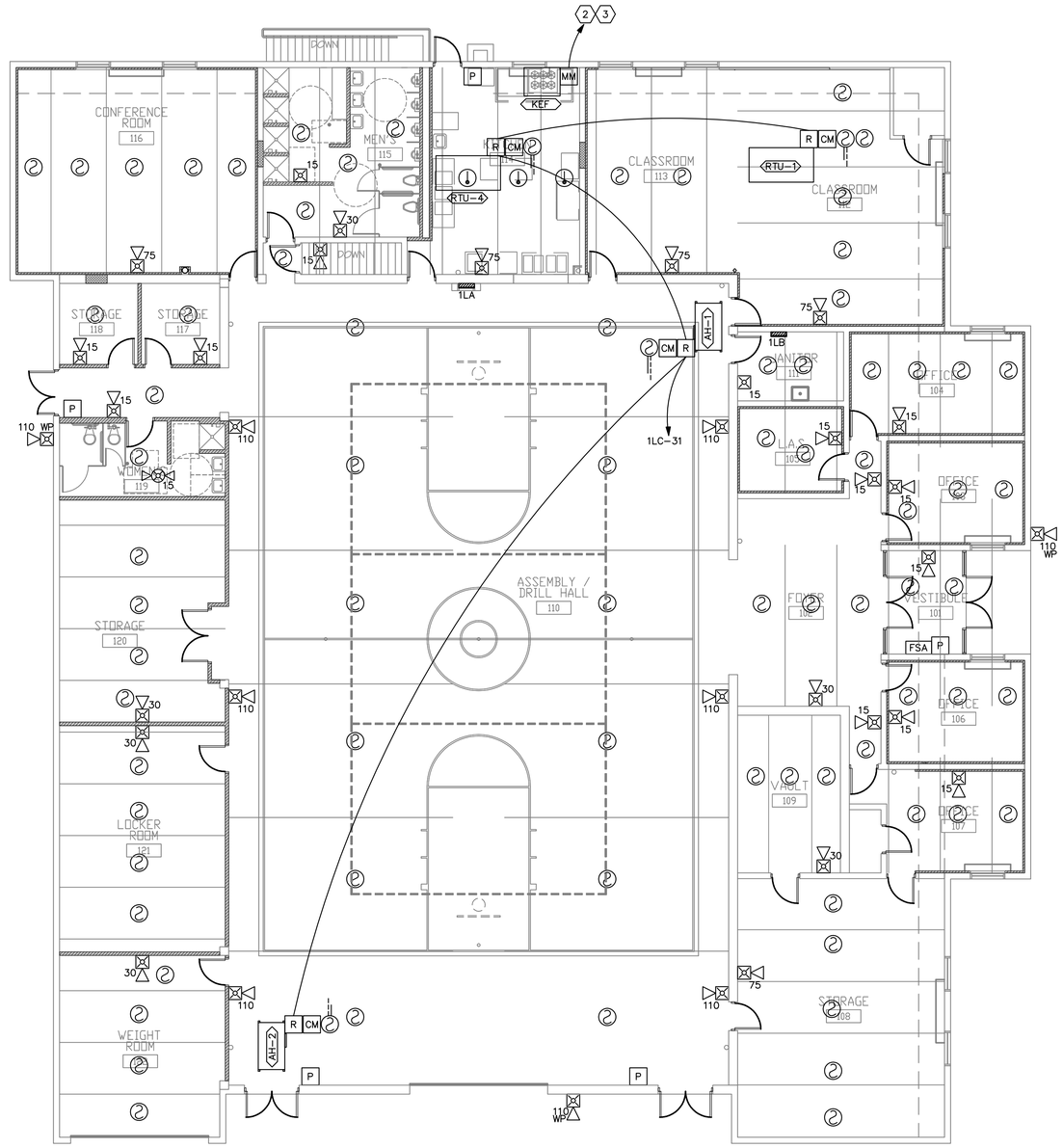


F18 MECHANICAL/ELECTRICAL ROOM FIRE ALARM PLAN
1/8" = 1'-0"



L12 FIRE ALARM PLAN
1/8" = 1'-0"

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GENERAL NOTES

1. PROVIDE CONTROL MODULE, RELAY AND DUCT DETECTOR TO ALL NEW AND EXISTING MECHANICAL EQUIPMENT OVER 2000 CFM ACCORDING TO CURRENT NATIONAL FIRE ALARM CODE.
2. PROVIDE SMOKE DETECTORS IN EACH BEAM POCKET OF CEILING UNLESS OTHERWISE NOTED.

SHEET KEYNOTES

1. COORDINATE EXACT LOCATION OF FCP IN MECHANICAL ROOM.
2. CONNECT MONITORING MODULE TO HOOD FIRE SUPPRESSION SYSTEM. COORDINATE WITH FIRE SUPPRESSION SYSTEM INSTALLER.
3. CONNECT FIRE SUPPRESSION SYSTEM TO SHUNT TRIP BREAKERS SERVING GFCI OUTLETS UNDER HOOD THROUGH A RELAY. COORDINATE WITH FIRE SUPPRESSION SYSTEM INSTALLER.

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SHEET TITLE
FIRE ALARM PLAN

REVISIONS	DATE	BY	DESCRIPTION
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DATE 10/14/2009	FA101

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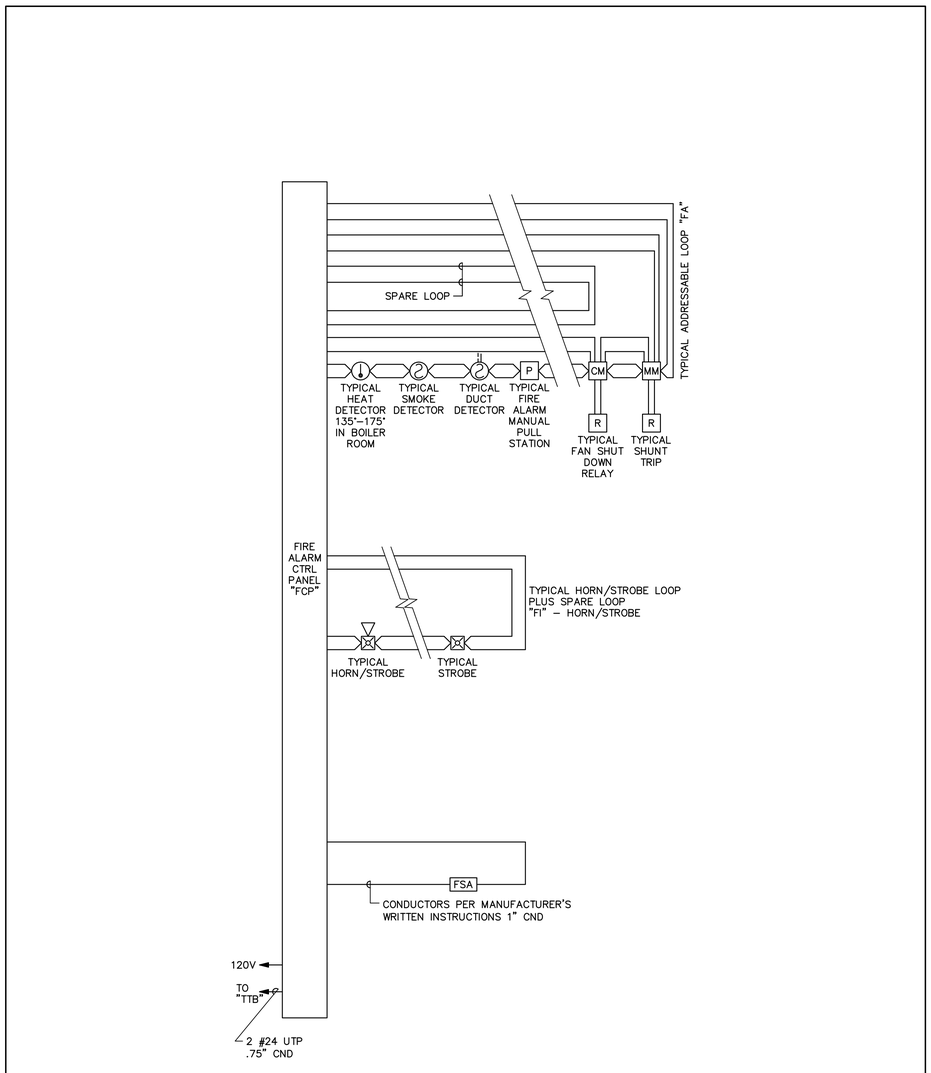

12 ADDRESSABLE FIRE ALARM RISER
NO SCALE

GENERAL SHEET NOTES

1. PLANS ARE BASED UPON 99 MONITOR AND CONTROL DEVICES PER ADDRESSABLE LOOP. OTHER CONFIGURATIONS ARE ACCEPTABLE SUBJECT TO CONTRACTOR ALLOWING FOR INCREASED WIRING REQUIREMENTS AND SUBMITTAL DRAWINGS SHOWING NEW WIRING CONFIGURATION. MAXIMUM INITIAL DEVICES PER LOOP SHALL NOT EXCEED 75% MAXIMUM ALLOWABLE.
2. PLANS ARE BASED UPON THE WIRING SCHEDULE SHOWN. WHERE MANUFACTURER'S REQUIREMENTS EXCEED REQUIREMENTS SHOWN, INCLUDE ADDITIONAL ASSOCIATED COSTS AND SUBMITTAL DRAWINGS INDICATING NEW WIRING CONFIGURATION.
3. PLANS ARE BASED UPON 2 AMPS AT 24 VDC, NOT TO EXCEED 75% (1.50 AMPS AVAILABLE), POWER SUPPLY CAPACITY PER NOTIFICATION CIRCUIT. NOTIFICATION DEVICE LOADS ARE BASED UPON NOTIFICATION DEVICE SCHEDULE SHOWN. INCLUDE ADDITIONAL ASSOCIATED COSTS FOR INCREASED WIRING AND POWER SUPPLY CAPACITY IF LOADS OF ACTUAL DEVICES PROVIDED EXCEED CIRCUIT CAPACITY, OR IF LOAD OUTPUT OF ACTUAL POWER SUPPLIES PROVIDED IS SIZED DIFFERENTLY. PROVIDE SUBMITTAL DRAWINGS SHOWING NEW WIRING CONFIGURATION.
4. FLOW AND TAMPER CONFIGURATION BASED UPON FIRE SPRINKLER DESIGN CONCEPT. FIELD VERIFY ACTUAL REQUIREMENTS. INCLUDE ANY ADDITIONAL MONITOR MODULES REQUIRED BY ACTUAL DESIGN REQUIREMENTS.
5. HEAT DETECTORS WHEN INSTALLED IN ELEVATOR SHAFTS OR MECHANICAL ROOMS FOR ELEVATOR SHUT DOWN SHALL HAVE HEAT DETECTOR WITH LOWER RESPONSE TIME INDEX THAN SPRINKLER HEAD.
6. PROVIDE POWER SUPPLY CAPACITY AS REQUIRED FOR DOOR HOLD OPENS SHOWN.
7. BATTERY CAPACITY TO BE ADEQUATE TO OPERATE 5 MINUTES AFTER 24 HOURS PLUS 25% SPARE CAPACITY.
8. VFD REQUIRES TWO RELAYS, ONE FOR SMOKE CONTROL, ONE SPARE.
9. RUN SPARE LOOPS IN SAME CONDUIT. DO NOT EXCEED 40% AREA FILL OF CONDUITS.
10. PROVIDE DUCT DETECTORS FOR SUPPLY AND RETURN AIR SYSTEMS OVER 2000 CFM. INSTALL DUCT DETECTORS PER NFPA 72 REQUIREMENTS AND PROVIDE ADDITIONAL DUCT DETECTORS DEPENDING UPON FINAL DUCT ARRANGEMENT.
11. PROVIDE DUCT DETECTOR AT EACH FLOOR, PRIOR TO CONNECTION TO A COMMON RETURN AND PRIOR TO RECIRCULATING OR FRESH AIR INLET IN AIR RETURN SYSTEMS OVER 15,000 CFM CAPACITY AND SERVING MORE THAN ONE STORY.
12. PROVIDE MANUAL PULL STATIONS IN BOILER ROOMS AND KITCHENS.
13. PROVIDE ONE YEAR OFF SITE MONITORING INCLUDING ALL INTERFACE DEVICES AND MONITORING CHARGES. COORDINATE WITH BUILDING OWNER'S OFF SITE MONITORING COMPANY.
14. LOCATE SMOKE DETECTORS MINIMUM 3' FROM AIR SUPPLY AND RETURN LOUVERS.
15. PROVIDE SYNCHRONIZED STROBES THROUGHOUT FACILITY. PROVIDE SYNCHRONIZATION MODULES PER MANUFACTURER'S REQUIREMENTS. INCLUDE ADDITIONAL WIRING, IF REQUIRED.
16. INITIATING AND INDICATING LOOPS SHALL NOT SERVE AN AREA OF GREATER THAN 22,500 SQUARE FEET. PROVIDE ADDITIONAL LOOPS FOR AREAS LARGER THAN THIS.
17. ALL OUTPUT DEVICES ARE DESIGNED ON SYSTEMS WITH 2 AMP POWER SUPPLY.
18. HORN/STROBE BASED ON 120 MILLIAMPS, DOOR HOLDERS BASED ON 70 MILLIAMPS.
19. INSTALL DUCT DETECTORS PER NFPA 72 REQUIREMENTS AND PROVIDE ADDITIONAL DUCT DETECTORS DEPENDING UPON FINAL DUCT ARRANGEMENT.

WIRING SCHEDULE

FUNCTION	< 500'	< 1000'	1000'–3000'	> 3000'
ADDRESSABLE LOOP	#18 TSP	#18 TSP	#16 TSP	#14 TSP
POWER LOOP	#14 THWN	#14 THWN	#12 THWN	#10 THWN
SPARE LOOP	#14 THWN	#14 THWN	#12 THWN	#10 THWN
STROBE HORNS	#14 THWN	#14 THWN	#12 THWN	#10 THWN
MAGNETIC DOOR HOLDER	#12 THWN	#10 THWN		
SPEAKERS	#16 TSP	#16 TSP	#14 TSP	#14 TSP

NOTIFICATION SCHEDULE

SYMBOL	STROBE SIZE	COVERAGE	AVERAGE CURRENT	MAXIMUM PER CIRCUIT ALONE
15	15 CD	20'x20'	.085A	17
30	30 CD	30'x30'	.135A	11
75	75 CD	40'x40'	.200A	7
110	110 CD	50'x50'	.225A	6

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SHEET TITLE
FIRE ALARM RISER DIAGRAM

REVISIONS	DATE	BY	DESCRIPTION
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