BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG. 14

DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTER
3200 VINE ST.
CINCINNATI, OHIO 45220

Project # 539-317

JOHN POE ARCHITECTS
ARCHITECTURE PLANNING INTERIOR DESIGN
116 EAST THIRD STREET
DAYTON, OHIO 45402
937.461.3290 P
937.461.0260 F

HEALTH, EDUCATION AND RESEARCH ASSOCIATES, INC., (HERA)
LABORATORY CONSULTANTS
411 N. TENTH STREET - SUITE 400
ST. LOUIS, MO 63101
314.289.9202 P
314.289.6167 F

HEAPY ENGINEERING
MECHANICAL ELECTRICAL COMMISSIONING TECHNOLOGY
1400 WEST DOROTHY LANE
DAYTON, OH 45409
937.224.0861 P
937.224.5777 F

THP LIMITED INC.
STRUCTURAL ENGINEER
100 E. EIGHTH STREET
CINCINNATI, OH 45202
513.241.3222 P
513.241.2981 F

KLEINGERS & ASSOCIATES
CIVIL ENGINEER
6305 CENTRE PARK DR.
WEST CHESTER, OH 45069
513.779.7851 P
513.779.7852 F

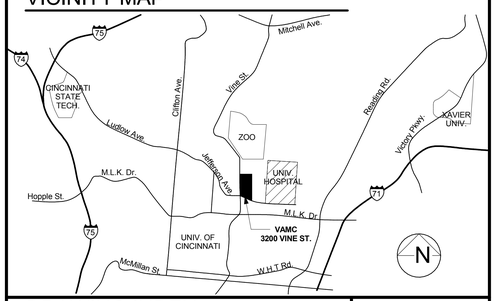
GENERAL CONSTRUCTION NOTES

* PLEASE NOTE THAT THE TERM PROJECT ENGINEER REFERS TO THE CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE.

1. SPRINKLER DESIGN BASED ON FIRE PROTECTION DRAWINGS AND SPECIFICATIONS AS SUBMITTED BY THE M.E.P. ENGINEERS WILL BE SUBJECT TO AN INDEPENDENT REVIEW BY A CERTIFIED REVIEWER. THE FIRE PROTECTION CONTRACTOR IS RESPONSIBLE FOR MAKING ALL ARRANGEMENTS FOR THIS INDEPENDENT REVIEW.
2. ALL WORK SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE OR, NATIONAL CODES,RULES, ORDINANCES AND REGULATIONS INCLUDING THE AMERICAN DISABILITIES ACT (ADA) AND THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) GUIDELINES.
3. IT IS INTENDED THAT THE DOCUMENTS INDICATE A NEW FINISH (I.E. PAINT, ACOUSTIC CEILING, FLOOR TILE, ETC.) ON ALL EXPOSED SURFACES OF THE BUILDING. WHERE A SPECIFIC FINISH IS NOT INDICATED AT ANY GIVEN LOCATION THE CONTRACTOR SHALL PROVIDE THE FINISH INDICATED FOR OTHER SIMILAR SURFACES.
4. THE PROJECT ENGINEER SHALL PROVIDE TEMPORARY ACESS TO SERVICES REQUIRED TO FACILITATE THE WORK INDICATED, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: POWER, LIGHTING, HEAT, AND WATER.
5. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO NOTIFY THE PROJECT ENGINEER OF ANY WORK WHICH MIGHT REQUIRE INTERRUPTION OF UTILITY SERVICES,CAUSE NOISE, OR CREATE VIBRATION. PRIOR TO THE COMMENCEMENT OF THIS WORK,THE CONTRACTOR'S WORK AND SCHEDULE SHALL BE APPROVED AND COORDINATED BEFORE HAND WITH THE PROJECT ENGINEER AND/OR ARCHITECT. SEE GENERAL CONDITIONS FOR FURTHER DETAIL.
6. THE GENERAL CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF THE SPECIFICATIONS, INCLUDING ALL GENERAL CONDITIONS, SUPPLEMENTARY GENERAL CONDITIONS, AND MATERIAL AND CONSTRUCTION PROVISIONS, WHICH APPLY TO MATERIALS OR CONSTRUCTION METHODS REQUIRED BY THIS PROJECT.
7. PRIOR TO BIDDING, THE GENERAL CONTRACTOR SHALL VISIT SITE, EXAMINE, AND ACCEPT ALL EXISTING CONDITIONS. DATES FOR SITE VISITS WILL BE POSTED IN THE SPECIFICATIONS. UNSCHEDULED VISITS WILL NOT BE ALLOWED.
8. DO NOT PAINT ANY CAULKING OR SEALANTS WHICH ARE SUBJECT TO MOVEMENT - CONTROL JOINTS SHALL BE CAULKED AFTER PAINT AND SPECIAL COATING APPLICATIONS. PROVIDE CAULKING OR SEALANTS IN COLORS WHICH MATCH ADJACENT FINISHED SURFACE COLORS.
9. VERIFY ALL CONDITIONS AND DIMENSIONS IN THE FIELD BEFORE FABRICATING ANY MATERIALS.
10. ALL EXISTING CONSTRUCTION TO REMAIN THAT ARE DAMAGED OR DISTURBED DURING CONSTRUCTION SHALL BE PATCHED OR RESTORED AS REQUIRED TO MATCH EXISTING ADJACENT CONSTRUCTION UNLESS OTHERWISE INDICATED. CONTRACTOR TO PATCH AND REPAIR EXISTING CONSTRUCTION REMOVED OR DISTURBED BY WORK UNDER THEIR CONTRACT TO MATCH EXISTING ADJACENT UNLESS OTHERWISE NOTED.
11. IT IS THE INTENT OF THE DOCUMENTS TO INDICATE COMPLETE AND OPERATIONAL SYSTEMS (I.E. STRUCTURAL, HVAC, PLUMBING, ELECTRICAL AND ETC.) THE CONTRACTOR SHALL PROVIDE THE SYSTEMS AS OPERATIONAL SYSTEMS WHICH COMPLY WITH APPLICABLE CODES AND REGULATIONS. THIS NOTE SHALL BE LIMITED TO THE SYSTEMS AS INDICTED BY THE DOCUMENTS AND SHALL NOT INCLUDE CHANGES TO THE SYSTEMS WHICH ALTER INDICATED CAPACITIES, OPERATIONAL CHARACTERISTICS, ETC.
12. THE GENERAL CONTRACTOR SHALL PROVIDE FIRE-RETARDANT TREATED 2X BLOCKING IN THE STUD CAVITY AT ALL LOCATIONS REQUIRED TO PROVIDE SOLID ANCHORAGE OF WALL SUPPORTED ITEMS INDICATED BY THE DRAWINGS, INCLUDING BUT NOT LIMITED TO: GRAB BARS, SHELVING, CABINETS, AND KITCHEN EQUIPMENT. CONTRACTOR'S OPTION TO PROVIDE GALV. 16 GA BY THE DEPTH OF THE WALL METAL STUDS AS BLOCKING UNLESS WOOD BLOCKING IS SPECIFICALLY CALLED FOR BY THE MANUFACTURER.
13. ALL WOOD BLOCKING, MISC. FRAMING, PANELS, ETC THAT ARE TO BE USED SHALL BE FIRE-RETARDANT TREATED.
14. THE GENERAL CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER FOR INFORMATION CONCERNING ALL SIGNAGE WHICH SHALL BE PROVIDED BY THE OWNER, AND SHALL MAKE PROVISIONS FOR INSTALLATION OF SUCH SIGNAGE, INCLUDING VERIFICATION OF DIMENSIONS (ADEQUATE SPACE AT THE DESIRED INSTALLATION LOCATION), AND SHALL BRING ANY CONFLICTS TO THE ATTENTION OF THE PROJECT ENGINEER AND THE ARCHITECT.
15. THE GENERAL CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER TO VERIFY THE SIZES OF ALL EQUIPMENT OR FIXTURES TO BE INSTALLED IN THE BUILDING, AND SHALL MAKE SPECIAL PROVISIONS FOR INSTALLATION OF ANY EQUIPMENT WHICH IS TOO LARGE TO FIT THROUGH A FINISHED OPENING.
16. ALL CONTRACTORS SHALL BE RESPONSIBLE TO PATCH AND REPAIR ALL SURFACES WHERE EXISTING CONSTRUCTION IS REMOVED OR DISTURBED BY WORK UNDER THEIR CONTRACT.
17. THE CONTRACTOR IN CONJUNCTION WITH HIS WORK SHALL BE RESPONSIBLE TO PATCH AND REPAIR ALL EXISTING SUBSTRATES AND FINISHES INCLUDING BUT NOT LIMITED TO EXISTING WALLS, FLOORS, BASES, WAINSCOTS, CEILINGS, WINDOWS, WINDOW TRIM, WOOD WORK, DOORS, FRAMES, ETC. (UNLESS INDICATED OTHERWISE) AND PREPARE AREAS AS REQUIRED FOR NEW CONSTRUCTION FINISHES. WHERE WORK IS PERFORMED AND NO FINISH IS SPECIFICALLY INDICATED THE CONTRACTOR IS RESPONSIBLE TO PATCH,REPAIR AND PAINT TO MATCH ALL EXISTING ADJACENT MATERIALS, FINISH AND PAINT ALL WORK TO PROVIDE A COMPLETE, FINISHED, WORKMANLIKE JOB, ALL SUBJECT TO THE APPROVAL OF THE ARCHITECT.
18. PATCH ALL EXISTING WALLS AND CEILINGS THAT ARE TO REMAIN (EXCEPT WHERE NOTED) AS REQUIRED TO PROVIDE A SOUND BASE FOR NEW FINISHES SUCH AS PAINT, ETC. ALL PATCHING TO MATCH EXISTING ADJACENT SURROUNDING AREAS AND SURFACES.
19. IN ADDITION TO SPECIFIC REQUIREMENTS, THE GENERAL INTENT OF PAINTING AND TRANSPARENT FINISHES IS AS FOLLOWS: WHERE SURFACES ARE INDICATED TO BE PAINTED OR TRANSPARENT FINISH APPLIED, ALL OPENINGS, NEW AND EXISTING,INCLUDING WINDOWS, DOORS, FRAMES, TRIM, BASE, ETC. SHALL BE FINISHED OR REFINISHED IN CONJUNCTION WITH SURROUNDING WORK. WHERE SURFACES ARE NOT INDICATED TO BE PAINTED OR TRANSPARENT FINISH APPLIED IN THIS CONTRACT , ITEMS OF NEW WORK OR REPAIR WORK ONLY SUCH AS WALLS, CEILING, DOORS, FLOORS, WINDOWS, ETC. SHALL BE FINISHED TO MATCH EXISTING ADJACENT FINISHES, EXISTING ADJACENT FINISH SHALL REMAIN. SEE ROOM FINISH SCHEDULE AND DOOR SCHEDULE FOR FINISHES. THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL FINISHES WITH THE ARCHITECT PRIOR TO EXECUTION OF THE WORK.
20. ALL SUSPENDED ITEMS SUCH AS CEILINGS, DUCTS, PIPES, CONDUITS, ETC., SHALL BE SUSPENDED (ATTACHED) DIRECTLY TO STRUC AND SHALL NOT BE ATTACHED OR ANCHORED TO EXISTING PLASTER, ACOUSTIC TILE, ETC.
21. ALL PENETRATIONS SUCH AS NEW OR EXISTING DUCTS, CONDUITS, PIPING, ELECTRICAL OUTLETS, LIGHT SWITCHES, RECESSED DEVICES OR ITEMS, HOLES, VOIDS, CRACKS, ETC. IN ALL EXISTING, MODIFIED AND NEW CORRIDOR WALLS, SMOKE PARTITIONS, AND FLOOR SLABS SHALL BE SEALED TO PREVENT PASSAGE OF ANY SMOKE, FLAME, GASES, ETC.. SEE PLUMBING HVAC, FIRE PROTECTION, ELECTRICAL, ETC. DRAWINGS AND SPECIFICATIONS.
22. WHERE NEW CONSTRUCTION (I.E. DOORS, FRAMES, CASEWORK, EQUIPMENT, ETC.) IS INDICATED TO BE INSTALLED IN EXISTING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS FOR PROPER FIT AND FOR ACCESS INTO THE BUILDING PRIOR TO SHOP DRAWING SUBMITTAL, ORDERING AND DELIVERING TO THE SITE.

Project Seeking LEED Certification.
See Specification Section 01 81 13.

VICINITY MAP



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BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG. 14
FOR:
DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTER
3200 VINE ST
CINCINNATI, OHIO 45220

PRINTING
8/26/10 SD Submittal
11/12/2010 DD Submittal
01/03/2011 100% Owner Review
01/25/2011 Bid Documents
06/21/2011 Revised Bid Docs
09/29/2011 Contracting Review
07/20/2012 Revised Bid Docs

REVISIONS
1 08/17/2012 Addendum #1

GRAPHIC SYMBOLS

	ELEVATION		CEILING HEIGHT/ FINISH DESIGNATION
	SECTION/DETAIL NUMBER DRAWING NUMBER		COLUMN GRID
	NOTE		ROOM NUMBER
	BEARING		WINDOW OPENING
	REVISION		DOOR OPENING

STATE OF OHIO
JOHN A. POE
6696
REGISTERED ARCHITECT

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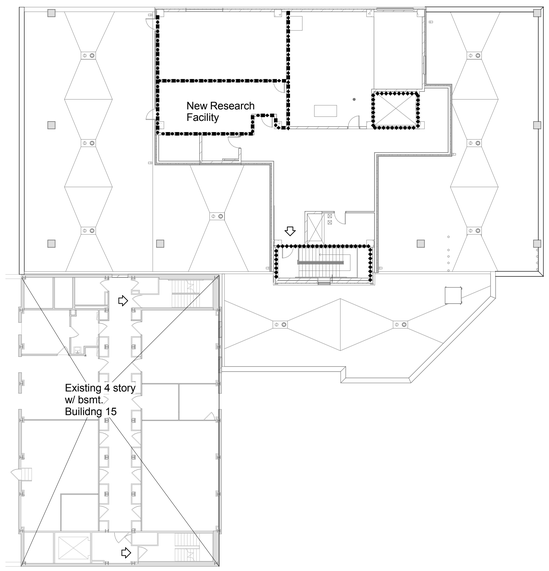
SET NO.

VA PROJECT NO. 539-317
JPA PROJECT NO. 10005.00

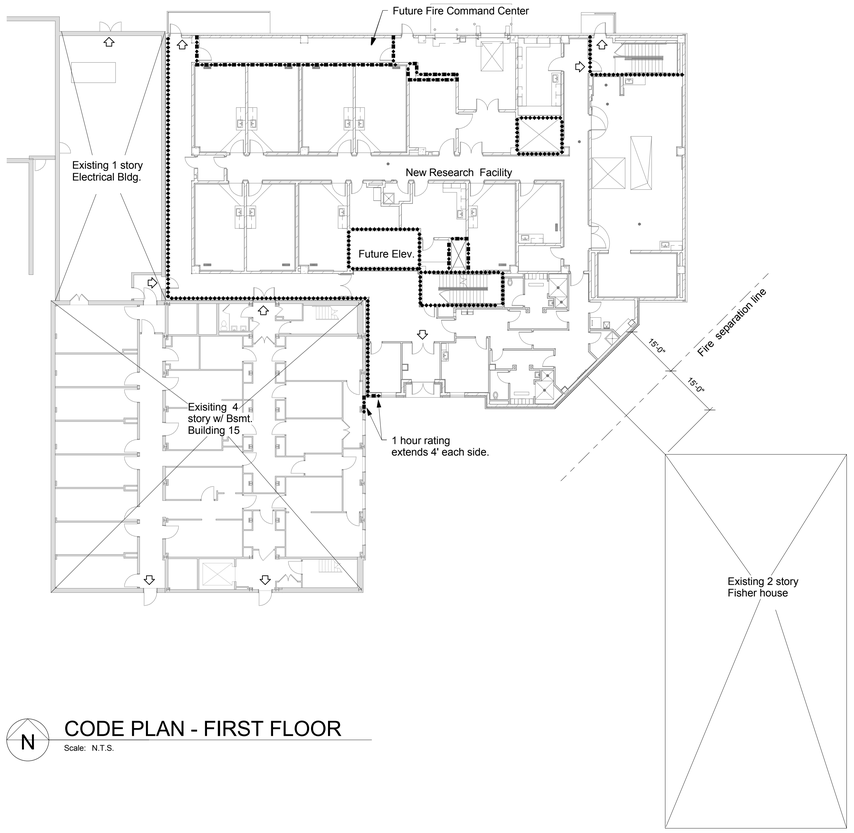
DATE 07/20/2012
REVISED: August 17, 2012

A101



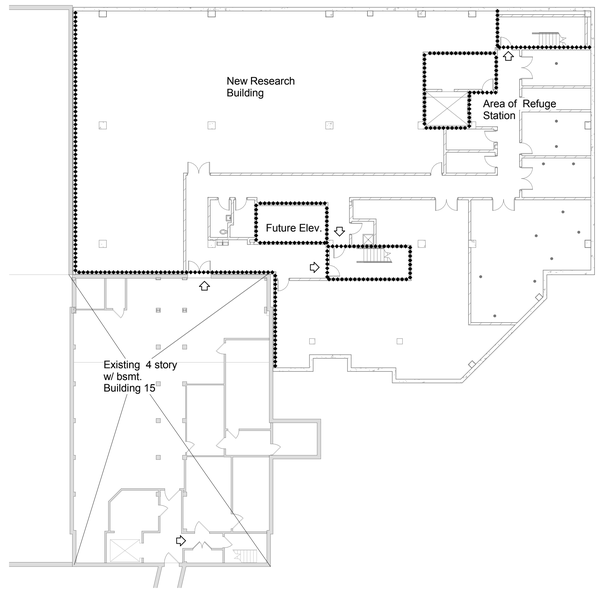
CODE PLAN - SECOND FLOOR

Scale: N.T.S.



CODE PLAN - FIRST FLOOR

Scale: N.T.S.



CODE PLAN - BASEMENT

Scale: N.T.S.

Code notes:

Phase 1 of construction includes work shown on these documents:
Basement, first floor and second floor.
Future phase 2 and 3 are planned to add floors 3-6 above, for a total of 6 stories with basement.

IBC 2009

Table 503 Construction Type IB, Business use allows IB to be
160' tall, 11 stories, unlimited area.

NFPA 5000, Table A.4.1.1, IBC type IB is equivalent to Type II 222.

NFPA 101- 2009 Edition

Table A.8.2.1.2 Fire resistance rating for Type II 222:

Exterior bearing walls	2 hour
Supporting roof only	1 hour
Interior bearing walls	2 hour
Supporting roof only	1 hour
Columns	2 hour
Supporting roof only	2 hour
Beam	2 hour
Supporting roof only	1 hour
Floor/ceiling assemblies	2 hour
Roof/ceiling assemblies	1 hour
Interior non load bearing walls	0 hour
Exterior non load bearing walls	0 hour

Basement is classified as Industrial
First floor is classified business
Second floor is classified industrial

6.1.14.4 Separated occupancies.
Table 6.1.14.4.1 (b)
Industrial to Business 2 hour
6.1.14.4.3 Fire rating from table can be reduced to 1 hour
if protected by sprinkler system.
7.1.3.1 Exit access corridors.Exit access corridors w/ load of over 30 people
shall have a 1 hour fire resistance rating.
(2) Requirement shall not apply where otherwise provided in chapters 11-43.
7.1.3.2.1 Exit to be separated as follows,
(2) Minimum 2 hour where exits connect 4 or more stories. (Building is
planned for future expansion).
(4) 2 hour fire rating shall be constructed of non combustile material and shall
be supported by construction having 2 hour rating.
(7) Openings in separation shall be protected w/ fire rated doors w/ closers.
Table 7.2.2.2.1.2 New stair width, less than 2000 people = 44" wide min.
7.2.12 Area of refuge are provided on the basement and second floors. Entire floors
are concidered the boundaries. Required communication equipment is located
at each floor near the north elevator.
7.2.13 Elevators: north elevator is treated as an evacuation elevator.
Table 7.3.1.2 Occupant load
Basement 12,000 sf (Industrial /100) = 120
First floor 12,000 sf (Business/100) = 120 (actual is less than 50 based on owner letter)
Second floor 10,600 sf (Industrial/100) = 106
7.3.3 Egress capacity
Table 7.3.3.1 Stairways .3" per person, level components .2" per person.
7.5.4.1 Two means of egress required.
7.5.4.1.1 Access within allowable travel idstance shall be provided to not less than one
accessible area of refuge. (one are of refuge will be provided for basement
and 2nd floor).

8.1 Automatic sprinkler system is being provided.
Table 8.3.4.2
Elevator hoistway: 2 hour partitions, 1-1/2 hour door
Stairs: 1 hour minimum, 2 hour actual, 1-1/2" door
8.2.13 If multiple connected blsgs. w/ different construction types, seperate w/ 2 hour
per NFPA 221.
NFPA 221 Chapter 7 Fire Barrier Wall
7.2.1 Continuous from wall to wall/floor to floor.
7.2.5 Structural elements supporting wall shall have a rating not less than the wall.
7.3.1 Opening shall be proposed per 4.8 & 7.3.
7.3.2 Total glazing in door and windows shall not exceed 20% of the wall.
Table 4.8.2 2 hour fire barrier = 1.5 hour door
Fire window assemblies- not permitted.

Chapter 38 Business Occupancy
38.1.7 Occupant load is determined by table 7.3.1.2 or by max probably
population,whichever is greater. Max population on first floor is
less than 50.
38.2.3.2 Clear width of corridor serving more than 50 people shall be 44" min.
38.2.5.2.1 Dead end corridors not to exceed 50' if sprinklered.
38.2.5.3.1 Limit of common path of travel is 100'.
38.2.6.3 Travel distance shall not exceed 300' if sprinklered.
38.3.2.1 Hazardous areas to be protected per 8.7
(8.7.1.1) Protect w/automatic sprinkler
(8.7.1.2) Provide smoke partitions.
38.3.6.1 Corridors not rated because occupied by single tennant.

Chapter 40 Industrial Occupancies
40.1.4.1.1 General industrial occupancy, ordinary and low hazard per 6.2.2.2
40.2.2.13 Area of refuge is permitted.
Table 40.2.5 Dead end corridors 50', Common path of travel 100'.
Table 40.2.6 Max travel distance to exit 250'
40.3.6 Corridors: provisions of 7.1.3.1 shall not apply.

IBC 2009
Table 2902.1 Required Plumbing Fixtures

Business: WC: 1/25 for the first 50, 1/50 for the remainder
Lav: 1/40 for the first 80, 1/80 for remainder
DF: 1/100
Serv. Sink: 1

Industrial: WC: 1/100
Lav: 1/100
DF: 1/400
Serv. Sink: 1

Basement: 120 Occupants, 60 Men, 60 Women: 2 WC required.
The Basement floor will be largely unoccupied at this time.
One Unisex restroom is being provided, with provision for a second
to be added, when the floor is completed for occupancy.

First floor: 120 occupants per code, actually occupancy will be
less than 50 based on letter from owner.
25 Men, 25 Women: 1 WC is provided for each gender.

Second floor: 106 occupants, 53 Men, 53 Women: 2 WC required.
The second floor will be largely unoccupied at this time.
One Unisex restroom is being rpovided, with provisions for a second
to be added, when the floor is completed for occupancy.

CODE LEGEND

1-HR FIRE BARRIER

2-HR FIRE BARRIER

MEANS OF EGRESS

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A. POE
6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS

116 EAST THIRD STREET
DAYTON, OHIO
45402-2130

937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: CODE DATA

Approved: Project Director

Project Title: BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED:
August 17, 2012

Checked: KR

Drawn: NS

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

Drawing Number: A102

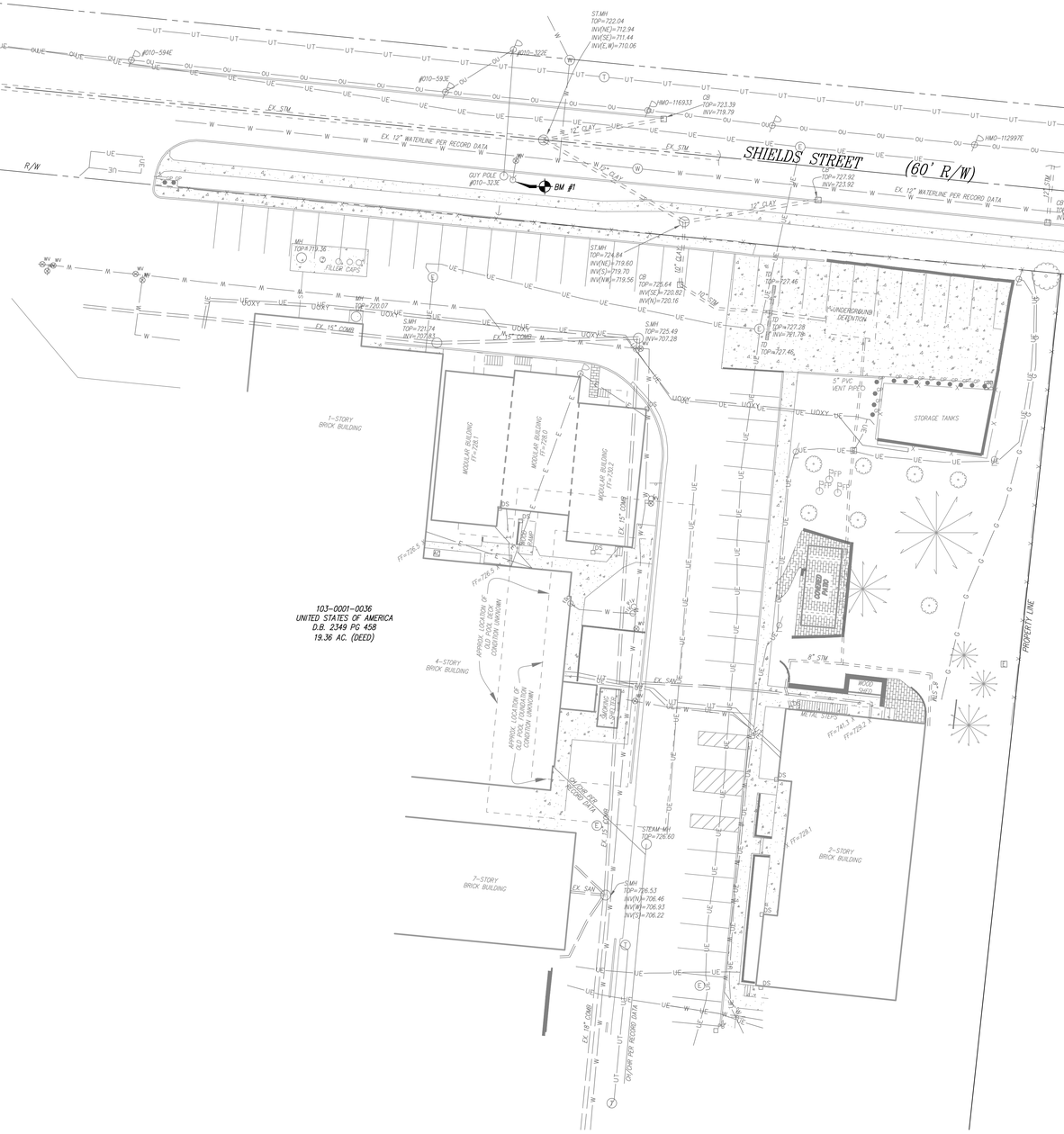
Dwg. of

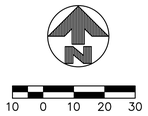
Office of Construction and Facilities Management

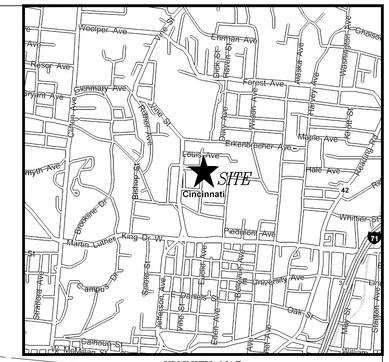
Department of Veterans Affairs

LEGEND

- ELECTRIC BOX
- ELECTRIC MANHOLE
- HVAC UNIT
- PULL BOX
- LAMP POST
- LIGHT POLE
- POWER POLE
- GUY WIRE
- GUARD POST
- SINGLE POST SIGN
- TELEPHONE MANHOLE
- CATCH BASIN
- CURB INLET
- MANHOLE
- DOWNSPOUT
- WATER MANHOLE
- WATER VALVE
- FIRE HYDRANT
- FIRE DEPARTMENT CONNECTOR
- POST INDICATOR VALVE
- SOFTWOOD TREE
- HARDWOOD TREE
- FENCELINE
- WATERLINE
- GASLINE
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND OXYGEN
- UNDERGROUND STEAM
- STORM SEWER
- SANITARY SEWER
- OVERHEAD ELECTRIC
- OVERHEAD TELEPHONE
- OVERHEAD UTILITIES
- ASPHALT AREA
- CONCRETE AREA
- BRICK PAVER AREA






SITE
Cincinnati
Woolper Ave
Dalton Ave
Chase Ave
Forest Ave
Eastern Ave
Maple Ave
Hale Ave
Pedestrian Ave
Martin Luther King Dr W
Calhoun St
Vernon Pl
Stratford Ave
Clifton Ave
Jefferson Ave
Vine St
Walnut St
Main St
Sycamore St
Broadway
Central Pkwy
Reading Rd
Liberty St
Dorsey St
Ludlow Ave
Taft Rd
Dixmyth Ave
Erkenbrecher Ave
Bishop St
Gilbert Ave
Jefferson Ave
Stratford Ave
Clifton Ave
Vernon Pl
Calhoun St
Martin Luther King Dr W
Pedestrian Ave
Hale Ave
Maple Ave
Forest Ave
Eastern Ave
Woolper Ave
Dalton Ave
Chase Ave
Dixmyth Ave
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Liberty St
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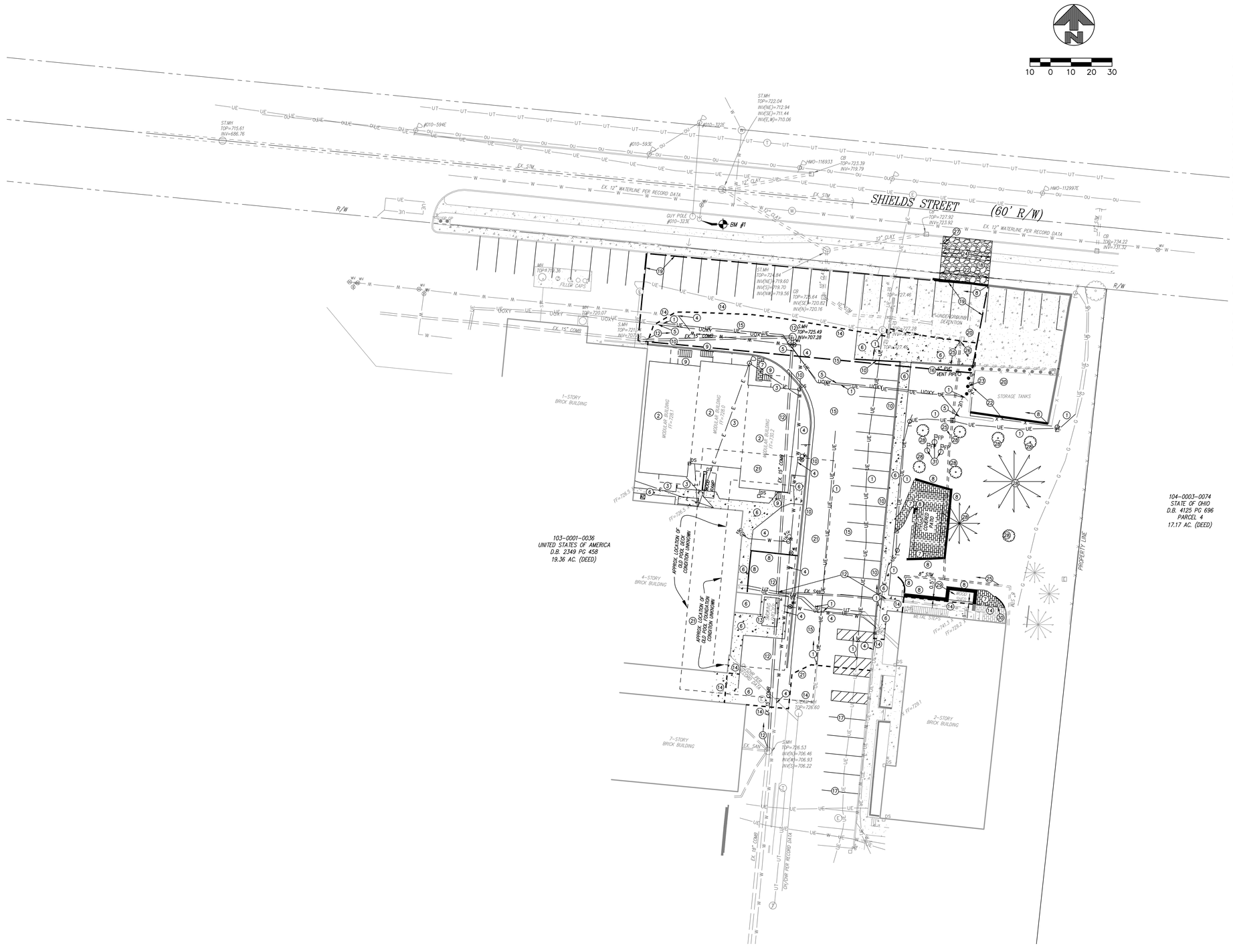
Vine St



DEMOLITION CALLOUTS:

1. REMOVE UNDERGROUND ELECTRIC AND STRUCTURES
2. REMOVE MODULAR BUILDING AND ACCESSORY STRUCTURES (BY OWNER)
3. REMOVE OVERHEAD ELECTRIC AND STRUCTURES
4. REMOVE WATER LINE AND STRUCTURES
5. REMOVE OXYGEN LINE (DETAILS BY HEAPY)
6. REMOVE CONCRETE
7. REMOVE BRICK PAVERS SALVAGE FOR REUSE
8. REMOVE WALL
9. REMOVE STEPS
10. REMOVE CURB OR CURB AND GUTTER
11. REMOVE TREE
12. REMOVE SANITARY SEWER AND STRUCTURES
13. REMOVE/RELOCATE STRUCTURE (BY OWNER)
14. SAWCUT PAVEMENT
15. REMOVE PAVEMENT
16. REMOVE / RELOCATE VENT PIPE
17. REMOVE PAVEMENT MARKINGS
18. TEMPORARY CONSTRUCTION ENTRANCE
19. LAYDOWN AREA
20. MAINTAIN ACCESS TO OXYGEN TANK DURING CONSTRUCTION
21. A SWIMMING POOL IS KNOWN TO HAVE PREVIOUSLY BEEN ON THE SITE. SEE DASHED LINES LOCATED ON THE SITE PLAN. IT IS SUSPECTED THAT SOME OF THE POOL CONCRETE STRUCTURE AND SMALL BUILDING FOUNDATIONS MAY BE ENCOUNTERED DURING EXCAVATION. THE ESTIMATED POTENTIAL QUANTITY OF CONCRETE IS 2,500 CUBIC FEET. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL POOL MATERIALS AND ASSOCIATED UTILITIES AS WELL AS ANY AND ALL OTHER EXISTING MATERIALS ENCOUNTERED WHILE PERFORMING THE WORK WITHIN THE BUILDING SITE AT NO ADDITIONAL COST TO THE OWNER
22. REMOVE FENCE SALVAGE FOR REUSE
23. REMOVE BOLLARDS
24. PROVIDE SIDEWALK CLOSED SIGNAGE EACH DIRECTION FOR PEDESTRIANS. SIDEWALK AND GRASS AREA TO BE BROUGHT TO CURRENT CONDITIONS OR BETTER AFTER CONSTRUCTION.
25. REMOVE STORM SEWER AND STRUCTURES
26. CAP END OF STORM SEWER
27. RELOCATE SIGN
28. RELOCATE TREES PER OWNER'S ON SITE DIRECTION
29. REMOVE WOOD SHED AND UTILITY CLOSET
30. TOUCH UP CORNER OF REMAINING PAVERS FOR FINISH
31. RELOCATE EXISTING FLAG POLES

TEMP CONSTRUCTION ENTRANCE

LAYDOWN AREA

SAWCUT

OHIO Utilities Protection SERVICE
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Revisions		Date
1	ADDENDUM #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
TROY E. MESSER
61265
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

KLEINGERS & ASSOCIATES
6305 Centre Park Drive, West Chester, OH 45069
(513) 779-7851 Fax (513) 779-7852
www.KLEINGERS.com

Drawing Title: DEMOLITION PLAN

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1
10005

Location: Cincinnati, Ohio

Date: 07/20/2012 REVISED 08/17/2012

Drawn: TEM

Checked: PGM

Project No.: VA Project No. 539-317; KA Project No. 100028.001

Building Number: ARC

Drawing Number: C110

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs

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GENERAL NOTES

1. ALL PLANS & CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT "RULES AND REGULATIONS" OF CITY OF CINCINNATI TRANSPORTATION STANDARDS.

2. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH LOCAL, STATE, & FEDERAL REGULATIONS.

3. THE CONTRACTOR IS TO PERFORM ALL INSPECTIONS AS REQUIRED BY THE OHIO EPA FOR THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND FURNISH OWNERS REPRESENTATIVE WITH WRITTEN REPORTS. OWNER WILL OBTAIN PERMITS.

4. ITEM NUMBERS REFER TO THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS, AND ALL CONSTRUCTION WORK SHALL BE DONE ACCORDING TO SAID SPECIFICATIONS AND IN ACCORDANCE WITH APPLICABLE STANDARDS OF THE CITY OF CINCINNATI. WHEN IN CONFLICT, THE CITY REQUIREMENTS SHALL PREVAIL.

5. PROTECTION OF EXISTING TREES AND VEGETATION: PROTECT EXISTING TREES AND OTHER VEGETATION AGAINST UNNECESSARY CUTTING, BREAKING OR SKINNING OF ROOTS, SKINNING OR BRUISING OF BARK, SMOTHERING OF TREES BY STOCKPILING CONSTRUCTION MATERIALS OR EXCAVATED MATERIALS WITHIN DRIP LINE, EXCESS FOOT OR VEHICULAR TRAFFIC, OR PARKING OF VEHICLES WITHIN DRIP LINE. PROVIDE TEMPORARY GUARDS TO PROTECT TREES AND VEGETATION TO BE LEFT STANDING.

6. ALL ELEVATIONS SHOWN ARE FINISHED GRADE ELEVATIONS, UNLESS OTHERWISE NOTED.

7. SUBGRADE EXCAVATION AND CONSTRUCTION TO BE PER GEOTECHNICAL ENGINEERS RECOMMENDATIONS. SUBGRADE PREPARATION SHALL BEGIN BY CLEARING & STRIPPING UNSUITABLE MATERIAL FROM SITE. THEN PLACE & COMPACT BACKFILL MATERIAL AT GEOTECHNICAL ENGINEER'S RECOMMENDATIONS. ALL BACKFILL MATERIAL MUST BE ACCEPTABLE TO THE GEOTECHNICAL ENGINEER.

8. ALL FILL UNDER PAVEMENT SHALL BE COMPACTED TO THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.

9. COMPACTED FILLS ARE TO BE MADE TO A MINIMUM OF THREE FEET ABOVE THE CROWN OF ANY PROPOSED SEWER PRIOR TO CUTTING OF TRENCHES FOR PLACEMENT OF SAID SEWERS. ALL FILLS SHALL BE CONTROLLED, COMPACTED, AND INSPECTED BY AN APPROVED TESTING LABORATORY OR AN INSPECTOR FROM THE APPROPRIATE GOVERNMENTAL AGENCY.

10. ADJUST ALL EXISTING CASTINGS AND CLEANOUTS WITHIN PROJECT AREA TO GRADE AS REQUIRED.

11. CONTRACTOR SHALL IMPLEMENT ALL SOIL AND EROSION CONTROL, PRACTICES REQUIRED BY THE CITY OF CINCINNATI AND THE OHIO EPA.

12. ALL GROUND SURFACE AREAS THAT HAVE BEEN EXPOSED OR LEFT BARE AS A RESULT OF CONSTRUCTION AND ARE TO FINAL GRADE AND ARE TO REMAIN SO, SHALL BE SEEDED AND MULCHED AS SOON AS PRACTICAL IN ACCORDANCE WITH SPECIFICATIONS. IF NO SPECIFICATIONS ARE SUPPLIED USE STATE OF OHIO SPECIFICATIONS ITEM 659.

13. ANY FIELD TILE CUT MUST BE TIED INTO THE STORM DRAINAGE SYSTEM.

14. THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION OR EARTH MOVING OPERATIONS.

15. ALL DIMENSIONS ARE TO THE EDGE OF PAVEMENT AND/OR FACE OF CURB, UNLESS OTHERWISE NOTED.

16. PARKING SPACES ARE 9' x 18' UNLESS OTHERWISE NOTED.

17. ALL DIMENSIONS ARE TO THE OUTSIDE FACE OF BUILDING OR FACE OF CURB, UNLESS OTHERWISE NOTED.

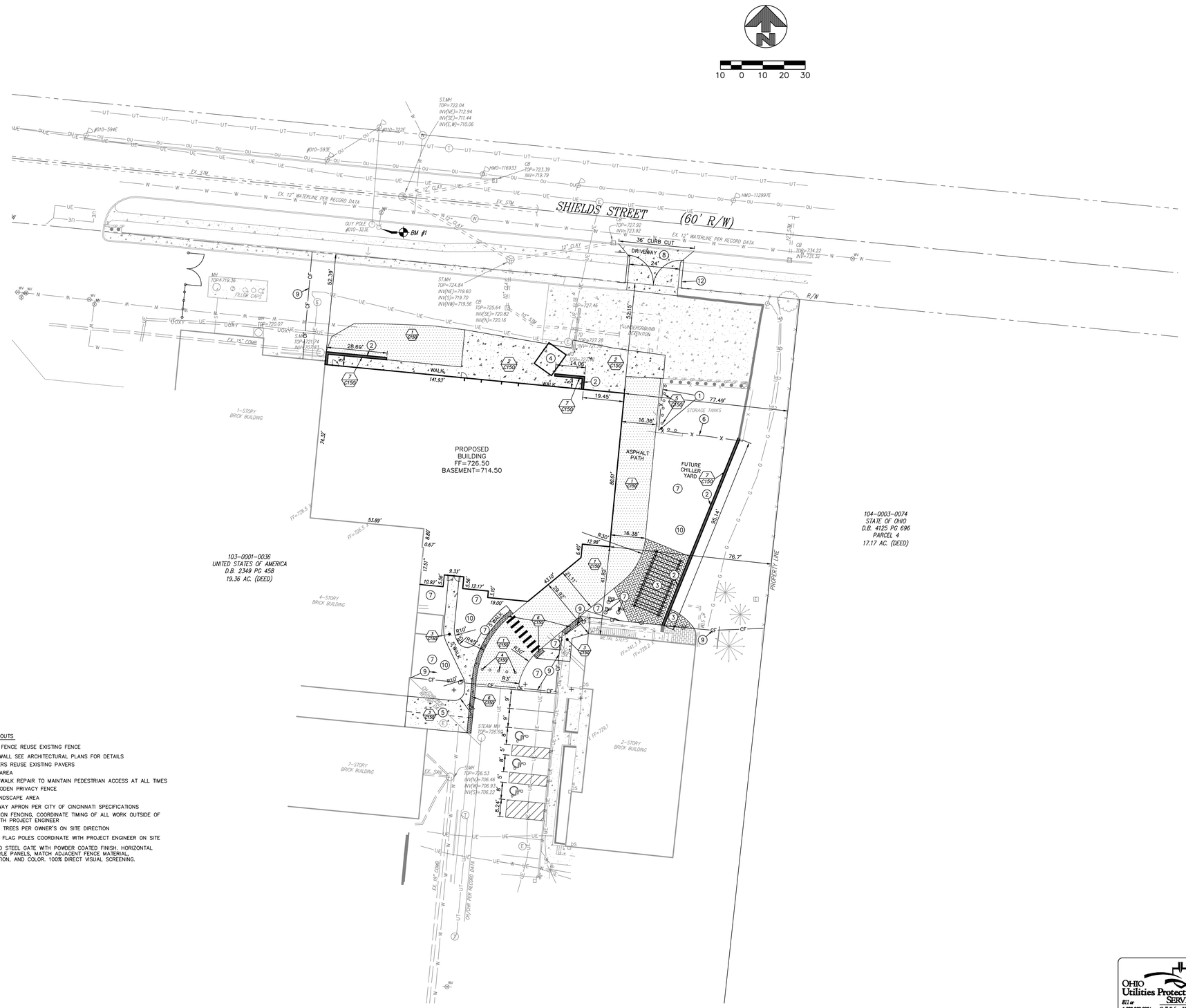
18. FORTY-EIGHT HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTOR SHALL NOTIFY THE OHIO UTILITIES PROTECTION SERVICE, AND ALL OTHER AGENCIES WHICH MAY HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NON-MEMBERS OF THE OHIO UTILITIES PROTECTION SERVICE.

19. EXISTING UNDERGROUND UTILITIES AND SERVICES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ACCORDING TO THE BEST INFORMATION AVAILABLE. THE LOCATIONS SHOWN ARE INTENDED ONLY AS A GUIDE AND CANNOT BE GUARANTEED ACCURATE. THE SUB CONTRACTOR SHALL BE RESPONSIBLE FOR:
   - A. CONTACTING THE INDIVIDUAL UTILITY OWNERS TEN DAYS PRIOR TO CONSTRUCTION AND ADVISING THEM OF THE WORK TO TAKE PLACE.
   - B. SOLICITING THEIR AID IN LOCATING AND PROTECTING ANY UTILITY WHICH MAY INTERFERE WITH CONSTRUCTION.
   - C. EXCAVATING AND VERIFYING THE HORIZONTAL AND VERTICAL LOCATION OF EACH UTILITY.
   - D. ALL DAMAGE TO ANY EXISTING UTILITY.

20. PROVIDE REQUIRED CONSTRUCTION ACTIVITY POLLUTION PREVENTION TO MEET USGBC REQUIREMENTS FOR SUSTAINABLE SITES PREREQUISITE 1.

PAVEMENT LEGEND

- STANDARD DUTY ASPHALT — 1/C150
- CONCRETE PAVING (REFER TO DETAIL) — 2/C150
- BRICK PAVERS



LOCATION CALLOUTS

1. CHAIN LINK FENCE REUSE EXISTING FENCE
2. CONCRETE WALL SEE ARCHITECTURAL PLANS FOR DETAILS
3. BRICK PAVERS REUSE EXISTING PAVERS
4. DUMPSTER AREA
5. PHASE SIDEWALK REPAIR TO MAINTAIN PEDESTRIAN ACCESS AT ALL TIMES
6. 8' TALL WOODEN PRIVACY FENCE
7. GRASS/ LANDSCAPE AREA
8. NEW DRIVEWAY APRON PER CITY OF CINCINNATI SPECIFICATIONS
9. CONSTRUCTION FENCING, COORDINATE TIMING OF ALL WORK OUTSIDE OF BARRIER WITH PROJECT ENGINEER
10. RELOCATED TREES PER OWNER'S ON SITE DIRECTION
11. RELOCATED FLAG POLES COORDINATE WITH PROJECT ENGINEER ON SITE
12. GALVANIZED STEEL GATE WITH POWDER COATED FINISH. HORIZONTAL LOUVER STYLE PANELS, MATCH ADJACENT FENCE MATERIAL, CONFIGURATION, AND COLOR. 100% DIRECT VISUAL SCREENING.

OHIO Utilities Protection SERVICE 811 or 1-800-362-2764 Call Before You Dig

Revisions		Date
1	ADDENDUM #1	08/17/2012

CONSULTANTS:

STATE OF OHIO — TROY E. MESSER 61265 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

KLEINGERS & ASSOCIATES
6305 Centre Park Drive, West Chester, OH 45069
(513) 779-7851 Fax (513) 779-7852
www.KLEINGERS.com

Drawing Title: LOCATION PLAN

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1
10005

Location: Cincinnati, Ohio

Date: 07/20/2012 REVISED 08/17/2012 | Checked: TEM | Drawn: PGM

Project No.: VA Project No. 539-317; KA Project No. 100028.001

Building Number: ARC

Drawing Number: C120

Office of Construction and Facilities Management

Department of Veterans Affairs

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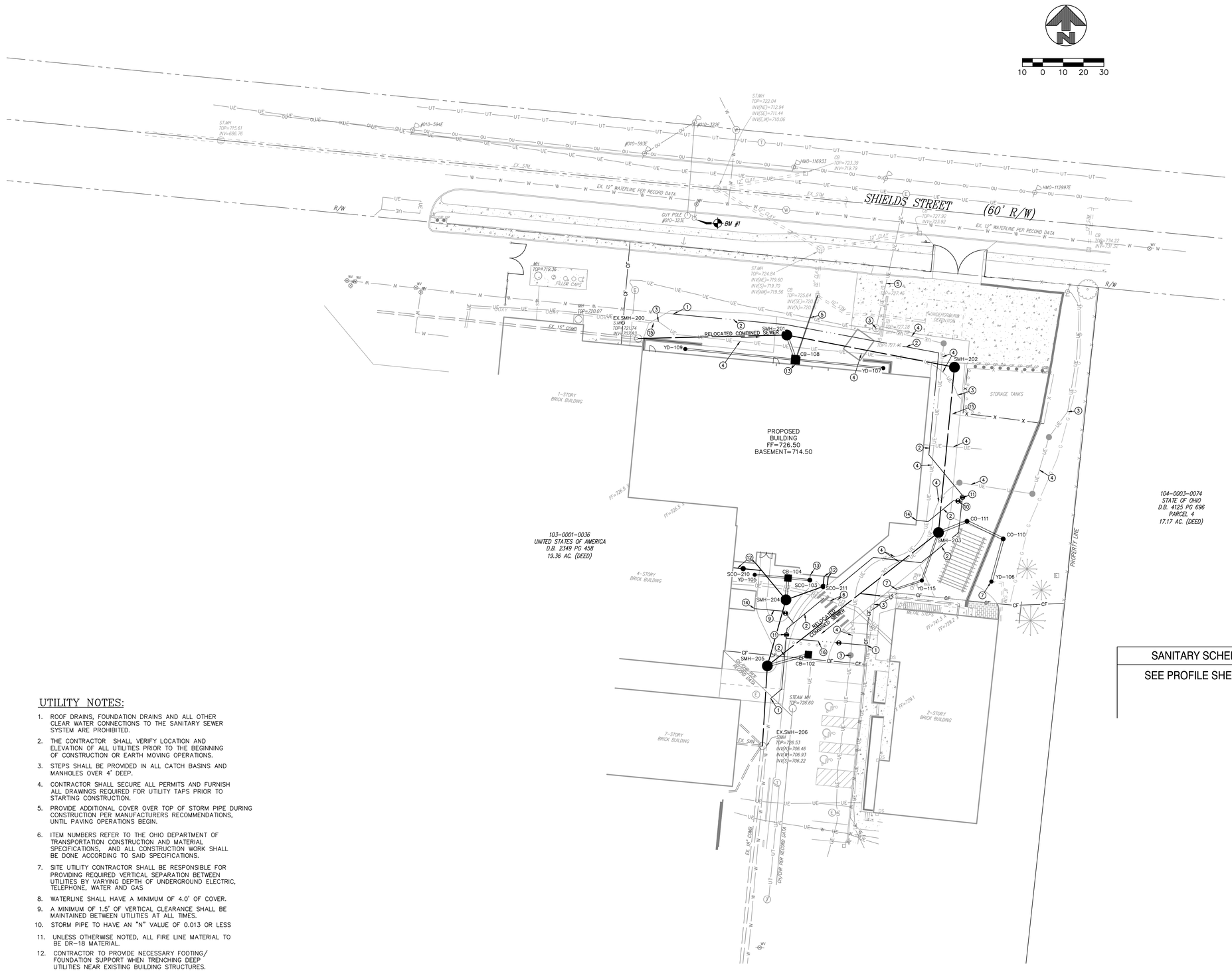

UTILITY CALLOUTS:

1. CONNECT TO EXISTING WATER MAIN PROVIDE NECESSARY REDUCING OR OTHER FITTINGS
2. 8" WATER MAIN
3. CONNECT TO EXISTING UNDERGROUND ELECTRIC COORDINATE WITH ELECTRICAL PLANS
4. UNDERGROUND ELECTRIC COORDINATE WITH ELECTRICAL PLANS
5. GREAT CARE TO BE TAKEN WHEN WORKING AROUND THE EXISTING ELECTRIC. ELECTRIC IS TO REMAIN INTACT AND OPERATIONAL DURING CONSTRUCTION
6. REMOVE AND REPLACE UNDERGROUND ELECTRIC AND TELEPHONE AS NECESSARY TO INSTALL OTHER UTILITES
7. CONNECT TO EXISTING ROOF DRAIN LEADER FIELD VERIFY LOCATION AND DEPTH
8. --NOT USED--
9. TEMPORARY 4" WATER SERVICE AND VALVE COORDINATE WITH MECHANICAL PLANS
10. POST INDICATOR VALVE
11. 8" WATER VALVE
12. CONNECT TO SANITARY COORDINATE WITH MECHANICAL DRAWINGS
13. CONNECT TO STORM COORDINATE WITH MECHANICAL DRAWINGS
14. CONNECT TO WATER COORDINATE WITH MECHANICAL DRAWINGS
15. UNDERGROUND OXYGEN LINE COORDINATE WITH MECHANICAL DRAWINGS
16. PROP WATER SIZE TO MATCH EXISTING WATER SIZE ALONG WEST SIDE OF FISHER HOUSE

SANITARY SCHEDULE	STORM SCHEDULE
SEE PROFILE SHEET C131	SEE PROFILES SHEET C131

UTILITY NOTES:

1. ROOF DRAINS, FOUNDATION DRAINS AND ALL OTHER CLEAR WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.
2. THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION OR EARTH MOVING OPERATIONS.
3. STEPS SHALL BE PROVIDED IN ALL CATCH BASINS AND MANHOLES OVER 4' DEEP.
4. CONTRACTOR SHALL SECURE ALL PERMITS AND FURNISH ALL DRAWINGS REQUIRED FOR UTILITY TAPS PRIOR TO STARTING CONSTRUCTION.
5. PROVIDE ADDITIONAL COVER OVER TOP OF STORM PIPE DURING CONSTRUCTION PER MANUFACTURERS RECOMMENDATIONS, UNTIL PAVING OPERATIONS BEGIN.
6. ITEM NUMBERS REFER TO THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS, AND ALL CONSTRUCTION WORK SHALL BE DONE ACCORDING TO SAID SPECIFICATIONS.
7. SITE UTILITY CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING REQUIRED VERTICAL SEPARATION BETWEEN UTILITIES BY VARYING DEPTH OF UNDERGROUND ELECTRIC, TELEPHONE, WATER AND GAS
8. WATERLINE SHALL HAVE A MINIMUM OF 4.0' OF COVER.
9. A MINIMUM OF 1.5' OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN UTILITIES AT ALL TIMES.
10. STORM PIPE TO HAVE AN "N" VALUE OF 0.013 OR LESS
11. UNLESS OTHERWISE NOTED, ALL FIRE LINE MATERIAL TO BE DR-18 MATERIAL.
12. CONTRACTOR TO PROVIDE NECESSARY FOOTING/ FOUNDATION SUPPORT WHEN TRENCHING DEEP UTILITIES NEAR EXISTING BUILDING STRUCTURES.

OHIO Utilities Protection SERVICE
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Revisions		Date
1	ADDENDUM #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
TROY E. MESSER
61265
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

KLEINGERS & ASSOCIATES
6305 Centre Park Drive, West Chester, OH 45069
(513) 779-7851 Fax (513) 779-7852
www.KLEINGERS.com

Drawing Title: UTILITY PLAN

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1
10005

Location: Cincinnati, Ohio

Date: 07/20/2012 REVISED 08/17/2012

Reviewed: TEM

Drawn: PGM

Project No.: VA Project No. 539-317; KA Project No. 100028.001

Building Number: ARC

Drawing Number: C130

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Department of Veterans Affairs

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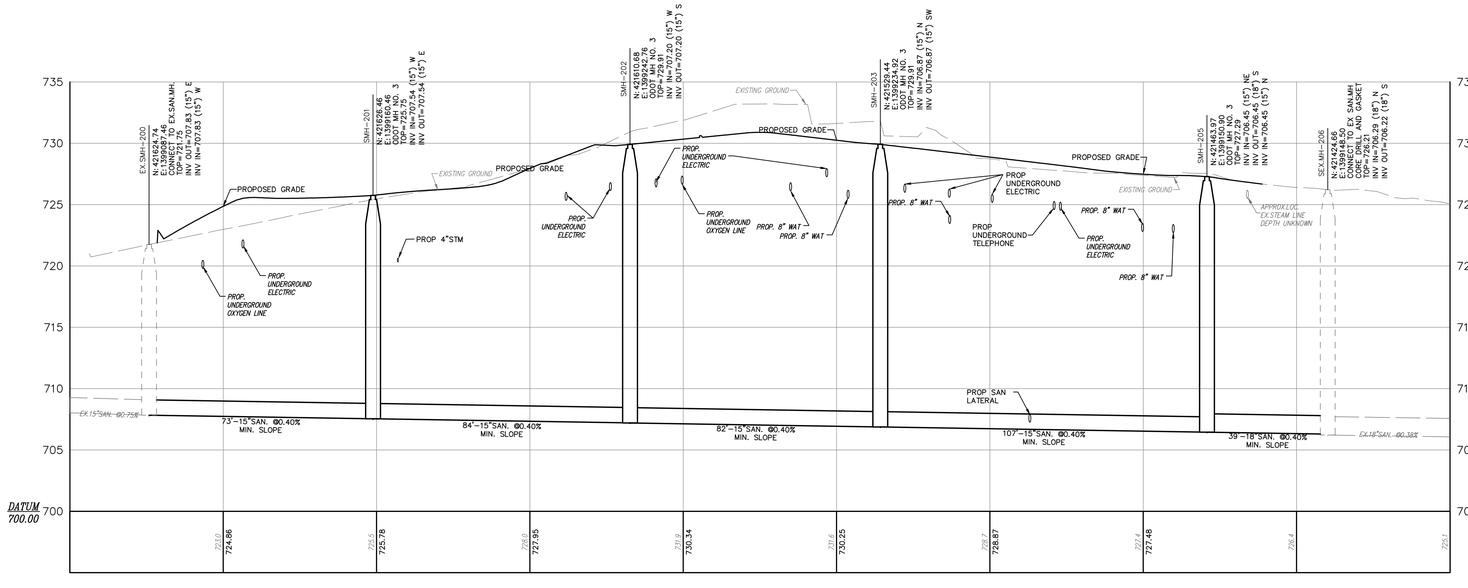
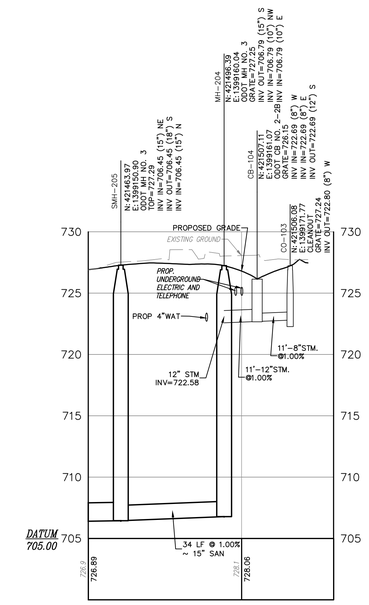


EX.SMH-200 TO EX.SMH-206



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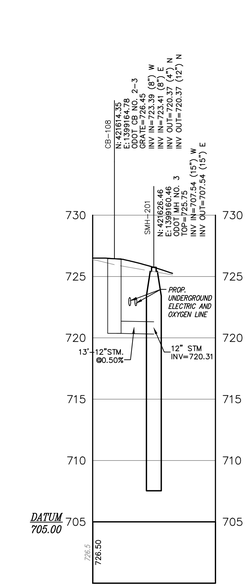

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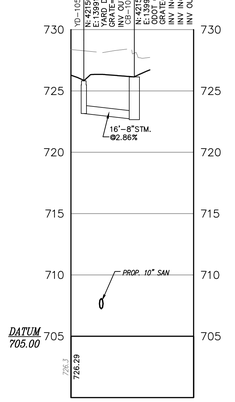
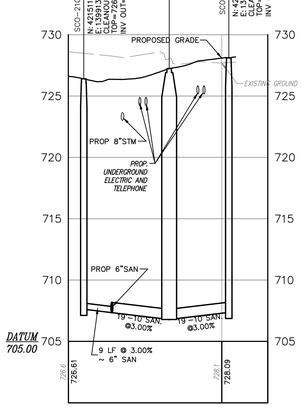


YD-105 TO CB-104



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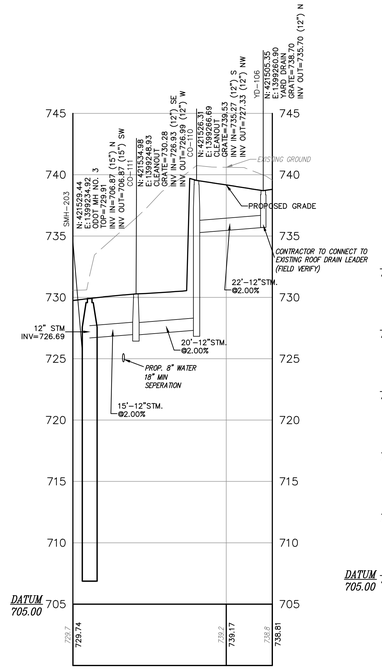

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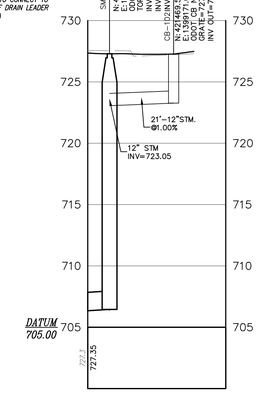

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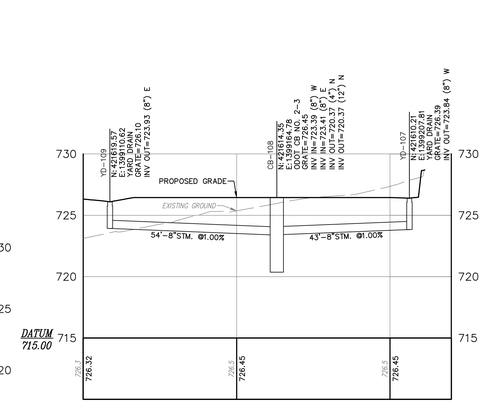

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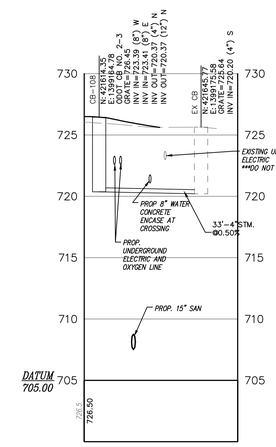
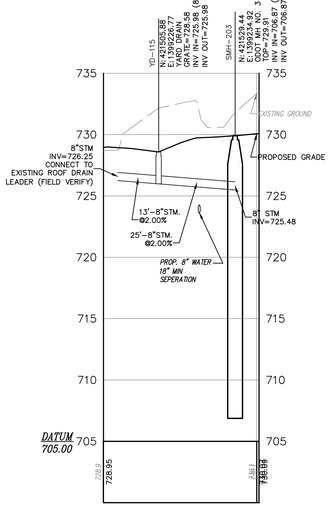


CB-108 TO EXISTING



YD-115 TO SMH-203

UTILITY NOTES:

1. PIPE LENGTHS ARE FROM CENTER OF STRUCTURE, CONTRACTOR IS RESPONSIBLE FOR FIELD CUT LENGTHS.

SCALE: HOR. 1"=20'
VER. 1"=5'

Revisions		Date
1	ADDENDUM #1	08/17/2012

CONSULTANTS:

STATE OF OHIO — TROY E. MESSER 61265 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:
KLEINGERS & ASSOCIATES
6305 Centre Park Drive, West Chester, OH 45069
(513) 779-7851 Fax (513) 779-7852
www.KLEINGERS.com

Drawing Title: PROFILE SHEET

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1
10005

Location: Cincinnati, Ohio

Date: 07/20/2012 REVISED 08/17/2012 | Checked: TEM | Drawn: PGM

Project No.: VA Project No. 539-317; KA Project No. 100028.001

Drafting Number: ARC

Drawing Number: C131

Office of Construction and Facilities Management
Department of Veterans Affairs

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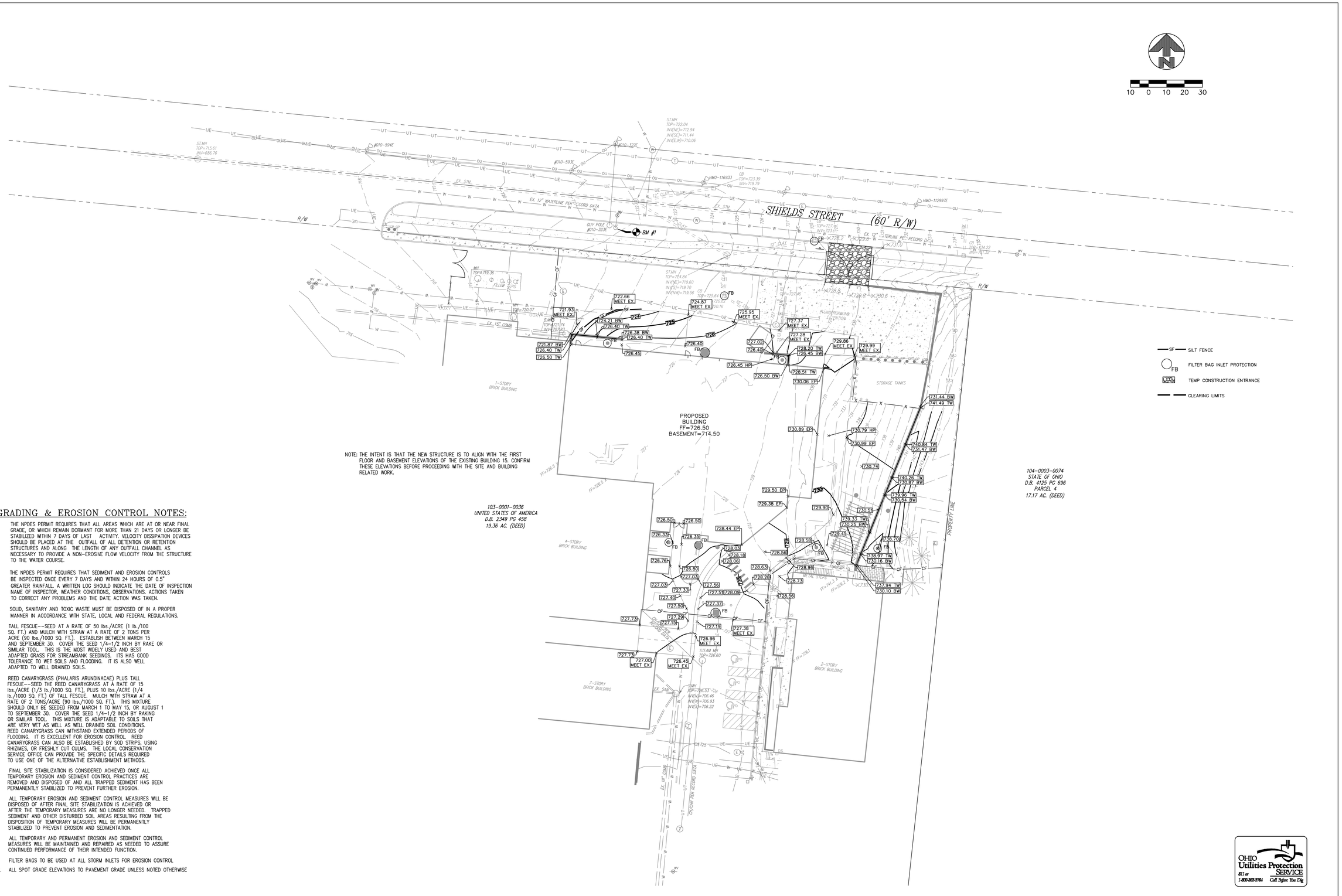

NOTE: THE INTENT IS THAT THE NEW STRUCTURE IS TO ALIGN WITH THE FIRST FLOOR AND BASEMENT ELEVATIONS OF THE EXISTING BUILDING 15. CONFIRM THESE ELEVATIONS BEFORE PROCEEDING WITH THE SITE AND BUILDING RELATED WORK.

GRADING & EROSION CONTROL NOTES:

1. THE NPDES PERMIT REQUIRES THAT ALL AREAS WHICH ARE AT OR NEAR FINAL GRADE, OR WHICH REMAIN DORMANT FOR MORE THAN 21 DAYS OR LONGER BE STABILIZED WITHIN 7 DAYS OF LAST ACTIVITY. VELOCITY DISSIPATION DEVICES SHOULD BE PLACED AT THE OUTFALL OF ALL DETENTION OR RETENTION STRUCTURES AND ALONG THE LENGTH OF ANY OUTFALL CHANNEL AS NECESSARY TO PROVIDE A NON-EROSIVE FLOW VELOCITY FROM THE STRUCTURE TO THE WATER COURSE.

2. THE NPDES PERMIT REQUIRES THAT SEDIMENT AND EROSION CONTROLS BE INSPECTED ONCE EVERY 7 DAYS AND WITHIN 24 HOURS OF 0.5" GREATER RAINFALL. A WRITTEN LOG SHOULD INDICATE THE DATE OF INSPECTION NAME OF INSPECTOR, WEATHER CONDITIONS, OBSERVATIONS. ACTIONS TAKEN TO CORRECT ANY PROBLEMS AND THE DATE ACTION WAS TAKEN.

3. SOLID, SANITARY AND TOXIC WASTE MUST BE DISPOSED OF IN A PROPER MANNER IN ACCORDANCE WITH STATE, LOCAL AND FEDERAL REGULATIONS.

4. TALL FESCUE--SEED AT A RATE OF 50 lbs./ACRE (1 lb./100 SQ. FT.) AND MULCH WITH STRAW AT A RATE OF 2 TONS PER ACRE (90 lbs./1000 SQ. FT.). ESTABLISH BETWEEN MARCH 15 AND SEPTEMBER 30. COVER THE SEED 1/4-1/2 INCH BY RAKE OR SIMILAR TOOL. THIS IS THE MOST WIDELY USED AND BEST ADAPTED GRASS FOR STREAMBANK SEEDINGS. ITS HAS GOOD TOLERANCE TO WET SOILS AND FLOODING. IT IS ALSO WELL ADAPTED TO WELL DRAINED SOILS.

5. REED CANARYGRASS (PHALARIS ARUNDINACAE) PLUS TALL FESCUE--SEED THE REED CANARYGRASS AT A RATE OF 15 lbs./ACRE (1/3 lb./1000 SQ. FT.), PLUS 10 lbs./ACRE (1/4 lb./1000 SQ. FT.) OF TALL FESCUE. MULCH WITH STRAW AT A RATE OF 2 TONS/ACRE (90 lbs./1000 SQ. FT.). THIS MIXTURE SHOULD ONLY BE SEEDED FROM MARCH 1 TO MAY 15, OR AUGUST 1 TO SEPTEMBER 30. COVER THE SEED 1/4-1/2 INCH BY RAKING OR SIMILAR TOOL. THIS MIXTURE IS ADAPTABLE TO SOILS THAT ARE VERY WET AS WELL AS WELL DRAINED SOIL CONDITIONS. REED CANARYGRASS CAN WITHSTAND EXTENDED PERIODS OF FLOODING. IT IS EXCELLENT FOR EROSION CONTROL. REED CANARYGRASS CAN ALSO BE ESTABLISHED BY SOD STRIPS, USING RHIZIMES, OR FRESHLY CUT CULMS. THE LOCAL CONSERVATION SERVICE OFFICE CAN PROVIDE THE SPECIFIC DETAILS REQUIRED TO USE ONE OF THE ALTERNATIVE ESTABLISHMENT METHODS.

6. FINAL SITE STABILIZATION IS CONSIDERED ACHIEVED ONCE ALL TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES ARE REMOVED AND DISPOSED OF AND ALL TRAPPED SEDIMENT HAS BEEN PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION.

7. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES WILL BE DISPOSED OF AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND OTHER DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES WILL BE PERMANENTLY STABILIZED TO PREVENT EROSION AND SEDIMENTATION.

8. ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURES WILL BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION.

9. FILTER BAGS TO BE USED AT ALL STORM INLETS FOR EROSION CONTROL

10. ALL SPOT GRADE ELEVATIONS TO PAVEMENT GRADE UNLESS NOTED OTHERWISE

OHIO Utilities Protection SERVICE
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Revisions		Date
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STATE OF OHIO
TROY E. MESSER
61265
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

KLEINGERS & ASSOCIATES
6305 Centre Park Drive, West Chester, OH 45069
(513) 779-7851 Fax (513) 779-7852
www.KLEINGERS.com

Drawing Title: GRADING PLAN

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1
10005

Location: Cincinnati, Ohio

Date: 07/20/2012 REVISED 08/17/2012
Designer: TEM
Drawn: PGM

Project No.: VA Project No. 539-317; KA Project No. 100028.001

Building Number: ARC

Drawing Number: C140
Seq. of

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Department of Veterans Affairs

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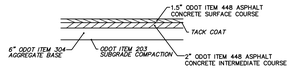
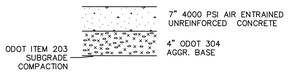
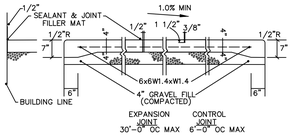


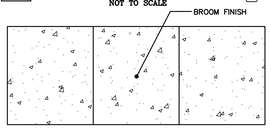
STANDARD DUTY ASPHALT PAVEMENT (1 / C150)
NOT TO SCALE



CONCRETE PAVEMENT DETAIL (2 / C150)
NOT TO SCALE

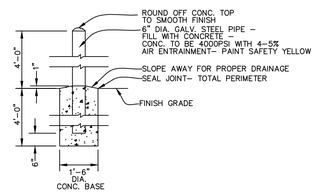


EXTERIOR CONCRETE SIDEWALK (3 / C150)
NOT TO SCALE

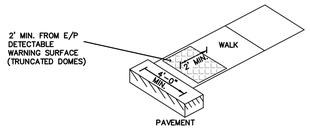


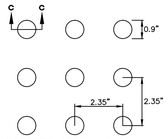
NOTE: MUST HAVE BROOM FINISH
EXPANSION JOINT 30'-0" OC MAX
CONTROL JOINT 6'-0" OC MAX

EXTERIOR CONCRETE SIDEWALK PLAN VIEW
NOT TO SCALE

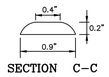


TYPICAL PIPE BOLLARD (4 / C150)
NOT TO SCALE





TRUNCATED DOME PLAN VIEW



SECTION C–C

NOTES:

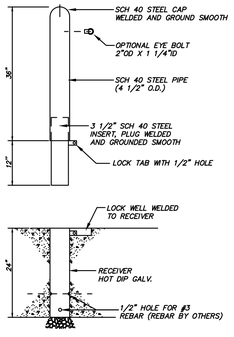
1.) CURB RAMPS SHALL CONFORM TO THE LATEST ADA REQUIREMENTS & DETAILS.

2.) DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT ON DARK OR DARK ON LIGHT.

3.) THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.

4.) TRUNCATED DOMES SHALL BE USED ON ALL CURB RAMPS.

TRUNCATED DOMES (6 / C150)
NOT TO SCALE



MATERIAL:

4" SCH. 40 PIPE (4.5" OD) BOLLARD WITH SCH. 40 STEEL CAP WELDED AND GROUND SMOOTH. 3.5" SCH. 40 INSERT WELDED AND GROUND SMOOTH

PROTECTIVE COATINGS:

METAL: ALL METAL ELEMENTS, FOLLOWING FABRICATION SHALL BE CLEANED AND TREATED WITH A FIVE STAGE IRON PHOSPHATE PROCESS PRIOR TO THE COATING APPLICATION. THIS PROCESS SHALL INCLUDE A NON–CHROMATED ALKALINE CLEANER, AND AN IRON PHOSPHATE TREATMENT FOLLOWED WITH AN ACIDIC SEALER FOR MAXIMUM ADHESION. THE PROTECTIVE COATINGS SHALL BE POLYESTER OR POLYESTER TGIC POWDER APPLIED BY THE DRY ELECTROSTATIC PROCESS. FOLLOWING APPLICATION, THE PARTS SHALL BE BAKED AT 350° TO 400°F AND MAINTAINED AT THAT TEMPERATURE UNTIL PROPERLY CURED. THE COATING SHALL BE A MINIMUM OF 4 MILS THICK ON ALL SURFACES.

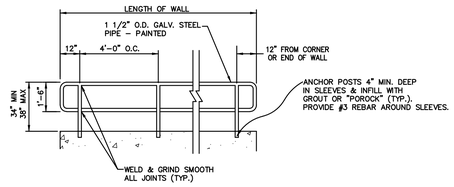
HOT DIP GALVANIZING: FOLLOWING FABRICATION, THE RECEIVERS SHALL BE HOT DIP GALVANIZED TO STANDARD ASTM A123, 3 TO 4 MILS THICK.

INSTALLATION:

INSTALL BOLLARD RECEIVER WITH TOP LEVEL WITH FINISH GRADE. 1/2" HOLES ARE PROVIDED FOR #3 REBAR IF REQUIRED. REBAR BY OTHERS. PLACE A ROCK POCKET AT THE BASE OF THE RECEIVER FOR DRAINAGE.

NOTE: DEPTH AND DIAMETER OF HOLE FOR RECEIVER MAY VARY WITH SOIL CONDITIONS. CONSULT PROJECT ENGINEER FOR CORRECT DIMENSIONS.

REMOVABLE BOLLARD (4 / C150)
NOT TO SCALE



HAND RAIL DETAIL (7 / C150)
NOT TO SCALE

Revisions		Date
1	ADDENDUM #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
TROY E. MESSER
61265
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

KLEINGERS & ASSOCIATES
6305 Centre Park Drive, West Chester, OH 45069
(513) 779-7851 Fax (513) 779-7852
www.KLEINGERS.com

Drawing Title: DETAIL SHEET

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1
10005

Location: Cincinnati, Ohio

Date: 07/20/2012 REVISED 08/17/2012
Designer: TEM
Drawn: PGM

Project No.: VA Project No. 539-317; KA Project No. 100028.001
Building Number: ARC
Drawing Number: C150
Dwg. of

Office of Construction and Facilities Management
Department of Veterans Affairs

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1. **DESCRIPTION OF CONSTRUCTION:**
SITE WITH MULTI-STORY RESEARCH LABORATORY WITH SANITARY SEWER, STORM SEWERS, WATERLINES AND OTHER RELATED UTILITIES. SOIL DISTURBING ACTIVITIES WILL INCLUDE: CLEARING AND GRUBBING INSTALLATION OF EROSION AND SEDIMENT CONTROLS, GRADING, INSTALLATION OF THE SEWERS AND OTHER UTILITIES, INSTALLATION OF THE CURB AND THE PREPARATION FOR FINAL SEEDING.

2. **AREA AFFECTED BY CONSTRUCTION:**
0.60 ACRES

3. **EXISTING SOIL DATA:**
RtC– Rossmoyne–Urban land complex, 8 to 15 percent slopes

4. **RECEIVING WATERS:**
UNNAMED TRIBUTARY TO THE OHIO RIVER

5. **POTENTIAL POLLUTION SOURCES:**
THE MAIN POSSIBLE SOURCE OF POLLUTION WOULD COME FROM ANY OF THE SOIL DISTURBING ACTIVITIES DESCRIBED IN ITEM NO. 1.

6. **RUNOFF CURVE NUMBERS**

PREDEVELOPED CASE	POSTDEVELOPED CASE
CN: 76	ONSITE CN: 90

7. **PROJECT SCHEDULE**
ESTIMATED START DATE: MARCH 2011
ESTIMATED COMPLETION DATE: MARCH 2012

GENERAL CONSTRUCTION SEQUENCE *
A. INSTALL SEDIMENT CONTROL MEASURES
B. PRESERVE AND PROTECT EXISTING VEGETATION
C. INSTALL STORM WATER MANAGEMENT MEASURES
D. CONSTRUCT SITE UTILITIES
E. GRADE SITE / STOCKPILE TOPSOIL
F. TEMPORARY VEGETATIVE STABILIZATION OF CONTROL MEASURES
G. VEGETATIVE COVER ON ALL AREAS TO BE EXPOSED LONGER THAN 21 DAYS
H. INSTALL ROAD AND PARKING SUBGRADE
I. SURFACE ROADS AND PARKING
J. PERMANENT VEGETATIVE STABILIZATION

* TO BE FOLLOWED IN GENERAL ORDER FOR BEST MANAGEMENT PRACTICE, PRACTICE SOME INDIVIDUAL SITE CONSTRUCTION MAY NOT ALLOW FOR EXACT SEQUENCE.

8. **CONTROL MEASURES FOR STORM WATER RUNOFF, EROSION AND SEDIMENT:**

PROVIDE REQUIRED CONSTRUCTION ACTIVITY POLLUTION PREVENTION TO MEET USGBC REQUIREMENTS FOR SUSTAINABLE SITES PREREQUISITE 1.

STABILIZATION OF DENUDED AREAS AND SOIL STOCKPILES

PERMANENT OR TEMPORARY SOIL STABILIZATION WILL BE APPLIED TO DENUDED AREAS WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. SOIL STABILIZATION WILL ALSO BE APPLIED TO DENUDED AREAS WHICH MAY NOT BE AT FINAL GRADE BUT WILL REMAIN UNDISTURBED FOR MORE THAN 45 DAYS. APPLICABLE PRACTICES INCLUDE VEGETATIVE ESTABLISHMENT, MULCHING, AND THE EARLY APPLICATION OF GRAVEL BASE ON AREAS TO BE PAVED. SOIL STABILIZATION MEASURES WILL BE SELECTED TO BE APPROPRIATE FOR THE TIME OF YEAR, SITE CONDITIONS, AND ESTIMATED DURATION OF USE. SOIL STOCKPILES WILL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES TO PREVENT SOIL LOSS.

ESTABLISHMENT OF PERMANENT VEGETATION

A PERMANENT VEGETATIVE COVER WILL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION WILL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED WHICH IS MATURE ENOUGH TO CONTROL SOIL EROSION SATISFACTORILY AND TO SURVIVE SEVERE WEATHER CONDITIONS. (SEE VEGETATIVE PRACTICES – ITEM 10).

PROTECTION OF ADJACENT PROPERTIES

PROPERTIES ADJACENT TO THE SITE OF LAND DISTURBANCE WILL BE PROTECTED FROM SEDIMENT DEPOSITION. THIS WILL BE ACCOMPLISHED BY PRESERVING A WELL VEGETATED BUFFER STRIP AROUND THE LOWER PERIMETER OF LAND DISTURBANCE, BY INSTALLING PERIMETER CONTROLS SUCH AS SEDIMENT TRAPS, FILTERS OR DIKES, OR SEDIMENT BASINS, OR BY A COMBINATION OF SUCH MEASURES. VEGETATED FILTER STRIPS MAY BE USED ALONE ONLY WHERE RUNOFF IN SHEET FLOW IS EXPECTED. FILTER STRIPS SHOULD BE AT LEAST 15 FEET IN WIDTH. IF AT ANY TIME IT IS FOUND THAT A VEGETATED FILTER STRIP ALONE IS INEFFECTIVE IN STOPPING SEDIMENT MOVEMENT INTO ADJACENT PROPERTY, ADDITIONAL PERIMETER CONTROLS MUST BE PROVIDED.

TIMING AND STABILIZATION OF SEDIMENT TRAPPING MEASURES

SEDIMENT BASINS, DIVERSIONS, SEDIMENT TRAPS, AND OTHER MEASURES INTENDED TO TRAP SEDIMENT ON–SITE WILL BE CONSTRUCTED AS A FIRST STEP IN GRADING AND BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE. EARTHEN STRUCTURES SUCH AS DAMS, DIKES, AND DIVERSIONS WILL BE SEEDED AND MULCHED AFTER INSTALLATION.

SEDIMENT BASINS

STORMWATER RUNOFF CONTAINING DAMAGING AMOUNTS OF SEDIMENT SHALL PASS THROUGH A SEDIMENT BASIN OR OTHER SUITABLE SEDIMENT TRAPPING FACILITY.

CUT AND FILL SLOPES

CUT AND FILL SLOPES WILL BE DESIGNED AND CONSTRUCTED IN A MANNER WHICH WILL MINIMIZE EROSION. SLOPES WHICH ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF CONSTRUCTION WILL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.

STORMWATER MANAGEMENT

CONCENTRATED STORMWATER RUNOFF LEAVING THE SITE WILL BE DISCHARGED DIRECTLY INTO A WELL DEFINED ADEQUATELY PROTECTED NATURAL OR MAN–MADE OFF SITE RECEIVING CHANNEL OR PIPE. THE STORMWATER WILL BE DETAINED OFF SITE IN A REGIONAL RETENTION/DETENTION FACILITY.

STABILIZATION OF WATERWAYS AND OUTLETS

ALL ON SITE STORMWATER CONVEYANCE CHANNELS WILL BE DESIGNED AND CONSTRUCTED TO WITHSTAND THE EXPECTED VELOCITY OF FLOW FROM A 10 YEAR FREQUENCY STORM WITHOUT EROSION. DESIGN FOR A LARGER FREQUENCY STORM MAY BE NECESSARY FOR PROTECTION FROM THE STORMWATER FLOW. STABILIZATION ADEQUATE TO PREVENT EROSION WILL ALSO BE PROVIDED AT THE OUTLETS OF ALL PIPES AND PAVED CHANNELS.

STORM SEWER INLET PROTECTION

ALL STORM SEWER INLETS WHICH ARE MADE OPERABLE DURING CONSTRUCTION WILL BE PROTECTED SO THAT SEDIMENT–LADEN WATER WILL NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.

WORKING IN OR CROSSING WATERCOURSES

CONSTRUCTION VEHICLES WILL BE KEPT OUT OF WATERCOURSES WHENEVER POSSIBLE. WHERE IN–CHANNEL WORK IS NECESSARY, PRECAUTIONS WILL BE TAKEN TO STABILIZE THE WORK AREA DURING CONSTRUCTION TO MINIMIZE EROSION. THE CHANNEL (INCLUDING BED AND BANKS) WILL ALWAYS BE RESTABILIZED IMMEDIATELY AFTER IN–CHANNEL WORK IS COMPLETED. WHERE A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES REGULARLY DURING CONSTRUCTION, A TEMPORARY STREAM CROSSING WILL BE PROVIDED.

CONSTRUCTION ACCESS ROUTES AND PARKING AREAS

WHENEVER CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED PUBLIC ROADS, PROVISIONS WILL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT (MUD) BY RUNOFF OR VEHICLE TRACKING ONTO THE PAVED SURFACE. TEMPORARY CONSTRUCTION ROADS WILL FOLLOW THE CONTOUR OF THE NATURAL TERRAIN TO THE EXTENT POSSIBLE. SLOPES SHOULD NOT EXCEED 10 PERCENT. ROADBEDS SHALL BE AT LEAST 14 FEET WIDE FOR ONE–WAY TRAFFIC AND 20 FEET WIDE FOR TWO–WAY TRAFFIC. TEMPORARY PARKING AREAS WILL BE LOCATED ON NATURALLY FLAT AREAS WHENEVER POSSIBLE TO MINIMIZE GRADING. GRADES FOR SAID PARKING AREAS SHOULD BE SUFFICIENT TO PROVIDE DRAINAGE BUT NOT EXCEED 4 PERCENT SLOPE. BOTH TEMPORARY AND PERMANENT ROADS AND PARKING AREAS MAY REQUIRE PERIODIC TOP DRESSING WITH NEW GRAVEL. SEEDED AREAS ADJACENT TO ROADS AND PARKING AREAS WILL BE CHECKED PERIODICALLY TO ENSURE THAT A VIGOROUS STAND OF VEGETATION IS MAINTAINED.

DISPOSITION OF TEMPORARY MEASURES

ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES WILL BE DISPOSED OF AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND OTHER DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES WILL BE PERMANENTLY STABILIZED TO PREVENT EROSION AND SEDIMENTATION.

MAINTENANCE

ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURES WILL BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION.

i.e. STORM INLET PROTECTION
INLET STRUCTURES SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. SEDIMENT SHALL BE REMOVED AND THE INLET PROTECTION SHALL BE RESTORED TO ITS ORIGINAL WORKING CONDITION. AT NO TIME SHALL MORE THAN A 2" BUILD UP OF SEDIMENT REMAIN AROUND THE INLET PROTECTION.

i.e. FILTER STRIPS
A HEALTHY GROWTH OF VEGETATION CAN BEST BE MAINTAINED BY FERTILIZING, REMOVING SEDIMENT WHEN FILTER BECOMES CLOGGED, AND BY PREVENTING CONSTRUCTION TRAFFIC FROM DRIVING ACROSS FILTER STRIPS.

i.e. SILT FENCES AND FILTER BARRIERS
SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

9. **CONSTRUCTION CONTROL PRACTICES:**

FILTER BARRIERS (FB) SEE FILTER BARRIER DETAIL

MATERIAL	FLOW RATE (gal./sq. ft./min.)	FILTER EFFICIENCY %
STRAW	5.6	67
BURLAP (10 OZ. FABRIC)	2.4	84
SYNTHETIC FABRIC	0.3 (AVG.)	97 (AVG.)

THE HEIGHT OF A FILTER BARRIER SHALL BE A MIN. OF 15 INCHES AND SHALL NOT EXCEED 18 INCHES.

THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS.

STAKES SHALL BE SPACED AT A MAX. OF 3 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MIN. OF 8 INCHES).

10. **VEGETATIVE PRACTICES:**

FILTER STRIP (FS)

A STRIP OR AREA OR VEGETATION (BEING A MIN. OF 15 FEET AND A MAX. OF 100 FEET IN WIDTH) TO REMOVE SEDIMENT AND OTHER POLLUTANTS FROM RUNOFF. THIS PRACTICE APPLIES TO LAND UNDERGOING DEVELOPMENT WHERE FILTER STRIPS ARE NEEDED TO REDUCE SEDIMENT DAMAGE TO ADJACENT PROPERTY. EXISTING GRASS OR GRASS/LEGUME MIXTURES, IF WELL ESTABLISHED, SHOULD BE USED AS FILTER STRIPS.

THE FOLLOWING CHART APPLIES WHEN ESTABLISHING NEW SEEDINGS.

SEEDING MIXTURE AND SITE SUITABILITY CHART

SEEDING MIXTURE1/	RATE lbs/acre	WET2/	SOIL SUITABILITY WELL DRAINED3/
1. Alfalfa4/ or Red Clover plus Timothy or Orchardgrass or Bromegrass	10 10 4 6 6		*
2. Ladino Clover4/ plus Timothy or Orchardgrass or Bromegrass	1/2 4 6 8	*	*
3. Tall Fescue	40	*	*
4. Reed Canarygrass plus Tall Fescue	15 10	*	

1/ ALL PERMANENT SEEDING SHALL BE COMPLETED BETWEEN APRIL 1, AND MAY 15, OR AUGUST 1, AND SEPTEMBER 15. IF AN ALTERNATE SEEDING TIME IS NECESSARY, FOLLOW THE SPECIFICATIONS CONTAINED IN CRITICAL AREA PLANTING – DORMANT SEEDING FOR METHODS, TIMING AND RATE ADJUSTMENTS.

2/ INCLUDES SITES WHICH ARE EXCESSIVELY WET ONLY A PORTION OF THE GROWING SEASON.

3/ INCLUDES SITES WHICH ARE WELL DRAINED WITH TILE; ALSO NATURALLY WELL DRAINED AND DROUGHTY SITES.

4/ MIXTURES 1 AND 2 ARE MORE DESIRABLE FOR WILDLIFE HABITAT.

VEGETATIVE STREAMBANK STABILIZATION (VSS)

TO PROTECT THE BANKS OF CREEKS, STREAMS, AND RIVERS WHICH ARE, OR MAY BE AFFECTED BY EXCESS RUNOFF FROM CONSTRUCTION ACTIVITIES.

TREES AND BRUSH THAT WILL AFFECT THE GROWTH OF DESIRABLE VEGETATION WILL BE REMOVED.

PRIOR TO SEEDING OR PLANTING, CLEAR THE STREAM CHANNEL OF FALLEN TREES, STUMPS, AND OTHER DEBRIS THAT MAY FORCE STREAMFLOW INTO STREAMBANK.

WHERE NECESSARY THE STREAMBANK SIDE SLOPE SHALL BE CUT BACK TO A 2:1 SLOPE OF FLATTER AND REMOVE OVERHANGING BANK EDGES.

THE AREA SHALL BE ROUGHENED WITH A RAKE OR SIMILAR TOOL AND FERTILIZED WITH 100 lbs. PER ACRE OF 15–15–15 OR EQUIVALENT (24 lbs./100 SQ. FT.).

GRASS SELECTION AND ESTABLISHMENT:

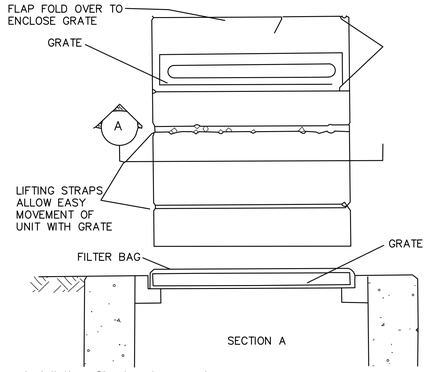
A. TALL FESCUE––SEED AT A RATE OF 50 lbs./ACRE (1 lb./100 SQ. FT.) AND MULCH WITH STRAW AT A RATE OF 2 TONS PER ACRE (90 lbs./1000 SQ. FT.). ESTABLISH BETWEEN MARCH 15 AND SEPTEMBER 30. COVER THE SEED 1/4–1/2 INCH BY RAKE OR SIMILAR TOOL. THIS IS THE MOST WIDELY USED AND BEST ADAPTED GRASS FOR STREAMBANK SEEDINGS. ITS HAS GOOD TOLERANCE TO WET SOILS AND FLOODING. IT IS ALSO WELL ADAPTED TO WELL DRAINED SOILS.

11. **FINAL SITE STABILIZATION**

FINAL SITE STABILIZATION IS CONSIDERED ACHIEVED ONCE ALL TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES ARE REMOVED AND DISPOSED OF AND ALL TRAPPED SEDIMENT HAS BEEN PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION.

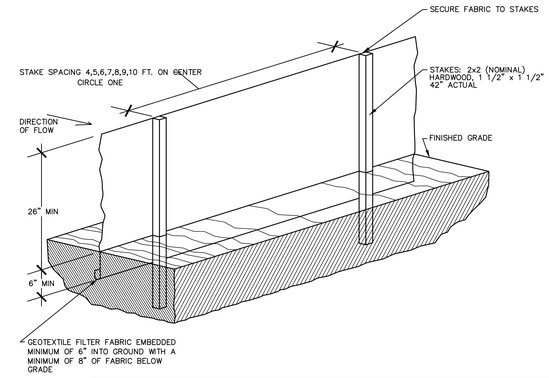
12. THERE WERE WETLANDS AND STREAMS ON SITE THAT WERE MITIGATED THROUGH OEPA. UNDER A SEPARATE EFFORT BY MAD SCIENTIST & ASSOCIATES LLC.

13. SETTLING VOLUME OF POND



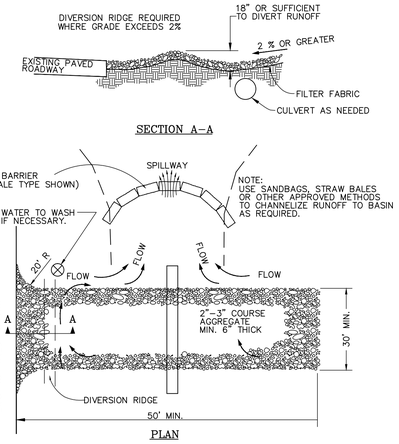
Installation: Stand grate on end. Place FILTER Bag over grate. Roll grate over so that open end is up. Pull up slack. Tuck flap in Press velcro strips together. Be sure end of grate is completely covered by flap or FILTER Bag will not work properly
Holding handles carefully place FILTER bag with grate inserted into catch basin frame.
Maintenance With a stiff bristle broom or square point shovel. Remove silt & other debris off surface after each event. Remove fine material from inside evelope as needed.

FILTER BAG DETAIL
NOT TO SCALE



1. SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE GROUND COVER IS REMOVED. CLEARING, GRUBBING, AND STUMPING CAN OCCUR BEFORE SILT FENCE INSTALLATION IF GROUND COVER IS NOT REMOVED.
2. WHERE POSSIBLE, SILT FENCE SHALL BE PLACED ON THE FLATTEST AREA AVAILABLE.
3. A RUN OF SILT FENCE SHOULD FOLLOW THE CONTOUR AS CLOSE AS POSSIBLE WITH THE ENDS TURNED UPSLOPE TO POND WATER BEHIND THE FENCE.
4. THE SILT FENCE SHOULD BE BURIED AT LEAST 6" DEEP AND HAVE A TOTAL OF 8" OF FABRIC BELOW THE GROUND. THIS CAN BE ACCOMPLISHED WITH A TRENCHER, CABLE LAYING MACHINE, SLICING MACHINE OR OTHER SUITABLE DEVICE WHICH WILL ENSURE AN ADEQUATELY UNIFORM TRENCH DEPTH.
5. THE STAKES SHALL BE PLACED ON THE DOWN SLOPE SIDE OF THE GEOTEXTILE. THE STAKES SHALL BE A MINIMUM OF 2X2 NOMINAL (1–1/2" X 1–1/2" ACTUAL) HARDWOOD STAKE OF SOUND QUALITY. T–POSTS MAY BE SUBSTITUTED IF GROUND CONDITIONS REQUIRE.
6. WHERE TWO SILT FENCE SECTIONS ARE COMBINED INTO ONE RUN THE END STAKES SHALL BE CONNECTED TOGETHER, NOT SIMPLY OVERLAPPED.
7. IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW, ONE OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE: 1) AN ADDITIONAL RUN OF SILT FENCE SHALL BE PLACED UPSTREAM, 2) THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED, 3) ACCUMULATED SEDIMENT SHALL BE REMOVED, OR 4) OTHER PRACTICES SHALL BE IMPLEMENTED.
8. THE MANUFACTURER SHALL SUBMIT A CERTIFICATION WITH EACH SHIPMENT OF SILT FENCE STATING THAT IT MEETS THE FOLLOWING SPECIFICATION REQUIREMENTS: MINIMUM TENSILE STRENGTH – 120 LBS.; MAXIMUM ELONGATION AT 60 LBS – 50%; MINIMUM PUNCTURE STRENGTH – 50 LBS.; MINIMUM TEAR STRENGTH – 40 LBS.; MINIMUM BURST STRENGTH – 200 PSI.; APPARENT OPENING SIZE <=.84MM.; MINIMUM PERMITTIVITY 1X10–2SEC–1; ULTRAVIOLET EXPOSURE STRENGTH RETENTION – 70%

SILT FENCE (SF) DETAIL
NOT TO SCALE



TEMP. GRAVEL CONSTRUCTION ENTRANCE/EXIT
N.T.S.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT

CONSTRUCTION SPECIFICATIONS
1. THE AGGREGATE SIZE FOR CONSTRUCTION OF THE PAD SHALL BE 2–TO 3–INCH STONE. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS, AND SMOOTH IT.
2. THE THICKNESS OF THE PAD SHALL NOT BE LESS THAN 6 INCHES. USE GEOTEXTILE FABRICS, IF NECESSARY, TO IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE. GEOTEXTILE SHALL HAVE A GRAB TENSILE STRENGTH OF 200 LB. AND A MULLEN BURST STRENGTH OF AT LEAST 190 LB.
3. THE WIDTH OF THE PAD SHALL NOT BE LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS AND IN ANY CASE SHALL NOT BE LESS THAN 12 FEET WIDE.
4. THE LENGTH OF THE PAD SHALL BE AS REQUIRED, BUT NOT LESS THAN 50 FEET.
5. LOCATE CONSTRUCTION ENTRANCES AND EXITS TO LIMIT SEDIMENT LEAVING THE SITE AND TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES. AVOID ENTRANCES WHICH HAVE STEEP GRADES AND ENTRANCES AT CURVES IN PUBLIC ROADS.
6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
7. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY SHALL BE REMOVED IMMEDIATELY. PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
8. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
9. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE THROUGH USE OF SAND BAGS, GRAVEL, STRAW BALES, OR OTHER APPROVED METHODS.
10. A CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE IF NEEDED TO PREVENT SURFACE WATER FLOWING ACROSS THE ENTRANCE AND FROM BEING DIRECTED OUT ONTO PAVED SURFACES.

INSPECTION AND MAINTENANCE
1. MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE.
2. REPLACE GRAVEL MATERIAL WHEN SURFACE VOIDS ARE VISIBLE.
3. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY.
4. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS. REMOVE ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS WITHIN 24 HOURS.

Revisions		Date
1	ADDENDUM #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
TROY E. MESSER
61265
REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:
KLEINGERS & ASSOCIATES
6305 Centre Park Drive, West Chester, OH 45069
(513) 779-7851 Fax (513) 779-7852
www.KLEINGERS.com

Drawing Title: SOIL EROSION CONTROL DETAILS
Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1
10005
Location: Cincinnati, Ohio
Date: 07/20/2012 REVISED 08/17/2012
Checked: TEM
Drawn: PGM

Project No.: VA Project No. 539-317; KA Project No. 100028.001
Building Number: ARC
Drawing Number: C160
Dwg. of

Office of Construction and Facilities Management
Department of Veterans Affairs

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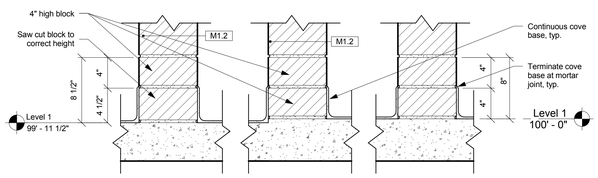
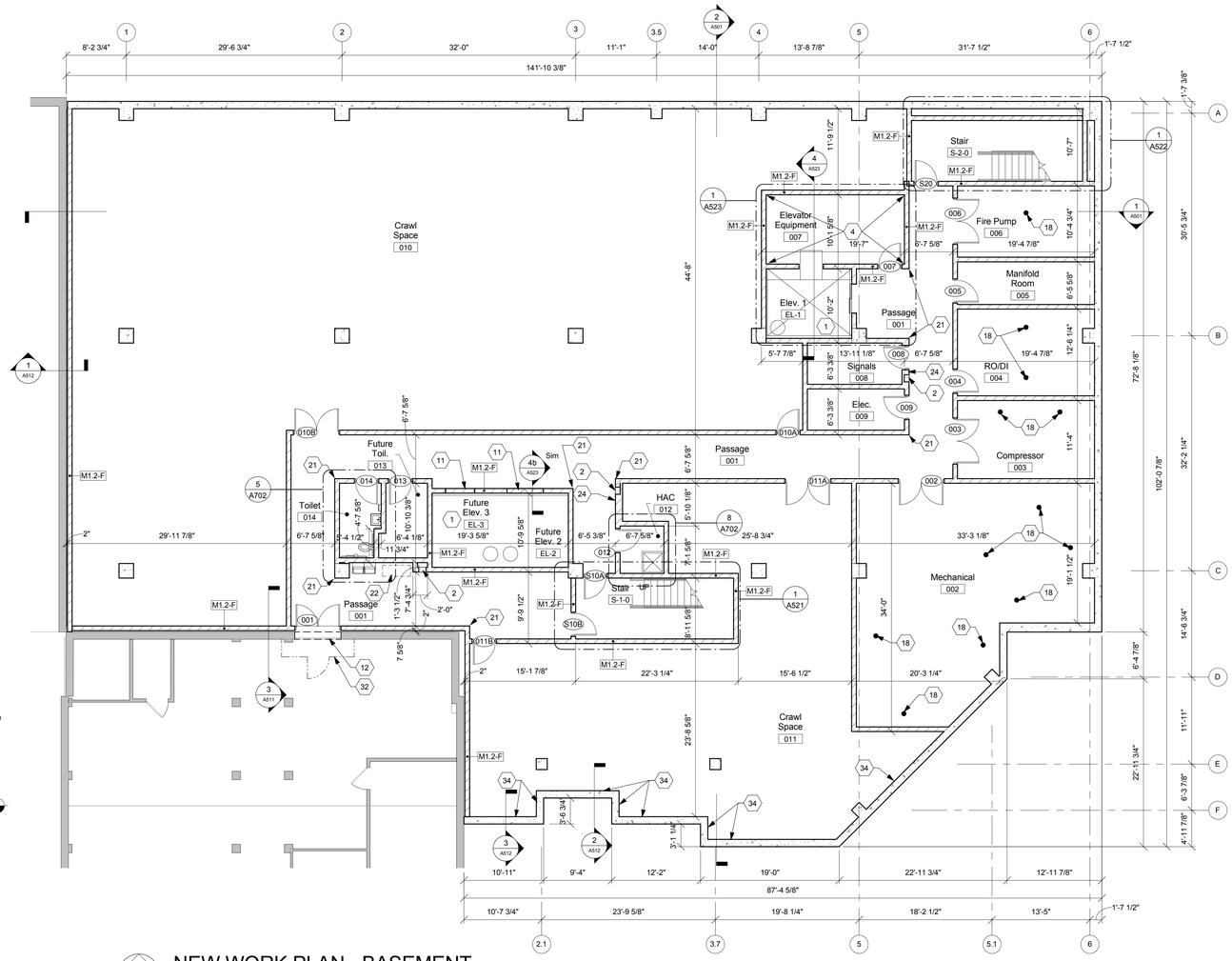


NOTE: SEE SHEET A802 FOR FLOOR FINISH LOCATIONS

1 COVE BASE DETAIL @ RF-1 FLOOR

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



N NEW WORK PLAN - BASEMENT

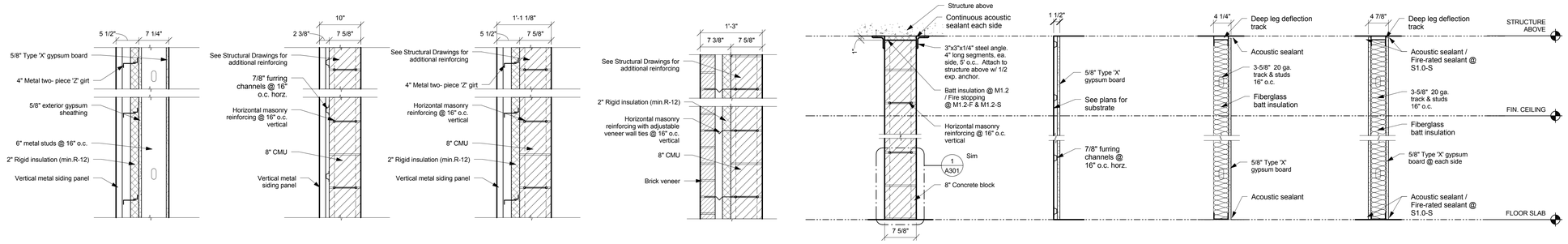
Scale: 1/8" = 1'-0"

GENERAL NOTES

A. All dimensions are taken to face of gypsum wallboard or unit masonry.
B. Edge of all door jambs at hinge side not otherwise indicated are to be 6" from the face of intersecting walls.
C. Install fire retardant blocking at all wall mounted equipment locations in stud walls, accessories, casework and wall- mounted door stops, etc.
D. For partition types refer to Drawing A301. All partitions, are M1.2 unless noted otherwise.
E. Verify all conditions in the field prior to fabrication, erection and construction.
F. Protect all existing structure as required.
G. Gypsum board to be moisture resistant gypsum board behind all new sinks and in all restrooms and janitors closets.
H. Coordinate location of job dumpster with the Project Engineer so as not to disrupt daily operations.
I. Coordinate access, deliveries, and debris removal with the Project Engineer. See General Requirements.
J. All asbestos containing material (ACM) must be abated per the direction of the Project Engineer and project specification 017419 and local state and federal regulations. Abatement if required is to be scheduled in appropriate sequence with demolition, new construction and project phasing.
K See Sheet A601 for Door Schedule.
L. See Sheet A901 for Description of Equipment.
M. See Sheet A701 & A702 for Interior Elevations.

PLAN NOTES

1 Elevator shaft / pit. Top of slab to be 5'-6" below basement slab. Rough in for sump.
2 Recessed fire extinguisher cabinet.
3 Install ceramic tile wainscot on walls surrounding mop sink to 4'-0" H
4 Coordinate slab design with Elevator Manufacturer requirements, including: slab thickness, reinforcing and equipment anchor points.
5 Remove existing window. Infill wall w/ brick & block. Tooth new brick into existing brick to appear like new. See Detail 3/A511.
6 Slab recess for dock lift. See Section 1/A511 and Specification Section 111300. Coordinate recess size & depth w/ lift manufacuturer. Slope floor 1/4" per foot to drain.
7 Slab recess for bulk sterilizer. Coordinate recess size, location & depth w/ manufacturer. Slope floor 1/8" per foot to drain.
8 Slab recess for cage rack washer. Coordinate recess size, location & depth w/manufacturer. Slope floor to drain 1/4" per foot.
9 Floor drain - slope floor to drain 1/8" per foot max. See Plumbing Drawings.
10 Trench drain. See Plumbing Drawings.
11 Knock out panel for future elevator door. Coordinate w/ elevator manufacturer.
12 Sawcut opening in existing concrete foundation wall - See Engineering Drawings for required piping rework.
13 Dock lift. See Specification Section 111300
14 Truck bumper stop.
15 Steel bollard. See Detail 4 on Sheet A711.
16 Recess floor 1/2". Floor to be level.
17 Concrete slab to be level, sloped at door location only. Slope floor at door 1/8" per foot max. Slope to be in flooring finish product.
18 Floor drain. Recess 1/2" in slab, slope floor 1 in 4 to drain.
19 Aluminum wall bumber rail. Mount top of rail @ 3'-0" A.F.F.
20 Remove existing canopy.
21 Stainless steel corner guard to 7'-0" A.F.F.
22 Owner provided and installed recycling bins for paper, plastic, glass, metal and cardboard.
23 Install second row of 3 5/8" metal studs to accept fire extinguisher recessed cabinet. Extend second row of studs 6" above finish ceiling, complete width of wall. Attach second row of studs to first row which go to deck above.
24 Install 4" CMU wall back up to accept fire extinguisher recessed cabinet. Extend 4" block 1 course above finish ceiling, complete width of wall. Reinforce wythe of block at 2'-0" o.c. intervals, typ.
25 Face of wall.
26 1/8" thick stainless steel plate.
27 Finished floor.
28 Stainless steel protection plate. See Detail 2 on Sheet A303.
29 Recessed emergency eye wash station. See Detail 1 on Sheet A303.
30 Provide opening in block wall above ceiling. Coordinate size and location with Electrical Contractor.
31 Roof access ladder.
32 Temporary 1 hr. fire-rated barrier & H.M. door with closer. Wall to be Type S1.0-S.
33 Temporary 1 hr. fire-rated barrier & H.M. door with closer. Wall to be Type S1.0-S. Existing opening is an exit for Bldg. 15. Coordinate timing with Owner to minimize closure of Bldg. 15 exit.
34 Exposed concrete to be finished per concrete specifications.
35 Removeable brick & metal stud wall panel.
36 2" building expansion joint.
37 Sealant at all edges touching wall.
38 Provide (4) 6" dia. slab/beam penetrations for future use. Provide 2 hr. rated fire seal at each penetration.
39 Grout CMU solid between 1st & 2nd floor slabs.
40 Duct penetration. See HVAC Drawings.



M1.2-F 2 HR. FIRE BARRIER (UL#904 similar)

M1.2-S 1 HR. FIRE BARRIER (UL#904 similar)

S1.0-S 1 HR. FIRE BARRIER (UL#U465)

WALL TYPES

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

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO — JOHN A. POE 6549 — REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: BASEMENT PLAN

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED: August 17, 2012

Checked: KR

Drawn: NS

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: A301

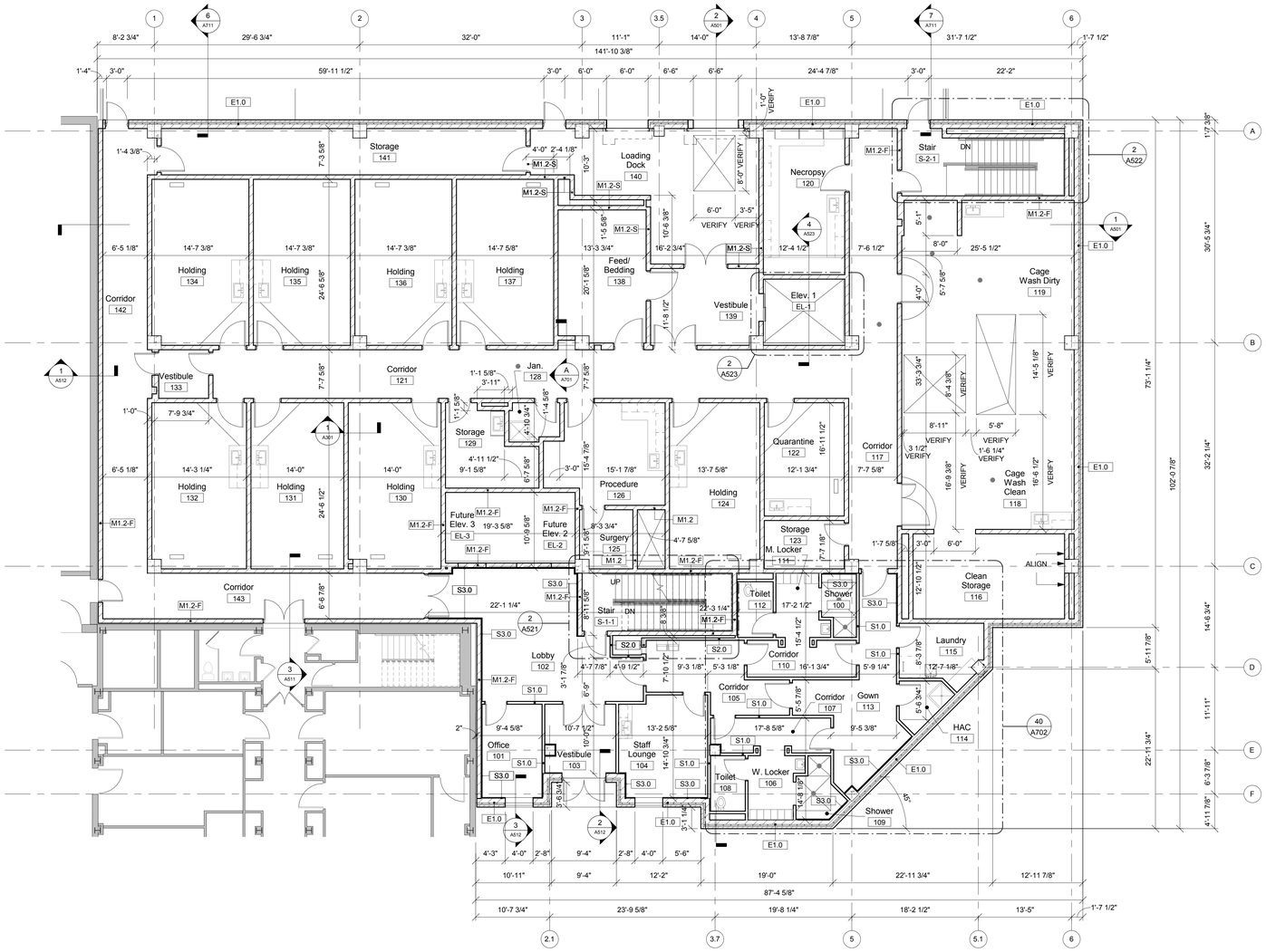
Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs

GENERAL NOTES

A. All dimensions are taken to face of gypsum wallboard or unit masonry.
B. Edge of all door jambs at hinge side not otherwise indicated are to be 6" from the face of intersecting walls.
C. Install fire retardant blocking at all wall mounted equipment locations in stud walls, accessories, casework and wall- mounted door stops, etc.
D. For partition types refer to Drawing A301. All partitions, are M1.2 unless noted otherwise.
E. Verify all conditions in the field prior to fabrication, erection and construction.
F. Protect all existing structure as required.
G. Gypsum board to be moisture resistant gypsum board behind all new sinks and in all restrooms and janitors closets.
H. Coordinate location of job dumpster with the Project Engineer so as not to disrupt daily operations.
I. Coordinate access, deliveries, and debris removal with the Project Engineer. See General Requirements.
J. All asbestos containing material (ACM) must be abated per the direction of the Project Engineer and project specification 017419 and local state and federal regulations. Abatement if required is to be scheduled in appropriate sequence with demolition, new construction and project phasing.
K See Sheet A601 for Door Schedule.
L. See Sheet A901 for Description of Equipment.
M. See Sheet A701 & A702 for Interior Elevations.



DIMENSION PLAN - FIRST FLOOR

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

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO JOHN A POE 6549 REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: FIRST FLOOR DIMENSION PLAN

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012 **REVISED: August 17, 2012**

Checked: KR

Drawn: NS

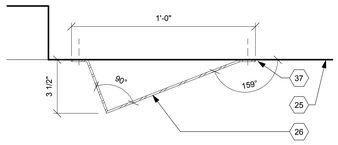
Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: A302

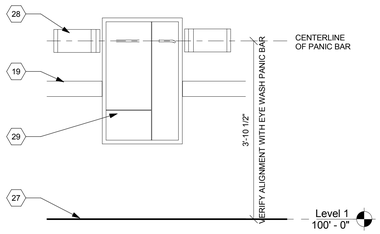
Office of Construction and Facilities Management

Department of Veterans Affairs



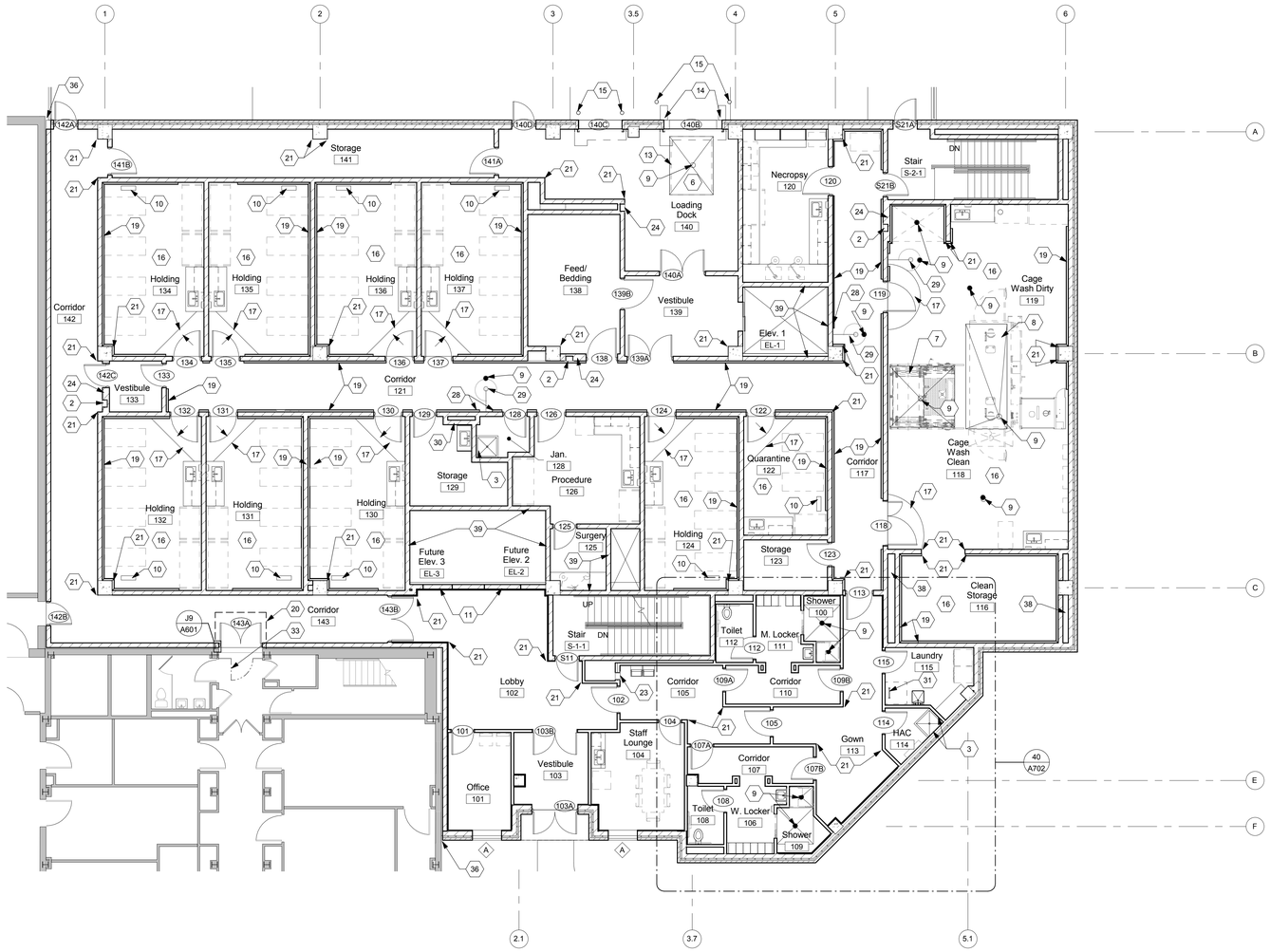
2 WALL GUARD DETAIL

Scale: 3" = 1'-0"



1 TYPICAL EYE WASH ELEVATION

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



N NOTE PLAN - FIRST FLOOR

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

GENERAL NOTES

A. All dimensions are taken to face of gypsum wallboard or unit masonry.
B. Edge of all door jambs at hinge side not otherwise indicated are to be 6" from the face of intersecting walls.
C. Install fire retardant blocking at all wall mounted equipment locations in stud walls, accessories, casework and wall- mounted door stops, etc.
D. For partition types refer to Drawing A301. All partitions, are M1.2 unless noted otherwise.
E. Verify all conditions in the field prior to fabrication, erection and construction.
F. Protect all existing structure as required.
G. Gypsum board to be moisture resistant gypsum board behind all new sinks and in all restrooms and janitors closets.
H. Coordinate location of job dumpster with the Project Engineer so as not to disrupt daily operations.
I. Coordinate access, deliveries, and debris removal with the Project Engineer. See General Requirements.
J. All asbestos containing material (ACM) must be abated per the direction of the Project Engineer and project specification 017419 and local state and federal regulations. Abatement if required is to be scheduled in appropriate sequence with demolition, new construction and project phasing.
K See Sheet A601 for Door Schedule.
L. See Sheet A901 for Description of Equipment.
M. See Sheet A701 & A702 for Interior Elevations.

⬡ PLAN NOTES

1 Elevator shaft / pit. Top of slab to be 5'-6" below basement slab. Rough in for sump.
2 Recessed fire extinguisher cabinet.
3 Install ceramic tile wainscot on walls surrounding mop sink to 4'-0" H
4 Coordinate slab design with Elevator Manufacturer requirements, including: slab thickness, reinforcing and equipment anchor points.
5 Remove existing window. Infill wall w/ brick & block. Tooth new brick into existing brick to appear like new. See Detail 3/A511.
6 Slab recess for dock lift. See Section 1/A511 and Specification Section 111300. Coordinate recess size & depth w/ lift manufacuturer. Slope floor 1/4" per foot to drain.
7 Slab recess for bulk sterilizer. Coordinate recess size, location & depth w/ manufacturer. Slope floor 1/8" per foot to drain.
8 Slab recess for cage rack washer. Coordinate recess size, location & depth w/manufacturer. Slope floor to drain 1/4" per foot.
9 Floor drain - slope floor to drain 1/8" per foot max. See Plumbing Drawings.
10 Trench drain. See Plumbing Drawings.
11 Knock out panel for future elevator door. Coordinate w/ elevator manufacturer.
12 Sawcut opening in existing concrete foundation wall - See Engineering Drawings for required piping rework.
13 Dock lift. See Specification Section 111300
14 Truck bumper stop.
15 Steel bollard. See Detail 4 on Sheet A711.
16 Recess floor 1/2". Floor to be level.
17 Concrete slab to be level, sloped at door location only. Slope floor at door 1/8" per foot max. Slope to be in flooring finish product.
18 Floor drain. Recess 1/2" in slab, slope floor 1 in 4 to drain.
19 Aluminum wall bumber rail. Mount top of rail @ 3'-0" A.F.F.
20 Remove existing canopy.
21 Stainless steel corner guard to 7'-0" A.F.F.
22 Owner provided and installed recycling bins for paper, plastic, glass, metal and cardboard.
23 Install second row of 3 5/8" metal studs to accept fire extinguisher recessed cabinet. Extend second row of studs 6" above finish ceiling, complete width of wall. Attach second row of studs to first row which go to deck above.
24 Install 4" CMU wall back up to accept fire extinguisher recessed cabinet. Extend 4" block 1 course above finish ceiling, complete width of wall. Reinforce wythe of block at 2'-0" o.c. intervals, typ.
25 Face of wall.
26 1/8" thick stainless steel plate.
27 Finished floor.
28 Stainless steel protection plate. See Detail 2 on Sheet A303.
29 Recessed emergency eye wash station. See Detail 1 on Sheet A303.
30 Provide opening in block wall above ceiling. Coordinate size and location with Electrical Contractor.
31 Roof access ladder.
32 Temporary 1 hr. fire-rated barrier & H.M. door with closer. Wall to be Type S1.0-S.
33 Temporary 1 hr. fire-rated barrier & H.M. door with closer. Wall to be Type S1.0-S. Existing opening is an exit for Bldg. 15. Coordinate timing with Owner to minimize closure of Bldg. 15 exit.
34 Exposed concrete to be finished per concrete specifications.
35 Removeable brick & metal stud wall panel.
36 2" building expansion joint.
37 Sealant at all edges touching wall.
38 Provide (4) 6" dia. slab/beam penetrations for future use. Provide 2 hr. rated fire seal at each penetration.
39 Grout CMU solid between 1st & 2nd floor slabs.
40 Duct penetration. See HVAC Drawings.

FULLY SPRINKLERED

1	Addendum #1	08/17/2012
Revisions		Date

CONSULTANTS:

STATE OF OHIO — JOHN A POE 6549 — REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: FIRST FLOOR NOTE PLAN

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: A303

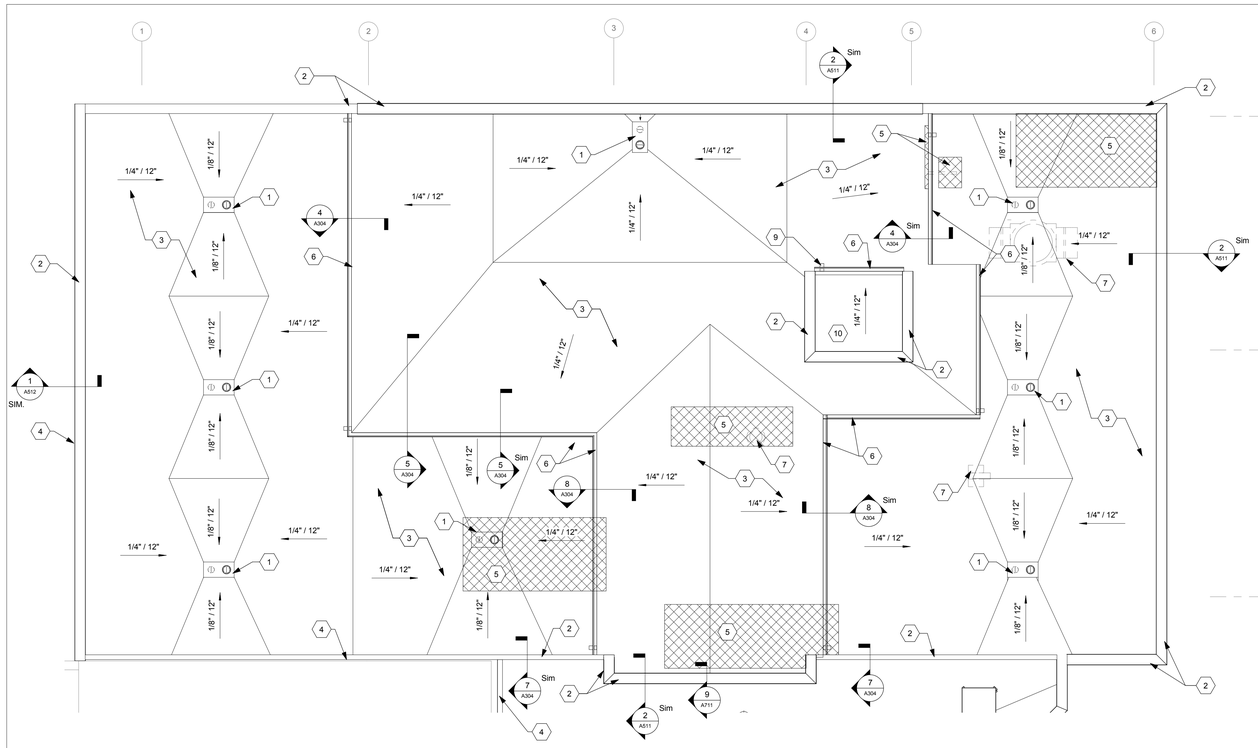
Date: 07/20/2012 **REVISED: August 17, 2012**

Checked: KR

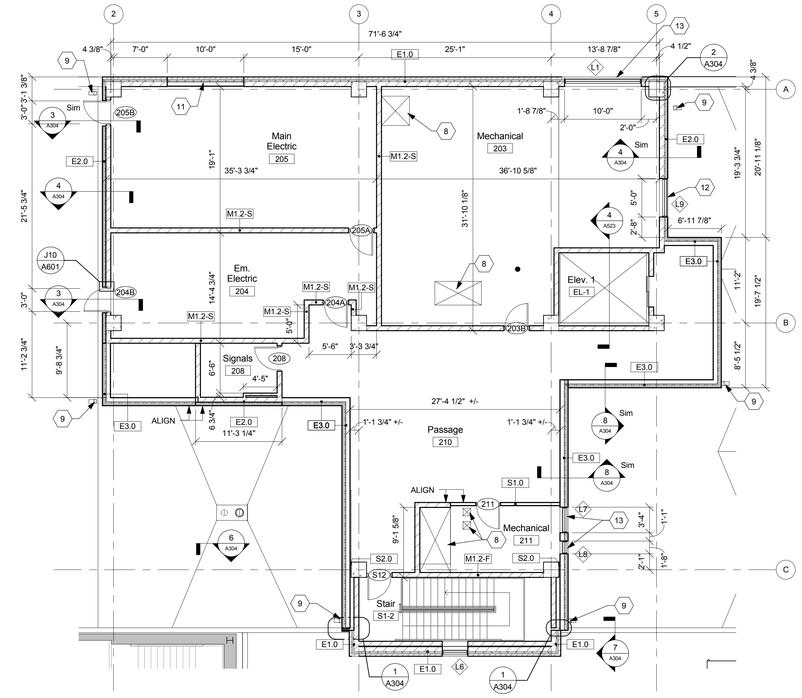
Drawn: NS

Office of Construction and Facilities Management

Department of Veterans Affairs



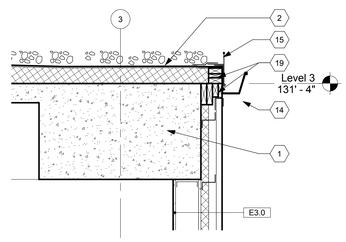
ROOF PLAN
Scale: 1/8" = 1'-0"



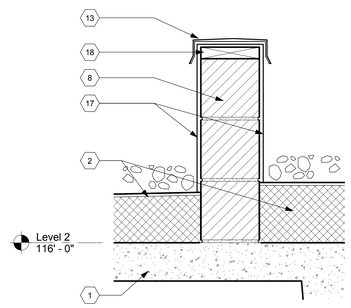
NEW WORK PLAN - SECOND FLOOR
Scale: 1/8" = 1'-0"

ROOF NOTES

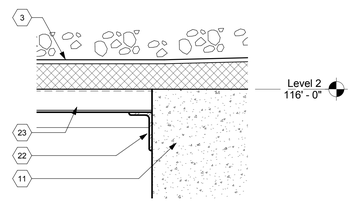
1. Roof drain and overflow drain. See Plumbing Drawings. Provide layered membrane in sump area per roofing manufacturer. No field splice in sump area.
2. Metal coping.
3. Roof assembly: Ballasted EPDM membrane over ¼" per foot tapered insulation. 3" minimum insulation thickness.
4. Roof expansion joint.
5. 3" metal deck to align with adjacent concrete roof deck. Provide 1 hour rated sprayed-on fireproofing on interior side of exposed deck and structure. Assembly shall be installed to allow for future removal. See Detail 3 on Sheet A321 & Structural Drawings.
6. Metal 6" x 6" gutter.
7. Mechanical equipment. See HVAC Drawings.
8. Duct penetration. See HVAC Drawings.
9. Metal 4" x 4" downspout.
10. Roof assembly: Ballasted EDPM membrane over 1/4" per foot tapered insulation over 3" metal deck. 3" minimum insulation thickness. Provide 1 hour rated sprayed-on fireproofing on interior side of exposed deck and structure. Assembly shall be installed to allow for future removal.
11. Removeable brick & metal stud wall panel.
12. Aluminum sight-proof louver with insect screen. See Mechanical Drawings. Frame opening to receive H.M. door & frame in future phase.
13. Aluminum sight-proof louver with insect screen. See Mechanical Drawings.



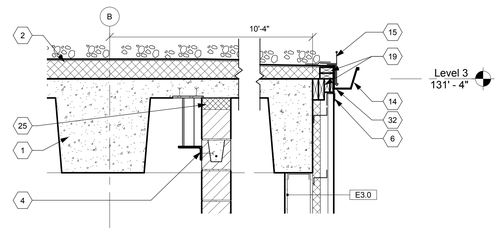
8 DETAIL
Scale: 3/4" = 1'-0"



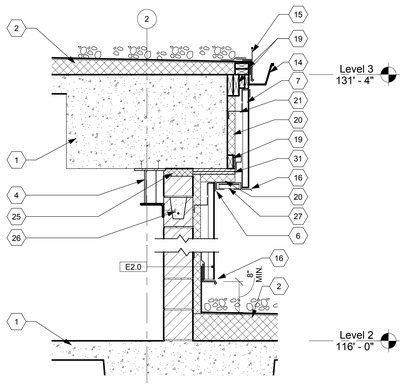
7 DETAIL
Scale: 1 1/2" = 1'-0"



6 DETAIL
Scale: 1 1/2" = 1'-0"



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



4 SECTION
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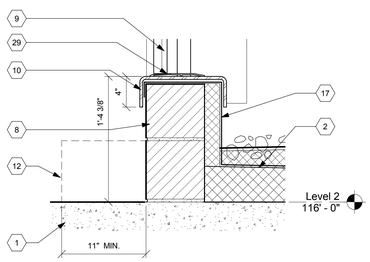
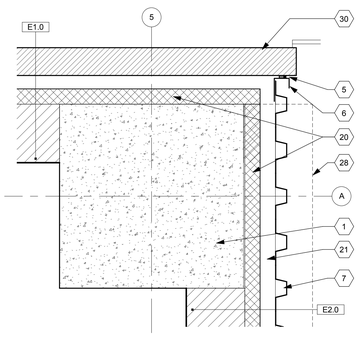
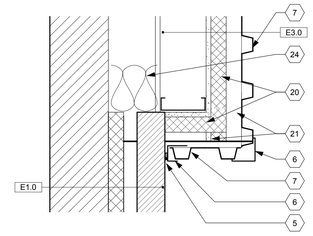


3 DETAIL
Scale: 1 1/2" = 1'-0"



2 PLAN DETAIL
Scale: 1 1/2" = 1'-0"



1 PLAN DETAIL
Scale: 1 1/2" = 1'-0"

DETAIL NOTES

1. Concrete structural frame. See Structural Drawings.
2. Roof assembly: Ballasted EPDM membrane over 1/4" per foot tapered insulation, 3" min. insulation thickness.
3. Roof assembly: Ballasted EPDM membrane over ¼" per foot tapered insulation. 3" minimum insulation thickness.
4. Steel angle bracing details at all exterior walls. See Structural Drawings.
5. Continuous sealant.
6. Metal panel closure trim by panel manufacturer. Color to match panel color.
7. Vertical metal siding panel.
8. 8" C.M.U.
9. Hollow metal door and frame.
10. 3/8" thick galvanized bent steel plate.
11. Concrete structural frame. See Structural Drawings.
12. Temporary concrete step in room.
13. Metal coping.
14. Metal 6" x 6" gutter.
15. Perforated gravel stop.
16. Metal flashing / trim by metal panel manufacturer.
17. Turn EPDM roofing membrane up and over wall.
18. 2 x width of wall. Pressure treated wood blocking. Anchor to CMU with ½" anchor bolt in fully grouted core @ 32" o.c.
19. Continuous fire retardant treated blocking as required. Pressure-treated at all exterior locations.
20. Continuous 2" rigid insulation.
21. Airspace / Z-purlins.
22. Steel angle around entire perimeter of opening. Provide 1 hour rated sprayed-on fireproofing on interior side of exposed deck and structure. See Structural Drawings.
23. 3" metal deck. Provide 1 hour rated sprayed-on fireproofing on interior side of exposed deck and structure.
24. Fiberglass batt insulation.
25. Seal gap between CMU and concrete frame. 2 hour fire-stopping required @ fire-rated walls.
26. Bond beam. See structural drawings.
27. Metal panel soffit.
28. Edge of beam above.
29. Door threshold.
30. Face brick to match existing brick on Building 1.
31. 2 layers 3/4" plywood.
32. Metal fascia.

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO — JOHN A. POE 6549 — REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SECOND FLOOR & ROOF PLANS & DETAILS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED: August 17, 2012
Checked: KR
Drawn: NS

Project No.: VA Project No. 539-317; JPA Project No. 10005.00
Building Number: 14
Drawing Number: A304
Dwg. of

Office of Construction and Facilities Management
Department of Veterans Affairs

GENERAL NOTES

A. All wood blocking shall be fire retardant.
B. Light fixtures, sprinkler heads, speakers, and HVAC devices shall be located as close as possible to the center of acoustical ceiling panels. Confirm any deviation from this with the Project Engineer.
C. See P, M, E and FP drawings for additional information regarding final information and quantites of fixtures/devices to be installed in ceiling.
D. See Electrical Drawings for lighting specifications.
E. All gypsum board ceilings to be painted P-4 unless noted otherwise.

CEILING NOTES

1 Plaster ceiling. See Detail 3 on Sheet A312.
2 Bond beam. See structural drawings.
3 Steel wall brace. See Structural drawings.
4 8" concrete masonry unit. See structural drawings.
5 Concrete building frame. See structural drawings.
6 3 5/8" Metal stud framing.
7 Provide 1" min., 2" max. gap between block and concrete structure. Grout all blocks above bond beam full.
8 5/8" Type 'X' gypsum board. Align with face of wall beyond.
9 Roof hatch above.
10 Control joint.
11 Suspended acoustic ceiling tile/grid.
12 5/8" Type 'X' gypsum board.
13 Concrete floor structure.
14 No ceiling this area.
15 Light fixture. See Electrical Drawings.
16 5/8" gypsum board and 3-5/8" metal stud header @ 8'-10" a.f.f.
17 Exhaust hood. See Mechanical Drawings.
19 Window shade.
20 Portland cement plaster suspension system.
21 Expanded metal lath, attached to suspension system.
22 Portland cement plaster.
23 Stainless steel access panel. Coordinate exact location in field with PME trades.

N

REFLECTED CEILING PLAN - BASEMENT

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

REFLECTED CEILING PLAN LEGEND

- Recessed downlight fixture
- 2' x 4' fluorescent fixture
- 2' x 2' acoustical tile ceiling
- Gypsum board / soffit - painted, moisture resistant on first floor.
- Portland cement plaster ceiling / soffit - painted
- Supply Air Diffuser
- Return Air Grille
- Chain-hung light fixture
- Access panel
- Surface-mounted strip light fixture

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A. POE
6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: REFLECTED CEILING PLAN - BASEMENT

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED: August 17, 2012

Checked: KR

Drawn: NS

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

Drawing Number: A311

Dwg. of

Office of Construction and Facilities Management

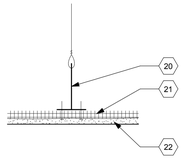
Department of Veterans Affairs

GENERAL NOTES

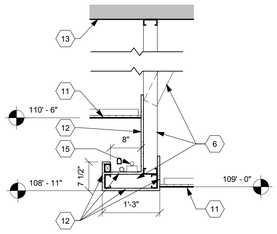
A. All wood blocking shall be fire retardant.
B. Light fixtures, sprinkler heads, speakers, and HVAC devices shall be located as close as possible to the center of acoustical ceiling panels. Confirm any deviation from this with the Project Engineer.
C. See P, M, E and FP drawings for additional information regarding final information and quantites of fixtures/devices to be installed in ceiling.
D. See Electrical Drawings for lighting specifications.
E. All gypsum board ceilings to be painted P-4 unless noted otherwise.

CEILING NOTES

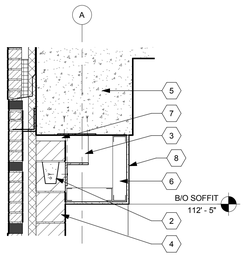
1 Plaster ceiling. See Detail 3 on Sheet A312.
2 Bond beam. See structural drawings.
3 Steel wall brace. See Structural drawings.
4 8" concrete masonry unit. See structural drawings.
5 Concrete building frame. See structural drawings.
6 3 5/8" Metal stud framing.
7 Provide 1" min., 2" max. gap between block and concrete structure. Grout all blocks above bond beam full.
8 5/8" Type 'X' gypsum board. Align with face of wall beyond.
9 Roof hatch above.
10 Control joint.
11 Suspended acoustic ceiling tile/grid.
12 5/8" Type 'X' gypsum board.
13 Concrete floor structure.
14 No ceiling this area.
15 Light fixture. See Electrical Drawings.
16 5/8" gypsum board and 3-5/8" metal stud header @ 8'-10" a.f.f.
17 Exhaust hood. See Mechanical Drawings.
19 Window shade.
20 Portland cement plaster suspension system.
21 Expanded metal lath, attached to suspension system.
22 Portland cement plaster.
23 Stainless steel access panel. Coordinate exact location in field with PME trades.



3 DETAIL
Scale: 6" = 1'-0"



2 SOFFIT DETAIL
Scale: 3/4" = 1'-0"



1 SOFFIT DETAIL
Scale: 3/4" = 1'-0"

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

REFLECTED CEILING PLAN LEGEND

- Recessed downlight fixture
- 2' x 4' fluorescent fixture
- 2' x 2' acoustical tile ceiling
- Gypsum board / soffit - painted, moisture resistant on first floor.
- Portland cement plaster ceiling / soffit - painted
- Supply Air Diffuser
- Return Air Grille
- Chain-hung light fixture
- Access panel
- Surface-mounted strip light fixture

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO — JOHN A. POE 6549 — REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: REFLECTED CEILING PLAN - FIRST FLOOR

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED: August 17, 2012

Checked: KR

Drawn: NS

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: A312

Dwg. of

Office of Construction and Facilities Management

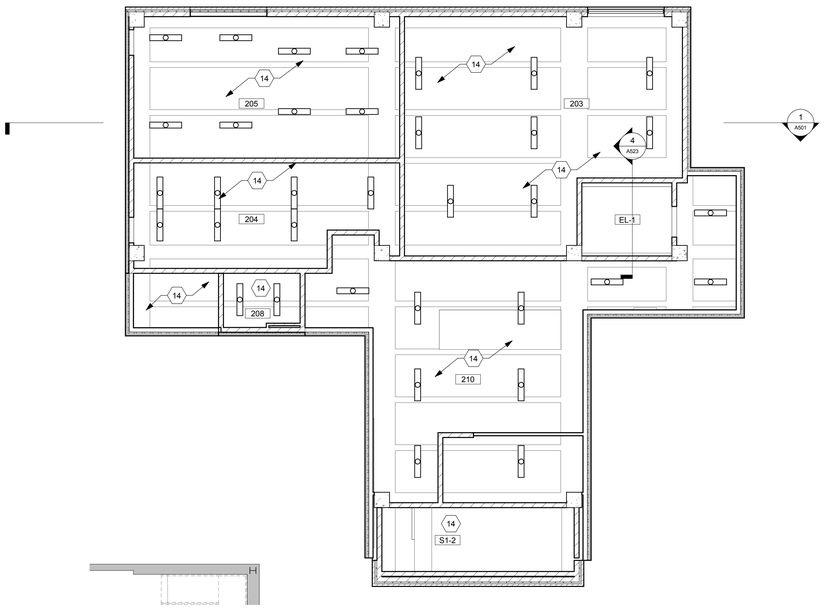
Department of Veterans Affairs

GENERAL NOTES

A. All wood blocking shall be fire retardant.
B. Light fixtures, sprinkler heads, speakers, and HVAC devices shall be located as close as possible to the center of acoustical ceiling panels. Confirm any deviation from this with the Project Engineer.
C. See P, M, E and FP drawings for additional information regarding final information and quantites of fixtures/devices to be installed in ceiling.
D. See Electrical Drawings for lighting specifications.
E. All gypsum board ceilings to be painted P-4 unless noted otherwise.

CEILING NOTES

1 Plaster ceiling. See Detail 3 on Sheet A312.
2 Bond beam. See structural drawings.
3 Steel wall brace. See Structural drawings.
4 8" concrete masonry unit. See structural drawings.
5 Concrete building frame. See structural drawings.
6 3 5/8" Metal stud framing.
7 Provide 1" min., 2" max. gap between block and concrete structure. Grout all blocks above bond beam full.
8 5/8" Type 'X' gypsum board. Align with face of wall beyond.
9 Roof hatch above.
10 Control joint.
11 Suspended acoustic ceiling tile/grid.
12 5/8" Type 'X' gypsum board.
13 Concrete floor structure.
14 No ceiling this area.
15 Light fixture. See Electrical Drawings.
16 5/8" gypsum board and 3-5/8" metal stud header @ 8'-10" a.f.f.
17 Exhaust hood. See Mechanical Drawings.
19 Window shade.
20 Portland cement plaster suspension system.
21 Expanded metal lath, attached to suspension system.
22 Portland cement plaster.
23 Stainless steel access panel. Coordinate exact location in field with PME trades.



REFLECTED CEILING PLAN LEGEND

- Recessed downlight fixture
- 2' x 4' fluorescent fixture
- 2' x 2' acoustical tile ceiling
- Gypsum board / soffit - painted, moisture resistant on first floor.
- Portland cement plaster ceiling / soffit - painted
- Supply Air Diffuser
- Return Air Grille
- Chain-hung light fixture
- Access panel
- Surface-mounted strip light fixture

REFLECTED CEILING PLAN - SECOND FLOOR

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

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A. POE
6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
joa@ohnpoe.com

Drawing Title: REFLECTED CEILING PLAN - SECOND FLOOR

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED: August 17, 2012

Checked: KR

Drawn: NS

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

Drawing Number: A313

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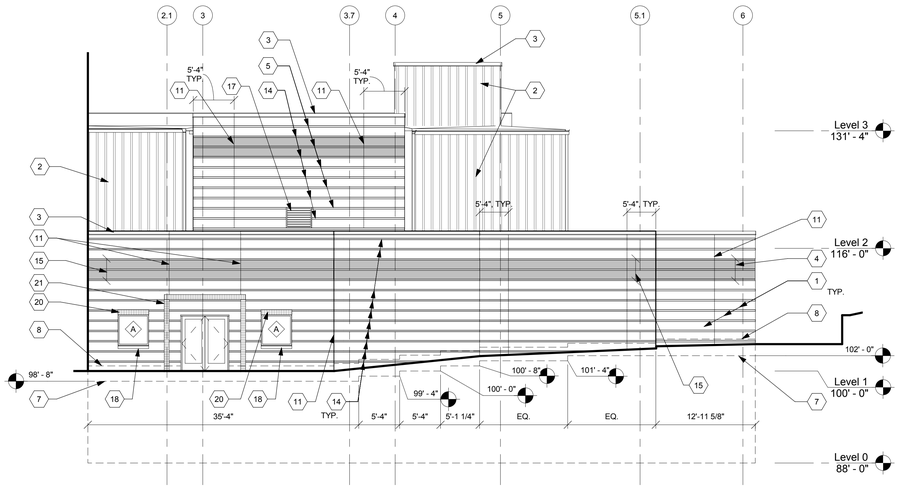
Office of Construction and Facilities Management

Department of Veterans Affairs



4 SOUTH ELEVATION

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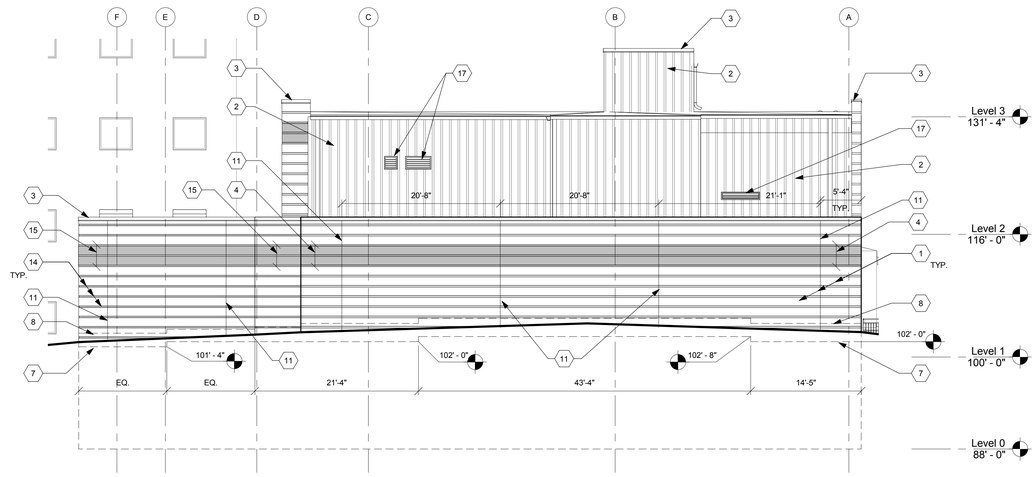
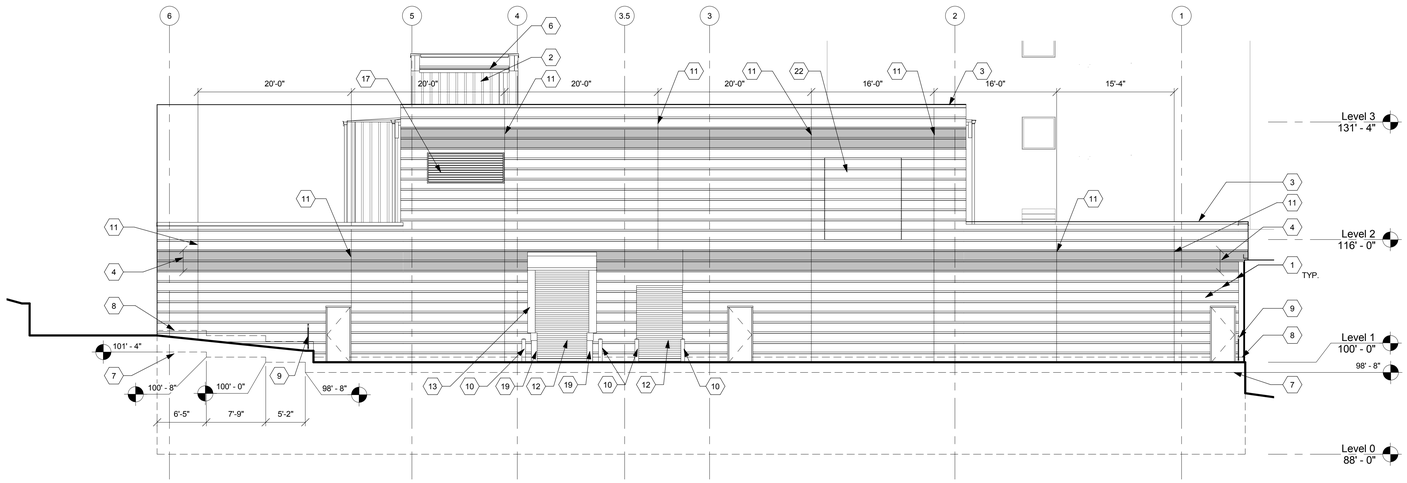


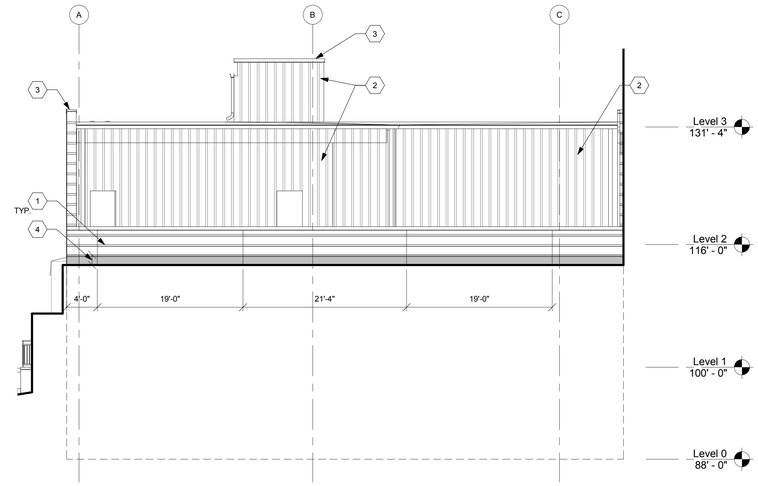
3 EAST ELEVATION

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



2 NORTH ELEVATION

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



1 WEST ELEVATION

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

ELEVATION NOTES

1. Face brick to match existing brick on Building 1.
2. Metal panel.
3. Metal coping.
4. Recess brick 1/4". See Section 2 on Sheet A511.
5. Face brick header course to match field.
6. Metal gutter.
7. Brick ledge. See Wall Sections for details.
8. Thru-wall flashing & weeps. 8" above finished grade, typical. See Wall Sections for details.
9. 42" high galvanized steel guardrail. 1-1/2" dia. pipe, painted.
10. Steel bollard. See Detail 1 on Sheet A303.
11. Masonry expansion joint.
12. Overhead coiling door.
13. Soft-sided dock shelter.
14. Recess header course 1/4".
15. See Detail 3d on Sheet A512 for brick detail.
17. Aluminum sight-proof louver with insect screen. See Mechanical Drawings.
18. Limestone window sill.
19. Concrete post. See Structural Drawings.
20. Brick soldier course @ (2) First Floor windows only.
21. Brick solider course @ top of opening and stacked bond @ sides of opening. Outset from face of wall 1/4".
22. Removeable brick & metal stud wall panel.

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO — JOHN A. POE 6549 — REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS

116 EAST THIRD STREET
DAYTON, OHIO
45402-2130

937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: EXTERIOR ELEVATIONS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED: August 17, 2012

Checker: KR

Drawn: NS

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: A401

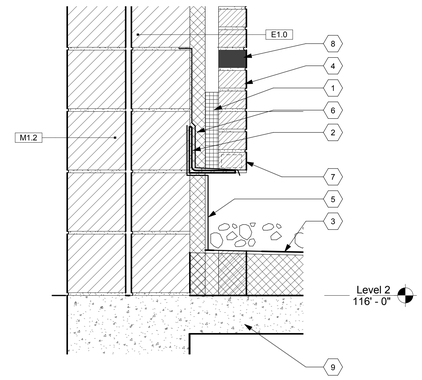
Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs

2 BUILDING SECTION

Scale: 3/16" = 1'-0"

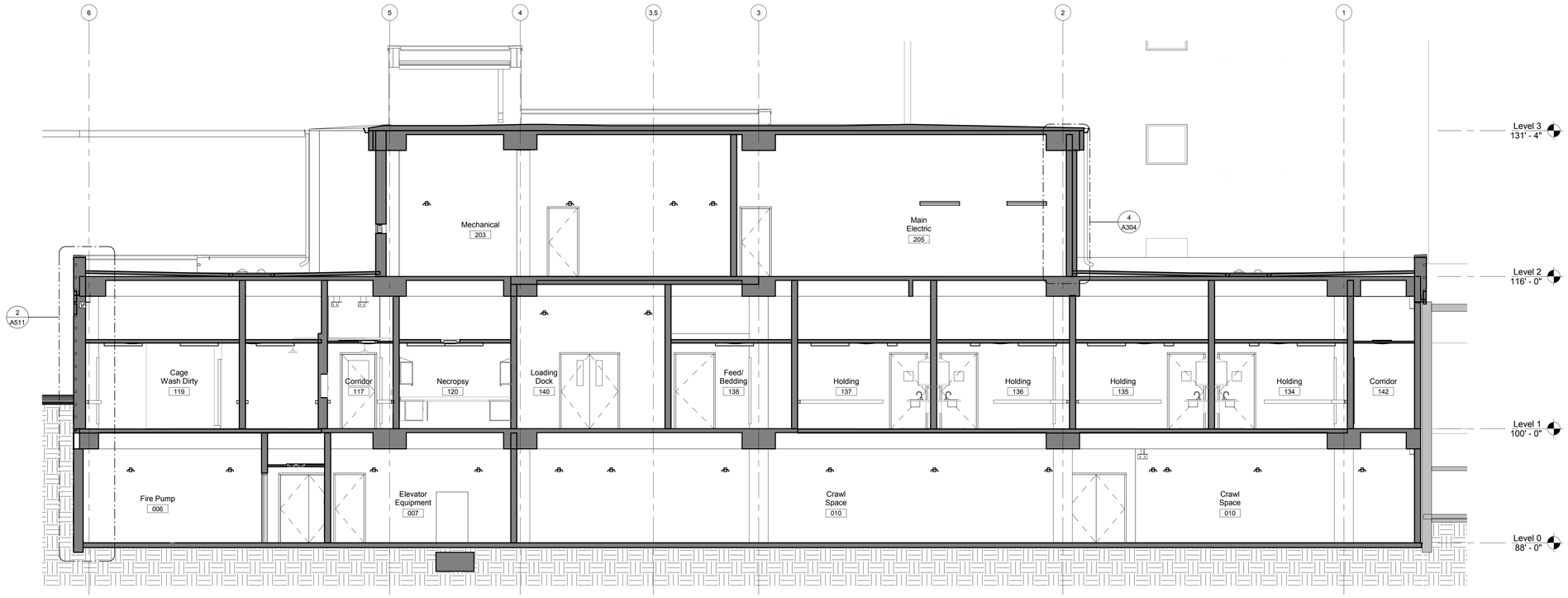


3 DETAIL

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

DETAIL NOTES

1. Mortar mesh.
2. Shelf angle. See structural drawings.
3. Roof assembly: Ballasted EPDM membrane over ¼" per foot tapered insulation. 3" minimum insulation thickness.
4. Face brick to match existing brick on Building 1.
5. Turn EPDM roofing membrane up and behind steel angle.
6. Thru wall flashing. Turn up wall 8" above top of mortar net and return flashing into mortar joint. Elevation varies, See Exterior Elevations.
7. Full joint weep/vent @ 24" o.c. horizontal.
8. Face brick header course to match field.
9. Concrete structural frame. See Structural Drawings.



1 BUILDING SECTION

Scale: 3/16" = 1'-0"

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A. POE
6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS

116 EAST THIRD STREET
DAYTON, OHIO
45402-2130

937 461 3290 PHONE
937 461 0260 FAX
jpa@ohnpoe.com

Drawing Title: BUILDING SECTIONS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED: August 17, 2012

Checked: KR

Drawn: NS

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

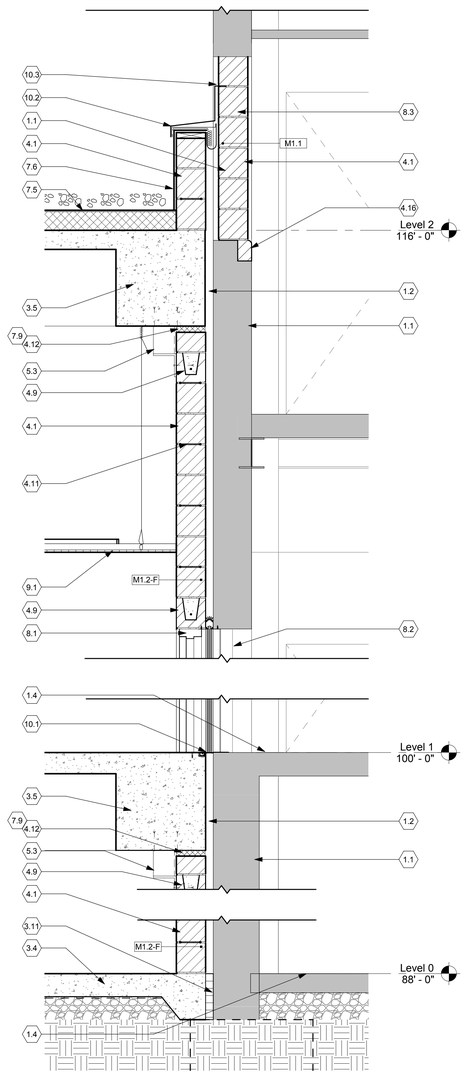
Building Number: 14

Drawing Number: A501

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs



3 SECTION
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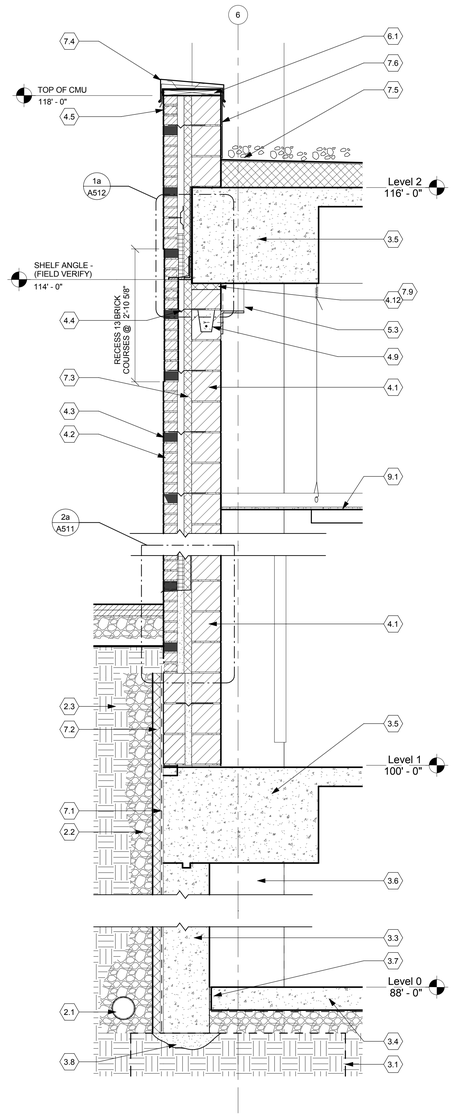

2 SECTION
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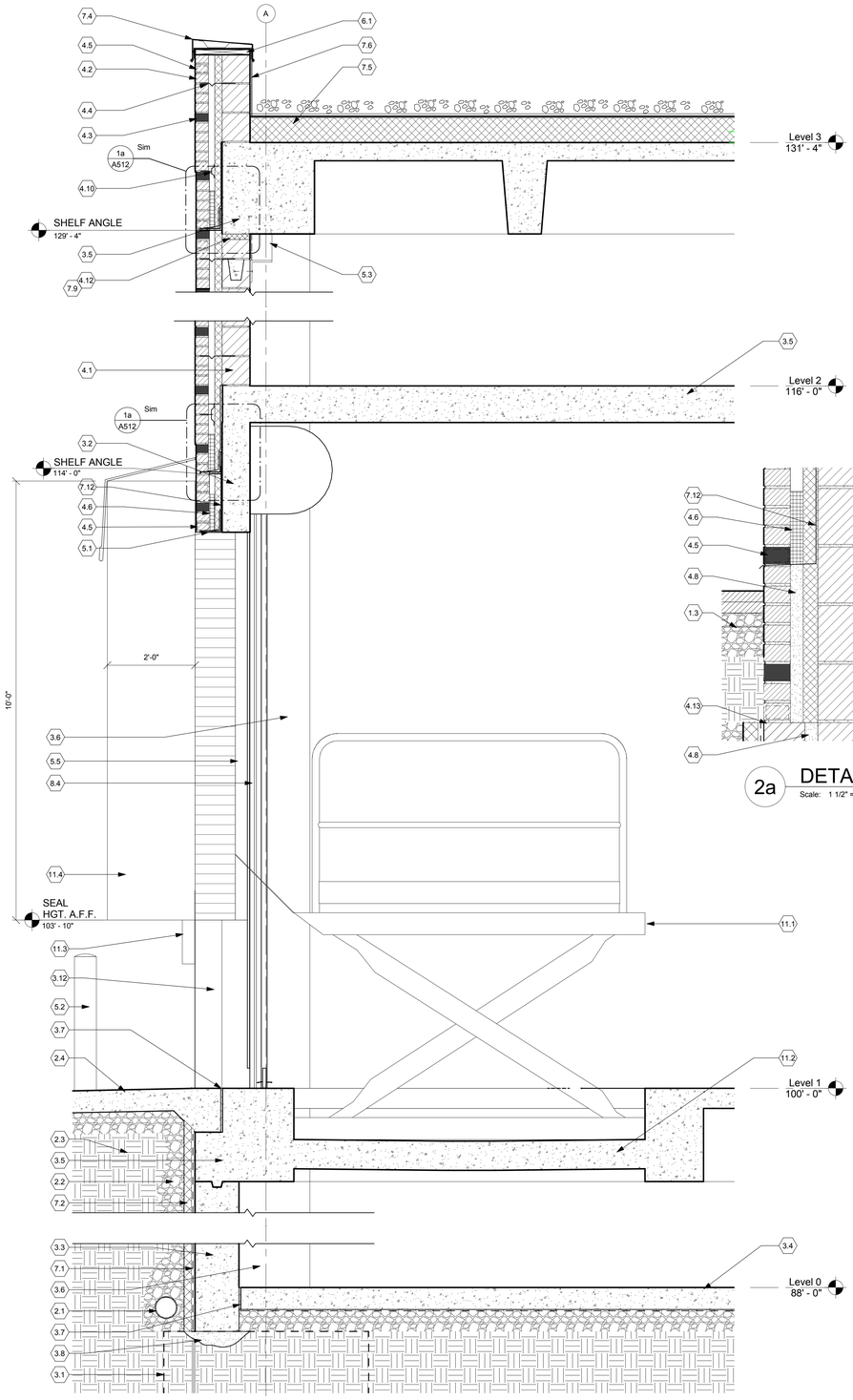
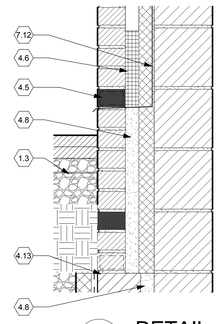


1 SECTION
Scale: 3/4" = 1'-0"



2a DETAIL
Scale: 1 1/2" = 1'-0"

SECTION NOTES

1.1 Existing construction.
1.2 2" clear air space between new and existing construction.
1.3 Finish grade / walk / drive. See Civil Drawings.
1.4 Verify existing finished floor of Building 15 aligns with new finished floor. Basement and First Floor only.
2.1 6" perimeter drainage. See civil engineering drawings for connection to site storm drainage.
2.2 Granular (drainage) fill.
2.3 Backfill.
2.4 Concrete pavement. See civil drawings.
3.1 Concrete piling cap / auger cast concrete piles. See structural drawings.
3.2 Concrete beam. See Structural Drawings.
3.3 Concrete foundation wall: See structural drawings.
3.4 Concrete slab over vapor barrier over 6" compacted aggregate base. See structural drawings.
3.5 Concrete building frame. See structural drawings.
3.6 Concrete column beyond.
3.7 ½" expansion material.
3.8 Mud mat.
3.9 Anti-heave slab. See Structural Drawings.
3.10 Concrete footing. See structural drawings.
3.11 2" expansion material.
3.12 Concrete post beyond. See Structural Drawings.
4.1 8" concrete masonry unit. See structural drawings.
4.2 4" brick masonry.
4.3 4" brick masonry. Common bond header at 16" o.c. vertical.
4.4 Horizontal reinforcing /wall tie @ 16" o.c. vertical.
4.5 Full joint weep/vent @ 24" o.c. horizontal.
4.6 Mortar mesh.
4.7 Brick solider course @ top of opening and stacked bond @ sides of opening. Outset from face of wall 1/4".
4.8 Fully grout between masonry.
4.9 Bond beam. See structural drawings.
4.10 Wall tie @ 24" o.c. horizontal, 16" o.c. vertical @ concrete frame.
4.11 Horizontal reinforcing @ 16" o.c. vertical.
4.12 Provide 1" gap between block and concrete structure. Grout all blocks above bond beam full.
4.13 Brick ledge elevation varies. See Exterior Elevations.
4.14 Limestone window sill.
4.15 Brick soldier course @ (2) First Floor windows only.
4.16 Remove existing block @ sill and install new CMU sill with bullnose.
4.17 1/2" expansion joint.
4.18 Lipped brick.
5.1 Shelf angle. See structural drawings.
5.2 Steel bollard. See Detail 1 on Sheet A303.
5.3 Steel wall brace. See Structural drawings.
5.4 Steel angle. See Structural Drawings.
5.5 Galvanized steel angle.
5.6 Steel plate. See Structural Drawings.
5.7 Reinforcing as required by blast-resistant window manufacturer. See Structural Drawings.
6.1 2 x width of wall pressure-treated wood blocking. Anchor to CMU with ½" anchor bolt in fully grouted core @ 32" o.c.
6.2 Fire retardant treated wood blocking. Pressure-treated at all exterior locations.
7.1 Bituminous sheet water proofing.
7.2 2 1/2" rigid polystyrene insulation w/drainage channels, R-12 min.
7.3 2" rigid insulation, R-12 min.
7.4 Metal coping.
7.5 Roof assembly. Ballasted EPDM membrane over ¼" per foot tapered insulation. 3" minimum insulation thickness.
7.6 Roof membrane. Extend membrane across top of parapet and turn down 2".
7.7 Sealant all sides of frame. Provide backer rod at all exterior locations.
7.8 Thru-wall flashing & full joint weeps @ 24" o.c. horizontal.
7.9 Seal gap between CMU and concrete frame. 2 hour fire-stopping required @ fire-rated walls.
7.11 6" fiberglass batt insulation.
7.12 Thru wall flashing. Turn up wall 8" above top of mortar net and return flashing into mortar joint. Elevation varies, See Exterior Elevations.
8.1 Hollow metal frame.
8.2 Aluminum storefront window with 1" insulated glazing unit.
8.2 Remove existing H.M. door & frame. Repair existing wall to remain to like new.
8.3 Remove existing aluminum window and wood sill.
8.4 Galvanized steel door track.
8.5 Aluminum storefront door and frame with tempered glazing.
9.1 Suspended acoustic ceiling tile/grid.
9.2 Solid surface sill.
9.3 5/8" Type 'X' gypsum board.
9.4 3-5/8" metal stud framing.
9.5 Plaster soffit with perimeter vents.
10.1 Expansion joint cover.
10.2 Roof to wall expansion joint cover.
10.3 Sawcut continuous reglet in existing mortar joint.
11.1 Dock lift.
11.2 Dock lift pit - coordinate dimensions and other requirements with Equipment Manufacturer prior to pouring slab/structure.
11.3 Dock bumper.
11.4 Soft-sided dock seal.

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A. POE 6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:
JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: WALL SECTIONS

Approved: Project Director

Project Title: BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED: August 17, 2012

Checker: KR

Drawn: NS

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

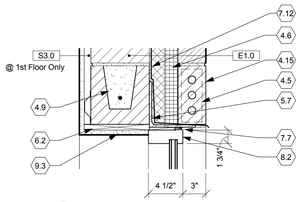
Building Number: 14

Drawing Number: A511

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs



3a DETAIL
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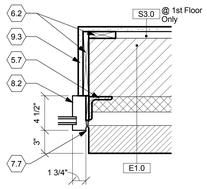

3b DETAIL
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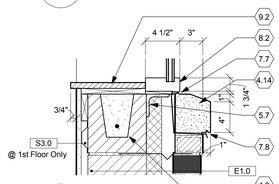

3c DETAIL
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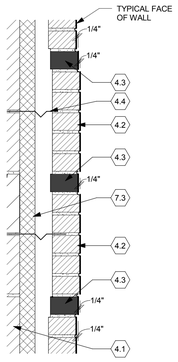

3d DETAIL
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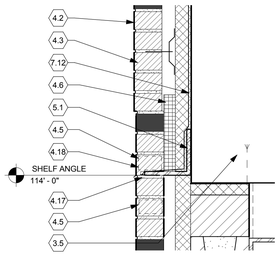

1a DETAIL
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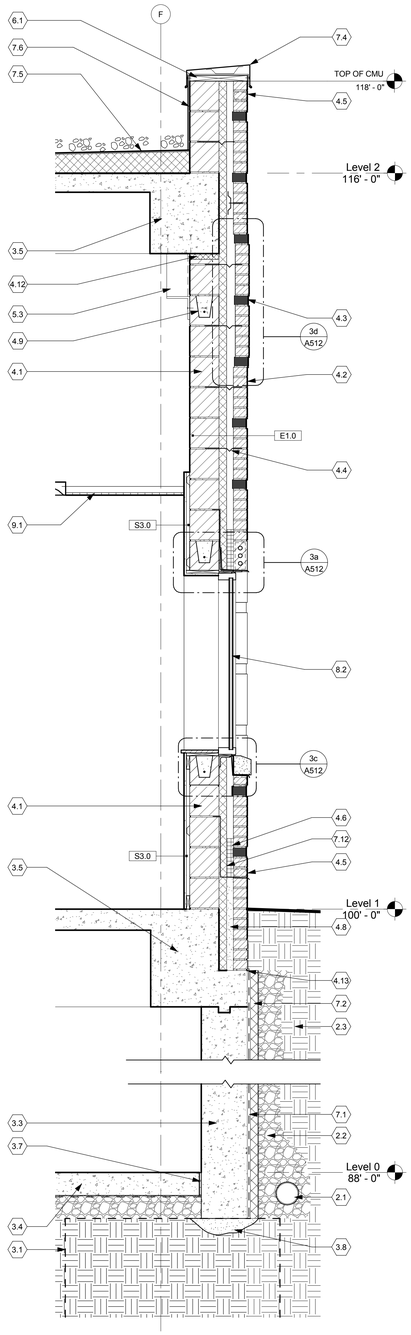
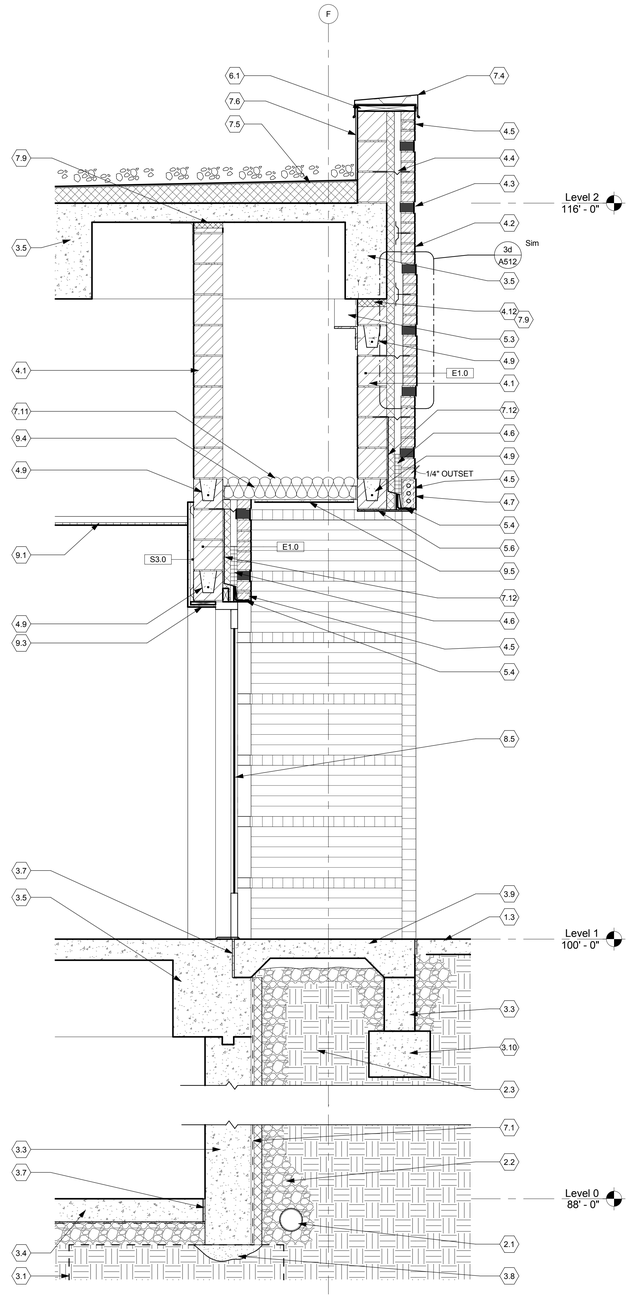


3 SECTION
Scale: 3/4" = 1'-0"



2 SECTION
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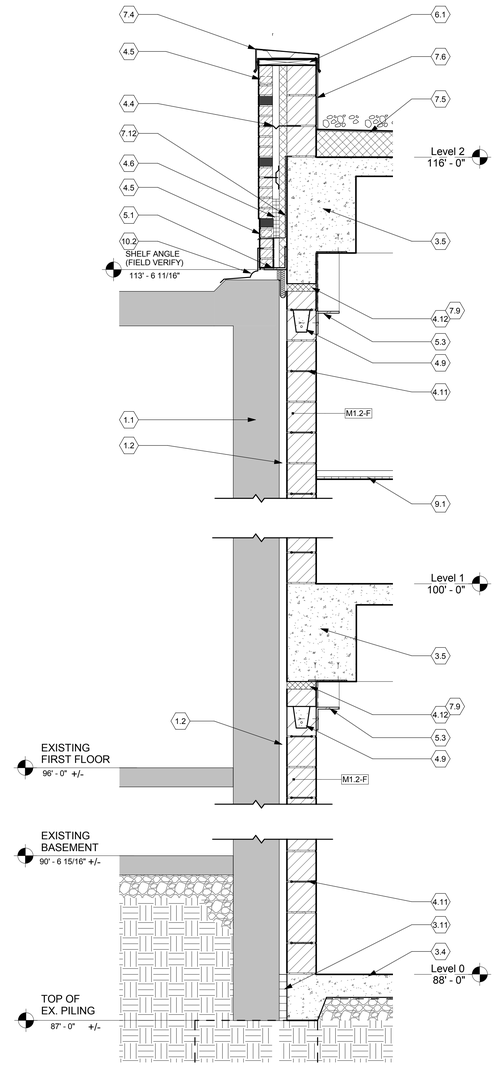

1 SECTION
Scale: 3/4" = 1'-0"

SECTION NOTES

1.1 Existing construction.
1.2 2" clear air space between new and existing construction.
1.3 Finish grade / walk / drive. See Civil Drawings.
1.4 Verify existing finished floor of Building 15 aligns with new finished floor. Basement and First Floor only.
2.1 6" perimeter drainage. See civil engineering drawings for connection to site storm drainage.
2.2 Granular (drainage) fill.
2.3 Backfill.
2.4 Concrete pavement. See civil drawings.
3.1 Concrete piling cap / auger cast concrete piles. See structural drawings.
3.2 Concrete beam. See Structural Drawings.
3.3 Concrete foundation wall: See structural drawings.
3.4 Concrete slab over vapor barrier over 6" compacted aggregate base. See structural drawings.
3.5 Concrete building frame. See structural drawings.
3.6 Concrete column beyond.
3.7 ½" expansion material.
3.8 Mud mat.
3.9 Anti-heave slab. See Structural Drawings.
3.10 Concrete footing. See structural drawings.
3.11 2" expansion material.
3.12 Concrete post beyond. See Structural Drawings.
4.1 8" concrete masonry unit. See structural drawings.
4.2 4" brick masonry.
4.3 4" brick masonry. Common bond header at 16" o.c. vertical.
4.4 Horizontal reinforcing /wall tie @ 16" o.c. vertical.
4.5 Full joint weep/vent @ 24" o.c. horizontal.
4.6 Mortar mesh.
4.7 Brick solider course @ top of opening and stacked bond @ sides of opening. Outset from face of wall 1/4".
4.8 Fully grout between masonry.
4.9 Bond beam. See structural drawings.
4.10 Wall tie @ 24" o.c. horizontal, 16" o.c. vertical @ concrete frame.
4.11 Horizontal reinforcing @ 16" o.c. vertical.
4.12 Provide 1" gap between block and concrete structure. Grout all blocks above bond beam full.
4.13 Brick ledge elevation varies. See Exterior Elevations.
4.14 Limestone window sill.
4.15 Brick soldier course @ (2) First Floor windows only.
4.16 Remove existing block @ sill and install new CMU sill with bullnose.
4.17 1/2" expansion joint.
4.18 Lipped brick.
5.1 Shelf angle. See structural drawings.
5.2 Steel bollard. See Detail 1 on Sheet A303.
5.3 Steel wall brace. See Structural drawings.
5.4 Steel angle. See Structural Drawings.
5.5 Galvanized steel angle.
5.6 Steel plate. See Structural Drawings.
5.7 Reinforcing as required by blast-resistant window manufacturer. See Structural Drawings.
6.1 2 x width of wall pressure-treated wood blocking. Anchor to CMU with ½" anchor bolt in fully grouted core @ 32" o.c.
6.2 Fire retardant treated wood blocking. Pressure-treated at all exterior locations.
7.1 Bituminous sheet water proofing.
7.2 2 1/2" rigid polystyrene insulation w/drainage channels, R-12 min.
7.3 2" rigid insulation, R-12 min.
7.4 Metal coping.
7.5 Roof assembly. Ballasted EPDM membrane over ¼" per foot tapered insulation. 3" minimum insulation thickness.
7.6 Roof membrane. Extend membrane across top of parapet and turn down 2".
7.7 Sealant all sides of frame. Provide backer rod at all exterior locations.
7.8 Thru-wall flashing & full joint weeps @ 24" o.c. horizontal.
7.9 Seal gap between CMU and concrete frame. 2 hour fire-stopping required @ fire-rated walls.
7.11 6" fiberglass batt insulation.
7.12 Thru wall flashing. Turn up wall 8" above top of mortar net and return flashing into mortar joint. Elevation varies, See Exterior Elevations.
8.1 Hollow metal frame.
8.2 Aluminum storefront window with 1" insulated glazing unit.
8.2 Remove existing H.M. door & frame. Repair existing wall to remain to like new.
8.3 Remove existing aluminum window and wood sill.
8.4 Galvanized steel door track.
8.5 Aluminum storefront door and frame with tempered glazing.
9.1 Suspended acoustic ceiling tile/grid.
9.2 Solid surface sill.
9.3 5/8" Type 'X' gypsum board.
9.4 3-5/8" metal stud framing.
9.5 Plaster soffit with perimeter vents.
10.1 Expansion joint cover.
10.2 Roof to wall expansion joint cover.
10.3 Sawcut continuous reglet in existing mortar joint.
11.1 Dock lift.
11.2 Dock lift pit - coordinate dimensions and other requirements with Equipment Manufacturer prior to pouring slab/structure.
11.3 Dock bumper.
11.4 Soft-sided dock seal.

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Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A. POE 6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:
JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: WALL SECTIONS

Approved: Project Director

Project Title: BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date 07/20/2012
REVISED:
August 17, 2012

Checked KR

Drawn NS

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number 14

Drawing Number A512

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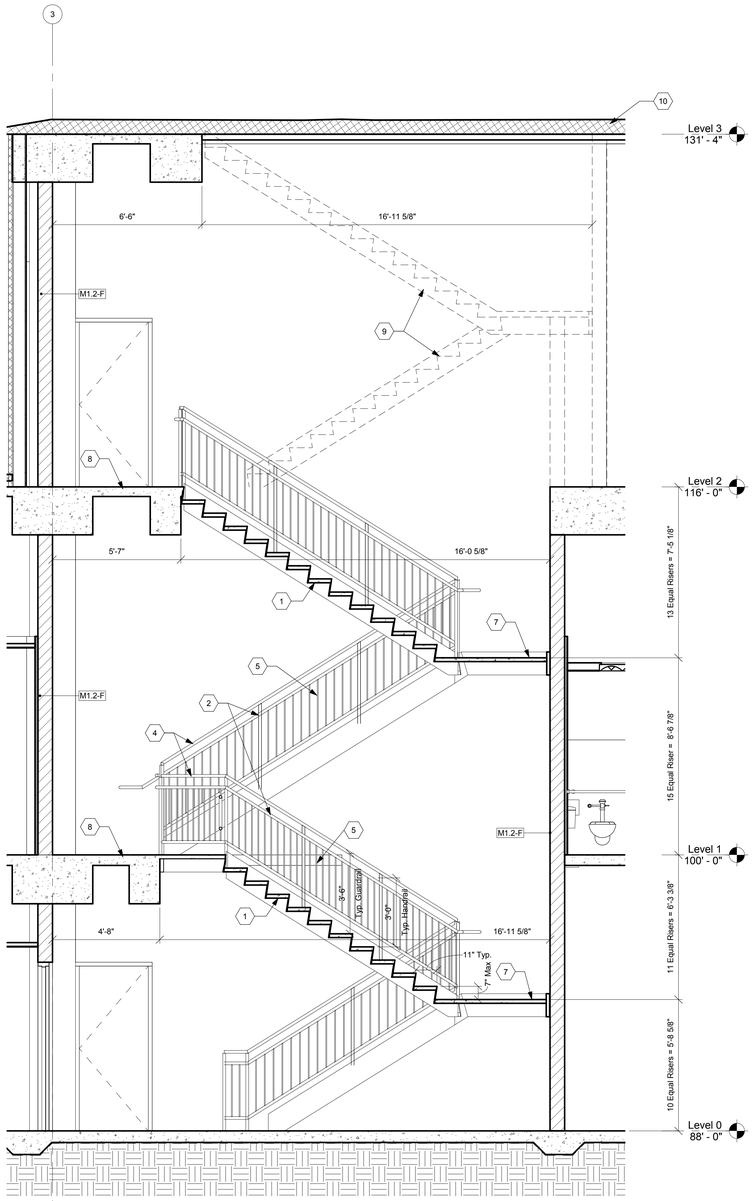
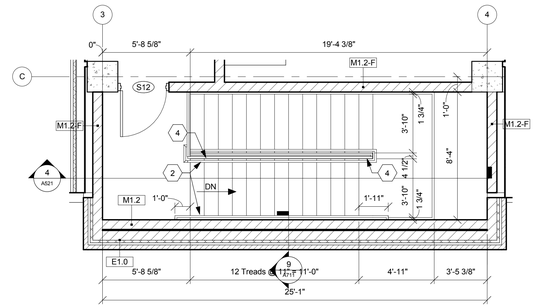
Office of Construction and Facilities Management

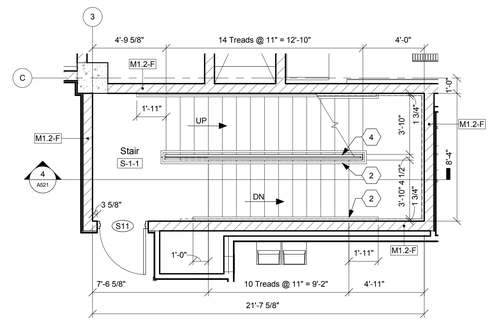
Department of Veterans Affairs



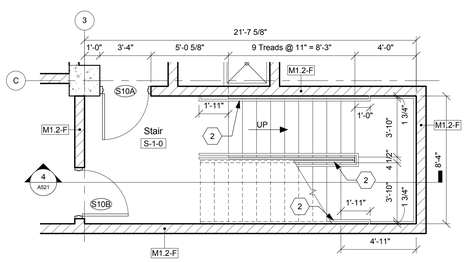
4 STAIR SECTION
Scale: 3/8" = 1'-0"



3 STAIR PLAN - SECOND FLOOR
Scale: 1/4" = 1'-0"



2 STAIR PLAN - FIRST FLOOR
Scale: 1/4" = 1'-0"



1 STAIR PLAN - BASEMENT
Scale: 1/4" = 1'-0"

STAIR NOTES

1 Metal pan and concrete stair. See specification.
2 Painted steel handrail 1 1/2" ID. See specification section 55000. Grind all joints smooth and factory prime.
3 1 1/2" ID self closing steel gate.
4 Painted steel guardrail, 1 1/2" ID. See specifaction 55000. Grind joints smooth and factory prime.
5 3/4" steel pickets @ 4" o.c. Factory prime.
6 Basement wall. See Structural Dwgs.
7 Landing framing and concrete by Stair Manufacturer. See Specifications.
8 Concrete building frame. See structural drawings.
9 Future stairs and landing.
10 Roof assembly: Ballasted EDPM membrane over 1/4" per foot tapered insulation over 3" metal deck. 3" minimum insulation thickness. Provide 1 hour rated sprayed-on fireproofing on interior side of exposed deck and structure. Assembly shall be installed to allow for future removal.
10 Roof assembly: Ballasted EDPM membrane over 1/4" per foot tapered insulation over 3" metal deck. 3" minimum insulation thickness. Provide 1 hour rated sprayed-on fireproofing on interior side of exposed deck and structure. Assembly shall be installed to allow for future removal. See Detail 3 on Sheet A321 & Structural Drawings.

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Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A. POE
6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: STAIR PLANS & DETAILS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED: August 17, 2012

Checked: KR

Drawn: NS

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: A521

Dwg. of

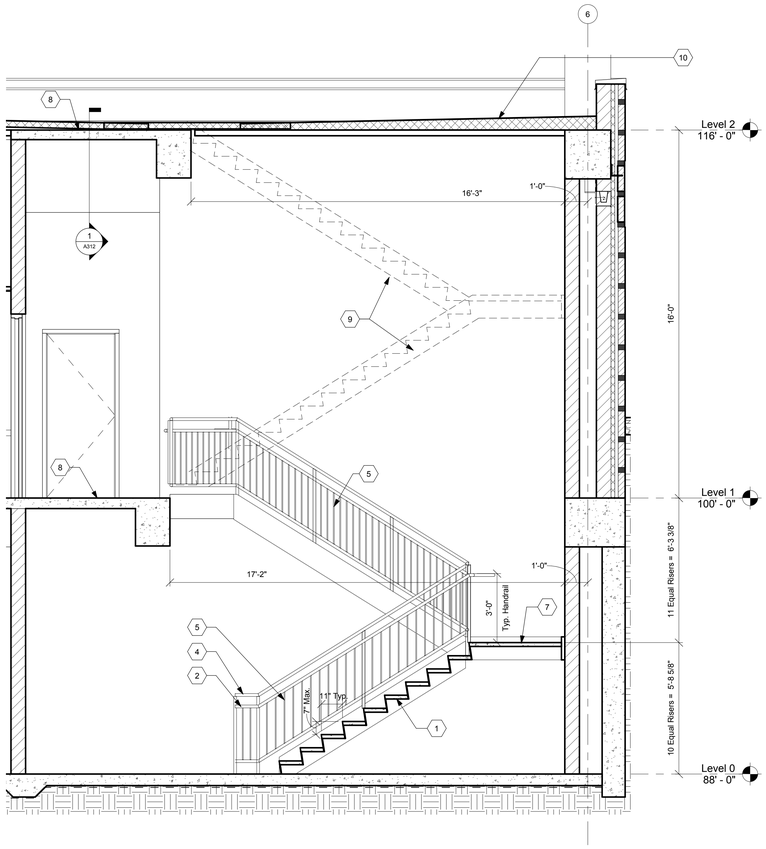
Office of Construction and Facilities Management

Department of Veterans Affairs

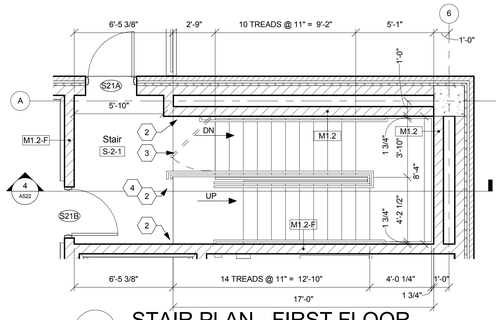
STAIR NOTES

1 Metal pan and concrete stair. See specification.
2 Painted steel handrail 1 1/2" ID. See specification section 55000. Grind all joints smooth and factory prime.
3 1 1/2" ID self closing steel gate.
4 Painted steel guardrail, 1 1/2" ID. See specifaction 55000. Grind joints smooth and factory prime.
5 3/4" steel pickets @ 4" o.c. Factory prime.
6 Basement wall. See Structural Dwgs.
7 Landing framing and concrete by Stair Manufacturer. See Specifications.
8 Concrete building frame. See structural drawings.
9 Future stairs and landing.
10 Roof assembly: Ballasted EDPM membrane over 1/4" per foot tapered insulation over 3" metal deck. 3" minimum insulation thickness. Provide 1 hour rated sprayed-on fireproofing on interior side of exposed deck and structure. Assembly shall be installed to allow for future removal.

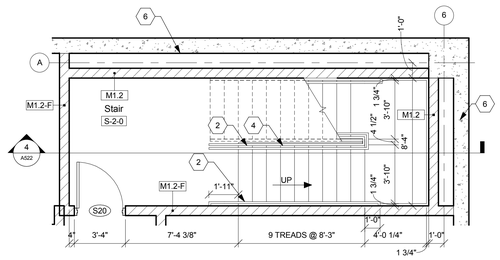
10 Roof assembly: Ballasted EDPM membrane over 1/4" per foot tapered insulation over 3" metal deck. 3" minimum insulation thickness. Provide 1 hour rated sprayed-on fireproofing on interior side of exposed deck and structure. Assembly shall be installed to allow for future removal. See Detail 3 on Sheet A321 & Structural Drawings.



4 STAIR SECTION
Scale: 3/8" = 1'-0"



2 STAIR PLAN - FIRST FLOOR
Scale: 1/4" = 1'-0"



1 STAIR PLAN - BASEMENT
Scale: 1/4" = 1'-0"

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Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A. POE 6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:
JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: STAIR PLANS & DETAILS

Approved: Project Director

Project Title: BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED: August 17, 2012

Checked: KR

Drawn: NS

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

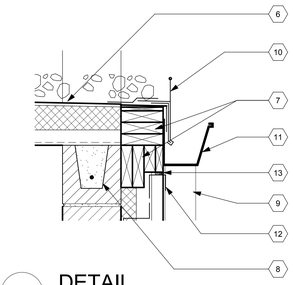
Building Number: 14

Drawing Number: A522

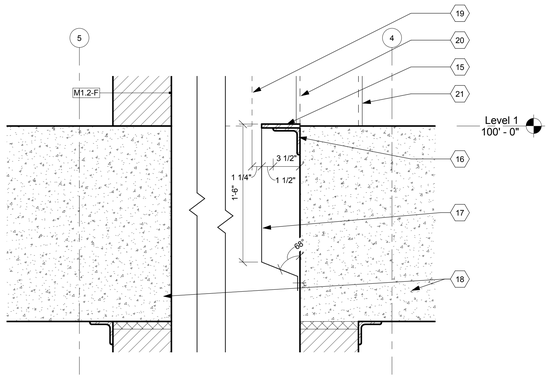
Dwg. of

Office of Construction and Facilities Management

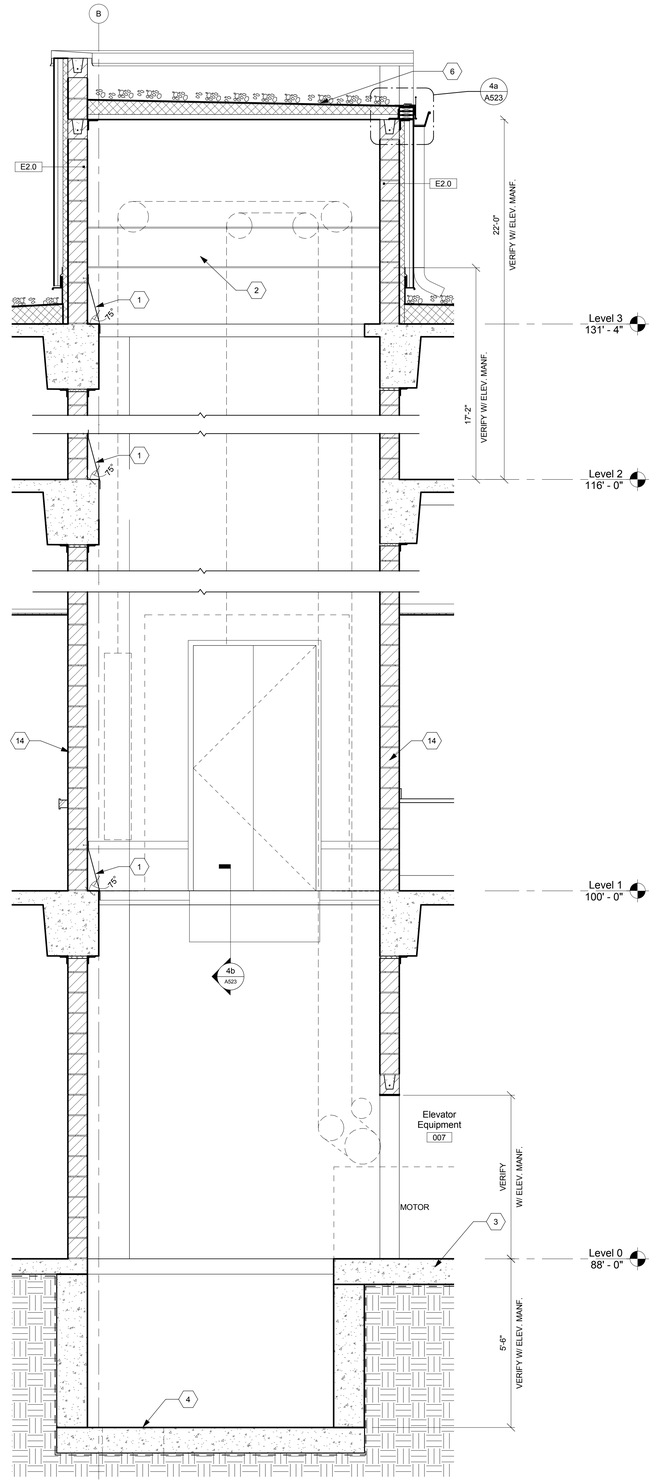
Department of Veterans Affairs



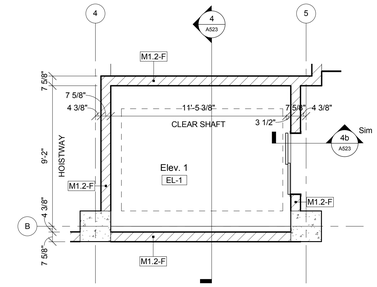
4a DETAIL
Scale: 1 1/2" = 1'-0"



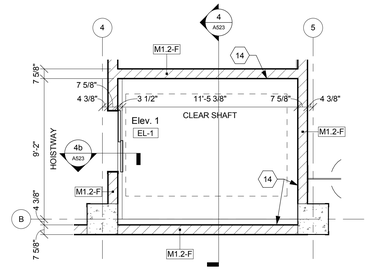
4b TYPICAL ELEVATOR SILL DETAIL
Scale: 1 1/2" = 1'-0"



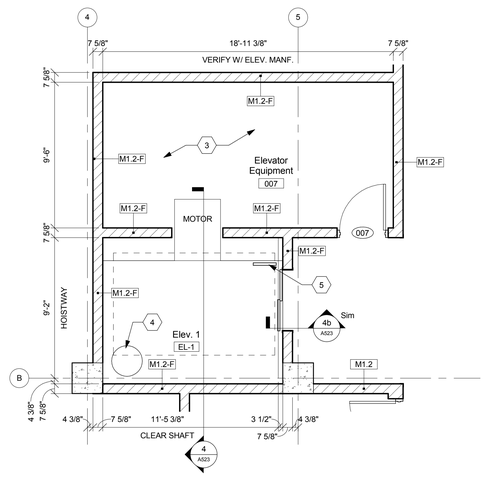
4 SECTION - ELEVATOR #1
Scale: 1/2" = 1'-0"



3 SECOND FLOOR - ELEVATOR #1
Scale: 1/4" = 1'-0"



2 FIRST FLOOR - ELEVATOR #1
Scale: 1/4" = 1'-0"



1 BASEMENT - ELEVATOR #1
Scale: 1/4" = 1'-0"

GENERAL NOTES

A. Verify all dimensional requirements with Elevator Manufacturer prior to erection.
B. Provide all elevator equipment and accessories required for a complete and functioning elevator.
C. Elevator is planned for future vertical expansion, for a total of 7 stops. See Specification for additional information.

⬡ ELEVATOR NOTES

1 20 ga. metal deflector at all shaft ledges, attached at top only.
2 Steel beam. See Structural Drawings.
3 Coordinate slab thickness and machine anchoring layout with manufacturer.
4 Sump. See Plumbing Drawings.
5 Steel pit ladder.
6 Roof assembly: Ballasted EDPM membrane over 1/4" per foot tapered insulation over 3" metal deck. 3" minimum insulation thickness. Provide 1 hour rated sprayed-on fireproofing on interior side of exposed deck and structure. Assembly shall be installed to allow for future removal.
7 Continuous fire retardant treated blocking as required. Pressure-treated at all exterior locations.
8 Bond beam. See structural drawings.
9 Metal 4" x 4" downspout.
10 Perforated gravel stop.
11 Metal 6" x 6" gutter.
12 Metal panel closure trim by panel manufacturer. Color to match panel color.
13 Metal fascia.
14 Grout CMU solid between 1st & 2nd floor slabs.
15 Metal sill per Elevator Manufacturer.
16 Steel angle.
17 20 ga. metal dust cover, bolt to wall.
18 Concrete building frame. See structural drawings.
19 Elevator cab.
20 Wall beyond.
21 Elevator door frame.

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Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A POE 6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:
JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: ELEVATOR PLANS & DETAILS
Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14
Location: Cincinnati, Ohio
Date: 07/20/2012
REVISED: August 17, 2012
Checked: KR
Drawn: NS

Project No.: VA Project No. 539-317; JPA Project No. 10005.00
Building Number: 14
Drawing Number: A523
Dwg. of

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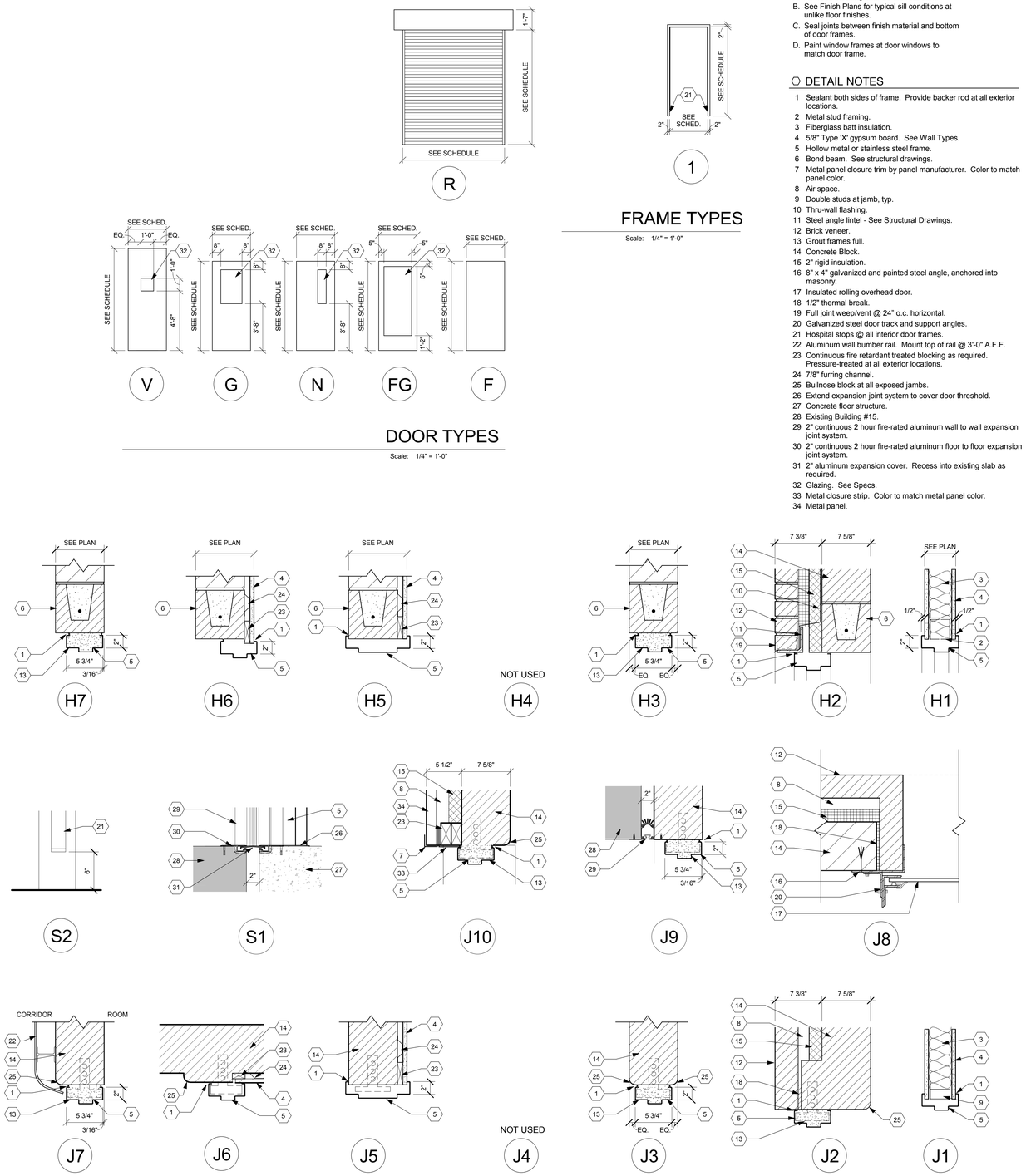
Department of Veterans Affairs



FRAME TYPES

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

DOOR TYPES

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

FRAME DETAILS

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

GENERAL NOTES

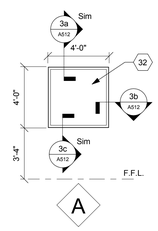
A. All wood blocking shall be fire retardant.
B. See Finish Plans for typical sill conditions at unlike floor finishes.
C. Seal joints between finish material and bottom of door frames.
D. Paint window frames at door windows to match door frame.

DETAIL NOTES

1 Sealant both sides of frame. Provide backer rod at all exterior locations.
2 Metal stud framing.
3 Fiberglass batt insulation.
4 5/8" Type 'X' gypsum board. See Wall Types.
5 Hollow metal or stainless steel frame.
6 Bond beam. See structural drawings.
7 Metal panel closure trim by panel manufacturer. Color to match panel color.
8 Air space.
9 Double studs at jamb, typ.
10 Thru-wall flashing.
11 Steel angle lintel - See Structural Drawings.
12 Brick veneer.
13 Grout frames full.
14 Concrete Block.
15 2" rigid insulation.
16 8" x 4" galvanized and painted steel angle, anchored into masonry.
17 Insulated rolling overhead door.
18 1/2" thermal break.
19 Full joint weep/vent @ 24" o.c. horizontal.
20 Galvanized steel door track and support angles.
21 Hospital stops @ all interior door frames.
22 Aluminum wall bumber rail. Mount top of rail @ 3'-0" A.F.F.
23 Continuous fire retardant treated blocking as required. Pressure-treated at all exterior locations.
24 7/8" furring channel.
25 Bullnose block at all exposed jambs.
26 Extend expansion joint system to cover door threshold.
27 Concrete floor structure.
28 Existing Building #15.
29 2" continuous 2 hour fire-rated aluminum wall to wall expansion joint system.
30 2" continuous 2 hour fire-rated aluminum floor to floor expansion joint system.
31 2" aluminum expansion cover. Recess into existing slab as required.
32 Glazing. See Specs.
33 Metal closure strip. Color to match metal panel color.
34 Metal panel.

DOOR SCHEDULE - BASE BID

	BETWEEN		DOOR DESCRIPTION						FRAME DESCRIPTION							
						SIZE										
DOOR#	RM	RM	TYPE	MAT'L	QTY.	W	H	T	TYPE	MAT'L	HEAD	JAMB	SILL	FIRE RATING	HDWE SET	REMARKS
001	001	Exist.	F	HM	2	3' - 0"	7' - 2"	1 3/4"	1	HM	J9 SIM.	J9	S2	1 1/2 Hr	9A	
002	001	002	F	HM	2	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	18	
003	001	003	F	HM	2	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	18B	
004	001	004	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	29A	
005	001	005	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	29	
006	001	006	F	HM	2	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	3/4 Hr	9	
007	001	007	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	1 1/2 Hr	13	
008	001	008	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	29A	
009	001	009	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	29A	
010A	001	010	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	29	
010B	001	010	F	HM	2	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	18A	
011A	001	011	F	HM	2	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	17	
011B	001	011	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	28	
012	001	012	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	28	
013	001	013	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	26	
014	001	014	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	26	
101	102	101	F	WD	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H1	J1	S2	--	28B	
102	105	102	G	WD	1	3' - 6"	7' - 10"	1 3/4"	1	HM	H1	J1	S2	--	31	
103A	103	EXT	FG	ALUM	2	3' - 0"	7' - 2"	1 3/4"	1	ALUM	H2 SIM.	J2 SIM.	--	--	1	Laminated glazing on the interior of insulated glazing
103B	103	102	FG	ALUM	2	3' - 0"	7' - 2"	1 3/4"	1	ALUM	H1 SIM.	J1 SIM.	--	--	2	
104	105	104	G	WD	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H1	J1	S2	--	28A	
105	113	105	G	WD	1	3' - 6"	7' - 10"	1 3/4"	1	HM	H1	J1	S2	--	22A	
107A	105	106	F	WD	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H1	J1	S2	--	22	
107B	106	113	F	WD	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H1	J1	S2	--	22	
108	106	108	F	WD	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H1	J1	S2	--	26A	
109A	105	110	F	WD	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H1	J1	S2	--	22	
109B	113	110	F	WD	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H1	J1	S2	--	22	
112	110	112	F	WD	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H1	J1	S2	--	26A	
113	117	113	G	FRP	1	3' - 6"	7' - 10"	1 3/4"	1	HM	H5	J5	S2	--	31	
114	113	114	F	WD	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H1	J1	S2	--	29F	
115	113	115	F	WD	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H1	J1	S2	--	28A	
118	117	118	F	FRP	2		7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	16	(1) 4'-0" Leaf x (1) 2'-0" Leaf, Auto Operator on 4'-0" leaf
119	117	119	V	FRP	1	4' - 0"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	24	Auto Operator
120	117	120	V	FRP	1	3' - 8"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	23	
122	121	122	V	FRP	1	3' - 8"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	23A	Red tinted vision window
123	117	123	F	FRP	1	3' - 0"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	29G	
124	121	124	V	FRP	1	3' - 8"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	23A	Red tinted vision window
125	126	125	V	FRP	1	3' - 0"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	25	
126	121	126	V	FRP	1	3' - 8"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	23A	
128	121	128	F	FRP	1	3' - 0"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	28B	
129	121	129	F	FRP	1	3' - 0"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	29E	
130	121	130	V	FRP	1	3' - 8"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	23A	Red tinted vision window
131	121	131	V	FRP	1	3' - 8"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	23A	Red tinted vision window
132	121	132	V	FRP	1	3' - 8"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	23A	Red tinted vision window
133	121	133	G	FRP	1	3' - 0"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	25A	
134	121	134	V	FRP	1	3' - 8"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	23A	Red tinted vision window
135	121	135	V	FRP	1	3' - 8"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	23A	Red tinted vision window
136	121	136	V	FRP	1	3' - 8"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	23A	Red tinted vision window
137	121	137	V	FRP	1	3' - 8"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	23A	Red tinted vision window
138	138	121	F	FRP	1	4' - 0"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	27	
139A	139	121	N	FRP	2	3' - 0"	7' - 10"	1 3/4"	1	SS	H7	J7	S2	--	19A	
139B	139	138	F	FRP	1	4' - 0"	7' - 10"	1 3/4"	1	SS	H3	J3	S2	--	32	
140A	139	140	N	HM	2	3' - 0"	7' - 10"	1 3/4"	1	HM	H3	J3	S2	--	19	
140B	140	EXT	R	STL	1	8' - 0"	12' - 8"	2"	--	--	--	J8	--	--	7	Insulated coiling door
140C	140	EXT	R	STL	1	6' - 0"	10' - 0"	2"	--	--	--	J8	--	--	13A	Insulated coiling door
140D	140	EXT	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H2	J2	S2	--	7	Laminated glazing on the interior of insulated glazing
141A	140	141	F	FRP	1	3' - 6"	7' - 10"	1 3/4"	1	HM	H3	J3	S2	1 Hr	13B	
141B	142	141	F	FRP	1	3' - 6"	7' - 10"	1 3/4"	1	HM	H3	J3	S2	1 Hr	13A	
142A	142	EXT	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H2	J2	S2	--	6	Laminated glazing on the interior of insulated glazing
142B	142	Exist.	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	J9 SIM.	J9	S1	1 1/2 Hr	11	
142C	133	142	G	FRP	1	3' - 0"	7' - 10"	1 3/4"	1	SS	H3	J3	S2	--	30	
143A	Exist.	143	F	HM	2	2' - 10"	7' - 2"	1 3/4"	1	HM	J9 SIM.	J9	S1	1 1/2 Hr	8	
143B	102	143	N	HM	2	3' - 0"	7' - 2"	1 3/4"	1	HM	H6	J6	S2	--	15	
203B	210	203	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	21	
204A	210	204	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	3/4 Hr	21	
204B	204		F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	J10 SIM.	J10	3/A305	3/4 Hr	21A	
205A	205	204	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	3/4 Hr	20	
205B		205	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	J10 SIM.	J10	3/A305	3/4 Hr	21A	
208	210	208	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	--	13	
211	210	211	F	WD	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H1	J1	S2	--	21	
S10A	S-1-0	001	F	FRP	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	1 1/2 Hr	12A	
S10B	S-1-0	001	F	FRP	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	1 1/2 Hr	12	
S11	S-1-1	102	F	FRP	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H5	J5	S2	1 1/2 Hr	10	
S12	S1-2	210	F	FRP	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	1 1/2 Hr	12A	
S20	S-2-0	001	F	FRP	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H3	J3	S2	1 1/2 Hr	12	
S21A	S-2-1	EXT	F	HM	1	3' - 0"	7' - 2"	1 3/4"	1	HM	H2	J2	S2	1 1/2 Hr	4	
S21B	S-2-1	117	F	FRP	1	3' - 0"	7' - 10"	1 3/4"	1	SS	H3	J3	S2	1 1/2 Hr	14	



BLAST-RESISTANT WINDOW TYPES

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

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO — JOHN A. POE 6549 — REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: DOOR SCHED. & DETAILS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED:
August 17, 2012

Checked: KR

Drawn: NS

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

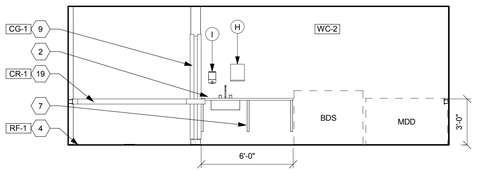
Building Number: 14

Drawing Number: A601

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs



12 Cage Wash Dirty 119
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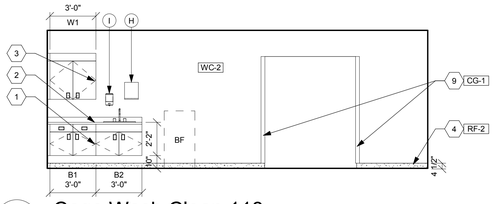

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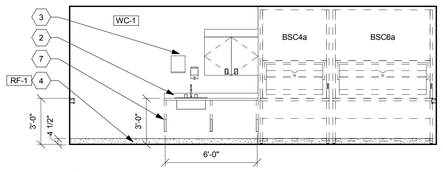

10 Typical Holding
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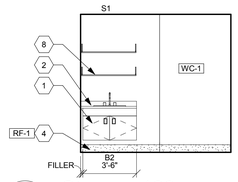

9 Storage 129
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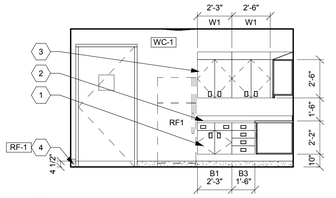

8 Procedure 126
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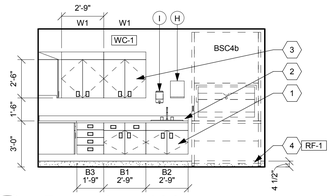

7 Procedure 126
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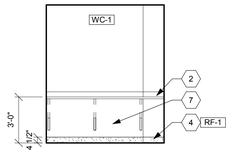

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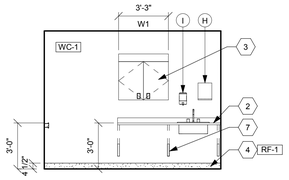

5 Quarantine 122
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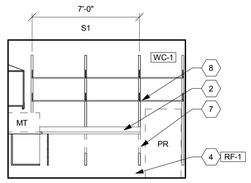

4 Necropsy 120
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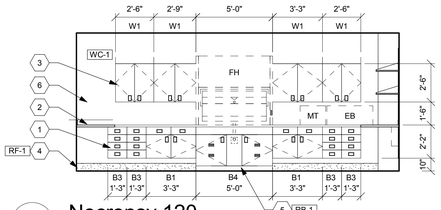

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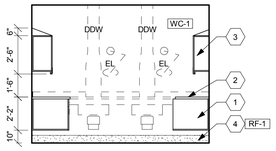

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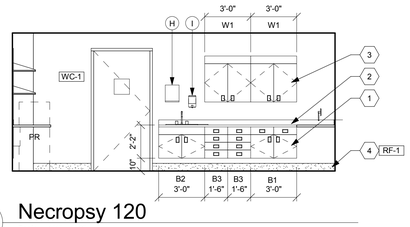


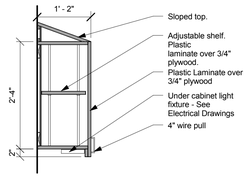
1 Necropsy 120
Scale: 1/4" = 1'-0"

GENERAL INT. ELEVATION NOTES

A. See sheet A801, A802 and A803 for Floor Finish Plans.
B. See sheet A701 for Casework Details.
C. See sheet A804 for Room Finish Schedule.
D. See sheet A804 for Finish Materials Legend.

⬡ ELEVATION NOTES

1 Suspended stainless steel base cabinet on wall mounted vertical uprights.
2 Stainless steel countertop and backsplash with rolled edge.
3 Stainless steel wall cabinet with sloped top.
4 Resinous floor cove base.
5 Remove existing window. Infill wall w/ brick & block. See Detail 3/A511.
5 Rubber base.
6 Stainless steel acid storage fume hood cabinet.
7 Wall mounted vertical uprights w/ cantilevered worksurface support bracket.
8 Stainless steel adjustable shelves on wall mounted vertical uprights.
9 Stainless steel corner guard to 7'-0" A.F.F.
10 Ceramic tile wainscot.
11 Cove base tile.
12 Bullnose tile.
13 Accent tile.
14 Metal locker with sloped top 12"W x 18"D x 24"H.
15 Base cabinet in plastic laminate finish.
16 Solid surface countertop and backsplash.
17 Wall cabinet in plastic laminate finish with sloped top.
18 Wall mounted coat hooks.
19 Aluminum crash rail.
20 Filler panels each side by locker manufacturer.
21 2x fire retardant treated wood blocking.
22 5/8" Type 'X' moisture-resistant gypsum board.
23 3-5/8" metal stud framing.
24 3/4" plywood.
25 Bond beam. See structural drawings.



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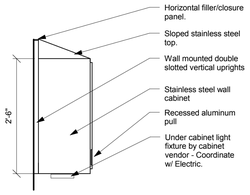

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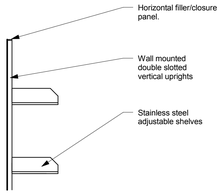

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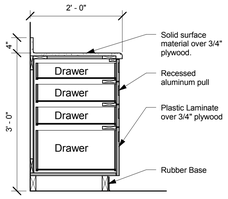

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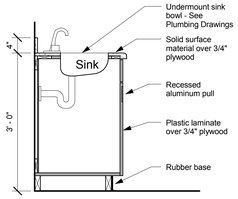

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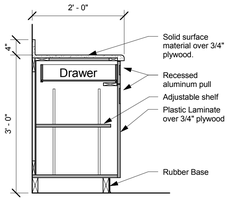

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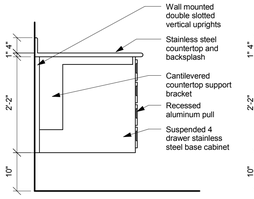

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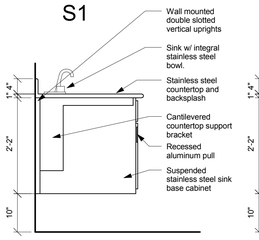

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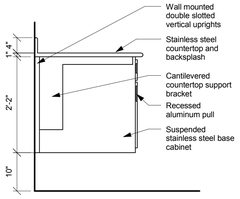

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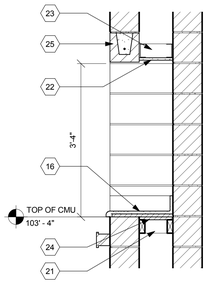


A DETAIL
Scale: 3/4" = 1'-0"

CASEWORK SECTIONS

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

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A. POE
6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:
JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: INTERIOR ELEVATIONS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

07/20/2012
REVISED:
August 17, 2012

Checker: KR
Drawn: KG

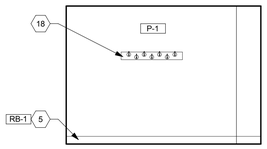
Project No.
VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

Drawing Number: A701

Dwg. of

Office of Construction and Facilities Management
Department of Veterans Affairs



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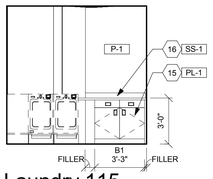

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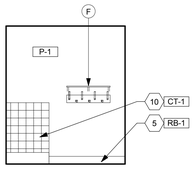

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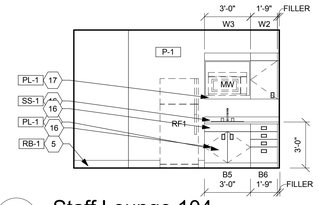

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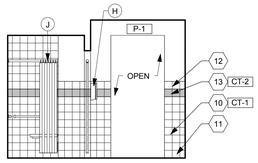

25 Shower 100
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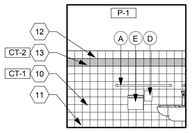

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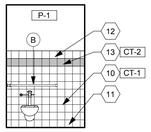

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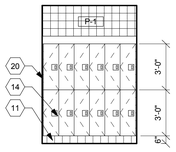

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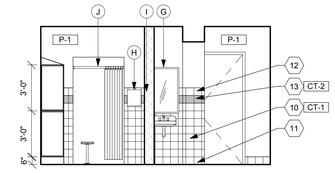
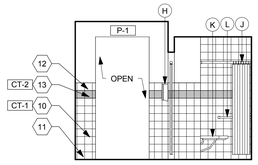
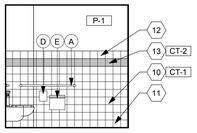


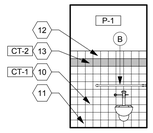
21 M. Locker 111
Scale: 1/4" = 1'-0"



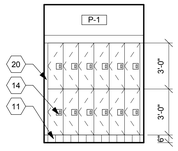
20 SHOWER 109
Scale: 1/4" = 1'-0"



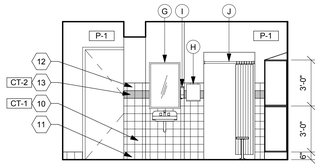
19 Toilet 108
Scale: 1/4" = 1'-0"



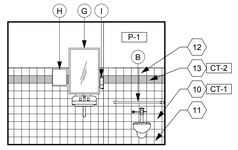
18 Toilet 108
Scale: 1/4" = 1'-0"



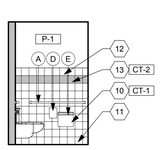
17 W. Locker 106
Scale: 1/4" = 1'-0"



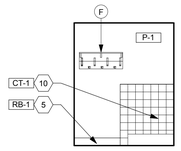
16 W. Locker 106
Scale: 1/4" = 1'-0"



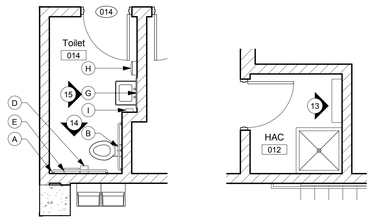
15 Toilet 014
Scale: 1/4" = 1'-0"



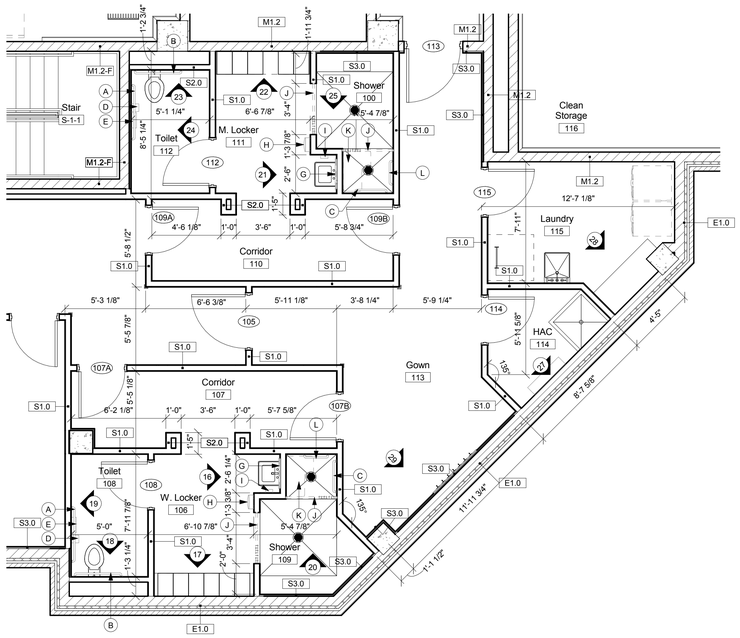
14 Toilet 014
Scale: 1/4" = 1'-0"



13 HAC 012
Scale: 1/4" = 1'-0"



N Enlarged Basement Plans
Scale: 1/4" = 1'-0"



N Enlarged First Floor Plan
Scale: 1/4" = 1'-0"

GENERAL INT. ELEVATION NOTES

A. See sheet A801, A802 and A803 for Floor Finish Plans.
B. See sheet A701 for Casework Details.
C. See sheet A804 for Room Finish Schedule.
D. See sheet A804 for Finish Materials Legend.

ELEVATION NOTES

1 Suspended stainless steel base cabinet on wall mounted vertical uprights.
2 Stainless steel countertop and backsplash with rolled edge.
3 Stainless steel wall cabinet with sloped top.
4 Resinous floor cove base.
5 Remove existing window. Infill wall w/ brick & block. See Detail 3/A511.
5 Rubber base.
6 Stainless steel acid storage fume hood cabinet.
7 Wall mounted vertical uprights w/ cantilevered worksurface support bracket.
8 Stainless steel adjustable shelves on wall mounted vertical uprights.
9 Stainless steel corner guard to 7'-0" A.F.F.
10 Ceramic tile wainscot.
11 Cove base tile.
12 Bullnose tile.
13 Accent tile.
14 Metal locker with sloped top 12"W x 18"D x 24"H.
15 Base cabinet in plastic laminate finish.
16 Solid surface countertop and backsplash.
17 Wall cabinet in plastic laminate finish with sloped top.
18 Wall mounted coat hooks.
19 Aluminum crash rail.
20 Filler panels each side by locker manufacturer.
21 2x fire retardant treated wood blocking.
22 5/8" Type 'X' moisture-resistant gypsum board.
23 3-5/8" metal stud framing.
24 3/4" plywood.
25 Bond beam. See structural drawings.

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A POE 6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:
JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: INTERIOR ELEVATIONS

Approved: Project Director

Project Title: BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED:
August 17, 2012

Checked: KR

Drawn: KG

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

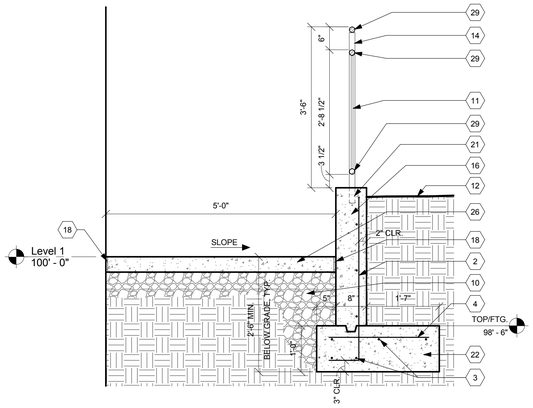
Drawing Number: A702

Dwg. of

Office of Construction and Facilities Management

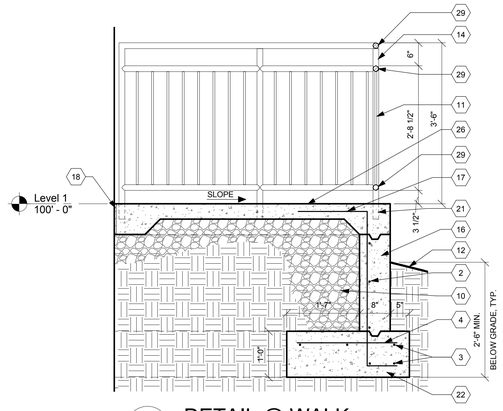
Department of Veterans Affairs

LOUVER SCHEDULE							
Mark	Width	Height	Height A.F.F.	Head	Jamb	Sill	Description
L1	10' - 0"	4' - 0"	7' - 4"				Provide insulated blank-off panel.
L6	3' - 4"	2' - 8"	2' - 8"	H10	S10, sim.	S10	
L7	3' - 4"	1' - 8"	8' - 6"				
L8	1' - 8"	1' - 8"	8' - 6"				
L9	5' - 0"	1' - 0"	4' - 6 1/8"				



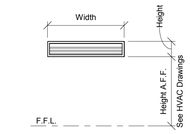
7 DETAIL @ WALK

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



6 DETAIL @ WALK

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

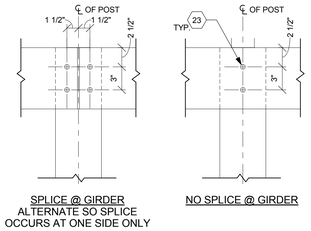


LOUVER ELEVATION

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

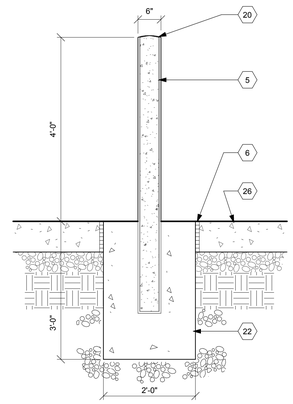
DETAIL NOTES

1. Sealant all sides of frame. Provide backer rod at all exterior locations.
2. #4 bars @ 12" o.c. each way. Hook bottom @ footing.
3. (5) #4 bars longitudinal in footing.
4. #4 bars @ 12" o.c.
5. Concrete filled steel bollard, field painted.
6. Expansion material w/ joint filler, typical.
7. 1" x 1-1/2" continuous steel angle.
8. Aluminum sight-proof louver with insect screen. See Mechanical Drawings.
9. Bullnose block at exposed sill & jambs.
10. 6" clean crushed aggregate fill over compacted sub-grade.
11. 1/2" dia. galvanized steel vertical @ 4" o.c., painted.
12. Finished grade. See Civil Drawings.
13. 8" wide bond beam.
14. 1 1/2" dia. galvanized steel post @ 4'-0" o.c., painted.
15. Full joint weep/vent @ 24" o.c. horizontal.
16. Concrete retaining wall. See Civil Drawings.
17. Field bend retaining wall verticals 1'-6" into S.O.G.
18. 1/2" expansion material.
19. 12" wide bond beam.
20. Round top to drain.
21. Core drill and grout posts solid.
22. Concrete foundation.
23. 5/8" dia. carriage bolt, galvanized.
24. Lipped brick.
25. Sill flashing.
26. 5" thick reinforced concrete slab. See Civil Drawings.
27. Turn block on side at sill.
28. Steel angle. See Structural Drawings.
29. 1 1/2" dia. galvanized steel tube, painted.
30. Thru wall flashing. Turn up wall 8" above top of mortar net and return flashing into mortar joint.
31. Fire retardant treated wood blocking. Pressure-treated at all exterior locations.
32. Mortar mesh.



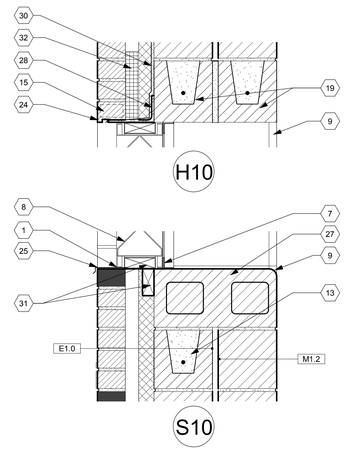
5 PERGOLA DETAILS

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



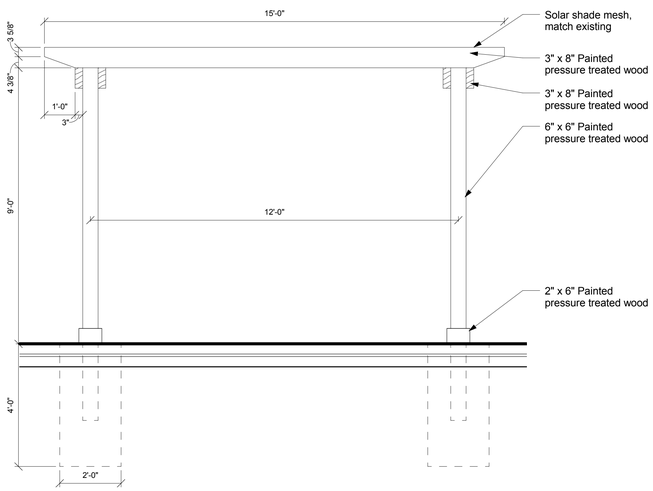
4 BOLLARD DETAIL

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



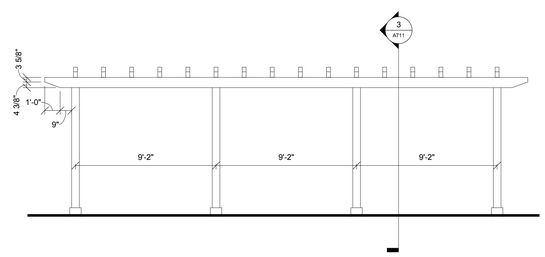
LOUVER DETAILS

Scale: N.T.S.



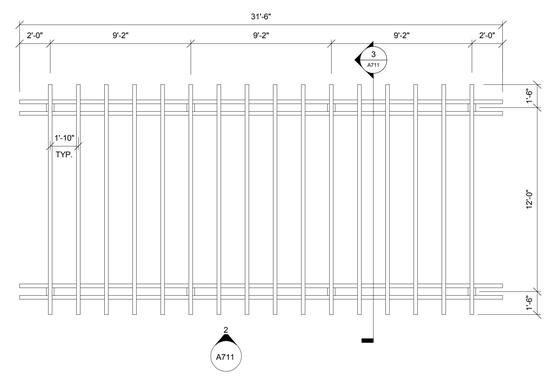
3 PERGOLA SECTION

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



2 PERGOLA ELEVATION

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



N 1 PERGOLA PLAN

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

FULLY SPRINKLERED

Revisions		
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A POE 6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: DETAILS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

07/20/2012
REVISED: August 17, 2012

Checked: KR

Drawn: NS

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: A711

Dwg. of

Office of Construction and Facilities Management

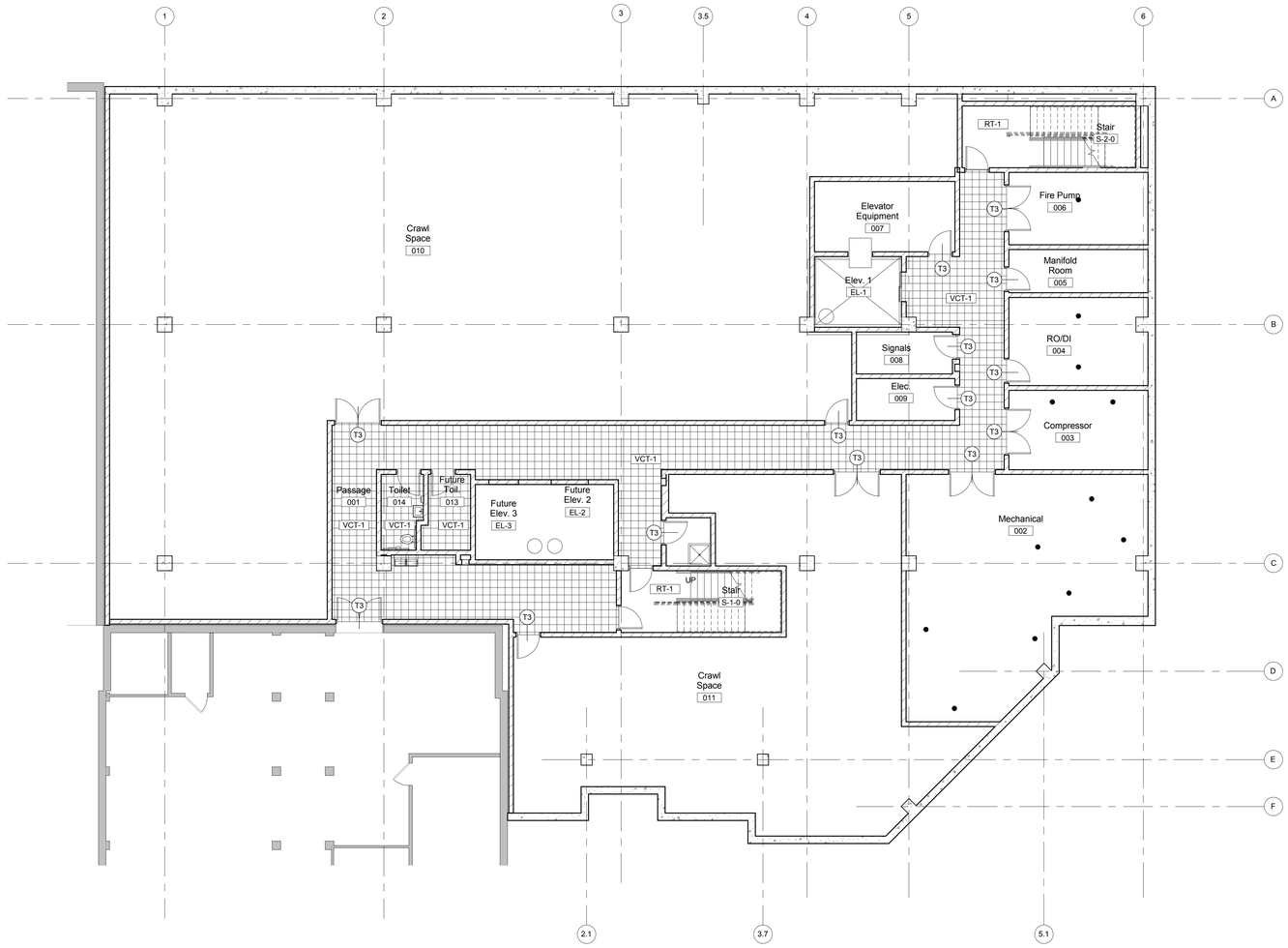
Department of Veterans Affairs

GENERAL FINISH PLAN NOTES

A. See Sheet A804 for Finish Materials Legend.
B. See Sheet A804 for Room Finish Schedule.
C. See Interior Elevations on Sheet A701 and A702 for further information.
D. See Sheet A801 for Floor Transition Details.

⬡ FINISH PLAN NOTES

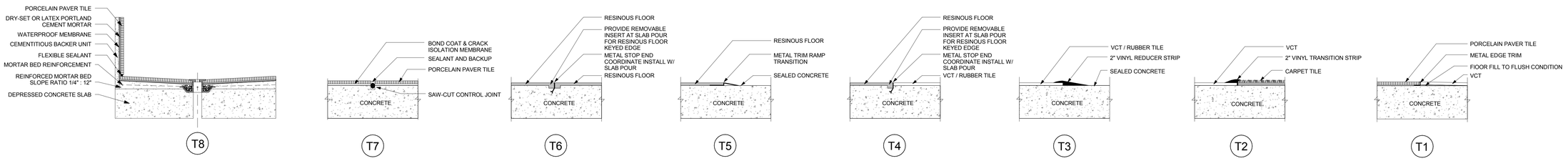
1 Slope floor at door 1/8" per foot. Slope to be in flooring finish product. Concrete slab to be level, stepped at door location.
2 Trench drain with cover. See Plumbing Drawings.
3 Floor drain - See Plumbing Drawings.
4 Recessed floor for equipment. Cover all surfaces with flooring product.



N

NEW WORK PLAN - BASEMENT

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



2

FLOOR TRANSITIONS

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

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO — JOHN A. POE 6549 — REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
joa@johnpoe.com

Drawing Title: BASEMENT FINISH PLAN

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED: August 17, 2012

Checked: KR

Drawn: KG

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: A801

Dwg. of

Office of Construction and Facilities Management

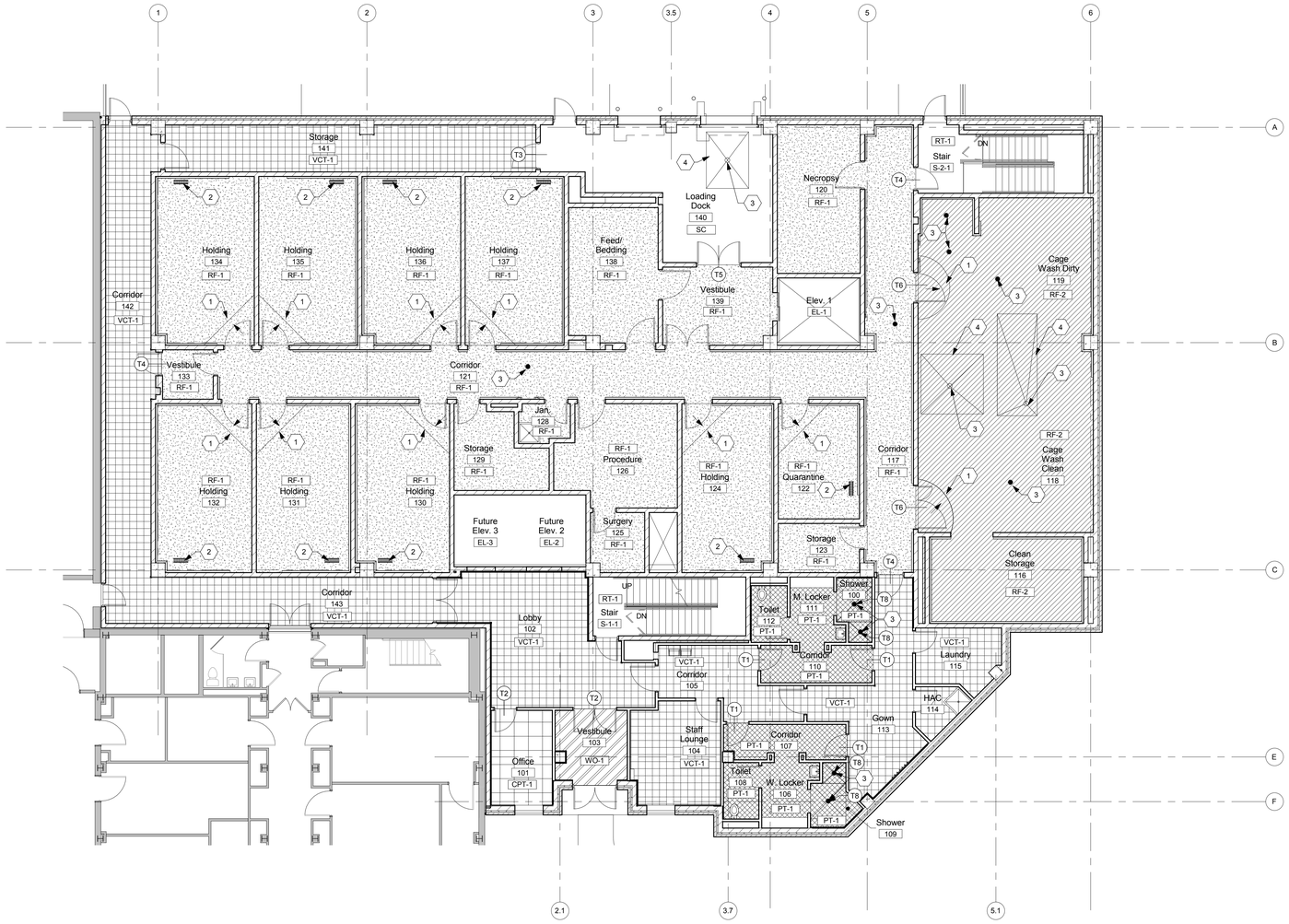
Department of Veterans Affairs

GENERAL FINISH PLAN NOTES

A. See Sheet A804 for Finish Materials Legend.
B. See Sheet A804 for Room Finish Schedule.
C. See Interior Elevations on Sheet A701 and A702 for further information.
D. See Sheet A801 for Floor Transition Details.

FINISH PLAN NOTES

1 Slope floor at door 1/8" per foot. Slope to be in flooring finish product. Concrete slab to be level, stepped at door location.
2 Trench drain with cover. See Plumbing Drawings.
3 Floor drain - See Plumbing Drawings.
4 Recessed floor for equipment. Cover all surfaces with flooring product.



FINISH PLAN - FIRST FLOOR

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

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO — JOHN A. POE 6549 — REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: FIRST FLOOR FINISH PLAN

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED: August 17, 2012

Checked: KR

Drawn: KG

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: A802

Dwg. of

Office of Construction and Facilities Management

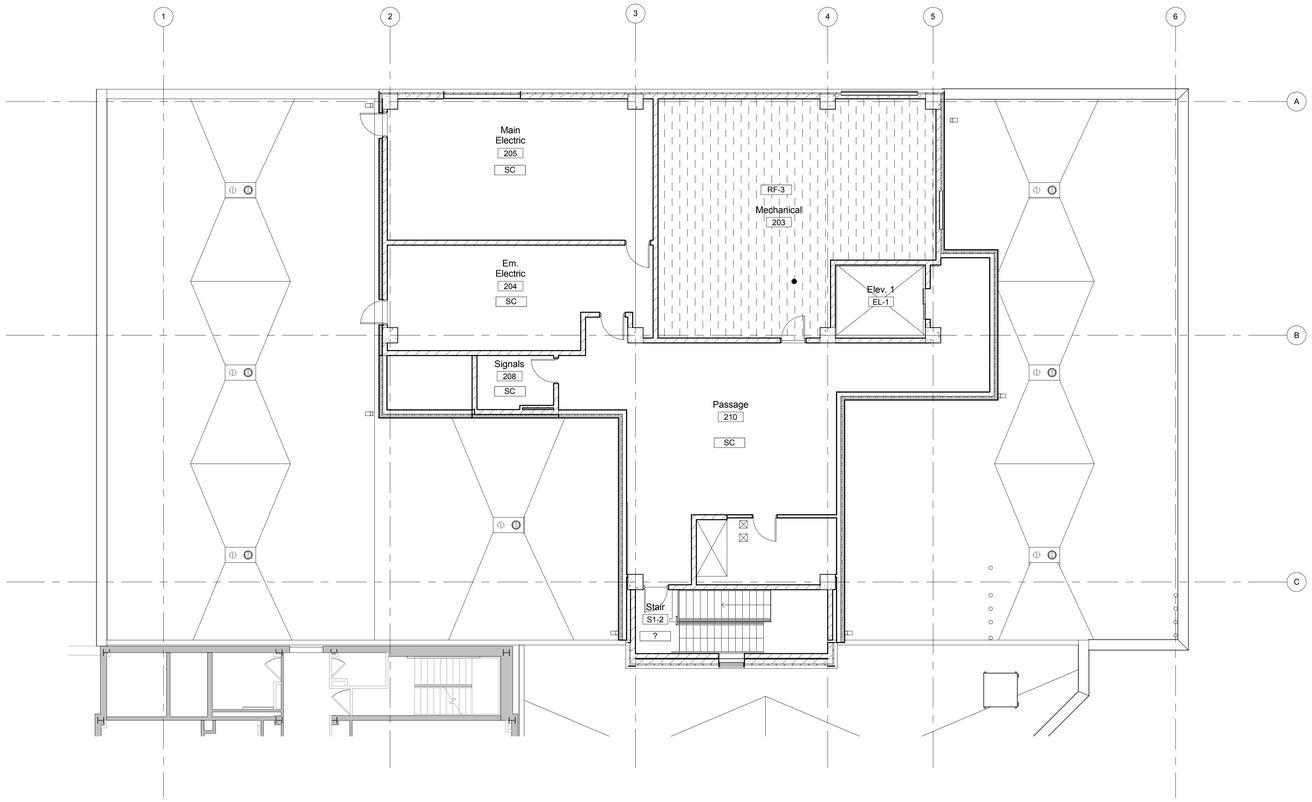
Department of Veterans Affairs

GENERAL FINISH PLAN NOTES

A. See Sheet A804 for Finish Materials Legend.
B. See Sheet A804 for Room Finish Schedule.
C. See Interior Elevations on Sheet A701 and A702 for further information.
D. See Sheet A801 for Floor Transition Details.

⬡ FINISH PLAN NOTES

1 Slope floor at door 1/8" per foot. Slope to be in flooring finish product. Concrete slab to be level, stepped at door location.
2 Trench drain with cover. See Plumbing Drawings.
3 Floor drain - See Plumbing Drawings.
4 Recessed floor for equipment. Cover all surfaces with flooring product.



N

FINISH PLAN - SECOND FLOOR

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

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A. POE
6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SECOND FLOOR FINISH PLAN

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED: August 17, 2012

Checked: KR

Drawn: KG

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

Drawing Number: A803

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs

GENERAL FINISH PLAN NOTES

A. See Sheet A804 for Finish Materials Legend.
B. See Sheet A804 for Room Finish Schedule.
C. See Interior Elevations on Sheet A701 and A702 for further information.
D. See Sheet A801 for Floor Transition Details.

⬡ FINISH PLAN NOTES

1. Slope floor at door 1/8" per foot. Slope to be in flooring finish product. Concrete slab to be level, stepped at door location.
2. Trench drain with cover. See Plumbing Drawings.
3. Floor drain - See Plumbing Drawings.
4. Recessed floor for equipment. Cover all surfaces with flooring product.

Finish Legend

ABBREV.	Finish Type	Manufacturer	Product/Color	Description
Ceiling Finishes				
ACT-1	Acoustic Ceiling Tile	Armstrong	Optima 3250 White 2'x2' Tegular Tile	15/16" Prelude XL Grid White
ACT-2	Acoustic Ceiling Tile	Armstrong	Clean Room VL 868 White 2'x2' Square Lay In	15/16" Clean Room Grid White
EP-1	Epoxy Paint	Glidden	Ceiling White	Gloss Level 3
Floor Finishes				
CPT-1	Carpet Tile	Lees	Design Scene DG393-357 Shadow Blue	Quarter Turn
PT-1	Porcelain Tile	Crossville	NOW 5DB9 Moss 6x6	Grout: Quartz Lock Star Quartz 370 Raincloud Gray
RB-1	Rubber Base	Johnsonite	6" Cove Base 49 Beige	
RF-1	Resinous Epoxy w/ Vinyl Chip Broadcast	Sika	DecoFlake 40; Color: Opal	
RF-2	Urethane Cement Flooring	Sika	PurCem 22N; Color: Oxford Gray	
RF-3	Waterproof Floor System	Sika	Sikafloor Merlex 40	
RT-1	Rubber Tile / Stair Tread	Johnsonite	Bamboo Rubber Tile BMRT-49 Beige; Stair Tread w/ Integrated Riser: RTR-BMRT-09 Clay	
VCT-1	Vinyl Composition Tile	Mannington	Brushwork 707 canvas	Recycled Vinyl Content
WO-1	Walk Off Carpet	Waterhog	Classic Square Charcoal	
Miscellaneous Finishes				
PL-1	Plastic Laminate	Nevamar	Carmel Sagawood WM8350T	
SS-1	Solid Surface	Formica	Chicory Mosaic 651	
Wall Finishes				
CT-1	Ceramic Tile	American Olean	Gloss Almond 0012 6x6	Grout: Quartz Lock Star Quartz 145 Bone
CT-2	Ceramic Tile	American Olean	Gloss Light Smoke 0042 6x6	Grout: Quartz Lock Star Quartz 145 Bone
EP-2	Epoxy Paint	Glidden	Mushroom Cap 20YY 55/151	Gloss Level 5
P-1	Paint	Glidden	Water Chestnut 30YY 62/127	Gloss Level 3
P-2	Paint	Glidden	Nocturnal 30BG 31/053	Gloss Level 3
P-3	Paint	Glidden	Mushroom Cap 20YY 55/151	Gloss Level 5
P-4	Paint	Glidden	Ceiling White	Gloss Level 1
WC-1	High Performance Wall Coating	Sika	Hygiene GP; Color: 577	
WC-2	High Performance Wall Coating	Sika	Descoglas RF; Color: 577	
WC-3	High Performance Wall Coating	Sika	Hygiene GP; Color: Ref. 3150	
Wall Protection				
CG-1	Corner Guard	CS Acrovyn	Stainless Steel CO-8	
CG-2	Corner Guard	Korogard	G100 Cream	
CR-1	Crash Rail	CS Acrovyn	Aluminum Crash Rail ECR-60A 6"	

PRODUCT MANUFACTURER AND COLOR ARE LISTED TO CONVEY DESIGN INTENT. ALTERNATE PRODUCTS WILL BE ALLOWED PROVIDED THEY ARE OF EQUAL QUALITY AND AESTHETIC/COLOR

TOILET ACCESSORIES SCHEDULE

MARK	ITEM	MOUNTING HEIGHT	COMMENTS
A	GRAB BAR 42" LENGTH	33" A.F.F. TO CENTER LINE	PROVIDED AND INSTALLED BY GC
B	GRAB BAR 36" LENGTH	33" A.F.F. TO CENTER LINE	PROVIDED AND INSTALLED BY GC
C	GRAB BAR 24" LENGTH	33" A.F.F. TO CENTER LINE	PROVIDED AND INSTALLED BY GC
D	TOILET TISSUE DISPENSER	19" A.F.F. TO CENTER LINE	PROVIDED BY OWNER, INSTALLED BY GC
E	SAN. NAP. DISPOSAL	31" A.F.F. TO TOP	PROVIDED BY OWNER, INSTALLED BY GC
F	MOP HOLDER	38"-48" A.F.F.	PROVIDED AND INSTALLED BY GC
G	MIRROR	40" A.F.F. TO BOTTOM OF MIRROR	PROVIDED AND INSTALLED BY GC
H	PAPER TOWEL DISPENSER	48" A.F.F. TO BOTTOM OF UNIT	PROVIDED BY OWNER, INSTALLED BY GC
I	SOAP DISPENSER	LEVER AT 44" A.F.F.	PROVIDED BY OWNER, INSTALLED BY GC
J	SHOWER CURTAIN ROD	76" A.F.F. TO CENTER LINE	PROVIDED AND INSTALLED BY GC
K	ADA SHOWER SEAT	19" A.F.F. TO TOP	PROVIDED AND INSTALLED BY GC

Room Finish Schedule

Number	Name	Floor	Base	Wall - N	Wall - E	Wall - S	Wall - W	Ceiling
001	Passage	VCT-1	RB-1	P-1	P-1	P-1	P-1	OPEN
002	Mechanical	SC	RB-1	P-1	P-1	P-1	P-1	OPEN
003	Compressor	SC	RB-1	P-1	P-1	P-1	P-1	OPEN
004	RO/DI	SC	RB-1	P-1	P-1	P-1	P-1	OPEN
005	Manifold Room	SC	RB-1	P-1	P-1	P-1	P-1	OPEN
006	Fire Pump	SC	RB-1	P-1	P-1	P-1	P-1	OPEN
007	Elevator Equipment	-	-	P-1	P-1	P-1	P-1	OPEN
008	Signals	SC	RB-1	P-1	P-1	P-1	P-1	OPEN
009	Elec.	SC	RB-1	P-1	P-1	P-1	P-1	OPEN
012	HAC	SC	RB-1	P-1	P-1	P-1	P-1	ACT-2
014	Toilet	VCT-1	CTB-1	CT-1/2, P-1	CT-1/2, P-1	CT-1/2, P-1	CT-1/2, P-1	ACT-2
100	Shower	PT-1	CTB-1	CT-1/2	CT-1/2	CT-1/2	CT-1/2	P-4
101	Office	CPT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1
102	Lobby	VCT-1	RB-1	P-2	P-2	P-2	P-2	ACT-1
103	Vestibule	WO-1	RB-1	P-1	P-1	P-1	P-1	ACT-1
104	Staff Lounge	VCT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1
105	Corridor	VCT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1
106	W. Locker	PT-1	CTB-1	CT-1/2, P-1	CT-1/2, P-1	CT-1/2, P-1	CT-1/2, P-1	P-4
108	Toilet	PT-1	CTB-1	CT-1/2, P-1	CT-1/2, P-1	CT-1/2, P-1	CT-1/2, P-1	P-4
109	Shower	PT-1	CTB-1	CT-1/2	CT-1/2	CT-1/2	CT-1/2	P-4
110	Corridor	PT-1	CTB-1	P-1	P-1	P-1	P-1	P-4
112	Toilet	PT-1	CTB-1	CT-1/2, P-1	CT-1/2, P-1	CT-1/2, P-1	CT-1/2, P-1	P-4
113	Gown	VCT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1
114	HAC	VCT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1
115	Laundry	VCT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1
116	Clean Storage	RF-2	RF-2	WC-2	WC-2	WC-2	WC-2	EP-1
117	Corridor	RF-1	RF-1	WC-1	WC-1	WC-1	WC-3	ACT-2
118	Cage Wash Clean	RF-2	RF-2	-	WC-2	WC-2	WC-2	EP-1
119	Cage Wash Dirty	RF-2	RF-2	WC-2	WC-2	-	WC-2	EP-1
120	Necropsy	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
121	Corridor	RF-1	RF-1	WC-1	WC-1	WC-3	WC-1	ACT-2
122	Quarantine	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
123	Storage	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
124	Holding	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
125	Surgery	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
126	Procedure	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
128	Jan.	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
129	Storage	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
130	Holding	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
131	Holding	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
132	Holding	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
133	Vestibule	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
134	Holding	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
135	Holding	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
136	Holding	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
137	Holding	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
138	Feed/ Bedding	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	EP-1
139	Vestibule	RF-1	RF-1	WC-1	WC-1	WC-1	WC-1	OPEN
140	Loading Dock	SC	RB-1	P-1	P-1	P-1	P-1	OPEN
141	Storage	VCT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1
142	Corridor	VCT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1
143	Corridor	VCT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1
203	Mechanical	RF-3	RF-3	P-1	P-1	P-1	P-1	OPEN
204	Em. Electric	SC	RB-1	P-1	P-1	P-1	P-1	OPEN
205	Main Electric	SC	RB-1	P-1	P-1	P-1	P-1	OPEN
208	Signals	SC	RB-1	P-1	P-1	P-1	P-1	OPEN
S1-2	Stair	RT-1	RB-1	P-1	P-1	P-1	P-1	OPEN
S-1-0	Stair	RT-1	RB-1	P-1	P-1	P-1	P-1	OPEN
S-1-1	Stair	RT-1	RB-1	P-1	P-1	P-1	P-1	OPEN
S-2-0	Stair	RT-1	RB-1	P-1	P-1	P-1	P-1	OPEN
S-2-1	Stair	RT-1	RB-1	P-1	P-1	P-1	P-1	OPEN

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A POE 6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:
JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: FINISH SCHEDULE

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED:
August 17, 2012

Checked: KR

Drawn: KG

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: A804

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs

EQUIPMENT LEGEND

C C - CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
C F - OWNER FURNISHED, CONTRACTOR INSTALLED
V V - OWNER FURNISHED, OWNER INSTALLED

⬡ FURNITURE NOTES

1 Systems furniture furnished and installed by Owner. Coordinate electric and data as required.
2 Bench provided and installed by Owner.
3 Table and chairs provided and installed by Owner.

EQUIPMENT PLAN - FIRST FLOOR

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

Equipment Schedule

Tag	Description	Manufacturer	Model	Count	Supplier / Installer	Width	Depth	Height	Mounting Location	Volt	Amp	Em.	UPS	Data	Alarm	Cold Water	Hot Water	Steam	Drain	Comp. Air	Remarks
104																					
Staff Lounge																					
MW	30" x 16" x 18"			1																	
RF1	Refrigerator			1	V V	2' - 4"	3' - 0"	6' - 6"	F	115	9.4	--	--	--	--	--	--	--	--	--	
115																					
Laundry																					
W/D	Washer_Dryer			1	V V																
117																					
Corridor																					
CF	Chest Freezer			1	V V	2' - 6"	4' - 0"	3' - 0"													
118																					
Cage Wash Clean																					
BF	Bottle Fill Station	Lynx	100LX	1	V V	2' - 0"	3' - 8"	3' - 9"	F	480V-3Ph	2	--	--	--	--	X	--	--	X	--	
CIS	Chlorine Injection Station	Edstrom	CFC-305	1	C F	2' - 0"	9"	3' - 3"	W	115	1	--	--	--	--	X	--	--	--	--	
CW	Cabinet Washer	Lynx	330LX	1	C F	6' - 4"	4' - 4"	6' - 10"	F	480V-3Ph	13	--	--	--	--	X	X	X	X	X	Vented, condesate drain
FBS	Filter Bank Station	Edstrom	7110-9168-060	1	C F	2' - 0"	9"	3' - 3"	W			--	--	--	--	X	--	--	--	--	
FS	Flush Station	Edstrom	CFS-305	1	C F	3' - 1"	9"	3' - 3"	W	115	1	--	--	--	--	X	--	--	--	--	
119																					
Cage Wash Dirty																					
BDS	Bedding Dump Station	--	--	1	C C	4' - 6"	2' - 6"	3' - 6"	F			--	--	--	--	--	--	--	--	--	Exhausted, Provide 4 disposal containers
CRW	Cage & Rack Washer	Lynx	430LX	1	C F	7' - 2"	16' - 4"	8' - 8"	12" Pit	480V-3Ph	33	--	--	--	X	X	X	X	X	X	
MDD	Manifold Detergent Drums			1	C F	2' - 10"	5' - 4"	3' - 0"													By CRW/CW vendor
ST	Bulk Sterilizer	Beta Star	VR368686 DRM	1	C C	10' - 2"	8' - 6"	9' - 1"	12" Pit	110	5	--	--	--	--	--	X	X	X	X	Sink
120																					
Necropsy																					
DDW	Downdraft workstation	--	--	2	C C	5' - 0"	2' - 6"	3' - 1"	W			--	--	--	X	--	--	X	--	--	100% exhaust
EB	Embedding	Existing OFOI	--	1	V V	3' - 0"	2' - 1"	1' - 3"	B			--	--	--	--	--	--	--	--	--	Verify requirements with Owner
EL	Exam Light - Single Head	Steris	Amsco Examiner 10	3	C F				W	120	1.5	--	--	--	--	--	--	--	--	--	Wall mount, provide (2) 14" extensions
FH	Chemical Fume Hood	--	--	1	C F	5' - 0"	2' - 9 3/4"	4' - 11"	B	115	11.1	--	--	--	--	--	--	--	--	--	
MT	Microtome	Existing OFOI	--	1	V V	1' - 8"	2' - 4"	1' - 3"	B			--	--	--	--	--	--	--	--	--	Verify requirements with Owner
PR	Processor	Existing OFOI	--	1	V V	2' - 0"	2' - 4"	4' - 6"	F			--	--	--	--	--	--	--	--	--	Verify requirements with Owner
121																					
Corridor																					
AWS	AWS Controller	Edstrom	--	1	C F	1' - 2"	6"	1' - 4"	W	120	1.5										Recess, wall mounted
ESP	ESP Controller	Edstrom	--	1	CF	1' - 2"	6"	1' - 4"	W												Recess, wall mounted
122																					
Quarantine																					
BSC4a	Bio-Safety Cabinet - Class II Type A2 (4)	Labconco	Purifier Logic - 3440801	1	C F	4' - 6"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
VCR	Ventilated Cage Rack	Lab Products	75140AR	2	V V	5' - 8"	2' - 6"	6' - 6"	F	120	1.5	X	--	--	--	--	--	--	--	--	Direct connect exhuast to house system
124																					
Holding																					
BSC4a	Bio-Safety Cabinet - Class II Type A2 (4)	Labconco	Purifier Logic - 3440801	1	C F	4' - 6"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
BSC6a	Bio-Safety Cabinet - Class II Type A2 (6)	Labconco	Purifier Logic - 3460801	1	C F	6' - 6 5/16"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
VCR	Ventilated Cage Rack	Lab Products	75140AR	4	V V	5' - 8"	2' - 6"	6' - 6"	F	120	1.5	X	--	--	--	--	--	--	--	--	Direct connect exhuast to house system
125																					
Surgery																					
EL	Exam Light - Single Head	Steris	Amsco Examiner 10	1	C F				W	120	1.5	--	--	--	--	--	--	--	--	--	Wall mount, provide (2) 14" extensions
SN	Snorkel	Nederman	FX Extractor Arm	1	C F				W			--	--	--	--	--	--	--	--	--	Exhausted, wall mounted
126																					
Procedure																					
BSC4b	Bio-Safety Cabinet - Class II Type B2 (4) 2	Labconco	Purifier Logic - 3441001	1	C F	4' - 6 5/16"	2' - 7 3/16"	5' - 1 3/8"	B	115	12	X	--	--	--	--	--	--	--	--	
BSC6b	Bio-Safety Cabinet - Class II Type B2 (6)			1	CF	6' - 6 5/16"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
RF1	Refrigerator			1	V V	2' - 4"	3' - 0"	6' - 6"	F	115	9.4	--	--	--	--	--	--	--	--	--	
130																					
Holding																					
BSC4a	Bio-Safety Cabinet - Class II Type A2 (4)	Labconco	Purifier Logic - 3440801	1	C F	4' - 6"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
BSC6a	Bio-Safety Cabinet - Class II Type A2 (6)	Labconco	Purifier Logic - 3460801	1	C F	6' - 6 5/16"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
VCR	Ventilated Cage Rack	Lab Products	75140AR	4	V V	5' - 8"	2' - 6"	6' - 6"	F	120	1.5	X	--	--	--	--	--	--	--	--	Direct connect exhuast to house system
131																					
Holding																					
BSC4a	Bio-Safety Cabinet - Class II Type A2 (4)	Labconco	Purifier Logic - 3440801	1	C F	4' - 6"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
BSC6a	Bio-Safety Cabinet - Class II Type A2 (6)	Labconco	Purifier Logic - 3460801	1	C F	6' - 6 5/16"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
VCR	Ventilated Cage Rack	Lab Products	75140AR	4	V V	5' - 8"	2' - 6"	6' - 6"	F	120	1.5	X	--	--	--	--	--	--	--	--	Direct connect exhuast to house system
132																					
Holding																					
BSC4a	Bio-Safety Cabinet - Class II Type A2 (4)	Labconco	Purifier Logic - 3440801	1	C F	4' - 6"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
BSC6a	Bio-Safety Cabinet - Class II Type A2 (6)	Labconco	Purifier Logic - 3460801	1	C F	6' - 6 5/16"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
VCR	Ventilated Cage Rack	Lab Products	75140AR	4	V V	5' - 8"	2' - 6"	6' - 6"	F	120	1.5	X	--	--	--	--	--	--	--	--	Direct connect exhuast to house system
134																					
Holding																					
BSC4a	Bio-Safety Cabinet - Class II Type A2 (4)	Labconco	Purifier Logic - 3440801	1	C F	4' - 6"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
BSC6a	Bio-Safety Cabinet - Class II Type A2 (6)	Labconco	Purifier Logic - 3460801	1	C F	6' - 6 5/16"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
VCR	Ventilated Cage Rack	Lab Products	75140AR	4	V V	5' - 8"	2' - 6"	6' - 6"	F	120	1.5	X	--	--	--	--	--	--	--	--	Direct connect exhuast to house system
135																					
Holding																					
BSC4a	Bio-Safety Cabinet - Class II Type A2 (4)	Labconco	Purifier Logic - 3440801	1	C F	4' - 6"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
BSC6a	Bio-Safety Cabinet - Class II Type A2 (6)	Labconco	Purifier Logic - 3460801	1	C F	6' - 6 5/16"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
VCR	Ventilated Cage Rack	Lab Products	75140AR	4	V V	5' - 8"	2' - 6"	6' - 6"	F	120	1.5	X	--	--	--	--	--	--	--	--	Direct connect exhuast to house system
136																					
Holding																					
BSC4a	Bio-Safety Cabinet - Class II Type A2 (4)	Labconco	Purifier Logic - 3440801	1	C F	4' - 6"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
BSC6a	Bio-Safety Cabinet - Class II Type A2 (6)	Labconco	Purifier Logic - 3460801	1	C F	6' - 6 5/16"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
VCR	Ventilated Cage Rack	Lab Products	75140AR	4	V V	5' - 8"	2' - 6"	6' - 6"	F	120	1.5	X	--	--	--	--	--	--	--	--	Direct connect exhuast to house system
137																					
Holding																					
BSC4a	Bio-Safety Cabinet - Class II Type A2 (4)	Labconco	Purifier Logic - 3440801	1	C F	4' - 6"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
BSC6a	Bio-Safety Cabinet - Class II Type A2 (6)	Labconco	Purifier Logic - 3460801	1	C F	6' - 6 5/16"	2' - 7 3/16"	5' - 1 3/8"	B/F	115	12	--	--	--	--	--	--	--	--	--	
VCR	Ventilated Cage Rack	Lab Products	75140AR	4	V V	5' - 8"	2' - 6"	6' - 6"	F	120	1.5	X	--	--	--	--	--	--	--	--	Direct connect exhuast to house system

FULLY SPRINKLERED

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

STATE OF OHIO
JOHN A. POE
6549
REGISTERED ARCHITECT

ARCHITECT/ENGINEERS:
JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: EQUIPMENT PLAN & SCHEDULE

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG. 14

Location: Cincinnati, Ohio

Date: 07/20/2012
REVISED: August 17, 2012

Checked: KR

Drawn: NS

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

Drawing Number: A901

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs

GENERAL NOTES

A. CODES AND SPECIFICATIONS

1. INTERNATIONAL BUILDING CODE 2006.
2. PHYSICAL SECURITY DESIGN MANUAL: MISSION CRITICAL FACILITIES, JULY 2007 (AS MODIFIED BY CINCINNATI VA).
3. UNIFIED FACILITIES CRITERIA – UFC 04-023-03 (2005) LOW LEVEL OF PROTECTION.
4. VA H-18-8 SEISMIC DESIGN REQUIREMENTS, JULY 2010
5. ACI 318-05, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
6. ACI 301-05 SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS AS MODIFIED BY THE CONSTRUCTION DOCUMENTS.
7. ASCE 7-05, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.

B. FOUNDATIONS

1. THE FOUNDATION DESIGN IS BASED UPON THE RECOMMENDATIONS INCLUDED IN THE REPORT OF GEOTECHNICAL EXPLORATION PREPARED BY H.C. NUTTING, DATED NOVEMBER 22, 2010.
2. FOUNDATION ELEVATIONS SHOWN ARE ESTIMATED AND ARE FOR BIDDING PURPOSES ONLY. ACTUAL ELEVATIONS MAY VARY TO SUIT SUBSURFACE SOIL CONDITIONS
3. ALL BEARING SURFACES SHALL BE UNDISTURBED, LEVEL (WITHIN 1 IN 12), AND SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING CONCRETE.
4. UNLESS APPROVED OTHERWISE BY THE GEOTECHNICAL ENGINEER AND THE STRUCTURAL ENGINEER, ALL FOOTINGS ARE TO BE POURED NEAT (WITHOUT SIDE FORMS). WHERE EARTH CUTS WILL NOT STAND, SIDES SHALL BE FORMED, SUBJECT TO ENGINEERS' APPROVAL.
5. DRILLED PIER FOUNDATIONS ARE DESIGNED TO BEAR IN UNWEATHERED GREY SHALE AND LIMESTONE WITH AN ALLOWABLE BEARING PRESSURE OF 60 KSF. A MINIMUM PENETRATION OF FIVE FEET IS REQUIRED INTO THE GREY SHALE/LIMESTONE STRATA. ALL PIER BEARINGS SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO CONCRETING.
6. SET COLUMN DOWELS AND ANCHOR RODS WITH TEMPLATE PRIOR TO CONCRETING.
7. WEATHERED SHALE AND THE ENCOUNTERED FLOATERS AND/OR LIMESTONE LAYERS ARE ANTICIPATED ABOVE BEDROCK.

C. CONCRETE

1. CONCRETE STRENGTHS:

   A. FOOTINGS AND DRILLED PIERS: 3000 PSI
   B. WALKS, PAVEMENT AND WALLS WITH EXTERIOR EXPOSURE: 4500 PSI AE
   C. SLAB ON GRADE AND INTERIOR WALLS: 4000 PSI
   D. SUPPORTED BEAMS, SLAB AND JOISTS: 5000 PSI
   E. COLUMNS: 6000 PSI
   F. STAIR PAN FILLS: 3000 PSI (#8, 3/8" AGGREGATE)
   G. BACKFILL (LEAN) CONCRETE: 1500 PSI

2. PROVIDE 3/4" BEVELS AT CORNERS OF ALL EXPOSED COLUMNS, EDGES OF EXPOSED BEAMS AND SLABS, AND TOP EDGES AND CORNERS OF EXPOSED WALLS.
3. WHERE BEAMS OF VARIOUS DEPTHS FRAME INTO A COLUMN, PROVIDE A CONSTRUCTION JOINT AT THE BOTTOM OF THE LOWEST BEAM.
4. MAXIMUM LENGTH OF WALL POUR BETWEEN CONSTRUCTION JOINTS SHALL NOT EXCEED 120 FEET. MAXIMUM LENGTH OF SLAB POURS BETWEEN CONSTRUCTION JOINTS SHALL NOT EXCEED 120 FEET. MAXIMUM AREA OF SLAB POURS NOT TO EXCEED 10,000 SF.
5. JOINTS NOT INDICATED ON STRUCTURAL DRAWINGS ARE NOT PERMITTED UNLESS APPROVED BY STRUCTURAL ENGINEER.
6. PLACE NO PERMANENT LOAD, SUCH AS MASONRY WALLS, ON SUPPORTED SLABS UNTIL CONCRETE HAS REACHED SPECIFIED STRENGTH AND ALL SHORING HAS BEEN REMOVED.
7. PLACE NO OPENINGS, SLEEVES, INSERTS, ETC., IN CONCRETE WORK UNLESS CRITERIA INDICATED ON STRUCTURAL DRAWINGS IS MET, OR IS APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.
8. CONCRETE CONSTRUCTION TOLERANCES ARE AS SHOWN IN THE PROJECT SPECIFICATIONS.

D. REINFORCING STEEL

1. ALL REINFORCING: 60 KSI YIELD
2. REINFORCE ALL SLABS AS FOLLOWS UNLESS OTHERWISE NOTED, FURNISH WWF IN FLAT SHEETS:
   A. INTERIOR SLABS ON GROUND: 6x6-W4.0xW4.0 (58#) WWF.
3. PROVIDE TENSION SPLICES UNLESS OTHERWISE NOTED.
4. CLEARANCES BETWEEN REINFORCING BARS AND CONCRETE SURFACES SHALL BE ACI MINIMUM UNLESS OTHERWISE NOTED.
5. PROVIDE MATERIAL AND PLACEMENT OF ONE TON OF CONTINGENCY REINFORCING STEEL, SIZES OF BARS TO BE MIXED. BARS ARE TO BE CUT, BENT, AND PLACED AS DIRECTED BY THE ENGINEER.

E. ROOF DECK AND ACCESSORIES UNLESS NOTED OTHERWISE

1. ALL WORK SHALL CONFORM TO STEEL DECK INSTITUTE (SDI) SPECIFICATIONS FOR COMPOSITE STEEL FLOOR DECK, NON-COMPOSITE STEEL FORM DECK, AND STEEL ROOF DECK.
2. MATERIAL, G-60 MINIMUM GALVANIZED STEEL:
   A. 3" DEEP, 18 GAGE MINIMUM METAL ROOF DECK.
3. MINIMUM ATTACHMENT OF ROOF DECK: FASTEN TO ALL SUPPORTS WITH 5/8" DIA. FUSION WELDS AT 6" O.C. AT ALL ENDS AND END LAPS, AT 6" O.C. AT EDGES PARALLEL WITH DECK FLUTES. FASTEN SIDE LAPS BETWEEN DECK UNITS WITH #10 SCREWS AT 24" O.C. MAX.

F. COORDINATION AND CONSTRUCTION

1. FIELD VERIFY EXISTING DIMENSIONS AND ELEVATIONS WHICH AFFECT FABRICATION PRIOR TO SUBMITTAL OF SHOP DRAWINGS AND FABRICATION.
2. REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL EMBEDDED ITEMS, SLEEVES, FLOOR PITCHES, FILLS, AND DEPRESSIONS.
3. STRUCTURAL FRAMING PLANS ARE TYPICALLY DRAWN AS REFLECTED PLANS SHOWING BEAMS, WALLS, AND COLUMNS ON THE UNDERSIDE OF THE LEVEL SHOWN.
4. ALL FRAMING MEMBERS PROVIDED FOR MECHANICAL TRADES, COOLING TOWER FRAMING, ELEVATOR SUPPORT BEAMS, LINTELS, ROOF OPENINGS, ETC., ARE FOR BIDDING PURPOSES ONLY. SUBMIT MANUFACTURER'S DATA FOR THE PROPOSED EQUIPMENT TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
5. BRACE ENTIRE STRUCTURE AS REQUIRED TO MAINTAIN STABILITY UNTIL COMPLETE AND FUNCTIONING AS THE DESIGNED UNIT
6. DO NOT BACKFILL FOUNDATION WALLS SPANNING BETWEEN BASEMENT SLABS AND STRUCTURAL FLOORS UNTIL SUPPORTING SLABS ARE IN PLACE.
7. BRACE WALLS WHICH ARE TIED TO SLAB ON GRADE FOR TOP LATERAL SUPPORT BEFORE BACKFILLING AND UNTIL SLAB ON GRADE HAS ATTAINED SPECIFIED STRENGTH.
8. VERIFY EXACT SIZE AND LOCATION OF ALL WALL, FLOOR, AND ROOF OPENINGS PRIOR TO SUBMISSION OF SHOP DRAWINGS. SHOW ALL OPENINGS ON SHOP DRAWINGS.
9. PLACEMENT OF CONDUITS IN CONCRETE SHALL ADHERE TO THE FOLLOWING:

   A. OUTSIDE DIAMETER OF CONDUITS SHALL BE 1" OR LESS WHERE EMBEDDED IN SLABS AND JOISTS, AND 1-1/2" OR LESS WHERE EMBEDDED IN BEAMS, WALLS, OR COLUMNS.
   B. BUNCHING OF CONDUITS IS NOT PERMITTED. CONDUITS SHALL BE SPACED 3 DIAMETERS OR GREATER ON CENTER.
   C. LONGITUDINAL PLACEMENT OF CONDUITS IN CONCRETE JOISTS AND BEAMS SHALL BE LIMITED TO ONE CONDUIT PER JOIST AND THREE CONDUITS PER BEAM WITH WIDTH 18" MIN., 6" MIN. FROM REINFORCING.
   D. MINIMUM CONCRETE COVER ON CONDUITS SHALL BE 1-1/2".
   E. ALUMINUM CONDUITS, PIPES, OR SLEEVES ARE NOT PERMITTED.

10. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO WORKING HOURS.
11. THE DUTY OF THE ENGINEER TO CONDUCT CONSTRUCTION REVIEW OF CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF ADEQUACY OF CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

G. MECHANICAL AND OTHER LOADS SUPPORTED FROM STRUCTURE

1. ALL TRADE CONTRACTORS, MECHANICAL, STAIR, SPECIALITY, ETC., ARE TO DESIGN THEIR SYSTEMS, INCLUDING ATTACHMENTS TO THE BUILDING'S STRUCTURE WITHIN THE FOLLOWING LIMITATIONS.
2. LOADS ARE TO BE DISTRIBUTED TO THE STRUCTURE IN A MANNER THAT DOES NOT EXCEED THE LOAD ALLOWANCES NOTED UNDER DESIGN LOADS. ANCHORS ARE TO HAVE AN ULTIMATE SAFETY FACTOR OF AT LEAST 4.0.

H. QUALITY ASSURANCE

1. THE CONTRACTOR WILL EMPLOY QUALIFIED INSPECTORS TO PERFORM INSPECTIONS IN ACCORDANCE WITH SPECIFICATION SECTION 014529. THE ITEMS REQUIRING INSPECTION ON THIS PROJECT INCLUDE THE FOLLOWING:

   A. CONCRETE: ALL CONCRETE WORK.
   B. MASONRY: ALL REINFORCED MASONRY WALLS.
   C. REINFORCING STEEL: ALL REINFORCING STEEL.

2. THE STRUCTURAL ENGINEER WILL GENERALLY REVIEW THE PROGRESS OF THE WORK, BUT HIS REVIEW SHALL NOT BE CONSTRUED AS SPECIAL INSPECTION.

I. DESIGN LOADS

1. OCCUPANCY CATEGORY OF BUILDING: IV
2. FLOOR LOAD:
   SLAB ON GRADE LIVE LOAD: 150 PSF.
   TYPICAL FLOOR LIVE LOAD: 100 PSF. REDUCED PER CODE ON COLUMNS AND FOUNDATION.
   ASSEMBLY AREA LIVE LOAD: 100 PSF - (NR)
   MECHANICAL ROOM LIVE LOAD: 150 PSF
   CEILING AND MECHANICAL ALLOWANCE: 10 PSF
   PARTITION ALLOWANCE (LL < 80PSF): 20 PSF
   CONCENTRATED LOAD ON FLOOR: 2000 LBS
   (NR) INDICATES LIVE LOADS ARE NOT REDUCED.
3. ROOF LOAD:
   ROOF LIVE LOAD: 25 PSF + SNOW DRIFT, TYP. 150 PSF WITHIN FUTURE CONSTRUCTION FOOTPRINT.
   CEILING AND MECHANICAL ALLOWANCE: 10 PSF
   ROOFING AND BALLAST ALLOWANCE: 20 PSF
   CONCENTRATED LOAD ON ROOF: 2000 LBS
4. SNOW LOAD:
   GROUND SNOW LOAD: Pg = 25 PSF
   FLAT ROOF SNOW LOAD: Pf = 20 PSF
   SNOW EXPOSURE FACTOR: Ce = 1.0
   SNOW LOAD IMPORTANCE FACTOR: Is = 1.2
   THERMAL FACTOR: Ct = 1.0
5. WIND LOAD:
   BASIC WIND SPEED (3-SECOND GUST): 90 MPH
   WIND LOAD IMPORTANCE FACTOR: Iw = 1.15
   WIND EXPOSURE: B
   INTERNAL PRESSURE COEFFICIENT: ENCLOSED BUILDING, GCpi = +/- 0.18
6. EARTHQUAKE DESIGN DATA:
   SEISMIC IMPORTANCE FACTOR: Ie = 1.5
   MAPPED SPECTRAL RESPONSE ACCELERATION: Ss = 0.176 g
   MAPPED SPECTRAL RESPONSE ACCELERATION: S1 = 0.075 g
   SPECTRAL RESPONSE COEFFICIENT: Sds = 0.188 g
   SPECTRAL RESPONSE COEFFICIENT: Sd1 = 0.120 g
   SITE CLASS: D
   SEISMIC DESIGN CATEGORY: C
   BASIC SEISMIC FORCE RESISTING SYSTEM: INTERMEDIATE CONCRETE MOMENT FRAME.
   RESPONSE MODIFICATION FACTOR: R= 5.
   SEISMIC RESPONSE COEFFICIENT: Cs = 0.0387
   DESIGN BASE SHEAR: 467 KIPS
   ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PER ASCE 7-05 SECTION 12.8.

J. UTILIITIES

1. PRIOR TO EXCAVATION AND EARTHWORK, VERIFY LOCATIONS OF UNDERGROUND UTILITIES WITH THE UTILITY COMPANIES, CONSTRUCTION MANAGER, AND/OR OWNER. EXCAVATE OR SURVEY TO ESTABLISH EXACT UTILITY LOCATIONS. UTILITY LOCATIONS SHOWN ON THE CONTRACT DRAWINGS ARE ONLY APPROXIMATE AND CANNOT BE USED TO ASSURE THE CONTRACTOR OF ADEQUATE CLEARANCE IN CASE OF CLOSE PROXIMITY. COORDINATE ALL WORK WITH THE UTILITIES TO ASSURE THEIR UNINTERRUPTED FUNCTION.
2. ACTIVE UTILITIES SHOWN ON THE CONTRACT DRAWINGS SHALL BE ADEQUATELY PROTECTED FROM DAMAGE. WHERE ACTIVE UTILITIES ARE ENCOUNTERED BUT NOT SHOWN ON THE DRAWINGS, CONTRACTOR SHALL IMMEDIATELY NOTIFY CONSTRUCTION MANAGER, ENGINEER, AND UTILITY OWNER BEFORE PROCEEDING.WORK SHALL BE PROTECTED, SUPPORTED, OR RELOCATED AS DIRECTED, AND THE CONTRACT SUM ADJUSTED ACCORDINGLY
3. INACTIVE AND ABANDONED UTILITIES ENCOUNTERED BUT NOT SHOWN ON THE DRAWINGS SHALL BE REPORTED IMMEDIATELY TO THE CONSTRUCTION MANAGER AND ENGINEER. SUCH UTILITIES SHALL THEN BE REMOVED, PLUGGED, OR CAPPED AS DIRECTED. IN THE ABSENCE OF SPECIFIC REQUIREMENTS, PLUG OR CAP SUCH UTILITIES AS REQUIRED BY THE UTILITY OWNER.

   CALL THE OHIO UTILITIES PROTECTION SERVICE TOLL FREE 1-800-362-2764 AT LEAST TWO (2) WORKING DAYS BEFORE DIGGING OR OTHER EARTHWORK OPERATION.

K. FUTURE ADDITIONS

1. THE STRUCTURE HAS BEEN DESIGNED TO SUPPORT FUTURE HORIZONTAL ADDITION AT LEVEL 3. SEE DASHED AREA LEVEL 3 FRAMING PLANS FOR SCOPE.
2. THE STRUCTURE HAS BEEN DESIGNED TO SUPPORT FUTURE VERTICAL ADDITIONS OF FOUR LEVELS ABOVE LEVEL 3. (LEVEL 4, 5, 6 AND ROOF). THE FOOTPRINT OF FUTURE FLOORS IS THE SAME AS LEVEL 3 WITH HORIZONTAL ADDITION. THE STRUCTURAL SYSTEM FOR FUTURE FLOORS ARE 5" CONCRETE SLAB ON 20" DEEP PAN SKIP JOIST SYSTEM.

Revisions		Date
1	DD SUBMITTAL	11/12/2010
2	OWNER REVIEW	01/03/2011
3	CD SUBMITTAL	01/25/2001
4	REVIEW BY CONTRACTING	09/29/11
5	Addendum #1	08/17/2012

CONSULTANTS:

THP Limited, Inc.
100 East Eighth Street
Cincinnati, Ohio 45202
Phone: 513.241.3222
Fax: 513 241.2981
www.thpltd.com

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpai@johnpoe.com

Drawing Title: GENERAL NOTES
08260.08

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1
08260.08

Location: Cincinnati, Ohio

Date: 01/03/11
REVISED AUGUST 17, 2012

Checked: JYE

Drawn: VLB

Project No.
VA Project No. 539-317
JPA Project No. 08260.08

Building Number: ARC

Drawing Number: S001

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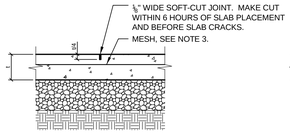
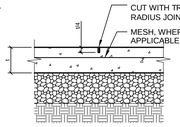
Office of Construction and Facilities Management

Department of Veterans Affairs



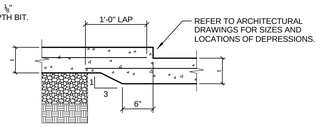
SAWED CONTROL JOINT

NOTE: APPLIES TO INTERIOR SLABS U.N.O. ALTERNATIVELY USE TOOLED CONTROL JOINT.

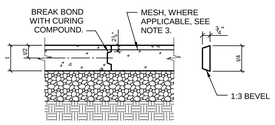


TOOLED CONTROL JOINT

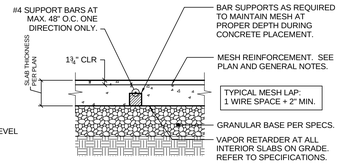
NOTE: APPLIES TO EXTERIOR SLABS U.N.O.



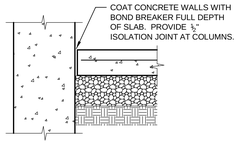
S.O.G. DEPRESSION



KEYED CONSTRUCTION JOINT



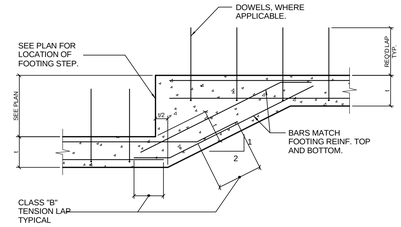
TYPICAL REINFORCED SLAB ON GRADE



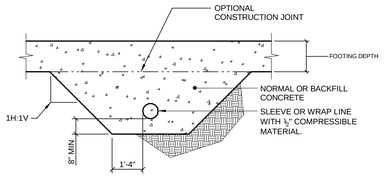
ISOLATION JOINT AT WALLS AND COLUMNS

NOTES:
1. REFER TO ARCHITECTURAL DRAWINGS FOR JOINTS AT EXTERIOR PAVEMENTS.
2. PROVIDE CONTROL (OR CONSTRUCTION) JOINTS AT ALL COLUMN LINES, AND AT MAXIMUM SPACING OF 16'-0" EACH WAY BETWEEN COLUMN LINES UNLESS OTHERWISE NOTED. ALIGN CONTROL JOINTS WITH RE-ENTRANT CORNERS WHEREVER POSSIBLE. CONTRACTOR SHALL SUBMIT A JOINTING PLAN TO ARCHITECT/ENGINEER FOR REVIEW.
3. CUT OUT 4" LENGTH OF EVERY OTHER MESH WIRE CROSSING A JOINT.
4. INSTALL VAPOR RETARDER OR UNDER-SLAB MEMBRANE UNDER ALL INTERIOR SLABS ON GRADE. REFER TO SPECIFICATIONS.
5. PLACE ALL SLABS ON GRADE ON MINIMUM 6" CRUSHED STONE BASE.

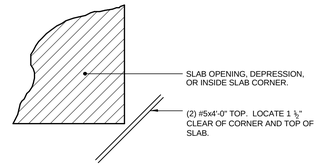
SLAB ON GRADE DETAILS



TYPICAL FOOTING STEPS

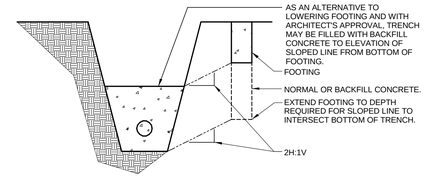


PERPENDICULAR TO FOOTING



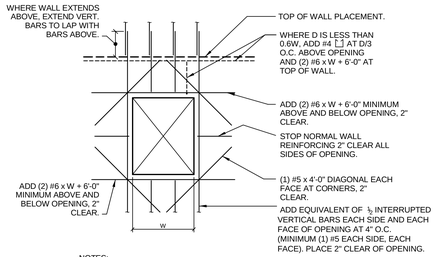
NOTE: DETAIL APPLIES AT BOTH ELEVATED SLABS AND SLABS ON GRADE.

TYPICAL BARS AT RE-ENTRANT SLAB CORNER



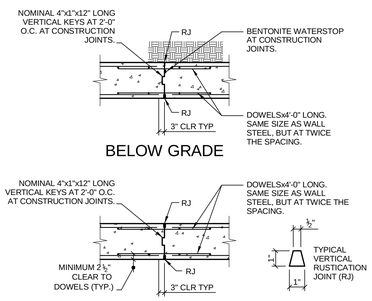
PARALLEL WITH FOOTING

MECHANICAL LINES ADJACENT TO FOOTINGS



NOTES:
1. REINFORCE OPENINGS LESS THAN 8'-0" WIDE PER THIS DETAIL UNLESS NOTED OTHERWISE.
2. SLEEVED OPENINGS 14" AND SMALLER REQUIRE NO ADDITIONAL REINFORCEMENT. PLACE NORMAL REINFORCEMENT (HORIZ. AND VERTICAL) EACH SIDE OF SLEEVE, 2" CLEAR.
3. FOR SINGLE LAYERS WALLS USE SINGLE BARS AS SHOWN.

WALL OPENING REINFORCEMENT

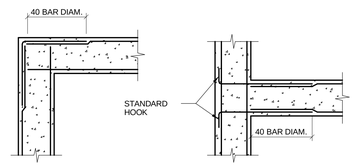


BELOW GRADE

ABOVE GRADE

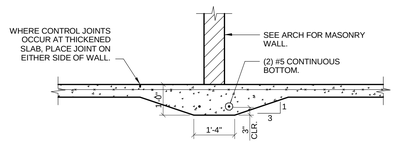
NOTES:
1. FORM TIES TO BE WITHIN 6" OF EITHER SIDE OF A CONSTRUCTION JOINT.
2. REFER TO FOUNDATION PLAN FOR CONTROL JOINT LOCATIONS IN BASEMENT WALLS.
3. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR WATERPROOFING REQUIREMENTS.
4. DETAIL CONTROL JOINTS ON SHOP DRAWINGS.
5. LOCATE CONSTRUCTION JOINTS AT CONTROL JOINTS.

VERTICAL WALL CONTROL AND CONSTRUCTION JOINTS

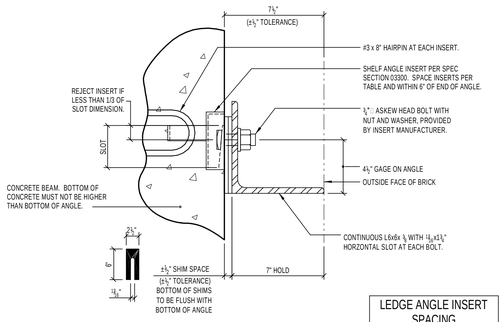


NOTES:
1. CORNER BARS MATCH HORZ. REINFORCEMENT IN SIZE AND SPACING.
2. FOR SINGLE LAYER WALLS USE SINGLE BARS AS SHOWN.

TYPICAL BARS AT WALL AND CURB CORNERS AND INTERSECTIONS



THICKENED SLAB ON GRADE AT MASONRY WALLS



NOTE: SHIM SPACE VARIES. GALVANIZED HORSESHOE SHIMS MUST EXTEND TO BOTTOM OF ANGLE.

NOTES:
1. REFER TO ARCHITECTURAL DRAWINGS FOR ELEVATIONS OF LEDGE ANGLES.
2. INSERTS, BOLTS, AND ANGLES TO BE HOT DIP GALVANIZED.

LEDGE ANGLE INSERT SPACING

HEIGHT OF SUPPORTED BRICK	MAXIMUM O.C. INSERT SPACING
0' TO 12'	2'-0"
12'-8" TO 16'-8"	1'-8"
17'-4" TO 24'-0"	1'-0"

TYPICAL BRICK LEDGE ANGLE AND INSERT

LINTEL SCHEDULE

CLEAR SPAN	8" CMU BOND BEAM	LOOSE LINTEL SIZE
LESS THAN 4'-0"	2#4 BOTTOM	L3½x3½x5/16"
BETWEEN 4'-0" AND 6'-0"	2#5 BOTTOM	L3½x3½x5/16"
BETWEEN 6'-0" AND 8'-0"	2#6 BOTTOM	L5"x3½"x5/16"
BETWEEN 8'-0" AND 10'-0"	2#7 BOTTOM	L6x3½"x½"
MORE THAN 10'-0"	CONSULT ENGINEER	

LINTEL SCHEDULE NOTES:
1. LINTELS FOR 8" CMU ARE 8" CMU BOND BEAM OR PRECAST CONCRETE WITH REINFORCEMENT AS SCHEDULED.
2. LENGTH OF LINTEL IS CLEAR SPAN PLUS 8" BEARING AT EACH END.
3. PROVIDE ONE (1) LOOSE LINTEL FOR EACH 4" NOMINAL WIDTH OF MASONRY. EXTERIOR LINTEL TO BE HOT DIP GALVANIZED.

LINTEL SCHEDULE

1	DD SUBMITTAL	11/12/2010
2	OWNER REVIEW	01/03/2011
3	CD SUBMITTAL	01/25/2001
4	REVIEW BY CONTRACTING	09/29/11
5	Addendum #1	08/17/2012
Revisions		Date

CONSULTANTS:

THP Limited, Inc.
100 East Eighth Street
Cincinnati, Ohio 45202
Phone: 513.241.3222
Fax: 513.241.2981
www.thpltd.com

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: TYPICAL DETAILS

08260.08

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1

08260.08

Location: Cincinnati, Ohio

Date: 01/03/11 REVISED AUGUST 17, 2012

Checked: JYE

Drawn: VLB

Project No. VA Project No. 539-317 JPA Project No. 08260.08

Building Number: ARC

Drawing Number: S002

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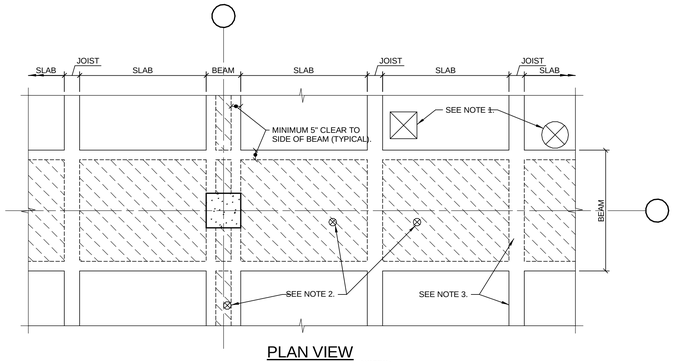
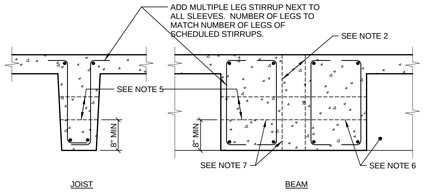
Department of Veterans Affairs



PLAN VIEW

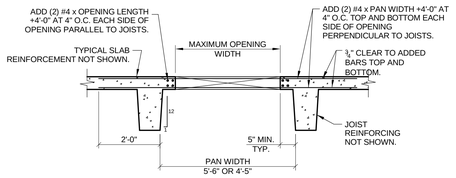


SECTION

NOTES:

1. FORMED OPENINGS, SLEEVES, AND CORES MAY BE PLACED IN SLAB BETWEEN JOISTS PER TYPICAL DETAIL THIS SHEET.
2. VERTICAL SLEEVES IN BEAMS MAY OCCUR ONLY WITHIN HATCHED AREAS. SLEEVE DIAMETER SHALL NOT BE GREATER THAN 1/5 BEAM WIDTH OR 6", WHICHEVER IS LESS. MULTIPLE SLEEVES SHALL BE ALIGNED PARALLEL TO THE BEAM AXIS AND SPACED NO LESS THAN THE BEAM DEPTH ON CENTER. ONE ADDITIONAL MULTI-LEG BEAM STIRRUP SHALL BE PLACED EACH SIDE OF ALL SLEEVES, 1" CLEAR.
3. NO VERTICAL SLEEVES PERMITTED IN JOISTS OR WITHIN PROJECTION OF JOISTS THROUGH BEAMS.
4. NO VERTICAL SLEEVES PERMITTED IN BEAMS LESS THAN 12" WIDE.
5. HORIZONTAL SLEEVES IN BEAMS AND JOISTS TO BE NO GREATER THAN 1/5 JOIST OR BEAM DEPTH OR 5", WHICHEVER IS LESS, AND MAY ONLY BE PLACED IN THE CENTER HALF OF THE BEAM OR JOIST SPAN. MULTIPLE HORIZONTAL SLEEVES SHALL BE SPACED MINIMUM 1.5 x THE BEAM OR JOIST DEPTH. ONE ADDITIONAL MULTI-LEG STIRRUP SHALL BE PLACED NEXT TO THE SLEEVE 1" CLEAR.
6. HORIZONTAL SLEEVES IN GIRDERS SHALL BE LOCATED 6" CLEAR OF ANY JOIST SUPPORTED BY THE GIRDER.
7. HORIZONTAL SLEEVES IN BEAMS TO BE LOCATED MINIMUM 1.5 x BEAM DEPTH FROM ANY VERTICAL SLEEVE.
8. NO CORED HOLES PERMITTED IN BEAMS OR JOISTS.

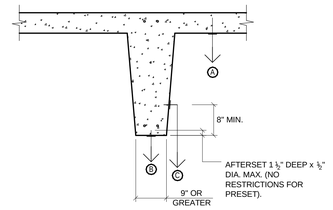
PLACEMENT OF SLEEVES IN BEAMS AND JOISTS



NOTES:

1. MAXIMUM LENGTH OF OPENING PARALLEL TO JOISTS IS 6'-0".
2. 7" MAXIMUM ROUND OR SQUARE HOLES MAY BE LOCATED ANYWHERE IN SLAB (EXCEPT JOISTS AND BEAMS) WITHOUT SUPPLEMENTAL REINFORCEMENT, PROVIDED THE CLEAR DISTANCE BETWEEN HOLES IS 24" OR GREATER.
3. CUT MESH REINFORCEMENT 1" CLEAR OF OPENINGS.
4. CRITERIA FOR PLACEMENT OF CONDUITS IN SLABS, BEAMS, AND JOISTS IS GIVEN IN THE GENERAL NOTES.

OPENINGS IN PAN SLABS BETWEEN CONCRETE JOISTS



JOIST OR BEAM

MAXIMUM ALLOWABLE LOADING WITHOUT SPECIAL APPROVAL		
MARK	PRESET INSERTS - EMBEDDED (MAXIMUM LOAD)	AFTERSET INSERTS - DRILLED OR SHOT (MAXIMUM LOAD)
A	300 POUNDS	200 POUNDS
B	1000 POUNDS	200 POUNDS
C	2000 POUNDS	1000 POUNDS

NOTES:

1. INSERTS MUST NOT INTERFERE WITH REINFORCEMENT.
2. MANUFACTURER'S LOAD TABLES OR DESIGN INFORMATION MUST BE SUBMITTED TO INDICATE CAPACITY OF INSERT FOR THE SPECIFIC INSTALLATION.
3. TYPICAL UNIFORM LOAD ALLOWANCE PER SQUARE FOOT OF FLOOR AREA FOR HANGING LOADS:
   - CEILING + MISCELLANEOUS MATERIALS (TYPICAL AREAS) = 10 PSF
   - ABOVE MECHANICAL ROOMS = 25 PSF
   - SPACE INSERTS SUCH THAT THE UNIFORM LOAD ALLOWABLE IS NOT EXCEEDED ON ANY ELEMENT OF THE STRUCTURE.
4. GREATER CAPACITIES MAY BE PERMITTED AT BOTTOM AND SIDES OF BEAMS WITH WIDTHS GREATER THAN 12" PENDING REVIEW OF INSERT MANUFACTURER'S PRODUCT DATA.

TYPICAL HANGING LOADS

Revisions		Date
1	DD SUBMITTAL	11/12/2010
2	OWNER REVIEW	01/03/2011
3	CD SUBMITTAL	01/25/2001
4	REVIEW BY CONTRACTING	09/29/11
5	Addendum #1	08/17/2012

CONSULTANTS:

THP Limited, Inc.
100 East Eighth Street
Cincinnati, Ohio 45202
Phone: 513.241.3222
Fax: 513.241.2981
www.thpltd.com

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: TYPICAL DETAILS

08260.08

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1

08260.08

Location: Cincinnati, Ohio

Date: 01/03/11
REVISED AUGUST 17, 2012

Checked: JYE

Drawn: VLB

Project No.
VA Project No. 539-317
JPA Project No. 08260.08

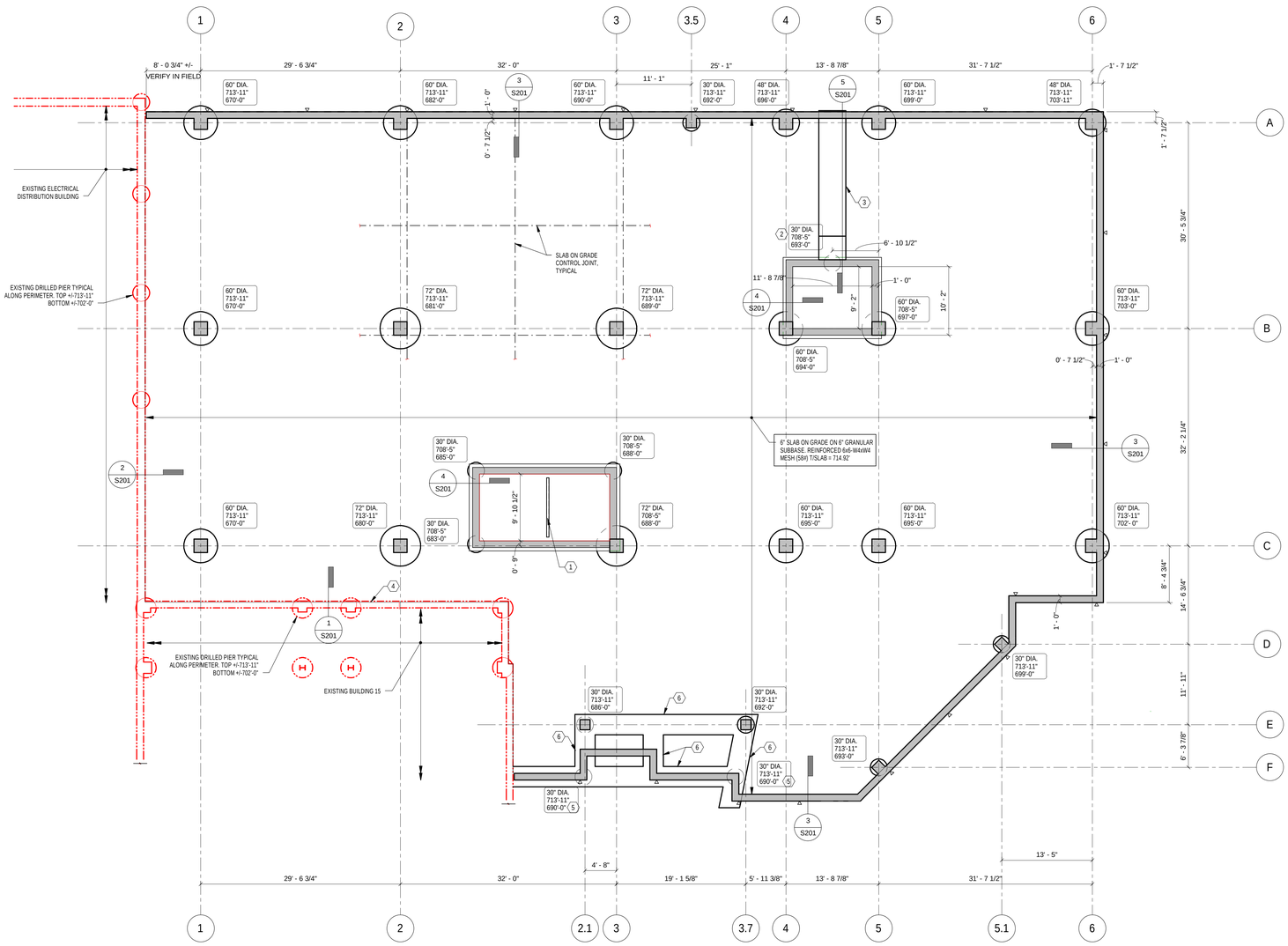
Building Number: ARC

Drawing Number: S003

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs



BASE BID

1 / S101 FOUNDATION PLAN

1/8" = 1'-0"

NORTH

DRAWING NOTES:

1. REFER TO S001 AND S002 FOR GENERAL NOTES AND TYPICAL DETAILS.
2. REFER TO S401 FOR TYPICAL DRILLED PIERS AND COLUMN DETAILS AND SCHEDULE.

KEY NOTES:

1. HSS8x4x5/16 DIVIDER BEAM. SEE DETAIL 6/S301 FOR END CONNECTION INFORMATION.
2. EXTEND DRILLED PIER 8'-0" MIN. INTO GRAY UNWEATHERED SHALE.
3. 4'-0"(W)x2'-0"(D) GRADE BEAM. T/GRADE BEAM = 713'-11" CENTER GRADE BEAM ON THE 30"DIA. DRILLED PIER. SEE SECTION 5/S201 FOR INFORMATION.
4. SAW CUT EXISTING BASEMENT WALL FOR DOOR OPENING. REFER TO ARCH FOR SIZE AND LOCATION CORE THE TWO UPPER CORNER FIRS AND DO NOT OVERCUT.
5. CENTER DRILLED PIER ON THE CENTERLINES ON INTERSECTING WALLS.
6. 3'-0"(W)x2'-0"(D) GRADE BEAM. T/GRADE BEAM = 713'-11". CENTER GRADE BEAM ON DRILLED PIERS. GRADE BEAM ON DRILLED PIERS. GRADE BEAM REINFORCED WITH 4#7 TOP AND BOTTOM AND #4 CLOSED STIRRUPS AT 18" O.C. HOOK TOP BARS EACH END.

LEGEND:

XX
XXX'-X"
XXX'-X"

DRILLED PIER DIAMETER
TOP OF DRILLED PIER
ESTIMATED BOTTOM OF DRILLED PIER

▽ INDICATES WALL CONTROL JOINT. SEE TYPICAL DETAIL.

1	DD SUBMITTAL	11/12/2010
2	OWNER REVIEW	01/03/2011
3	CD SUBMITTAL	01/25/2001
4	REVIEW BY CONTRACTING	09/29/11
5	Addendum #1	08/17/2012
Revisions		Date

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100 East Eighth Street
Cincinnati, Ohio 45202
Phone: 513.241.3222
Fax: 513.241.2981
www.thphd.com

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: FOUNDATION PLAN

08260.08

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1

08260.08

Location: Cincinnati, Ohio

Date: 01/03/11 REVISED AUGUST 17, 2012

Checked: JYE

Drawn: VLB

Project No. VA Project No. 539-317 JPA Project No. 08260.08

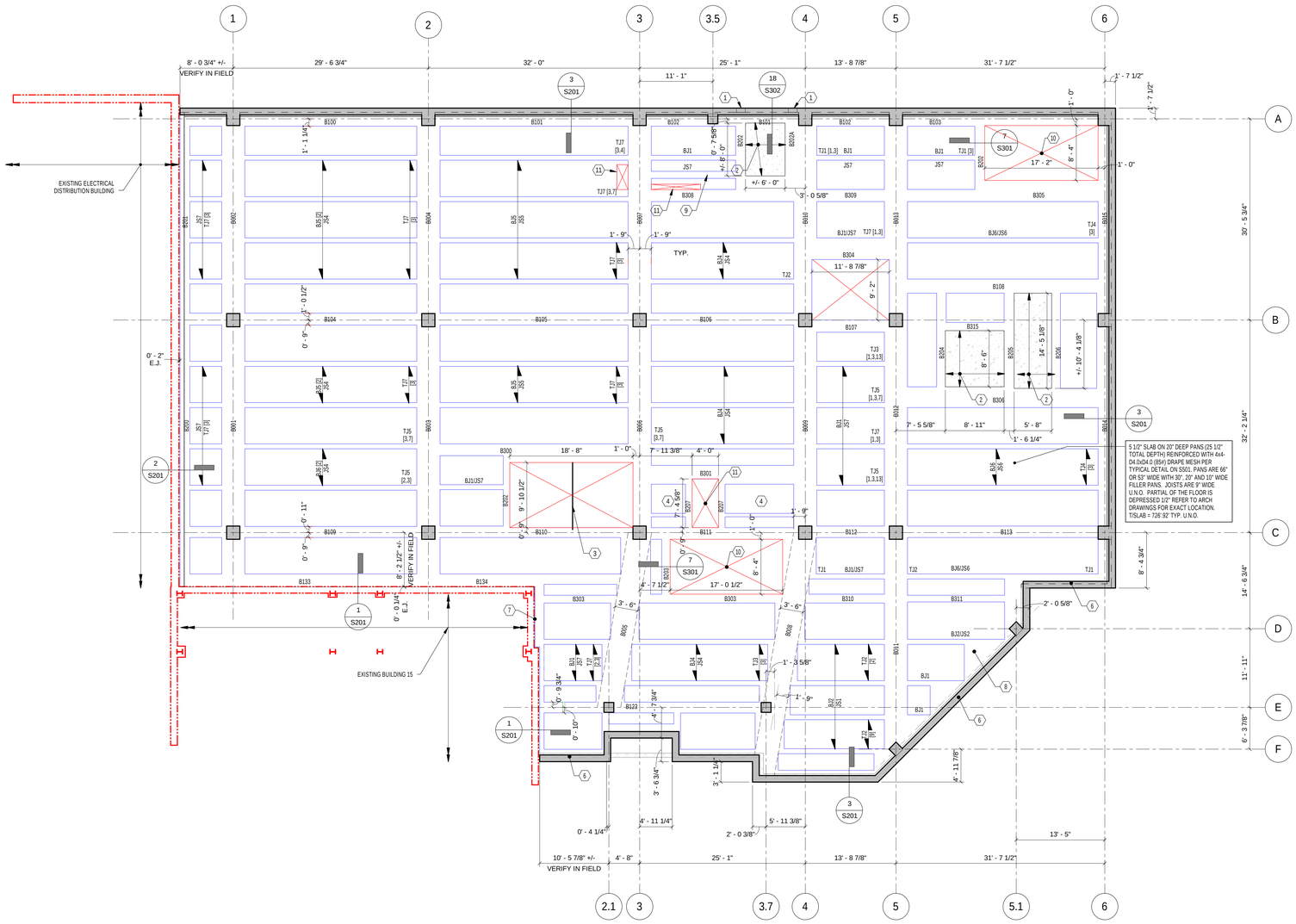
Building Number: ARC

Drawing Number: S101

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs



BASE BID

LEVEL 1 FRAMING PLAN

1 / S102 — 1/8" = 1'-0"

NORTH

DRAWING NOTES:

1. REFER TO S001 AND S002 FOR GENERAL NOTES AND TYPICAL DETAILS.
2. REFER TO S401 FOR TYPICAL DRILLED PIERS AND COLUMN DETAILS AND SCHEDULE.
3. REFER TO S501 FOR TYPICAL BEAM AND JOIST DETAILS AND SCHEDULE.

   TJx - JOIST TOP REINFORCEMENT
   BJx - JOIST BOTTOM REINFORCEMENT
   JSx - JOIST SHEAR REINFORCEMENT
   [X] - JOIST REMARK NUMBER WHERE APPLICIABLE

4. THE SIZES AND LOCATIONS OF ALL DEPRESSIONS, OPENINGS, SLEEVES, AND EMBEDMENTS MUST BE VERIFIED WITH THE FINAL ARCHITECTURAL AND MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. SHOW SIZES AND LOCATIONS ON SHOP DRAWINGS.
5. REFER TO THE TYPICAL DETAIL ON S003 FOR PLACEMENT OF SLEEVES IN BEAMS. COORDINATE LOCATION AND NUMBER OF SLEEVES WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. PRIOR TO CONSTRUCTION SUBMIT FOR APPROVAL TO THE STRUCTURAL ENGINEER DRAWINGS SHOWING PROPOSED SIZES AND LOCATIONS OF ALL SLEEVES PLACED IN BEAMS.

KEY NOTES:

1. 1'-4"(W)x1'-3"(D) CONCRETE STUB COLUMN. REFER TO SECTION 18/S302 FOR ADDITIONAL INFORMATION.
2. 8" SLAB. DEPRESSED. REINFORCE WITH #5 AT 12" O.C. TOP AND BOTTOM EACH WAY. SEE ARCH FOR EXACT DEPTH. REFER TO DETAIL 3/S301 FOR PERIMETER INFORMATION. COORDINATE EXACT SIZE WITH EQUIPMENT MANUFACTURER.
3. HSS8x4x5/16 (LLV) DIVIDER BEAM. SEE DETAIL 6/S301 FOR END CONNECTION INFORMATION.
4. 6" WIDE JOIST WITH (2) #5 TOP AND BOTTOM AND #3 ST-1 STIRRUPS AT 11" O.C. OMIT HOOKS ON BOTTOM BARS.
5. 12" WIDE RIB REINFORCE WITH (2) #5 TOP, BOTTOM AND FACE.
6. ADD (3) #5 TOP AND BOTTOM CONTINUOUS IN SLAB ABOVE FOUNDATION WALL.
7. REINFORCE EDGE BEAM WITH (3) #5 TOP AND BOTTOM CONTINUOUS.
8. INFILL 25" THICK SLAB WITH #5 AT 12" O.C. EACH WAY BOTTOM.
9. 13" WIDE JOIST WITH (2) #7 BOTTOM AND (2) #5 TOP. PROVIDE #3 ST-1 STIRRUPS AT 11" O.C. AND OMIT HOOKS ON BOTTOM BARS.
10. OPENING FOR CONCRETE FILLED METAL PAN STAIRS.
11. REFER TO ARCH AND/OR MECHANICAL DRAWINGS FOR EXACT LOCATIONS OF OPENINGS IN THE 5" SLAB. REINFORCE OPENINGS PER TYPICAL DETAIL ON S003.

Revisions		Date
1	DD SUBMITTAL	11/12/2010
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3	CD SUBMITTAL	01/25/2001
4	REVIEW BY CONTRACTING	09/29/11
5	Addendum #1	08/17/2012

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100 East Eighth Street
Cincinnati, Ohio 45202
Phone: 513.241.3222
Fax: 513.241.2981
www.thpltd.com

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
joa@johnpoe.com

Drawing Title: LEVEL 1 FRAMING PLAN

08260.08

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1

08260.08

Location: Cincinnati, Ohio

Date: 01/03/11 REVISED AUGUST 17, 2012

Checked: JYE

Drawn: VLB

Project No. VA Project No. 539-317 JPA Project No. 08260.08

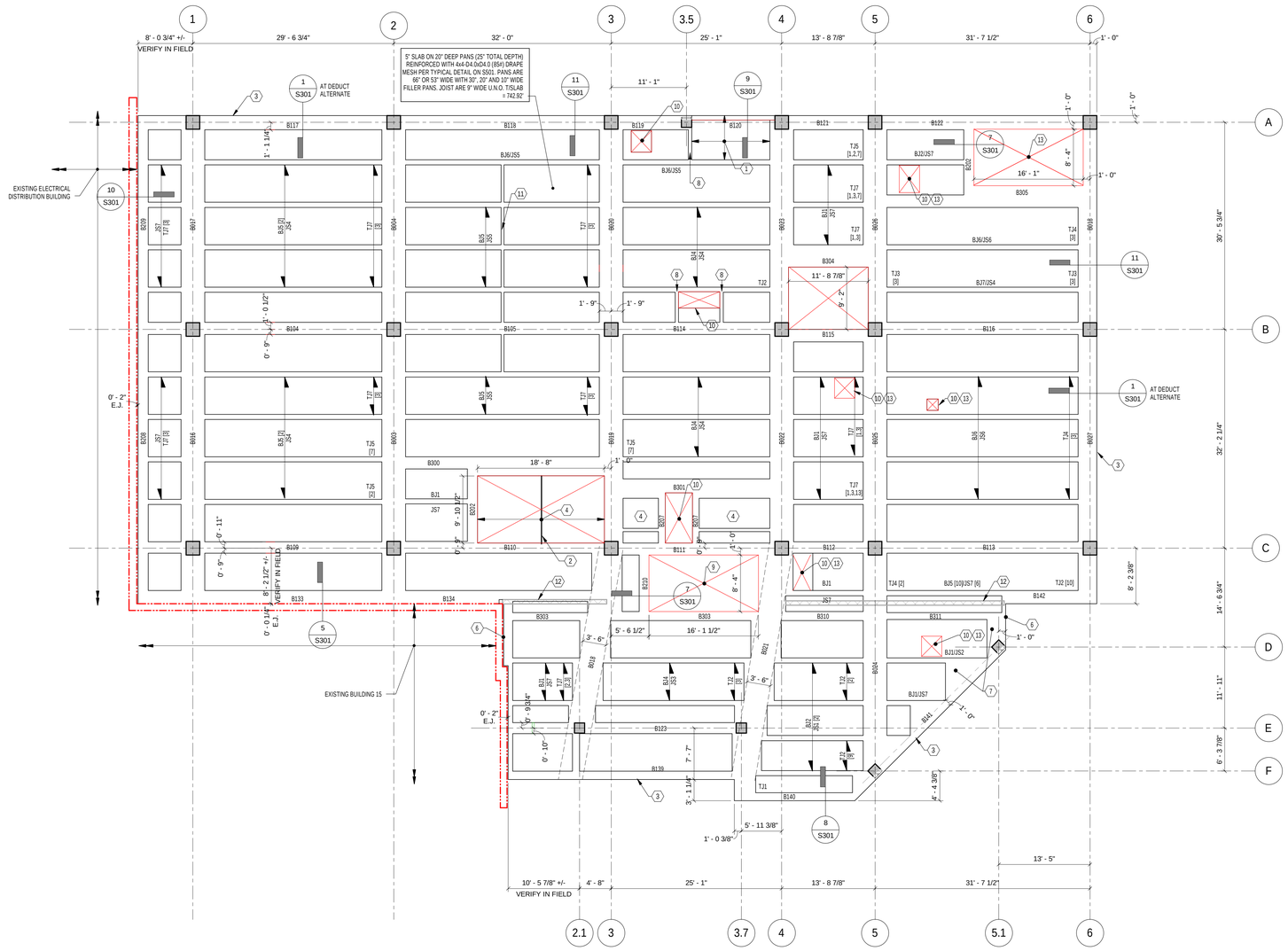
Building Number: ARC

Drawing Number: S102

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs



BASE BID

LEVEL 2 FRAMING PLAN

1 / S103 — 1/8" = 1'-0"

NORTH

DRAWING NOTES:

1. REFER TO S001 AND S002 FOR GENERAL NOTES AND TYPICAL DETAILS.
2. REFER TO S401 FOR TYPICAL DRILLED PIERS AND COLUMN DETAILS AND SCHEDULE.
3. REFER TO S501 FOR TYPICAL BEAM AND JOIST DETAILS AND SCHEDULE.

   TJx - JOIST TOP REINFORCEMENT
   BJx - JOIST BOTTOM REINFORCEMENT
   JSx - JOIST SHEAR REINFORCEMENT
   [X] - JOIST REMARK NUMBER WHERE APPLICIABLE

4. THE SIZES AND LOCATIONS OF ALL DEPRESSIONS, OPENINGS, SLEEVES, AND EMBEDMENTS MUST BE VERIFIED WITH THE FINAL ARCHITECTURAL AND MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. SHOW SIZES AND LOCATIONS ON SHOP DRAWINGS.
5. REFER TO THE TYPICAL DETAIL ON S003 FOR PLACEMENT OF SLEEVES IN BEAMS. COORDINATE LOCATION AND NUMBER OF SLEEVES WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. PRIOR TO CONSTRUCTION SUBMIT FOR APPROVAL TO THE STRUCTURAL ENGINEER DRAWINGS SHOWING PROPOSED SIZES AND LOCATIONS OF ALL SLEEVES PLACED IN BEAMS.

KEY NOTES:

1. 6" THICK FORMED SLAB.
2. HSS8x4x5/16 (LLW) DIVIDER BEAM. SEE DETAIL 6/S301 FOR CONNECTION INFORMATION.
3. REINFORCE CMU WALL AT THE PERIMETER AND BRACE TOP. SEE SECTION 12/S301 FOR REINFORCING INFORMATION.
4. 6" WIDE JOIST WITH (2) #5 TOP AND BOTTOM AND #3 ST-1 STIRRUPS AT 11" O.C. OMIT HOOKS ON BOTTOM BARS.
5. 12" WIDE RIB REINFORCE WITH (2) #5 TOP, BOTTOM AND FACE.
6. REINFORCE EDGE BEAM WITH (3) #5 TOP AND BOTTOM CONTINUOUS.
7. INFILL 25" THICK SLAB WITH #5 AT 12" O.C. EACH WAY BOTTOM.
8. 6" RIB WITH (2) #5 TOP AND BOTTOM.
9. OPENING FOR CONCRETE FILLED METAL PAN STAIRS.
10. REFER TO ARCH AND/OR MECHANICAL DRAWINGS FOR EXACT LOCATIONS OF OPENINGS IN THE 5" SLAB. REINFORCE OPENINGS PER TYPICAL DETAIL ON S003.
11. 5" WIDE RIB TO RECEIVE ELECTRICAL CONDUIT. REINFORCE WITH (1) #5 TOP AND BOTTOM. COORDINATE EXACT RIB LOCATION WITH ARCH/ELECTRICAL DRAWINGS.
12. REINFORCE CMU PARAPET SAME AS SECTION 1/S301.
13. PROVIDE 3" ROOF DECK (HOT DIP GALVANIZED) SPAN IN THE DIRECTION AS SHOWN. REFER TO DETAIL 2/S301 AT JOIST OR BEAM AND 19/S302 AT SLAB FOR PERIMETER SUPPORT INFORMATION. DO NOT PLACE SHORING FOR FUTURE FLOOR IN THIS AREA.

Revisions		Date
1	DD SUBMITTAL	11/12/2010
2	OWNER REVIEW	01/03/2011
3	CD SUBMITTAL	01/25/2001
4	REVIEW BY CONTRACTING	09/29/11
5	Addendum #1	08/17/2012

CONSULTANTS:

THP Limited, Inc.
100 East Eighth Street
Cincinnati, Ohio 45202
Phone: 513.241.3222
Fax: 513.241.2981
www.thpltd.com

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: LEVEL 2 FRAMING PLAN
08260.08

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1
08260.08

Location: Cincinnati, Ohio

Date: 01/03/11
REVISED AUGUST 17, 2012

Checked: JYE

Drawn: VLB

Project No.
VA Project No. 539-317
JPA Project No. 08260.08

Building Number: ARC

Drawing Number: S103

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Office of Construction and Facilities Management

Department of Veterans Affairs

DRAWING NOTES:

1. REFER TO S001 AND S002 FOR GENERAL NOTES AND TYPICAL DETAILS.
2. REFER TO S401 FOR TYPICAL DRILLED PIERS AND COLUMN DETAILS AND SCHEDULE.
3. REFER TO S501 FOR TYPICAL BEAM AND JOIST DETAILS AND SCHEDULE.

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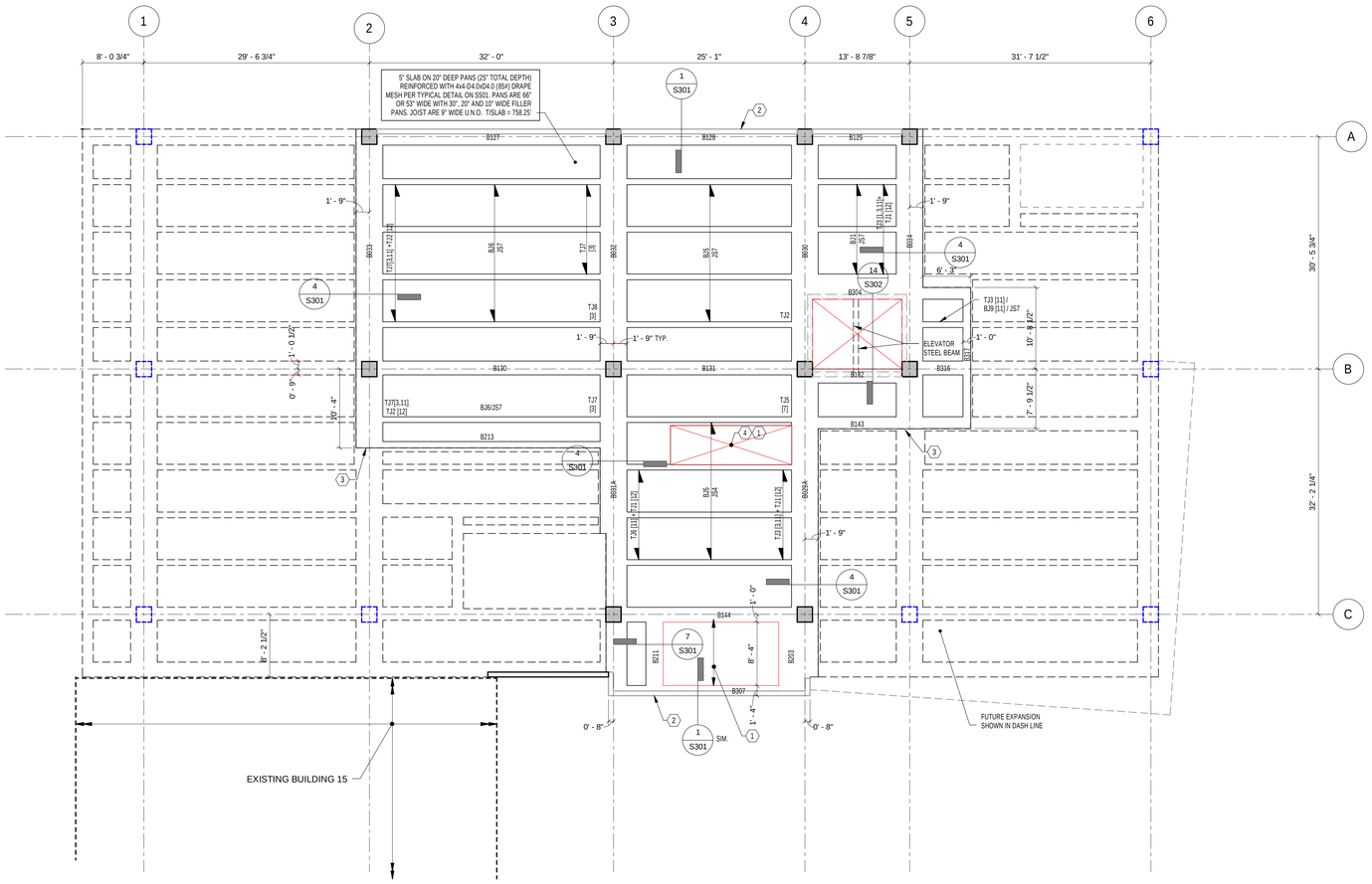
   JSx - JOIST SHEAR REINFORCEMENT
   [X] - JOIST REMARK NUMBER WHERE APPLICIABLE

4. THE SIZES AND LOCATIONS OF ALL DEPRESSIONS, OPENINGS, SLEEVES, AND EMBEDMENTS MUST BE VERIFIED WITH THE FINAL ARCHITECTURAL AND MECHANICAL DRAWINGS PRIOR TO CONSTRUCTION. SHOW SIZES AND LOCATIONS ON SHOP DRAWINGS.
5. REFER TO THE TYPICAL DETAIL ON S003 FOR PLACEMENT OF SLEEVES IN BEAMS. COORDINATE LOCATION AND NUMBER OF SLEEVES WITH ARCHITECTURAL AND MECHANICAL DRAWINGS, PRIOR TO CONSTRUCTION SUBMIT FOR APPROVAL TO THE STRUCTURAL ENGINEER DRAWINGS SHOWING PROPOSED SIZES AND LOCATIONS OF ALL SLEEVES PLACED IN BEAMS.

KEY NOTES:

1. 3" ROOF DECK (HOT DIP GALVANIZED) SPAN IN THE DIRECTION AS SHOWN REFER TO DETAIL 2/S301 FOR PERIMETER SUPPORTING INFORMATION. DO NOT PLACE SHORING FOR FUTURE FLOOR IN THIS AREA.
2. REINFORCE CMU WALL AT THE PERIMETER AND BRACE TOP. SEE SECTION 12/S301 FOR ADDITIONAL INFORMATION.
3. REFER TO DETAIL 16/S302 FOR BEAM END INFORMATION.
4. REFER TO ARCH AND/OR MECHANICAL DRAWINGS FOR EXACT LOCATIONS OF OPENINGS IN THE 5" SLAB. REINFORCE OPENINGS PER TYPICAL DETAIL ON S003.



BASE BID

LEVEL 3 FRAMING PLAN

1/8" = 1'-0"

NORTH

Revisions		Date
1	DD SUBMITTAL	11/12/2010
2	OWNER REVIEW	01/03/2011
3	CD SUBMITTAL	01/25/2001
4	REVIEW BY CONTRACTING	09/29/11
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THP Limited, Inc.
100 East Eighth Street
Cincinnati, Ohio 45202
Phone: 513.241.3222
Fax: 513.241.2981
www.thpltd.com

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: LEVEL 3 FRAMING PLAN

08260.08

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1

08260.08

Location: Cincinnati, Ohio

Date: 01/03/11
REVISED AUGUST 17, 2012

Checked: JYE

Drawn: VLB

Project No.
VA Project No. 539-317
JPA Project No. 08260.08

Building Number: ARC

Drawing Number: S104

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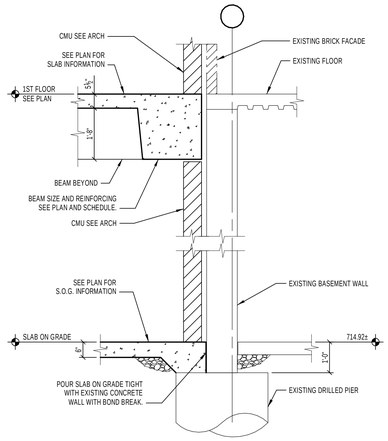
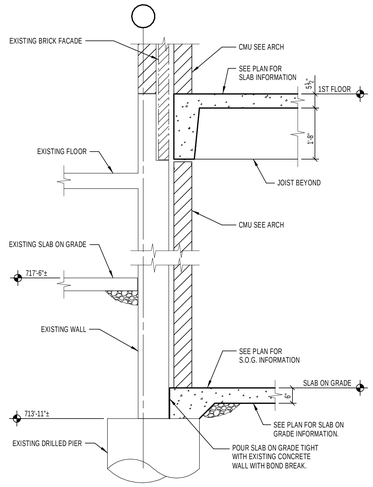
Office of Construction and Facilities Management

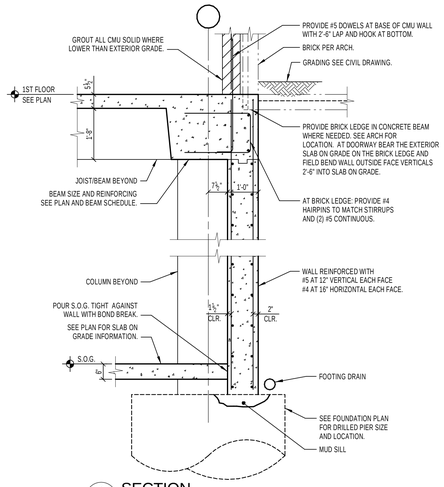
Department of Veterans Affairs



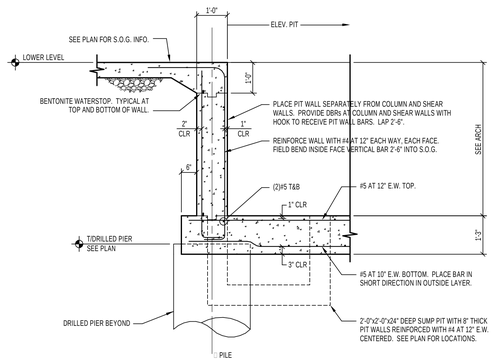
1 S201 SECTION
1/2" = 1'-0"



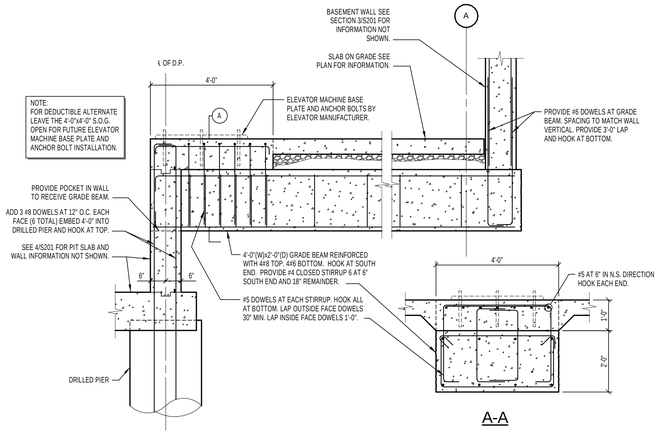
2 S201 SECTION
1/2" = 1'-0"



3 S201 SECTION
1/2" = 1'-0"



4 S201 SECTION
1/2" = 1'-0"



5 S201 SECTION
1/2" = 1'-0"

Revisions		Date
1	DD SUBMITTAL	11/12/2010
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JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
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937 461 0260 FAX
jpa@johnpoe.com

Drawing Title
FOUNDATION DETAILS
08260.08

Approved: Project Director

Project Title
ANIMAL RESEARCH FACILITY - PHASE 1
08260.08

Location
Cincinnati, Ohio

Date 01/03/11
REVISED AUGUST 17, 2012

Checked JYE

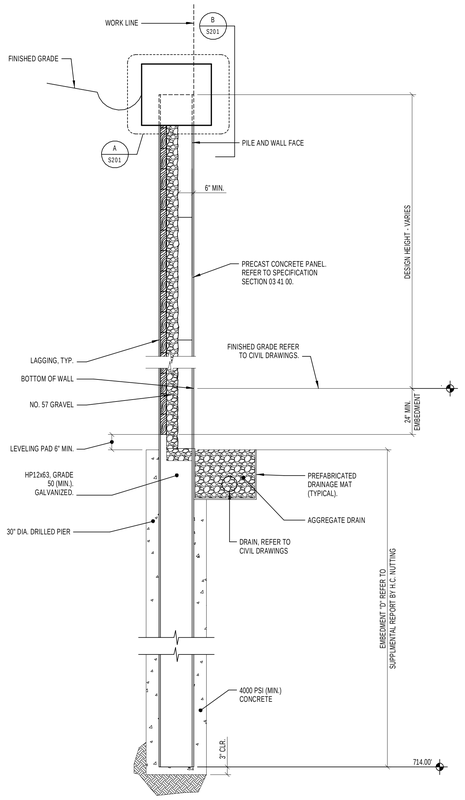
Drawn VLB

Project No.
VA Project No. 539-317
JPA Project No. 08260.08

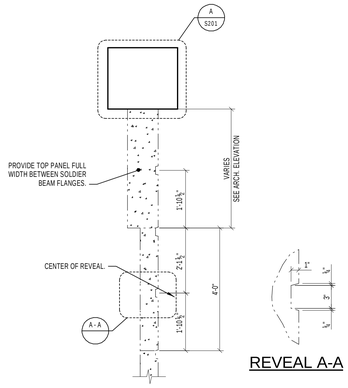
Building Number
ARC

Drawing Number
S201
Dwg. of

Office of Construction and Facilities Management
Department of Veterans Affairs

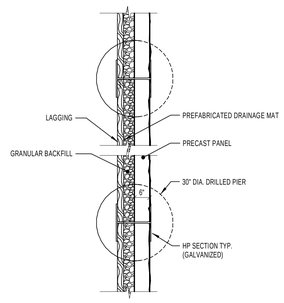


TYPICAL SOLDIER PILE WALL WITH PRECAST PANEL

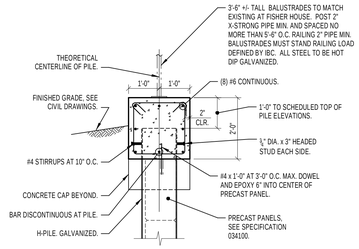


REVEAL A-A

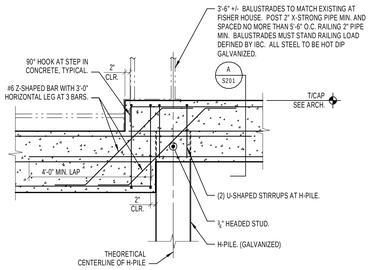
TYPICAL PRECAST PANEL REVEAL



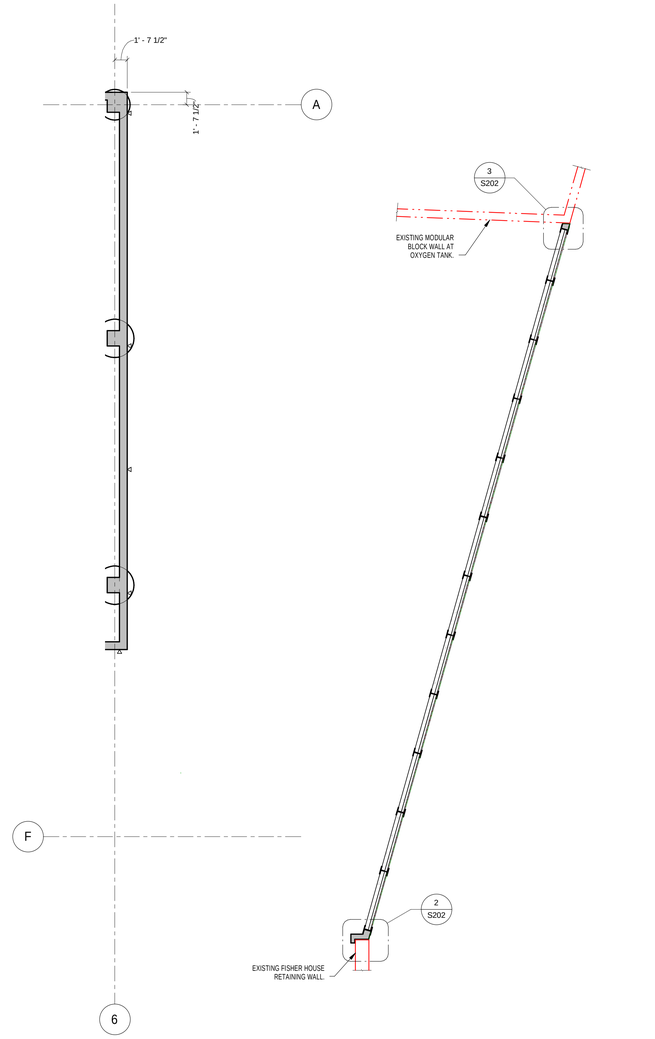
PLAN - SOLDIER PILE WALL WITH PRECAST PANEL



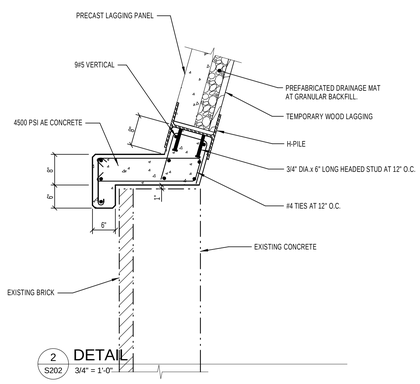
SECTION A / S201
1/2" = 1'-0"



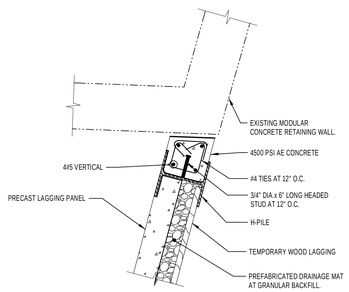
SECTION B / S201
1/2" = 1'-0"



1 S202 PARTIAL FOUNDATION PLAN
1/8" = 1'-0"



2 S202 DETAIL
3/4" = 1'-0"



3 S202 DETAIL
3/4" = 1'-0"

Revisions		Date
1	CD SUBMITTAL	01/25/2001
2	REVIEW BY CONTRACTING	09/29/11
3	Addendum #1	08/17/2012

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Drawing Title: FOUNDATION DETAILS

08260.08

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1

08260.08

Location: Cincinnati, Ohio

Date: 01/03/11
REVISED AUGUST 17, 2012

Checked: JYE

Drawn: VLB

Project No.
VA Project No. 539-317
JPA Project No. 08260.08

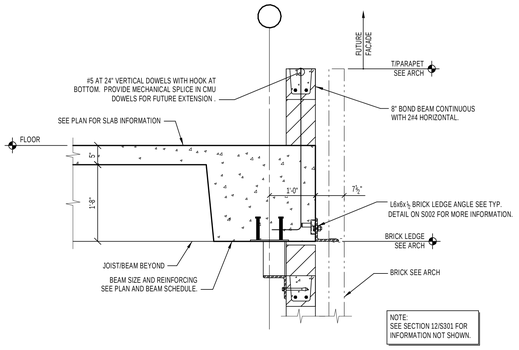
Building Number: ARC

Drawing Number: S202

Dwg. of

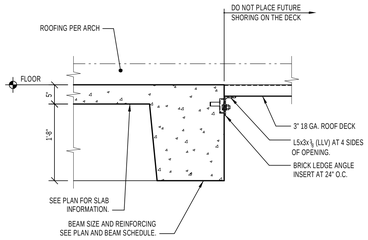
Office of Construction and Facilities Management

Department of Veterans Affairs

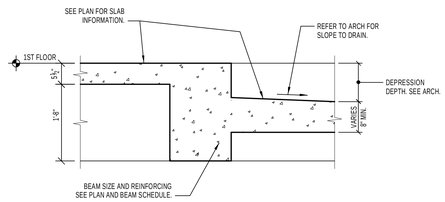


NOTE:
SEE SECTION 12/S301 FOR INFORMATION NOT SHOWN.

1 S301 SECTION
3/4" = 1'-0"



2 S301 SECTION
3/4" = 1'-0"



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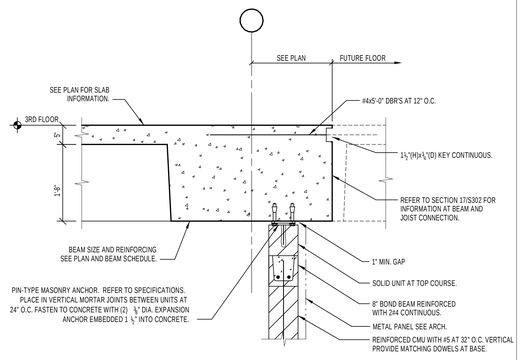

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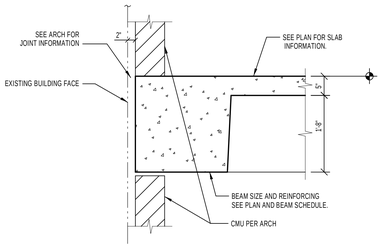

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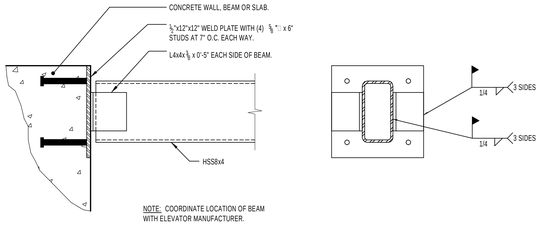
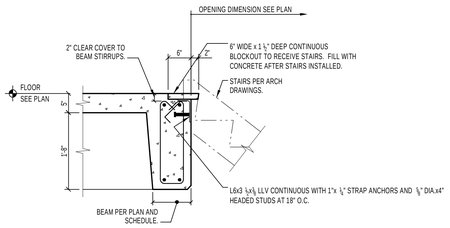


6 S301 DETAIL
1 1/2" = 1'-0"



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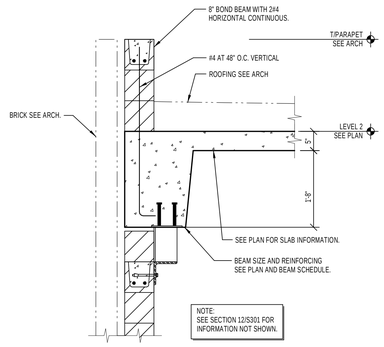
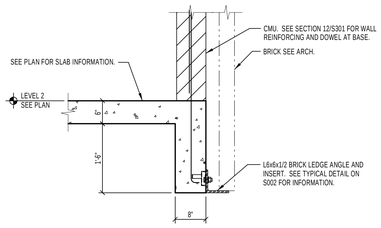


NOTE:
SEE SECTION 12/S301 FOR INFORMATION NOT SHOWN.

8 S301 SECTION
3/4" = 1'-0"



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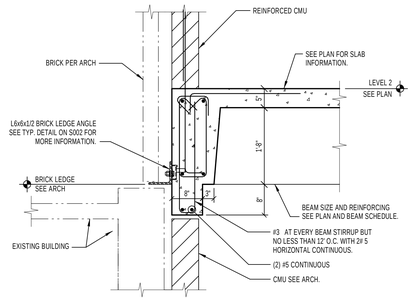

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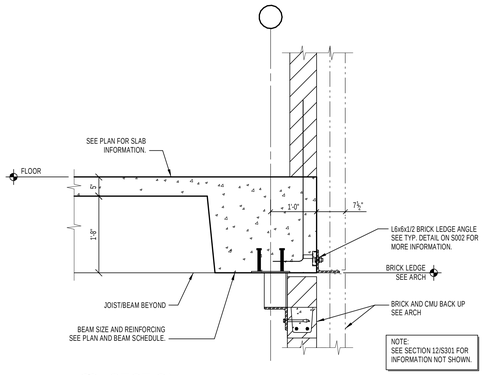
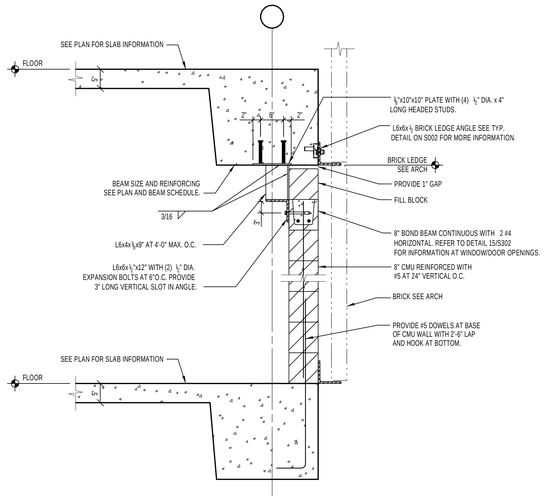


NOTE:
SEE SECTION 12/S301 FOR INFORMATION NOT SHOWN.

11 S301 SECTION
3/4" = 1'-0"



12 S301 SECTION
3/4" = 1'-0"

1	DD SUBMITTAL	11/12/2010
2	OWNER REVIEW	01/03/2011
3	CD SUBMITTAL	01/25/2001
4	REVIEW BY CONTRACTING	09/29/11
5	Addendum #1	08/17/2012
Revisions		Date

CONSULTANTS:

THP Limited, Inc.
100 East Eighth Street
Cincinnati, Ohio 45202
Phone: 513.241.3222
Fax: 513.241.2981
www.thpltd.com

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title
FRAMING DETAILS
08260.08

Approved: Project Director

Project Title
ANIMAL RESEARCH FACILITY - PHASE 1
08260.08

Location
Cincinnati, Ohio

Date 01/03/11
REVISED AUGUST 17, 2012

Checked JYE

Drawn VLB

Project No.
VA Project No. 539-317
JPA Project No. 08260.08

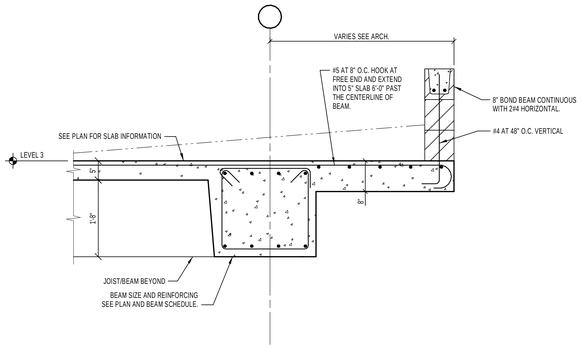
Building Number
ARC

Drawing Number
S301

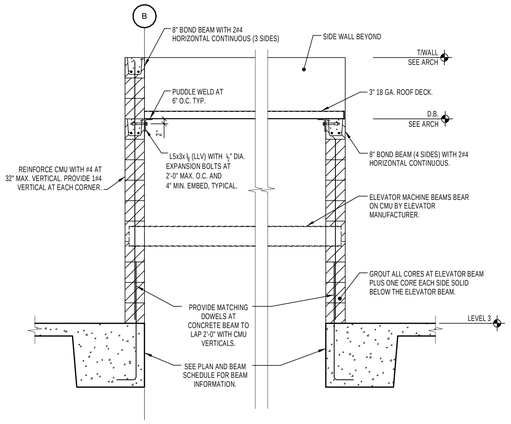
Dwg. of

Office of Construction and Facilities Management

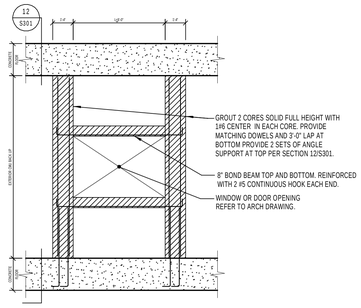
Department of Veterans Affairs



13 S302 SECTION
3/4" = 1'-0"

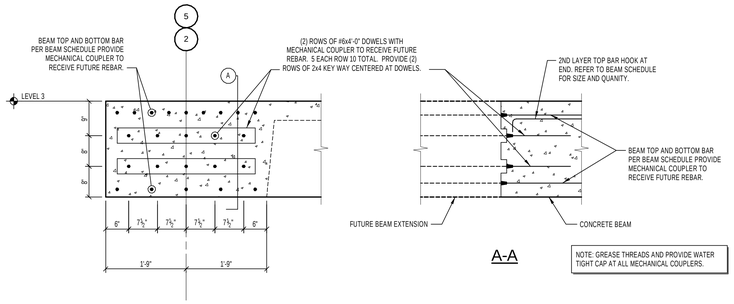


14 S302 SECTION
1/2" = 1'-0"



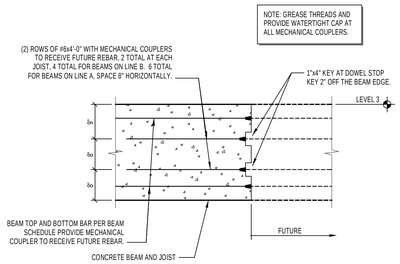
NOTE:
SUBMIT WINDOW FRAMING AND CONNECTION DESIGN PER SPECIFICATION TO ENGINEER FOR REVIEW AND CONFIRMATION BEFORE PROCEEDING FABRICATION OF THIS DETAIL.

EXTERIOR CMU OPENING AT WINDOW/DOOR
15 S302 DETAIL
1/4" = 1'-0"

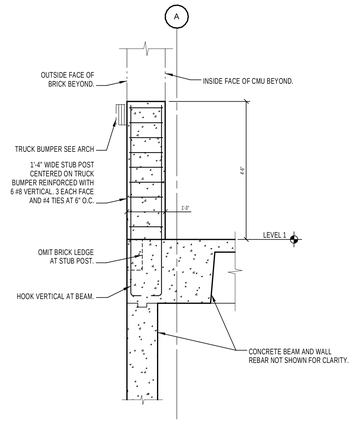


NOTE: GREASE THREADS AND PROVIDE WATER TIGHT CAP AT ALL MECHANICAL COUPLERS.

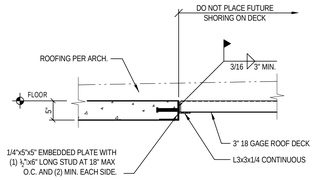
BEAM END
16 S302 DETAIL
3/4" = 1'-0"



E.W. BEAM AND JOIST
17 S302 DETAIL
3/4" = 1'-0"



18 S302 DETAIL
1/2" = 1'-0"



19 S302 DETAIL
3/4" = 1'-0"

Revisions		Date
1	OWNER REVIEW	01/03/2011
2	CD SUBMITTAL	01/25/2001
3	REVIEW BY CONTRACTING	09/29/11
4	Addendum #1	08/17/2012

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Approved: Project Director

Project Title
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Location
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Date 01/03/11
REVISED AUGUST 17, 2012

Checked JYE

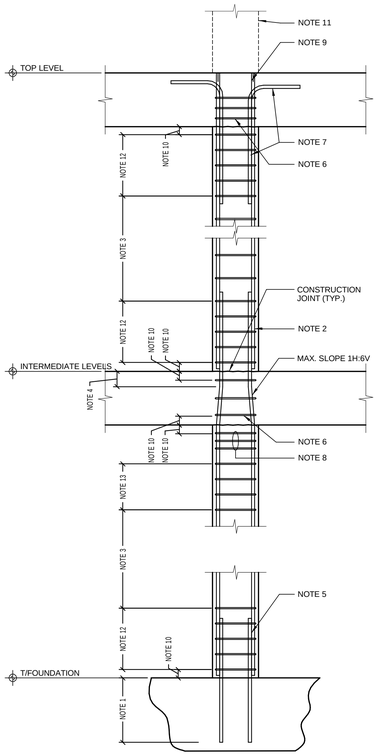
Drawn VLB

Project No.
VA Project No. 539-317
JPA Project No. 08260.08

Building Number
ARC

Drawing Number
S302
Dwg. of

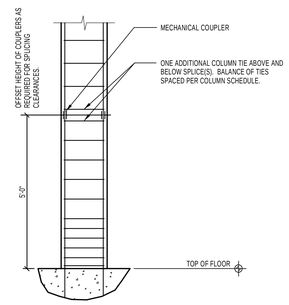
Office of Construction and Facilities Management
Department of Veterans Affairs



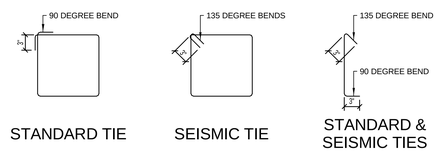
TYPICAL CONCRETE COLUMN DETAIL

COLUMN NOTES:

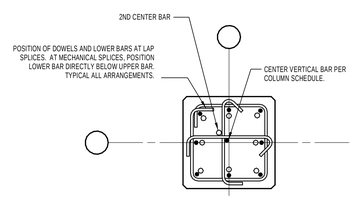
1. EXTEND DOWELS INTO DRILLED PIER. SEE TYPICAL DRILLED PIER SECTION ON THIS SHEET FOR INFORMATION.
2. REFER TO COLUMN SCHEDULE FOR SPLICE TYPE. SPLICE TO BE TENSION SPLICE UNLESS OTHERWISE NOTED.
   A. FOR LAP SPLICE LENGTHS USE 5'-0" FOR #9 VERTICAL BAR LAP SPLICE. USE MECHANICAL COUPLER FOR #11 AND #14 VERTICAL BAR SPLICE.
   B. TENSION COUPLERS TO DEVELOP 125% OF THE SPECIFIED YIELD STRENGTH OF THE BAR. COMPRESSION COUPLERS TO DEVELOP MINIMUM 25% OF THE SPECIFIED YIELD STRENGTH OF THE BAR IN TENSION. END BEARING, ZERO TENSION, COMPRESSION COUPLERS ARE NOT PERMITTED. SEE TYPICAL DETAIL ON THIS SHEET FOR INFORMATION.
   C. CONTRACTOR MAY SUBSTITUTE A MECHANICAL COUPLER FOR ANY LAP SPLICE.
3. STANDARD TIES SPACED PER COLUMN SCHEDULE. REFER TO COLUMN BAR ARRANGEMENT DETAILS FOR NUMBER OF TIES PER SET. STANDARD TIES MAY BE REPLACED WITH SEISMIC TIES AT CONTRACTOR'S OPTION.
4. HOLD TOP OF BEND DOWN 4" BELOW TOP OF BEAM.
5. DOWELS PER COLUMN SCHEDULE. PROVIDE TEMPLATES TO HOLD DOWELS IN PROPER POSITION DURING CONCRETE PLACEMENT. USE 5'-0" LAP FOR #9 DOWELS AND 3'-0" LAP FOR #7 DOWELS. SEE COLUMN BAR ARRANGEMENTS FOR LOCATIONS OF DOWELS WITHIN COLUMNS.
6. UNLESS OTHERWISE DETAILED, PROVIDE STANDARD TIES AT 10" SPACING THROUGH BEAMS OR FLOOR SYSTEM, WITH A MINIMUM OF THREE (3) SETS OF TIES WITHIN BEAM OR SLAB DEPTH.
7. PROVIDE 4#8x6'-0" WITH STANDARD 90° HOOK. SPLICE THE #8 WITH COLUMN CORNER VERTICAL BARS AND LOCATE TOP HOOK 5" BELOW TOP OF SLAB.
8. LOCATE BOTTOM OF BEND AT BOTTOM OF LOWEST BEAM AND PROVIDE THREE (3) ADDITIONAL SETS OF SEISMIC TIES AT 3" O.C. BELOW BEND. IF BOTTOM OF BEND IS MORE THAN 4" BELOW BOTTOM OF BEAM, PROVIDE ADDITIONAL SETS OF SEISMIC TIES WITHIN THAT AREA AT MAXIMUM 4" SPACING.
9. PROVIDE THREADED COUPLERS (GREASE AND METAL CAP) ON ALL COLUMN VERTICAL BARS TO RECEIVE FUTURE COLUMN VERTICAL BARS. TOP OF COUPLER 1" BELOW TOP OF SLAB.
10. LOCATE FIRST TIE 3"± FROM CONSTRUCTION JOINT (TYPICAL).
11. FUTURE COLUMN.
12. FIVE (5) SEISMIC TIES AT 8" O.C.
13. FOUR (4) SEISMIC TIES AT 8" O.C.



TYPICAL MECHANICAL SPLICE



COLUMN TIE CONFIGURATIONS



8 BAR SQUARE

NOTES:
1. ALTERNATE POSITION OF HOOKS WHEN PLACING SUCCESSIVE SETS OF TIES.
2. PROVIDE 1 ½" CONCRETE COVER TO TIES ON ALL SIDES UNLESS NOTED OTHERWISE.
3. TIE SIZE TO BE #4 ALL COLUMNS.

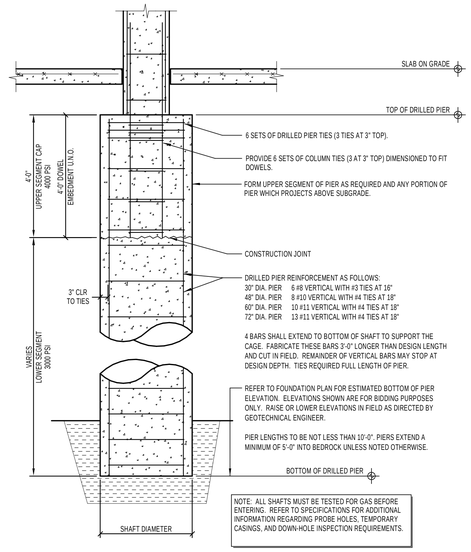
TYPICAL COLUMN BAR ARRANGEMENTS

COLUMN SCHEDULE

		B-2 B-3	C-3	C-2	A-2 A-3	A-1 B-6	B-1 C-1 C-5	B-4 B-5 C-4	A-4 A-5	A-6 C-6	E-2.1 E-3.7	D-5.1 F-5 A-3.5
3rd Level												
2nd level	COLUMN SIZE	24"X24"	24"X24"		24"X24"			24"X24"	24"X24"			
	VERTICAL BAR(SIDE)	*(8) 1 3/8" DIA*	*(8) 1 3/8" DIA*		*(6) 1 3/8" DIA*			*(8) 1 3/8" DIA*	(8)#11			
	VERTICAL BAR(CENTER)	*(2) 1 3/8" DIA*	*(1) 1 3/8" DIA*		NONE			NONE	*(1) 1 3/8" DIA*			
	TIE SPACING. (in)	10	10		10			10	10			
1st level	COLUMN SIZE	24"X24"	24"X24"	24"X24"	24"X24"	24"X24"	24"X24"	24"X24"	24"X24"	24"X24"	18"X18"	18"X18"
	VERTICAL BAR(SIDE)	*(8) 1 3/8" DIA*	*(8) 1 3/8" DIA*	*(8) 1 3/8" DIA*	*(8) 1 3/8" DIA*	*(8) 1 3/8" DIA*	*(8) 1 3/8" DIA*	*(8) 1 3/8" DIA*	(8)#11	(8)#11	(4)#9	(4)#9
	VERTICAL BAR(CENTER)	*(2) 1 3/8" DIA*	*(1) 1 3/8" DIA*	*(1) 1 3/8" DIA*	NONE	NONE	NONE	NONE	*(1) 1 3/8" DIA*	*(1) 1 3/8" DIA*	NONE	NONE
	TIE SPACING. (in)	10	10	10	10	10	10	10	10	10	8	8
FOUNDATION	COLUMN SIZE	24"X24"	24"X24"	24"X24"	24"X24"	24"X24"	24"X24"	24"X24"	24"X24"	24"X24"	18"X18"	18"X18"
	VERTICAL BAR(SIDE)	*(8) 1 3/8" DIA*	*(8) 1 3/8" DIA*	*(8) 1 3/8" DIA*	*(6) 1 3/8" DIA*	*(8) 1 3/8" DIA*	*(8) 1 3/8" DIA*	*(8) 1 3/8" DIA*	(8)#11	(8)#11	(4)#9	(4)#9
	VERTICAL BAR(CENTER)	*(2) 1 3/8" DIA*	*(1) 1 3/8" DIA*	*(1) 1 3/8" DIA*	NONE	NONE	NONE	NONE	*(1) 1 3/8" DIA*	*(1) 1 3/8" DIA*	NONE	NONE
	TIE SPACING. (in)	10	10	10	10	10	10	10	10	10	8	8
	DOWEL	(10)#9	(9)#9	(9)#9	(8)#9	(8)#9	(8)#9	(8)#9	(8)#9	(8)#9	(4)#7	(4)#7
	REMARK	3,4	3,4	3,4	1,3,4	1,3,4	3,4	3,4	1,3,4	1,3,4	2	1,2

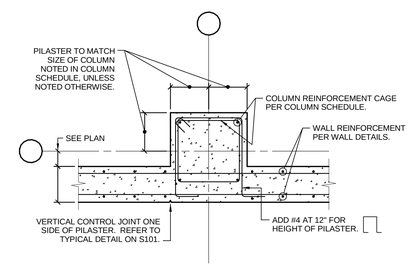
NOTE: ALL BARS SHOWN IN DIAMETER(BOLD AND ITALIC IN TABLE) ARE DYWIDAG 150 KSI HIGH STRENGTH BAR.

REMARKS:
1 COLUMN AT BASEMENT WALL POURED INTEGRAL AT WALL
2 OMIT COLUMN DIAGRAM NOTE 7 AND 9, HOOK ALL VERTICAL BARS AT TOP INTO THE BEAM AT ELEVATION 5" BELOW TOP OF SLAB
3 AT DEDUCTABLE ALTERNATE, STOP COLUMNS LOCATED IN THE DASH
4 USE MECHANICAL SPLICE FOR COLUMN VERTICALS



NOTE:
1. REFER TO COLUMN SCHEDULE FOR DOWELS AND REQUIRED LAP SPLICE WITH COLUMN REINFORCING.
2. PROVIDE TEMPLATES TO HOLD DOWELS IN PROPER POSITION DURING CONCRETE PLACEMENT.

TYPICAL CONCRETE COLUMN/DRILLED PIER



COLUMN CAST WITH FOUNDATION WALL

Revisions		Date
1	DD SUBMITTAL	11/12/2010
2	OWNER REVIEW	01/03/2011
3	CD SUBMITTAL	01/25/2001
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Drawing Title: CONCRETE COLUMN SCHEDULE AND DETAILS
08260.08

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1
08260.08

Location: Cincinnati, Ohio

Date: 01/03/11
REVISED AUGUST 17, 2012

Checked: JYE

Drawn: VLB

Project No.
VA Project No. 539-317
JPA Project No. 08260.08

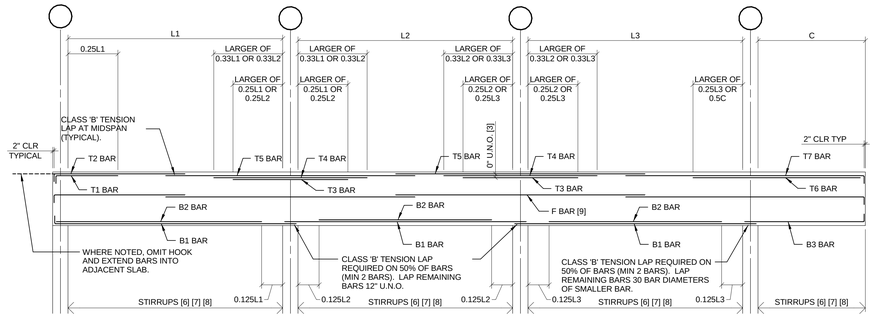
Building Number: ARC

Drawing Number: S401

Dwg. of

Office of Construction and Facilities Management

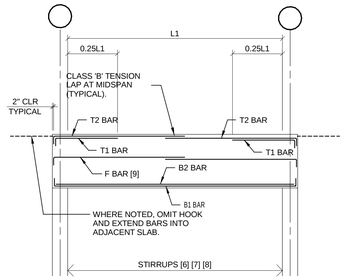
Department of Veterans Affairs



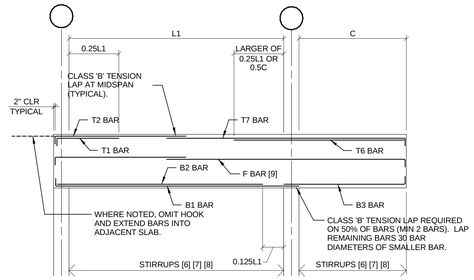
EXTERIOR SPAN
TYPE 1 BEAM

INTERIOR SPAN
TYPE 2 BEAM

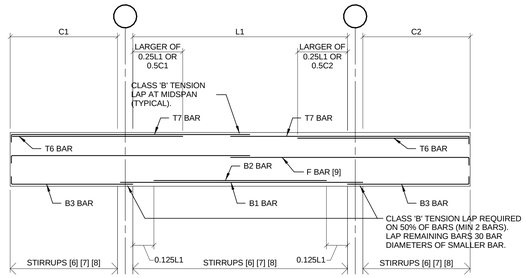
EXTERIOR SPAN WITH CANTILEVER
TYPE 3 BEAM



SINGLE SPAN
TYPE 4 BEAM



SINGLE SPAN WITH CANTILEVER
TYPE 5 BEAM



SINGLE SPAN WITH DOUBLE CANTILEVER
TYPE 6 BEAM

TYPICAL BEAM REINFORCEMENT DIAGRAM NOTES

[1] FOR THE PURPOSE OF ESTABLISHING THE LEFT AND RIGHT HAND SIDE OF A BEAM, THE BEAM IS TO BE VIEWED IN THE SAME ORIENTATION AS THE CORRESPONDING BEAM MARK ON THE FRAMING PLAN.

[2] WHERE TYPE 2, 4, OR 6 BEAM TOP BARS ARE CALLED OUT WITH THE SUBSCRIPT "L" OR "R" IN THE BEAM SCHEDULE, (E.G. T2L, T3L, T2R, OR T3R), THE SUBSCRIPT REFERS TO THE LEFT OR RIGHT SIDE OF THE BEAM RESPECTIVELY. WHERE TYPE 2, 4, OR 6 BEAM TOP BARS ARE CALLED OUT WITHOUT A SUBSCRIPT, THE BARS ARE REQUIRED ON BOTH THE LEFT AND RIGHT SIDES OF THE BEAM.

[3] BARS NOTED WITH AN ASTERISK IN THE SCHEDULE (E.G. *2#7*) SHALL BE PLACED IN A SECOND LAYER. THE BARS IN THE SECOND LAYER ARE TO BE PLACED DIRECTLY ABOVE OR BELOW THE BARS IN THE OUTER LAYER WITH THE DISTANCE BETWEEN LAYERS MAINTAINED AT 1" CLEAR.

[4] PROVIDE 1 1/2" CONCRETE COVER TO TIES AND STIRRUPS ON ALL BEAM SURFACES, UNLESS NOTED OTHERWISE.

[5] HOOK TOP AND BOTTOM BARS WHERE SHOWN OR NOTED. PROVIDE STANDARD 90° HOOK OR 180° HOOK WHERE REQUIRED FOR CLEARANCE.

[6] PROVIDE MINIMUM #4 STIRRUPS AT 36" O.C. IN ALL BEAMS WHERE NO STIRRUPS ARE SCHEDULED AND WHERE NOTED "NOMINAL" ON BEAM DIAGRAMS. WHERE STIRRUPS ARE SCHEDULED, PROVIDE STIRRUPS OF SAME SIZE AS THE SCHEDULED STIRRUPS SPACED AT MAXIMUM 36" O.C. BETWEEN THE SCHEDULED STIRRUPS.

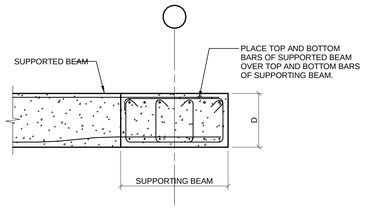
[7] PLACE FIRST STIRRUP 2" FROM THE FACE OF SUPPORT.

[8] STIRRUPS ARE NOTED AS BEGINNING AT THE SUPPORT EACH END AND PROCEEDING TOWARD THE MIDSPAN.

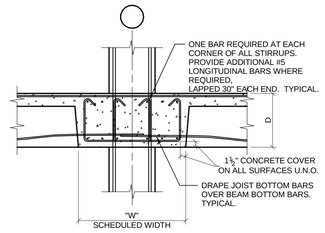
[9] PLACE 1/4 OF SCHEDULED FACE BARS (TYPE "F") ON EACH FACE OF BEAM AND SPACE EQUALLY BETWEEN TOP AND BOTTOM BARS. BARS ARE CONTINUOUS WITH CLASS "B" TENSION LAPS LOCATED AT APPROXIMATE MIDSPAN OF BEAM. AT DISCONTINUOUS ENDS, HOOK FACE BARS AT FAR END OF THE SUPPORT OR EMBED 40 BAR DIAMETERS BEYOND THE FACE OF THE SUPPORT UNLESS OTHERWISE NOTED.

[10] FABRICATE BEAM REINFORCEMENT FOR NOMINAL CONCRETE BEAM SIZES NOTED, ALTHOUGH ACTUAL CONCRETE SECTIONS MAY BE WIDER AND/OR DEEPER. UNLESS NOTED OTHERWISE, PLACE BEAM REINFORCEMENT TO MAINTAIN MINIMUM CONCRETE COVER WITHIN NOMINAL BEAM SIZE. SEE "TYPICAL BEAM BAR PLACEMENT" DETAILS FOR REQUIRED ADDITIONAL REINFORCING AT BEAMS WITH ADDITIONAL WIDTH.

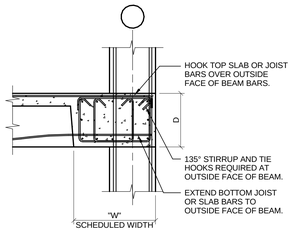
TYPICAL BEAM REINFORCEMENT DIAGRAMS



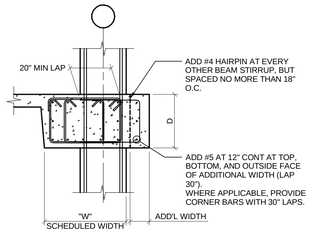
INTERSECTING BEAMS



TYPICAL INTERIOR BEAMS

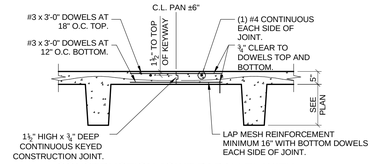


TYPICAL EXTERIOR BEAMS

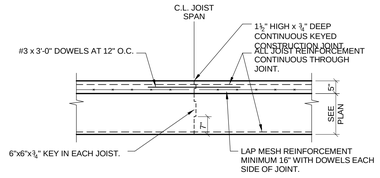


BEAMS WITH ADDITIONAL WIDTH

TYPICAL BEAM BAR PLACEMENT



CONSTRUCTION JOINT PARALLEL WITH JOISTS



CONSTRUCTION JOINT PERPENDICULAR WITH JOISTS

NOTES:
1. COAT SURFACE OF CONSTRUCTION JOINTS WITH CEMENT GROUT OR BONDING AGENT JUST PRIOR TO SECOND SLAB PLACEMENT.
2. SHOW CONSTRUCTION JOINTS ON THE REINFORCING STEEL SHOP DRAWINGS. LOCATIONS TO BE APPROVED BY STRUCTURAL ENGINEER.

CONSTRUCTION JOINTS IN WIDE MODULE PAN SLAB JOISTS AND SLABS

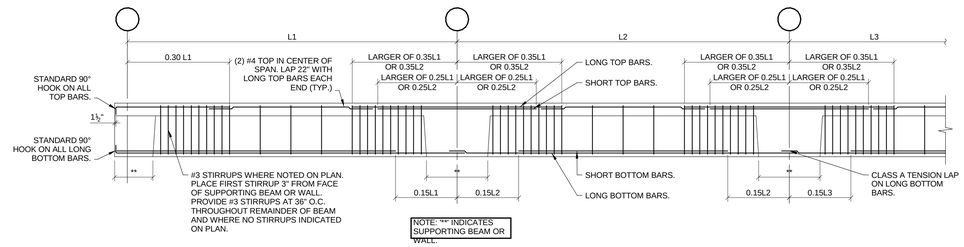
WIDE MODULE JOIST STIRRUP SCHEDULE

MARK	QUANTITY OF #3 STIRRUPS EACH END OF JOIST
JS1	5 AT 11" O.C.
JS2	7 AT 11" O.C.
JS3	9 AT 11" O.C.
JS4	11 AT 11" O.C.
JS5	13 AT 11" O.C.
JS6	15 AT 11" O.C.
JS7	AT 11" O.C. FULL LENGTH
JS8	AT 18" O.C.

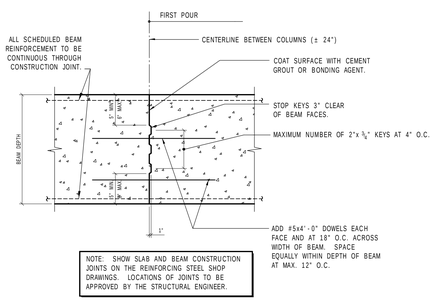
WIDE MODULE JOIST REINFORCEMENT SCHEDULE

TOP BARS			BOTTOM BARS		
MARK	LONG BARS	SHORT BARS	MARK	LONG BARS	SHORT BARS
TJ1	2#5	-	BJ1	2 #5	-
TJ2	2#6	-	BJ2	2#6	-
TJ3	2#7	-	BJ3	2#7	-
TJ4	2 #8	-	BJ4	2#8	-
TJ5	2 #9	-	BJ5	2#9	-
TJ6	2 #9	1 #5	BJ6	2#8	2 #6
TJ7	2 #9	1 #7	BJ7	2#9	2#5
TJ8	2 #9	1 #9	BJ8	2#9	2#6
TJ9	2 #9	2 #9	BJ9	3#9	

JOIST PLAN NOTES:
1. BARS ARE CONTINUOUS ACROSS SPAN.
2. EXTEND TO EDGE OF SLAB OR OPENING AND HOOK.
3. EXTEND BARS AND LAP WITH ADJACENT JOIST BARS AT MIDSPAN.
4. EXTEND LONG BARS TO SLAB STEP AND HOOK.
5. CONTINUE TOP BARS INTO SLAB THE TYPICAL DISTANCE.
6. LEFT END ONLY.
7. CONTINUE TOP BARS INTO BEAM THE TYPICAL DISTANCE.
8. PROVIDE ST-1 TYPE STIRRUPS IN LIEU OF TYPICAL JOIST STIRRUPS.
9. CONTINUOUS FULL LENGTH, HOOK EACH END.
10. EXTEND TO EDGE OF SLAB AS PART OF BEAM REINFORCING.
11. PROVIDE MECHANICAL COUPLER PER 17/S302.
12. PLACE IN SECOND LAYER AND HOOK AT SLAB EDGE.
13. HOOK BARS AT FAR EDGE OF SUPPORTING GIRDER.



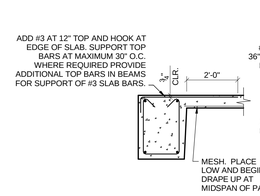
TYPICAL WIDE MODULE CONCRETE JOIST REINFORCEMENT DIAGRAM



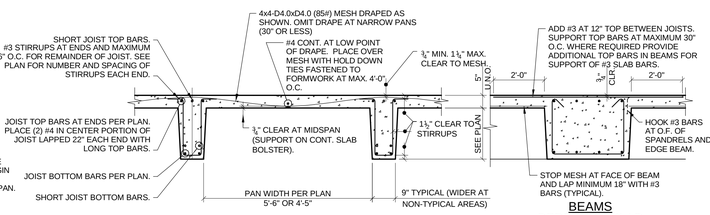
BEAM CONSTRUCTION JOINT

NOTE: THE VERTICAL LEGS OF ALL BEAM STIRRUPS TO HAVE 135 DEGREE SEISMIC HOOKS. CROSS TIES TO HAVE ONE 135 DEGREE SEISMIC HOOK AND ONE 90 DEGREE SEISMIC HOOK.

STIRRUP TYPES	
ST - 1	
ST - 2	
ST - 3	
ST - 4	



END JOISTS AND SPANDREL BEAMS PARALLEL TO JOISTS



BEAMS PERPENDICULAR TO JOISTS

TYPICAL WIDE-MODULE PAN JOIST AND SLAB

1	DD SUBMITTAL	11/12/2010
2	OWNER REVIEW	01/03/2011
3	CD SUBMITTAL	01/25/2001
4	REVIEW BY CONTRACTING	09/29/11
5	Addendum #1	08/17/2012
Revisions		Date

CONSULTANTS:

THP Limited, Inc.
100 East Eighth Street
Cincinnati, Ohio 45202
Phone: 513.241.3222
Fax: 513.241.2981
www.thpltd.com

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: CONCRETE BEAM AND JOIST DETAILS
08260.08

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1
08260.08

Location: Cincinnati, Ohio

Date: 01/03/11
REVISED AUGUST 17, 2012

Checked: JYE

Drawn: VLB

Project No.
VA Project No. 539-317
JPA Project No. 08260.08

Building Number: ARC

Drawing Number: S501
Dwg. of

Office of Construction and Facilities Management
Department of Veterans Affairs

BEAM SCHEDULE

BEAM MARK	BEAM SIZE (WxD)	BEAM TYPE	REINFORCING MARK	REINFORCING BARS	STIRRUPS SIZE	STIRRUPS TYPE	STIRRUPS SPACING	REMARKS
B001	42x25	3	B1	4#9	#4	ST-4	11 AT 5" EE	1
			B2	3#9			BAL. AT 11"	
			B3	4#7			AT 11" IN CANT.	
			T7	4#9				
			T6	3#11				
			T5	4#11				
			T4	3#11				
			F	2#5				
B002	42x25	1	B1	4#9	#4	ST-4	11 AT 5" EE	1
			B2	3#9			BAL. AT 11"	
			T2	4#9				
			T1	3#7				
			F	2#5				
B003	42x25	3	B1	4#11	#4	ST-2	11 AT 5" EE	1,5
			B2	3#9			BAL. AT 11"	
			B3	4#7			AT 11" IN CANT.	
			T7	4#11				
			T6	3#9				
			T5	4#11				
			T5	4#9				
			T4	3#11				
B004	42x25	1	B1	4#11	#4	ST-2	11 AT 5" EE	1
			B2	4#9			BAL. AT 11"	
			T2	4#9				
			T1	3#9				
B005	42x25	1	B1	4#9	#4	ST-2	11 AT 5" EE	1,3,4
			B2	3#9			BAL. AT 11"	
			T5	4#11				
			T4	2#9+1#11				
			T2	4#7				
			T1	3#7				
B006	33/42x25	2	B1	5#9	#4	ST-2	11 AT 5" EE	1,3,4
			B2	2#9			BAL. AT 11"	
B007	42x25	1	B1	4#11	#4	ST-2	11 AT 5" EE	1
			B2	3#9			BAL. AT 11"	
			T5	4#11				
			T4	4#11				
			T2	4#9				
			T1	2#9+1#7				
B008	42x25	3	B1/B3	4#9	#4	ST-4	11 AT 5" EE	1,7
			B2/B3	3#7			BAL. AT 11"	
			T7	4#7			AT 11" IN CANT.	
			T6	3#7				
			T5	4#11				
			T4	3#9				
			F	2#7				
B009	42x25	2	B1	4#9	#4	ST-2	11 AT 5" EE	1,4
			B2	3#7			BAL. AT 11"	
B010	33/42x25	1	B1	4#9	#4	ST-2	11 AT 5" EE	1,3,4
			B2	3#9			BAL. AT 11"	
			T5	4#11				
			T4	3#9				
			T2	4#9				
			T1	3#7				
			F	2#5				
B011	42x25	1	B1	4#11	#4	ST-2	11 AT 5" EE	1
			B2	3#9			BAL. AT 11"	
			T5	4#11				
			T4	4#11				
			T2	4#7				
			T1	3#9				
B012	42x25	2	B1	4#9	#4	ST-2	11 AT 5" EE	1,4
			B2	3#9			BAL. AT 11"	
B013	33/42x25	1	B1	4#9	#4	ST-2	11 AT 5" EE	1,3,4
			B2	4#9			BAL. AT 11"	
			T5	4#11				
			T4	4#11				
			T2	4#9				
			T1	3#7				
B014	31.5x25	3	B1/B3	2#9	#4	ST-3	6 AT 11" EE	7,8
			B2/B3	1#7			BAL. AT 18"	
			T7	2#9				
			T6	1#7				
			T5	2#9				
			T4	1#7				
			F	4#7				
B015	31.5x25	1	B1	2#9	#4	ST-3	6 AT 11" EE	8
			B2	1#7			BAL. AT 18"	
			T2	2#9				
			T1	1#7				
			F	4#7				
B016	42x25	3	B1	4#9	#4	ST-4	11 AT 5" EE	1,5
			B2	3#11			BAL. AT 11"	
			B3	4#7			AT 11" IN CANT.	
			T7	4#9				
			T6	3#11				
			T5	4#11				
			T5	4#9				
			T4	3#11				
			F	2#5				
B017	42x25	1	B1	4#9	#4	ST-4	11 AT 5" EE	1
			B2	3#11			BAL. AT 11"	
			T2	4#9				
			T1	3#9				
			F	2#5				
B018	42x25	3	B1/B3	4#9	#4	ST-2	11 AT 5" EE	1,3,4,7
			B2/B3	3#7			BAL. AT 11"	
			T7	4#9				
			T6	3#7				
			T5	4#11				
			T4	4#9				
B019	33/42x25	2	B1	5#9	#4	ST-2	11 AT 5" EE	1,3,4
			B2	2#9			BAL. AT 11"	
B020	42x25	1	B1	4#11	#4	ST-2	11 AT 5" EE	1
			B2	3#9			BAL. AT 11"	
			T5	4#11				
			T4	4#11				
			T2	4#9				
			T1	2#9+1#7				
B021	42x25	3	B1/B3	4#9	#4	ST-4	11 AT 5" EE	1,7
			B2/B3	3#7			BAL. AT 11"	
			T7	4#9			AT 11" IN CANT.	
			T6	2#9+1#7				
			T5	4#11				
			T4	3#9				
			F	2#7				
B022	42x25	2	B1	4#9	#4	ST-2	11 AT 5" EE	1,4
			B2	3#7			BAL. AT 11"	
B023	33/42x25	1	B1	4#9	#4	ST-2	11 AT 5" EE	1,3,4
			B2	3#7			BAL. AT 11"	
			T5	4#11				
			T4	3#9				
			T2	4#9				
			T1	3#7				
B024	42x25	1	B1	2#11+2#9	#4	ST-2	11 AT 5" EE	1
			B2	3#9			BAL. AT 11"	
			T5	4#11				
			T4	4#11				
			T2	4#7				
			T1	3#7				
B025	42x25	2	B1	4#7	#4	ST-2	11 AT 5" EE	1,4
			B2	3#7			BAL. AT 11"	
B026	33/42x25	1	B1	4#9	#4	ST-2	11 AT 5" EE	1,3,4
			B2	3#9			BAL. AT 11"	
			T5	4#11				
			T4	3#9				
			T2	4#7				
			T1	3#9				

BEAM MARK	BEAM SIZE (WxD)	BEAM TYPE	REINFORCING MARK	REINFORCING BARS	STIRRUPS SIZE	STIRRUPS TYPE	STIRRUPS SPACING	REMARKS
B027	33x25	3	B1/B3	4#9	#4	ST-4	11 AT 5" EE	1,7
			B2	3#9			BAL. AT 11"	
			T7	3#9+1#11			AT 11" IN CANT.	
			T6	3#9				
			T5	4#11				
			T4	2#11+2#9				
			F	2#5				
B028	33/24x25	1	B1	4#9	#4	ST-4	11 AT 5" EE	1,4,9,10
			B2	3#9			BAL. AT 11"	
			T2	4#9				
			T1	2#9				
			F	2#5				
B029	42x25	3	B1	4#11	#4	ST-2	11 AT 5" EE	1,4
			B2	3#9			BAL. AT 11"	
			B3	4#7			AT 11" IN CANT.	
			T7	4#11				
			T6	3#9				
B029A	42x25	3	B1	4#11	#4	ST-2	11 AT 5" EE	1,4
			B2	3#9			BAL. AT 11"	
			B3	4#7			AT 11" IN CANT.	
			T7	4#11				
			T6	3#9				
			F	2#7				
B030	33/42x25	1	B1	4#11	#4	ST-2	11 AT 5" EE	1,3,4,5,10
			B2	3#9			BAL. AT 11"	
			T5	4#11				
			T5	4#9				
			T4	3#11				
			T2	4#9				
			T1	3#7				
B031	33/42x25	3	B1	4#11	#4	ST-2	11 AT 5" EE	1,3,4,5,10
			B2	3#9			BAL. AT 11"	
			B3	4#7			AT 11" IN CANT.	
			T7	4#11				
			T6	3#9				
B031A	33/42x25	3	B1	4#11	#4	ST-2	11 AT 5" EE	1,3,4,5
			B2	3#9			BAL. AT 11"	
			B3	4#7			AT 11" IN CANT.	
			T7	4#11				
			T6	3#9				
			F	2#7				
B032	42x25	1	B1	4#11	#4	ST-2	11 AT 5" EE	1,5
			B2	3#9			BAL. AT 11"	
			T5	4#11				
			T5	4#9				
			T4	3#11				
			T2	4#9				
			T1	3#7				
B033	42x25	3	B1	4#11+4#9	#4	ST-4	11 AT 5" EE BAL. AT 11"	7,19,27
			T7	4#9			BAL. AT 11"	
			T7	4#11			AT 11" IN CANT.	
			T6	4#11				
			T2	4#9				
			T1	3#7				
			F	2#7				
B034	42/33x25	3	B1	4#11+3#9	#4	ST-4	11 AT 5" EE	3,4,7,19,27
			T7	4#9			BAL. AT 11"	
			T7	4#11			AT 11" IN CANT.	
			T6	3#11				
			T2	4#9				
			T1	3#7				
			F	2#7				
-	-	-	-	-	-	-	-	-
B100	32.75x25	3	B1/B3	2#7	#4	ST-3	6 AT 11" EE	7,8
			B2/B3	1#5			BAL. AT 18"	
			T7	2#7				
			T6	1#5				
			T5	2#7				
			T4	1#5				
			F	2#7				
B101	32.75x25	2	B1	2#7	#4	ST-3	6 AT 11" EE	8
			B2	1#5			BAL. AT 18"	
			F	2#7				
B102	32.75x25	2	B1	2#7	#4	ST-3	6 AT 11" EE	8
			B2	1#5			BAL. AT 18"	
			T5	2#7				
			T4	1#5				
			F	2#7				
B103	32.75x25	1	B1	2#7	#4	ST-3	6 AT 11" EE	8
			B2	1#5			BAL. AT 18"	
			T2	2#7				
			T1	1#5				
			F	2#7				
B104	21.5x25	1	B1/B3	2#7	#4	ST-1	11 AT 5" EE	1
			B2/B3	2#7			BAL. AT 11"	
			T7	3#9				
			T6	2#9				
B105	21.5x25	2	B1	2#7	#4	ST-1	11 AT 5" EE	1
			B2	2#7			BAL. AT 11"	
			T5	3#9				
			T3	1#9+1#7				
B106	21.5x25	2	B1	2#7	#4	ST-1	11 AT 5" EE	1,11
			B2	2#7			BAL. AT 11"	
			T5R	2#7				
			T3R	1#9				
			T2/T5	2#9				
B107	22.5x25	1	B1	2#7	#4	ST-3	11 AT 5" EE	1,12
			B2	2#9			BAL. AT 11"	
			T2/T5	3#7				
			F	2#5				
B108	+/-25x25	4	B1	3#11	#4	ST-3	11 AT 5" EE	28
			B2	3#9			BAL. AT 11"	
			T2	3#7				
			T1	2#7				
			F	2#7				
B109	20x25	1	B1	2#7	#4	ST-1	11 AT 5" EE	1
			B2	2#7			BAL. AT 11"	
			T7	3#9				
			T6	2#9				
B110	18x25	2	B1	2#7	#4	ST-3	11 AT 5" EE	1
			B2	2#7			BAL. AT 11"	
			T5	3#9				
			T4	1#7				
			T3	2#9				
			F	2#5				
B111	18x25	2	B1	2#7	#4	ST-3	11 AT 5" EE	1
			B2	2#7			BAL. AT 11"	
			F	2#5				
B112	20x25	2	B1	2#7	#4	ST-1	11 AT 5" EE	1,6
			B2	2#7			BAL. AT 11"	
			T5	3#9				
			T3	2#9				
B113	20x25	1	B1	2#7	#4	ST-1	11 AT 5" EE	1
			B2	2#9			BAL. AT 11"	
			T2	3#9				
			T1	2#7				
B114	21.5x25	2	B1	2#7	#4	ST-3	11 AT 5" EE	1,13
			B2	2#7			BAL. AT 11"	
			T5R	2#7				
			T3R	1#9				
B115	22.5x25	2	B1	2#7	#4	ST-3	11 AT 5" EE	1,6,32
			B2	2#9			BAL. AT 11"	
			T5	4#9				
			T4	1#9				
			F	2#5				

BEAM MARK	BEAM SIZE (WxD)	BEAM TYPE	REINFORCING MARK	REINFORCING BARS	STIRRUPS SIZE	STIRRUPS TYPE	STIRRUPS SPACING	REMARKS
B116	21.5x25	1	B1	2#7	#4	ST-1	11 AT 5" EE	1,13
			B2	2#9			BAL. AT 11"	
			T5L	2#7				
			T3L	1#9				
			T2	3#9				
			T1	2#7				
B117	25.25x25	3	B1	2#9	#4	ST-3	11 AT 5" EE	1
			B2	2#7			BAL. AT 11"	
			T7	3#9				
			T6	2#9				
			T5	3#9				
			T3	3#9				
			F	2#5				
B118	25.25x25	2	B1	2#7	#4	ST-3	11 AT 5" EE	1
			B2	2#7			BAL. AT 11"	
			F	2#5				
B119	25.25x25	1	B1	2#7	#4	ST-3	11 AT 5" EE	1,16
			B2	2#7			BAL. AT 11"	
			T5/T2	3#9				
			T3/T1	3#8				
			F	2#5				
B120	8x24	4	B1	2#7	#4	ST-3	11 AT 5" EE	1,20,21
			T2	3#9			BAL. AT 11"	
			F	2#5				
B121	25.25x25	1	B1	2#9	#4	ST-3	11 AT 5" EE	1
			B2	2#7			BAL. AT 11"	
			T2	2#7				
			T1	2#7				
			F	2#5				
B122	25.25x25	1	B1	3#9	#4	ST-3	11 AT 5" EE	1,15
	24x25		B2	2#8			BAL. AT 11"	
			T5	3#11				
			T4	3#9				
			T2	3#9				
			T1	2#9				
			F	2#5				
B123	20x25	5	B1	2#9	#4	ST-1	9 AT 11" EE	
			B2	1#9			AT 11" IN CANT.	
			B3	3#5				
			T7	2#11				
			T6	2#9				
			T2	2#5				
			T1	1#5				
B124	25.25x25	2	B1	2#9	#4	ST-3	11 AT 5" EE	1
			B2	2#7			BAL. AT 11"	
			T5L	3#9				
			T3L	3#9				
			F	2#5				
B125	25.25x25	2	B1	2#9	#4	ST-3	11 AT 5" EE	1,5,6
			B2	2#7			BAL. AT 11"	
			T5	3#9				
			T3	2#9				
			T3R	2#9				
			F	2#5				
B126	25.25x25	1	B1	3#9	#4	ST-3	11 AT 5" EE	1,15
	24x25		B2	2#9			BAL. AT 11"	
			T2	3#7				
			T1	2#7				
			F	2#5				
B127	25.25x25	1	B1	2#9	#4	ST-3	11 AT 5" EE	1,17,19
			B2	2#7			BAL. AT 11"	
			T5R	3#9				
			T3R	3#9				
			T2	3#9				
			T1	3#9				
			T1	4#9				
			F	2#5				
B128	25.25x25	2	B1	2#9	#4	ST-3	11 AT 5" EE	1
			B2	2#7			BAL. AT 11"	
			F	2#5				
B129	25.25x25	1	B1	2#9	#4	ST-3	11 AT 5" EE	1,6,18,19
			B2	2#7			BAL. AT 11"	
			T5/T2	3#9				
			T3/T1	3#9				
			F	2#5				
B130	21.5x25	1	B1	2#9	#4	ST-3	11 AT 5" EE	1,17,19
			B2	2#7			BAL. AT 11"	
			T5R	3#9				
			T3R	2#9				
			T2	3#9				
			T1	2#9				
			T1	3#9				
B131	21.5x25	2	B1	2#9	#4	ST-3	11 AT 5" EE	1
			B2	2#7			BAL. AT 11"	
B132	21.5x25	2	B1	2#9	#4	ST-3	11 AT 5" EE	1,6,32
			B2	2#7			BAL. AT 11"	
			T5	4#9				
			T4	1#9				
B133	+/-23x25	3	B1	2#7	#4	ST-3	9 AT 11" EE	28
			B2	1#7			4 AT 11" RE OF CANT	
			B3	3#5				
			T7	2#7				
			T6	1#9				
			T5	2#9				
			T3	1#9				
			F	2#5				
B134	+/-23/19x25	1	B1	2#7	#4	ST-3	9 AT 11" EE	22,28
			B2	1#7				
			T2	2#5				
			T1	1#7				
			F	2#5				
B135	+/-23x25	3	B1	2#7	#4	ST-3	9 AT 11" EE	28
			B2	1#7			4 AT 11" RE OF CANT	
			B3	3#5				
			T7	2#7				
			T6	1#9				
			T5	2#9				
			T3	1#9				
			F	2#5				
B136	+/-23x25	1	B1	2#7	#4	ST-3	9 AT 11" EE	28
			B2	1#7				
			T2	2#5				
			T1	1#7				
			F	2#5				
B137	32x25	1	B1	2#5	#4	ST-3	5 AT 11" EE	25
			B2	1#7				
			T5/T2	2#9				
			T3/T1	1#7				
			F	2#5				
B138	32x25	1	B1	2#9	#4	ST-3	11 AT 11" EE	
			B2	2#9				
			T2	2#5				
			T1	1#7				
			F	2#7				
B139	15x25	5	B1	2#5	#3	ST-3	NOMINAL	
			B3	2#5				
			T7	2#5				
			T2	2#5				
			F	2#5				
B140	14x25	4	B1	2#5	#3	ST-3	NOMINAL	
			T2	2#5				
			F	2#5				
B141	16x24	5	B1	2#7	#4	ST-3	5 AT 11" EE	
			B2	1#7				
			B3	3#5				
			T7	3#5				
			T2	3#5				
			F	2#5				
B142	26x25	4	B1	3#5	#4	ST-3	AT 11" FULL LENGTH	20,21,26
			T2	3#5				
			F	2#5				

BEAM MARK	BEAM SIZE (WxD)	BEAM TYPE	REINFORCING MARK	REINFORCING BARS	STIRRUPS SIZE	STIRRUPS TYPE	STIRRUPS SPACING	REMARKS
B143	19x25	5	B1/B3	3#9	#4	ST-3	5 AT 11" EE	31
			T2/T7	3#7			AT 11" IN CANT	
			F	2#5				
B144	23x25	4	B1	2#9	#4	ST-3	8 AT 11" EE	31
			B2	2#9				
			T2	2#9				
			T1	2#5				
			F	2#5				
B200	12x25	3	B1	2#5	#4	ST-3	NOMINAL	
			B3	2#5				
			T7	2#5				
			T5	2#5				
			F	2#5				
B201	12x25	1	B1	2#7	#4	ST-3	NOMINAL	
			T2	2#5				
			F	2#5				
B202	18x25	4	B1	2#9	#4	ST-3	AT 11" FULL LENGTH	20,21,24
B202A	14x25		B2	1#7				
			T2	3#5				
			F	2#5				
B203	16x25	4	B1	3#7	#4	ST-3	AT 11" FULL LENGTH	20,21,24
			T2	3#5				
			F	2#5				
B204	16x25	4	B1	2#9	#4	ST-3	6 AT 11" EE	20,28
			B2	1#7				
			T2	2#7				
			T1	1#5				
			F	2#5				
B205	18x25	4	B1	2#9	#4	ST-3	6 AT 11" EE	20,28
			B2	1#7				
			T2	2#7				
			T1	1#5				
			F	2#5				
B206	16x25	4	B1	2#9	#4	ST-3	6 AT 11" EE	20,28
			B2	1#7				
			T2	2#7				
			T1	1#5				
			F	2#5				
B207	12x25	4	B1	2#5	#4	ST-3	3 AT 11" EE	20,21
			T2	2#5				
			F	2#5				
B208	11x25	3	B1	2#5	#4	ST-3	NOMINAL	23
			B3	2#5				
			T7	2#5				
			T5	2#5				
			F	2#5				
B209	11x25	1	B1	2#7	#4	ST-3	NOMINAL	23
			T2	2#5				
			F	2#5				
B210	16/31x25	4	B1	2#7+1#5	#4	ST-3	AT 11" FULL LENGTH	20,21,24,30
			T2	3#5				
			F	2#5				
B211	+/-27x25	4	B1	4#5	#4	ST-3	4 AT 11" EE	20,21,24
			T2	4#5				
			F	2#5				
B212	17x25	4	B1	2#9	#4	ST-3	AT 11" FULL LENGTH	20,21,28
			T2	2#5				
			F	2#5				
B213	10x25	4	B1	2#9	#4	ST-3	10 AT 11" EE, BAL. AT 18"	
			T2	2#7				
			F	2#5				
-	-	-	-	-	-	-	-	-
B300	22/33.5x25	4	B1	2#11	#4	ST-3	5 AT 6" + 8 AT 11" EE	2,20
			B2	1#9				
			T2	2#9				
			F	2#5				
B301	34/24x25	5	B1	2#9	#4	ST-3	5 AT 11" EE	15,29
			B2	1#9			AT 11" IN CANT.	
			B3	3#5				
			T7	2#7				
			T6	1#7				
			T2	2#5				
			T1	1#5				
			F	2#5				
B302	22x25	4	B1	3#5	#4	ST-3	NOMINAL	20,21
			T2	3#5				
			F	2#5				
B303	14x25	3	B1	2#11	#4	ST-3	11 AT 11" EE	
			B3	2#8		ST-1	AT 11" IN CANT	
			T7	2#9				
			T5	2#9				
			F	2#5				
B304	24x25	5	B1/B3	3#9	#4	ST-3	AT 11" FULL LENGTH	31
			T2/T7	3#7				
			F	2#5				
B305	22/39x25	4	B1	2#9	#4	ST-3	AT 11" FULL LENGTH	14
			B2	2#9				
			T2	2#7				
			T1	1#9				
			F	2#5				
B306	37x25	4	B1	3#11	#4	ST-3	AT 11" FULL LENGTH	28
			B2	3#9				
			T2	3#7				
			T1	2#7				
			F	2#7				
B307	16x25	4	B1	2#9+1#5	#4	ST-3	9 AT 11" EE	20
			B2	2#9				
			T2	2#5				
			T1	1#7				
			F	2#5				
B308	22x25	1	B1	2#7	#4	ST-3	AT 11" FULL LENGTH	2
			B2	1#9				
			T2	2#5				
			T1	1#7				
			F	2#5				
B309	22x25	1	B1	2#5	#4	ST-1	AT 11" FULL LENGTH	6
			B2	1#5				
			T5	2#9				
			T3	2#9				
B310	14x25	2	B1	2#7	#4	ST-1	5 AT 11" EE	
B311	14x25	1	B1	2#7	#4	ST-1	5 AT 11" EE	
			T5	2#7				
			T2	2#5				
B312	14/22x25	5	B1	2#7	#4	ST-1	5 AT 11" EE	
			T5	2#7				
			T2	2#5				
B313	16x25	4	B1	4#9	#4	ST-3	8 AT 6" EE	20,21
			T2	3#7			BAL AT 11"	
			F	2#5				
B314	29x25	4	B1	2#9	#4	ST-3	AT 11" FULL LENGTH	20
			B2	2#9				
			T2	2#7				
			T1	2#5				
B315	15x25	4	B1	2#9	#4	ST-3	AT 11" FULL LENGTH	
			T2	2#7				
			F	2#5				
B316	21.5x25	1	B1	2#9	#4	ST-1	AT 11" FULL LENGTH	1,13,31
			B1	2#7				
			T5/T2	2#7				
			T3/T1	2#7				
B317	12x25	4	B1	3#7	#4	ST-3	6 AT 11" EE	
			T2	2#7				

BEAM SCHEDULE NOTES:

1. PROVIDE CLASS B LAP SPLICE ON ALL B1 BOTTOM BARS.
2. BEAM WITH ADDITIONAL WIDTH. PROVIDE ADDITIONAL REINFORCING PER TYPICAL DETAIL ON S501.
3. BEAM WIDTH CHANGES. PLACE ALL SCHEDULED TOP BARS IN NARROWER WIDTH. ADD (1) #7 T5 AND/OR T2 BAR(S) IN ADDITIONAL WIDTH. HOOK AT OPENING AND PROVIDE LAP AT OPPOSITE END.
4. HOOK (1) BOTTOM BAR AT OPENING.
5. BEAM HAS (2) LAYERS OF TOP BARS AS NOTED BY ASTERICKS. REFER TO S501.
6. FABRICATE TOP BARS AS CONTINUOUS ACROSS SPAN. NO TOP BAR SPLICE AT MID-SPAN. LAP WITH ADJACENT BEAM(S) TOP BARS.
7. FABRICATE BOTTOM BARS AS CONTINUOUS INTO CANTILEVER.
8. BEAM HAS DEPRESSED BRICK LEDGE. FABRICATE STIRRUPS FOR 24" BEAM WIDTH. PROVIDE ADDITIONAL REINFORCING PER DETAIL 2/S201.
9. EXTEND (1) T5 BAR TO EDGE OF OPENING AND HOOK.
10. PROVIDE STIRRUP CAPS AND (2) #5 FACE BARS FOR OPENING LENGTH PLUS 4'-0" PAST OPENING.
11. HOOK T5R AND T3R BARS AT OPENING. EXTEND T2/T5 BARS TO SUPPORT ON LINE 5.
12. EXTEND TOP BARS INTO ADJACENT SLAB.
13. HOOK TOP BARS AT OPENING.
14. FABRICATE STIRRUPS FOR BOTH SCHEDULED WIDTHS. PLACE SCHEDULED BARS IN NARROWER WIDTH AND ADD (2) #5 TOP AND BOTTOM IN ADDITIONAL WIDTH, WITH HOOKS ON TOP BARS EACH END.
15. BEAM WIDTH VARIES. FABRICATE STIRRUPS FOR APPROPRIATE WIDTHS.
16. FABRICATE TOP BARS AS CONTINUOUS ACROSS SPAN. NO TOP BAR SPLICE AT MID-SPAN. HOOK AT LINE 3.5.
17. T2 AND T1 BARS TO HAVE MECHANICAL COUPLER AT WEST END TO RECEIVE FUTURE BEAM. PLACE BARS NOTED *T1* IN SECOND LAYER WITH HOOK AT LINE 2.
18. TOP BARS TO HAVE MECHANICAL COUPLER AT EAST END TO RECEIVE FUTURE BEAM. PLACE BARS NOTED *T1* IN SECOND LAYER WITH HOOK AT LINE 5.
19. PROVIDE MECHANICAL COUPLERS ON ALL B1 BARS TO RECEIVE FUTURE BEAM.
20. PROVIDE ALTERNATING HOOKS ON B1 BARS AT EACH END OF BEAM.
21. FABRICATE T2 BARS AS ONE PIECE.
22. BEAM WIDTH VARIES. FORCE BARS INTO NARROWER WIDTH. FABRICATE STIRRUPS FOR BOTH WIDTHS. FIELD VERIFY THE 23.5" WIDTH.
23. REFER TO 10/S301 FOR ADDITIONAL REINFORCING.
24. FABRICATE STIRRUPS SHORTER TO ALLOW FOR STAIR FRAMING. REFER TO 7/S301
25. FABRICATE T5/T2 AND T3/T1 BARS AS ONE PIECE.
26. PLACE SCHEDULED BARS IN SOUTH HALF OF BEAM. "EXTENDED JOIST BARS" PROVIDE REINFORCING IN NORTH HALF.
27. T7 AND T6 BARS TO HAVE MECHANICAL COUPLER AT SOUTH END TO RECEIVE FUTURE BEAM. PLACE BARS NOTED *T7* IN SECOND LAYER WITH HOOK AT END OF CANTILEVER.
28. VERIFY BEAM WIDTH PRIOR TO FABRICATING STIRRUPS.
29. CANTILEVER IS WIDER. ADD (2) #5 TOP, BOTTOM AND FACE IN ADDITIONAL WIDTH, HOOK EACH END.
30. PLACE SHEDULED BARS IN NARROWER WIDTH. ADD (3) #5 TOP AND BOTTOM IN ADDITIONAL WIDTH, HOOKED EACH END.
31. PROVIDE MECHANICAL COUPLERS ON T2 AND B1 BARS AT SLAB EDGE. ADD MATCHING HOOKED BARS IN SECOND LAYER AND PROVIDE A NON-CONTACT LAP SPLICE.
32. HOOK (3) TOP BARS AT CHANGE IN WIDTH. CONTINUE (2) TOP BARS INTO ADJACENT BEAMS.

1	OWNER REVIEW	01/03/2011
2	CD SUBMITTAL	01/25/2001
3	REVIEW BY CONTRACTING	09/29/11
4	Addendum #1	08/17/2012
Revisions		Date

CONSULTANTS:

THP Limited, Inc.
100 East Eighth Street
Cincinnati, Ohio 45202
Phone: 513.241.3222
Fax: 513.241.2981
www.thpltd.com

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0280 FAX
jpa@johnpoe.com

Drawing Title: BEAM SCHEDULE

08260.08

Approved: Project Director

Project Title: ANIMAL RESEARCH FACILITY - PHASE 1

08260.08

Location: Cincinnati, Ohio

Date: 01/03/11 — REVISED AUGUST 17, 2012

Checked: JYE

Drawn: VLB

Project No.: VA Project No. 539-317; JPA Project No. 08260.08

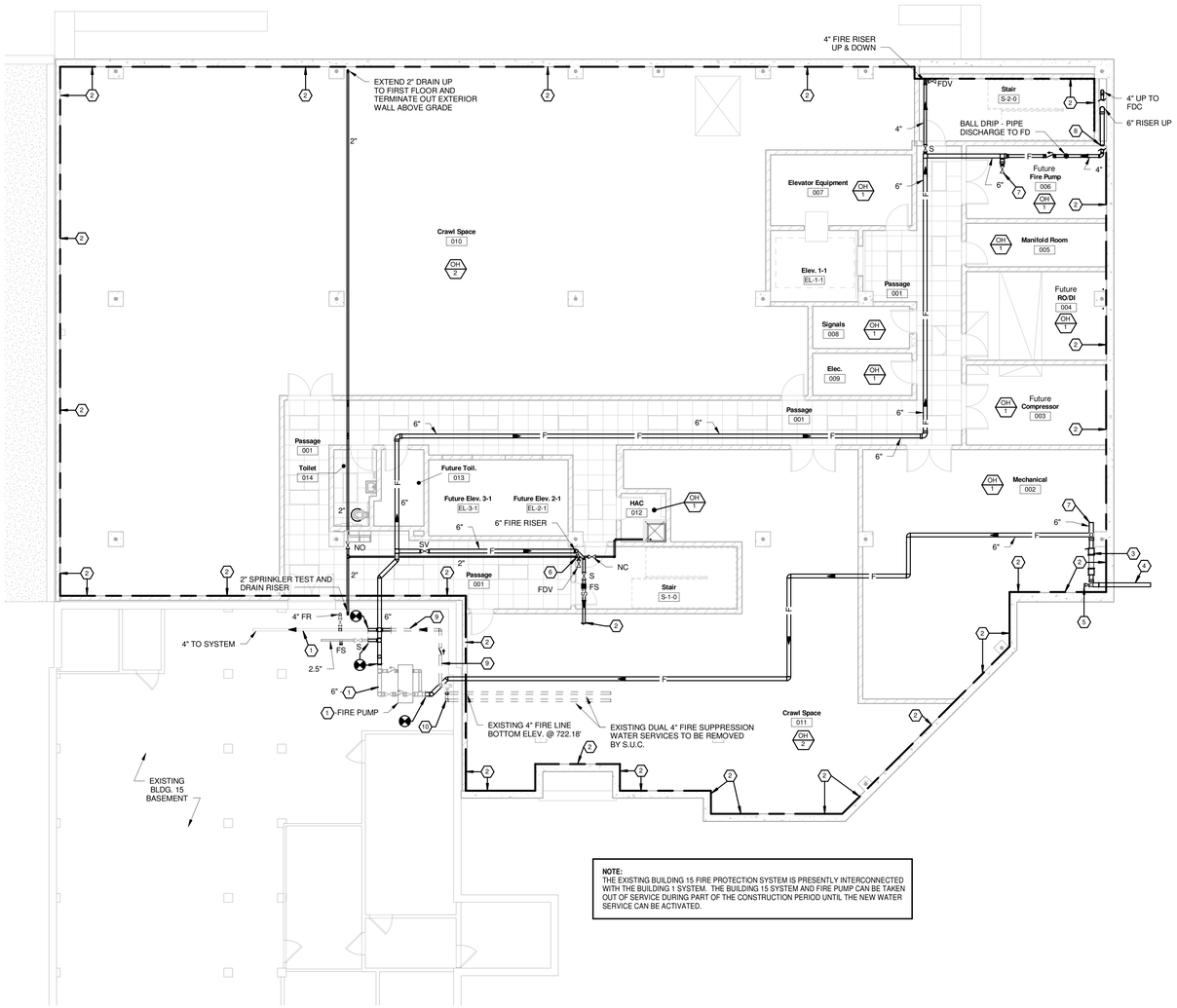
Building Number: ARC

Drawing Number: S502

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs



NOTE:
THE EXISTING BUILDING 15 FIRE PROTECTION SYSTEM IS PRESENTLY INTERCONNECTED WITH THE BUILDING 1 SYSTEM. THE BUILDING 15 SYSTEM AND FIRE PUMP CAN BE TAKEN OUT OF SERVICE DURING PART OF THE CONSTRUCTION PERIOD UNTIL THE NEW WATER SERVICE CAN BE ACTIVATED.

1 BASEMENT PLAN - NEW WORK
1/8" = 1'-0" F.F. 714.50'

FIRE SUPPRESSION DESIGN NOTES

A PROVIDE A COMPLETE FIRE SUPPRESSION SPRINKLER SYSTEMS IN THE NEW ADDITION.

B COORDINATE WORK WITH VAMC, PHASING PLAN AND OTHER TRADES. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR OFFSETTING AND/OR RELOCATING EXISITNG SERVICES TO ACCOMMODATE NEW WORK OF OTHER TRADES.

C DESIGN SERVICES SHALL FOLLOW ALL VA STANDARD DESIGN PRACTICES, DETAILS, SPECIFICATIONS AND SITE SPECIFIC C.O.T.R. REQUIREMENTS AS WELL AS WORK SHOWN ON THESE DOCUMENTS. ALL DEVIATIONS FROM AFOREMENTIONED REQUIREMENTS SHALL BE APPROVED BY THE C.O.T.R.

D THE F.S.C. SHALL VERIFY THAT THERE IS ADEQUATE SPACE T INSTALL ALL NEW PIPING REQUIRED TO COMPLETE THIS WORK.

E ALL SPRINKLER PIPING IS LOCATED ABOVE THE CEILING (AT THE BOTTOM OF STRUCTURE IN EXPOSED STRUCTURAL AREAS) UNLESS OTHERWISE INDICATED.

F THE BASIS OF DESIGN OF SPACING AND SIZING FOR THE COMPLETE FIRE SUPPRESSION SPRINKLER SYSTEM IS FOR A WET PIPE SYSTEM HYDRAULICALLY CALCULATED FOR A:

1 LIGHT HAZARD AREA LIMITED TO A MAXIMUM OF 225 SQ. FT. PER SPRINKLER WITH THE DENSITY OF 0.10 GPM/SQ. FT. OVER THE MOST REMOTE 1500 SQ. FT. PROVIDE AN ADDITION OF 100 GPM HOSE ALLOWANCE.

2 ALL MECHANICAL, ELECTRICAL AND ETC. AREAS SHALL BE ORDINARY HAZARD (GROUP 1) LIMITED TO A MAXIMUM OF 130 SQ. FT. PER SPRINKLER WITH A DENSITY OF 0.15 GPM/SQ. FT. PROVIDE AN ADDITION OF 250 GPM HOSE ALLOWANCE.

3 ALL STORAGE, TRASH, FILE STORAGE AND ETC. AREAS SHALL BE ORDINARY HAZARD (GROUP 2) LIMITED TO A MAXIMUM OF 130 SQ. FT. PER SPRINKLER WITH A DENSITY OF 0.20 GPM/SQ. FT. PROVIDE AN ADDITION OF 250 GPM HOSE ALLOWANCE.

G ALL HEAD LOCATIONS AND RELATED PIPING SHALL BE BY THE F.S.C.

H THE ENTIRE SPRINKLER SYSTEM SHALL CONFORM TO VAMC, LOCAL, STATE AND NFPA STANDARDS, RULES AND REGULATIONS.

I THE F.S.C SHALL CAREFULLY COORDINATE THE LOCATION OF ALL SPRINKLER HEADS AND PIPING WITH ALL OTHER TRADES AND THE ARCHITECT.

J THE F.S.C. SHALL VERIFY THE LOCATION OF ALL LIGHTING FIXTURES AND AIR DEVICES BEFORE INSTALLATION OF SPRINKLER HEADS.

K ALL SPRINKLER PIPING LAYOUT AND SIZING SHALL BE BY THE F.S.C.

L ALL HEAD LOCATIONS MUST BE COORDINATED WITH ALL EQUIPMENT KINDRED TO OTHER TRADES. HEAD LOCATIONS MUST BE APPROVED BY THE ARCHITECT BEFORE WORK COMMENCES. REFER TO THE ARCHITECTURAL AND REFLECTIVE CEILING PLANS FOR ADDITIONAL INFORMATION ON ALL CEILING TYPES, HEIGHTS, AND OTHER ARCHITECTURAL FEATURES.

M THE F.S.C. SHALL MAKE NECESSARY FLOW TEST, LAY OUT SYSTEMS, OBTAIN APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION PRIOR TO BEGINNING ANY FABRICATION OR INSTALLATION WORK.

N SPRINKLER PIPING SHALL BE MINIMUM 1" SIZE.

O SPRINKLER HEADS (UNLESS OTHERWISE NOTES):
EXPOSED AREAS - UPRIGHT OR PENDENT TYPE - STANDARD BRASS
CEILING AREAS - RECESSED PENDENT TYPE. ALL HEADS SHALL BE UL LISTED AND FM APPROVED.

P SPRINKLER HEADS SHALL BE "QUICK RESPONSE' TYPE IN ALL AREAS EXCEPT HIGH TEMPERATURE AREAS.

Q ALL PENDENT TYPE SPRINKLER HEADS LOCATED IN SUSPENDED CEILING TILE AREAS SHALL BE LOCATED IN THE CENTER OF THE CEILING TILE.

R ANNULAR SPACE AT PIPE AND OTHER SIMILAR PENETRATION OF FIRE RATED ASSEMBLIES SHALL BE FIRESTOPPED. REFER TO SPECIFICATION SECTION 07 84 00 FIRESTOPPING. REFER TO ARCHITECTURAL DRAWINGS FOR CONSTRUCTION, LAYOUT AND FIRE RATING OF FLOORS, WALLS, PARTITIONS AND OTHER BUILDING ELEMENTS.

S REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION.

T REFER TO SPECIFICATION SECTION 21 13 13 FOR FLOW TEST INFORMATION.

U ALL EXISTING SMOKE COMPARTMENTS SHALL BE MAINTAINED. ALL SPRINKLER ZONES SHALL MATCH SMOKE COMPARTMENTS.

V REFER TO ARCHITECTURAL SHEET A102 FOR INFORMATION ON SMOKE COMPARTMENTS, SMOKE PARTITIONS AND FIRE BARRIERS.

W REFER TO ARCHITECTURAL DRAWINGS FOR PHASING REQUIREMENTS.

NOTES

1 EXISTING TO REMAIN.

2 EXTEND PIPING (SIZE PER HYDRAULIC CALCULATIONS) TO COMPLETE FIRE SUPPRESSION SPRINKLER SYSTEM IN AREA INDICATED.

3 6" DOUBLE CHECK DETECTOR ASSEMBLY BY F.S.C. ALL PIPING BEFORE BFP SHALL BE CEMENT LINED DUCTILE IRON WATER SERVICE PIPE.

4 8" COMBINATION FIRE SUPPRESSION & DOMESTIC WATER SERVICE EXTENDED THROUGH EXTERIOR WALL INTO BUILDING BY S.U.C. PIPING CONTINUED INSIDE BUILDING BY F.S.C.

5 4" FLANGED CEMENT LINED DUCTILE IRON STUB BY F.S.C. FOR DOMESTIC WATER SERVICE. PIPING CONTINUED BY P.C.

6 2" DRAIN STACK.

7 PROVIDE 6" STUB FOR FUTURE CONNECTION TO FIRE PUMP.

8 PROVIDE CAP AND STUB IN FIRE PUMP ROOM AND EXTEND 6" PIPING THROUGH EXTERIOR WALL ABOVE GRADE FOR FUTURE FIRE PUMP TEST HEADER.

9 REMOVE EXISTING PIPING FROM FIRE DEPARTMENT CONNECTION.

10 REMOVE EXISTING DUAL 4" SERVICE PIPING AND PROVIDE NEW 6" CONNECTION TO EXISTING 6" FIRE.

LEGEND

G.C.	GENERAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
F.S.C.	FIRE SUPPRESSION CONTRACTOR
H.C.	HVAC CONTRACTOR
E.C.	ELECTRICAL CONTRACTOR
S.U.C.	SITE UTILITY CONTRACTOR
3	"NOTE" SYMBOL (FOR NOTES ON SAME SHEET)
123	ROOM NUMBER
	DIRECTION OF FLOW
F	FIRE SUPPRESSION PIPE
S	SPRINKLER PIPE (WET)
S	SUPERVISED VALVE
FS	FLOW SWITCH
FDV	FIRE DEPARTMENT VALVE
OH / 1	FIRE SUPPRESSION HAZARD CLASSIFICATION / ORDINARY HAZARD / GROUP 1

INDEX OF DRAWINGS - FIRE SUPPRESION

SHEET	DESCRIPTION
14-FS1	BASEMENT PLAN - NEW WORK
14-FS2	FIRST FLOOR PLAN - NEW WORK
14-FS3	SECOND FLOOR PLAN - NEW WORK

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:
Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT NO.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO JOHN A. BLACK 49341 REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:
JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: BASEMENT PLAN - NEW WORK

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: RLT

Drawn: DPB/GLC

Project No: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-FS1

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs

1 FIRST FLOOR PLAN - NEW WORK
1/8" = 1'-0"

NOTES

1. EXISTING TO REMAIN.
2. EXTEND PIPING (SIZE PER HYDRAULIC CALCULATIONS) TO COMPLETE FIRE SUPPRESSION SPRINKLER SYSTEM IN AREA INDICATED.
3. 2" DRAIN STACK.
4. FIRE DEPARTMENT STORZ CONNECTION.
5. STUB 6" PIPING THROUGH EXTERIOR WALL AND CAP FOR FUTURE EXTENSION TO FIRE PUMP TEST HEADER. PROVIDE SLEEVE AND WATERTIGHT SEAL THROUGH EXTERIOR WALL.
6. REMOVE EXISTING SIAMESE PUMPER CONNECTION BACK TO BEHIND EXISTING WALL SURFACE CAP AND ABANDON.
7. EXTEND NEW 2" TEST AND DRAIN LINE THRU WALL AND TURN DOWN AT 45° ANGLE.
8. REMOVE EXISTING 2" SPRINKLER TEST AND DRAIN RISER THRU EXTERIOR WALL AND CONNECT AND EXTEND DOWN THRU FLOOR TO BASEMENT.

Revisions		Date
1	Addendum #1	08/17/2012

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Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
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JOHN A. BLACK
49341
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: FIRST FLOOR PLAN - NEW WORK

Approved: Project Director

Project Title: BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011
REVISED AUGUST 17, 2012

Checked: RLT

Drawn: DPB/GLC

Project No.: VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-FS2

Dwg. of

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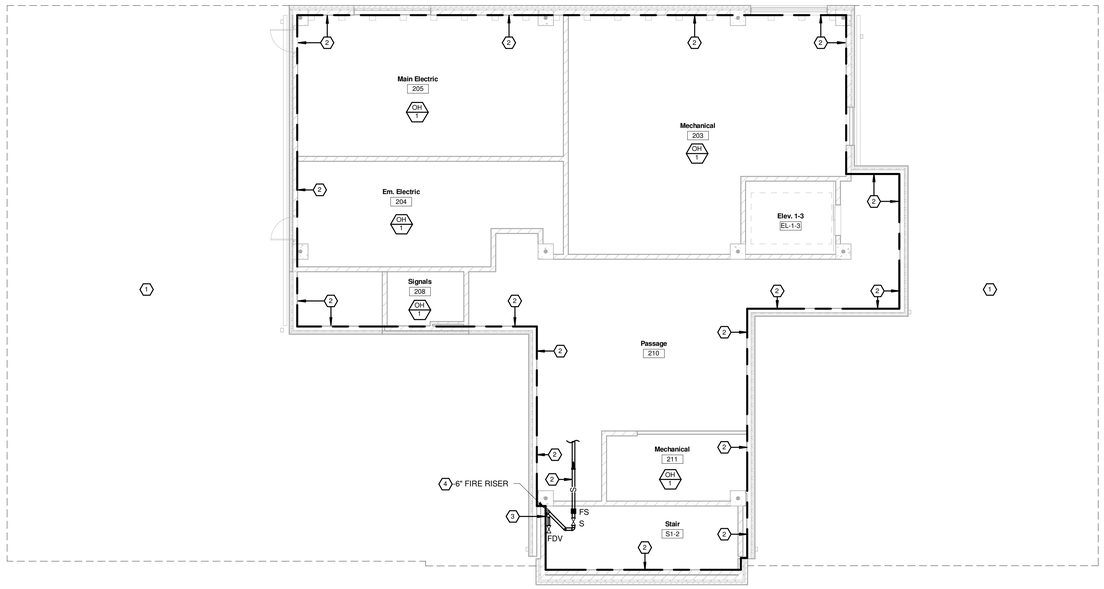
Department of Veterans Affairs

NOTES

1. ROOF BELOW.
2. EXTEND PIPING (SIZE PER HYDRAULIC CALCULATIONS) TO COMPLETE FIRE SUPPRESSION SPRINKLER SYSTEM IN AREA INDICATED.
3. 2" DRAIN STACK. CAP AT STRUCTURE FOR FUTURE EXTENSION.
4. CAP FIRE RISER (SIZE AS INDICATED) AT STRUCTURE FOR FUTURE EXTENSION.



2 SECOND FLOOR PLAN - NEW WORK
1/8" = 1'-0"

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO
JOHN A. BLACK
49341
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SECOND FLOOR PLAN - NEW WORK

Approved: Project Director

Project Title: BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011
REVISED AUGUST 17, 2012

Checked: RLT

Drawn: DPB/GLC

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-FS3

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs

LEGEND

G.C.	GENERAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
H.C.	HVAC CONTRACTOR
E.C.	ELECTRICAL CONTRACTOR
	SOIL AND OR WASTE PIPE (SP) OR (WP)
	VENT PIPE
ST	STORM PIPE
OD	STORM PIPE
DCW	DOMESTIC COLD WATER PIPE
DHW	DOMESTIC HOT WATER PIPE
DHWR	DOMESTIC HOT WATER RETURN PIPE
MA	MEDICAL AIR PIPE
MV	MEDICAL VACUUM PIPE
O2	OXYGEN PIPE
PD	PUMP DISCHARGE
CRP	CORROSION RESISTANT PIPING
	SHUT-OFF VALVE (BALL)
	COMBINATION BALANCING & SHUT OFF VALVE
	CHECK VALVE
	EXISTING PIPE TO BE REMOVED
	CARBON DIOXIDE — MEDICAL TYPE QUICK-DISCONNECT WALL OUTLETS. MOUNT @ 46" A.F.F. TO CENTERLINE.
	DIRECTION OF FLOW
	ROOF DRAIN ABOVE
P103	UP TO FIXTURE ABOVE
3	"NOTE" SYMBOL (FOR NOTES ON SAME SHEET)
	"CONNECT TO EXISTING" SYMBOL
AAP	MEDICAL GASES AREA ALARM PANEL
ZVC	ZONE VALVE CABINET
SS	SANITARY STACK (SOIL/WASTE)
SR	SUPPLY RISER
VS	VENT STACK
VR	VENT RISER
CO	CLEANOUT
VTR	VENT THRU ROOF
FD1	FLOOR DRAIN
123	ROOM NUMBER
P418	PLUMBING FIXTURE DESIGNATION
RD1	ROOF DRAIN
OD1	OVERFLOW DRAIN

GENERAL NOTES

A ALL PIPING IS ABOVE THE CEILING (AT THE UNDERSIDE OF STRUCTURE IN EXPOSED STRUCTURE AREAS), UNLESS OTHERWISE NOTED.

B REFER TO SCHEDULES, DETAILS AND DIAGRAMS FOR PIPING, PIPE SIZES AND PIPELINE DEVICES NOT INDICATED ON THE FLOOR PLAN.

C ABOVE CEILING UTILITY SPACE IS LIMITED. COORDINATION WITH ALL TRADES IS CRITICAL, PRIOR TO INSTALLATION ON ANY WORK.

D LOCATIONS AND SIZES OF EXISTING PIPING HAVE BEEN DETERMINED FROM A REVIEW OF EXISTING DRAWINGS AND/OR SITE INSPECTION, WHERE POSSIBLE. FIELD VERIFICATION OF EXACT LOCATIONS, ELEVATIONS, INVERTS, SIZES, DIRECTION OF FLOW, ETC. SHALL BE REQUIRED PRIOR TO BEGINNING NEW WORK.

E ALL PIPING SHALL BE REMOVED BACK TO ACTIVE MAINS AND CAPPED, OR REMOVED BACK TO POINTS OF CONNECTION OF NEW WORK. INACCESSIBLE PIPING, WHERE SO NOTED, TO BE ABANDONED SHALL BE DISCONNECTED FROM ACTIVE MAINS AND CAPPED OR PLUGGED IN CONCEALED LOCATIONS.

F NEW CONNECTIONS TO EXISTING PIPING SHALL BE WITH THE SAME SIZE AS THE EXISTING PIPING UNLESS OTHERWISE NOTED.

G ALL REMOVED MATERIAL AND EQUIPMENT SO DESIGNATED BY THE OWNER, SHALL BE TURNED OVER AND PLACED WHERE DIRECTED. ALL MATERIAL AND EQUIPMENT, WHICH THE OWNER DOES NOT WISH TO RETAIN, SHALL BECOME THE PROPERTY OF THE CONTRACTOR RESPONSIBLE FOR THE REMOVAL.

H REFER TO THE ARCHITECTURAL PLANS FOR PROJECT PHASING REQUIREMENTS.

I ALL LAB GAS SYSTEM INSTALLERS SHALL BE CERTIFIED TO THE REQUIREMENTS OF ASSE 6010. ALL LAB GAS SYSTEM VERIFIERS SHALL BE CERTIFIED TO THE REQUIREMENTS OF ASSE 6030.

J LAB GAS AND VACUUM SYSTEM INSTALLATION AND VERIFICATION SHALL COMPLY WITH THE REQUIREMENTS OF NFPA 99C, GAS AND VACUUM SYSTEMS, 2005 EDITION.

FIXTURES

SYMBOL	MOUNTING HEIGHT	DESCRIPTION	FIXTURE UNITS		SUPPLY			DRAINAGE CONNECTION					REMARKS
			DRAINS	WATER C/H	COLD	HOT	TEPID	OUTLET	VENT		DIRECT	INDIRECT	
P103	18" TO RIM	WATER CLOSET/WALL HUNG/BACK OUTLET/ELONGATED BOWL/1.28GPF/ADA	4	5/- -	1"	- -	- -	4"	2"		●	- -	BATTERY POWERED/SENSOR OPERATED
P418	34" TO RIM	LAVATORY/WALL HUNG/20"x18"/0.5 GPM/ADA	1	0.6/0.6	0.5"	0.5"	- -	1.5"	1.5"		●	- -	SENSOR OPERATED/LAMINAR FLOW CONTROL/GOOSENECK SPOUT
P502	FLOOR SET	MOP SINK/24"x24x12"/6"DROP FRONT/TERRAZZO	3	2.25/2.25	0.5"	0.5"	- -	3"	1.5"		●	- -	PAIL HOOK FAUCET/VACCUM BREAKER/CROSS HANDLES
P505	30" TO RIM	SERVICE SINK/FLOOR SET	3	2.25/2.25	0.5"	0.5"	- -	3"	1.5"		●	- -	CROSS HANDLES/VACUUM BREAKER
P524	_	SINK/STAINLESS STEEL/C'TOP/SINGLE COMPT'/22"X19"/1.5 GPM	1	0.5/0.5	0.5"	0.5"	- -	1.5"	1.5"		●	- -	WRIST BLADE HANDLES/GOOSENECK SPOUT
P609	36" TO SPOUT	WATER COOLER/DRINKING FOUNTAIN/DUAL HEIGHT/ADA	0.5	0.75	0.5"	- -	- -	1.5"	1.5"		●	- -	RECESSED WALL MOUNTED
P701	44" VALVE	SHOWER VALVE & HEAD ASSEMBLY/SHOWER BY G.C./ADA/1.5 GPM	2	0.5	0.5"	- -	- -	2"	2"		●	- -	PRESSURE BALANCING/HAND HELD HOSE/VACUUM BREAKER
P707	SEE SPECS	EMERGENCY SHOWER/EYE/FACEWASH/FREE STANDING	1	6/6	- -	- -	1.25"	1.5"	1.5"		●	- -	EMERGENCY EQUIPMENT/TEMPERING VALVE/TEPID WATER TO FIXTURE
P801	24"	WALL HYDRANT	- -	- -	0.5"	- -	- -	- -	- -		- -	- -	NON-FREEZE/INTEGRAL VACUUM BREAKER
P808	44" TO C.L.	WASHING MACHINE SUPPLY AND DRAIN UNIT	2	0.5	0.5"	0.5"	- -	2"	1.5"		●	- -	BALL TYPE SHUT-OFF VALVE/DRAIN CONNECTION
P809	36" TO C.L.	HOSE & SUPPLY BOX	2	0.5	0.5"	0.5"	- -	- -	- -		- -	- -	STAINLESS STEEL/RECESSED BOX/LOCKABLE DOOR

DRAINS

SYMBOL	DESCRIPTION	BODY				STRAINER / GRATE						TOP FINISH					
		C.I.	S.S.	C.R.	BRASS	RD.	SQ.	ADJUST.	FLAT	DOME	SECONDARY	NICKEL BRONZE	C.I.	C.R.	S.S.		
FD1	2" MEDIUM DUTY/DOUBLE DRAINAGE/VANDAL RESISTANT (TYPE C)/TRAP PRIMER CONNECTION	●	- -	- -	- -	●	- -	●	●	- -	- -	●	- -	- -	- -		
FD2	3" MEDIUM DUTY/DOUBLE DRAINAGE/SECONDARY STRAINER (TYPE R)/TRAP PRIMER CONNECTION	●	- -	- -	- -	●	- -	●	- -	- -	●	- -	●	- -	- -		
FD3	3" MEDIUM DUTY/DOUBLE DRAINAGE/VANDAL RESISTANT (TYPE S)/TRAP PRIMER CONNECTION	- -	- -	●	- -	- -	●	●	●	- -	●	- -	- -	●	- -		
FD4	4" MEDIUM DUTY/DOUBLE DRAINAGE/SECONDARY STRAINER (TYPE O)/TRAP PRIMER CONNECTION	●	- -	- -	- -	●	- -	●	- -	- -	●	- -	●	- -	- -		
FD5	3" MEDIUM DUTY/FLUSHING RIM/BLOWOUT JET TYPE - REMOTE FLUSHING/VANDAL RESISTANT/3.5 GPF	- -	●	- -	- -	- -	●	- -	●	- -	- -	- -	- -	- -	●		
RD1	3" FLANGED W/ADJUSTABLE DRAINAGE COLLAR, SUMP RECEIVER, BEARING PAN, DECK CLAMP, DOME STRAINER	●	- -	- -	- -	●	- -	- -	- -	●	- -	- -	●	- -	- -		
RD2	4" FLANGED W/ADJUSTABLE DRAINAGE COLLAR, SUMP RECEIVER, BEARING PAN, DECK CLAMP, DOME STRAINER, 3" STANDPIPE	●	- -	- -	- -	●	- -	- -	- -	●	- -	- -	●	- -	- -		
OD1	3" FLANGED W/ADJUSTABLE DRAINAGE COLLAR, SUMP RECEIVER, BEARING PAN, DECK CLAMP, DOME STRAINER	●	- -	- -	- -	●	- -	- -	- -	●	- -	- -	●	- -	- -		
OD2	4" FLANGED W/ADJUSTABLE DRAINAGE COLLAR, SUMP RECEIVER, BEARING PAN, DECK CLAMP, DOME STRAINER, 3" STANDPIPE	●	- -	- -	- -	●	- -	- -	- -	●	- -	- -	●	- -	- -		

EQUIPMENT

1. PROVIDE ROUGH-IN.
2. INSTALL ALL "LOOSE" COMPONENTS.
3. PROVIDE ALL NECESSARY SUPPLIES, STOPS, TRAPS, FIX. DRAINS, CONTINUOUS WASTE, & ALL INDIRECT WASTE.
4. MAKE ALL FINAL CONNECTIONS.

MARK	DESCRIPTION	SUPPLY						WASTE & VENT										WASTE SYSTEM				REFER TO EQUIPMENT SCHEDULE NOTES
		C.W.	H.W.					FIX. OUTLET	TRAP	FIX. DRAIN	WASTE MIN.	VENT MIN.	INDIRECT	AIRGAP	AIRBREAK	TO FLR. FR.		SANITARY	ACID WASTE			
L1	LAB SINK	0.5"	0.5"					1.5"	1.5"	1.5"	1.5"	1.5"	- -	- -	- -	- -		- -	●			
M1	BOTTLE FILLER	0.5"	- -										●	●		●		●	- -			
M2	CABINET WASHER	0.75"	0.75"										●	●		●		●	- -			
M3	CAGE & RACK WASHER	1.25"	1.25"										●	●		●		●	- -			
M4	DOWNDRAFT STATION	0.5"	- -										●	●		●		●	- -			
M5	FLUSH STATION	0.5"	- -										●	●		●		●	- -			
M6	HOSE STATION	0.5"	- -										●	●		●		●	- -			

INDEX OF DAWINGS - PLUMBING

SHEET	DESCRIPTION
P1	LEGEND, SCHEDULES, INDEX & NOTES
P2	DETAILS
P3	SITE PLAN
14-P1	FOUNDATION PLAN - NEW WORK
14-P2	BASEMENT PLAN - NEW WORK
14-P3	FIRST FLOOR PLAN - NEW WORK
14-P4	SECOND FLOOR PLAN - NEW WORK
14-P5	ROOF PLAN - NEW WORK
14-P6	SOIL, WASTE & VENT

Revisions		Date
1	Addendum #1	08/17/2012

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DAYTON, OHIO
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937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: LEGEND, SCHEDULES, INDEX & NOTES

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

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Project No.: VA Project No. 539-317; JPA Project No. 10005.00

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Dwg. of

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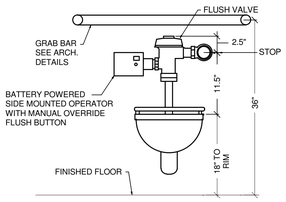
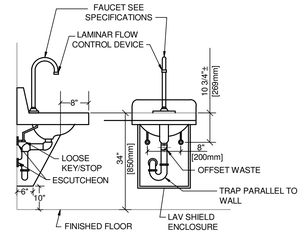
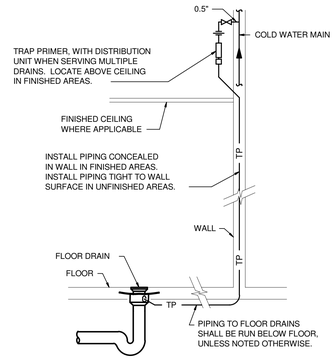


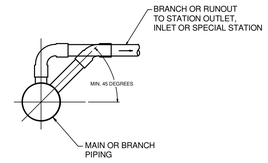
P103 WATER CLOSET (A / P2)
SCALE: NONE



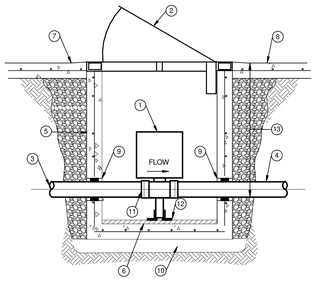
P418 WALL HUNG LAVATORY (B / P2)
SCALE: NONE



TRAP PRIMER (C / P2)
SCALE: NONE



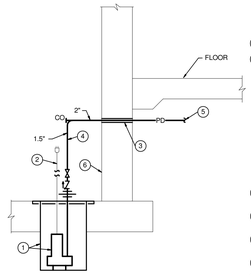
LAB GAS BRANCH TAKEOFF PIPING (D / P2)
SCALE: NONE



BACKWATER VALVE (E / P2)
SCALE: NONE

NOTES

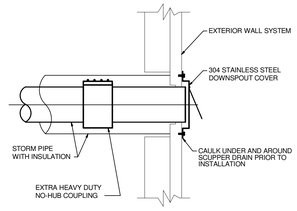
1. 4" SIZE AUTOMATIC BACKWATER VALVE CONFORMING TO ASME A112.14.1-1975 FOR BACKWATER VALVES WITH CAST IRON BODY, STAINLESS STEEL GATE, AND FLEXIBLE PVC DIAPHRAGM/EXPANSION CHAMBER.
2. INTERIOR SINGLE LEAF, PRE-ASSEMBLED, STEEL ACCESS DOOR WITH NON-SKID 1/4" STEEL DIAMOND PATTERN FINISH, 1/4" STEEL CHANNEL FRAME, REMOVABLE KEY WRENCH, CAST STEEL CAM-ACTION REMOVABLE EXTERIOR TURN/LIFT HANDLE WITH SPRING LOADED BALL DETENT. ZINC PLATED AND CHROMATE SEALED HARDWARE, CONTINUOUS EPDM GASKET, 30" x 30" FRAME OPENING.
3. INLET PIPE, 4" CAST IRON.
4. OUTLET PIPE, 4" CAST IRON.
5. CAST-IN-PLACE CONCRETE VAULT, 4000 PSI CONCRETE, 6" THICK WALLS AND BASE WITH NO. 3 REINFORCING RODS AT 9" ON CENTER BOTH WAYS. PRECAST EQUIVALENT IS ACCEPTABLE.
6. CEMENT GROUT AS NECESSARY TO PROVIDE FIRM SUPPORT FOR BACKWATER VALVE.
7. INSTALL ACCESS DOOR 0.5" HIGHER THAN SURROUNDING FLOOR SLAB. SLOPE CONCRETE AT ACCESS DOOR PERIMETER.
8. CONCRETE FLOOR SLAB. MINIMUM 5" THICK.
9. WATERTIGHT MODULAR, MECHANICAL SEAL CONSISTING OF RUBBER LINKS SHAPED TO CONTINUOUSLY FILL THE ANNULAR SPACE BETWEEN PIPE AND WALL. GLASS REINFORCED NYLON PRESSURE PLATES, MILD STEEL HARDWARE COATED PER ASTM B-633 AND TESTED IN ACCORDANCE WITH ASTM B-117
10. 6" SAND BED ON UNDISTURBED OR COMPACTED SOIL.
11. HEAVY DUTY TYPE NO-HUB PIPE COUPLING.
12. INTEGRAL VALVE SUPPORT.
13. DEPTH AS REQUIRED BY SITE CONDITIONS.



ELEVATOR SUMP PUMP (F / P2)
SCALE: NONE

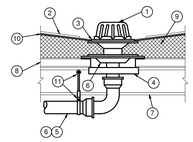
NOTES

1. ELEVATOR SUMP PUMP
   CAPACITY: 50 GPM @ 15 FT. HEAD
   MOTOR: 0.5 HP - 115V - 1 PH - 1725 RPM
   DISCHARGE : 1.5" SIZE
   NON-CLOGGING VORTEX IMPELLER, UL LISTED 3-WIRE NEOPRENE CORD & PLUG
   ALL CAST IRON ASTM CLASS 25, CORROSION RESISTANT POWDER COATED EPOXY FINISH, OIL FILLED &HERMETICALLY SEALED, CARBON AND CERAMIC SHAFT SEAL, STAINLESS STEEL SCREWS, BOLTS, GUARD, HANDLE, ARM AND SEAL ASSEMBLY. ONE PIECE, SEAM FREE, HEAVY DUTY POLYETHYLENE BASIN COMPLETE WITH NECESSARY SEALING HARDWARE, FLANGES AND ONE PIECE COVER WITH CORD SEAL.
2. CORD AND PLUG WITH UNIT. CONNECT TO RECEPTACLE PROVIDED BY EC.
3. SLEEVE PIPE THRU WALL AND PROVIDE WATERTIGHT SEAL.
4. INSTALL PIPING IN A MANNER TO NOT INTERFERE WITH ELEVATOR CAR, RAILS, ETC.
5. 2" TO INDIRECT DISCHARGE TO MOP BASIN "D1".
6. ELEVATOR PIT WALL.



NOTE: VERIFY HEIGHT OF EACH SCUPPER DRAIN WITH ARCHITECT. COORDINATE EXACT LOCATIONS & ELEVATIONS WITH ARCHITECT.

SECONDARY ROOF DRAIN COVER (G / P2)
SCALE: NONE



NOTES

1. PRIMARY ROOF DRAIN
2. BALLAST
3. FLASH ROOF DRAIN INTO ROOF MEMBRANE SYSTEM (COORDINATE WITH ROOFING INSTALLER)
4. UNDERDECK CLAMP
5. STORM DRAIN LINE
6. INSULATION REQUIRED
7. JOIST
8. ROOF DECK
9. INSULATION BY GC. COORDINATE DEPTH AT DRAIN.
10. MEMBRANE ROOF
11. PIPE HANGER & SUPPORT ASSEMBLY-ATTACH TO STRUCTURAL MEMBER

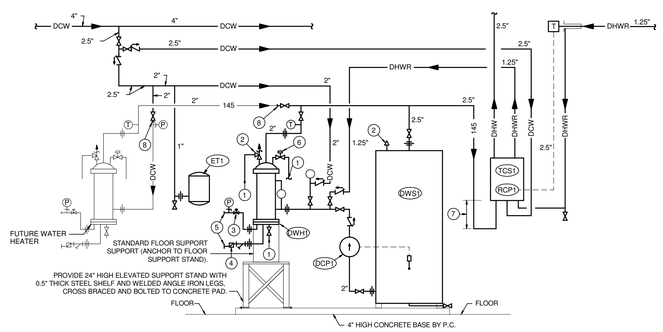
ROOF DRAIN (H / P2)
SCALE: NONE

DATA

DWH1 DOMESTIC WATER HEATER/SEMI INSTANTANEOUS STEAM TO WATER
CAPACITY: 54 GPM FROM 40 DEG. F. - 120 DEG. F. WITH 2,160 LB./HR. STEAM @ MINIMUM 25 LBS. LINE & 15 PSI BUNDLE PRESSURE
ASME COMPLIANT, COPPER-NICKEL SHELL, NAVEL BRASS TUBESHEET, COPPER BUNDLE, DOUBLE SOLENOID TEMPERATURE-LIMIT SYSTEM, TEMPERATURE CONTROL TO REGULATE HOT WATER OUTLET +/- 4 DEG. F. FACTORY ASSEMBLED, SET UNIT TO MAINTAIN 145 DEG. F.

DWS1 DOMESTIC WATER STORAGE TANK
CAPACITY: 250 GALLONS
SIZE: 36" DIA. X 93" HIGH
JACKETED OR INSULATED TO MEET R12.5 MINIMUM THERMAL INSULATION REQUIREMENTS OF THE U.S.D.O.E. & CURRENT EDITION OF ASHRAE/IESNA 90.1
CONSTRUCTED & STAMPED ACCORDING TO ASME SPECIFICATIONS WITH THE NUMBER & SIZE MAGNESIUM ANODE ROD(S) SUFFICIENT TO PROVIDE ADEQUATE PROTECTION FOR THE TANK LINING. PROVIDE LEGS, & RING BASE. SET UNIT TO MAINTAIN 145 DEG. F.

DCP1 DOMESTIC WATER CIRCULATION PUMP
CAPACITY: 50 GPM @ 20 FT. HEAD
MOTOR: 0.5 HP @ 120V, 1PH
ALL BRONZE CONSTRUCTION, INTERNAL SELF-FLUSHING MECHANICAL SEAL, 175 PSI MAX. W.P., BURA/CARBON-CERAMIC SEAL.



DOMESTIC WATER HEATER PIPING (I / P2)
SCALE: NONE

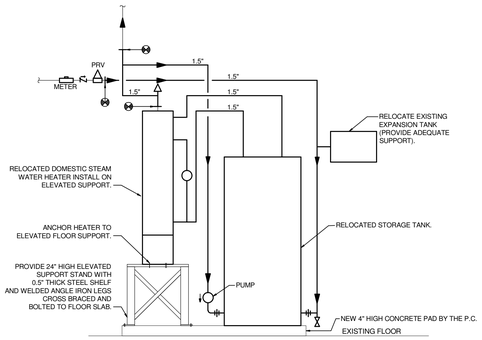
ET1 DOMESTIC WATER SYSTEM EXPANSION TANK
CAPACITY: 14.0 GALLON/16" DIA. X 20" HIGH
ASME COMPLIANT, STEEL SHELL, RED OXIDE PRIMER FINISH, HEAVY DUTY BUTYL NSF/ANSI 61 DIAPHRAGM, POLYPROPYLENE LINER MATERIAL, AND STAINLESS STEEL SYSTEM CONNECTION. 150 PSIG MAX. W.P.

TCS1 DOMESTIC WATER THERMOSTATIC CONTROL SYSTEM
CAPACITY: 70 GPM @ 10 PSI DROP
FULLY ASSEMBLED. MOUNTED ON HEAVY DUTY, WELDED STRUTS & FACTORY TESTED AS A COMPLETE SYSTEM WITH GFCI OUTLET, COMBINATION TEMPERATURE/PRESSURE GAUGES, TRIPLE DUTY CHECKSTOPS, INTERNAL BYPASS LOOP, AQUASTAT, & AUTOMATIC BALANCING VALVE. PARAFFIN-BASED THERMAL ACTUATION. SET UNIT TO MAINTAIN 125 DEG. F.

RCP1 DOMESTIC HOT WATER RECIRCULATION PUMP
CAPACITY: 15 GPM @ 24 FT. HEAD
MOTOR: 0.17 HP @ 120V-1PH
BRONZE BODY, STAINLESS STEEL PLATE, CARBON ON SILICON CARBIDE MECHANICAL SEAL, SEALED PRECISION STEEL BALL BEARING, PERMANENTLY LUBRICATED MOTOR BEARINGS, ODP MOTOR TYPE, EPDM ELASTOMERS, AND 1.25" FLANGE. 150 PSI MAX. W.P.

NOTES

1. AIR GAP OVER FLOOR DRAIN.
2. COMBINATION TEMPERATURE-PRESSURE RELIEF VALVE.
3. STEAM CONTROL VALVE(S) PROVIDED WITH WATER HEATER.
4. MAIN F&T STEAM TRAP PROVIDED WITH WATER HEATER.
5. PIPING CONTINUED BY H.C.
6. OVER-TEMPERATURE VALVE PROVIDED WITH WATER HEATER.
7. MINIMUM 27" HEAT TRAP.
8. CAP PIPING FOR FUTURE EXTENSION.
9. RECIRCULATION PUMP CONTROL AQUASTAT.



NOTE: VERIFY AND MATCH EXISTING PIPE SIZES SERVING EQUIPMENT.

RELOCATED WATER HEATER (J / P2)
SCALE: NONE

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: DETAILS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012 | Checked: RLT | Drawn: DPB/GLC

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: P2

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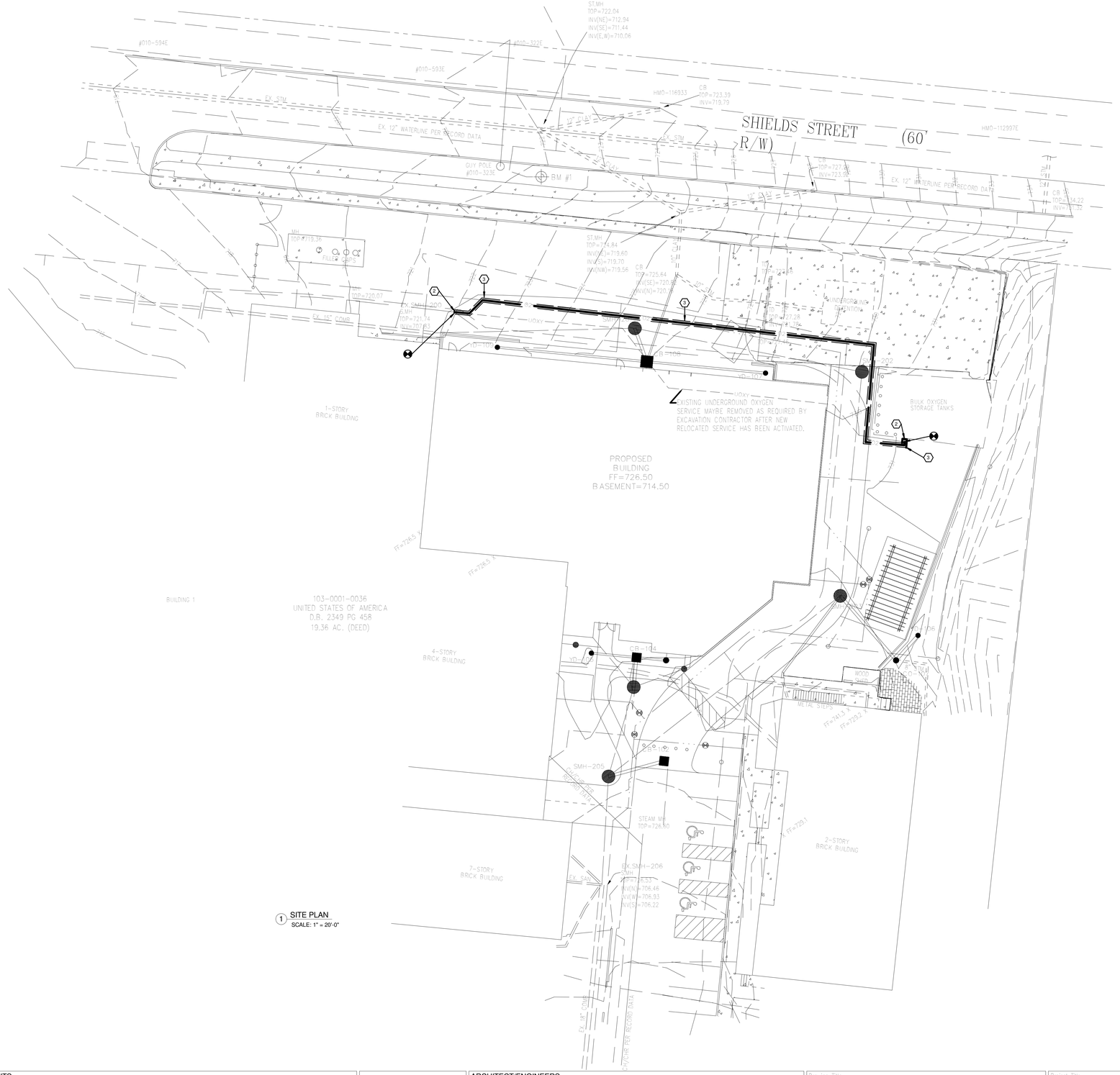
Department of Veterans Affairs



1 SITE PLAN
SCALE: 1" = 20'-0"

GENERAL NOTES

A ALL PIPING IS LOCATED IN GRADE UNLESS OTHERWISE INDICATED. THIS CONTRACTOR SHALL COORDINATED THE EXACT LOCATION, SIZE AND DEPT OF ALL NEW AND EXITING PIPING BEFORE PROCEEDING.

B A SEPARATE MEDICAL GAS PIPING PERMIT SHALL BE OBTAINED. SPECIAL NOTE SHALL BE TAKEN TO COMPLY WITH MEDICAL GAS INSPECTION PROCEDURE FOR PIPING SYSTEMS ISSUED BY THE STATE OF OHIO.

C MEDICAL GAS INSTALLERS SHALL BE CERTIFIED TO THE REQUIREMENTS OF THE APPROPRIATE SECTION OF ASSE 6000 IN COMPLIANCE WITH THE OHIO REVISED CODE, SECTION 1404.43, NON-FLAMMABLE MEDICAL GAS AND VACUUM PIPING SYSTEMS.

D REFER TO CIVIL ENGINEERING DRAWINGS FOR ADDITIONAL SITE UTILITY WORK BY THE S.U.C.

E THE P.C. SHALL COORDINATE ALL WORK WITH THE G.C., E.C., AND S.U.C.

F ALL SHUT-DOWNS OF THE BUILDING OXYGEN SYSTEM AND RELATED ITEMS OR EQUIPMENT REQUIRED TO COMPLETE THE WORK SHALL BE PROVIDED BY THE P.C. AND COORDINATED WITH THE COTR.

NOTES

1 EXISTING TO REMAIN.

2 SEAL ENDS OF ENCASEMENT PIPE AROUND EXISTING OXYGEN SERVICE TO REMAIN.

3 NEW 2.5" OXYGEN SERVICE ENCASED IN 6" SCHEDULE 80 P.V.C. DRAINAGE PIPE BY P.C. PROVIDE REMOVABLE INSPECTION CLEANOUT IN P.V.C. ENCASEMENT PIPE AT EACH OXYGEN FITTING AND CONNECTION.

Revisions		Date
1	Addendum #1	08/17/2012

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Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SITE PLAN

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: RLT

Drawn: DPB/GLC

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: P3

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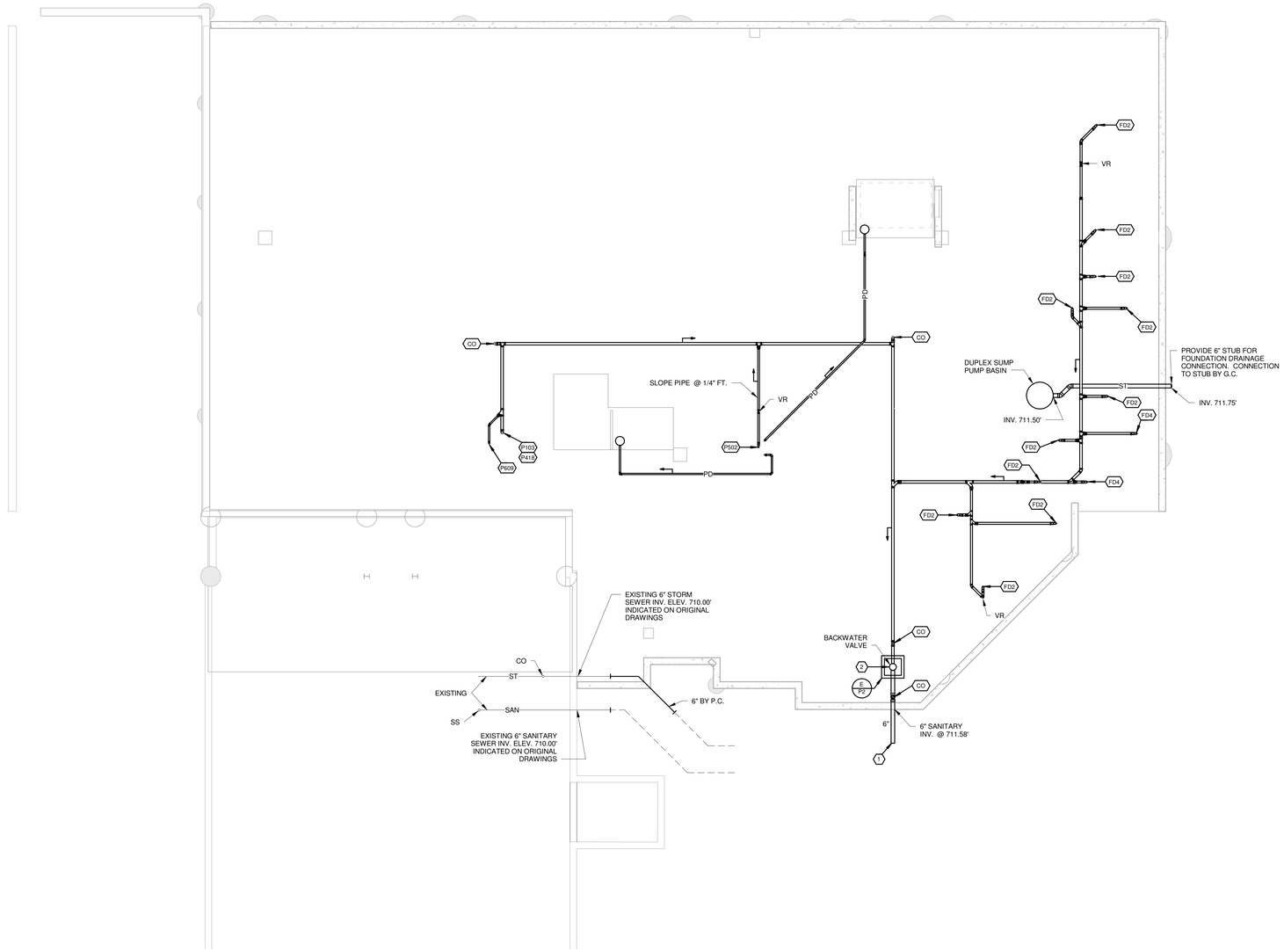
NOTES

1. PIPING CONTINUED BY S.U.C.
2. 4" SIZE IN-LINE AUTOMATIC BACKWATER VALVE. PROVIDE STABLE SUPPORT BETWEEN THE BASE OF THE VALVE AND THE BOTTOM OF THE PIT AND INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. REFER TO DETAIL E/P2.



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

1	Addendum #1	08/17/2012
Revisions		Date

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO
JOHN A. BLACK
49341
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: FOUNDATION PLAN - NEW WORK

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: RLT

Drawn: DPB/GLC

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-P1

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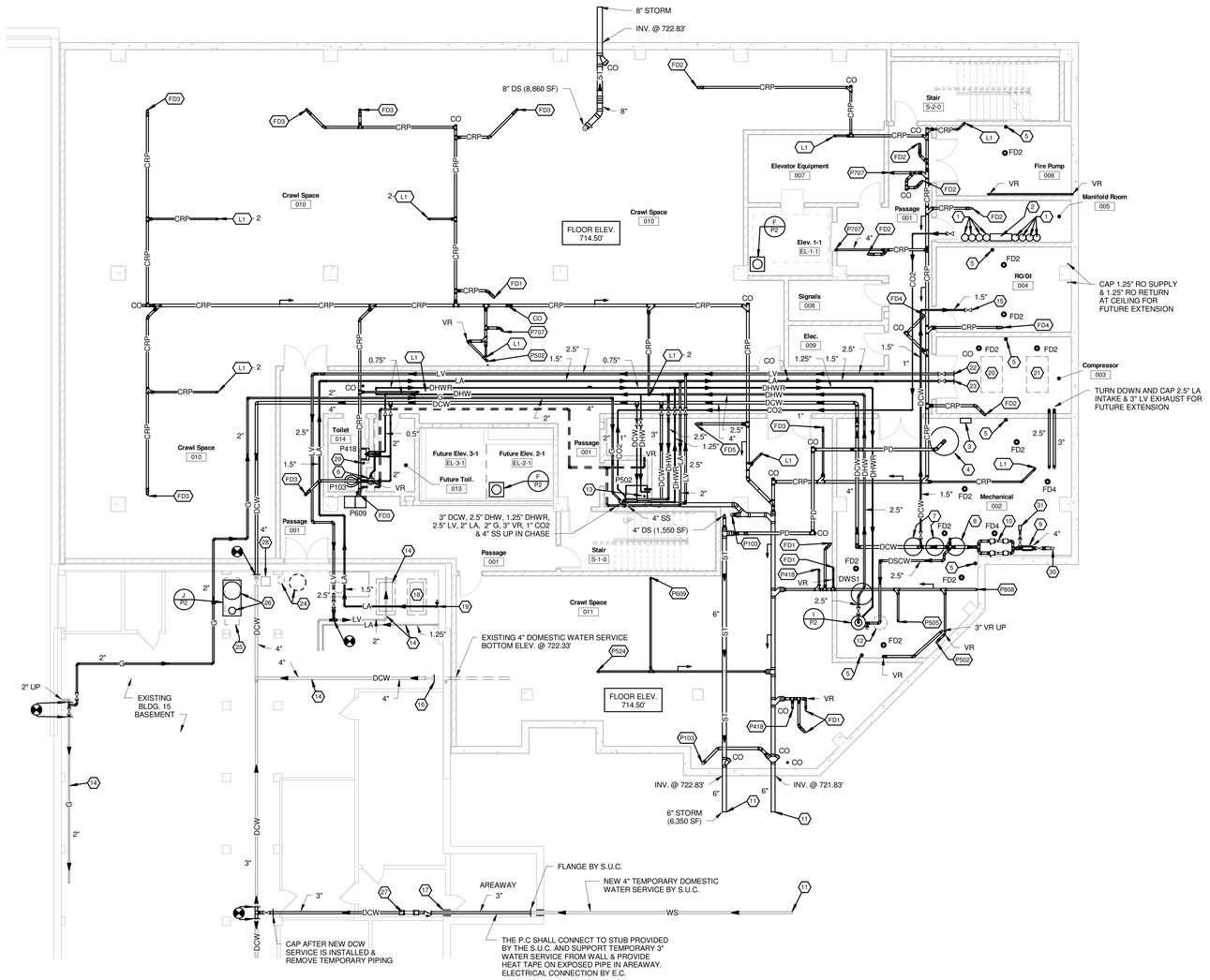


1 BASEMENT PLAN - NEW WORK
1/8" = 1'-0"

NOTES

1. CO2 CYLINDER.
2. CO2 MANIFOLD.
3. DUPLEX SUMP PUMP CONTROL PANEL.
4. DUPLEX SUBMERSIBLE SUMP PUMP.
   CAPACITY: 50 GPM @ 35 FT HEAD (EACH)
   MOTOR: 1 HP, 480V, 3 PH (EACH)
   BASIN: 48" DIA. x 7'-0" DEEP
   CAST IRON CONSTRUCTION WITH STAINLESS STEEL SCREWS, BOLTS, FLOAT ROD, HANDLE, GUARD ARM AND SEAL ASSEMBLY. NON-CLOGGING VORTEX IMPELLER DESIGN - BRONZE CLASS. UL LISTED 3-WIRE NEOPRENE CORD AND PLUG. STAINLESS STEEL CARBON & CERAMIC ROTARY SHAFT SEAL. NEOPRENE SQUARE RING & GASKET. CORROSION RESISTANT POWDER COATED EPOXY FINISH. 3" DISCHARGE TO 4" RISER. PROVIDE FULL SIZE CHECK VALVE AND SHUT-OFF VALVE ON EACH 3" DISCHARGE.
5. TRAP PRIMER, REFER TO DETAIL C/P2.
6. PROVIDE CARRIER FOR FUTURE BACK-TO-BACK WATER CLOSETS AND LATERAL LAVATORIES. CONNECT TO SANITARY AND VENT SYSTEMS AS INDICATED AND PLUG REMAINDER OF CARRIER OPENINGS.
7. DUPLEX WATER SOFTENER: WS1
   CAPACITY: 135 GPM @ 15 PSI LOSS (CONTINUOUS)
   192 GPM @ 25 PSI LOSS (PEAK FLOW)
   EXCHANGE CAPACITY: 450 KGR @ 225 LBS SALT (MAX.)
   300KGR @ 90 LBS SALT (MIN.)
   COORDINATE 120V, 1PH POWER LOCATION WITH E.C.
8. WATER SOFTENER BRINE TANK.
   30" DIA X 60" HIGH.
   MOUNT SOFTENERS AND BRINE TANK ON 4" HIGH CONCRETE BASE.
9. 4" SIZE DOMESTIC WATER METER WITH BY-PASS.
10. DUPLEX 3" SIZE REDUCED PRESSURE TYPE BACKFLOW PREVENTERS. EXTEND DISCHARGE PIPING FULL SIZE TO FLOOR DRAIN. ONE (1) 3" UNIT SHALL BE TEMPORARILY LOCATED IN BUILDING 15 ON THE TEMPORARY WATER SERVICE.
11. PIPING CONTINUED BY S.U.C.
12. FUTURE DOMESTIC WATER HEATER.
13. EXTEND PUMP DISCHARGE PIPING UP IN WALL TO ABOVE BASEMENT FLOOR AND TERMINATE ABOVE FLOOD RIM OF MOP SINK.
14. EXISTING TO REMAIN.
15. PROVIDE VALVE AND STUB FOR EXTENSION TO FUTURE RO/DI SYSTEM. SIZE AS INDICATED.
16. CAP EXISTING DOMESTIC WATER SERVICE AFTER TEMPORARY DOMESTIC WATER SERVICE HAS BEEN INSTALLED.
17. SLEEVE THROUGH EXISTING WALL & PROVIDE WATERTIGHT SEAL.
18. EXISTING AIR COMPRESSOR TO REMAIN. THE P.C. SHALL RESET UNIT TO MAINTAIN 100 PSI.
19. 1.5" CA DOWN, VALVE & CONNECT TO EXISTING SYSTEM. PROVIDE NEW PRESSURE REGULATOR SET AT 90 PSI. EXISTING 50 PSI REGULATOR ON EXISTING LA SYSTEM TO REMAIN.
20. LOCATION OF FUTURE VACUUM PRODUCER.
21. LOCATION OF FUTURE AIR COMPRESSOR.
22. PROVIDE VALVE AND STUB FOR EXTENSION TO FUTURE LAB VACUUM SYSTEM. SIZE AS INDICATED.
23. PROVIDE VALVE AND STUB FOR EXTENSION TO FUTURE LAB AIR SYSTEM. SIZE AS INDICATED.
24. REMOVE EXISTING DOMESTIC WATER HEATER AND DOMESTIC WATER STORAGE TANK AND RELOCATE.
25. REMOVE EXISTING SINK/CABINETWORK UNIT AND ALL RELATED PIPING AND CAP AT MAINS.
26. PROVIDE NEW 4" HIGH CONCRETE BASE AND RELOCATE DOMESTIC WATER HEATER, STORAGE TANK AND RECONNECT TO EXISTING PIPING SYSTEMS. REFER TO DETAIL J/P2.
27. PROVIDE CHECK VALVE ON LINE AND TEMPORARILY LOCATE 3" REDUCED PRESSURE TYPE BACKFLOW PREVENTER AT CEILING (SUPPORT FROM CEILING OR WALL) ON TEMPORARY WATER SERVICE. AFTER PERMANENT WATER SERVICE IS IN OPERATION, RELOCATE 3" BFP TO DUAL SYSTEM IN MECHANICAL ROOM 002.
28. EXISTING CONDENSATE PUMP TO REMAIN. REFER TO HVAC DRAWINGS FOR STEAM AND CONDENSATE PIPING BY H.C.
29. BOX MOUNTED TRANSFORMER LOCATED ABOVE CEILING TO CONTROL SENSOR OPERATED FAUCET ON FIXTURE BELOW. 120V-1PH. POWER WILL BE LOCATED IN A WIRING BOX ABOVE THE CEILING BY THE E.C. A 0.75" CONDUIT (FOR LOW VOLTAGE WIRING) STUBBED ABOVE THE CEILING AND EXTENDED DOWN TO AN ELECTRICAL WALL BOX LOCATED BELOW EACH LAVATORY WILL BE PROVIDED BY THE E.C. TRANSFORMER AND LOW VOLTAGE WIRING SHALL BE BY THE P.C. THE P.C. SHALL COORDINATE ALL WORK WITH THE E.C.
30. THE P.C. SHALL EXTEND PIPING FROM 4" STUB PROVIDED BY THE F.S.C.
31. PROVIDE 1.25" DOMESTIC COLD WATER PIPING TO 1" SIZE REDUCED PRESSURE BACKFLOW PREVENTER, CAPPED AND STUBBED FOR EXTENSION BY H.C. COORDINATE LOCATION WITH H.C. P.C. SHALL PIPE RELIEF DISCHARGE TO FLOOR DRAIN.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@ohnpoe.com

Drawing Title: BASEMENT PLAN - NEW WORK

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: RLT

Drawn: DPB/GLC

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

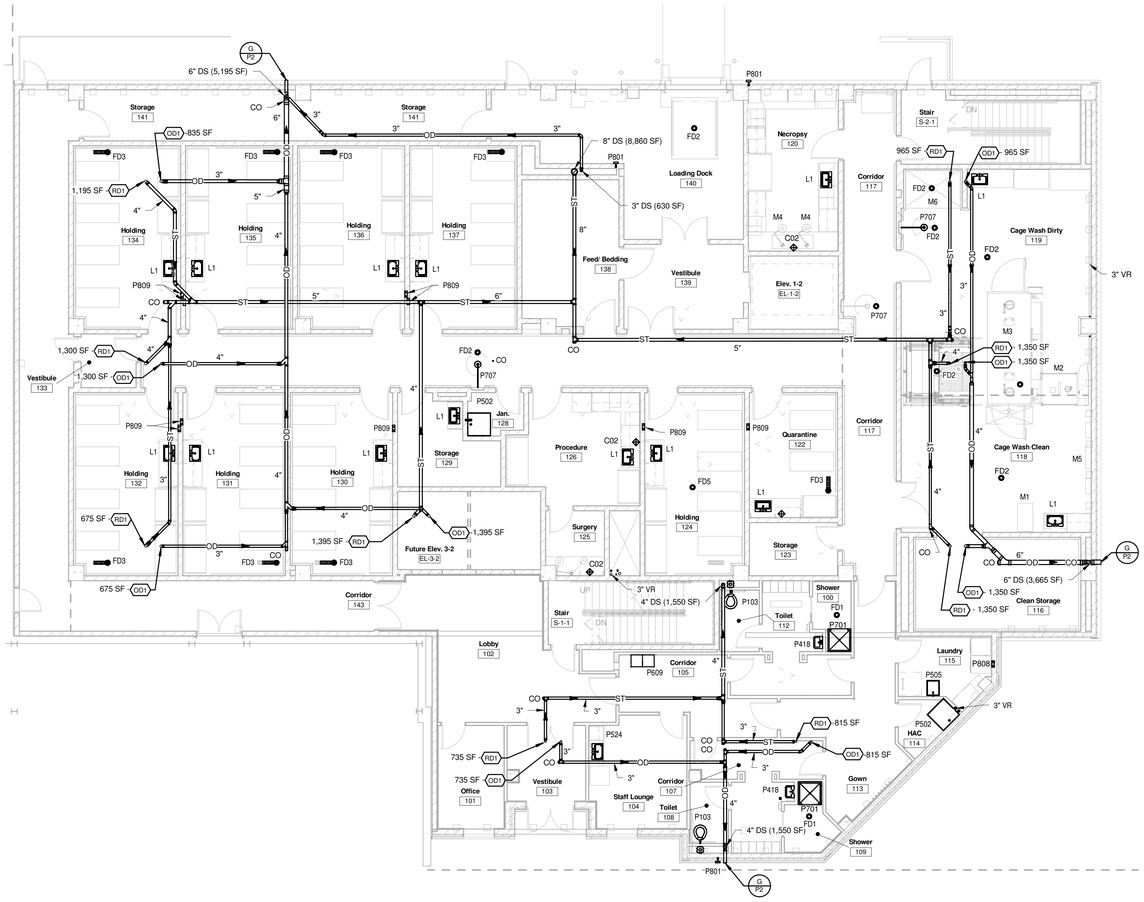
Drawing Number: 14-P2

Office of Construction and Facilities Management

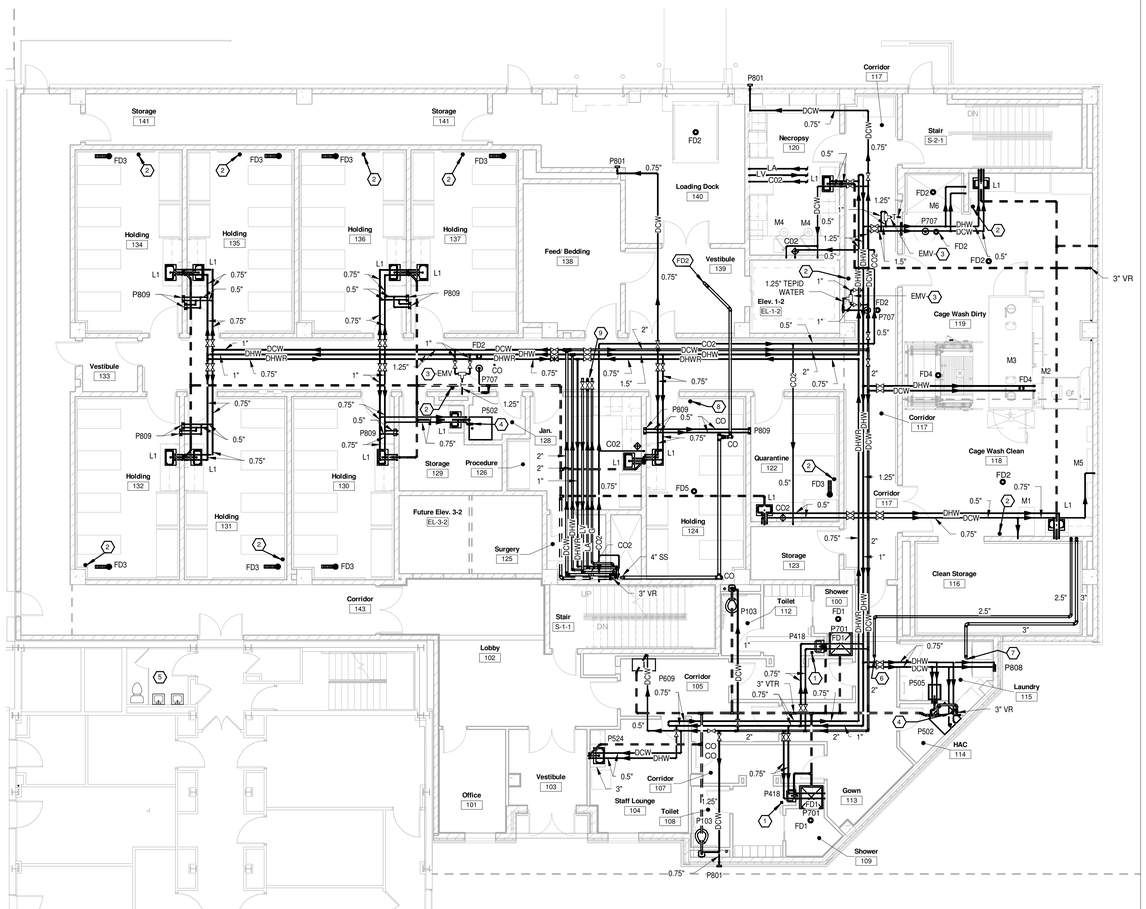
Department of Veterans Affairs

NOTES

1. BOX MOUNTED TRANSFORMER LOCATED ABOVE CEILING TO CONTROL SENSOR OPERATED FAUCET ON FIXTURE BELOW. 120V-1PH. POWER WILL BE LOCATED IN A WIRING BOX ABOVE THE CEILING BY THE E.C. A 0.75" CONDUIT (FOR LOW VOLTAGE WIRING) STUBBED ABOVE THE CEILING AND EXTENDED DOWN TO AN ELECTRICAL WALL BOX LOCATED BELOW EACH LAVATORY WILL BE PROVIDED BY THE E.C. TRANSFORMER AND LOW VOLTAGE WIRING SHALL BE BY THE P.C. THE P.C. SHALL COORDINATE ALL WORK WITH THE E.C.
2. TRAP PRIMER, REFER TO DETAIL C/P2.
3. EMV - EMERGENCY THERMOSTATIC MIXING VALVE (ABOVE CEILING)
   CAPACITY: 20 GPM @ 10 PSI DROP
   3 GPM MINIMUM FLOW
   MOUNT VALVE ABOVE CEILING AND SET TO MAINTAIN 85 DEG. F. TEPID WATER.
4. EXTEND PUMPED DISCHARGE PIPING FROM ELEVATOR SUMP(S) OUT OF WALL, TURN DOWN AND TERMINATE ABOVE FLOOD RIM OF MOP SINK.
5. EXISTING TO REMAIN.
6. EXTEND 2.5" LAB AIR SYSTEM INTAKE UP THRU ROOF AND CAP.
7. EXTEND 3" LAB VACUUM SYSTEM EXHAUST UP THRU ROOF AND CAP.
8. FLUSH VALVE LOCATED BEHIND WALL ACCESS PANEL. EXTEND 1.25" DISCHARGE PIPING & CONNECT TO FD5.
9. CAP 2" LV, 1" LA, & 1" G ABOVE CEILING FOR FUTURE EXTENSION.



2 FIRST FLOOR PLAN - STORM PIPING
1/8" = 1'-0"



1 FIRST FLOOR PLAN - NEW WORK
1/8" = 1'-0"

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: FIRST FLOOR PLAN - NEW WORK

Approved: Project Director

Project Title: BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011
REVISED AUGUST 17, 2012

Checked: RLT

Drawn: DPB/GLC

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-P3

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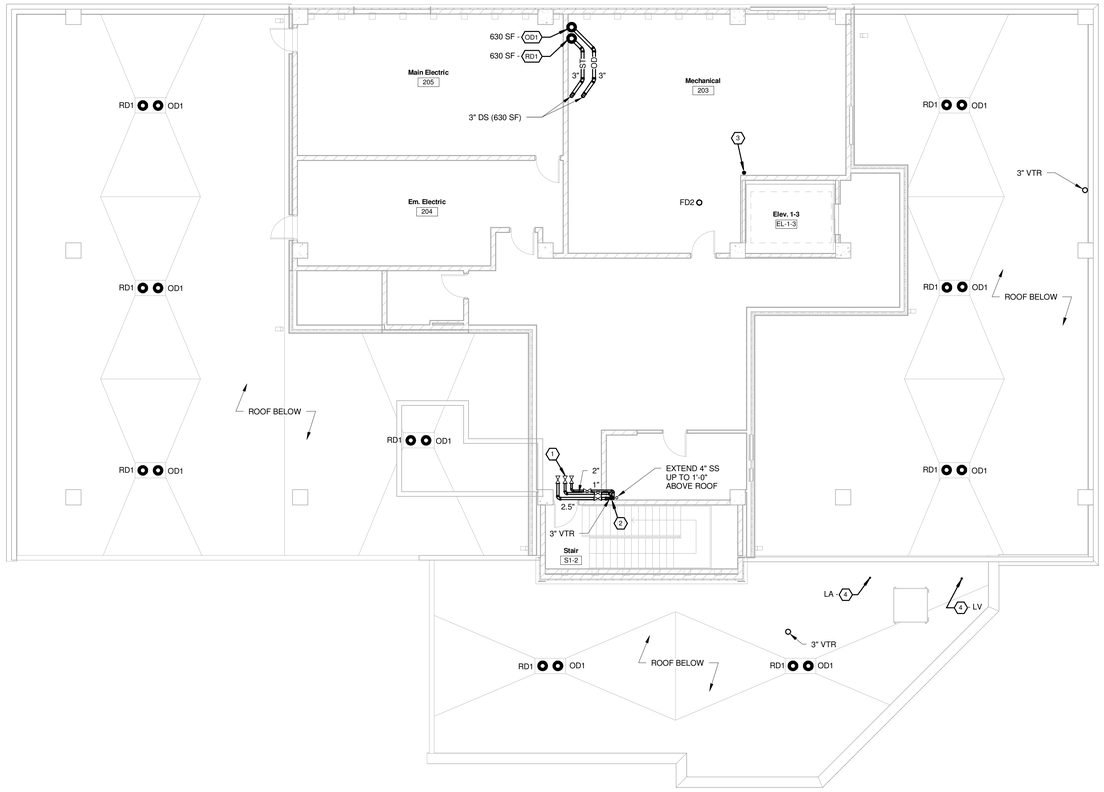
Department of Veterans Affairs

NOTES

1. PROVIDE VALVE AND STUB FOR FUTURE EXTENSION OF 2.5" DCW, 2" DHW & 1" DHWR PIPING.
2. CAP 3" DCW, 2.5" DHW, 1.25" DHWR, 2.5" LV, 2" LA, 2" G, 3" VR & 4" SS IN CHASE FOR EXTENSION TO FUTURE THIRD FLOOR.
3. TRAP PRIMER, REFER TO DETAIL C/P2.
4. CAP PIPING ABOVE ROOF FOR FUTURE EXTENSION.



2 SECOND FLOOR PLAN - NEW WORK
1/8" = 1'-0"

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
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STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SECOND FLOOR PLAN - NEW WORK

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: RLT

Drawn: DPB/GLC

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-P4

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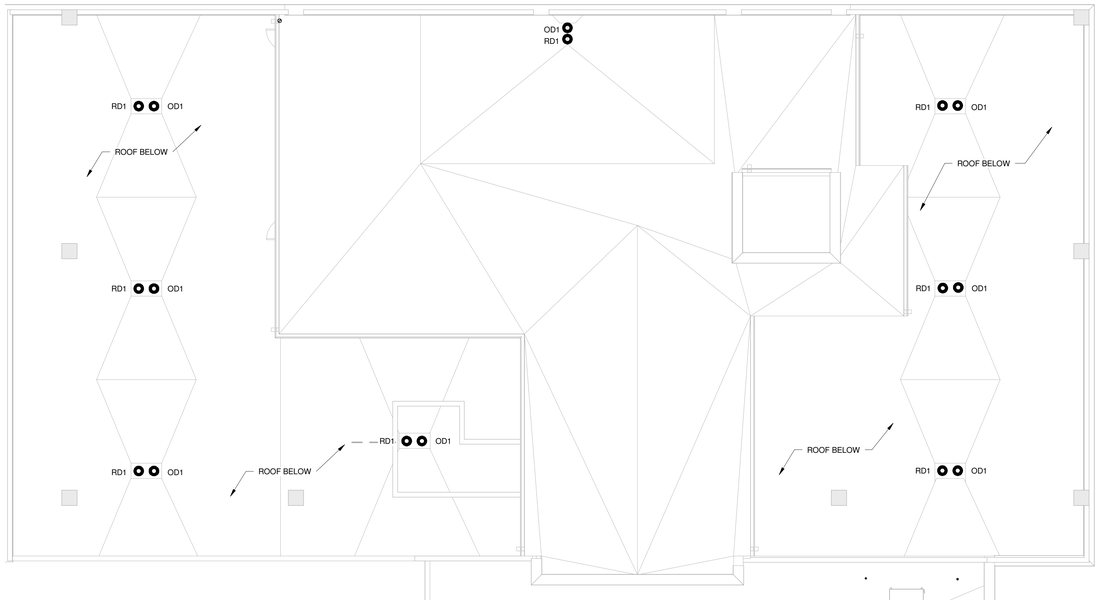

2 ROOF PLAN - NEW WORK
1/8" = 1'-0"

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
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STATE OF OHIO
JOHN A. BLACK
49341
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title
ROOF PLAN - NEW WORK

Approved: Project Director

Project Title
BUILDING 14
ANIMAL RESEARCH FACILITY -
BLDG 14

Location
Cincinnati, Ohio

Date 09/29/2011
REVISED AUGUST 17, 2012

Checked RLT

Drawn DPB/GLC

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

Building Number
14

Drawing Number
14-P5
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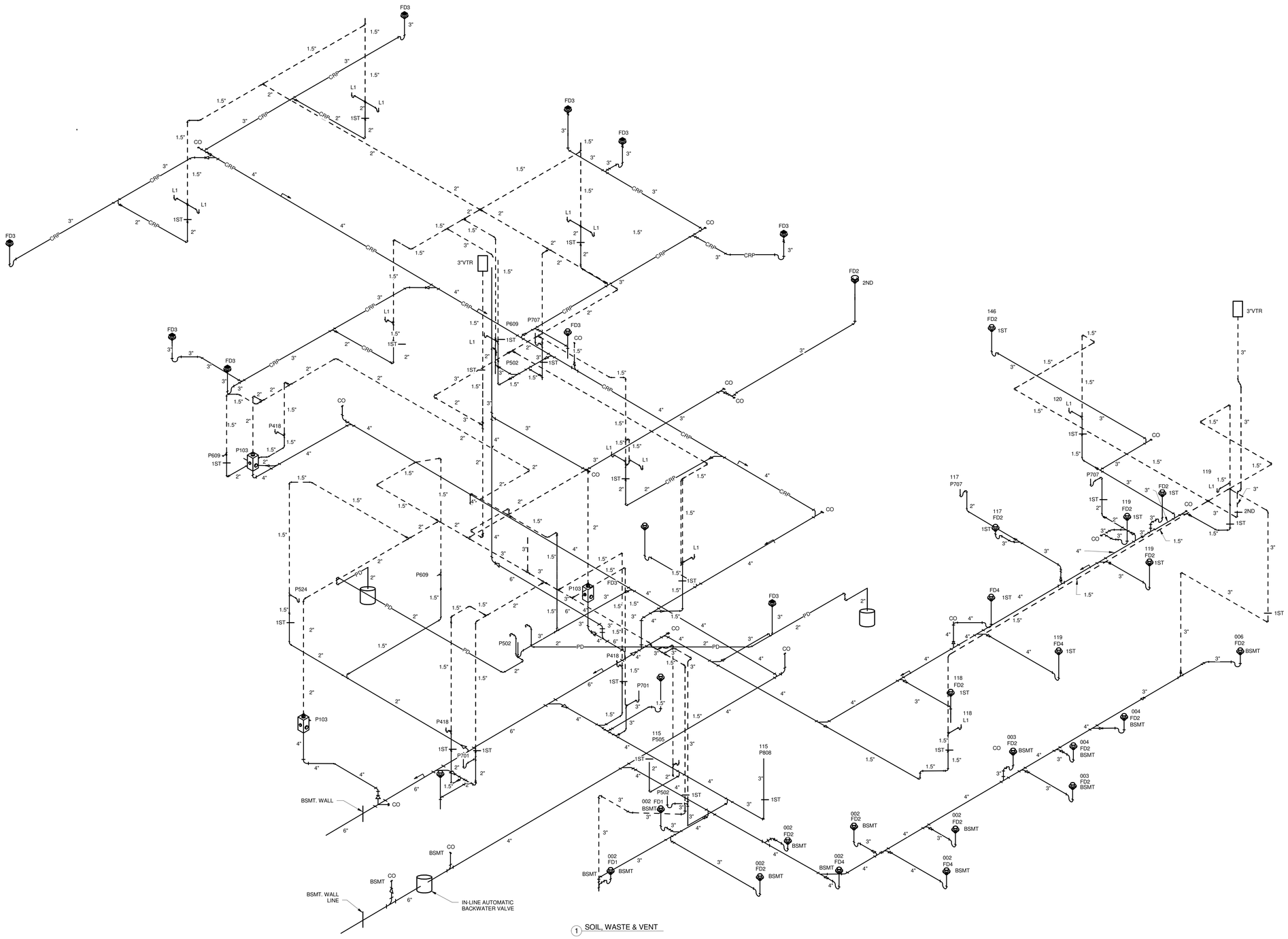
Construction
and Facilities
Management

Department of
Veterans Affairs



1 SOIL, WASTE & VENT

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

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Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
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STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SOIL, WASTE & VENT

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: RLT

Drawn: DPB/GLC

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-P6

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Office of Construction and Facilities Management

Department of Veterans Affairs

DRAWING SYMBOLS

- 2 / H4 — DETAIL NUMBER / DRAWING NUMBER WHERE DRAWN
- A / H7 — SECTION LETTER / DRAWING NUMBER WHERE DRAWN
- 1-SF3 — BUILDING NO. WHERE EQUIPMENT IS LOCATED. / EQUIPMENT ABBREVIATION (SUPPLY FAN) / SUPPLY FAN NO.3 IN BUILDING NO.1
- TYPICAL UNIT NO.
- 1-01 — TERMINAL UNIT DESIGNATION / AIR HANDLING UNIT NUMBER

DUCTWORK SYMBOLS

UP DN	SUPPLY DUCT (UP & DOWN)
UP DN	RETURN DUCT (UP & DOWN)
UP DN	EXHAUST DUCT (UP & DOWN)
	CEILING DIFFUSERS (FOUR WAY BLOW UNLESS OTHERWISE NOTED)
	EXHAUST OR RETURN CEILING REGISTER OR GRILLE
	SUPPLY TOP REGISTER OR GRILLE (WALL TYPE)
	EXHAUST OR RETURN BOTTOM REGISTER OR GRILLE, (WALL TYPE)
	EXHAUST OR RETURN TOP REGISTER OR GRILLE, (WALL TYPE)
	VANED ELBOW & AIR SPLIT TYPE DUCT TAKE-OFF
R	INCLINED RISE, IN DIRECTION OF AIR FLOW
D	INCLINED DROP, IN DIRECTION OF AIR FLOW
FC	FLEXIBLE CONNECTION
	VANED ELBOW (PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES EVEN IF SYMBOL IS MISSING)
	STANDARD RADIUS ELBOW
10/8	NEW DUCT - WIDTH X DEPTH
	STAINLESS STEEL DUCT
	ACOUSTICAL DUCT LINING
	MANUAL VOLUME DAMPER
	FIRE DAMPER
9'-6"	APPROXIMATE ELEVATION FROM FLOOR TO MIDDLE OF LISTED SIZE OF DUCT, PIPE, DEVICE OR EQUIPMENT ITEM. (TO BE USED AS AN AID IN COORDINATING THE VARIOUS TRADES.)
U/C	DOOR UNDERCUT BY GENERAL CONTRACTOR

PIPING SYMBOLS

HEATING

HPS (125)	HIGH PRESSURE STEAM (60 PSIG AND ABOVE) NUMBER INDICATES STEAM PRESSURE
HPR	HIGH PRESSURE STEAM CONDENSATE RETURN
MPS (30)	MEDIUM PRESSURE STEAM (16 PSIG THRU 59 PSIG) NUMBER INDICATES STEAM PRESSURE
MPR	MEDIUM PRESSURE STEAM CONDENSATE RETURN
LPS (5)	LOW PRESSURE STEAM (15 PSIG & BELOW) NUMBER INDICATES STEAM PRESSURE
LPR	LOW PRESSURE STEAM CONDENSATE RETURN
PC	PUMPED CONDENSATE RETURN
HWS	HEATING HOT WATER SUPPLY
HWR	HEATING HOT WATER RETURN
V	VENT LINE
GHS	HOT GLYCOL WATER SUPPLY
GHR	HOT GLYCOL WATER RETURN

AIR CONDITIONING

CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
D	DRAIN LINE
DCW	DOMESTIC COLD WATER
HWS/CHS	COMBINATION HOT/CHILLED WATER SUPPLY
HWR/CHR	COMBINATION HOT/CHILLED WATER RETURN
MU	TREATED DOMESTIC MAKE-UP WATER FOR HUMIDIFIER
GMU	GLYCOL MAKEUP WATER
GCS	CHILLED GLYCOL WATER SUPPLY
GCR	CHILLED GLYCOL WATER RETURN
R	REFRIGERANT PIPING

GENERAL

	DIRECTION OF PIPE PITCH (DOWN)
	DIRECTION OF FLOW
	PIPE ANCHOR
	PIPE GUIDE
	REDUCER OR INCREASER
	ECCENTRIC REDUCER
	TOP CONNECTION, 45 DEG. OR 90 DEG.
	BOTTOM CONNECTION, 45 DEG. OR 90 DEG.
	SIDE CONNECTION
	CAPPED OUTLET
	RISE OR DROP IN PIPE
	UNION
	ORIFICE UNION
	PIPE UP
	PIPE DOWN
	POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK.
	INVERTED BUCKET TRAP SET INCLUDING PIPING ACCESSORIES (SEE STANDARD DETAIL)
	FLOAT AND THERMOSTATIC TRAP SET INCLUDING PIPING ACCESSORIES (SEE STANDARD DETAIL)
	THERMOSTATIC TRAP
	STRAINER
	THERMOMETER
	PRESSURE GAGE
	EXISTING PIPE TO BE REMOVED
	TEST PLUG (PRESSURE/TEMPERATURE)
ET	EXPANSION TANK PIPE

VALVES

	GATE VALVE
	GLOBE VALVE
C	GATE VALVE WITH 3/4" HOSE END ADAPTER
	CHECK VALVE
	ANGLE GLOBE VALVE
	BUTTERFLY VALVE
	BALL VALVE
	COMBINATION BALANCING/SHUT-OFF VALVE
	CIRCUIT SETTER
	STRAIGHT-THRU MODULATING CONTROL VALVE
	STRAIGHT-THRU TWO-POSITION CONTROL VALVE
	THREE-WAY MODULATING CONTROL VALVE
	AUTOMATIC FLOW CONTROL VALVE
	SAFETY VALVE OR PRESSURE RELIEF
	PRESSURE REDUCING VALVE
	MANUAL AIR VENT

CONTROLS

T H	ROOM CONTROL: THERMOSTAT, HUMIDISTAT
T	REMOTE BULB THERMOSTAT
T	DUCT OR PIPE THERMOSTAT (NOTE 1: PROVIDE 12" MIN. LENGTH IN DUCT WHEN SPACE PERMITS)
T	DUCT THERMOSTAT WITH AVERAGING ELEMENT
T H	ROOM SENSOR: TEMPERATURE, HUMIDITY
T	DUCT OR PIPE TEMP. SENSOR (SEE NOTE 1 ABOVE)
H	DUCT HUMIDITY SENSOR
SP	DUCT STATIC PRESSURE SENSOR
T	DUCT TEMPERATURE SENSOR WITH AVERAGING ELEMENT
F S	SMOKE DETECTOR (SEE ELECTRICAL SPECIFICATIONS)
H1 N	CONTROL CIRCUIT CONN.
dP	DIFFERENTIAL PRESSURE SWITCH
DP SP	DIFFERENTIAL OR STATIC PRESSURE TRANSMITTER
CS	CURRENT SENSING RELAY

ABBREVIATIONS

A/BCW	COMBINATION AXIAL/BACKWARD CURVED WHEEL
AD	ACCESS DOOR
AF	AFTER FILTER
AFF	ABOVE FINISHED FLOOR
AFM	AIR FLOW MEASURING DEVICE
AFW	AIR FOIL WHEEL (FAN)
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
APD	AIR PRESSURE DROP
AS	AIR SEPARATOR
ATC	AUTOMATIC TEMPERATURE CONTROLS
BG	BOTTOM GRILLE (WALL TYPE)
BHP	BRAKE HORSEPOWER
BIW	BACKWARD INCLINED WHEEL (FAN)
BG	BOTTOM GRILLE (WALL TYPE)
BR	BOTTOM REGISTER (WALL TYPE)
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
CC	COOLING COIL
CCU	CENTRIFUGAL OR HELICAL ROTARY SCREW CHILLER UNIT
CD	CEILING DIFFUSER
CF	CENTRIFUGAL FAN
CFM	CUBIC FEET PER MINUTE
CG	CEILING GRILLE
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CO	CLEAN OUT
CONV	CONVECTOR
COTR	CONTRACTING OFFICERS TECHNICAL REPRESENTATIVE
CP	CONDENSATE PUMP
CR	CEILING REGISTER
CSG	CLEAN STEAM GENERATOR
CUH	CABINET UNIT HEATER
CW	COLD WATER (POTABLE)
D	AUTOMATIC CONTROL DAMPER
Db	DRY BULB TEMPERATURE, DEG. F
DB	DECIBELS
DDC	DIRECT DIGITAL CONTROLS
DEG	DEGREE
DI	DIGITAL INPUT
DIA	DIAMETER
DO	DIGITAL OUTPUT
DPS	DIFFERENTIAL PRESSURE SENSOR
DWDI	DOUBLE WIDTH DOUBLE INLET (FAN)
E.A.	EXHAUST AIR
ECC	ENGINEERING CONTROL CENTER
E.C.L.	ETCHED CLEAR LACQUER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
ENT	ENTERING
ET	EXPANSION TANK
EX.	EXISTING
F	FAHRENHEIT
FACP	FIRE ALARM CONTROL PANEL
FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT
FCW	FOWARD CURVED WHEEL
FD	FLOOR DRAIN
F&T	FLOAT AND THERMOSTATIC
FLR.	FLOOR
FPM	FEET PER MINUTE
FT	FEET
FTR	FIN TUBE RADIATION
GH	GRAVITY HOOD

ABBREVIATIONS

GPM	GALLONS PER MINUTE
HC	HEATING COIL
HD	HEAD
HP	HORSEPOWER
HPR	HIGH PRESSURE STEAM CONDENSATE RETURN
HPS	HIGH PRESSURE STEAM SUPPLY (60 PSIG & ABOVE)
HRP	HYDRONIC RADIANT CEILING PANEL
HWC	HEATING HOT WATER CONVERTER
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
ICF	IN-LINE CENTRIFUGAL FAN
IFB	INTEGRAL FACE AND BYPASS
IN	INCHES
IN WC	INCHES WATER COLUMN
IN WG	INCHES WATER GAUGE
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LPR	LOW PRESSURE STEAM CONDENSATE RETURN
LPS	LOW PRESSURE STEAM SUPPLY (15 PSIG & BELOW)
LTCP	LOCAL TEMPERATURE CONTROL PANEL
LVG	LEAVING
MAX	MAXIMUM
MB	MIXING BOX
MBH	1000 BTUH
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MIN	MINIMUM
MPR	MEDIUM PRESSURE STEAM CONDENSATE RETURN
MPS	MEDIUM PRESSURE STEAM SUPPLY (16 PSIG THRU 59 PSIG)
MV	MANUAL AIR VENT
NC	NOISE CRITERIA
NOM	NOMINAL
O.A.	OUTSIDE AIR
P	PUMP
PC	PUMPED CONDENSATE
PD	PRESSURE DROP (FEET OF WATER)
PEF	PROPELLER TYPE EXHAUST FAN
PF	PRE-FILTER
PH	PREHEAT COIL
POD	POWER OPERATED, OPPOSED BLADE DAMPER
PPD	POWER OPERATED, PARALLEL BLADE DAMPER
PRV	PRESSURE REDUCING VALVE
PUH	PROPELLER UNIT HEATER
R.A.	RETURN AIR
RF	RETURN FAN
Rh	RELATIVE HUMIDITY
RPM	REVOLUTIONS PER MINUTE
RV	POWER TYPE ROOF VENTILATOR
S.A.	SUPPLY AIR
SDR	SMOKE DAMPER (RETURN)
SDS	SMOKE DAMPER (SUPPLY)
SF	SUPPLY FAN
SH	STEAM HUMIDIFIER
S.P.	STATIC PRESSURE (INCHES OF WATER)
SP. GR.	SPECIFIC GRAVITY
SPRV	STEAM PRESSURE REDUCING VALVE
SPS	STATIC PRESSURE SENSOR
SWSI	SINGLE WIDTH SINGLE INLET TOP GRILLE (WALL TYPE)
TG	TRANSFER GRILLE
TR	TOP REGISTER (WALL TYPE)
U/C	DOOR UNDERCUT BY GENERAL CONTRACTOR
UH	UNIT HEATER
USF	UTILITY SET FAN
V	VALVE
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
Wb	WET BULB TEMPERATURE, DEG. F
W.B.E.	WHITE BAKED ENAMEL
WF	WATER FILTER
WV	POWER TYPE WALL VENTILATOR

GENERAL NOTES

1. ALL PIPING AND DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN A FURRED CHASE OR ABOVE THE SUSPENDED CEILING.
2. THE FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF FACE SHOWN OR INDICATED. DUCT SIZES ARE NET INSIDE DIMENSIONS.
3. ACCESS PANELS IN NON ACCESSIBLE SUSPENDED CEILINGS ARE REQUIRED FOR ALL VALVES, TRAPS, DAMPERS, CLEANOUTS, CONTROLS, ETC. ACCESS PANELS SHALL BE FURNISHED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS. COORDINATE LOCATIONS WITH GENERAL CONTRACTOR AND COTR.
4. TOTAL STATIC PRESSURE NOTED IN THE SCHEDULES INCLUDES DUCT SYSTEM, TERMINAL UNITS, FILTERS, COILS, ETC.
5. FOR TYPICAL STEAM, WATER AND REFRIGERANT PIPING CONNECTIONS TO EQUIPMENT, SEE STANDARD DETAILS AND PIPING SCHEMATICS.
6. DIFFUSER, REGISTER AND GRILLE SIZES SHOWN ON FLOOR PLANS ARE NECK SIZES.
7. WATER PIPE CONNECTIONS TO AIR HEATING AND COOLING COILS SHALL BE MADE TO PROVIDE COUNTER FLOW BETWEEN WATER AND AIR.
8. WALL TYPE EXHAUST REGISTERS NOTED AS "BR" ON DRAWINGS ARE TO BE INSTALLED WITH BOTTOM OF REGISTERS SEVEN INCHES ABOVE FINISHED FLOOR.
9. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF CEILING DIFFUSERS, REGISTERS, AND GRILLES.
10. WHERE DUCTS OR PIPES ARE REMOVED THRU WALL/FLOOR/ROOF THAT IS TO REMAIN, PATCH WALL/FLOOR/ROOF OPENING TO MATCH EXISTING WHERE OPENING IS NOT RE-USED.
11. ALL PRESSURES LISTED ARE GAGE PRESSURE UNLESS OTHERWISE NOTED.
12. ALL CUTTING AND PATCHING REQUIRED FOR THE HVAC WORK SHALL BE INCLUDED IN THE HVAC CONTRACT. REFINISH ANY SURFACE DISTURBED UNDER THIS WORK TO MATCH EXISTING.
13. IN GENERAL, KEEP DUCT AND PIPING MAINS NEXT TO UNDERSIDE OF STRUCTURE.
14. ANNULAR SPACE OF ALL PIPE, CONDUIT, DUCT & OTHER SIMILAR PENETRATIONS OF FIRE RATED ASSEMBLIES SHALL BE FIRESTOPPED. IN ADDITION, PENETRATIONS THROUGH 0-HOUR RATED WALLS & FLOORS SHALL BE FIRESTOPPED TO RETARD PASSAGE OF FIRE & SMOKE.
15. UPON THE DISCOVERY OF ANY ASBESTOS MATERIAL, STOP WORK IMMEDIATELY AND REPORT IT TO THE COTR. THE COTR WILL NOTIFY CONTRACTOR WHEN WORK IS SAFE TO PROCEED.
16. ANY REMOVED EQUIPMENT SHALL BE TURNED OVER TO THE VA. ITEMS NOT DESIRED BY THE VA SHALL BE REMOVED FROM THE PREMISES AND DISPOSED OF PROPERLY BY THE CONTRACTOR.
17. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
18. THE CONTRACT DRAWINGS ARE NOT INTENDED TO SHOW EVERY VERTICAL OR HORIZONTAL OFFSET WHICH MAY BE NECESSARY TO COMPLETE THE SYSTEMS. COORDINATE WORK IN ADVANCE WITH ALL OTHER TRADES AND REPORT IMMEDIATELY AND DIFFICULTIES WHICH CAN BE ANTICIPATED.
19. FIELD VERIFY EXISTING CONDITIONS, INCLUDING DUCT, PIPE AND EQUIPMENT SIZES, SERVICES AND LOCATIONS PRIOR TO PERFORMING WORK.
20. HEPA FILTERED EXHAUST IS REQUIRED TO MAINTAIN A MINIMUM OF 0.01" W.G. NEGATIVE PRESSURE IN CONSTRUCTION AREAS. COORDINATE WITH GENERAL CONTRACTOR AND COTR.
21. ALL ABANDONED EXTRANEOUS PIPING, DUCTWORK, SUPPORTS, CONTROLS, ETC. SHALL BE REMOVED.
22. WHERE CONTROL DEVICES ARE REMOVED, PNEUMATIC LINES SHALL BE REMOVED BACK TO MAIN AND CAPPED.
23. ALL ITEMS THAT REQUIRE ACCESS, SUCH AS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE BY PERSONS STANDING AT FLOOR LEVEL, OR STANDING ON PERMANENT PLATFORMS, WITHOUT THE USE OF PORTABLE LADDERS. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS AND STRAINER, TRANSMITTERS, CONTROL DEVICES.
24. WHERE ROOFING WORK IS REQUIRED, THE EXISTING ROOFING MEMBRANE AND INSULATION SHALL BE CUT, REMOVED AND RESTORED AS REQUIRED TO ATTAIN A WATERTIGHT CONDITION. THE ROOFING SUB-CONTRACTOR SHALL BE A CERTIFIED INSTALLER FOR SUCH INSTALLATION TO MAINTAIN THE EXISTING WARRANTY ON THE ROOF.
25. WHEN NEW SUPPLY AND RETURN AIR DUCTS ARE CONNECTED TO EXISTING DUCTWORK, CLEAN BOTH NEW AND EXISTING DUCTWORK BY MOPPING AND VACUUM CLEANING INSIDE AND OUTSIDE BEFORE OPERATION.
26. ALL EXISTING DUCTWORK, PIPING, EQUIPMENT, CONTROLS, ETC. SHOWN DASHED SHALL BE REMOVED. THE MAJORITY OF WORK TO BE REMOVED IS SHOWN. REMOVE ALL INCIDENTAL DUCTWORK, PIPING, ETC., THAT MAY NOT BE SHOWN BUT IS ASSOCIATED WITH THE REMOVAL WORK.
27. INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING. REFER TO ARCHITECTURAL DRAWINGS AND GENERAL REQUIREMENTS SECTION 01 00 00.
28. TESTING, ADJUSTING AND BALANCING OF THE NEW SYSTEMS AND EXISTING SYSTEMS AFFECTED BY THE NEW WORK SHALL BE PERFORMED AS PART OF A SEPARATE CONTRACT THRU THE ENGINEER, AND IS NOT PART OF THE HVAC CONTRACT.
29. REFER TO ARCHITECTURAL FIRE-RATED PARTITION PLAN, SHEET A102 FOR LOCATIONS AND FIRE-RATINGS OF NEW AND EXISTING WALL ASSEMBLIES. ALL PENETRATIONS THROUGH FIRE-RATED ASSEMBLIES SHALL BE PROTECTED AND/OR FIRE-STOPPED AS REQUIRED TO MAINTAIN FIRE-RATINGS INDICATED. GC SHALL COORDINATE ALL TRADES TO ENSURE FIRE-RATED PENETRATION REQUIREMENTS AND DETAILS ARE MET.

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Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: INDEX, LEGEND, AND GENERAL NOTES

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: H1

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: DLE

Drawn: PCW

Office of Construction and Facilities Management

Department of Veterans Affairs

HVAC DESIGN DATA

OUTDOOR DESIGN TEMPERATURES: 93 DEG. F Db SUMMER; 74 DEG. F Wb SUMMER; 5 DEG. F Db WINTER — DESIGN ALTITUDE: 482 FT.

INDOOR AREA DESIGN CONDITIONS	SUMMER Db (°F)	SUMMER % HUMIDITY	WINTER Db (°F)	WINTER % HUMIDITY
ANIMAL HOLDING ROOMS	74	55	70	45
ANIMAL PROCEDURE ROOMS	74	60	70	35
CAGE WASH AREA	74	60	70	45
OFFICES	75	50	70	30
ALL OTHER AREAS	75	50	70	30
UNOCCUPIED MODE (1)	80	-	60	-

NOTES:
1 REFERS TO OCCUPANCY STATUS FOR CONTROL OF AIR TERMINAL UNITS. SEE AIR TERMINAL UNIT SCHEDULE ON SHEET H3.

DUCT PRESSURE CLASS & LEAKAGE TABLE

SYSTEM	DUCT INVOLVED	POSITIVE (P) OR NEGATIVE (N) PRESSURE	SMACNA CONST. CLASS W.G.	SMACNA SEAL CLASS	SMACNA LEAKAGE CLASS RECTANGULAR DUCT	SMACNA LEAKAGE CLASS ROUND DUCT
ALL SYSTEMS	ALL DUCTWORK EXCEPT AS LISTED BELOW.	P/N	± 2"	A	6	3
	SUPPLY AIR DUCTS FROM OUTLET OF AH-UNIT TO INLET OF AIR TERMINAL UNITS.	P	4"	A	6	3
	SUPPLY AIR DUCTS FROM OUTLET OF AIR TERMINAL UNITS TO SUPPLY AIR DEVICES	P	2"	A	6	3
	RETURN AIR DUCTS FROM CEILING REGISTERS TO INLET OF AH-UNIT	N	-2"	A	6	3
	14-EF1 EXHAUST DUCT	N	-3"	A	6	3
	14-EF2 AND 14-EF3 EXHAUST DUCTS	N	-2"	A	6	3
	OUTSIDE AIR DUCTS	N	-2"	A	6	3

STEAM HUMIDIFIER SCHEDULE

HUMID. NO.	SYSTEM	CFM	ABSORP. DISTANCE (MAX.)	ENT. AIR °F Db	ENT. AIR °F Wb	LVG. AIR °F Db	LVG. AIR °F Wb	STEAM PSIG ENT. ON-OFF VALVE	STEAM PSIG ENT. CONTROL VALVE	ON-OFF & CONTROL VALVE LBS/HR	TRAP LBS/HR
14-SH1	14-AHU1	19,000	36"	54.5	36.0	54.5	46.6	30	24	405	810

WATER FILTER SCHEDULE

UNIT NO.	SYSTEM	FILTER GPM	AUTOMATIC VALVE PRESSURE RANGE	REMARKS
14-HWF1	HOT WATER	10	4-57 PSI	1.25" VALVE

AIR FLOW MEASURING DEVICE SCHEDULE

UNIT NO.	LOCATION	DUCT SIZE WxH	FAN SIZE & TYPE	CFM MIN.	CFM MAX.	S.P. DROP	SYSTEM
14-AFM1	14-AHU1 OUTSIDE AIR DUCT	52"X32"	N/A	5,700	19,000	0.02"	14-AHU1
14-AFM2	14-DEF1 EXHAUST AIR DUCT	48"X30"	N/A	5,550	18,500	0.02"	14-DEF1

DX SPLIT SYSTEM FAN COIL UNITS

UNIT NO. (NOTE 4)	TYPE	FAN CFM	OA CFM	COOLING CAPACITY MBH (NOTE 2)	HEATING CAPACITY MBH (NOTE 3)	INDOOR UNIT ELECTRIC E.S.P.	MCA	VOLT-PHASE	APPROXIMATE SIZE W	D	H	NOTES
14-FC1	HORIZONTAL WALL MTD.	900	0	34.2	37.0	FREE DISCH.	1	208-1	67"	10"	14"	1,2

NOTES :
1 RATING CONDITIONS: 80 DB/67 WB INDOOR, 95 DB/75 WB OUTDOOR.
2 RATING CONDITIONS: 70 DB/60 WB INDOOR, 17 DB/15 WB OUTDOOR.

EQUIPMENT DATA

14-CU1

OUTDOOR COOLING ONLY CONDENSING UNIT
INVERTER-DRIVEN COMPRESSOR-R410A REFRIGERANT
NOMINAL CAPACITY: 34,200 BTU/HR COOLING
37,000 BTU/HR HEATING
ELECTRIC: 208 VOLT, 1 PHASE, 25 MCA, 40 MOCP
OUTDOOR OPERATING TEMPERATURE RANGE;
COOLING: 0 DEG. F TO 115 DEG. F
HEATING: 12 DB/10 WB DEG. F TO 70 DB/59 WB DEG. F
APPROXIMATE SIZE: 38"W x 14"D x 38"H
UNIT SHALL INCLUDE LOW AMBIENT WIND BAFFLE TO PROVIDE OPERATION DOWN TO 0 DEG. F.

CHILLED WATER COOLING COIL SCHEDULE

COIL NO.	SYSTEM	CFM	MAX. FACE VEL. FPM.	MAX. S.P. LOSS	ENT. AIR °F Db	ENT. AIR °F Wb	LVG. AIR °F Db	LVG. AIR °F Wb	CIRCULATING FLUID FLUID	GPM	TEMP. IN °F	TEMP. OUT °F	MAX. LOSS FT.	AUTO VALVE TYPE	AUTO VALVE CV	MINIMUM MBH TOTAL (1)	MINIMUM MBH SENS. (1)
14-CC1	14-AHU1	19,000	500	1.1	93.0	74.0	50.9	50.7	CHILLED WATER	237	44	56	17.6	2-WAY	84.3	1,435	89.5

NOTES:
1 COIL CAPACITY BASED ON STANDARD AIR AT 0 FT. ALTITUDE. COIL SHALL BE MINIMUM 6 ROWS DEEP.

STEAM HEATING COIL SCHEDULE

COIL NO.	TYPE	SYSTEM	CFM	MAX. FACE VEL. FPM	MAX. S.P. LOSS IN	TEMP. AIR °F ENT.	TEMP. AIR °F LVG.	MIN. BTUH	STEAM PSIG ENT. CONTROL VALVE	STEAM PSIG ENT. COIL	CONTROL VALVE LBS/HR	TRAP LBS/HR
14-PH1	IFB	14-AHU1	19,000	500	0.4	-3	62.9	1,319,800	30	10	1,385	2,770

PRESSURE REDUCING VALVE SCHEDULE

PRV NUMBER	LOCATION	STEAM PRESSURE PSIG INLET	STEAM PRESSURE PSIG OUTLET	CAPACITY LBS/HR REQUIRED	CAPACITY LBS/HR MAXIMUM	SAFETY RELIEF PRESSURE	PIPE SIZES D1	PIPE SIZES D2
14-PRV1A	BASEMENT MECHANICAL ROOM	125	65	4,451	5,564	75 PSI	3"	4"
14-PRV1B	BASEMENT MECHANICAL ROOM	125	65	8,902	11,128	75 PSI	4"	5"
14-PRV2A	BASEMENT MECHANICAL ROOM	65	30	3,484	4,355	40 PSI	4"	5"
14-PRV2B	BASEMENT MECHANICAL ROOM	65	30	6,969	8,712	40 PSI	5"	6"

NOTE: REDUCING VALVE AND RELIEF VALVE TO BE SIZED BY SUPPLIER. ASSEMBLY SHALL BE INSTALLED PER DETAIL ON SHEET H7 AND MANUFACTURER'S RECOMMENDATIONS.

AIR HANDLING UNIT SCHEDULE

UNIT NO.	LOCATION	AREA SERVED	SUPPLY FAN NO.	CFM SUPPLY	CFM O.A.	EXTERNAL S.P. (1) IN.	SPECIFIED INTERNAL LOSSES (2) IN.	UNSPECIFIED INTERNAL LOSSES (3) IN.	FAN TOTAL S.P. (4) IN.	TYPE OF SYSTEM (5)
14-AHU1	SECOND FLOOR MECH. ROOM	FIRST FLOOR ARC	14-SF1	19,000	19,000	4.0	3.5	1.0	8.5	VAV

NOTES:
1 EXTERNAL STATIC PRESSURE REQUIRED AT DUCT CONNECTIONS TO INLET AND OUTLET OF AHU. MEASUREMENTS SHALL BE TAKEN WITHIN 3 FT. OF INLET AND OUTLET AT A POINT OF MAXIMUM ACCURACY.
2 TOTAL OF MAXIUMUM PRESSURE DROPS OF COMPONENTS WHICH ARE SPECIFIED SEPARATELY, I.E. PREFILTERS, AFTER FILTERS, HEATING AND COOLING COILS, DIFFUSER PLATE AND SOUND ATTENUATOR. AIR FILTER PRESSURE DROP SHALL BE SELECTED AT MID-LIFE.
3 INTERNAL LOSS ALLOWANCE SHALL INCLUDE LOSSES DUE TO ENTRANCE AND EXIT OF AHU, MIXING BOXES, DIFFUSER SECTION (OTHER THAN DIFFUSER PLATE) INCLUDING LOSSES DUE TO FAILURE TO PROPERLY CONVERT FAN DISCHARGE VELOCITY PRESSURE TO STATIC PRESSURE, FAN INLET CONDITIONS, CASINGS, HUMIDIFIERS, DAMPERS, ETC.
4 TOTAL FAN S.P = EXTERNAL STATIC PRESSURE + SPECIFIED INTERNAL LOSSES + UNSPECIFIED INTERAL LOSSES. MANUFACTURER SHALL PROVIDE SUBMITTAL SHOWING ACTUAL LOSSES OF ALL EQUIPMENT PROVIDED. REFER TO FAN SCHEDULE FOR ADDITIONAL FAN SELECTION INFORMATION.
5 REFER TO AIR HANDLING UNIT DETAIL ON DRAWING H6 FOR AH-UNIT LAYOUT AND COMPONENTS.

EXPANSION TANK SCHEDULE

UNIT NO.	SYSTEM	APPROX. SYSTEM VOLUME GAL.	SYSTEM TEMP. RANGE °F MIN.	SYSTEM TEMP. RANGE °F MAX.	INITIAL PRESS. IN TANK PSIG.	FILL PRESS. AT TANK PSIG.	MAX. OPER. PRESS. RELIEF VALVE PSIG.	MAX. OPER. PRESS. AT TANK PSIG.	MIN. VOL. GAL.	MIN. ACCEPT. VOLUME GAL.	AIR SEPARATOR UNIT NO.	AIR SEPARATOR SIZE IN.	AIR SEPARATOR GPM	AIR SEPARATOR MAX. P.D. FT.	AIR SEPARATOR BUILT-IN STRAINER REQUIRED	PIPE SIZE TO TANK IN.	COLD WATER FILL SIZE IN.
14-HWET1	HOT WATER	2,190	50	180	30	30	50	50	211.0	84.0	14-HWAS1	4"	210	1.5'	NO	1.25"	1.25"
14-ERET1	ENERGY RECOVERY GLYCOL WATER	120	0	90	12	12	45	45	21.7	11.3	14-ERA51	2.5"	73	2.0'	NO	0.75"	0.75"

HEAT RECOVERY SYSTEM RUN AROUND WATER COIL SCHEDULE

COIL NO.	SYSTEM	APPLICATION	CFM	MAX. FACE VEL FPM.	APPROX. SIZE (3) H L	MAX. S.P. LOSS	ENT. AIR °F Db	ENT. AIR °F Wb	LVG. AIR °F Db	LVG. AIR °F Wb	CIRCULATING FLUID FLUID (2)	GPM	TEMP. IN °F	TEMP. OUT °F	MAX. LOSS FT.	MINIMUM MBH TOTAL (1)	MINIMUM MBH SENS. (1)	REMARKS
14-ERC1A	14-AHU1	SUPPLY COIL	19,000	500	58"x 95"	0.40	5	1	30.5	19.8	PROPYLENE GLYCOL 40%	72.2	57.0	41.2	19.5	524	524	WINTER CONDITION
							93	74	83.2	71.3		72.2	77.0	83.1	19.5	206	206	SUMMER CONDITION
14-ERC1B	14-AHU1	EXHAUST COIL	13,800	500	61"x 65"	1.56	70.5	54.5	48.3	44.6	PROPYLENE GLYCOL 40%	72.2	41.2	51.3	13.4	335	335	WINTER CONDITION
							74.5	63.5	82.8	66.2		72.2	83.1	79.7	13.4	125	125	SUMMER CONDITION

NOTES:
1 COIL CAPACITY BASED ON STANDARD AIR AT 0 FT. ALTITUDE.
2 REFER TO SPECIFICATION SECTION 23 72 00 FOR DETAILED REQUIREMENTS ASSOCIATED WITH PROPYLENE GLYCOL SYSTEM.
3 COIL HOUSING SHALL BE DOUBLE WALL INSULATED CONSTRUCTION SIMILAR TO AIR HANLING UNIT, AND INCLUDE PREFILTER WITHIN HOUSING. REFER TO AIR FILTER SCHEDULE ON THIS SHEET.

FAN SCHEDULE

FAN NO.	LOCATION	FAN CFM	FAN S.P.	FAN TYPE	DESCRIPTION	WHEEL TYPE	WHEEL MIN. DIA.(5)	MAX. RPM	DRIVE	MOTOR MAX. BHP	MOTOR NOM. HP (2)	MOTOR VOLT-PHASE	MOTOR VFD	SEE NOTE
14-SF1	14-AHU1	19,000	8.5"	CF	DWDI TOP HORIZONTAL	AFW	25"	1,865	BELT	32.2	40	460-3	YES	1,2,3
14-DEF1	ROOF	18,500	4.5"	CF	MIXED FLOW DILUTION FAN	A/BCW	40"	1,170	DIRECT	23.6	30	460-3	YES	2,3
14-EF1	ROOF	2,740	3.3"	USF	UTILITY SET FAN	BIW	22"	1,940	BELT	2.6	5	460-3	YES	2,3
14-EF2	MECHANICAL 211	1,330	0.875"	ICF	IN-LINE CENTRIFUGAL FAN	BIW	14"	1,725	BELT	0.5	0.75	208-3	NO	2,4,5
14-EF3	ROOF	1,815	0.875"	RV	DOWNBLAST POWER ROOF VENTILATOR	BIW	14"	1,380	BELT	0.6	0.75	208-3	NO	2
14-EF4	MECHANICAL 211	1,620	4.0"	USF	UTILITY SET FAN	BIW	21"	3,215	BELT	2.0	3.0	460-3	YES	2,3

NOTES :
1 SCHEDULED MAXIMUM BHP IS FOR SCHEDULED SP PLUS TEN PERCENT. FORWARD CURVED WHEEL MAY BE SUBMITTED IN LIEU OF AIRFOIL WHEEL IF SCHEDULED MAXIMUM BHP IS MET. IF UNIT COIL PRESSURE DROPS SUBMITTED ARE LESS THAN SCHEDULED, THEN THE SP REQUIREMENT MAY BE REDUCED ACCORDINGLY. MAXIMUM BHP MAY BE BASED ON THE REVISED SP PLUS TEN PERCENT.
2 MOTORS SHALL BE ENERGY EFFICIENT TYPE.
3 REFER TO ELECTRICAL DRAWINGS FOR VARIABLE SPEED DRIVE ASSOCIATED WITH THIS FAN.
4 SUSPEND EXHAUST FAN FROM STRUCTURE WITH VIBRATION ISOLATORS PER SPECIFICATIONS. PROVIDE FLEXIBLE DUCT CONNECTORS AT THE INLET AND OUTLET OF EXHAUST FAN.
5 PROVIDE SPARK-RESISTANT FAN WITH EXPLOSION PROOF-MOTOR.

SOUND ATTENUATORS

UNIT NO.	ATTENUATOR SIZE W x H x L	MAX CFM	MAX S.P. DROP	DYNAMIC INSERTION LOSS DB AT 3.0" SP ACROSS UNIT AT MAX CFM OCTIVE BAND AND MID-FREQUENCY (Hz) 2 125	3 250	4 500	5 1000	6 2000	7 4000	NOTES
SA-1	8" x 8" x 15"	515	0.32"	0	0	2	13	10	7	1
SA-2	10" x 10" x 15"	760	0.18"	2	2	3	18	11	8	1
SA-3	12" x 12" x 15"	1,115	0.14"	1	3	2	11	9	7	1
SA-4	15" x 15" x 15"	1,900	0.11"	1	0	1	9	6	4	1

NOTE:
1. ATTENUATOR USED ON MULTIPLE BOXES AND AIR VALVES.

STEAM CONDENSATE PUMP SCHEDULE

PUMP NO.	LOCATION	TYPE UNIT	GPM	DISCHARGE PRESSURE	LBS/HR	RECEIVER SIZE GALLONS	MOTOR NOM. HP	MOTOR PHASE VOLT	REMARKS
14-CP1	BASEMENT MECHANICAL ROOM	DUPLEX	45	50 PSI	11,250	36	2 @ 3HP	3-460	3500 RPM MOTOR CAST IRON RECEIVER

AIR FILTER SCHEDULE

FILTER NO.	CFM	SYSTEM	MERV RATING	EFFICIENCY	MAX. S.P. DROP (1) INITIAL	MAX. S.P. DROP (1) FINAL	HOUSING TYPE	MAX. FACE VELOCITY	SEE NOTE
14-PF1A	19,000	14-AHU1	8	35%	0.38"	0.76"	SIDE ACCESS HOUSING	500	1,2
14-PF1B	13,800	14-ERC1B	8	35%	0.38"	.76"	SIDE ACCESS HOUSING	500	1,3
14-AF1	19,000	14-AHU1	14	95%	0.68"	1.36"	SIDE ACCESS HOUSING	500	1,2

NOTES:
1 STATIC PRESSURE REQUIREMENTS BASED ON 500 FPM FACE VELOCITY. FINAL PRESSURE DROPS BASED ON VA'S RECOMMENDED CHANGE OVER PRESSURE DROP.
2 FILTER HOUSING TO BE PART OF AIR HANDLING UNIT ASSEMBLY.
3 FILTER HOUSING TO BE PART OF ENERGY RECOVERY COIL ASSEMBLY. REFER TO HEAT RECOVERY SYSTEM RUN AROUND COIL SCHEDULE ON THIS SHEET.

CANOPY HOOD SCHEDULE

HOOD NO.	LOCATION	SYSTEM	HOOD TYPE	HOOD SIZE (IN)	EXHAUST AIR FLOW	EXHAUST CONNECTION SIZE	EXHAUST APD HOOD ONLY (IN W.G.)	NOTES
14-CEH1A	ROOM 119	EXHAUST	A	30" X 108"	210	8"	0.3	1
14-CEH1B	ROOM 118	EXHAUST	A	30" X 108"	210	8"	0.3	1
14-CEH2A	ROOM 119	EXHAUST	A	30" X 72"	450	12"	0.3	1
14-CEH2B	ROOM 118	EXHAUST	A	30" X 72"	450 210	12" 8"	0.3	1,2
14-CEH3A	ROOM 119	EXHAUST	A	30" X 84"	100	6"	0.3	1
14-CEH3B	ROOM 118	EXHAUST	A	30" X 84"	100 210	6" 8"	0.3	1,2

NOTES:
1 HOOD SIZE AND AIRFLOW REQUIREMENTS SUBJECT TO CHANGE ON ACTUAL EQUIPMENT PROVIDED. VERIFY EXACT SIZE AND LOCATION OF EQUIPMENT PRIOR TO ORDERING.
2 PROVIDE HOOD WITH MULTIPLE EXHAUST DUCT CONNECTIONS.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT NO.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SCHEDULES
Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14
Location: Cincinnati, Ohio
Date: 09/29/2011 REVISED AUGUST 17, 2012
Checked: DLE
Drawn: PCW

Project No: VA Project No. 539-317; JPA Project No. 10005.00
Building Number: 14
Drawing Number: H2
Dwg. of

Office of Construction and Facilities Management
Department of Veterans Affairs

AIR FLOW SYSTEM CONTROLLER / AIR TERMINAL UNIT SCHEDULE

UNIT NO.	CFM MAX.	CFM WINTER MIN.	CFM SUMMER MIN.	UNOCCUPIED (7)	APPROX. INLET SIZE (IN.)	DUCT RUNOUT SIZE TO UNIT (IN.) (1)	UNIT MAX. SP AT MAX. CFM (2)	SOUND REQUIREMENTS: SP ACROSS UNIT AT MAXIMUM ROOM NC	SOUND REQUIREMENTS: MAX. ROOM NC (3) (4)	SOUND REQUIREMENTS: ATTN. TYPE	HOT WATER HEATING COIL: ENT. AIR TEMP. F°	HOT WATER HEATING COIL: ENT. WATER TEMP. F°	HOT WATER HEATING COIL: GPM	HOT WATER HEATING COIL: MAX. WATER P.D. FT. HD.	HOT WATER HEATING COIL: PIPE RUNOUT SIZE TO COIL	AUTO VALVE Cv	AUTO VALVE TYPE	AUTO VALVE FAIL POSITION	MIN. MBH	CONTROL TYPE (6)	NOTES
1-1A	935	470	470		12	14	1.5"	3"	35	SA-3	55	180	1.6	2	0.75"	0.8	2-WAY	CLOSED	23	V.V.R.	5,8,11
1-1B	715	205	205		10	12	1.25"	3"	35	SA-2	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-1C	360	360	360		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	C.V.E.	8
1-2	175	175	175	30	8	8	1.5"	3"	35	SA-1	55	180	0.5	2	0.75"	0.2	2-WAY	OPEN	6	V.V.R.	5,8,11
1-3	270	270	270	45	8	8	1.5"	3"	35	SA-1	55	180	0.8	2	0.75"	0.4	2-WAY	OPEN	12	V.V.R.	5,8,11
1-4A	445	225	225		8	10	1.5"	3"	35	SA-1	55	180	0.8	2	0.75"	0.4	2-WAY	CLOSED	11	V.V.R.	5,8,11
1-4B	335	145	145		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-4C	180	180	180		8	8	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	C.V.E.	8
1-5	755	320	320		10	12	1.5"	3"	35	SA-2	55	180	1.4	2	0.75"	0.7	2-WAY	CLOSED	21	V.V.R.	5,8,11
1-6A	1325	1325	1325		14	16	1.5"	3"	35	SA-4	55	180	2.6	2	0.75"	1.2	2-WAY	OPEN	38	C.V.R.	5,8,11
1-6B	1460	1460	1460		14	16	1.25"	3"	35	SA-4	-	-	-	-	-	-	-	-	-	C.V.E.	8
1-7A	970	625	625		12	14	1.5"	3"	35	SA-3	55	180	1.2	2	0.75"	0.6	3-WAY	CLOSED	18	V.V.R.	5,8,11
1-7B	720	0	0		10	12	1.25"	3"	35	SA-2	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-7C	600	0	0		10	12	1.25"	3"	35	SA-2	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-7D	515	0	0		8	12	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-8A	1360	1360	1360		14	16	1.5"	3"	35	SA-4	55	180	2.7	2	0.75"	1.3	2-WAY	OPEN	39	C.V.R.	5,8,11
1-8B	1280	1280	1280		14	16	1.25"	3"	35	SA-4	-	-	-	-	-	-	-	-	-	C.V.E.	8
1-9	255	255	255	40	8	8	1.5"	3"	35	SA-1	55	180	0.7	2	0.75"	0.3	2-WAY	OPEN	9	V.V.R.	5,8,11
1-10A	610	610	610	95	10	10	1.5"	3"	35	SA-2	55	180	1.4	2	0.75"	0.7	2-WAY	OPEN	20	V.V.R.	5,8,11
1-10B	760	760	760	140	10	12	1.25"	3"	35	SA-2	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-11A	370	240	240	60	8	8	1.5"	3"	35	SA-1	55	180	0.6	2	0.75"	0.3	3-WAY	OPEN	8	V.V.R.	8,10,11
1-11B	425	280	280	140	8	8	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-12	125	125	105	50	8	8	1.5"	3"	35	SA-1	55	180	0.5	2	0.75"	0.2	3-WAY	OPEN	5	V.V.R.	5,8,11
1-13A	330	330	330	50	8	8	1.5"	3"	35	SA-1	55	180	1.0	2	0.75"	0.5	3-WAY	OPEN	14	V.V.R.	8
1-13B	375	375	315	100	8	8	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	V.V.R.	8
1-14A	1690	610	610		14	16	1.5"	3"	35	SA-4	55	180	2.8	2	1"	1.3	2-WAY	CLOSED	41	V.V.R.	5,8,11
1-14B	700	0	0		10	12	1.25"	3"	35	SA-2	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-14C	140	0	0		8	8	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-14D	810	0	0		12	12	1.25"	3"	35	SA-3	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-14E	810	0	0		12	12	1.25"	3"	35	SA-3	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-15A	360	360	360		8	8	1.5"	3"	35	SA-1	55	180	0.7	2	0.75"	0.3	2-WAY	CLOSED	10	C.V.R.	5,8,11
1-15B	300	300	300		8	8	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	C.V.E.	8
1-16A	945	395	395		12	14	1.5"	3"	35	SA-3	55	180	1.7	2	0.75"	0.8	2-WAY	CLOSED	25	V.V.R.	5,8,11
1-16B	700	0	0		10	12	1.25"	3"	35	SA-2	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-16C	170	170	170		8	8	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	C.V.E.	8
1-17A	760	400	400		10	12	1.5"	3"	35	SA-2	55	180	1.3	2	0.75"	0.6	2-WAY	CLOSED	19	V.V.R.	5,8,11
1-17B	515	140	140		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-17C	360	360	360		8	8	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	C.V.E.	8
1-18A	760	400	400		10	11	1.5"	3"	35	SA-2	55	180	1.3	2	0.75"	0.6	2-WAY	CLOSED	19	V.V.R.	5,8,11
1-18B	515	140	140		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-18C	360	360	360		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	C.V.E.	8
1-19A	760	400	400		10	11	1.5"	3"	35	SA-2	55	180	1.3	2	0.75"	0.6	2-WAY	CLOSED	19	V.V.R.	5,8,11
1-19B	515	140	140		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-19C	360	360	360		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	C.V.E.	8
1-20	490	490	90	90	8	8	1.5"	3"	35	SA-1	55	180	1.5	2	0.75"	0.7	2-WAY	OPEN	21	V.V.R.	5,8,11
1-21A	760	400	400		10	12	1.5"	3"	35	SA-2	55	180	1.3	2	0.75"	0.6	2-WAY	CLOSED	19	V.V.R.	5,8,11
1-21B	515	140	140		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-21C	360	360	360		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	C.V.E.	8
1-22A	760	400	400		10	12	1.5"	3"	35	SA-2	55	180	1.3	2	0.75"	0.6	2-WAY	CLOSED	19	V.V.R.	5,8,11
1-22B	515	140	140		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-22C	360	360	360		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	C.V.E.	8
1-23A	760	400	400		10	12	1.5"	3"	35	SA-2	55	180	1.3	2	0.75"	0.6	3-WAY	CLOSED	19	C.V.R.	5,8,11
1-23B	515	140	140		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-23C	360	360	360		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	C.V.E.	8
1-24A	760	400	400		10	12	1.5"	3"	35	SA-2	55	180	1.3	2	0.75"	0.6	3-WAY	CLOSED	19	V.V.R.	5,8,11
1-24B	515	140	140		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	V.V.E.	8
1-24C	360	360	360		8	10	1.25"	3"	35	SA-1	-	-	-	-	-	-	-	-	-	C.V.E.	8
1-25A	545	545	545	85	8	10	1.5"	3"	35	SA-1	55	180	1.2	2	0.75"	0.6	3-WAY	CLOSED	18	V.V.R.	5,8,11
1-25B	895	895	585	165	12	14	1.25"	3"	35	SA-3	-	-	-	-	-	-	-	-	-	V.V.E.	8
2-1	725	725	725	110	9	11	1.5"	3"	35		55	180	1.4	2	0.75"	0.7	2-WAY	OPEN	21	C.V.R.	9
2-2A	2035	795	310		14	16	1.5"	3"	35		55	180	2.3	2	0.75"	1.1	2-WAY	CLOSED	34	V.V.R.	9
2-2B	2035	795	310		14	16	1.5"	3"	35		-	-	-	-	-	-	-	-	-	V.V.E.	9
2-3	130	130	130		6	6	1.5"	3"	35		55	180	0.5	2	0.75"	0.2	2-WAY	CLOSED	3	C.V.R.	9
2-4	785	785	785	120	9	11	1.5"	3"	35		55	180	2.3	2	0.75"	1.1	2-WAY	OPEN	33	C.V.R.	9
2-5	160	160	160		6	8	1.5"	3"	35		55	180	0.5	2	0.75"	0.2	2-WAY	CLOSED	24	C.V.R.	9
2-6	550	550	550		7	9	1.5"	3"	35		55	180	1.2	2	0.75"	0.6	2-WAY	CLOSED	17	C.V.R.	9
2-7	370	370	370		6	8	1.5"	3"	35		55	180	0.6	2	0.75"	0.3	2-WAY	OPEN	8	C.V.R.	9
2-8	285	285	285		6	8	1.5"	3"	35		55	180	0.7	2	0.75"	0.3	2-WAY	OPEN	10	C.V.R.	9

NOTES :
1 PROVIDE DUCT TRANSITION AT UNIT INLET WHERE UNIT INLET SIZE AND DUCT RUNOUT SIZE ARE DIFFERENT.
2 THE UNIT MAXIMUM SP IS THE PRESSURE DIFFERENCE BETWEEN THE UNIT INLET AND DISCHARGE INCLUDING REHEAT COIL AND SOUND ATTENUATOR. IT IS ALSO THE MINIMUM PRESSURE REQUIRED AT THE UNIT INLET TO OBTAIN THE RATED CFM.
3 PROVIDE MANUFACTURER SPECIFIC SOUND NEUTRALIZER OR HOSPITAL GRADE SOUND ATTENUATOR TO CONFORM TO THE MAXIMUM NC35 REQUIREMENT.
4 UNIT NOISE LEVEL SELECTION SHALL NOT EXCEED A ROOM NC OF 35 FROM BOTH AIRBORNE AND RADIATED NOISE, BASED ON A 10 DB ROOM ABSORPTION COFFICIENT (REFERENCE 10 [-12] WATTS) WITH 3" S.P. DIFFERENTIAL ACROSS UNIT AT MAXIMUM CFM SETTING.
5 HEATING COIL CAPACITY BASED ON TERMINAL UNIT MAXIMUM CFM.
6 CONTROL TYPES: V.V.R.: VARIABLE VOLUME REHEAT TERMINAL; C.V.R.: CONSTANT VOLUME REHEAT TERMINAL; C.V.E.:CONSTANT VOLUME EXHAUST TERMINAL; V.V.E.: VARIABLE VOLUME EXHAUST TERMINAL; V.V.: VARIABLE VOLUME; C.V.: CONSTANT VOLUME.
7 AIR TERMINAL UNIT WITH LISTED CFM SHALL BE CONTROLLED THRU ECC WITH PROGRAMMABLE OCCUPIED/UNOCCUPIED TIMES AND/OR BE CONNECTED TO OCCUPANCY SENSOR(S). PROVIDE OCCUPANCY SENSORS AND ASSOCIATED WIRING WHERE NOT PROVIDED BY DIV. 26. REFER TO DIV. 26 SPECIFICATIONS FOR PRODUCT REQUIREMENTS. REFER TO "HVAC DESIGN DATA" SCHEDULE ON SHEET H2 FOR UNOCCUPIED TEMPERATURES.
8 LABORATORY TYPE AIR FLOW SYSTEM CONTROLLER. REFER TO SPECIFICATION SECTION 23 09 23.
9 AIR TERMINAL UNIT. REFER TO SPECIFICATION SECTION 23 36 00.
10 HEATING COIL CAPACITY BASED ON WINTER MINIMUM CFM.
11 REMOTE DUCT MOUNTED HEATING COIL. REFER TO SPECIFICATION SECTION 23 82 16.

AIR BALANCE SCHEDULE

ROOM NAME & NUMBER	AREA (SQFT)	AIR VALVE # SUPPLY EXHAUST	# OF DIFF. SUPPLY EXHAUST	DIFFUSER TYPE SUPPLY EXHAUST	DIFFUSER SIZE SUPPLY EXHAUST	DIFFUSER CFM SUPPLY EACH EXHAUST	ROOM PRESSURE (-/+)	NOTES
SHOWER 100	41	1-9	1	CD1	6"D	55		
		1-10B	1	CR2	12"X12"	85	NEGATIVE	
OFFICE 101	116	1-12	1	CD1	8"D	125	NEUTRAL	
		1-13B	1	CR1	24"X12"	125		
LOBBY 102	393	1-13A	1	CD1	8"D	250	NEUTRAL	
		1-13B	1	CR1	24"X12"	250		
VESTIBULE 103	98	1-13A	1	CD1	6"D	80	POSITIVE	
		-	-	-	-	-		
STAFF LOUNGE 104	180	1-11A	1	CD1	10"D	370	NEGATIVE	
		1-11B	1	CR1	24"X12"	425		
CORRIDOR 105	155	1-9	1	CD1	6"D	120	POSITIVE	
		-	-	-	-	-		
W. LOCKER 106	65	1-10A	1	CD2	6"D	110	NEGATIVE	
		-	-	-	-	-		
CORRIDOR 107	84	1-10A	1	CD2	6"D	95	POSITIVE	
		-	-	-	-	-		
TOILET 108	40	-	-	-	-	-		
		1-10B	1	CR2	12"X12"	70	NEGATIVE	
SHOWER 109	46	-	-	-	-	-		
		1-10B	1	CR2	12"X12"	165	NEGATIVE	
CORRIDOR 110	79	1-9	1	CD1	6"D	65	POSITIVE	
		-	-	-	-	-		
M. LOCKER 111	66	1-9	1	CD1	6"D	70	NEGATIVE	
		-	-	-	-	-		
TOILET 112	41							
		1-11B	1	CR2	12"X12"	70	NEGATIVE	
GOWN 113	244	1-10A	1	CD1	8"D	175	POSITIVE	
		-	-	-	-	-		
HAC 114	41	-	-	-	-	-		
		1-10B	1	CR2	12"X12"	75	NEGATIVE	
LAUNDRY 115	97	1-10A	1	CD1	8"D	230		
		1-10B	1	CR1	24"x12"	265	NEGATIVE	
CLEAN STORAGE 116	296	1-8	1	CD2	8"D	210	POSITIVE	4
		-	-	-	-	-		
CORRIDOR 117	437	1-5	3	CD1	8"D	250,250,255	SWITCHABLE	3
		-	-	-	-	-		
CAGE WASH CLEAN 118	444	1-8A	2	CD2	12"D	575	POSITIVE	4
		1-8B	2	-	6"D	100		2
		1-8B	4		8"D	200,(3)210		2
		1-8B	2		12"D	450		2
CAGE WASH DIRTY 119	727	1-6A	4	CD2	10"D	(3)330,335	NEGATIVE	4
		1-6B	1		8"D	210		2
		1-6B	1		10"D	800		2
		1-6B	2		12"D	450		2
NECROPSY 120	249	1-7A	2	CD2	12"D	485	NEGATIVE	4
		1-7B	1	CG3	24"X12"	720		
		1-7C	2		9"X6"	300		2
		1-7D	1		12"D	515		2
CORRIDOR 121	945	1-16A	3	CD1	10"D	315	SWITCHABLE	3
		1-16B	1	CG1	24"x12"	700		
QUARANTINE 122	188	1-4A	1	CD2	12"D	445	SWITCHABLE	3,4
		1-4B	1	CG3	24"X24"	335		
		1-4C	2		6"D	90		2
STORAGE 123	80	-	-	-	-	-		
		1-10B	1	CR2	12"X12"	100	NEGATIVE	
HOLDING 124	309	1-1A	2	CD2	12"D	465,470	SWITCHABLE	3,4
		1-1B	1	CG3	24"X12"	715		
		1-1C	4		6"D	90		1
SURGERY 125	63	1-14A	1	CD2	8"D	160	POSITIVE	4
		1-14C	1		6"D	140		2
PROCEDURE 126	214	1-14A	2	CD2	12"D	685	NEGATIVE	4
		1-14B	1	CG3	24"X12"	700		
		1-14D	1	-	12"D	810		2
		1-14E	1	-	12"D	810		2
JAN. 128	37	-	-	-	-	-		
		1-16C	1	CR2	12"X12"	70	NEGATIVE	
STORAGE 129	132	-	-	-	-	-		
		1-16C	1	CR2	12"X12"	100	NEGATIVE	
HOLDING 130	323	1-18A	2	CD2	10"D	380	SWITCHABLE	3,4
		1-18B	1	CG3	24"x12"	515		
		1-18C	4		6"D	90		1
HOLDING 131	327	1-21A	2	CD2	10"D	380	SWITCHABLE	3,4
		1-21B	1	CG3	24"x12"	515		
		1-21C	4	-	6"D	90		1
HOLDING 132	332	1-24A	2	CD2	10"D	380	SWITCHABLE	3,4
		1-24B	1	CG3	24"x12"	515		
		1-24C	4	-	6"D	90		1
VESTIBULE 133	50	1-25A	1	CD2	6"D	50	POSITIVE	
		-	-	-	-	-		
HOLDING 134	332	1-23A	2	CD2	10"D	380	SWITCHABLE	3,4
		1-23B	1	CG3	24"x12"	515		
		1-23C	4	-	6"D	90		1
HOLDING 135	334	1-22A	2	CD2	10"D	380	SWITCHABLE	3,4
		1-22B	1	CG3	24"x12"	515		
		1-22C	4	-	6"D	90		1
HOLDING 136	332	1-19A	2	CD2	10"D	380	SWITCHABLE	3,4
		1-19B	1	CG3	24"x12"	515		
		1-19C	4	-	6"D	90		1
HOLDING 137	335	1-17A	2	CD2	10"D	380	SWITCHABLE	3,4
		1-17B	1	CG3	24"x12"	515		
		1-17C	4	-	6"D	90		1
FEED/BEDDING 138	238	1-15A	1	CD2	10"D	360	POSITIVE	4
		1-15B	1	CG2	24"x12"	300		
VESTIBULE 139	172	1-2	1	CD2	8"D	175	POSITIVE	
		-	-	-	-	-		
LOADING DOCK 140	447	1-3	1	TR1	10"X6"	270	POSITIVE	
		-	-	-	-	-		
STORAGE 141	347	1-20	2	CD2	8"D	245,245	POSITIVE	
		1-25B	1	CR1	24"x12"	400		
CORRIDOR 142	467	1-25A	2	CD2	8"D	160	NEUTRAL	
		1-25B	1	CG1	24"X12"	495		
CORRIDOR 143	260	1-25A	1	CD2	8"D	175	NEUTRAL	
		-	-	-	-	-		

NOTES:
1 CAGE RACK CONNECTION. REFER TO DETAIL ON SHEET H5.
2 CONNECTED TO EQUIPMENT.
3 REFER TO CONTROL SEQUENCES ON SHEET H12 FOR SWITCHABLE ROOM PRESSURE REQUIREMENTS.
4 ROOM SHALL BE MONITORED BY THE FACILITY MONITORING SYSTEM (FMS). REFER TO CONTROL SEQUENCES ON SHEET H12 FOR ADDITIONAL INFORMATION.

AIR DISTRIBUTION DEVICES

SYMBOL	DESCRIPTION	TYPE MOUNTING: LAY-IN	TYPE MOUNTING: SURFACE	MATERIAL: STEEL	MATERIAL: ALUM.	FINISH: E.C.L.	FINISH: W.B.E.	ACCESSORIES	SEE NOTE
CD1	STANDARD SQ. PLAQUE CEILING DIFFUSER ROUND NECK	◇			◇		◇		
CD2	STANDARD SQ. PLAQUE CEILING DIFFUSER ROUND NECK		◇		◇		◇		
CD3	LINEAR PLENUM SLOT ADJUSTABLE BLADE DIFFUSER	◇		◇			◇		1
CG1	EGGCRATE CEILING GRILLE	◇			◇		◇		
CG2	EGGCRATE CEILING GRILLE		◇		◇		◇		
CG3	PERFORATED FILTER GRILLE		◇		◇		◇	FILTER	
CR1	EGGCRATE CEILING REGISTER	◇			◇		◇	OPPOSED BLADE DAMPER	
CR2	EGGCRATE CEILING REGISTER		◇		◇		◇	OPPOSED BLADE DAMPER	
TG2	FIXED BLADE RETURN/ EXHAUST GRILLE		◇		◇		◇		
TR1	ADJUSTABLE BLADE SUPPLY REGISTER		◇	◇			◇	OPPOSED BLADE DAMPER	
TR2	FIXED BLADE RETURN/ EXHAUST REGISTER		◇	◇			◇	OPPOSED BLADE DAMPER	
TR3	FIXED BLADE RETURN/ EXHAUST REGISTER		◇	◇			◇	OPPOSED BLADE DAMPER	2

NOTES:
1 PROVIDE 48" LONG DEVICE WITH 1 - 1" SLOT
2 TYPE 304 STAINLESS STEEL DAMPER AND REGISTER WITH MILL FINISH.

CONVERTER SCHEDULE

CONVERTER NO.	LOCATION	CIRCULATING FLUID: FLUID	CIRCULATING FLUID: GPM	CIRCULATING FLUID: TEMP IN°F	CIRCULATING FLUID: TEMP OUT°F	CIRCULATING FLUID: MAX. LOSS FT. FLUID	STEAM PSIG: ENTERING CONTROL VALVE	STEAM PSIG: ENTERING CONVERTER	MINIMUM HEATING SURFACE	HEATING CAPACITY MBH	CONTROL VALVE LBS/HR	TRAP LBS/HR	NOTES
14-HWC1	BASEMENT MECH. ROOM	WATER	105	150	180	2 FT.	30	15	39	1575	1665	3330	1,2,3

NOTES:
1 CONVERTER SIZED TO HANDLE 50 PERCENT OF THE TOTAL ESTIMATED FUTURE LOAD.
2 CONVERTER SHALL BE SIZED WITH .001 FOULING FACTOR.
3 APPROXIMATE SIZE: 11" DIA X 42" LONG.

HVAC PUMP SCHEDULE

PUMP NO.	LOCATION	SYSTEM	CIRCULATING FLUID: FLUID	CIRCULATING FLUID: GPM	CIRCULATING FLUID: PUMP HEAD FT. FLUID	CIRCULATING FLUID: TEMP °F	CIRCULATING FLUID: SP. GR.	% EFF.	TYPE	MOTOR: NOM. HP	MOTOR: VOLT.-PHASE	MOTOR: RPM	VFD	NOTES
14-HWP1	BASEMENT MECH. ROOM	BUILDING HEATING HOT WATER	CLEAR WATER	115	85	180	1	60.9	VERTICAL IN-LINE	5	460-3	1750	YES	1,2
14-ERP1	SECOND FLOOR MECH. ROOM	14-AHU1 ENERGY RECOVERY COIL	PROPLYENE GLYCOL 40%	73	65	0	1.05	41.6	HORIZONTAL IN-LINE	5	460-3	1750	NO	1
14-SCWP1	BASEMENT MECH. ROOM	BUILDING COOLING CHILLED WATER	CLEAR WATER	300	85	45	1	73.6	BASE MOUNTED END SUCTION	15	460-3	1750	YES	1,2,3

NOTES:
1 MOTOR SHALL BE ENERGY EFFICIENT TYPE.
2 PUMP SHALL BE CAPABLE OF OPERATION DOWN TO 20 PERCENT MINIMUM FLOW.
3 PUMP SHALL BE CAPABLE OF OPERATION DOWN TO 50 PERCENT MINIMUM FLOW.

HOT WATER UNIT HEATER SHEDULE

UNIT NO.	LOCATION	TYPE UNIT	CFM	MIN. MBH	ENT. TEMP. °F: AIR	ENT. TEMP. °F: WATER	GPM	MAX. LOSS THRU COIL FT. WATER	RUNOUT SIZE	AUTO VALVE TYPE	AUTO VALVE CV	APPROX. CABINET DIMS.: LENGTH	APPROX. CABINET DIMS.: HEIGHT	APPROX. CABINET DIMS.: DEPTH	MOTOR HP (W)	VOLT.-PHASE	NOTES
14-CUH1	SEE PLANS	VERTICAL CABINET WALL HUNG	235	22.5	60	180	1.4	3	0.75"	3-WAY	1.2	47"	26"	10"	0.06	115-1	1,2
14-PUH1	SEE PLANS	HORIZONTAL PROPELLER	480	18.2	60	180	1.6	2	0.75"	3-WAY	1.7	15"	18"	10"	(25)	115-1	1
14-PUH2	SEE PLANS	HORIZONTAL PROPELLER	950	36.3	60	180	3.2	2	0.75"	3-WAY	3.4	19"	22"	12"	0.05	115-1	1
14-PUH3	SEE PLANS	VERTICAL PROPELLER	3200	105.6	60	180	8.5	2	1.25"	3-WAY	9.0	30"	12"	30"	0.25	115-1	1

NOTES:
1 VERIFY/COORDINATE CABINET DIMENSIONS, MOUNTING & RECESS REQUIREMENTS PRIOR TO ORDERING.
2 UNIT SHALL HAVE OPEN BOTTOM INLET AND STAMPED TOP OUTLET.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT NO.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SCHEDULES

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012 | Checked: DLE | Drawn: PCW

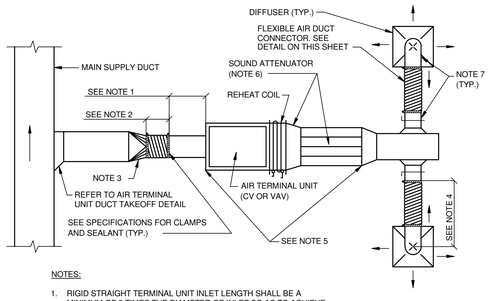
Project No: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: H3

Dwg. of

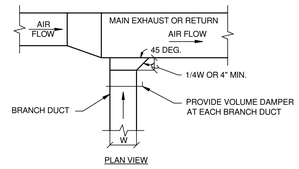
Office of Construction and Facilities Management
Department of Veterans Affairs



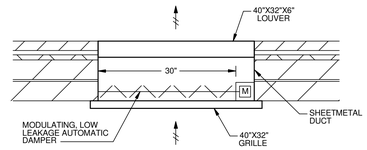
NOTES:

1. RIGID STRAIGHT TERMINAL UNIT INLET LENGTH SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF INLET SO AS TO ACHIEVE ACCURATE AIRFLOW SENSOR READINGS.
2. A FLEXIBLE AIR DUCT CONNECTOR IS NOT MANDATORY FOR INLET TO THIS BOX, BUT ALLOWED TO ACCOMMODATE MINOR OFFSETS. MAXIMUM LENGTH 3'-0".
3. PROVIDE DUCT TRANSITION WHERE SCHEDULED DUCT RUNOUT SIZE TO UNIT IS DIFFERENT THAN TERMINAL UNIT INLET SIZE.
4. FLEXIBLE AIR DUCT CONNECTORS, WHEN USED FROM TERMINAL UNIT SUPPLY AIR DUCT TO DIFFUSER, SHALL NOT EXCEED 5'-0". USE RIGID ELBOWS FOR CHANGE OF DIRECTION GREATER THAN 45°.
5. COMPONENT ARRANGEMENT MAY VARY BY MANUFACTURER. PROVIDE INSULATION W/VAPOR BARRIER FOR CONNECTING DUCT SECTIONS.
6. PROVIDE SOUND ATTENUATOR IF REQUIRED TO MEET DESIGN ROOM NC. PROVIDE DUCT TRANSITION BETWEEN TERMINAL UNIT AND SOUND ATTENUATOR WHERE ATTENUATOR SIZE DIFFERS FROM TERMINAL UNIT OUTLET SIZE.
7. DUCT RUNOUT TO DIFFUSERS SHALL BE SAME SIZE AS THE DIFFUSER NECK SIZE UNLESS OTHERWISE NOTED.

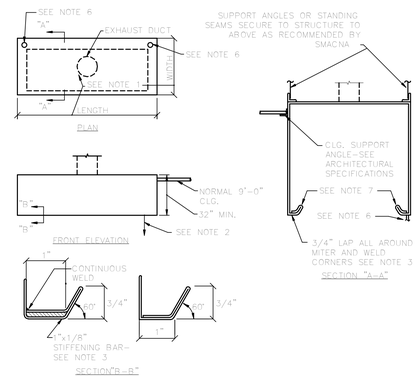
DUCT CONNECTIONS-AIR TERMINAL UNITS



EXHAUST OR RETURN RANCH DUCTWORK



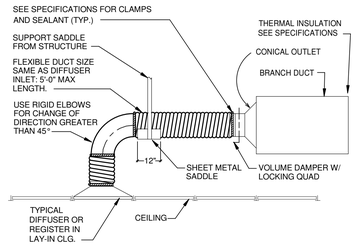
STAIR PRESSURIZATION OUTLET



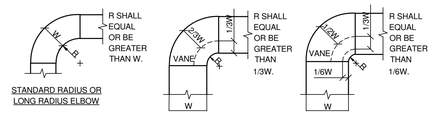
NOTES:

1. HOODS SHALL BE STAINLESS STEEL. SEE SPECIFICATIONS. FOR HOOD SIZE & LOCATION SEE EQUIPMENT SCHEDULE. FOR EXHAUST DUCT CONNECTION(S) - SEE FLOOR PLANS.
2. ALL HOODS SHALL BE 6'-6" [2m] ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.
3. HOODS OVER 6'-0" [1.9m] LONG WITH 2 OR MORE SECTIONS, SHALL HAVE INSIDE STANDING SEAM AND 1"x1/8" [25x6mm] STIFFENING BAR - SEE SECTION "B-B".
4. EXTEND SIDE & END SHEET TO SUIT HIGH CEILING WHEN REQUIRED.
5. DETAIL SHOWS HOOD IN OPEN SPACE. WHEN HOOD IS INSTALLED AT WALL OR PARTITION SECURE TO WALL OR PARTITION WITH EXPANSION BOLTS.
6. PROVIDE 1" DRAIN CONNECTION. PIPE TO FLOOR DRAIN. COORDINATE CONNECTION SIDE REQUIREMENTS WITH ACTUAL EQUIPMENT LAYOUT AND FLOOR DRAIN LOCATION.
7. CONDENSATE GUTTER. SLOPE TOWARDS DRAIN CONNECTION.

CANOPY HOOD TYPE "A"



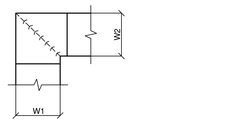
FLEXIBLE AIR DUCT CONNECTOR



NOTES:

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

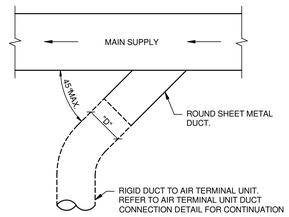
DUCTWORK RADIUS ELBOWS



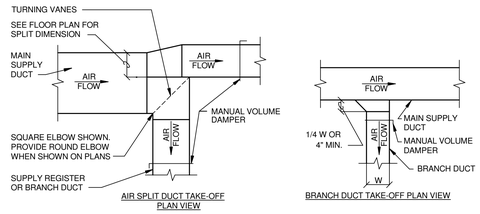
NOTES:

1. ALL VANE ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE THICKNESS VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE THICKNESS VANES SHALL HAVE A 2" RADIUS, 1 1/2" MAXIMUM SPACE BETWEEN VANES AND A 3/4" TRAILING EDGE.
4. WHEN W EQUALS W2 AND W1 IS GREATER THAN 20", VANES SHALL BE DOUBLE VANE TYPE.

DUCTWORK SQUARE VANE ELBOWS

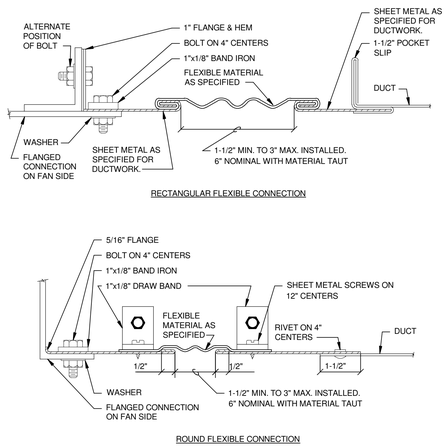


SUPPLY DUCT TAKEOFF - AIR TERMINAL UNITS

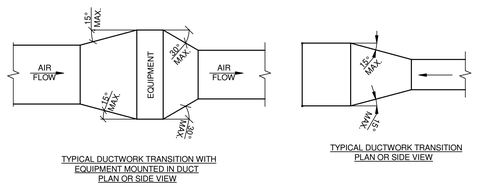


THE BRANCH DUCT TAKE-OFF MAY BE USED FOR UP TO 15% OF THE MAIN DUCT CFM ANYTIME, AND UP TO 40% WHEN THE MAIN DUCT VELOCITY IS 1000 FPM OR LESS. THE AIR SPLIT DUCT TAKE-OFF SHALL BE USED IN ALL OTHER CASES

SUPPLY DUCTWORK TAKE-OFFS

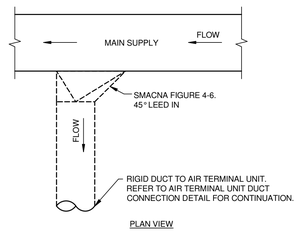


FLEXIBLE DUCT CONNECTIONS

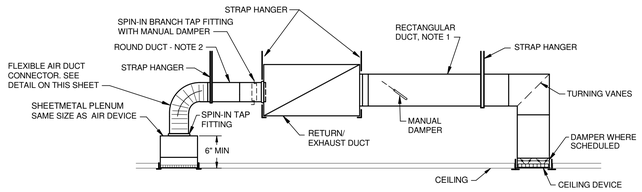


NOTE:
UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

DUCTWORK TRANSITIONS



ALTERNATE SUPPLY DUCT TAKEOFF - AIR TERMINAL UNITS



NOTES:

1 BRANCH DUCT TAKE-OFF WITH MANUAL DAMPER.

2 BRANCH DUCT SIZES, UNLESS NOTED ON PLANS ARE TO BE SIZED AS FOLLOWS:
100 CFM AND LESS - 6" DIA.
101 CFM TO 250 CFM - 8" DIA.
251 CFM TO 400 CFM - 10" DIA.
401 CFM TO 700 CFM - 12" DIA.

RETURN OR EXHAUST GRILLE/REGISTER CONNECTION

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: DETAILS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

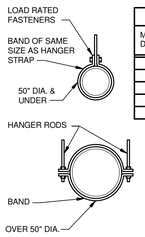
Date: 09/29/2011 REVISED AUGUST 17, 2012 | Checked: DLE | Drawn: PCW

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: H4

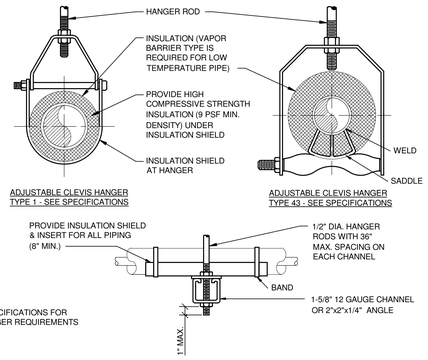
Office of Construction and Facilities Management
Department of Veterans Affairs



HANGER STRAPS OR RODS			
MAX. DUCT DIA. - IN.	QUANTITY/SIZE IN.	MAX. LOAD LBS.	MAX. SPACING IN.
26	ONE 1 x 22 GA. STRAP	260	144
36	ONE 1 x 18 GA. STRAP	420	144
50	ONE 1 x 16 GA. STRAP	700	144
60	TWO 3/8 DIA. RODS	1320	144
84	TWO 1/2 DIA. RODS	2500	144

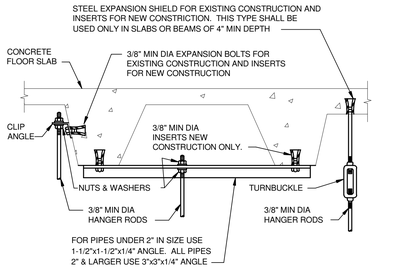
NOTE:
TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

ROUND DUCT HANGERS

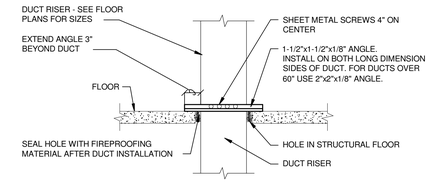


MAXIMUM PIPE/TUBING SUPPORT SPACING																		
NOM. SIZE	IN.	THRU 3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24
PIPE	FT.	7	7	7	9	10	11	12	14	16	17	19	22	23	25	27	28	30	32
TUBING	FT.	5 FT	6	7	8	8	9	10	12	13	14	16	-	-	-	-	-	-	-
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.																			

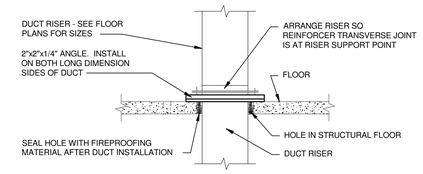
PIPE HANGERS



SECURING HANGER RODS IN CONCRETE



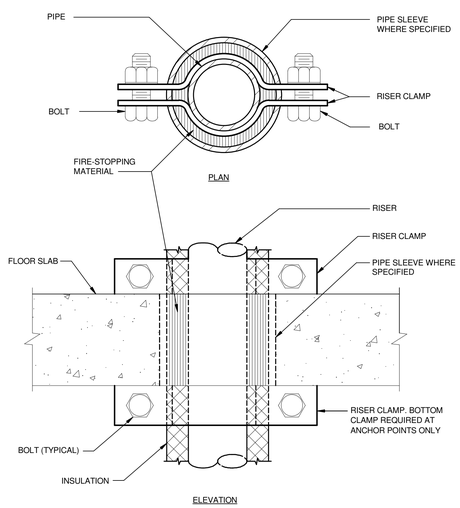
0.5 INCH WG TO 2 INCHES WG (LOW PRESSURE) DUCT RISER SUPPORT



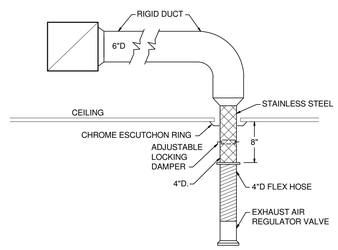
2 INCHES WG TO 4 INCHES WG (HIGH AND MEDIUM PRESSURE) DUCT RISER SUPPORT

NOTE:
ALL DUCT WORK RISERS WHICH ARE RUN EXPOSED, SUCH AS THRU ATTIC FLOORS AND MECHANICAL ROOM FLOORS SHALL BE PROVIDED WITH A 3" HIGH CONCRETE CURB AROUND OPENING FOR DUCT.

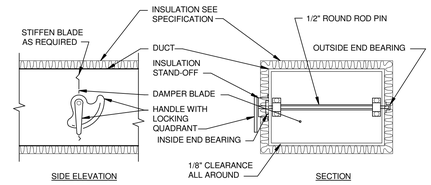
DUCT RISER SUPPORTS



SUPPORT/ANCHOR FOR PIPE RISERS



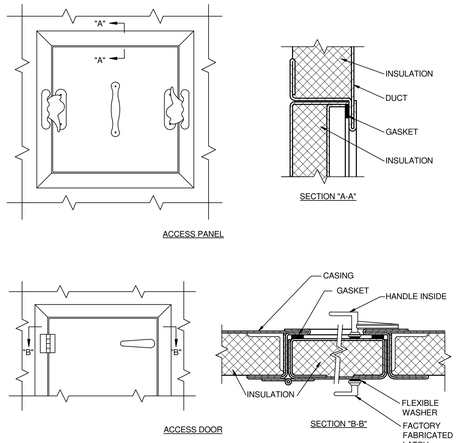
CAGE RACK CONNECTION DETAIL



NOTES:

1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

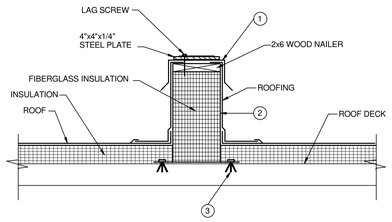
VOLUME DAMPER DETAIL



NOTES:

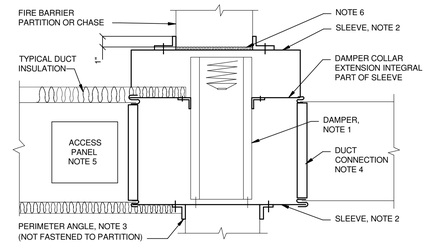
1. LATCHES SHALL BE OF THE WEDGE TYPE TO CLOSE DOORS TIGHTLY.
2. HINGES ON THE ACCESS DOORS SHALL HAVE NON-CORROSIVE PINS.
3. SEE SMACNA 2005, FIGURE 9-15

ACCESS PANEL AND DOOR DETAIL



1. 18 GAUGE GALVANIZED STEEL COUNTER-FLASHING.
2. WELDED 14 GAUGE EQUIPMENT SUPPORT CURB, MEETING ASTM A-446, 525, 526 AND 527 REQUIREMENTS, WITH WELDED CORNERS WITH SEAMS JOINED BY CONTINUOUS WELDS. CURB SHALL BE INTERNALLY REINFORCED WITH BULKHEADS AND SPREADERS, 24" ON CENTER TO MEET LOAD RATING OF EQUIPMENT. CURB TO EXTEND 6" BEYOND EQUIPMENT. REFER TO FLOOR PLANS FOR HEIGHT.
3. SECURE CURB TO ROOF WITH EXPANSION BOLTS (CONCRETE ROOF) OR RUST RESISTANT BOLTS (METAL DECK AND BAR JOIST ROOF), 12" O.C.

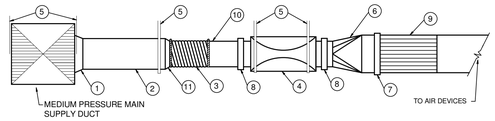
EQUIPMENT/DUCT SUPPORT ROOF CURB



NOTES:

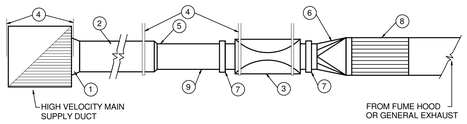
1. A VERTICAL DAMPER IS SHOWN. HORIZONTAL DAMPER INSTALLATION, IS SIMILAR. FOLLOW DAMPER MANUFACTURER'S INSTRUCTIONS, INCLUDING FASTENER OPTIONS AND GAGES FOR SLEEVE AND PERIMETER ANGLES. FIRE DAMPERS MUST BE INSTALLED IN THE PARTITION OR FLOOR AND NOT OUTSIDE THE PENETRATION.
2. GALVANIZED SLEEVE: GAGE NOT LESS THAN CONNECTING DUCT. FASTEN SLEEVE TO DAMPER FRAME AND TO PERIMETER ANGLES.
3. PERIMETER ANGLES: GALVANIZED STEEL, NOT LESS THAN 1-1/2"x1-1/2" , 14 GAGE, TO PROVIDE 1" MINIMUM OVERLAP OF OPENING ON ALL 4 SIDES.
4. BREAKAWAY DUCT CONNECTION: CONTRACTOR'S OPTION OF TYPES SHOWN IN SMACNA.
5. ACCESS PANELS: SIZE AND LOCATION TO PERMIT SERVICING THE FUSIBLE LINK OR LINKS.
6. PROVIDE 1/4" TO 1/2" CLEARANCE ON HEIGHT AND WIDTH. IN ORDER TO MAINTAIN U.L. RATING FOR FIRE DAMPER, DO NOT FILL THIS OPEN SPACE WITH FIRESTOP MATERIAL.
7. ALL DUCT WORK RISERS WHICH ARE RUN EXPOSED, SUCH AS THRU ATTIC FLOORS AND MECHANICAL ROOM FLOORS, SHALL BE PROVIDED WITH 3" HIGH CONCRETE CURB AROUND OPENING FOR DUCT.

SECTION THRU FIRE DAMPER INSTALLATION



1. CONICAL FITTING IF ROUND. REFER TO AIR TERMINAL UNIT DUCT TAKEOFF DETAIL.
2. ROUND MEDIUM PRESSURE SHEET METAL BRANCH DUCT, SAME SIZE AS AIR CONTROL VALVE INLET SIZE UNLESS NOTED OTHERWISE.
3. INSULATED FLEXIBLE DUCT. 3 FT. MAXIMUM LENGTH. STRETCH FLEXIBLE DUCT TO 90% OF FULLY EXTENDED LENGTH. A FLEXIBLE AIR DUCT CONNECTOR IS NOT MANDATORY FOR INLET TO THIS BOX, BUT ALLOWED TO ACCOMMODATE MINOR OFFSETS.
4. SUPPLY AIR CONTROL VALVE. EXTERNALLY INSULATE TO PREVENT SWEATING
5. STRAP HANGERS FOR DUCT AND UNIT. ATTACH TO STRUCTURE.
6. TRANSITION.
7. HOT WATER REHEAT COIL. REFER TO REHEAT COIL PIPING DETAIL. INSULATE COIL. PROVIDE DUCT ACCESS DOOR UPSTREAM OF COIL.
8. 6" WIDE 22 GA DRAW BAND WITH 5/16" TH X 3/4" WIDE DUCTMATE DM 440 GASKET TAPE (BUTYL RUBBER TAPE) INSTALLED PER VALVE MANUFACTURER'S INSTRUCTIONS.
9. SOUND NEUTRALIZER OR ATTENUATOR
10. RIGID STRAIGHT AIR CONTROL VALVE INLET LENGTH SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF INLET SO AS TO ACHIEVE ACCURATE AIRFLOW SENSOR READINGS.
11. TRANSITION WHEN REQUIRED.

SUPPLY AIR CONTROL VALVE DUCT CONNECTION



1. CONICAL FITTING IF ROUND. REFER TO AIR TERMINAL UNIT DUCT TAKEOFF DETAIL.
2. ROUND MEDIUM PRESSURE SHEET METAL BRANCH DUCT, SAME SIZE AS AIR CONTROL VALVE INLET SIZE UNLESS NOTED OTHERWISE.
3. EXHAUST AIR CONTROL VALVE.
4. STRAP HANGERS FOR DUCT AND UNIT. ATTACH TO STRUCTURE.
5. TRANSITION WHEN REQUIRED.
6. TRANSITION.
7. 6" WIDE 22 GA DRAW BAND WITH 5/16" TH X 3/4" WIDE DUCTMATE DM 440 GASKET TAPE (BUTYL RUBBER TAPE) INSTALLED PER VALVE MANUFACTURER'S INSTRUCTIONS.
8. SOUND NEUTRALIZER OR ATTENUATOR
9. RIGID STRAIGHT AIR CONTROL VALVE INLET LENGTH SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF INLET SO AS TO ACHIEVE ACCURATE AIRFLOW SENSOR READINGS.

EXHAUST AIR CONTROL VALVE DUCT CONNECTION

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
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45402-2130
937 461 3290 PHONE
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Drawn: PCW

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

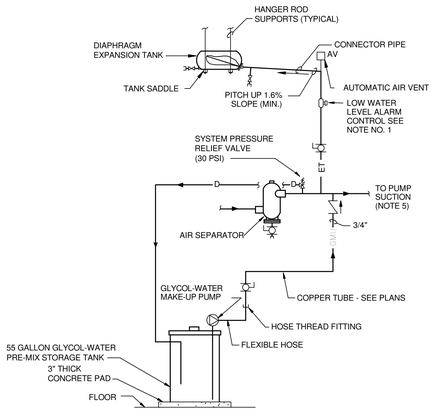
Building Number: 14

Drawing Number: H5

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs



NOTES:
1. PROVIDE LOW WATER LEVEL ALARM. PROVIDE A LOW WATER LEVEL INDICATOR LIGHT AT THE NEAREST LTCP AND ECC. RELIEF VALVE DRAIN SHALL RETURN TO TANK AS SHOWN ON THIS DETAIL.

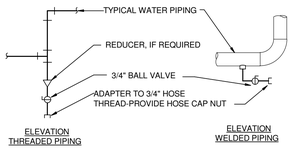
2. MAKE-UP PIPING SYSTEM DOES NOT REQUIRE INSULATION.

3. OPERATE PUMP MANUALLY AS REQUIRED TO FILL.

4. REFER TO SPECIFICATION SECTION 23 72 00 FOR DETAILED SYSTEM REQUIREMENTS.

5. REFER TO INLINE PUMP PIPING DETAIL ON THIS SHEET.

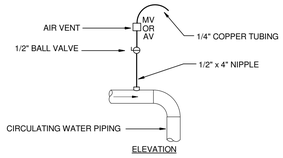
INDIRECT GLYCOL MAKE-UP SYSTEM



TYPICAL CHILLED AND HOT WATER PIPING DRAIN VALVE CONNECTIONS

NOTES:
1. DRAIN ALL LOW POINTS AS INDICATED ABOVE.

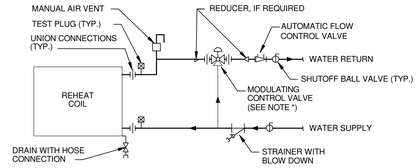
2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS, LOCATE DRAIN AT BOTTOM OF SCALE POCKET.



TYPICAL MANUAL AIR VENT

NOTES:
1. VENT ALL HIGH POINTS AS INDICATED ABOVE.
2. IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO NEAREST DRAIN.

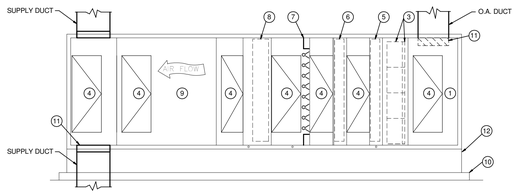
DRAIN VALVE AND AIR VENT CONNECTIONS (HYDRONIC SYSTEMS)



NOTE: THIS DETAIL APPLIES TO VAV/CV REHEAT UNITS AND UNIT HEATERS.

* REFER TO UNIT HEATER AND AIR TERMINAL UNIT SCHEDULES ON SHEET H3 FOR VALVE TYPE (2-WAY OR 3-WAY)

UNIT HEATER & TERMINAL UNIT WATER COILS - PIPING CONNECTIONS



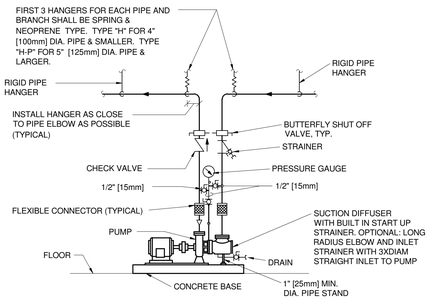
NOTE: REFER TO FLOOR PLANS FOR DOOR SWING AND PIPING HAND OF EACH UNIT.

AIR HANDLING UNIT 14-AHU1 SECTION

SCALE: NONE

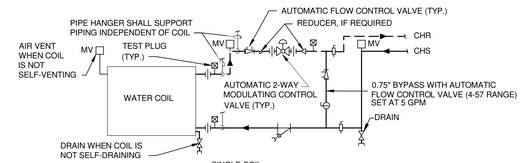
AHU SECTION NOTES

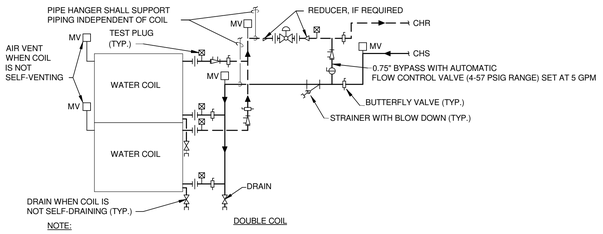
1. INLET AIR PLENUM.
2. DISCHARGE AIR PLENUM.
3. PRE AND FINAL FILTERS.
4. ACCESS SECTION WITH DOOR.
5. HEAT RECOVERY COIL.
6. PREHEAT COIL.
7. HUMIDIFIER WITH BLANK OFF PANEL.
8. COOLING COIL.
9. SUPPLY FAN.
10. 4" HIGH CONCRETE HOUSEKEEPING PAD.
11. PROVIDE SAFETY GRATE OVER OPENING.
12. 18" HIGH ANGLE FRAME OR COMBINATION BASE RAIL WITH ANGLE FRAME.



NOTES:
SEE SPECIFICATION SECTION "PUMPS" FOR Y STRAINER OPTION

SINGLE SUCTION FLOOR-MOUNTED PUMPS - CONNECTIONS WITH FLEXIBLE CONNECTORS





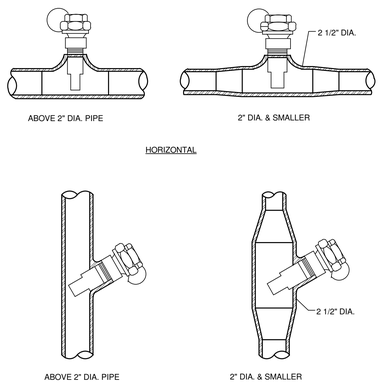
NOTE:

1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATORS THE FIRST 2 HANGERS FOR EACH PIPE SHALL BE SPRING & NEOPRENE TYPE. TYPE "H" FOR 4" DIA. PIPE & SMALLER. TYPE "H-P" FOR 5" DIA. PIPE & LARGER.

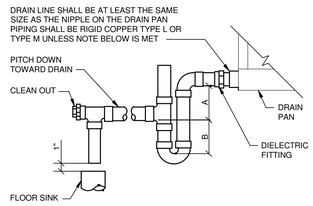
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALVES, OR EQUIPMENT.

3. THE FLOW ELEMENT MAY BE INSTALLED IN THE SUPPLY PIPING IF THE REQUIRED MINIMUM UPSTREAM AND DOWNSTREAM DIMENSIONS CANNOT BE OBTAINED IN THE RETURN PIPING.

CHILLED WATER COILS - PIPING CONNECTIONS



INSTALLATION OF THERMOMETER WELLS

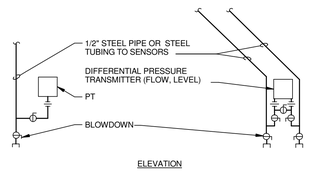


NOTE: 1. CPVC PIPE MAY BE USED ONLY IF APPROVED BY LOCAL VA AND IS INDOORS AND DOES NOT PASS THROUGH RATED BARRIERS.
2. DIELECTRIC FITTING TO BE USED WHEN TWO DISSIMILAR METALS ARE TO BE CONNECTED.

UNIT TYPE	A	B
DRAW THRU	2" PLUS X	X
BLOW THRU	1" MINIMUM	2X

WHERE X = STATIC PRESSURE IN PAN

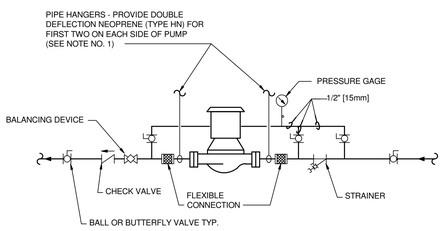
AIR HANDLING UNIT DRAIN TRAP DETAIL



NOTES:

1. INSTALLATION OF SENSORS AND TRANSMITTERS SHALL CONFORM TO RECOMMENDATIONS OF MANUFACTURERS OF TRANSMITTERS.

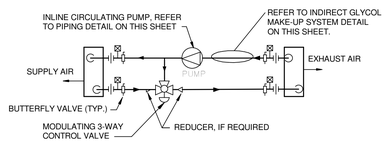
PRESSURE TRANSMITTER INSTALLATION



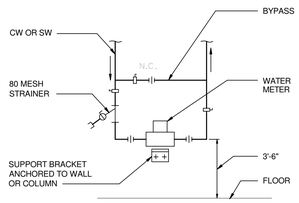
NOTES:

1. SUPPORT PUMP FROM PIPING ONLY. DO NOT SUPPORT PUMP FROM MOTOR.

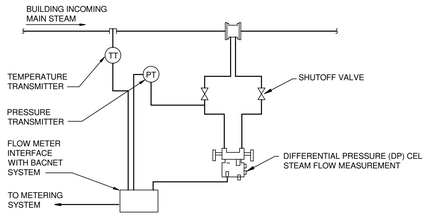
IN-LINE PUMPS - CONNECTIONS



RUN AROUND HEAT RECOVERY COIL DETAIL



WATER METER INSTALLATION



NOTE:

1. MAINTAIN UPSTREAM AND DOWN STREAM DISTANCES RECOMMENDED BY METER MANUFACTURERS

STEAM METER DETAIL

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
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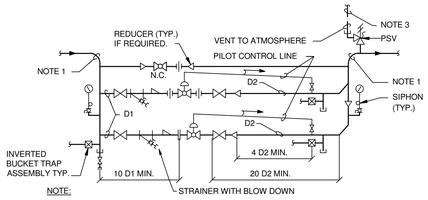
Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: H6

Office of Construction and Facilities Management

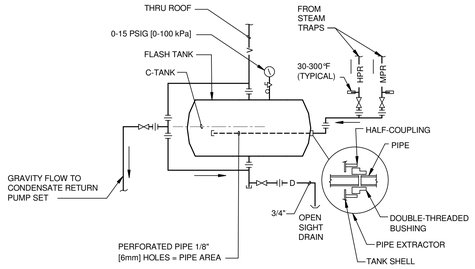
Department of Veterans Affairs



NOTE:

1. SEE FLOOR PLANS FOR PIPE SIZES.
2. SEE EQUIPMENT SCHEDULES FOR VALVE DATA AND PIPE SIZES D1 AND D2. INSTALL VALVES AS RECOMMENDED BY MANUFACTURER.
3. MAKE BYPASS VALVE DISCHARGE PIPE THE SAME SIZE AS D2 FOR THE LARGEST PRV.
4. PROVIDE NECESSARY UNIONS FOR THE REMOVAL OF VALVE WITH SCREWED CONNECTIONS.

STEAM PRESSURE REDUCING STATION DOUBLE VALVE (1/3 AND 2/3)

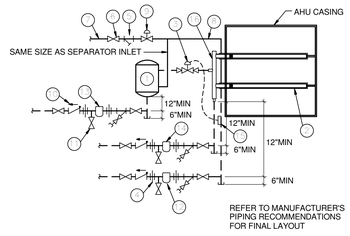


STEAM PRESSURE PSIG [kPa] NOTE 1	TANK AREA SQ. FT.[SQ. M] NOTE 2
150 [1034]	3.71 [0.35]
125 [862]	3.40 [0.32]
110 [758]	3.15 [0.29]
100 [689]	3.00 [0.28]
60 [414]	2.23 [0.21]
30 [207]	1.34 [0.13]

NOTES

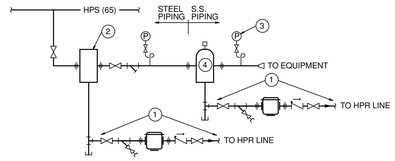
1. PRESSURE UPSTREAM OF STEAM TRAP.
2. LENGTH x DIAMETER AT CENTER OF TANK PER THOUSAND POUNDS OF CONDENSATE. TANK AT ATMOSPHERIC PRESSURE.

HORIZONTAL FLASH TANK



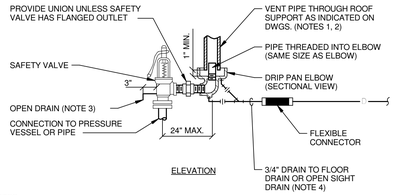
1. SEPARATOR. FURNISHED BY HUMIDIFIER MANUFACTURER.
2. STEAM JACKETED HUMIDIFIER DISPERSION TUBES. FURNISHED BY HUMIDIFIER MANUFACTURER. TYPE, QTY, SIZE AND SPACING PER MANUFACTURER.
3. MODULATING HUMIDIFIER CONTROL VALVE. FURNISHED BY HUMIDIFIER MANUFACTURER.
4. UNION.
5. STRAINER. TYPICALLY FURNISHED WITH HUMIDIFIER.
6. SHUT-OFF GATE VALVE.
7. STEAM SUPPLY PIPE.
8. STEAM JACKET PIPING.
9. LINE SIZE AUTOMATIC TWO-POSITION ISOLATION VALVE BY ATC. REFER TO SHEET H11 FOR CONTROL SEQUENCE.
10. CHECK VALVE.
11. 0.375" TEST CONNECTION.
12. STEAM JACKET TRAP. INVERTED BUCKET TYPE. SOME MANUFACTURERS PROVIDE WITH HUMIDIFIER.
13. SEPARATOR TRAP. INVERTED BUCKET TYPE. SOME MANUFACTURERS PROVIDE WITH HUMIDIFIER.
14. HEADER TRAP. INVERTED BUCKET TYPE. SOME MANUFACTURERS PROVIDE WITH HUMIDIFIER.
15. TEMPERATURE SWITCH. FURNISHED BY HUMIDIFIER MANUFACTURER.
16. HEADER. FACTORY OR FIELD FABRICATED. COORDINATE WITH FIELD CONDITIONS, QTY OF TUBES, ROUND VS RECTANGULAR DUCTWORK, ETC.

AHU MOUNTED STEAM HUMIDIFIER



1. HIGH PRESSURE RETURN CONNECTION - FULL SIZE DIRT LEG, VALVE, STRAINER, UNION, SARCO UTDS2 TRAP, UNION AND VALVE. ALL 0.75" SIZE.
2. MOISTURE SEPARATOR.
3. PRESSURE GAUGE.
4. 316 STAINLESS STEEL, USDA APPROVED STEAM FILTER SIZE PER SPECIFIC EQUIPMENT REQUIREMENTS, STAINLESS STEEL THERMODYNAMIC TRAP, SARCO MST21, TO DRAIN, AUTOMATIC AIRVENT. FILTER SIMILAR TO SARCO CSF26.

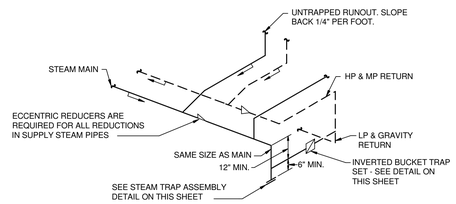
STEAM EQUIPMENT CONNECTION DETAIL



NOTES:

1. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, SIZE THE VENT PIPE SO THAT STEAM IS NOT BLOWN OUT AT THE VENT PIPE ENTRANCE. UTILIZE THE CALCULATION METHOD CONTAINED IN ANSI B31.1, POWER PIPING CODE, APPENDIX II.
2. VENT PIPE SHALL TERMINATE 6' MIN. ABOVE FINISHED ROOF.
3. DISCHARGE OF DRAIN MUST BE DIRECTED AWAY FROM PLATFORMS OR OTHER AREAS WHICH PERSONNEL MAY OCCUPY.
4. DO NOT CONNECT ANY OTHER DRAIN TO THE DRIP PAN ELBOW DRAIN PIPE.

STEAM SAFETY VALVE



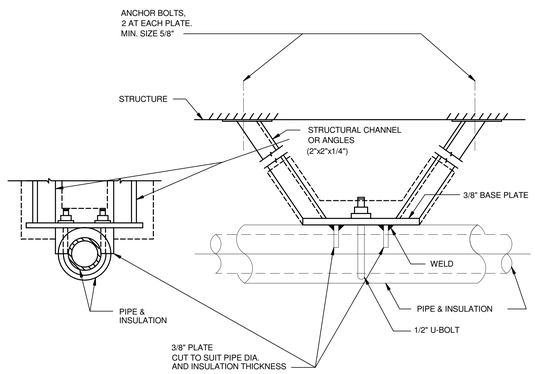
NOTES :

1 SLOPE MAINS AND BRANCHES DOWN 1" PER 40 FEET IN DIRECTION OF FLOW UNLESS SHOWN OTHERWISE.

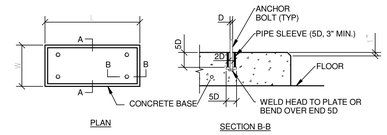
2 LIMIT UNTRAPPED, COUNTERFLOW, RUNOUTS TO 10 FEET MAXIMUM.

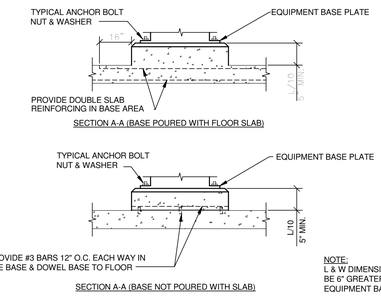
3 END OF MAIN SHOWN, LOW POINT IN STEAM MAIN SIMILAR.

TYPICAL STEAM LINE & DRIP PIPING



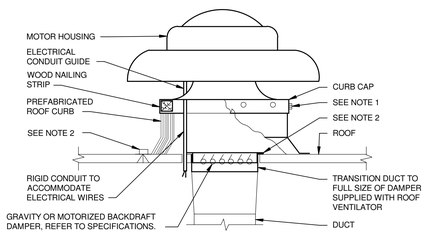
HORIZONTAL PIPE ANCHOR DETAIL





NOTE:
L & W DIMENSIONS SHALL BE 6" GREATER THAN THE EQUIPMENT BASE PLATE.

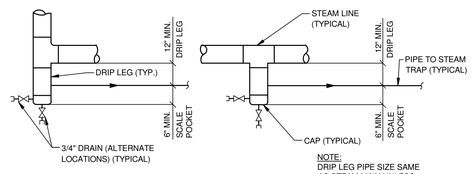
CONCRETE EQUIPMENT BASES



NOTES:

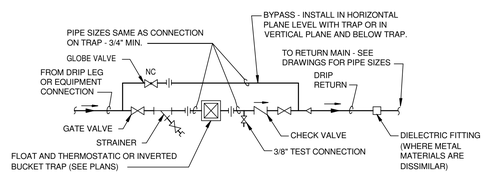
1. SECURE CURB CAP TO WOOD NAILING STRIP WITH 3/8" CADMIUM PLATED LAG BOLTS NOT OVER 12" ON CENTER.
2. SECURE ROOF CURB, DUCTWORK AND DAMPER TO ROOF WITH EXPANSION BOLTS (CONCRETE ROOF) OR RUST RESISTANT BOLTS (METAL DECK AND BAR JOIST ROOF).
3. SIZE OF DUCT THROUGH ROOF SHALL NOT BE LARGER THAN CURB SUPPLIED WITH ROOF VENTILATOR.
4. RUN ELECTRICAL LINES THROUGH CLEARANCE HOLE PROVIDED IN GRAVITY DAMPER, THEN THROUGH VENTILATOR ELECTRICAL CONDUIT GUIDE.

POWER ROOF VENTILATOR



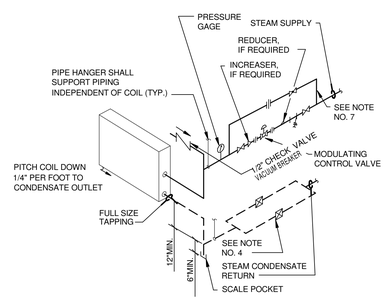
NOTE:
DRIP LEG PIPE SIZE SAME AS STEAM MAIN UNLESS OTHERWISE NOTED.

STEAM LINE DRIP POCKET



STEAM TRAP ASSEMBLY

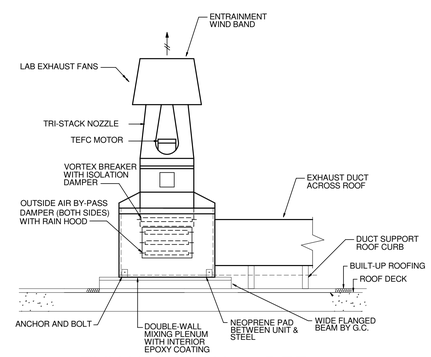
STEAM LINE DRIP POCKET
STEAM TRAP ASSEMBLY



NOTES:

1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATOR UNITS, THE RUNOUT PIPING FOR CONNECTIONS TO COIL SHALL BE INSTALLED WITH SWING JOINTS TO ALLOW FOR THE VIBRATION.
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALVES, OR EQUIPMENT.
3. TRAP EACH COIL SEPARATELY WHEN INSTALLED IN A BANK OF TWO OR MORE HIGH. ALSO PROVIDE SEPARATE VACUUM BREAKER FOR EACH COIL.
4. TWO TRAP ASSEMBLIES IN PARALLEL ARE SHOWN. TWO TRAPS REQUIRED WHEN CONDENSATE LOAD IS 5,000 LBS/HR [2400 KG/HR] OR GREATER.
5. SUPPLY & RETURN PIPES ARE SHOWN FROM SAME END. REHEAT COIL MAY HAVE SUPPLY & RETURN PIPES FROM OPPOSITE ENDS.
6. WHERE THE DISTANCE FROM THE INTAKE OF TRAP TO BOTTOM OF COIL IS RESTRICTED, FLOAT AND THERMOSTATIC TRAP CAPACITIES SHALL BE SELECTED ON A LOWER PRESSURE DROP SUITED TO THE DISTANCE BETWEEN BOTTOM OF COIL AND TRAP INLET.
7. PROVIDE FULL SIZE BYPASS WITH GLOBE VALVE.

STEAM COIL - PIPING CONNECTIONS



EXHAUST FAN 14-DEF1

1	Addendum #1	08/17/2012
Revisions		Date

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT NO.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO
JOHN A. BLACK
49341
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: DETAILS

Approved: Project Director

Project Title: BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011
REVISED AUGUST 17, 2012

Checked: DLE

Drawn: PCW

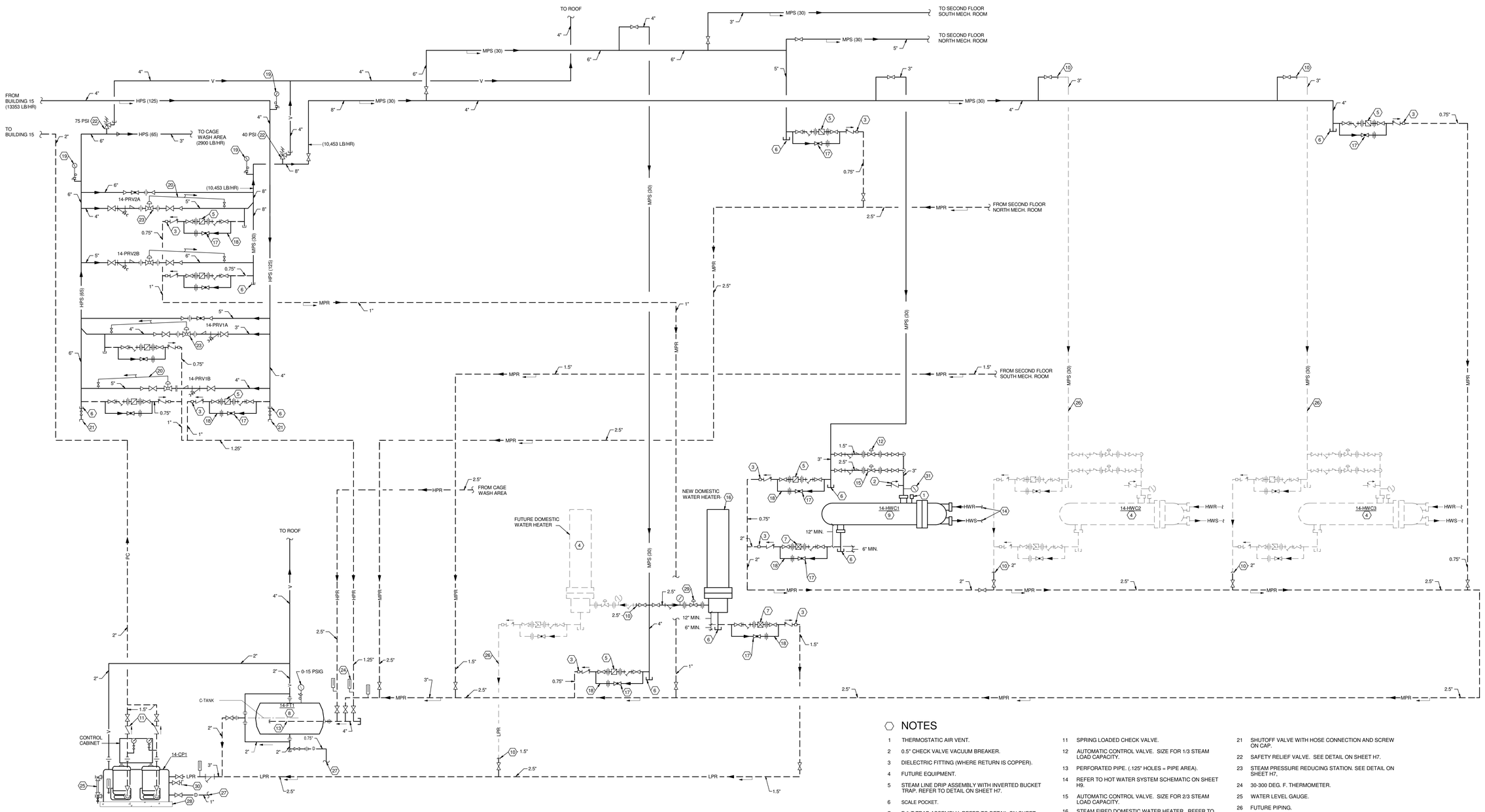
Project No.: VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

Drawing Number: H7

Dwg. of

Office of Construction and Facilities Management
Department of Veterans Affairs



STEAM SYSTEM SCHEMATIC

SCALE: NONE

NOTES

1. THERMOSTATIC AIR VENT.
2. 0.5" CHECK VALVE VACUUM BREAKER.
3. DIELECTRIC FITTING (WHERE RETURN IS COPPER).
4. FUTURE EQUIPMENT.
5. STEAM LINE DRIP ASSEMBLY WITH INVERTED BUCKET TRAP. REFER TO DETAIL ON SHEET H7.
6. SCALE POCKET.
7. F & T TRAP ASSEMBLY. REFER TO DETAIL ON SHEET H7.
8. PROVIDE AN ANGLE FRAME TO SUPPORT FLASH TANK AND PIPING OFF FLOOR.
9. PROVIDE SADDLE SUPPORTS AND ANGLE FRAME TO SUPPORT HEAT EXCHANGER OFF FLOOR. MOUNT BOTTOM OF HEAT EXCHANGER APPROXIMATELY 5'-0" ABOVE FLOOR TO ALLOW GRAVITY DRAINAGE TO FLASH TANK.
10. CAP PIPE FOR FUTURE EXTENSION.
11. SPRING LOADED CHECK VALVE.
12. AUTOMATIC CONTROL VALVE. SIZE FOR 1/3 STEAM LOAD CAPACITY.
13. PERFORATED PIPE. (.125" HOLES = PIPE AREA).
14. REFER TO HOT WATER SYSTEM SCHEMATIC ON SHEET H9.
15. AUTOMATIC CONTROL VALVE. SIZE FOR 2/3 STEAM LOAD CAPACITY.
16. STEAM FIRED DOMESTIC WATER HEATER. REFER TO PLUMBING DRAWINGS FOR TECHNICAL INFORMATION.
17. GLOBE VALVE.
18. INSTALL BYPASS IN HORIZONTAL PLANE LEVEL WITH TRAP OR VERTICAL PLANE AND BELOW TRAP. DO NOT BLOCK ACCESS FOR SERVICING TRAP.
19. PRESSURE GAUGE WITH SIPHON.
20. PILOT CONTROL LINE.
21. SHUTOFF VALVE WITH HOSE CONNECTION AND SCREW ON CAP.
22. SAFETY RELIEF VALVE. SEE DETAIL ON SHEET H7.
23. STEAM PRESSURE REDUCING STATION. SEE DETAIL ON SHEET H7.
24. 30-300 DEG. F. THERMOMETER.
25. WATER LEVEL GAUGE.
26. FUTURE PIPING.
27. EXTEND DRAIN PIPE TO FLOOR DRAIN.
28. 4" HIGH CONCRETE BASE.
29. AUTOMATIC CONTROL VALVE PROVIDED WITH WATER HEATER.
30. FLUSHING CONNECTION.
31. PRESSURE GAUGE.

Revisions		Date
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CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: STEAM SYSTEM SCHEMATIC

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: DLE

Drawn: PCW

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

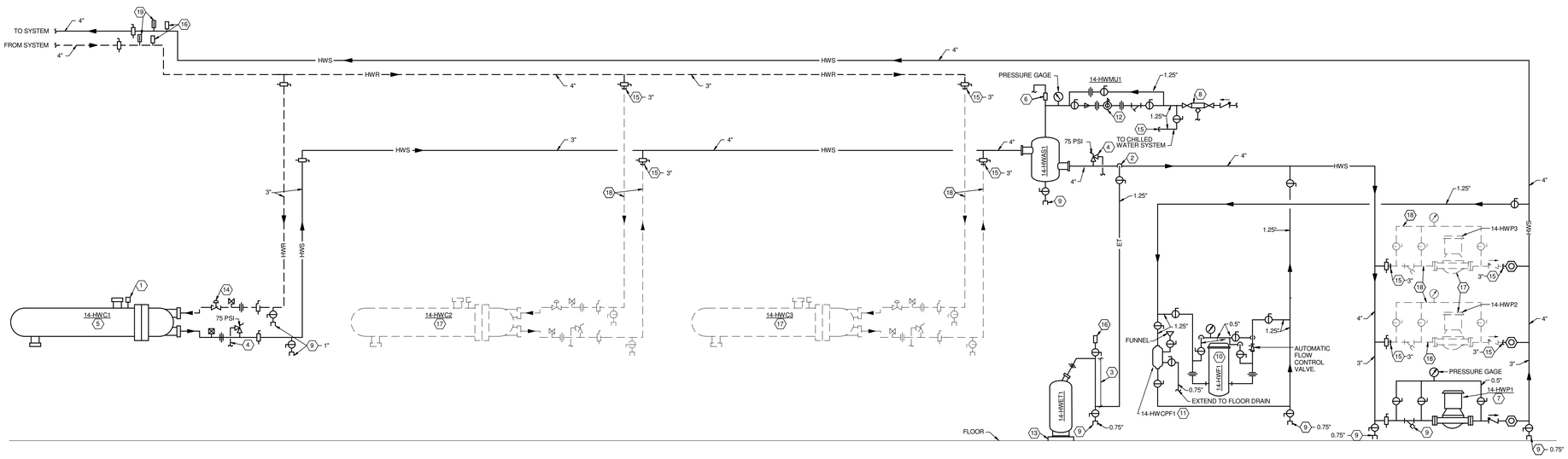
Building Number: 14

Drawing Number: H8

Dwg. of

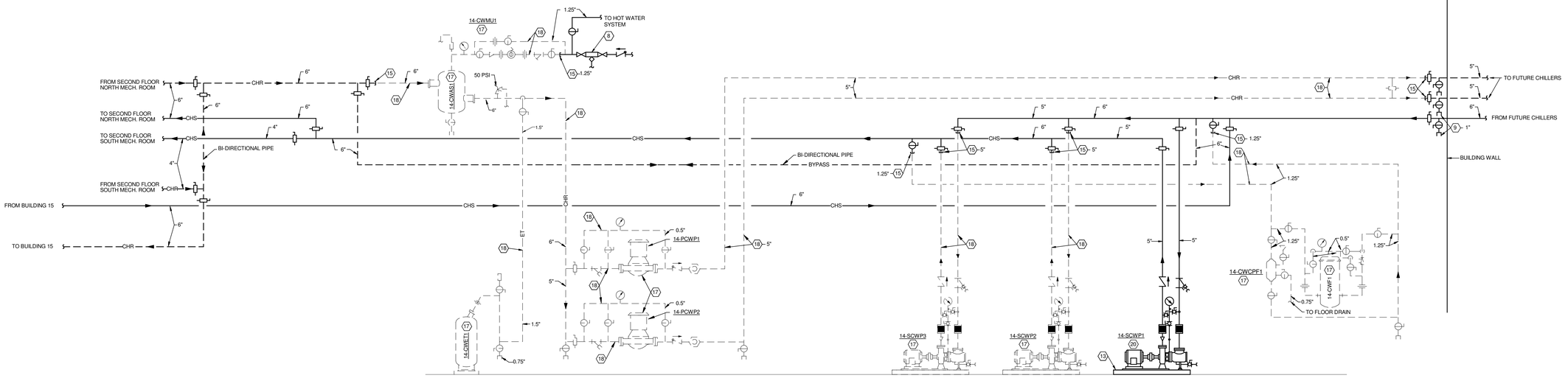
Office of Construction and Facilities Management

Department of Veterans Affairs



HOT WATER SYSTEM SCHEMATIC

SCALE: NONE



CHILLED WATER SYSTEM SCHEMATIC

SCALE: NONE

NOTES

1. THERMOSTATIC AIR VENT.
2. CONNECT TO SIDE OF MAIN TO PREVENT AIR OR DEBRIS FROM ENTERING PIPE TO TANK. TOP OR BOTTOM CONNECTION NOT PERMITTED.
3. PROVIDE 12" MINIMUM DROP ANTI-THERMOSYPHON LOOP TO PREVENT GRAVITY HEATING OF TANK.
4. EXTEND SAFETY RELIEF VALVE DISCHARGE TO FLOOR DRAIN.
5. PROVIDE SADDLE SUPPORTS AND ANGLE FRAME TO SUPPORT HEAT EXCHANGER OFF FLOOR. MOUNT BOTTOM OF HEAT EXCHANGER APPROXIMATELY 5'-0" ABOVE FLOOR TO ALLOW GRAVITY DRAINAGE TO FLASH TANK.
6. HIGH CAPACITY AUTO AIR VENT. EXTEND DISCHARGE TO FLOOR DRAIN.
7. PROVIDE AN ANGLE FRAME TO SUPPORT PUMPS AND PIPING OFF FLOOR OR WALL.
8. 1" REDUCED PRESSURE TYPE BACKFLOW PREVENTER. REFER TO PLUMBING DRAWINGS. EXTEND DRAIN PIPE TO FLOOR DRAIN.
9. PROVIDE HOSE CONNECTION AND SCREW-ON CAP.
10. PROVIDE ROOM FOR INSULATING FILTER AND PIPING.
11. INSTALL TOP OF CHEMICAL POT FEEDER TANK NO MORE THAN 3'-0" ABOVE FLOOR.
12. PRESSURE REDUCING VALVE SET AT 50 PSI.
13. 4" HIGH CONCRETE BASE.
14. AUTOMATIC ISOLATION CONTROL VALVE.
15. CAP PIPE FOR FUTURE EXTENSION.
16. MANUAL AIR VENT.
17. FUTURE EQUIPMENT.
18. FUTURE PIPING.
19. THERMOMETER.
20. SEE PUMP DETAIL ON SHEET H6 FOR VALVING AND ACCESSORIES.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: HOT AND CHILLED WATER SYSTEM SCHEMATICS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: DLE

Drawn: PCW

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

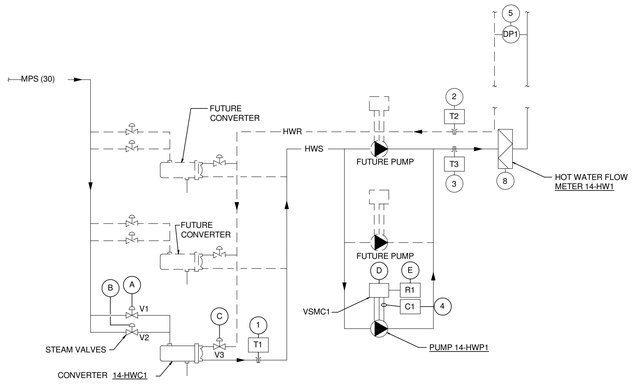
Building Number: 14

Drawing Number: H9

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs



HOT WATER CONVERTER AND CIRCULATING PUMP

HOT WATER CONVERTER AND PUMP CONTROL SEQUENCE

1 GENERAL

1.1 SEQUENCE SHALL HAVE THE ABILITY TO BE INITIATED BY THE DCP OR REMOTELY AT THE ECC. CONVERTER AND PUMP ARE SIZED FOR 50% OF THE FINAL REQUIRED LOAD.

2 HOT WATER CIRCULATING PUMP

2.1 HOT WATER PUMP 14-HWP1 SHALL RUN CONTINUOUSLY IN CONJUNCITON WITH HOT WATER CONVERTER 14-HWC1 TO PROVIDE YEAR ROUND HOT WATER FOR SPACE TEMPERATURE CONTROL.

2.2 PUMP SHALL INCLUDE A CURRENT SENSING RELAY TO INDICATE PUMP STATUS.

2.3 PROVIDE DIFFERENTIAL PRESSURE SENSOR BETWEEN HOT WATER SUPPLY AND RETURN PIPING MAINS WHERE INDICATED ON THE SECOND FLOOR PLAN TO MODULATE HOT WATER PUMP VARIABLE SPEED MOTOR CONTROLLER TO MAINTAIN SETPOINT.

3 HOT WATER CONVERTER

3.1 TWO MODULATING STEAM CONTROL VALVES V1 & V2 (SIZED FOR 1/3 AND 2/3 LOAD) ALONG WITH HOT WATER ISOLATION CONTROL VALVE V3 SHALL BE FURNISHED FOR THE HOT WATER HEATING SYSTEM. STEAM CONTROL VALVES SHALL FAIL CLOSED. HOT WATER ISOLATION VALVE SHALL FAIL OPEN. VALVES V1 AND V2 (SMALLER VALVE TO BE THE LEAD VALVE) SHALL BE CONTROLLED FROM OUTDOOR AIR TEMPERATURE AND COMMON LEAVING WATER TEMPERATURE SENSOR T3 TO DELIVER SUPPLY WATER VARYING AS FOLLOWS:

OUTDOOR AIR TEMP	HOT WATER TEMP
0 DEG. F	180 DEG. F
70 DEG. F	95 DEG. F.

3.2 CONTROL SEQUENCE SHALL BE AS FOLLOWS:

MODULATE VALVE V1 IN RESPONSE TO DCP. ONCE VALVE IS FULL OPEN, MODULATE VALVE V2 OPEN AND CLOSE VALVE V1. ONCE VALVE V2 IS FULL OPEN, AGAIN MODULATE VALVE V1 IN RESPONSE TO ADDITIONAL STEAM REQUIREMENT. REVERSE CONTROL SEQUENCE ON A DROP IN STEAM CONSUMPTION. ALL VALVES SHALL BE SEPARATE CONTROL POINTS OF THE DCP.

3.3 ISOLATION CONTROL VALVE V3 SHALL OPEN PRIOR TO HOT WATER PUMP 14-HWP1 STARTING, AND CLOSE WHEN PUMP IS OFF.

4 HOT WATER FLOW METERING

4.1 PROVIDE FLOW METERING OF THE HOT WATER SYSTEM. TRANSMIT INFORMATION TO THE DCP AND THE VA'S ENERGY MANAGEMENT SYSTEM (EMS) AND INTERNET METERING SYSTEM. COORDINATE EQUIPMENT AND INSTALLATION WITH COTR AND THE VA'S ENERGY ENGINEER FOR COMPATIBILITY WITH VA'S EXISTING EQUIPMENT AND SYSTEMS. SEE SHEET 14-H2 FOR LOCATION.

GENERAL NOTES (APPLIES TO ALL CONTROL SHEETS)

1 A COMPLETE SYSTEM OF AUTOMATIC TEMPERATURE CONTROLS SHALL BE INSTALLED UNDER THIS CONTRACT AS REQUIRED TO ACCOMPLISH THE SEQUENCE OF CONTROL FOR VARIOUS ITEMS OF EQUIPMENT AND SYSTEMS AS DESCRIBED HEREINAFTER. THE SYSTEM SHALL BE A DIRECT DIGITAL CONTROL SYSTEM UTILIZING ELECTRIC ACTUATION.

2 ELECTRICAL WORK INCLUDES A POWER SOURCE TO THE MOTOR STARTERS. ALL HVAC POWER SOURCES REQUIRED BEYOND THESE STARTERS OR BEYOND SOURCES EXPLICITLY SHOWN ON THE ELECTRICAL DRAWINGS, SHALL BE PROVIDED UNDER THE ATC WORK. THIS WORK SHALL INCLUDE BUT NOT BE LIMITED TO WIRING, CONDUIT, TRANSFORMERS, RELAYS AND FUSES.

3 BULB WELLS FOR TEMPERATURE SENSING AS INDICATED SHALL BE FURNISHED UNDER THE ATC WORK AND INSTALLED AS PART OF THE HVAC PIPING WORK. PIPING WORK SHALL INCLUDE PROPERLY SIZED WELDOLET OR THREADOLET FITTINGS PLACED AS DIRECTED BY THE CONTROL SYSTEM SUPPLIER

4 POINTS LIST IS SHOWN AS AN AID TO THE CONTRACTOR INDICATING THE MINUMUM POINTS REQUIRED FOR CONTROL AND MONITORING. ALL INPUT AND OUTPUT POINTS, AND THEIR REQUIRED INTERFACE AND ACCESSORY HARDWARE, SHALL BE PROVIDED FOR A COMPLETE AND FUNCTIONAL CONTROL SYSTEM. IF OR WHEN ADDITIONAL POINTS ARE REQUIRED TO ACCOMPLISH THE SEQUENCES OF CONTROL SPECIFIED, THESE POINTS, ALONG WITH ADDITIONAL DIRECT DIGITAL CONTROL PANEL(S) (IF REQUIRED), SHALL ALSO BE PROVIDED.

(SEQUENCES APPLY TO UNITS NUMBERED 2-1 THRU 2-8)

CVR CONTROL SEQUENCES (WITH OCCUPANCY SENSING)

1 CONSTANT VOLUME REHEAT TERMINAL CONTROL

1.1 DURING THE OCCUPIED MODE OF OPERATION, WHEN ROOM TEMPERATURE AT T1 IS BELOW SETPOINT, HOT WATER VALVE V1 SHALL MODULATE OPEN TO COIL TO MAINTAIN TEMPERATURE SETPOINT. BOX DAMPER D1 SHALL REMAIN AT CONSTANT MAXIMUM CFM.

1.2 EACH TERMINAL UNIT SHALL INCLUDE AN AIRFLOW SENSOR FOR CALCULATING CFM, AND A DISCHARGE AIR TEMPERATURE SENSOR.

1.3 EXTEND 24 VOLT POWER TO THE TERMINAL BOX CONTROLLER FROM THE ASSOCIATED AIR HANDLING UNIT DDC CONTROL PANEL.

1.4 ROOM SPACE TEMPERATURE SET POINT SHALL BE ADJUSTABLE FROM THE FRONT END COMPUTER INTERFACE.

1.5 OCCUPANCY SENSOR OS1 PROVIDED UNDER DIV. 26 SHALL DETERMINE OCCUPIED/UNOCCUPIED MODES OF OPERATION. TO INVOKE UNOCCUPIED SEQUENCE (1.6 BELOW), OCCUPANCY SENSORS FOR ALL SPACES ON A GIVEN TERMINAL UNIT ZONE MUST SATISFY THIS CONDITION. EXTEND LOW VOLTAGE WIRING FROM ALL APPLICABLE OCCUPANCY SENSOR(S) TO THE TERMINAL UNIT CONTROLLER.

1.6 DURING THE UNOCCUPIED MODE OF OPERATION, THE CONTROL DAMPER ACTUATOR D1 SHALL POSITION TO THE UNOCCUPIED AIRFLOW SETTING (REFER TO AIR TERMINAL UNIT SCHEDULE ON SHEET H3).

1.7 DURING THE UNOCCUPIED MODE OF OPERATION, WHEN THE ROOM TEMPERATURE AT T1 IS BELOW THE UNOCCUPIED HEATING SETPOINT (REFER TO HVAC DESIGN DATA SCHEDULE ON SHEET H2), THE CONTROL SHALL INDEX TO THE OCCUPIED HEATING MODE OF OPERATION. THE CONTROL SHALL REVERT TO UNOCCUPIED OPERATION (SEE 1.6 ABOVE) WHEN ROOM TEMPERATURE AT T1 RISES 2 DEGREES (ADJUSTABLE) ABOVE THE UNOCCUPIED HEATING SETPOINT.

1.8 DURING THE UNOCCUPIED MODE OF OPERATION, WHEN THE ROOM TEMPERATURE AT T1 IS ABOVE THE UNOCCUPIED COOLING SETPOINT (REFER TO HVAC DESIGN DATA SCHEDULE ON SHEET H2), THE CONTROL SHALL INDEX TO THE OCCUPIED COOLING MODE OF OPERATION. THE CONTROL SHALL REVERT TO UNOCCUPIED OPERATION (SEE 1.6 ABOVE) WHEN ROOM TEMPERATURE AT T1 REDUCES 2 DEGREES (ADJUSTABLE) BELOW THE UNOCCUPIED COOLING SETPOINT.

CVR CONTROL SEQUENCES (WITHOUT OCCUPANCY SENSING)

1 CONSTANT VOLUME REHEAT TERMINAL CONTROL

1.1 WHEN ROOM TEMPERATURE AT T1 IS BELOW SETPOINT, HOT WATER VALVE V1 SHALL MODULATE OPEN TO COIL TO MAINTAIN TEMPERATURE SETPOINT. BOX DAMPER D1 SHALL REMAIN AT CONSTANT MAXIMUM CFM.

1.2 EACH TERMINAL UNIT SHALL INCLUDE AN AIRFLOW SENSOR FOR CALCULATING CFM, AND A DISCHARGE AIR TEMPERATURE SENSOR.

1.3 EXTEND 24 VOLT POWER TO THE TERMINAL BOX CONTROLLER FROM THE ASSOCIATED AIR HANDLING UNIT DDC CONTROL PANEL.

1.4 ROOM SPACE TEMPERATURE SET POINT SHALL BE ADJUSTABLE FROM THE FRONT END COMPUTER INTERFACE.

1.5 COORDINATE AND ADJUST OCCUPANCY SCHEDULES AND TEMPERATURE RANGE WITH COTR.

VVR CONTROL SEQUENCES (WITHOUT OCCUPANCY SENSING)

1 VARIABLE VOLUME TERMINAL UNIT CONTROL

1.1 WHEN ROOM TEMPERATURE AT T1 IS BELOW SETPOINT, THE CONTROL DAMPER ACTUATOR D1 SHALL MODULATE THE DAMPER TO REDUCE AIRFLOW TO THE SUMMER MINIMUM SETTING. ON A FURTHER DROP IN ROOM TEMPERATURE AT T1, THE CONTROL DAMPER SHALL BE MODUALTED UPWARD TO THE WINTER MININUM AIRFLOW AND THE HOT WATER VALVE V1 SHALL MODULATE OPEN TO COIL TO MAINTAIN TEMPERATURE SETPOINT.

1.2 AS ROOM TEMPERATURE AT T1 IS ABOVE SETPOINT, HOT WATER VALVE V1 SHALL CLOSE. IF THE ROOM TEMPERATURE CONTINUES TO RISE ABOVE SETPOINT, DAMPER D1 SHALL MODULATE FROM SUMMER (COOLING) MINIMUM AIRFLOW TO MAXIMUM AIRFLOW TO MAINTAIN ROOM TEMPERATURE.

1.3 EACH TERMINAL UNIT SHALL INCLUDE AN AIRFLOW SENSOR FOR CALCULATING CFM, AND A DISCHARGE AIR TEMPERATURE SENSOR.

1.4 EXTEND 24 VOLT POWER TO THE TERMINAL BOX CONTROLLER FROM THE ASSOCIATED AIR HANDLING UNIT DDC CONTROL PANEL.

1.5 ROOM SPACE TEMPERATURE SET POINT SHALL BE ADJUSTABLE FROM THE FRONT END COMPUTER INTERFACE.

1.6 COORDINATE AND ADJUST OCCUPANCY SCHEDULES AND TEMPERATURE RANGE WITH COTR.

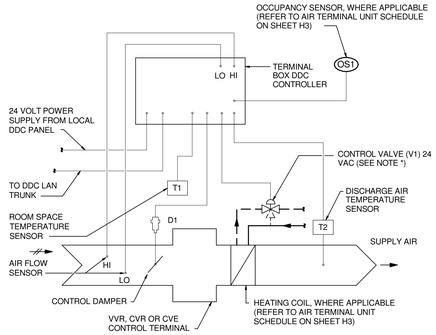
VVE CONTROL SEQUENCES

1 VARIABLE VOLUME EXHAUST TERMINAL CONTROL

1.1 TERMINAL UNIT DAMPER D1 SHALL MODULATE TO MAINTAIN THE SPECIFIED ROOM PRESSURE RELATIONSHIP, REGARDLESS OF PRESSURE IN THE DUCT SYSTEMS. COORDINATE SETUP AND AIR BALANCE WITH THE BALANCING CONTRACTOR.

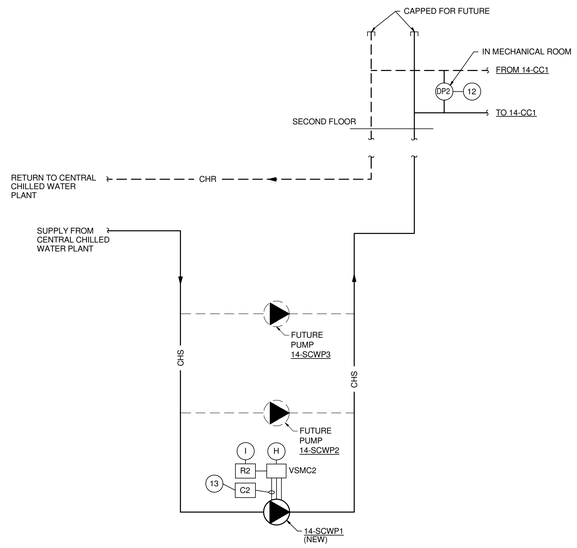
1.2 EACH TERMINAL UNIT SHALL INCLUDE AN AIRFLOW SENSOR FOR CALCULATING CFM.

1.3 EXTEND 24 VOLT POWER TO THE TERMINAL UNIT CONTROLLER FROM THE ASSOCIATED AIR HANDLING UNIT DDC CONTROL PANEL.



* REFER TO AIR TERMINAL UNIT SCHEDULE ON SHEET H3 FOR VALVE TYPE (2-WAY OR 3-WAY)

VVR, VVE, AND CVR TERMINAL CONTROLS

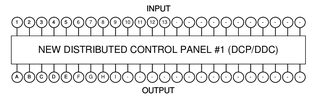


SECONDARY CHILLED WATER CIRCULATING PUMP

ENABLE THE SECONDARY CHILLED WATER CIRCULATING PUMP, 14-SCWP1, UPON A CALL FOR MECHANICAL COOLING. PUMP SHALL INCLUDE A CURRENT SENSING RELAY TO INDICATE PUMP STATUS. PROVIDE A DIFFERENTIAL PRESSURE SENSOR BETWEEN CHILLED WATER SUPPLY AND RETURN PIPING TO AND FROM 14-CC1. MODULATE SECONDARY CHILLED WATER CIRCULATING PUMP 14-SCWP1 VARIABLE SPEED MOTOR CONTROLLER TO MAINTAIN DIFFERENTIAL WATER PRESSURE AT SETPOINT. WHEN A CHILLED WATER SYSTEM PUMP IS ENABLED AND STATUS IS NOT PROVEN FOR ADJUSTABLE TIME DELAY (30 SEC.) OR WHEN PUMP IS NOT ENABLED AND STATUS IS PROVEN, AN ALARM SHALL BE GENERATED AT THE ECC.

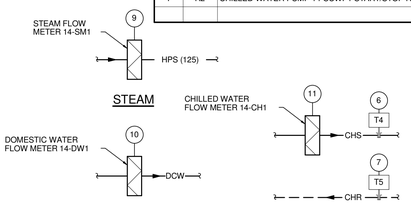
LEGEND (APPLIES TO MECHANICAL ROOM CONTROL PANEL #1)

C1	PUMP 14-HWP1 CURRENT SENSING RELAY	TRANSMITS MOTOR CURRENT TO DCP TO INDICATE STATUS OF PUMP 14-HWP1.
DCP	DISTRIBUTED CONTROL PANEL	CONTROLS SEQUENCE OF HVAC SYSTEMS IN ACCORDANCE WITH THE SEQUENCE OF OPERATION.
DP1	DIFFERENTIAL PRESSURE SENSOR	TRANSMITS DIFFERENTIAL PRESSURE TO DCP FOR CONTROL OF PUMP VARIABLE SPEED MOTOR CONTROLLER.
R1	PUMP 14-HWP1 START/STOP RELAY	CONTROLS STARTING & STOPPING OF HOT WATER PUMP 14-HWP1.
T1	CONVERTER 14-HWC1 LEAVING WATER TEMPERATURE SENSOR	SENSES AND TRANSMITS CONVERTER LEAVING HOT WATER TEMPERATURE TO DCP FOR INDICATION ONLY.
T2	COMMON HOT WATER RETURN WATER TEMPERATURE SENSOR	SENSES AND TRANSMITS COMMON HOT WATER RETURN TEMPERATURE TO DCP FOR INDICATION ONLY.
T3	COMMON HOT WATER SUPPLY WATER TEMPERATURE SENSOR	SENSES AND TRANSMITS COMMON HOT WATER SUPPLY TEMPERATURE TO DCP FOR CONTROL AND INDICATION.
T4	CHILLED WATER SUPPLY TEMPERATURE SENSOR	SENSES AND TRANSMITS CHILLED WATER SUPPLY TEMPERATURE TO DCP AND THE VA'S EMS AND INTERNET METERING SYSTEM.
T5	CHILLED WATER RETURN TEMPERATURE SENSOR	SENSES AND TRANSMITS CHILLED WATER RETURN TEMPERATURE TO DCP AND THE VA'S EMS AND INTERNET METERING SYSTEM.
V1	MODULATING STEAM CONTROL VALVE (1/3 CAPACITY)	PROPORTIONS FLOW OF STEAM TO CONVERTER 14-HWC1 IN RESPONSE TO DCP.
V2	MODULATING STEAM CONTROL VALVE (2/3 CAPACITY)	PROPORTIONS FLOW OF STEAM TO CONVERTER 14-HWC1 IN RESPONSE TO DCP.
V3	TWO-POSITION ISOLATION CONTROL VALVE	ISOLATES HOT WATER FLOW TO CONVERTER 14-HWC1 IN RESPONSE TO DCP.
VSMC1	VARIABLE SPEED MOTOR CONTROLLER WITH MOTOR STARTER.	CONTROLS SPEED OF PUMP 14-HWP1 IN RESPONSE TO DCP.



CONTROL PANEL #1 POINTS LIST

POINT ID	DEVICE TAG	DEVICE DESCRIPTION	POINT TYPE DI	DO	AI	AO
1	T1	14-HWC1 LEAVING WATER TEMPERATURE SENSOR			X	
2	T2	COMMON HOT WATER RETURN TEMPERATURE SENSOR			X	
3	T3	COMMON HOT WATER SUPPLY TEMPERATURE SENSOR			X	
4	C1	HOT WATER PUMP 14-HWP1 STATUS CURRENT SWITCH	X			
5	DP1	HOT WATER SYSTEM DIFFERENTIAL PRESSURE			X	
6	T4	CHILLED WATER SUPPLY TEMPERATURE SENSOR			X	
7	T5	CHILLED WATER RETURN TEMPERATURE SENSOR			X	
8	14-HW1	HOT WATER FLOW METER (GPM AND BTU MEASUREMENT)				X
9	14-SM1	STEAM FLOW METER (LB/HR)				X
10	14-DW1	DOMESTIC WATER FLOW METER (GPM)				X
11	14-CH1	CHILLED WATER FLOW METER (GPM AND BTU MEASUREMENT)				X
12	DP2	HOT WATER SYSTEM DIFFERENTIAL PRESSURE			X	
13	C2	CHILLED WATER PUMP 14-SCWP1 STATUS CURRENT SWITCH	X			
A	V1	CONVERTER 14-HWC1-1/3 STEAM CONTROL VALVE				X
B	V2	CONVERTER 14-HWC1-2/3 STEAM CONTROL VALVE				X
C	V3	CONVERTER 14-HWC1 HOT WATER ISOLATION VALVE		X		
D	VSMC1	HOT WATER PUMP 14-HWP1 VARIABLE SPD. MTR. CONTROLLER W/ STARTER				X
E	R1	HOT WATER PUMP 14-HWP1 START/STOP RELAY		X		
F	CT1	ELECTRIC ENERGY METER				X
G	CT2	ELECTRIC ENERGY METER				X
H	VSMC2	CHILLED WATER PUMP 14-SCWP1 VARIABLE SPD. MTR. CONTROLLER W/ STARTER				X
I	R2	CHILLED WATER PUMP 14-SCWP1 START/STOP RELAY		X		

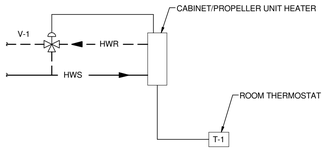


PROVIDE FLOW METERING OF THE CHILLED WATER, DOMESTIC WATER AND STEAM SYSTEMS WHERE THEY ENTER THE BASEMENT MECHANICAL ROOM. SEE SHEET 14-H1 FOR CHILLED WATER AND STEAM, AND SHEET 14-H2 FOR DOMESTIC WATER METER LOCATIONS. TRANSMIT INFORMATION TO THE DCP AND THE VA'S ENERGY MANAGEMENT SYSTEM (EMS) AND INTERNET METERING SYSTEM. COORDINATE EQUIPMENT AND INSTALLATION WITH COTR AND THE VA'S ENERGY ENGINEER FOR COMPATIBILITY WITH VA'S EXISTING EQUIPMENT AND SYSTEMS. REFER TO HOT WATER CONVERTER CONTROLS ON THIS SHEET FOR HOT WATER FLOW METERING.

FLOW METERING

TIE INTO POWER METERS ON THESE PANELS, PROVIDED BY E.C. COORDINATE SIGNAL REQUIREMENTS WITH E.C. TRANSMIT INFORMATION TO THE DCP AND THE VA'S ENERGY MANAGEMENT SYSTEM (EMS) AND INTERNET METERING SYSTEM. COORDINATE INSTALLATION WITH COTR AND THE VA'S ENERGY ENGINEER FOR COMPATIBILITY WITH VA'S EXISTING EQUIPMENT AND SYSTEMS.

ELECTRIC METERING



CABINET/PROPELLER UNIT HEATER CONTROL

DDC ROOM THERMOSTAT T-1 SHALL CONTROL FAN MOTOR AND VALVE V-1. ON A DROP IN TEMPERATURE BELOW SETPOINT, THERMOSTAT T-1 SHALL START THE FAN AND HEATING COIL. CONTROL VALVE V-1 SHALL MODULATE OPEN TO THE COIL TO MAINTAIN ROOM TEMPERATURE SETPOINT.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT NO.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: CONTROLS AND AUTOMATION

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012 | Checked: DLE | Drawn: PCW

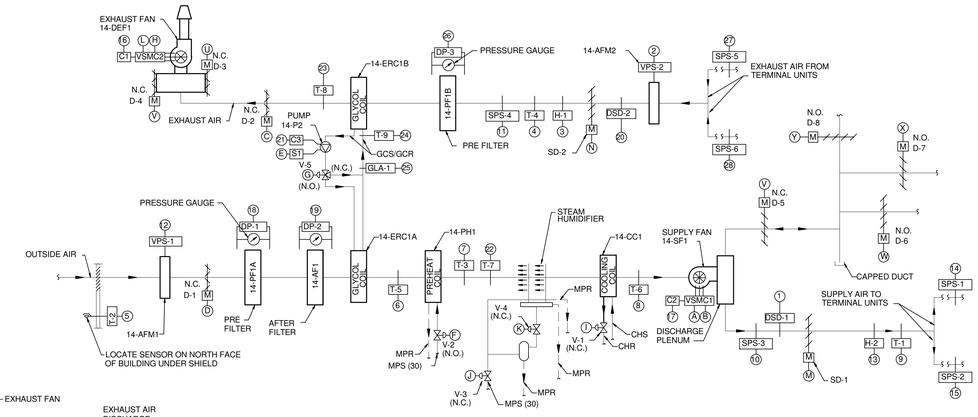
Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

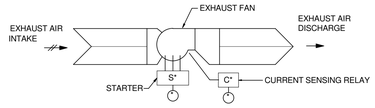
Drawing Number: H10

Office of Construction and Facilities Management

Department of Veterans Affairs



AIR HANDLING UNIT 14-AHU1

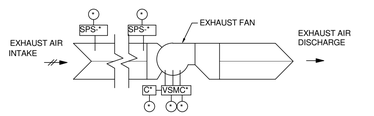


* REFER TO POINTS LIST ON THIS SHEET FOR CONTROL POINTS AND DESCRIPTIONS ASSOCIATED WITH GENERAL EXHAUST FANS

GENERAL EXHAUST FANS

1 EXHAUST FAN 14-EF2 AND 14-EF3 CONTROLS

1.1 EXHAUST FAN SHALL BE STARTED AND STOPPED BY THE DCP OR REMOTELY AT THE ECC. FAN SHALL BE SOFTWARE INTERLOCKED TO OPERATE WITH AIR HANDLING UNIT 14-AHU-1. H-O-A SWITCH SHALL BE KEPT IN THE "AUTO" POSITION. "HAND" AND "OFF" SHALL BE USED ONLY FOR MAINTENANCE.



* REFER TO POINTS LIST ON THIS SHEET FOR CONTROL POINTS AND DESCRIPTIONS ASSOCIATED WITH VARIABLE VOLUME EXHAUST FANS

VARIABLE VOLUME EXHAUST FANS

1 EXHAUST FAN 14-EF1 CONTROL

1.1 EXHAUST FAN SHALL BE STARTED AND STOPPED BY THE DCP OR REMOTELY AT THE ECC. FAN SHALL BE SOFTWARE INTERLOCKED TO OPERATE WITH AIR HANDLING UNIT 14-AHU-1. H-O-A SWITCH SHALL BE KEPT IN THE "AUTO" POSITION. "HAND" AND "OFF" SHALL BE USED ONLY FOR MAINTENANCE.

1.2 EXHAUST AIR FLOW SHALL BE CONTROLLED BY THE DCP MODULATING THE EXHAUST FAN VARIABLE SPEED MOTOR CONTROLLER (VSMC3) TO MAINTAIN NEGATIVE DUCT STATIC PRESSURE AT SETPOINT AS SENSED BY SPS-8, LOCATED 2/3 DISTANCE DOWN EXHAUST DUCT MAIN (SEE PLANS). SETPOINT SHALL BE DETERMINED DURING INITIAL SETUP AND AIR BALANCE AND SHALL BE FIELD ADJUSTABLE.

1.3 THE DCP, USING HIGH PRESSURE SENSOR SPS-7 LOCATED AT THE EXHAUST FAN INLET, SHALL PREVENT THE EXHAUST FAN FROM DEVELOPING OVER 3.5 INCHES OF NEGATIVE STATIC PRESSURE (FIELD ADJUSTABLE). IF STATIC PRESSURE AT SPS-7 EXCEEDS 3.5 INCHES OF NEGATIVE STATIC PRESSURE, THE FAN SHALL BE SHUT OFF AND AN ALARM SHALL BE SENT TO THE ECC.

1.4 VARIABLE SPEED MOTOR CONTROLLERS SHALL RESPOND TO START/STOP COMMANDS AND ALL SAFETIES (FREEZE, SMOKE, ETC.) WHETHER IN THE HAND, AUTOMATIC OR BYPASS MODES.

2 EXHAUST FAN 14-EF4 CONTROL

2.1 EXHAUST FAN SHALL BE STARTED AND STOPPED BY THE DCP OR REMOTELY AT THE ECC. FAN SHALL BE SOFTWARE INTERLOCKED TO OPERATE WITH AIR HANDLING UNIT 14-AHU-1. H-O-A SWITCH SHALL BE KEPT IN THE "AUTO" POSITION. "HAND" AND "OFF" SHALL BE USED ONLY FOR MAINTENANCE.

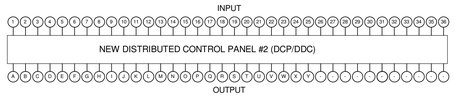
2.2 EXHAUST FAN SHALL START AND RUN AT MINIMUM SPEED OR 30% (FIELD ADJUSTABLE). UPON ACTIVATION OF ASSOCIATED BIO SAFETY CABINETS, EXHAUST AIRFLOW SHALL BE CONTROLLED BY THE DCP MODULATING THE EXHAUST FAN VARIABLE SPEED MOTOR CONTROLLER (VSMC4) TO MAINTAIN NEGATIVE DUCT STATIC PRESSURE AT SETPOINT AS SENSED BY SPS-10. SETPOINT SHALL BE DETERMINED DURING INITIAL SETUP AND AIR BALANCE AND BE FIELD ADJUSTABLE.

2.3 THE DCP, USING HIGH PRESSURE SENSOR SPS-9 LOCATED AT THE EXHAUST FAN INLET, SHALL PREVENT THE EXHAUST FAN FROM DEVELOPING OVER 4.2 INCHES OF NEGATIVE STATIC PRESSURE (FIELD ADJUSTABLE). IF STATIC PRESSURE AT SPS-9 EXCEEDS 4.2 INCHES OF NEGATIVE STATIC PRESSURE, THE FAN SHALL BE SHUT OFF AND AN ALARM SHALL BE SENT TO THE ECC.

2.4 VARIABLE SPEED MOTOR CONTROLLERS SHALL RESPOND TO START/STOP COMMANDS AND ALL SAFETIES (FREEZE, SMOKE, ETC.) WHETHER IN THE HAND, AUTOMATIC OR BYPASS MODES.

LEGEND (APPLIES TO CONTROL PANEL #2)

AFM	AIR FLOW MEASURING DEVICE	MONITORS AIR FLOW RATE AND TRANSMITS VELOCITY PRESSURE FOR TRANSMITTAL TO DCP FOR CONTROL AND INDICATION.
C	CURRENT SENSING RELAY	TRANSMITS MOTOR CURRENT TO DCP TO INDICATE STATUS OF EQUIPMENT
DP-1 DP-2 DP-3	DIFFERENTIAL PRESSURE SENSOR	TRANSMITS DIFFERENTIAL PRESSURE TO DCP TO INDICATE FILTER CONDITION
DCP	DIRECT DIGITAL CONTROL PANEL	CONTROLS OPERATION OF AIR HANDLING UNIT IN ACCORDANCE WITH THE SEQUENCE OF OPERATION
D-1	TWO-POSITION OUTSIDE AIR DAMPER	CONTROLS FLOW OF OUTSIDE AIR TO AIR HANDLING UNIT AND CLOSES WHEN SUPPLY FAN STOPS
D-2 D-3	MODULATING EXHAUST AIR DAMPER	CONTROLS FLOW OF EXHAUST AIR FROM AIR HANDLING SYSTEM AND CLOSES WHEN EXHAUST FAN STOPS
D-4 D-5 D-6 D-7	TWO POSITION CHANGEOVER DAMPER	CONTROLS FLOW OF SUPPLY AIR TO VIVARIUM FROM 14-AHU1 OR FUTURE BACKUP UNIT (14-AHU2)
DSD	DUCT SMOKE DETECTORS (FURNISHED AND WIRED TO FIRE ALARM PANEL BY ELECTRICAL)	PROVIDE SMOKE SIGNAL TO DCP
ECC	ENGINEERING CONTROL CENTER	LOCATED IN ENGINEERING BUILDING FOR MONITORING OF SYSTEM OPERATIONS
GLA-1	GLYCOL LOW LEVEL ALARM	INDICATES LOW GLYCOL LEVEL IN THE ENERGY RECOVERY SYSTEM
H-1	EXHAUST AIR HUMIDITY SENSOR	SENSES AND TRANSMITS EXHAUST AIR HUMIDITY TO DCP FOR CONTROL AND INDICATION
H-2	SUPPLY AIR HUMIDITY SENSOR	SENSES AND TRANSMITS SUPPLY AIR HUMIDITY TO DCP FOR CONTROL AND INDICATION
S	MOTOR STARTER	STARTS AND STOPS EQUIPMENT IN RESPONSE TO DCP.
SD-1	SUPPLY DUCT ISOLATION SMOKE DAMPER	CLOSES WHEN UNIT SUPPLY FAN STOPS
SD-2	EXHAUST DUCT ISOLATION SMOKE DAMPER	CLOSES WHEN UNIT EXHAUST FAN STOPS
SPS-1 SPS-2 SPS-5 SPS-6 SPS-8 SPS-10	SUPPLY DUCT STATIC PRESSURE SENSOR	SENSES AND TRANSMITS DUCT STATIC PRESSURE TO DCP FOR CONTROL AND INDICATION
SPS-3	SUPPLY DUCT HIGH LIMIT STATIC PRESSURE SENSOR	SENSES AND TRANSMITS DUCT STATIC PRESSURE NEAR SUPPLY FAN TO DCP
SPS-4 SPS-7 SPS-9	EXHAUST DUCT LOW LIMIT STATIC PRESSURE SENSOR	SENSES AND TRANSMITS DUCT STATIC PRESSURE NEAR EXHAUST FAN TO DCP
T-1	SUPPLY AIR TEMPERATURE SENSOR	SENSES AND TRANSMITS SUPPLY AIR DRY BULB TEMPERATURE TO DCP FOR CONTROL AND INDICATION
T-2	OUTSIDE AIR TEMPERATURE SENSOR	SENSES AND TRANSMITS OUTSIDE AIR DRY BULB TEMPERATURE TO DCP FOR CONTROL AND INDICATION
T-3	PREHEAT COIL DISCHARGE AIR TEMPERATURE SENSER	SENSES AND TRANSMITS PREHEAT AIR DRY BULB TEMPERATURE TO DCP FOR CONTROL AND INDICATION
T-4	EXHAUST AIR TEMPERATURE SENSOR	SENSES AND TRANSMITS EXHAUST AIR DRY BULB TEMPERATURE TO DCP FOR INDICATION ONLY
T-5	SUPPLY ENERGY RECOVERY COIL LEAVING AIR TEMPERATURE SENSOR	SENSES AND TRANSMITS SUPPLY ENERGY RECOVERY COIL LEAVING AIR DRY BULB TEMP. TO DCP FOR INDICATION ONLY
T-6	COOLING COIL LEAVING AIR TEMPERTURE	SENSES AND TRANSMITS COOLING COIL DISCHARGE AIR TEMPERATURE TO DCP FOR INDICATION ONLY
T-7	FREEZESTAT	SHUTS DOWN SUPPLY FAN UPON SENSING FREEZE CONDITION
T-8	EXHAUST ENERGY RECOVERY COIL LEAVING AIR TEMPERATURE SENSOR	SENSES AND TRANSMITS EXHAUST ENERGY RECOVERY COIL LEAVING AIR DRY BULB TEMP. TO DCP FOR INDICATION ONLY
T-9	EXHAUST ENERGY RECOVERY COIL ENTERING FLUID TEMPERATURE SENSOR	SENSES AND TRANSMITS GLYCOL SOLUTION TEMP. ENTERING GLYCOL EXHAUST COIL TO DCP FOR CONTROL AND INDICATION.
V-1	MODULATING CHILLED WATER CONTROL VALVE	PROPORTIONS FLOW OF CHIILLED WATER TO COOLING COIL IN RESPONSE TO DCP
V-2	MODULATING STEAM CONTROL VALVE	PROPORTIONS FLOW OF STEAM TO PREHEAT COIL IN RESPONSE TO DCP
V-3	TWO-POSITION ISOLATION STEAM CONTROL VALVE	CONTROLS STEAM FLOW TO HUMIDIFIER
V-4	MODULATING STEAM CONTROL VALVE	PROPORTIONS FLOW OF STEAM TO HUMIDIFIER IN RESPONSE TO DCP
V-5	MODULATING GLYCOL SOLUTION CONTROL VALVE	PROPORTIONS FLOW OF GLYCOL SOLUTION TO EXHAUST COIL IN RESPONSE TO DCP.
VPS	VELOCITY PRESSURE SENSORS	SENSES AND TRANSMITS VELOCITY PRESSURE TO DCP
VSMC	VARIABLE SPEED MOTOR CONTROLLER WITH MOTOR STARTER	CONTROLS SUPPLY AND EXHAUST FAN MOTOR SPEEDS IN RESPONSE TO DCP



CONTROL PANEL #2 POINTS LIST

POINT ID	DEVICE TAG	DEVICE DESCRIPTION	POINT TYPE DI	DO	AI	AO
1	DSD-1	SUPPLY AIR DUCT SMOKE DETECTOR (FIRE SYSTEM SHUTDOWN)	X			
2	VPS-2	EXHAUST AIR FLOW MEASURING STATION 14-AFM2			X	
3	H-1	EXHAUST AIR HUMIDITY SENSOR			X	
4	T-4	EXHAUST AIR TEMPERATURE SENSOR			X	
5	T-2	OUTSIDE AIR TEMPERATURE SENSOR (GLOBAL POINT)			X	
6	T-5	SUPPLY ENERGY RECOVERY COIL LEAVING AIR TEMPERATURE SENSOR			X	
7	T-3	PREHEAT COIL 14-PH1 LEAVING AIR TEMPERATURE SENSOR			X	
8	T-6	COOLING COIL 14-CC1 LEAVING AIR TEMPERATURE SENSOR			X	
9	T-1	SUPPLY AIR TEMPERATURE SENSOR			X	
10	SPS-3	SUPPLY DUCT HIGH STATIC SAFETY	X			
11	SPS-4	EXHAUST DUCT LOW STATIC SAFETY	X			
12	VPS-1	OUTSIDE AIR FLOW MEASURING STATION			X	
13	H-2	SUPPLY AIR HUMIDITY SENSOR (HIGH LIMIT)			X	
14	SPS-1	SUPPLY AIR STATIC PRESSURE SENSOR			X	
15	SPS-2	SUPPLY AIR STATIC PRESSURE SENSOR			X	
16	C1	EXHAUST FAN 14-DEF1 STATUS CURRENT SWITCH	X			
17	C2	SUPPLY FAN 14-SF1 STATUS CURRENT SWITCH	X			
18	DP-1	PRE FILTER 14-PF1A PRESSURE DROP			X	
19	DP-2	AFTER FILTER 14-AF1 PRESSURE DROP			X	
20	DSD-2	EXHAUST AIR DUCT SMOKE DETECTOR (FIRE SYSTEM SHUTDOWN)	X			
21	C3	RUN-AROUND PUMP STATUS CURRENT SWITCH	X			
22	T-7	FREEZESTAT	X			
23	T-8	EXHAUST ENERGY RECOVERY COIL 14-ERC1B LEAVING AIR TEMPERATURE SENSOR			X	
24	T-9	EXHAUST ENERGY RECOVERY COIL 14-ERC1B ENTERING FLUID TEMPERATURE SENSOR			X	
25	GLA-1	GLYCOL LOW LEVEL ALARM	X			
26	DP-3	EXHAUST PRE FILTER 14-PF1B PRESSURE DROP			X	
27	SPS-5	EXHAUST FAN 14-DEF1 STATIC PRESSURE SENSOR			X	
28	SPS-6	EXHAUST FAN 14-DEF1 STATIC PRESSURE SENSOR			X	
29	C4	EXHAUST FAN 14-EF2 STATUS CURRENT SWITCH	X			
30	C5	EXHAUST FAN 14-EF3 STATUS CURRENT SWITCH	X			
31	C6	EXHAUST FAN 14-EF1 STATUS CURRENT SWITCH	X			
32	SPS-7	EXHAUST FAN 14-EF1 EXHAUST DUCT LOW STATIC SAFETY	X			
33	SPS-8	EXHAUST FAN 14-EF1 DUCT STATIC PRESSURE SENSOR			X	
34	C7	EXHAUST FAN 14-EF4 STATUS CURRENT SWITCH	X			
35	SPS-9	EXHAUST FAN 14-EF4 EXHAUST DUCT LOW STATIC SAFETY	X			
36	SPS-10	EXHAUST FAN 14-EF4 DUCT STATIC PRESSURE SENSOR			X	
A	VSMC1	SUPPLY FAN START-STOP		X		
B	VSMC1	SUPPLY FAN VARIABLE SPEED MOTOR CONTROLLER				X
C	D-2	TWO-POSITION EXHAUST AIR DAMPER		X		
D	D-1	TWO-POSITION OUTSIDE AIR DAMPER		X		
E	S1	RUN-AROUND PUMP START-STOP		X		
F	V-2	MODULATING PREHEAT COIL VALVE				X
G	V-5	MODULATING ENERGY RECOVERY COIL VALVE				X
H	VSMC2	EXHAUST FAN 14-DEF1 VARIABLE SPEED MOTOR CONTROLLER				X
I	V-1	MODULATING COOLING COIL VALVE				X
J	V-3	TWO POSITION ISOLATION STEAM HUMIDIFIER VALVE		X		
K	V-4	MODULATING STEAM HUMIDIFIER VALVE				X
L	VSMC2	EXHAUST FAN 14-DEF1 START-STOP		X		
M	SD-1	SUPPLY DUCT ISOLATION SMOKE DAMPER		X		
N	SD-2	EXHAUST DUCT ISOLATION SMOKE DAMPER		X		
O	S2	EXHAUST FAN 14-EF2 START/STOP		X		
P	S3	EXHAUST FAN 14-EF3 START/STOP		X		
Q	VSMC3	EXHAUST FAN START-STOP		X		
R	VSMC3	EXHAUST FAN VARIABLE SPEED MOTOR CONTROLLER				X
S	VSMC4	EXHAUST FAN START-STOP		X		
T	VSMC4	EXHAUST FAN VARIABLE SPEED MOTOR CONTROLLER				X
U	D-3	MODULATING EXHAUST (OUTSIDE AIR BYPASS) DAMPER				X
V	D-4	MODULATING EXHAUST (OUTSIDE AIR BYPASS) DAMPER				X
W	D-5	TWO POSITION CHANGEOVER DAMPER		X		
X	D-6	TWO POSITION CHANGEOVER DAMPER		X		
Y	D-7	TWO POSITION CHANGEOVER DAMPER		X		
Z	D-8	TWO POSITION CHANGEOVER DAMPER		X		

NOTE: DDC ZONE CONTROL IS SPECIFIED. PROVIDE ZONE TEMPERATURE SENSOR AND MODULATING OUTPUT FOR EACH ZONE, AS SHOWN IN VVR, CVR, AND CVE CONTROL TERMINAL DIAGRAM ON SHEET H12.

SEQUENCE OF OPERATION FOR 14-AHU1

1. GENERAL

1.1 UNIT IS NORMALLY STARTED AND STOPPED BY THE DCP OR REMOTELY AT THE ECC. H-O-A SWITCH SHALL BE KEPT IN THE "AUTO" POSITION. "HAND" AND "OFF" POSITIONS SHALL BE USED ONLY FOR MAINTENANCE.

1.2 WHEN THE UNIT IS "OFF", FOR ANY REASON, OUTSIDE AIR DAMPER D-1, EXHAUST AIR DAMPER D-2, SUPPLY AIR SMOKE DAMPER SD-1 AND EXHAUST AIR SMOKE DAMPER SD-2 SHALL BE FULLY CLOSED, AND SUPPLY AND EXHAUST FANS SHALL BE OFF.

1.3 WHEN THE UNIT IS "ON", D-1 AND D-2 SHALL BE OPEN. ISOLATION SMOKE DAMPERS SD-1 AND SD-2 SHALL OPEN, AND ONCE PROVED OPEN, SUPPLY AND EXHAUST FANS SHALL START.

1.4 WHEN THE UNIT OPERATES IN THE OCCUPIED MODE, 100% OUTSIDE AIR SHALL BE PROVIDED. THIS CONDITION IS THE NORMAL POSITION AND SHALL BE MAINTAINED DURING THE OCCUPIED MODE.

2. TEMPERATURE CONTROL

2.1 SUPPLY AIR TEMPERATURE, SENSED BY T-1, SHALL BE MAINTAINED AT SETPOINT OF 54.5 DEG. F. VIA DCP BY MODULATING COOLING COIL VALVE V-1 OR PREHEAT COIL VALVE V-2, IN SEQUENCE. SEPARATE CONTROL LOOPS SHALL BE UTILIZED FOR MECHANICAL COOLING, AND HEATING FUNCTION.

3. ENERGY RECOVERY

3.1 WHEN THE UNIT IS "OFF", FOR ANY REASON, AND OUTSIDE AIR TEMPERATURE IS ABOVE 0 DEG. F (FIELD ADJUSTABLE), GLYCOL ENERGY RECOVERY COIL PUMP 14-ERP1 SHALL REMAIN OFF.

3.2 WHEN THE UNIT IS "OFF", FOR ANY REASON, AND OUTSIDE AIR TEMPERATURE DROPS BELOW 0 DEG. F (FIELD ADJUSTABLE), V-5 SHALL OPEN TO THE SUPPLY COIL 14-ERC1A AND REMAIN CLOSED TO THE BYPASS LEG, AND 14-ERP1 SHALL START AND RUN CONTINUOUSLY TO PROVIDE GLYCOL COIL FREEZE PROTECTION.

3.3 WHEN THE UNIT IS "ON", 14-ERP1 SHALL START AND RUN CONTINUOUSLY WHEN OUTSIDE AIR TEMPERATURE IS BELOW 45 DEG. F OR ABOVE 80 DEG. F (FIELD ADJUSTABLE).

3.4 TO PREVENT ICING ON EXHAUST COIL 14-ERC1B, MAINTAIN TEMPERATURE OF SOLUTION ENTERING EXHAUST COIL AT T-9 $\geq$ 35 DEG F. BY MODULATING 3-WAY CONTROL VALVE V-5.

3.5 GLYCOL LEVEL SENSOR GLA-1 SHALL SEND AN ALARM SIGNAL TO THE DCP AND ECC TO INDICATE LOW GLYCOL LEVEL IN THE ENERGY RECOVERY SYSTEM.

4. AIR FLOW CONTROL

4.1 THE SUPPLY AIR FLOW SHALL BE CONTROLLED BY THE DCP MODULATING THE SUPPLY FAN VARIABLE SPEED MOTOR CONTROLLER (VSMC1) TO MAINTAIN 1.5" OF DUCT STATIC PRESSURE (FIELD ADJUSTABLE), AS SENSED BY SPS-1 & SPS-2, LOCATED 2/3 DISTANCE DOWN THE SUPPLY DUCTS (SEE PLANS).

4.2 THE EXHAUST AIR FLOW (SENSED BY 14-AFM2) SHALL BE CONTROLLED BY THE DCP MODULATING THE EXHAUST FAN VARIABLE SPEED MOTOR CONTROLLER (VSMC2) AND ASSOCIATED OUTSIDE AIR BYPASS DAMPERS (D-3 AND D-4) TO MAINTAIN 1.5" OF NEGATIVE DUCT STATIC PRESSURE (FIELD ADJUSTABLE), AS SENSED BY SPS-5 AND SPS-6 LOCATED 2/3 DISTANCE DOWN THE EXHAUST DUCT MAINS (SEE PLANS).

4.3 VARIABLE SPEED MOTOR CONTROLLERS SHALL RESPOND TO START/STOP COMMANDS AND ALL SAFETIES (FREEZE, SMOKE, ETC.) WHETHER IN THE HAND, AUTOMATIC OR BYPASS MODES.

4.4 THE DCP, USING HIGH PRESSURE SENSOR SPS-3 LOCATED AT THE SUPPLY FAN DISCHARGE, SHALL PREVENT THE SUPPLY FAN FROM DEVELOPING OVER 4 INCHES OF POSITIVE STATIC PRESSURE (FIELD ADJUSTABLE). IF STATIC PRESSURE AT SPS-3 EXCEEDS 4 INCHES OF POSITIVE PRESSURE, THE SUPPLY AND EXHAUST FANS SHALL STOP.

4.5 THE DCP, USING LOW PRESSURE SENSOR SPS-4 LOCATED AT THE EXHAUST FAN INLET, SHALL PREVENT THE EXHAUST FAN FROM DEVELOPING OVER 3 INCHES OF NEGATIVE STATIC PRESSURE (FIELD ADJUSTABLE). IF STATIC PRESSURE AT SPS-4 EXCEEDS 3 INCHES OF NEGATIVE PRESSURE, THE SUPPLY AND EXHAUST FANS SHALL STOP.

5. HUMIDITY CONTROL

5.1 WHEN THE DCP IS NOT CALLING FOR HUMIDITY, SENSED BY EXHAUST AIR HUMIDITY SENSOR H-1, 2-WAY "ON-OFF" CONTROL VALVE V-3 SHALL REMAIN CLOSED. WHEN THE DCP IS CALLING FOR HUMIDITY, V-3 SHALL REMAIN OPEN.

5.2 EXHAUST AIR HUMIDITY, SENSED BY H-1, SHALL BE MAINTAINED AT SETPOINT (45 PERCENT RH, ADJUSTABLE) VIA DCP BY MODULATING HUMIDIFIER CONTROL VALVE V-4 TO MAINTAIN THE DESIRED HUMIDITY. THE DCP SHALL OVERRIDE THIS CONTROL TO MAINTAIN A MAXIMUM HUMIDITY LEVEL OF 90 PERCENT AS SENSED BY HIGH LIMIT HUMIDISTAT H-2.

5.3 ON-OFF CONTROL VALVE V-3 SHALL REMAIN CLOSED WHENEVER THE OUTSIDE AIR TEMPERATURE IS ABOVE 55 DEG. F, OR WHENEVER THE SUPPLY FAN IS OFF.

6. FREEZE PROTECTION

6.1 IF THE PREHEAT COIL DISCHARGE AIR TEMPERATURE AS SENSED BY T-3 FALLS BELOW 45 DEG. F, AN ALARM SIGNAL SHALL INDICATE AT THE DCP AND ECC. IF THE PREHEAT COIL DISCHARGE AIR TEMPERATURE FALLS BELOW 40 DEG. F AS SENSED BY T-7 FREEZESTAT, THE SUPPLY AND EXHAUST FANS SHALL SHUT DOWN AND A CRITICAL ALARM SHALL INDICATE AT THE DCP AND ECC. T-7 SHALL BE HARD WIRED TO THE SUPPLY FAN VSMC TO SHUT DOWN THE UNIT IN THE HAND, AUTOMATIC, OR BYPASS MODES. T-7 SHALL REQUIRE MANUAL RESET AT THE DEVICE.

7. AUTOMATIC SHUTDOWN / RESTART

7.1 WHEN SMOKE IS DETECTED BY SUPPLY DUCT SMOKE DETECTOR DSD-1 OR EXHAUST DUCT SMOKE DETECTOR DSD-2, THE SUPPLY AND EXHAUST AIR FANS AND INTERLOCKED EXHAUST FANS SHALL SHUT "OFF", ISOLATION SMOKE DAMPERS SD-1 AND SD-2 SHALL CLOSE, A SUPERVISORY SIGNAL SHALL BE TRANSMITTED TO THE FIRE ALARM SYSTEM, AND A SUPERVISORY SIGNAL SHALL INDICATE AT THE DCP AND ECC. SUPPLY AND EXHAUST FANS AND INTERLOCKED EXHAUST FANS SHALL RESTART AND SMOKE DAMPERS SHALL OPEN WHEN THE FIRE ALARM CIRCUIT IS RESET.

8. EMERGENCY CONSTANT SPEED OPERATION

8.1 UPON FAILURE OF THE VSMC, THE SUPPLY AND EXHAUST FANS SHALL BE STARTED/STOPPED MANUALLY AT THE DCP OR THE ECC THROUGH THE BY-PASS STARTER. FANS SHALL THEN BE OPERATED AT CONSTANT SPEED.

9. DISCHARGE AIR RESET CONTROL

9.1 THE AIR HANDLING UNIT CONTROLS SHALL PROVIDE DISCHARGE AIR TEMPERATURE CONTROL BASED ON ZONE DEMAND DEVIATION FROM SETPOINT. ALL ZONES SHALL BE SAMPLED AND THE ZONE FURTHEST FROM SETPOINT SHALL GOVERN. AS THE DEVIATION FROM SETPOINT DECREASES, THE DISCHARGE AIR SHALL BE RESET. 54.5 DEG. F AND 62 DEG. F SHALL BE THE LOW AND HIGH RESET LIMITS, RESPECTIVELY. ALL CONTROL SETPOINTS (INCLUDING HIGH AND LOW SET POINTS FOR DISCHARGE AIR TEMPERATURE) SHALL BE FULLY ADJUSTABLE TO MEET JOB CONDITIONS.

10. CHANGEOVER DAMPER CONTROL

10.1 UPON FAILURE OF SUPPLY FAN 14-SF1, OUTSIDE AIR DAMPER D-1 AND NORMALLY OPEN CHANGEOVER DAMPERS D-6, D-7, AND D-8 SHALL CLOSE. NORMALLY CLOSED CHANGEOVER DAMPER D-5 SHALL OPEN. 14-AHU2 (FUTURE) SHALL OPERATE PER THE SEQUENCES ABOVE.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@ohnpoe.com

Drawing Title: CONTROLS AND AUTOMATION

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012 | Checked: DLE | Drawn: PCW

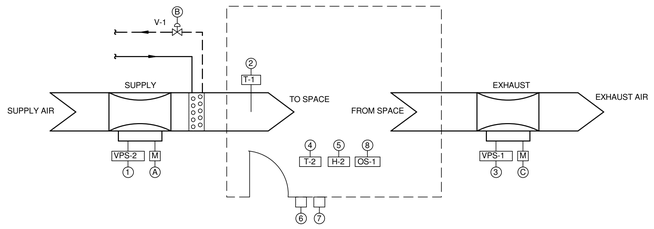
Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: H11

Office of Construction and Facilities Management

Department of Veterans Affairs

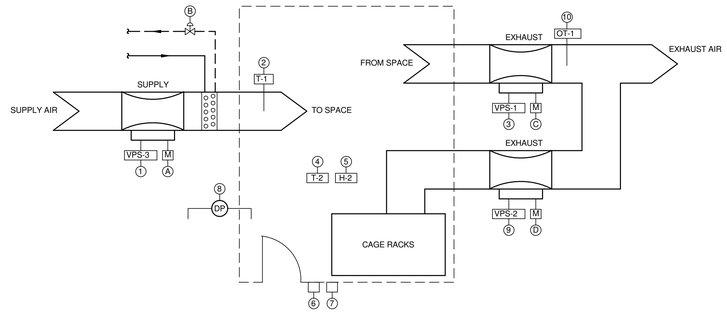


TYPICAL VIVARIUM ROOM CONTROL SCHEMATIC

SCALE: NONE

TYPICAL VIVARIUM ROOM CONTROL POINTS LIST - ONE EXHAUST VALVE

POINT ID	DEVICE TAG	DEVICE DESCRIPTION	POINT TYPE DI	DO	AI	AO	CONTROL	MONITOR	ALARM	COMMENTS
1	VPS-2	SUPPLY AIR VALVE AIRFLOW			X		X			
2	T-1	SUPPLY AIR TEMPERATURE SENSOR			X			X		
3	VPS-1	EXHAUST AIR VALVE AIRFLOW			X		X			
4	T-2	SPACE TEMPERATURE SENSOR			X		X		HIGH TEMP. @ 80°F. LOW TEMP. @ 65°F.	
5	H-1	SPACE HUMIDITY SENSOR			X			X	HIGH HUMIDITY @ 90% LOW HUMIDITY @ 20%	
6	OO-1	OCCUPANCY OVERRIDE	X				X			
7	DP-1	ROOM DIFFERENTIAL PRESSURE			X			X	INCORRECT PRESSURE IN ROOM AFTER 10 MIN. DELAY	
8	OS-1	ROOM OCCUPANCY SENSOR	X				X			
A	SV-1	SUPPLY AIR VALVE ACTUATOR				X	X			
B	V-1	REHEAT VALVE				X	X			
C	EV-1	EXHAUST AIR VALVE ACTUATOR				X	X			

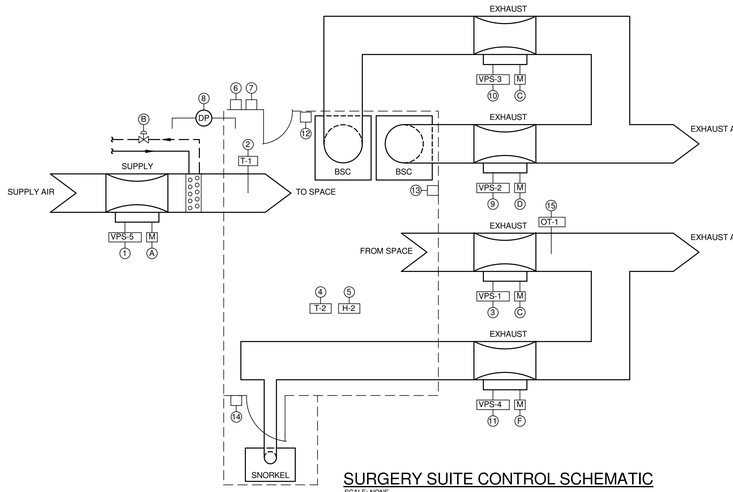


ANIMAL HOLDING/QUARANTINE ROOM CONTROL SCHEMATIC

SCALE: NONE

ANIMAL HOLDING ROOM CONTROL POINTS LIST - TWO EXHAUST VALVES

POINT ID	DEVICE TAG	DEVICE DESCRIPTION	POINT TYPE DI	DO	AI	AO	CONTROL	MONITOR	ALARM	COMMENTS
1	VPS-3	SUPPLY AIR VALVE AIRFLOW			X		X			
2	T-1	SUPPLY AIR TEMPERATURE SENSOR			X			X		
3	VPS-1	EXHAUST AIR VALVE AIRFLOW			X		X			
4	T-2	SPACE TEMPERATURE SENSOR			X		X		HIGH TEMP. @ 80°F. LOW TEMP. @ 65°F.	
5	H-1	SPACE HUMIDITY SENSOR			X			X	HIGH HUMIDITY @ 90% LOW HUMIDITY @ 20%	
6	OO-1	OCCUPANCY OVERRIDE	X				X			
7	DP-1	ROOM DIFFERENTIAL PRESSURE			X			X	INCORRECT PRESSURE IN ROOM AFTER 10 MIN. DELAY	
8	DP-2	DIFFERENTIAL PRESSURE SWITCH	X				X			ONLY REQUIRED IN PRESSURE SWITCHABLE ROOMS
9	VPS-2	EXHAUST AIR VALVE AIRFLOW			X			X		
10	OT-1	OPTINET SAMPLING TUBE			X		X			
A	SV-1	SUPPLY AIR VALVE ACTUATOR				X	X			
B	V-1	REHEAT VALVE				X	X			
C	EV-1	EXHAUST AIR VALVE ACTUATOR				X	X			
D	EV-2	EXHAUST AIR VALVE ACTUATOR				X	X			

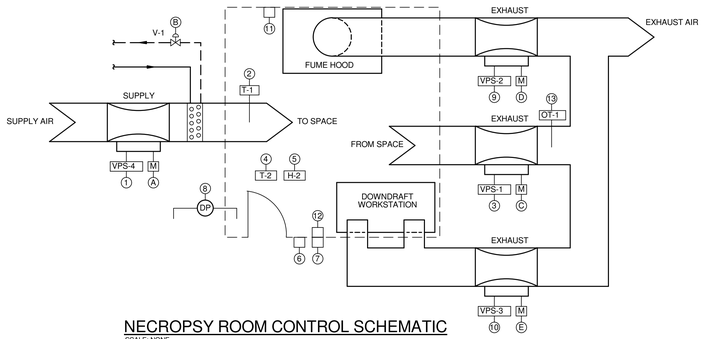


SURGERY SUITE CONTROL SCHEMATIC

SCALE: NONE

SURGERY SUITE CONTROL POINTS LIST - FOUR EXHAUST VALVES

POINT ID	DEVICE TAG	DEVICE DESCRIPTION	POINT TYPE DI	DO	AI	AO	CONTROL	MONITOR	ALARM	COMMENTS
1	VPS-5	SUPPLY AIR VALVE AIRFLOW			X		X			
2	T-1	SUPPLY AIR TEMPERATURE SENSOR			X			X		
3	VPS-2	EXHAUST AIR VALVE AIRFLOW			X		X			
4	T-2	SPACE TEMPERATURE SENSOR			X		X		HIGH TEMP. @ 80°F. LOW TEMP. @ 65°F.	
5	H-1	SPACE HUMIDITY SENSOR			X			X	HIGH HUMIDITY @ 90% LOW HUMIDITY @ 20%	
6	OO-1	OCCUPANCY OVERRIDE	X				X			
7	DP-1	ROOM DIFFERENTIAL PRESSURE			X			X	INCORRECT PRESSURE IN ROOM AFTER 10 MIN. DELAY	
8	DP-2	DIFFERENTIAL PRESSURE SWITCH	X				X			ONLY REQUIRED IN PRESSURE SWITCHABLE ROOMS
9	VPS-2	EXHAUST AIR VALVE AIRFLOW			X			X		
10	VPS-3	EXHAUST AIR VALVE AIRFLOW			X			X		
11	VPS-4	EXHAUST AIR VALVE AIRFLOW			X			X		
12	EO-1	BSC EQUIPMENT OPERATION SWITCH	X				X			
13	EO-2	BSC EQUIPMENT OPERATION SWITCH	X				X			
14	EO-1	SNORKEL EQUIPMENT OPERATION SWITCH	X				X			
15	OT-1	OPTINET SAMPLING TUBE			X		X			
A	SV-1	SUPPLY AIR VALVE ACTUATOR				X				
B	V-1	REHEAT VALVE				X	X			
C	EV-1	EXHAUST AIR VALVE ACTUATOR				X	X			
D	EV-2	EXHAUST AIR VALVE ACTUATOR				X	X			
E	EV-3	EXHAUST AIR VALVE ACTUATOR				X	X			
F	EV-4	EXHAUST AIR VALVE ACTUATOR				X	X			



NECROPSY ROOM CONTROL SCHEMATIC

SCALE: NONE

NECROPSY ROOM CONTROL POINTS LIST - THREE EXHAUST VALVES

POINT ID	DEVICE TAG	DEVICE DESCRIPTION	POINT TYPE DI	DO	AI	AO	CONTROL	MONITOR	ALARM	COMMENTS
1	VPS-4	SUPPLY AIR VALVE AIRFLOW			X		X			
2	T-1	SUPPLY AIR TEMPERATURE SENSOR			X			X		
3	VPS-1	EXHAUST AIR VALVE AIRFLOW			X		X			
4	T-2	SPACE TEMPERATURE SENSOR			X		X		HIGH TEMP. @ 80°F. LOW TEMP. @ 65°F.	
5	H-1	SPACE HUMIDITY SENSOR			X			X	HIGH HUMIDITY @ 90% LOW HUMIDITY @ 20%	
6	OO-1	OCCUPANCY OVERRIDE	X				X			
7	DP-1	ROOM DIFFERENTIAL PRESSURE			X			X	INCORRECT PRESSURE IN ROOM AFTER 10 MIN. DELAY	
8	DP-2	DIFFERENTIAL PRESSURE SWITCH	X				X			ONLY REQUIRED IN PRESSURE SWITCHABLE ROOMS
9	VPS-2	EXHAUST AIR VALVE AIRFLOW			X			X		
10	VPS-3	EXHAUST AIR VALVE AIRFLOW			X			X		
11	EO-1	FUME HOOD EQUIPMENT OPERATION SWITCH	X				X			
12	EO-2	DOWNDRAFT WORKSTATION EQUIPMENT OPERATION SWITCH	X				X			
13	OT-1	OPTINET SAMPLING TUBE			X		X			
A	SV-1	SUPPLY AIR VALVE ACTUATOR				X	X			
B	V-1	REHEAT VALVE				X	X			
C	EV-1	EXHAUST AIR VALVE ACTUATOR				X	X			
D	EV-2	EXHAUST AIR VALVE ACTUATOR				X	X			
E	EV-3	EXHAUST AIR VALVE ACTUATOR				X	X			

LEGEND

DCP	DIRECT DIGITAL CONTROL PANEL	CONTROLS OPERATION OF AIR HANDLING UNIT IN ACCORDANCE WITH THE SEQUENCE OF OPERATION
DP-1 DP-2	DIFFERENTIAL PRESSURE SENSOR	TRANSMITS DIFFERENTIAL PRESSURE TO DCP TO INDICATE PRESSURE RELATIONSHIP
EO	EQUIPMENT OPERATION SWITCHS	TRANSMITS EQUIPMENT OPERATION SIGNAL TO DCP.
EV-1	EXHAUST AIR VALVE ACTUATOR	PROPORTIONS FLOW OF EXHAUST AIR IN RESPONSE TO DCP
H-1	SPACE HUMIDITY SENSOR	SENSES AND TRANSMITS HUMIDITY TO DCP FOR CONTROL AND INDICATION
OO-1	OCCUPANCY OVERRIDE SWITCH	TRANSMITS ROOM OCCUPANCY OVERRIDE SIGNAL TO DCP
OT-1	OPTINET SAMPLING TUBE	SAMPLES AIR QUALITY FROM ROOM EXHAUST
SV-1	SUPPLY AIR VALVE ACTUATOR	PROPORTIONS FLOW OF SUPPLY AIR IN RESPONSE TO DCP
T-1	SUPPLY AIR TEMPERATURE SENSOR	SENSES AND TRANSMITS SUPPLY AIR DRY BULB TEMPERATURE TO DCP FOR CONTROL AND INDICATION
T-2	SPACE TEMPERATURE SENSOR	SENSES AND TRANSMITS SPACE DRY BULB TEMPERATURE TO DCP FOR CONTROL AND INDICATION
V-1	MODULATING HOT WATER CONTROL VALVE	PROPORTIONS FLOW OF HOT WATER TO REHEAT COIL IN RESPONSE TO DCP
VPS	VELOCITY PRESSURE SENSORS	SENSES AND TRANSMITS VELOCITY PRESSURE TO DCP

SEQUENCE OF OPERATION FOR LABS (AIRFLOW SYSTEM CONTROLLERS NUMBERED 1-1A THRU 1-25B)

1. OPERATION FOR VIVARIUM

1.1 A MAKE-UP/SUPPLY AIR CONTROL PANEL SHALL SUM LINEAR CALIBRATED SIGNALS ORIGINATING FROM THE EXHAUST VALVES THAT ARE PROPORTIONAL TO THE EXHAUST VOLUME. THE RESULT SHALL BE A SIGNAL PROPORTIONAL TO THE ROOMS TOTAL EXHAUST VOLUME INCLUDING ANY CONSTANT EXHAUST QUANTITY.

1.2 THE TOTAL EXHAUST SIGNAL SHALL BE OFFSET BY A CONSTANT YET ADJUSTABLE AMOUNT. THE OFFSET SHALL EQUAL THE DESIRED AIRFLOW TO ENTER THE VIVARIUM ROOM FROM THE CORRIDOR. THIS AIRFLOW SHALL BE CONSTANT AND INDEPENDENT OF THE TOTAL EXHAUST VOLUME. THE RESULTING MAKE-UP AIR SIGNAL SHALL THUS EQUAL THE REQUIRED MAKE-UP AIR VOLUME FROM THE ROOM'S SUPPLY SYSTEM.

1.3 OUTPUT FROM A THERMOSTAT SHALL BE APPROPRIATELY SCALED AND LIMITED TO GENERATE A SIGNAL PROPORTIONAL TO THE REQUIRED SUPPLY AIR VOLUME NEEDED TO CONDITION THE ROOM.

1.4 THE CONTROL SIGNAL FOR THE SUPPLY VALVE(S) SHALL BE GENERATED BY THE THERMOSTAT COMMAND.

1.5 CONTROL OF THE GENERAL EXHAUST VALVE DIRECTLY BY THE THERMOSTAT WITH THE SUPPLY VOLUME EQUAL TO THE SUM OF THE GENERAL AND HOOD EXHAUST VOLUMES IS NOT ALLOWED.

1.6 ALL ROOM SPACE TEMPERATURE SET POINTS SHALL BE ADJUSTABLE FROM THE FRONT END COMPUTER INTERFACE.

1.7 EXTEND REQUIRED POWER TO ALL THE TERMINAL BOX CONTROLLERS FROM THE ASSOCIATED AIR HANDLING UNIT DDC CONTROL PANEL.

2. VIVARIUM ANIMAL HOLDING/QUARANTINE ROOMS (TWO EXHAUST VALVES)

2.1 EACH HOLDING ROOM SHALL BE SELECTED ON THE SOFTWARE SCREEN TO BE OCCUPIED OR UNOCCUPIED.

2.2 WHEN THE ROOM IS OCCUPIED THE AIR FLOW SHALL OPERATE AT THE MAXIMUM CFM. THE ROOM THERMOSTAT SHALL MODULATE THE SUPPLY AIR TEMPERATURE TO MAINTAIN SPACE TEMPERATURE.

2.3 A GENERAL EXHAUST VALVE SHALL BE ELECTRONICALLY CONTROLLED BY A SUPPLY/EXHAUST TRACKING CONTROLLER TO MAINTAIN A FIXED VOLUME OFFSET BETWEEN THE SUPPLY AND EXHAUST VOLUMES. THE FIXED VOLUME OFFSET SHALL BE INDEPENDENT OF THE SUPPLY VOLUME MAGNITUDE AND SHALL BE FIELD ADJUSTABLE.

2.4 ROOMS DESIGNATED TO HAVE SWITCHABLE PRESSURE RELATIONSHIPS WITH ADJACENT ROOM SHALL BE NORMALLY NEGATIVE RELATIVE TO THE ADJACENT CORRIDOR. THE PRESSURE RELATIONSHIP SHALL BE ADJUSTABLE AT THE NETWORK AREA CONTROLLER INTERFACE. UPON RECEIVING A COMMAND FOR A POSITIVE PRESSURE RELATIONSHIP, THE GENERAL EXHAUST VALVE AIRFLOW SHALL BE REDUCED TO ACCOMPLISH A VOLUME OFFSET BETWEEN THE SUPPLY AIR VOLUME AND THE TOTAL EXHAUST VOLUME (ROOM PLUS EQUIPMENT).

3. VIVARIUM ROOMS WITHOUT EXHAUSTED EQUIPMENT AND NOT USED FOR ANIMAL HOLDING (ONE EXHAUST VALVE).

3.1 A GENERAL EXHAUST VALVE SHALL BE ELECTRONICALLY CONTROLLED BY A SUPPLY/EXHAUST TRACKING CONTROLLER TO MAINTAIN A FIXED VOLUME OFFSET BETWEEN THE SUPPLY AND EXHAUST VOLUMES. THE FIXED VOLUME OFFSET SHALL BE INDEPENDENT OF THE SUPPLY VOLUME MAGNITUDE AND SHALL BE FIELD ADJUSTABLE.

3.2 DURING THE OCCUPIED MODE OF OPERATION, WHEN ROOM TEMPERATURE AT T-2 IS BELOW SETPOINT, SUPPLY AIR VALVE ACTUATOR SHALL MODULATE THE AIR VALVE TO REDUCE AIRFLOW TO THE SUMMER MINIMUM SETTING. ON A FURTHER DROP IN ROOM TEMPERATURE AT T-2 THE SUPPLY AIR VALVE ACTUATOR SHALL MODULATE UPWARD TO THE WINTER MINIMUM AIRFLOW AND THE HOT WATER VALVE V-1 SHALL MODULATE OPEN TO COIL TO MAINTAIN TEMPERATURE SETPOINT.

3.3 DURING THE OCCUPIED MODE OF OPERATION, AS ROOM TEMPERATURE RISES ABOVE SETPOINT, HOT WATER VALVE V-1 SHALL CLOSE. IF THE ROOM TEMPERATURE CONTINUES TO RISE ABOVE SETPOINT, SUPPLY AIR VALVE SHALL MODULATE FROM SUMMER (COOLING) MINIMUM AIRFLOW TO MAXIMUM AIRFLOW TO MAINTAIN ROOM TEMPERATURE.

3.4 OCCUPANCY SENSOR OS-1 PROVIDED UNDER DIV. 26, OR THIS CONTRACT, SHALL DETERMINE OCCUPIED/UNOCCUPIED MODES OF OPERATION. TO INVOKE UNOCCUPIED SEQUENCE (3.5 BELOW), OCCUPANCY SENSORS FOR ALL SPACES ON A GIVEN TERMINAL UNIT ZONE MUST SATISFY THIS CONDITION. EXTEND LOW VOLTAGE WIRING FROM ALL APPLICABLE OCCUPANCY SENSOR(S) TO THE TERMINAL BOX CONTROLLER.

3.5 DURING THE UNOCCUPIED MODE OF OPERATION, THE SUPPLY AIR VALVE ACTUATOR SHALL POSITION TO THE UNOCCUPIED AIRFLOW SETTING (REFER TO AIR TERMINAL UNIT SCHEDULE ON SHEET H3).

3.6 DURING THE UNOCCUPIED MODE OF OPERATION, WHEN THE ROOM TEMPERATURE AT T-2 IS BELOW THE UNOCCUPIED HEATING SETPOINT (REFER TO HVAC DESIGN DATA SCHEDULE ON SHEET H2), THE CONTROL SHALL INDEX TO THE OCCUPIED HEATING MODE OF OPERATION. THE CONTROL SHALL REVERT TO UNOCCUPIED OPERATION (SEE 3.5 ABOVE) WHEN ROOM TEMPERATURE AT T-2 RISES 2 DEGREES (ADJUSTABLE) ABOVE THE UNOCCUPIED HEATING SETPOINT.

3.7 DURING THE UNOCCUPIED MODE OF OPERATION, WHEN THE ROOM TEMPERATURE AT T-2 IS ABOVE THE UNOCCUPIED COOLING SETPOINT (REFER TO HVAC DESIGN DATA SCHEDULE ON SHEET H2), THE CONTROL SHALL INDEX TO THE OCCUPIED COOLING MODE OF OPERATION. THE CONTROL SHALL REVERT TO UNOCCUPIED OPERATION (SEE 3.5 ABOVE) WHEN ROOM TEMPERATURE T-2 REDUCES 2 DEGREES (ADJUSTABLE) BELOW THE UNOCCUPIED COOLING SETPOINT.

4. VIVARIUM ROOMS WITH MULTIPLE TYPES OF EQUIPMENT EXHAUST (THREE OR FOUR EXAHUST VALVES).

4.1 EACH EQUIPMENT ROOM SHALL BE SELECTED ON THE SOFTWARE SCREEN TO BE OCCUPIED OR UNOCCUPIED.

4.2 WHEN THE ROOM IS OCCUPIED THE AIR FLOW SHALL OPERATE AT THE MAXIMUM CFM. THE ROOM THERMOSTAT SHALL MODULATE THE HOT WATER VALVE V-1 TO MAINTAIN SPACE TEMPERATURE.

4.3 A GENERAL EXHAUST VALVE SHALL BE ELECTRONICALLY CONTROLLED BY A SUPPLY/EXHAUST TRACKING CONTROLLER TO MAINTAIN A FIXED VOLUME OFFSET BETWEEN THE SUPPLY AND EQUIPMENT EXHAUST VOLUMES. THE FIXED VOLUME OFFSET SHALL BE INDEPENDENT OF THE SUPPLY VOLUME MAGNITUDE AND SHALL BE FIELD ADJUSTABLE.

4.4 AN EQUIPMENT OPERATION SWITCH SHALL BE PROVIDED TO SEND A SIGNAL TO THE DCP WHEN THE SWITCH IS ACTIVATED BY THE VIVARIUM STAFF OPERATING ASSOCIATED EQUIPMENT. THE ASSOCIATED EXHAUST VALVE SHALL OPEN TO PROVIDE THE VOLUME OF EXHAUST REQUIRED BY THE ASSOCIATED EQUIPMENT, AND THE SPACE SUPPLY AIR VOLUME SHALL INCREASE TO PROVIDE ADDITONAL MAKE-UP AIR AND GENERAL EXHAUST AIR VOLUME SHALL DECREASE TO MAINTAIN THE REQUIRED FIXED SUPPLY/EXHAUST VOLUME OFFSET.

5. FACILITY MONITORING SYSTEM.

5.1 THE ACTUAL AIR CHANGE RATE IN EACH MONITORED SPACE SHALL BE DYNAMIC AND WILL BE VARIED TO SATISFY THE BOTH THE THERMAL DEMAND AND THE DEMAND CONTROL VENTILATION (DCV) DEMAND AT ALL TIMES.

5.2 THE LABORATORY TYPE AIRFLOW CONTROL SYSTEM (LACS) WILL CONTROL THE VIVARIUM AIRFLOW CONTROL EQUIPMENT IN RESPONSE TO THE GREATEST OF THREE DEMANDS:

1) TEMPERATURE CONTROL 2) FUME HOOD DEMAND 3) SPACE-DCV

5.3 THE LACS WILL CONTROL THE AIRFLOW AND TEMPERATURE IN EACH SPACE. AIRFLOW SHALL BE MAINTAINED AT A CONSTANT VALUE DURING NORMAL OPERATION AND TEMPERATURE MAINTAINED BY MODULATING THE REHEAT CONTROL VALVE. THE LACS WILL OPERATE INDEPENDENT OF THE FACILITY MONITORING SYSTEM (FMS) AND SHALL OVERRIDE THE SPACE-DCV WHEN REQUIRED TO MAINTAIN COMFORT AND WELL BEING. THE FMS WILL PROVIDE ANALOG PROPORTIONAL SPACE-DCV SIGNALS THAT CORRESPOND TO THE CONTAMINANT LEVELS (TVOC, PARTICLES, CO2, ETC.) SENSED WITHIN THE GENERAL EXHAUST (GEX) DUCT FOR EACH SPACE. THE LACS SHALL PROVIDE A MPDCV SIGNAL THAT CORRESPONDS TO AN AIR CHANGE PER HOUR (ACH) VENTILATION RATE THAT IS DEFINED BY THE CONTAMINANT LEVELS (TVOC, PARTICLES, CO2, ETC.) SENSED WITHIN THE VIVARIUM SPACE. THESE SENSED PARAMETERS SHALL BE MEASURED AGAINST A SUPPLY AIR REFERENCE POINT THAT SHARES THE SAME SENSOR SET AND IS REPRESENTATIVE OF THE AIR BEING SUPPLIED TO THE SPACE, TYPICALLY AT THE AIR HANDLING UNIT, TO PROVIDE A SPACE-SPECIFIC DIFFERENTIAL MEASUREMENT. THIS DIFFERENTIAL MEASUREMENT SHALL BE CONVERTED TO A MPDCV SIGNAL IN ACH.

5.4 WHEN THE FMS SENSES A CO2, TVOC, OR PARTICULATE CONCENTRATION IN THE GENERAL EXHAUST AIR THAT IS BELOW THE MINIMUM SET POINT, THE AIRFLOW SET POINT SHALL MAINTAIN THE MINIMUM AIR CHANGE RATE (FIELD ADJUSTABLE).

5.5 WHEN THE FMS SENSES A CO2, TVOC, OR PARTICULATE CONCENTRATION IN THE GENERAL EXHAUST AIR THAT IS ABOVE THE HIGH SET POINT DEFINED BY THE BMS, THE AIRFLOW SET POINT MAINTAIN THE MAXIMUM AIR CHANGE RATE TO PURGE THE SPACE.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT NO.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: CONTROLS AND AUTOMATION

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

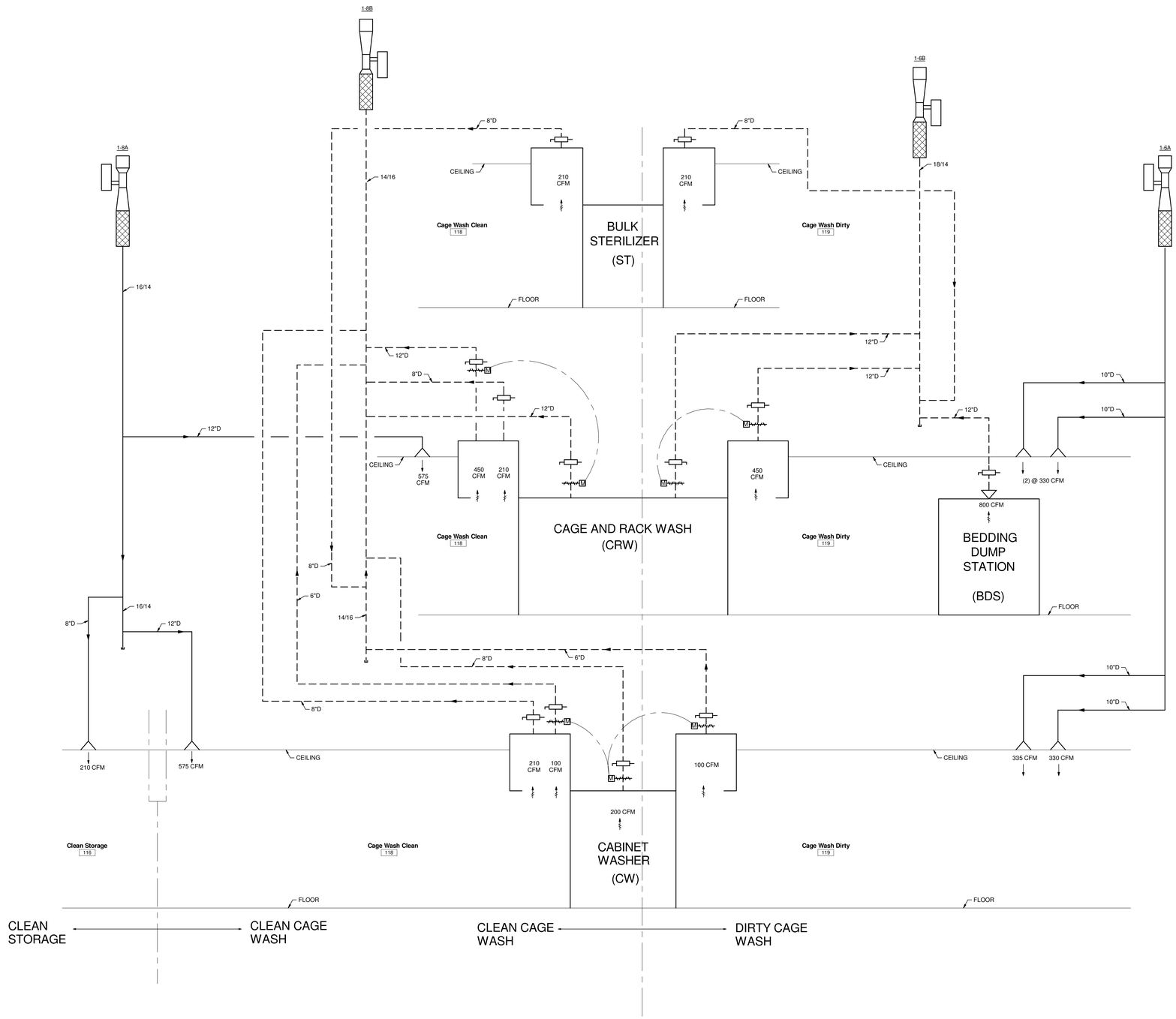
Date: 09/29/2011 REVISED AUGUST 17, 2012 | Checked: DLE | Drawn: PCW

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: H12

Office of Construction and Facilities Management
Department of Veterans Affairs



CAGE WASH SUITE AIRFLOW

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@ohnpoe.com

Drawing Title: CAGE WASH SUITE AIRFLOW DIAGRAM

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: DLE

Drawn: PCW

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

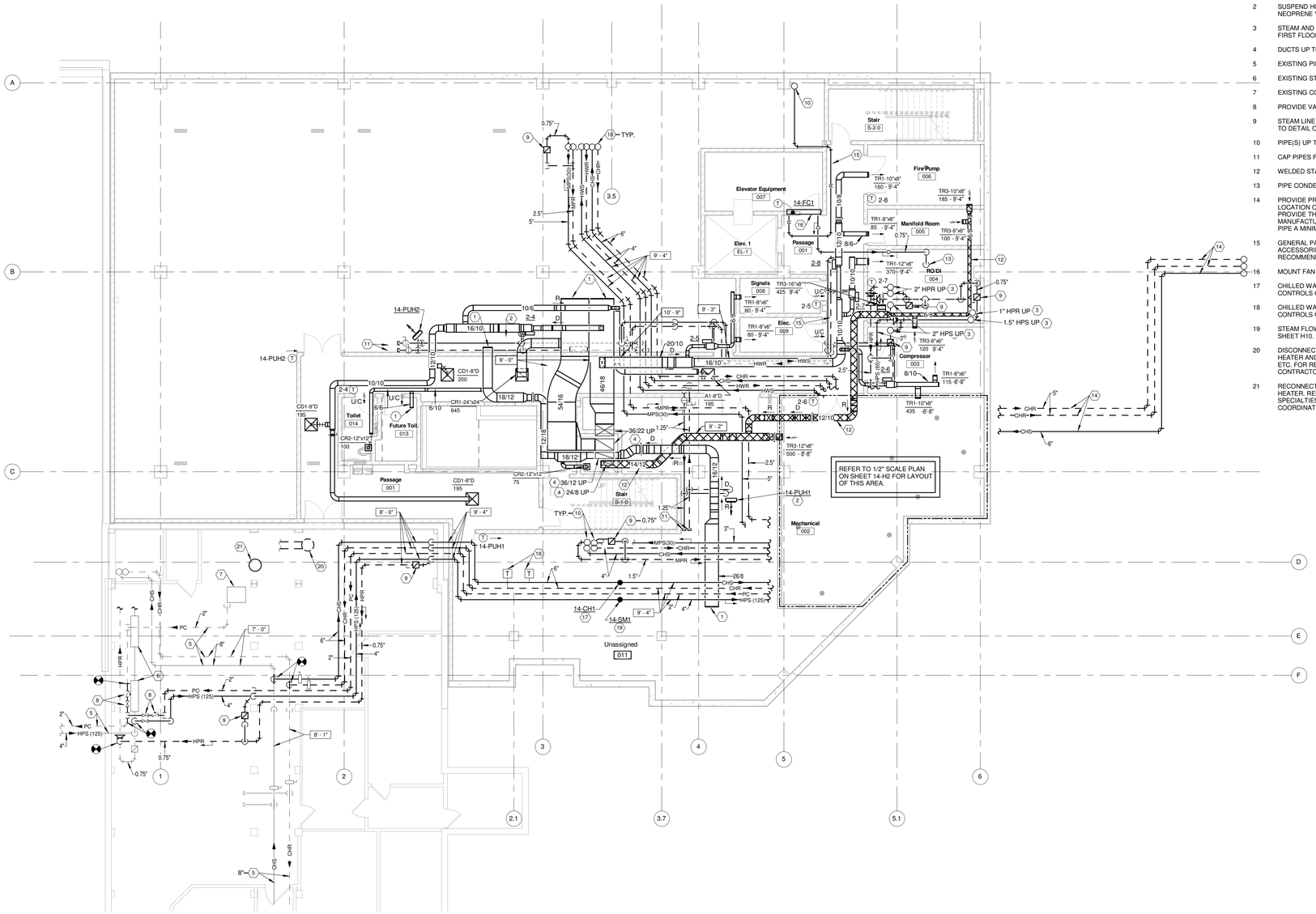
Building Number: 14

Drawing Number: H13

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs



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

GENERAL NOTES

A REFER TO SHEET H1 FOR LEGEND, ABBREVIATIONS AND ADDITIONAL GENERAL NOTES.

NOTES

1. CAP DUCT FOR FUTURE EXTENSION. SEAL AIR TIGHT.
2. SUSPEND HOT WATER UNIT HEATER FROM STRUCTURE. PROVIDE NEOPRENE VIBRATION ISOLATORS.
3. STEAM AND CONDENSATE PIPING UP TO CAGE WASH EQUIPMENT, ON FIRST FLOOR. SEE SHEET 14-H4 FOR CONTINUATION.
4. DUCTS UP TO FIRST FLOOR. SEE SHEET 14-H3 FOR CONTINUATION.
5. EXISTING PIPE(S) TO REMAIN.
6. EXISTING STEAM PRESSURE REDUCING STATION TO REMAIN.
7. EXISTING CONDENSATE PUMP TO REMAIN.
8. PROVIDE VALVE AND CHECK VALVE IN PUMPED CONDENSATE PIPE.
9. STEAM LINE DRIP ASSEMBLY WITH INVERTED BUCKET TRAP. REFER TO DETAIL ON SHEET H7.
10. PIPE(S) UP TO FIRST FLOOR. SEE SHEET 14-H4 FOR CONTINUATION.
11. CAP PIPES FOR FUTURE EXTENSION.
12. WELDED STAINLESS STEEL DUCTWORK.
13. PIPE CONDENSATE DRAIN DISCHARGE TO FLOOR DRAIN.
14. PROVIDE PRE-INSULATED UNDERGROUND CHILLED WATER PIPING TO LOCATION OF FUTURE CHILLERS. STUB PIPING ABOVE GRADE. PROVIDE THRUST BLOCKS, SUPPORTS, AND BACKFILL PER PIPE MANUFACTURERS' RECOMMENDATIONS. INSTALL TOP OF JACKETED PIPE A MINIMUM OF 36" BELOW GRADE.
15. GENERAL PATH OF REFRIGERANT PIPING. PROVIDE SIZES AND ACCESSORIES PER EQUIPMENT MANUFACTURERS RECOMMENDATIONS.
16. MOUNT FAN COIL UNIT ON WALL ABOVE DOOR.
17. CHILLED WATER FLOW METER. REFER TO FLOW METERING CONTROLS ON SHEET H10.
18. CHILLED WATER TEMPERATURE SENSORS. REFER TO FLOW METER CONTROLS ON SHEET H10.
19. STEAM FLOW METER. REFER TO FLOW METERING CONTROLS ON SHEET H10.
20. DISCONNECT STEAM AND CONDENSATE PIPING TO DOMESTIC WATER HEATER AND ASSOCIATED CONTROLS, WIRING, STEAM SPECIALTIES ETC. FOR RELOCATION IN NEW WORK. COORDINATE WITH PLUMBING CONTRACTOR.
21. RECONNECT STEAM AND CONDENSATE PIPING TO DOMESTIC WATER HEATER. RELOCATE ALL ASSOCIATED CONTROLS, WIRING, STEAM SPECIALTIES ETC., FOR A COMPLETE AND FUNCTIONAL SYSTEM. COORDINATE WITH PLUMBING CONTRACTOR.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: BASEMENT DUCTWORK AND PIPING PLAN - NEW WORK

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: DLE

Drawn: PCW

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-H1

Dwg. of

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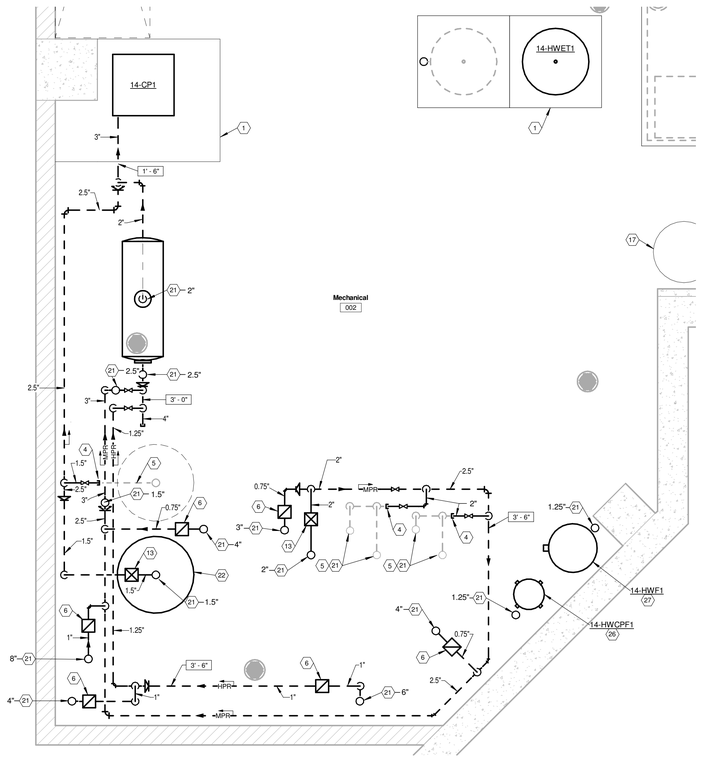
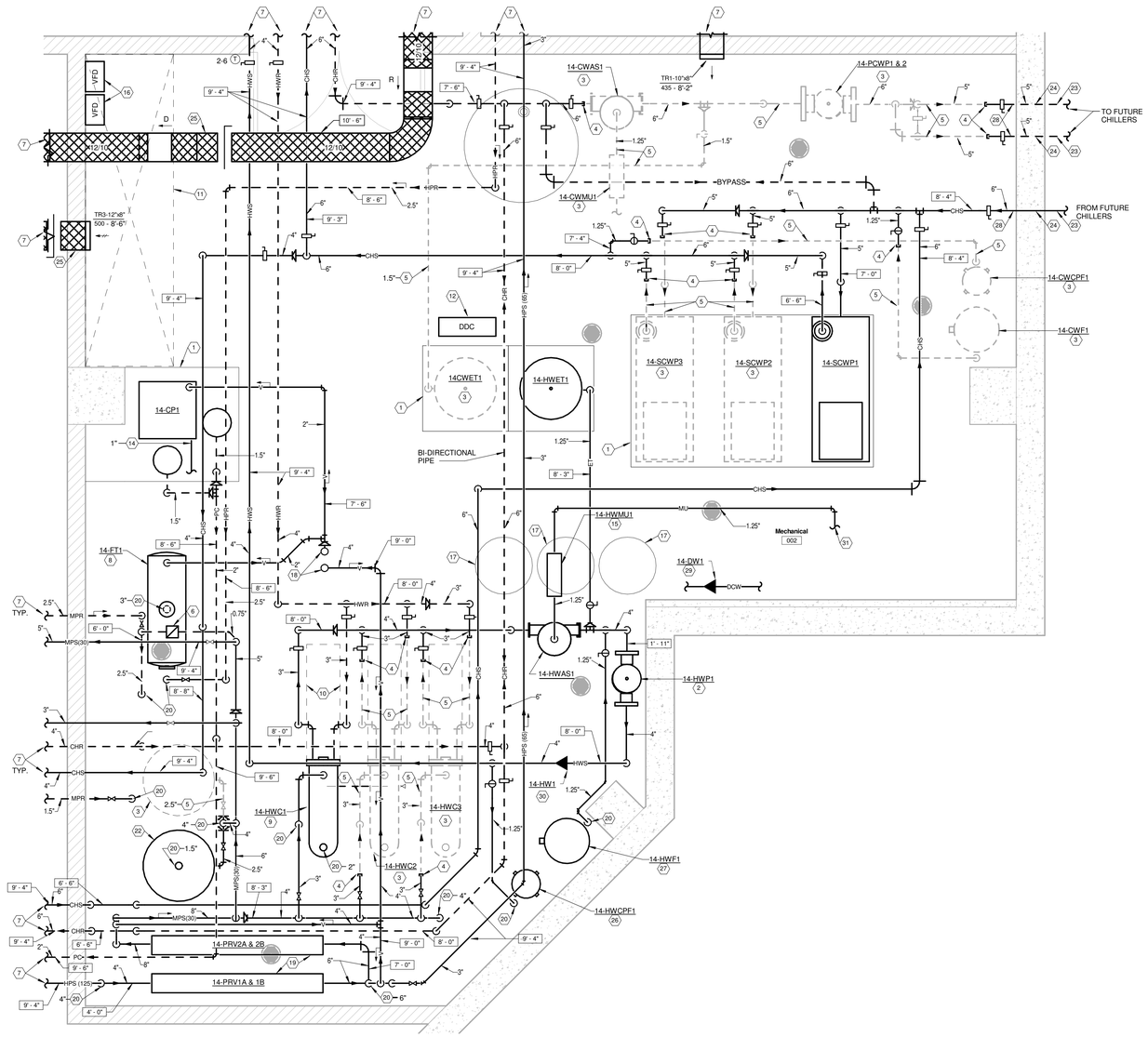
Department of Veterans Affairs



2 BASEMENT MECHANICAL ROOM - CONDENSATE PIPING PLAN
1/2" = 1'-0"



1 BASEMENT MECHANICAL ROOM PLAN
1/2" = 1'-0"

GENERAL NOTES

A REFER TO SHEET H1 FOR LEGEND, ABBREVIATIONS AND ADDITIONAL GENERAL NOTES.

B REFER TO SHEETS H8 AND H9 STEAM, HOT AND CHILLED WATER SYSTEM SCHEMATICS, FOR REQUIRED VALVING AND ACCESSORIES.

NOTES

1 4" HIGH CONCRETE BASE.

2 PROVIDE AN ANGLE FRAME TO SUPPORT PUMPS AND PIPING OFF FLOOR OR WALL. MAKE PROVISIONS FOR FUTURE PUMPS 14-HWP2 AND 14-HWP3. PUMPS TO BE STACKED VERTICALLY ALONG WALL. REFER TO HOT WATER SYSTEM SCHEMATIC ON SHEET H9.

3 LOCATION FOR FUTURE EQUIPMENT.

4 CAP PIPE FOR FUTURE EXTENSION.

5 LOCATION FOR FUTURE PIPING. INCLUDE ON PIPING COORDINATION/LAYOUT DRAWINGS TO ALLOW SPACE FOR FUTURE INSTALLATION.

6 STEAM LINE DRIP ASSEMBLY WITH INVERTED BUCKET TRAP. REFER TO DETAIL ON SHEET H7, AND STEAM SYSTEM SCHEMATIC ON SHEET H8.

7 SEE SHEET 14-H1 FOR CONTINUATION.

8 PROVIDE AN ANGLE FRAME TO SUPPORT FLASH TANK OFF FLOOR.

9 PROVIDE SADDLE SUPPORTS AND ANGLE FRAME TO SUPPORT HEAT EXCHANGER OFF FLOOR. MOUNT BOTTOM OF HEAT EXCHANGER APPROXIMATELY 5'-0" ABOVE FLOOR TO ALLOW GRAVITY DRAINAGE TO FLASH TANK.

10 MAINTAIN CLEAR AREA FOR TUBE PULL SPACE.

11 SPACE DEDICATED FOR ELECTRICAL. DO NOT LOCATE ANY PIPING IN THIS AREA.

12 MECHANICAL ROOM DDC CONTROL PANEL, MOUNT ON ANGLE FRAME. REFER TO SHEET H10.

13 F & T TRAP ASSEMBLY. REFER TO DETAIL ON SHEET H7.

14 EXTEND FULL SIZE DRAIN PIPE TO FLOOR DRAIN. APPROXIMATE SIZE INDICATED.

15 AUTOMATIC WATER MAKE UP ASSEMBLY. REFER TO HOT WATER SYSTEM SCHEMATIC ON SHEET H9.

16 PUMP VARIABLE SPEED MOTOR CONTROLLERS. REFER TO ELECTRICAL DRAWINGS.

17 DOMESTIC WATER SOFTENING EQUIPMENT. REFER TO PLUMBING DRAWINGS.

18 VENT PIPES UP THRU FIRST FLOOR TO ROOF. SEE SHEET 14-H4 FOR CONTINUATION.

19 STACK STEAM PRESSURE REDUCING STATIONS VERTICALLY ALONG WALL. STATIONS SHOWN HORIZONTALLY FOR CLARITY.

20 SEE BASEMENT MECHANICAL ROOM - CONDENSATE PIPING PLAN ON THIS SHEET FOR CONTINUATION.

21 SEE BASEMENT MECHANICAL ROOM PLAN ON THIS SHEET FOR CONTINUATION.

22 DOMESTIC WATER HEATER. REFER TO PLUMBING DRAWINGS.

23 PROVIDE PRE-INSULATED UNDERGROUND CHILLED WATER PIPING TO LOCATION OF FUTURE CHILLERS. INSTALL TOP OF JACKETED PIPE A MINIMUM OF 36" BELOW GRADE.

24 PROVIDE LINK TYPE SEAL FOR PIPING THRU WALL.

25 WELDED STAINLESS STEEL DUCTWORK.

26 INSTALL TOP OF CHEMICAL POT FEEDER TANK NO MORE THAN 3'-0" ABOVE FLOOR.

27 PROVIDE ROOM FOR INSULATING FILTER AND PIPING.

28 PROVIDE 1" DRAIN VALVE WITH HOSE CONNECTION AND SCREW-ON CAP. REFER TO CHILLED WATER SYSTEM SCHEMATIC ON SHEET H9.

29 DOMESTIC WATER FLOW METER. REFER TO FLOW METERING CONTROLS ON SHEET H10. COORDINATE LOCATION WITH PLUMBING CONTRACTOR.

30 HOT WATER FLOW METER. REFER TO HOT WATER CONVERTOR CONTROLS ON SHEET H10.

31 COORDINATE EXACT LOCATION AND ELEVATION OF MAKEUP WATER CONNECTION POINT WITH P.C. REFER TO SHEET 14-P2 FOR ADDITIONAL INFORMATION.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO
JOHN A. BLACK
49341
REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: BASEMENT MECHANICAL ROOM PLAN

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: Approver

Drawn: Designer

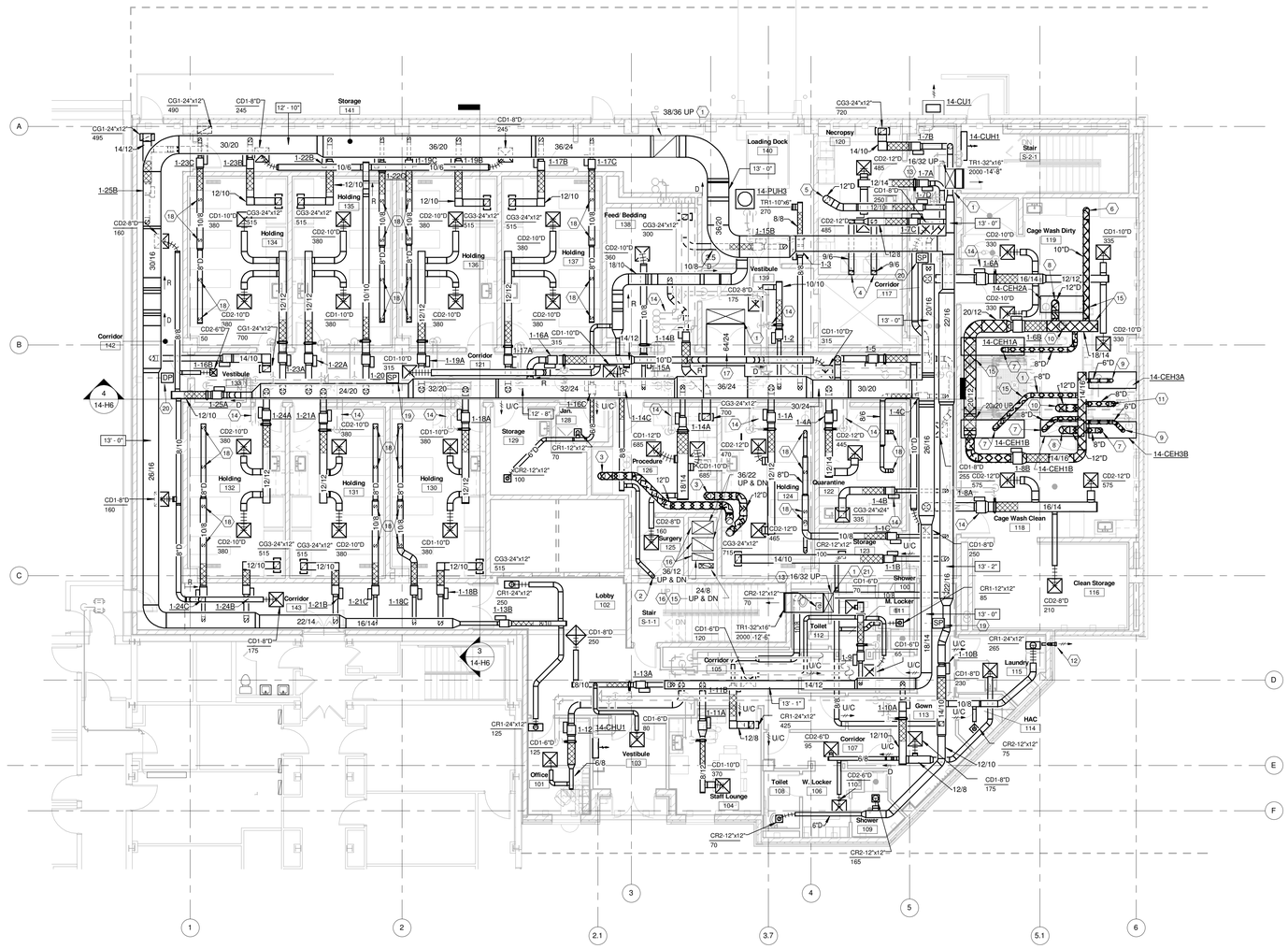
Project No: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-H2

Office of Construction and Facilities Management

Department of Veterans Affairs



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

GENERAL NOTES

A REFER TO SHEET H1 FOR LEGEND, ABBREVIATIONS AND ADDITIONAL GENERAL NOTES.

B REFER TO SHEET 14-H4 FOR ROOM THERMOSTATS/SENSOR LOCATIONS.

NOTES

1 DUCT UP TO SECOND FLOOR. REFER TO SHEET 14-H5 FOR CONTINUATION.

2 DROP 6"D DUCT DOWN TO CONNECT TO SNORKEL EXHAUST. TRANSITION DUCTWORK TO EQUIPMENT CONNECTION SIZE. PROVIDE MANUAL DAMPER AND BALANCE TO 140 CFM.

3 DROP 12"D DUCT DOWN TO CONNECT TO TYPE B2 BIO-SAFETY CABINET. TRANSITION DUCTWORK TO EQUIPMENT CONNECTION SIZE. PROVIDE MANUAL DAMPER AND BALANCE TO 810 CFM.

4 DROP 9/6 DUCT DOWN TO CONNECT TO DOWN DRAFT WORKSTATION. TRANSITION DUCTWORK TO EQUIPMENT CONNECTION SIZE. PROVIDE MANUAL DAMPER AND BALANCE TO 300 CFM.

5 DROP 12"D DUCT DOWN TO CONNECT TO CHEMICAL FUME HOOD. TRANSITION DUCTWORK TO EQUIPMENT CONNECTION SIZE. PROVIDE MANUAL DAMPER AND BALANCE TO 515 CFM.

6 DROP 10"D DUCT DOWN TO CONNECT TO BEDDING DUMP STATION. TRANSITION DUCTWORK TO EQUIPMENT CONNECTION SIZE. PROVIDE MANUAL DAMPER AND BALANCE TO 800 CFM.

7 PROVIDE POLISHED STAINLESS STEEL CANOPY HOOD WITH EXHAUST DUCT COLLAR(S) WITH MANUAL DAMPER(S). CONNECT 8"D DUCT AND BALANCE TO 210 CFM. PROVIDE CONDENSATE GUTTER ON HOOD AND EXTEND 1" PIPE TO FLOOR DRAIN. MOUNT HOOD FLUSH WITH CEILING. REFER TO SCHEDULE ON SHEET H2 FOR EXACT QUANTITY OF EXHAUST CONNECTIONS AND RESPECTIVE AIRFLOW VALUES.

8 PROVIDE TWO POSITION STAINLESS STEEL DAMPER AT HOOD CONNECTION. INTERLOCK WITH CAGE AND RACK WASHER. PROVIDE ADDITIONAL MANUAL DAMPER AND BALANCE TO 450 CFM.

9 PROVIDE TWO POSITION STAINLESS STEEL DAMPER AT HOOD CONNECTION. INTERLOCK WITH CABINET WASHER. PROVIDE ADDITIONAL MANUAL DAMPER AND BALANCE TO 100 CFM.

10 DROP 12"D DUCT DOWN TO CONNECT TO CAGE RACK WASHER. TRANSITION DUCTWORK TO EQUIPMENT CONNECTION SIZE. PROVIDE MANUAL DAMPER AND BALANCE TO 450 CFM. AUTOMATIC TWO POSITION DAMPER PROVIDED WITH EQUIPMENT.

11 DROP 8"D DUCT DOWN TO CONNECT TO CABINET WASHER. TRANSITION DUCTWORK TO EQUIPMENT CONNECTION SIZE. PROVIDE MANUAL DAMPER AND BALANCE TO 200 CFM. AUTOMATIC TWO POSITION DAMPER PROVIDED WITH EQUIPMENT.

12 PROVIDE 4" DRYER VENT PIPE IN WALL. TERMINATE AT OUTLET 10'-0" ABOVE GRADE. WALL CAP SHALL BE WEATHER RESISTANT, STAINLESS STEEL CONSTRUCTION WITH INTEGRAL STAINLESS STEEL BACKDRAFT DAMPER. COORDINATE INSIDE INLET HEIGHT WITH ACTUAL EQUIPMENT.

13 FIREWRAP STAIR PRESSURIZATION DUCTWORK FROM PENETRATION ABOVE TO WALL PENETRATION.

14 COORDINATE EXACT LOCATION REQUIREMENTS OF ACCESS PANEL WITH G.C. AND COTR.

15 WELDED 316 STAINLESS STEEL DUCTWORK. SLOPE HORIZONTAL DUCT RUNS TO DRAIN TOWARD EQUIPMENT.

16 DUCT THRU FLOOR WITH TYPE B STATIC FIRE DAMPER IN FLOOR. ACCESS FROM THIS FLOOR. COORDINATE WALL ACCESS PANEL LOCATION WITH G.C. AND COTR. SEE SHEETS 14-H1 AND 14-H5 FOR CONTINUATION.

17 ISOLATION SMOKE DAMPER. REFER TO 14-AHU1 CONTROLS ON SHEET H11.

18 CAGE RACK CONNECTION. REFER TO DETAIL ON SHEET H5. PROVIDE MANUAL DAMPER AND BALANCE TO 90 CFM.

19 PROVIDE DUCT STATIC PRESSURE SENSOR IN THIS APPROXIMATE LOCATION (2 SENSORS TOTAL) FOR CONTROL OF 14-SF1.

20 PROVIDE DUCT STATIC PRESSURE SENSOR IN THIS APPROXIMATE LOCATION (2 SENSORS TOTAL) FOR CONTROL OF 14-DEF1.

21 STAIR PRESSURIZATION DUCT. TERMINATE ABOVE FIRST FLOOR CEILING AND CAP FOR FUTURE EXTENSION. SEAL AIR TIGHT. FIREWRAP DUCT, INCLUDING CAP.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com

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STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130

937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: FIRST FLOOR DUCTWORK PLAN - NEW WORK

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED: July 20, 2012

Checked: DLE

Drawn: PCW

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-H3

Dwg. of

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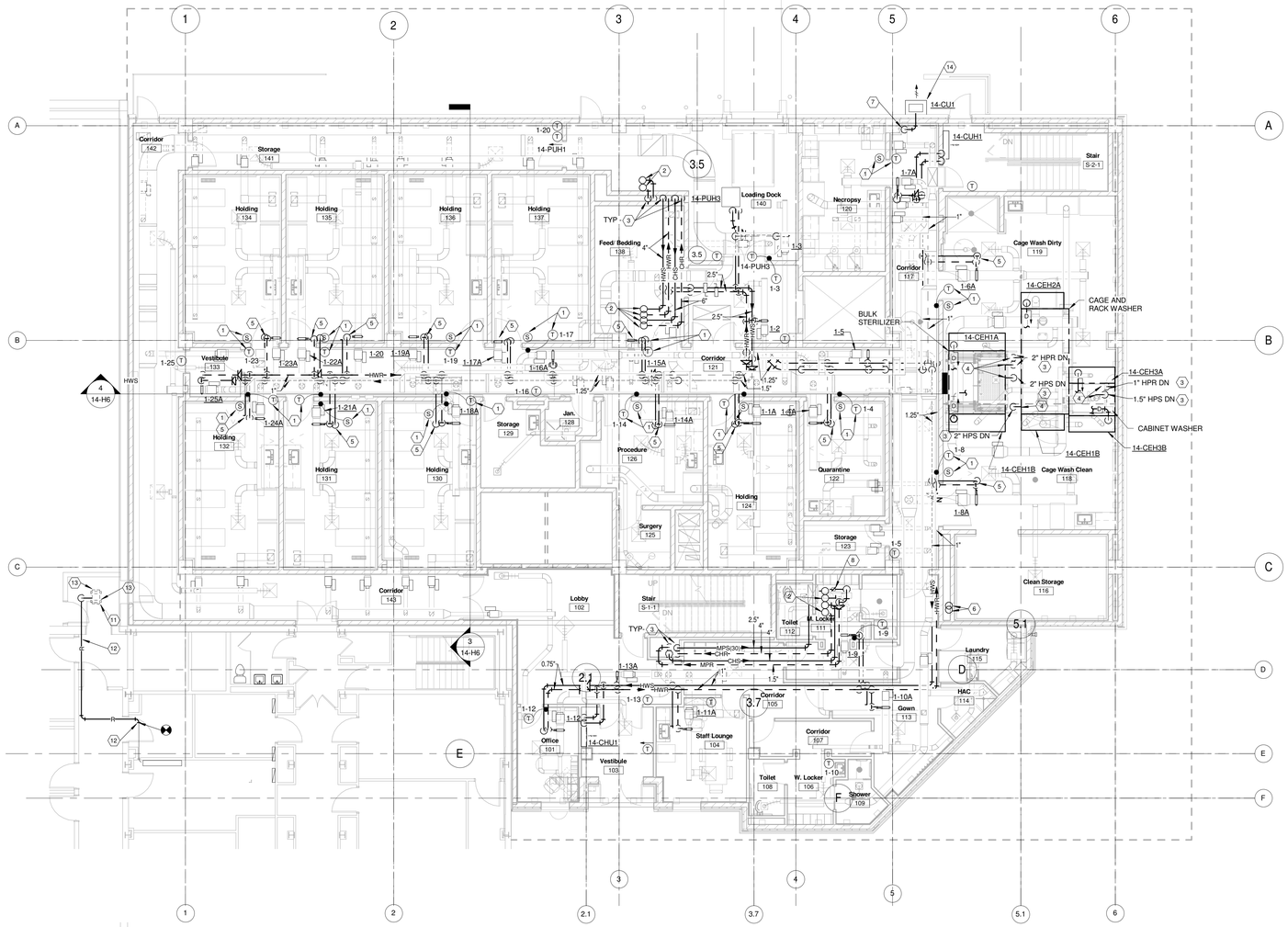
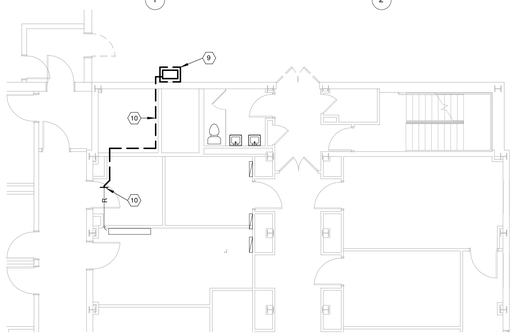


1 FIRST FLOOR PIPING PLAN
1/8" = 1'-0"



2 PARTIAL FIRST FLOOR DEMO PLAN
1/8" = 1'-0"

GENERAL NOTES

A REFER TO SHEET H1 FOR LEGEND, ABBREVIATIONS AND ADDITIONAL GENERAL NOTES.

NOTES

1 THERMOSTAT WITH DISPLAY MOUNTED ON CORRIDOR WALL WITH SENSING ELEMENT EXTENDED INTO ROOM TO ALLOW FOR WASH DOWN OF ROOM.

2 PIPING UP TO SECOND FLOOR MECHANICAL ROOM. SEE SHEET 14-H5 FOR CONTINUATION.

3 PIPING DOWN TO BASEMENT. SEE SHEET 14-H1 CONTINUATION.

4 CONNECT PIPING TO EQUIPMENT PER MANUFACTURERS RECOMMENDATIONS. COORDINATE EXACT CONNECTION LOCATION AND SIZE WITH ACTUAL EQUIPMENT. REFER TO STEAM EQUIPMENT CONNECTION DETAIL ON SHEET H6.

5 PROVIDE ALL HYDRONIC SPECIALTIES IN CORRIDOR ABOVE ACCESSIBLE CEILING.

6 4" VENT PIPES FROM BELOW. SEE SHEETS 14-H2 FOR CONTINUATION.

7 REFRIGERANT PIPING FROM BELOW. SEE SHEET 14-H1 FOR CONTINUATION.

8 STEAM LINE DRIP ASSEMBLY WITH INVERTED BUCKET TRAP. REFER TO DETAIL ON SHEET H7.

9 REMOVE WALL MOUNTED AIR COOLED CONDENSING UNIT AND ASSOCIATED WALL BRACKETS, CONTROL WIRING, ETC FOR RELOCATION IN NEW WORK. COORDINATE SHUTDOWN OF INSIDE EQUIPMENT WITH COTR.

10 REMOVE REFRIGERANT PIPING BACK TO POINT INDICATED FOR RECONNECTION IN NEW WORK. RECOVER REFRIGERANT FOR RE-USE IN NEW WORK.

11 RELOCATE EXISTING AIR COOLED CONDENSING UNIT TO FIRST FLOOR ROOF ABOVE THIS APPROXIMATE LOCATION.

12 PROVIDE REFRIGERANT PIPING, INSULATION, REFRIGERANT, REFRIGERATION SPECIALTIES, ETC. PER MANUFACTURER'S RECOMMENDATIONS.

13 PROVIDE EQUIPMENT SUPPORT CURBS.

14 PROVIDE ANGLE IRON SUPPORT FRAME TO MOUNT 14-CU1 ON WALL APPROXIMATELY 9'-0" ABOVE GRADE. COORDINATE EXACT MOUNTING HEIGHT WITH COTR. PRIME AND PAINT FRAME TO PROVIDE A WEATHER RESISTANT FINISH. COLOR SELECTION BY ARCHITECT.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT NO.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO
JOHN A. BLACK
49341
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: FIRST FLOOR PIPING PLAN - NEW WORK

Approved: Project Director

Project Title: BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011
REVISED AUGUST 17, 2012

Checked: DLE

Drawn: PCW

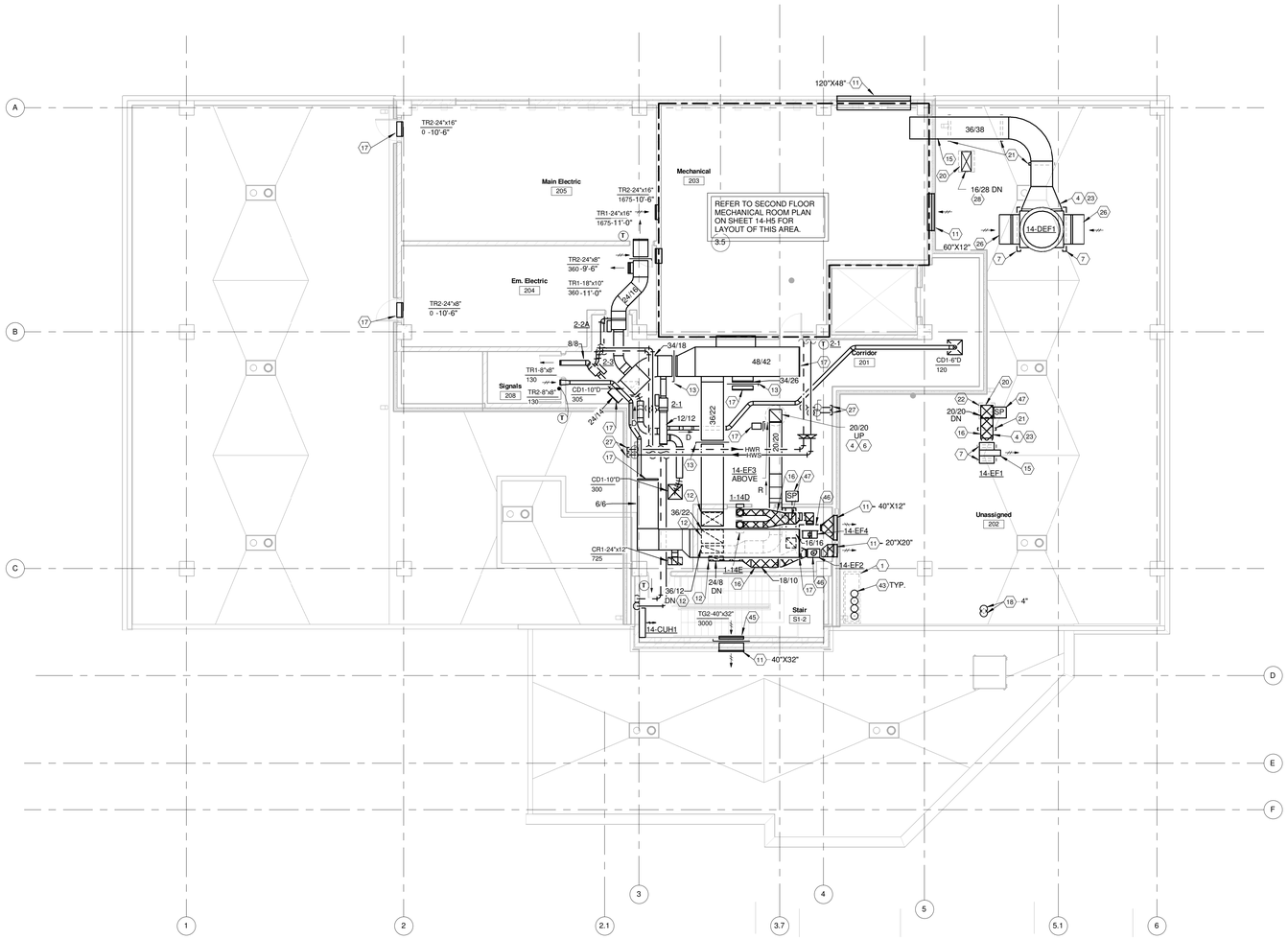
Project No.: VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

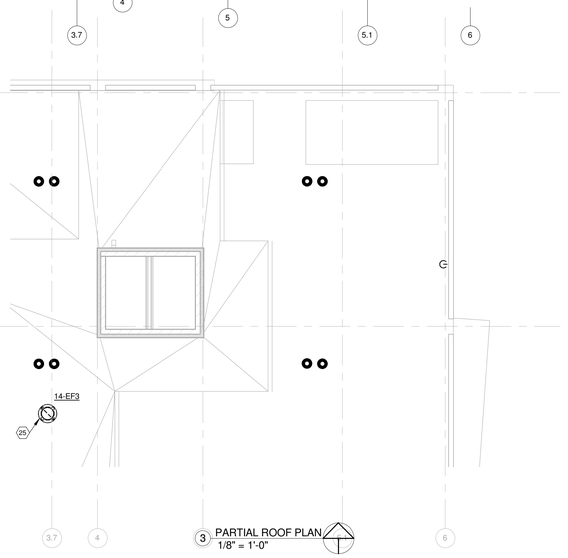
Drawing Number: 14-H4

Dwg. of

Office of Construction and Facilities Management
Department of Veterans Affairs



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



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

GENERAL NOTES

A REFER TO SHEET H1 FOR LEGEND, ABBREVIATIONS AND ADDITIONAL GENERAL NOTES.

NOTES

1 PROVIDE ROOF PENETRATION PIPE CURB. CAP PIPES ABOVE ROOF AND PROVIDE WEATHER PROOF INSULATED COVER OVER CURB.

2 NOTE OMITTED.

3 PIPING DOWN TO FIRST FLOOR. SEE SHEET 14-H4 FOR CONTINUATION.

4 TRANSITION DUCTWORK TO FULL SIZE OF EQUIPMENT CONNECTION.

5 NOTE OMITTED.

6 EXHAUST DUCT UP TO ROOF MOUNTED EXHAUST FAN. SEE PARTIAL ROOF PLAN ON THIS SHEET.

7 PROVIDE EQUIPMENT SUPPORT CURB(S).

8 PROVIDE NEW DDC CONTROL PANEL. REFER TO SHEET H11 AND SPECIFICATION SECTION 23 09 23 FOR ADDITIONAL INFORMATION.

9 PROVIDE NEW BUILDING NETWORK AREA CONTROLLER. REFER TO SPECIFICATION SECTION 23 09 23 FOR ADDITIONAL INFORMATION.

10 PROVIDE NEW FACILITY MONITORING SYSTEM PANEL. REFER TO SPECIFICATION SECTION 23 09 23 FOR ADDITIONAL INFORMATION.

11 LOUVER BY G.C. APPROXIMATE SIZE LISTED. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT MOUNTING LOCATIONS.

12 DUCT THRU FLOOR WITH TYPE "B" STATIC FIRE DAMPER. ACCESS FROM THIS FLOOR. SEE SHEET 14-H3 FOR CONTINUATION.

13 PROVIDE AUTOMATIC DAMPER IN DUCT TO ALLOW FOR FUTURE EMERGENCY BACKUP FOR 14-AHU1. DAMPER TO BE LOCKED OPEN IN THIS PHASE.

14 GLYCOL FEED UNIT. REFER TO DETAIL FOR EXACT PIPING ARRANGEMENT.

15 PROVIDE 45 DEGREE ELBOW ON DISCHARGE OF EXHAUST FAN ANGLED DOWNWARD. COVER OUTLET WITH ALUMINUM BIRDSCREEN.

16 WELDED 316 STAINLESS STEEL DUCTWORK. SLOPE HORIZONTAL DUCT RUNS TO SLOPE TOWARDS DUCT RISERS.

17 CAP DUCT FOR FUTURE EXTENSION. SEAL AIR TIGHT.

18 EXTEND VENT PIPES THRU ROOF. PROVIDE PIPE PENETRATION ROOF CURB. TERMINATE PIPES A MINIMUM OF 6FT ABOVE ROOF.

19 NOTE OMITTED.

20 PROVIDE DUCT PENETRATION ROOF CURB FOR DUCT THRU ROOF. SEE SHEET 14-H3 FOR CONTINUATION.

21 PROVIDE DUCT SUPPORT CURB(S).

22 EXHAUST DUCT FROM BELOW. PROVIDE TYPE "B" STATIC STAINLESS STEEL FIRE DAMPER AT ROOF SLAB AS THIS WILL BECOME SECOND FLOOR IN FUTURE PHASE. ACCESS FROM SECOND FLOOR/ROOF LEVEL. SEE SHEET 14-H3 FOR CONTINUATION.

23 PROVIDE FLEXIBLE DUCT CONNECTION AT EQUIPMENT CONNECTION.

24 SEE PARTIAL ROOF PLAN ON THIS SHEET FOR CONTINUATION.

25 EXHAUST DUCT FROM BELOW. PROVIDE TYPE "B" STATIC FIRE DAMPER AT ROOF SLAB AS THIS WILL BECOME THIRD FLOOR IN FUTURE PHASE. ACCESS FROM SECOND FLOOR. SEE SECOND FLOOR PLAN ON THIS SHEET FOR CONTINUATION.

26 INDUCED AIR PLENUM WITH AUTOMATIC DAMPERS PROVIDED WITH FAN.

27 VALVE AND CAP PIPE(S) FOR EXTENSION IN FUTURE PHASE.

28 STAIR PRESSURIZATION DUCT THRU FLOOR. TERMINATE 8 FT ABOVE SECOND FLOOR AND CAP FOR FUTURE EXTENSION. SEAL AIR TIGHT. FIREWRAP DUCT FROM FLOOR, INCLUDING CAP. FIRE DAMPER NOT REQUIRED AT FLOOR. SEE SHEET 14-H3 FOR CONTINUATION.

29 AUTOMATIC 2-POSITION OUTSIDE AIR ISOLATION DAMPER. REFER TO 14-AHU1 CONTROLS ON SHEET H-11.

30 ISOLATION SMOKE DAMPER. REFER TO 14-AHU1 CONTROLS ON SHEET H11.

31 AUTOMATIC 2-POSITION EXHAUST AIR ISOLATION DAMPER. REFER TO 14-AHU1 CONTROLS ON SHEET H11.

32 2" THICK DOUBLE WALL INSULATED PLENUM CASING.

33 4" HIGH CONCRETE PAD.

34 24"X60" DOUBLE WALL INSULATED ACCESS DOOR WITH VISION WINDOW.

35 4" HIGH CONCRETE BASE.

36 STEAM HUMIDIFIER. REFER TO DETAIL ON SHEET H7.

37 MOUNT UNIT ON 18" HIGH ANGLE FRAME/COMBINATION ANGLE FRAME AND BASE RAIL, TO PROVIDE REQUIRED HEIGHT FOR STEAM COIL CONDENSATE RETURN DRIP LEG AND TRAP ASSEMBLY. REFER TO STEAM COIL DETAIL ON SHEET H7.

38 PIPE MAINS FROM FLOOR BELOW. SEE SHEET 14-H4 FOR CONTINUATION. TERMINATE NEAR UNDERSIDE OF ROOF DECK (FUTURE THIRD FLOOR) WITH SHUTOFF VALVES AND CAP FOR FUTURE EXTENSION. PROVIDE MANUAL AIR VENT AT TOP OF EACH RISER CAP.

39 EXTEND FULL SIZE DRAIN PIPE TO FLOOR DRAIN. REFER TO AIR HANDLING UNIT TRAP DETAIL ON SHEET H6.

40 MOUNT UNIT ON 8" HIGH BASE RAILS/ANGLE FRAME.

41 SEE SECOND FLOOR PLAN ON THIS SHEET FOR CONTINUATION.

42 PIPE MAINS FROM FLOOR BELOW. SEE SHEET 14-H4 FOR CONTINUATION. TERMINATE NEAR UNDERSIDE OF ROOF DECK (FUTURE THIRD FLOOR) WITH SHUT-OFF VALVES AND CAP FOR FUTURE EXTENSION.

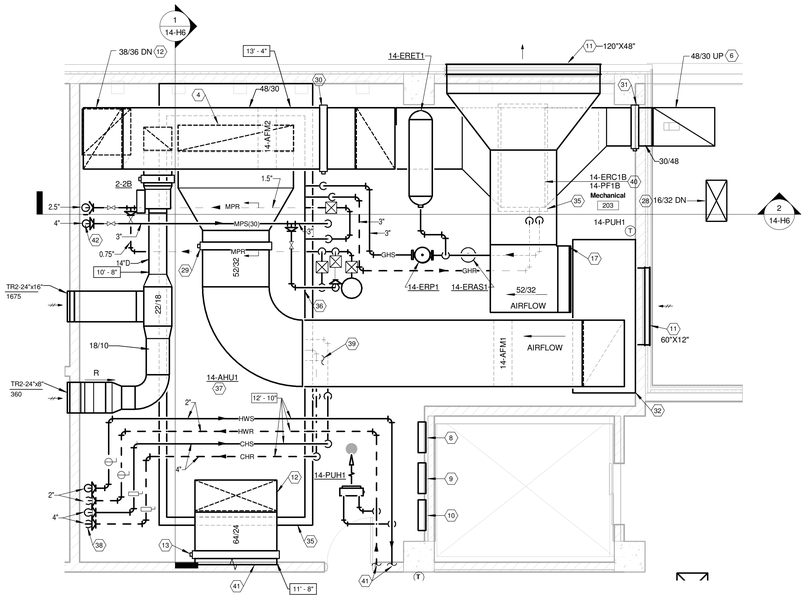
43 PIPE MAINS FROM FLOOR BELOW. SEE SHEET 14-H4 FOR CONTINUATION. TERMINATE APPROXIMATELY 1 FT ABOVE AND CAP FOR FUTURE EXTENSION. SHUT-OFF VALVES ARE NOT REQUIRED AS THESE PIPES WILL REMAIN COLD (SHUT-OFF IN BASEMENT MECHANICAL ROOM) IN THIS PHASE.

44 MOUNT EXHAUST AIR VALVES AND ASSOCIATED SOUND NEUTRALIZERS IN VERTICAL.

45 PROVIDE AUTOMATIC LOW LEAKAGE DAMPER, ACTUATOR, WIRING, ETC. PER DETAIL ON SHEET H4.

46 SUSPEND FAN FROM STRUCTURE. PROVIDE VIBRATION ISOLATION PER SPECIFICATIONS.

47 PROVIDE DUCT STATIC PRESSURE SENSOR FOR EXHAUST FAN CONTROL. REFER TO SHEET H11 FOR ADDITIONAL INFORMATION.



2 SECOND FLOOR MECHANICAL ROOM PLAN
1/4" = 1'-0"

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
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Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
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JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SECOND FLOOR DUCTWORK PIPING AND MECHANICAL PLAN - NEW WORK

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012 | Checked: DLE | Drawn: PCW

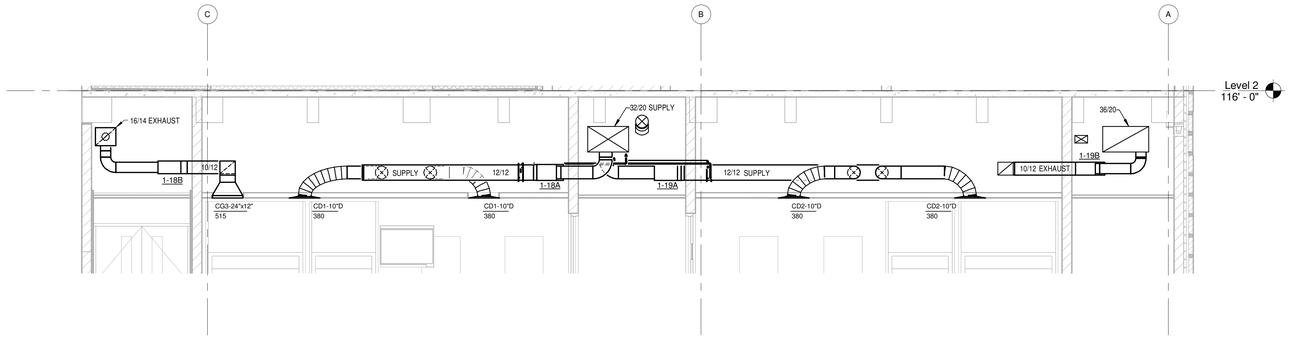
Project No: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

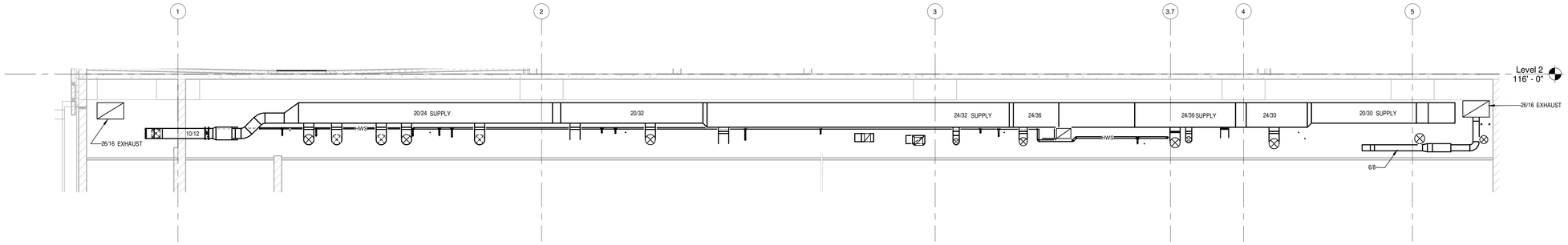
Drawing Number: 14-H5

Office of Construction and Facilities Management

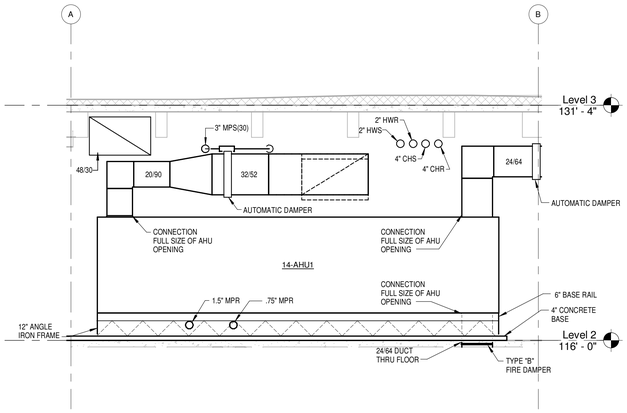
Department of Veterans Affairs



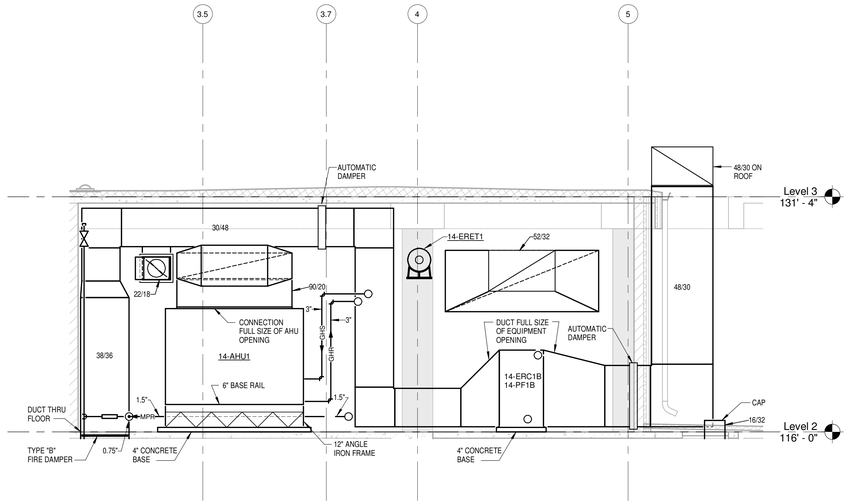
3 ABOVE FIRST FLOOR CEILING SECTION - WEST
1/4" = 1'-0"



4 FIRST FLOOR CORRIDOR SECTION
1/4" = 1'-0"



1 14-AH1 SECTION - WEST
1/4" = 1'-0"



2 SECOND FLOOR MECHANICAL ROOM SECTION - NORTH
1/4" = 1'-0"

Revisions		Date
1	Addendum #1	08/17/2012

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JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SECTIONS

Approved: Project Director

Project Title: BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011
REVISED AUGUST 17, 2012

Checked: DLE

Drawn: PCW

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-H6

Dwg of

Office of Construction and Facilities Management
Department of Veterans Affairs

ELECTRICAL ABBREVIATIONS

1P SINGLE POLE
4W FOUR-WIRE

A/C UNIT AIR CONDITIONING UNIT
A/E ARCHITECT/ENGINEER
AAP ALARM ANNUNCIATOR PANEL
AC ALTERNATING CURRENT OR ARMORED CABLE
ADO AUTOMATIC DOOR OPENER
AF AMPERE FRAME OR AMP FUSE
AFF ABOVE FINISHED FLOOR
AFG ABOVE FINISHED GRADE
AH AMPERE HOUR
AHJ AUTHORITY HAVING JURISDICTION
AIC AMPERE INTERRUPTING CAPACITY
ALT ALTERNATE
AMP AMPERE
ARCH ARCHITECT
ASC AMPS SHORT CIRCUIT
AT AMPERE TRIP
ATS AUTOMATIC TRANSFER SWITCH
AUTO AUTOMATIC
AV AUDIO VISUAL

BIL BASIC INSULATION LEVEL
BLDG BUILDING
BRKR BREAKER
BYP BY PASS

C CONDUIT
CAB CABINET
CATV COMMUNITY ANTENNA TELEVISION
CCTV CLOSED CIRCUIT TELEVISION
cd CANDELA
CF CONTRACTOR FURNISHED
CF/CI CONTRACTOR FURNISHED/CONTRACTOR INSTALLED
CF/OI CONTRACTOR FURNISHED/OWNER INSTALLED
CFE CONTRACTOR FURNISHED EQUIPMENT
CHW CHILLED WATER
CHWP CHILLED WATER PUMP
CKT CIRCUIT
CKT BRKR CIRCUIT BREAKER
CLG CEILING
CMU CONCRETE MASONRY UNIT
COAX COAX CABLE
COMM COMMUNICATION
CPT CONTROL POWER TRANSFORMER
CRI COLOR RENDERING INDEX
CT CURRENT TRANSFORMER
CTV CABLE TELEVISION
CU COPPER

DB DECIBEL OR DIRECT BURIAL
DEMO DEMOLITION
DIAG DIAGRAM
DISC DISCONNECT
DISTR DISTRIBUTION
DISTR PNL DISTRIBUTION PANEL
DN DOWN
DPDT DOUBLE POLE, DOUBLE THROW
DPST DOUBLE POLE, SINGLE THROW
DS DISCONNECT SWITCH
DWG DRAWING

EC EMPTY CONDUIT
EG EQUIPMENT GROUND
ELEC ELECTRIC OR ELECTRICAL
ELEV ELEVATOR
EMER EMERGENCY
EMI ELECTROMAGNETIC INTERFERENCE
EMT ELECTRICAL METALLIC TUBING
EPO EMERGENCY POWER OFF
EWC ELECTRIC WATER COOLER
EWH ELECTRIC WATER HEATER
EXIST EXISTING
EX/R EXISTING TO BE RELOCATED

FA FIRE ALARM
FAAP FIRE ALARM ANNUNCIATOR PANEL
FACP FIRE ALARM CONTROL PANEL
FC FOOTCANDLE
FI FILM ILLUMINATOR
FIXT FIXTURE
FLA FULL LOAD AMPS
FLEX FLEXIBLE METALLIC CONDUIT

FLUOR FLUORESCENT
FP FIRE PROTECTION
FT FEET OR FOOT
FU SW FUSED SWITCH
FVNR FULL VOLTAGE NON-REVERSING

G OR GND GROUND OR GENERATOR
GEN GENERATOR
GFCI GROUND FAULT CIRCUIT INTERRUPTER
GTB GROUND TERMINAL BOX

HID HIGH INTENSITY DISCHARGE
HOA HAND-OFF-AUTOMATIC
HP HORSEPOWER
HT HEIGHT
HZ HERTZ

IESNA ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA
INCAND INCANDESCENT
IR INFRARED
IWH INSTANTANEOUS WATER HEATER

J-BOX JUNCTION BOX

kV KILOVOLT
kVA KILOVOLT AMPERE
kVAR KILOVOLT AMPERE REACTIVE
kW KILOWATT

LED LIGHT EMITTING DIODE
LF LINEAR FEET (FOOT)
LM LUMEN
LP LIGHT POLE
LRA LOCKED ROTOR AMPS
LT LIGHT
LTG LIGHTING
LTNG LIGHTNING
LV LOW VOLTAGE

MATV MASTER ANTENNA TELEVISION SYSTEM
MAX MAXIMUM
MCA MINIMUM CIRCUIT AMPS
MCB MAIN CIRCUIT BREAKER
MCC MOTOR CONTROL CENTER
MDP MAIN DISTRIBUTION PANEL
MH MANHOLE
MIN MINIMUM
MOCP MAXIMUM OVERCURRENT PROTECTION
MLO MAIN LUGS ONLY
MT MOUNT
MTD MOUNTED
MTG MOUNTING
MTS MANUAL TRANSFER SWITCH
MV MEDIUM VOLTAGE

NA NOT APPLICABLE
NEC NATIONAL ELECTRICAL CODE
NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NEUT OR N NEUTRAL
NFPA NATIONAL FIRE PROTECTION ASSOCIATION
NIC NOT IN CONTRACT
NL NIGHT LIGHT
NO NORMALLY OPEN
NTS NOT TO SCALE
OC ON CENTER
OD OUTSIDE DIAMETER
OL OVERLOAD
PA PUBLIC ADDRESS
PB PANELBOARD, PULL BOX, OR PUSHBUTTON
PBPU PREFABRICATED BEDSIDE PATIENT UNIT
PCB POLYCHLORINATED BIPHENYL
PF POWER FACTOR
PH PHASE
PNL PANEL
PT POTENTIAL TRANSFORMER
PWR POWER

RCP REFLECTED CEILING PLAN
REC RECESSED
RECPT RECEPTACLE
RGS RIGID GALVANIZED STEEL
REQD REQUIRED

SCC SHORT CIRCUIT CAPACITY
SPEC SPECIFICATION
SPST SINGLE POLE, SINGLE THROW
SURF SURFACE
SW SWITCH
SWBD SWITCHBOARD
SWGR SWITCHGEAR

TEL TELEPHONE
TP TWISTED PAIR
TPS TWISTED PAIR SHIELDED
TV TELEVISION
TYP TYPICAL

UGND UNDERGROUND
UL UNDERWRITERS LABORATORY
UPS UNINTERRUPTIBLE POWER SUPPLY
UTIL UTILITY

V VOLT
VA VOLT AMPERE
VAR VOLT AMPERE REACTIVE
VFD VARIABLE FREQUENCY DRIVE
VOLT VOLTAGE

W WATT
WP WEATHERPROOF

XFER TRANSFER
XFMR TRANSFORMER

ELECTRICAL SYMBOLS - DIAGRAM

DELTA CONNECTION
MOTOR, SINGLE-PHASE
MOTOR, THREE-PHASE
TRANSFORMER
WYE CONNECTION
EARTH GROUND
JUNCTION BOX
PB — PULL BOX
NORMALLY CLOSED RELAY CONTACT
NORMALLY OPEN RELAY CONTACT
FUSE WITH RATING
MOLDED CASE CIRCUIT BREAKER
LOW-VOLTAGE DRAWOUT AIR CIRCUIT BREAKER
HIGH-VOLTAGE OIL CIRCUIT BREAKER
HIGH-VOLTAGE DRAWOUT AIR CIRCUIT BREAKER
SWITCH AND FUSE UNIT
G — GENERATOR, POWER
POTHEAD
STRESS CONE
LIGHTNING ARRESTOR
M — METER
A — AMMETER
V — VOLTMETER
W — WATTMETER
WH — WATT-HOUR METER

ELECTRICAL SYMBOLS - POWER PLAN

DISCONNECT SWITCH
STARTER, COMBINATION WITH DISCONNECT SWITCH
STARTER OR MOTOR CONTROLLER
VFD — VARIABLE FREQUENCY DRIVE
VENTILATOR OR FAN COIL UNIT OUTLET
CONDUIT TERMINATED 6" [152mm] AFF IN STANDARD BOX FOR EXTENSION TO EQUIPMENT AS DIRECTED.
DASHED SYMBOL INDICATES ITEM TO BE REMOVED.
CONDUIT TERMINATED W/COUPLING (FLUSH W/FINISHED FLOOR) FOR EXTENSION TO EQUIPMENT AS DIRECTED.
$ — SWITCH
F = FUSED SWITCH K = KEY OPERATED L = LOCK
LM= LOW VOLTAGE MOMENTARY M = MANUAL MOTOR STARTING
MC= MOMENTARY CONTACT MP= MOTOR SNAP WITH PILOT LIGHT
P = WITH PILOT LIGHT (THERMAL TYPE) PB= PUSH BUTTON STATION
2= TWO POLE 3= THREE WAY 4= FOUR WAY RC= REMOTE CONTROL
WP= WEATHER PROOF X = EXPLOSION PROOF D= DIMMER
MOTOR
T — TRANSFORMER, PLAN
WYE CONNECTION
EARTH GROUND
JUNCTION BOX
12/4 — BASKET TYPE CABLE TRAY, WIDTH/HEIGHT IN INCHES INDICATED
W W — WIREWAY
RC — RIGID CONDUIT LINE = RC
DB — DIRECT BURIAL CABLE = DB
P — POWER DUCT = P
FLOOR OUTLET, DATA COMMUNICATION
PUSH BUTTON
DP# — DISTRIBUTION PANEL
PANELBOARD CABINET, FLUSH MOUNTED
PANELBOARD CABINET, SURFACE MOUNTED
RECEPTACLE, DUPLEX, MTD. 18" AFF
EM — RECEPTACLE, DUPLEX ON EMERGENCY POWER, MTD. 18" AFF
GFCI — RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, MTD. 18" AFF
RECEPTACLE, QUADRAPLEX, MTD. 18" AFF
RECEPTACLE, SINGLE, MTD 18" AFF
RECEPTACLE, DUPLEX, MTD. 46" AFF
RECEPTACLE, SPECIAL PURPOSE (REFER TO PLAN NOTES)
DROP CORD, SINGLE CONVENIENCE OUTLET, 3-WIRE, GROUNDING TYPE, 20A, W/#12 CONDUCTORS IN FLEXIBLE CORD (CENTER LINE OF OUTLET: 6'-6" [1981mm] AFF. MINIMUM).
PM — ELECTRICAL STRIP MOLD (OUTLETS ON 2'-0" [610mm] CENTERS OR AS DESIGNATED ON DRAWINGS), MTD 3'-6" [1067mm] AFF OR AS INDICATED.
BRANCH CIRCUIT HOMERUN. ARROWS INDICATE NUMBER OF CIRCUITS. DEDICATED NEUTRAL SHALL BE PROVIDED FOR EACH CIRCUIT.

ELECTRICAL SYMBOLS - LIGHTING PLAN

LIGHT FIXTURE CEILING MOUNTED.
EMERGENCY LIGHT, WALL MTD 7'-6" AFF UNLESS OTHERWISE NOTED.
LIGHT FIXTURE, RECESSED FLUORESCENT, 2'x4' SUBSCRIPT INDICATES TYPE.
LIGHT FIXTURE, RECESSED FLUORESCENT, EMERGENCY 2'x4'; SUBSCRIPT INDICATES TYPE.
LIGHT TRACK WITH HEADS AS SHOWN
LIGHT FIXTURE, WALL MOUNTED 7'-6" AFF UNLESS OTHERWISE NOTED.
LIGHTING, TWO HEAD EMERGENCY BATTERY POWER
LIGHT POLE, ONE LUMINAIRE
LIGHT POLE, TWO LUMINAIRES
EXIT SIGN, WALL MOUNTED WITH DIRECTIONAL ARROWS AND FACES AS SHOWN
EXIT SIGN, CEILING MOUNTED WITH DIRECTIONAL ARROWS AND FACES AS SHOWN
OS — DUAL TECHNOLOGY (PASSIVE INFRARED AND/OR ULTRASONIC) OCCUPANCY SENSOR. PROVIDE 1/8" SCALE FLOOR PLANS WITH MANUFACTURER'S RECOMMENDED LAYOUT AND COVERAGE PATTERN DURING SHOP DRAWING REVIEW. SUBMITTALS MISSING THIS INFORMATION WILL BE REJECTED.

COMMUNICATION SYMBOLS

OUTLET, VA STANDARD TRI-PLEX COMBINATION TELEPHONE/DATA COMMUNICATION. REFER TO DETAILS ON SHEET E9.
W — OUTLET TELEPHONE; LETTER INDICATES AS FOLLOWS: J = JACK TYPE, W = WALL TYPE. REFER TO DETAILS ON SHEET E9.
ABOVE CEILING WAP OUTLET, 1-DATA ONLY WITH 25' SERVICE LOOP. REFER TO DETAILS ON SHEET E9.
SC — RECESSED CEILING SPEAKER FOR PUBLIC ADDRESS. SUBSCRIPT "SM" INDICATES SURFACE MOUNTED.
S — WALL MOUNTED SPEAKER FOR PUBLIC ADDRESS.
TV — OUTLET, TELEVISION =4 11/16" [119mm] MASTER ANTENNA OUTLET BOX W/ RF JACK AND COVER, MTD. 18" [457mm] AFF UNLESS OTHERWISE NOTED.
TTB — TELEPHONE BACKBOARD (WALL MOUNTED)

ENVIRONMENTAL MONITORING/AUTOMATIC WATERING SYSTEM DEVICES/ROUGH-INS:
NOTE: REFER TO RACEWAY DIAGRAM SHEET E4 AND FLOOR PLANS.

W ESP — FUTURE ENVIRONMENTAL MONITORING SYSTEM CONTROL PANEL, RECESSED IN WALL.
W AWS — FUTURE AUTOMATIC WATERING SYSTEM CONTROL PANEL, RECESSED IN WALL.
W SRV — FUTURE ENVIRONMENTAL MONITORING SYSTEM SERVER PC.
W — SINGLE GANG BOX RECESSED IN WALL FOR AWS SOLENOID (82" M.H). RUN 0.75"C. TO NEXT SOLENOID ROUGH-IN/CORRIDOR JUNCTION BOX.
W S — SINGLE GANG BOX RECESSED IN WALL FOR ENVIRONMENTAL MONITORING SENSORS (90" M.H). RUN 0.75"C. TO RESPECTIVE ROOM COMPONENT BOX.
W A — RUN 0.75"C. FROM SUPPLY AIR DUCT TO RESPECTIVE ROOM COMPONENT BOX FOR AIR FLOW MONITOR. COORDINATE EXACT DUCT TERMINATION POINT WITH COTR/DIV 23 CONTRACTOR.
W C — ENVIRONMENTAL MONITORING SYSTEM ROOM COMPONENT BOX. PROVIDE 14"x10"x7"DP NEMA 1 JUNCTION BOX MOUNTED ABOVE CORRIDOR ACCESSIBLE CEILING.

ELECTRONIC SAFETY AND SECURITY SYMBOLS

FANP — ALARM, FIRE, NETWORK COMMUNICATOR PANEL.
FACP — ALARM, FIRE, PANEL; LETTERS INDICATE AS FOLLOWS:
FACC = CENTRAL CONSOLE FACP = CONTROL PANEL
MFACP= MASTER CONTROL PANEL FAAP = ANNUNCIATOR PANEL
FAA — ALARM, FIRE, REMOTE ANNUNCIATOR PANEL
F — ALARM, FIRE, MANUAL PULL STATION, MTD. 80" AFF
F AR — FIRE ALARM AREA OF RESCUE REMOTE STATION, MTD. 46" AFF. REFER TO DETAIL D/E4.
F AM — FIRE ALARM AREA OF RESCUE MASTER STATION. REFER TO DETAIL D/E4.
L — ALARM, SIGNAL LIGHT, STROBE, MTD. 80" AFF
V — ALARM, VALVE TAMPER SWITCH
W — DETECTOR, FLOW SWITCH
H — DETECTOR, HEAT
S — DETECTOR; SMOKE
S — DETECTOR, SMOKE, FOR DUCT
SR — DUCT DETECTOR REMOTE TEST STATION
C M — FIRE ALARM MONITORING MODULE
C — FIRE ALARM CONTROL MODULE
SC F — FIRE ALARM SPEAKER (FLUSH RECESSED). SUBSCRIPT WP INDICATES WEATHER RESISTANT CONE AND GASKETING.
SC F/SM — FIRE ALARM SPEAKER (SURFACE MOUNTED).
S F — FIRE ALARM SPEAKER (WALL MOUNTED).
DH — ELECTROMAGNETIC TYPE DOOR HOLDER OUTLET
P — PUSHPLATE DOOR CONTROL (46" M.H.).
A — ELECTRIC DOOR OPERATOR, INCLUDING RELAYS, OPERATING SWITCHES AND LIMIT SWITCHES (120 VOLT SINGLE PHASE OPERATION).
HD — ELECTRIC HAND DRYER.
CR — COMBO KEYPAD/PROXIMITY CARD READER (48" M.H.); SUBSCRIPT "A" INDICATES WITH "ARMED" LED PILOT LIGHT. 1 GANG BOX WITH .75"C. TO CORRIDOR FOR CARD READER, 1-GANG BOX WITH .75"C. TO CORRIDOR FOR LED LIGHTS.
DL S — ELECTRONIC LOCK BY GC; POWERED AND WIRED BY DIV 28. LETTER INDICATES AS FOLLOWS STRIKE IS DEFAULT: L-LATCH SET, M-MAGNETIC, D-DEADBOLT H-HYBRID
RX — MOTION DETECTOR; REQUEST-FOR-EXIT MOUNTED ABOVE DOOR ON SECURE SIDE.
MD — CEILING MOUNTED MOTION DETECTOR FOR INTRUSION ALARM
PB — PUSH BUTTON; LETTER INDICATES AS FOLLOWS:
B-BELL PUSH D-DURESS P-PANIC R-DOOR RELEASE
X-REQUEST-FOR-EXIT
DM — SECURITY ACCESS, SWITCH, BALANCED MAGNETIC CONTROL
IS — RING DOWN PHONE AND OUTDOOR BOX (48"M.H.); 1-GANG BOX WITH .75"C. TO CORRIDOR CABLE TRAY. FOR VOICE CABLING.
CC 1 — IP CCTV CAMERA, NUMERAL REFERS TO ENTRY IN CAMERA SCHEDULE. PROVIDE CAMERA WITH UTP DATA DROP.

SHEET LIST

Sheet Number	Sheet Name
E1	LEGEND
E2	LIGHTING FIXTURES
E3	LIGHTING FIXTURES
E4	PRIMARY SINGLE LINE DIAGRAM AND DETAILS
E5	SECONDARY SINGLE LINE DIAGRAM
E6	ELECTRICAL SCHEDULES
E7	PANELBOARD SCHEDULES
E8	SIGNALS RISER DIAGRAM
E9	SIGNALS ROOM - RACK ELEVATIONS
E10	ELECTRICAL DETAILS
E11	ELECTRICAL SITE PLANS
E12	ELECTRICAL SITE PLAN
1-E1	BUILDING 1 SUB BASEMENT AND 1ST FLOOR PLANS
1-E2	BUILDING 1 BASEMENTAND 4TH FLOOR PLANS
14-E1	BASEMENT PLAN-LIGHTING
14-E2	BASEMENT PLAN-POWER
14-E3	BASEMENT PLAN-SIGNALS
14-E4	FIRST FLOOR PLAN-LIGHTING
14-E5	FIRST FLOOR PLAN-POWER
14-E6	FIRST FLOOR PLAN-RACEWAY
14-E7	FIRST FLOOR PLAN-SIGNALS
14-E8	SECOND FLOOR PLAN-LIGHTING
14-E9	SECOND FLOOR PLAN-POWER AND SIGNALS
14-E10	ROOF PLAN

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: LEGEND
Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14
Location: Cincinnati, Ohio
Date: 09/29/2011 REVISED AUGUST 17, 2012
Checked: MSG
Drawn: MSG

Project No. VA Project No. 539-317 JPA Project No. 10005.00
Building Number: 14
Drawing Number: E1
Dwg. of

Office of Construction and Facilities Management
Department of Veterans Affairs

SPECIFICATION GRADE CHAIN HUNG INDUSTRIAL, NOMINAL 14" X 4' IN SIZE AND APPROXIMATELY 6" DEEP. 7'-6" AFF MOUNTING HEIGHT.

HOUSING: CODE GAUGE STEEL HOUSING WITH LONGITUDINAL REINFORCING RIBS. SEPARATE NON-CAPTIVE STUD FOR FIXTURE GROUNDING. DESIGNED FOR INDIVIDUAL OR CONTINUOUS ROW MOUNTING. SPRING LOADED TURRET LAMP HOLDERS. WIRE GUARD.

REFLECTOR: DIE-EMBOSSED STEEL WITH TRANSVERSE RIBS FOR RIGIDITY. 10%-15% UPLIGHT APERTURES.

FINISH: MULTI-STAGE PHOSPHATE BONDING TREATMENT AND HIGH REFLECTANCE BAKE ENAMEL.

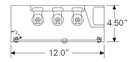
LAMPS: TWO RAPID START 32W-T8 LAMPS, MIN CRI OF 85, 4100K.

BALLAST: HPF ELECTRONIC INSTANT START BALLAST, 0.88BF, 120/277V.

FLUORESCENT INDUSTRIAL FIXTURE

E / C-1

Cross Section



SPECIFICATION GRADE SURFACE MOUNTED WET LOCATION PRISMATIC LUMINAIRE. FLAT LOW-BRIGHTNESS LENS PANEL, NOMINAL 1' X 4' IN SIZE AND APPROXIMATELY 4.5 INCHES DEEP.

HOUSING: ONE PIECE SEAM WELDED, HOLE FREE 20 GA. CRS.

DOOR FRAME: 304 STAINLESS STEEL WITH TWO STAINLESS CABLES.
GASKETING: 100% PURE NEOPRENE, CLOSED CELL.

REFLECTOR: 88% REFLECTIVE DIE FORMED METAL WITH BAKED WHITE ENAMEL.

LENS: HIGH DURABILITY 0.135" THICK VIRGIN ACRYLIC WITH P12 PRISMATIC.

LAMPS: RAPID START 32W-T8 LAMPS, MIN CRI OF 85, 4100K.

BALLAST: HPF ELECTRONIC INSTANT START BALLAST, 0.88BF, 120/277V.

FINISH: GLOSS WHITE HIGH REFLECTANCE, 1000HR SALT SPRAY POLYESTER POWDER COAT, SATIN POLISH STAINLESS DOOR.

LISTING: UL WET LOCATION, 85 PSI HOSE DOWN RATED.
VARIATIONS:

EF2: TWO LAMP FIXTURE, ONE BALLAST.
EF2r: THREE LAMP FIXTURE, TWO STANDARD LAMPS, ONE RED COLORED LAMP, ONE TWO LAMP BALLAST (STANDARD LAMPS) AND ONE SINGLE LAMP BALLAST (RED LAMP).
EF3: THREE LAMP FIXTURE (DUAL LEVEL SWITCHING WHERE SHOWN).

INSTALLATION: PROVIDE WHITE SILICONE CAULK BEAD AROUND ENTIRE FIXTURE/CEILING JOINT.

SURFACE FLUORESCENT FIXTURE

E / F-x

SPECIFICATION GRADE RECESSED FLUORESCENT LIGHTING TROFFER WITH FLAT LOW-BRIGHTNESS LENS PANEL, NOMINAL 2' X 4' IN SIZE AND APPROXIMATELY 4.25 INCHES DEEP.

HOUSING: DIE FORMED AND EMBOSSED CODE GAUGE STEEL. END CAPS HINGED AND SCREWED TO HOUSING FOR RIGIDITY. DESIGNED FOR INSTALLATION IN CEILING TYPE SHOWN ON ARCHITECTURAL DRAWINGS. INTEGRAL T-BAR CLIPS. HARDWARE FOR MINIMUM 4 POINTS OF SUPPORT. SEPARATE NON-CAPTIVE STUD FOR FIXTURE GROUNDING.

REFLECTOR: HIGH REFLECTANCE BAKED WHITE ENAMEL AND SPECULAR SILVER INSERT.

FINISH: MULTI-STAGE PHOSPHATE BONDING TREATMENT AND HIGH REFLECTANCE BAKED WHITE ENAMEL.

SHIELDING: 100% PRISMATIC VIRGIN ACRYLIC, PATTERN 12, .125" THICK (NOMINAL). FLUSH DOOR WITH MITRED CORNERS, INCONSPICUOUS CAM ACTION LATCHES.

LAMPS: RAPID START 32W-T8 LAMPS, MIN CRI OF 85, 4100K.

BALLAST: HPF ELECTRONIC INSTANT START BALLAST, 0.88BF, 120/277V.

VARIATIONS:

EF4: TWO LAMP FIXTURE.

EF4a: TWO LAMP FIXTURE WITH PROGRAMMED RAPID START STEP DIMMING BALLAST.

EF4b: TWO LAMP FIXTURE, 1'x4' NOMINAL, DRYWALL FLANGE.

EF4c: TWO LAMP FIXTURE, DRY WALL FLANGE.

EF5: THREE LAMP FIXTURE.

RECESSED FLUORESCENT FIXTURE

E / F-x

HOUSING AND CANOPY: MARINE GRADE VINYL CLAD ALUMINUM.

DOOR FRAME: HINGED WITH ALUMINUM REINFORCED POLYCARBONATE SHIELD.

FINISH: BLACK

INSCRIPTION PANEL(S): RED L.E.D. 6" LETTERS

LAMPS: MULTIPLE L.E.D. LAMP ASSEMBLY WITH MINIMUM OF 20,000 HOURS LIFE.

NOTE: TYPE EX2 INDICATES DOUBLE FACED FIXTURES. FURNISH FIXTURES WITH DIRECTIONAL ARROWS WHERE REQUIRED AND WIRED FOR 120/277-VOLT OPERATION AS INDICATED.

TYPE EX3 INDICATES WHEATHERPROOF EXIT.

TOP MOUNTED EXIT LIGHT

E / X-1

SPECIFICATION GRADE WALL MOUNTED SECURITY LIGHT.

HOUSING: DIE CAST SINGLE PIECE ALUMINUM HOUSING. SEPARATE NON-CAPTIVE STUD FOR FIXTURE GROUNDING.

REFLECTOR: SPECULAR ALUMINUM REFLECTOR.

FINISH: POWDER COAT DARK BRONZE.

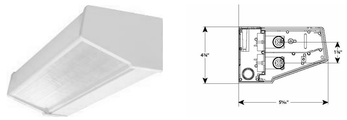
LAMPS: 70W HPS.

BALLAST: MAGNETIC BALLAST 120V.

EW1Q: PROVIDE 100W QUARTZ RESTRIKE SYSTEM.

EXTERIOR SECURITY LIGHT

E / W-1



SPECIFICATION GRADE FLUORESCENT WALL BRACKET. 7'-6" AFF UNLESS NOTED OTHERWISE.

HOUSING: DIE FORMED AND EMBOSSED CODE GAUGE STEEL. DIE CAST END CAPS HINGED AND SCREWED TO HOUSING FOR RIGIDITY. SEPARATE NON-CAPTIVE STUD FOR FIXTURE GROUNDING.

REFLECTOR: HIGH REFLECTANCE BAKED WHITE ENAMEL.

FINISH: POWDER COAT WHITE ENAMEL.

SHIELDING: 100% PRISMATIC VIRGIN ACRYLIC, PATTERN 12, .125" THICK (NOMINAL).

LAMPS: TWO RAPID START 32W-T8 LAMPS, MIN CRI OF 85, 4100K.

BALLAST: HPF ELECTRONIC INSTANT START BALLAST, 0.88BF, 120/277V.

FLUORESCENT WALL BRACKET

E / W-2

SPECIFICATION GRADE WALL MOUNTED LIGHTING FIXTURE.

HOUSING: EXTRUDED ALUMINUM HOUSING WITH PERFORATED VERTICAL CURVED FACIA. SEPARATE NON-CAPTIVE STUD FOR FIXTURE GROUNDING.

REFLECTOR: HIGH REFLECTANCE STEEL OR ALUMINUM, MIN 85% REFLECTANCE.

FINISH: MULTI-STAGE PHOSPHATE BONDING TREATMENT AND WHITE BAKED ENAMEL.

LAMPS: RAPID START 32W-T8 LAMP, MIN CRI OF 85, 4100K.

BALLAST: HPF ELECTRONIC INSTANT START BALLAST, 0.88BF, 120/277V.

EW3: NOMINAL 48" IN LENGTH, 1-32W T8 LAMP.
EW3a: NOMINAL 24" IN LENGTH, 1-17W T8 LAMP.

FLUORESCENT VANITY FIXTURE

E / W-3

SPECIFICATION GRADE UNDER CABINET FLUORESCENT LIGHTING FIXTURE WITH FLAT STIPLED ACRYLIC LENS PANEL, NOMINAL 1.25" DP x 4.5" WIDE IN SIZE.

HOUSING: EXTRUDED ALUMINUM BODY, WIREWAY COVER AND LENS FRAME. SEPARATE NON-CAPTIVE STUD FOR FIXTURE GROUNDING. PROVIDE ROCKER SWITCH.

REFLECTOR: SPECULAR SILVER REFLECTOR.

FINISH: MULTI-STAGE PHOSPHATE BONDING TREATMENT AND WHITE ANTI-MICROBIAL POLYESTER POWDER COAT PAINT.

LAMPS: RAPID START T5 LAMPS, MIN CRI OF 85, 4100K.

BALLAST: HPF ELECTRONIC INSTANT START BALLAST, 0.88BF, 120/277V.

VARIATIONS:

EU1: NOMINAL 12.75" IN LENGTH, 8W-T5 LAMP.
EU2: NOMINAL 23.0" IN LENGTH, 14W-T5 LAMP.
EU3: NOMINAL 34.5" IN LENGTH, 21W-T5 LAMP.
EU4: NOMINAL 46.5" IN LENGTH, 28W-T5 LAMP.

UNDERCABINET LIGHT

E / U-x

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: LIGHTING FIXTURES

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: E2

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs

SPECIFICATION GRADE BARE STAGGERED LAMP STRIP, APPROXIMATELY 4.5" WIDE.

HOUSING: CODE GAUGE DIE FORMED STEEL CHANNELSEPARATE NON-CAPTIVE STUD FOR FIXTURE GROUNDING. DESIGNED FOR INDIVIDUAL OR CONTINUOUS ROW MOUNTING. SPRING LOADED TURRET LAMP HOLDERS.

FINISH: MULTI-STAGE PHOSPHATE BONDING TREATMENT AND HIGH REFLECTANCE BAKE ENAMEL.

LAMPS: ONE RAPID START 32W-T8 LAMP, MIN CRI OF 85, 4100K.

BALLAST: HPF ELECTRONIC INSTANT START BALLAST, 0.88BF, 120/277V.

VARIATIONS:

EC2: NOMINAL 48" LONG FIXTURE.

EC2a: NOMINAL 24" LONG FIXTURE.

FLUORESCENT COVE FIXTURE

E / C-2

(2'x4' SHOWN FOR REFERENCE ONLY)

SPECIFICATION GRADE RECESSED FLUORESCENT LIGHTING TROFFER WITH LUMINOUS HIGH EFFICIENCY LENS PANELS, NOMINAL 2' X 2' IN SIZE AND APPROXIMATELY 4.5 INCHES DEEP.

HOUSING: DIE FORMED AND EMBOSSED CODE GAUGE STEEL. END CAPS HINGED AND SCREWED TO HOUSING FOR RIGIDITY. DESIGNED FOR INSTALLATION IN CEILING TYPE SHOWN ON ARCHITECTURAL DRAWINGS. INTEGRAL T-BAR CLIPS. HARDWARE FOR MINIMUM 4 POINTS OF SUPPORT. SEPARATE NON-CAPTIVE STUD FOR FIXTURE GROUNDING.

OPTICS: HIGH TRANSMISSION EXTRUDED ACRYLIC. S/MH 1.2, 86% EFFICIENCY MIN.

FINISH: MULTI-STAGE PHOSPHATE BONDING TREATMENT AND SOFT NON-GLARE HIGH REFLECTANCE POWDER COAT.

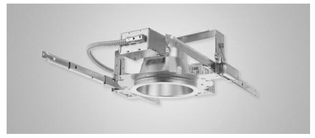
DOOR: FLUSH FRAME-LESS HINGED DOOR WITH INCONSPICUOUS CAM ACTION LATCHES.

LAMPS: TWO RAPID START 17W-T8 LAMPS, MIN CRI OF 85, 4100K.

BALLAST: HPF ELECTRONIC PROGRAMMED RAPID START BALLAST, 0.88BF, 120/277V.

RECESSED FLUORESCENT FIXTURE

E / F-6



SPECIFICATION GRADE FLUORESCENT RECESSED DOWNLIGHT, NOMINAL 6" DIA.

HOUSING: 16 GAUGE GALVANIZED STEEL MOUNTING/PLASTER FRAME AND BARS WITH INTEGRAL YOKE TO RETAIN OPTICAL SYSTEM.

REFLECTOR: SEMI-SPECULAR SILVER REFLECTOR.

LAMPS: ONE 4 PIN 32W TRIPLE TUBE CFL, MIN CRI OF 80, 4100K.

BALLAST: HPF ELECTRONIC PROGRAMMED RAPID START BALLAST, 0.95 BF, 120/277V.

VARIATIONS:

EN1: AS LISTED ABOVE.

EN2: SIMILAR AS LISTED ABOVE WITH UL WET LOCATION LISTED T73 PRISMATIC. REGRESSED GLASS LENS, WHITE REFLECTOR.

RECESSED FLUORESCENT DOWNLIGHT

E / N-x

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: LIGHTING FIXTURES

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: E3

Dwg. of

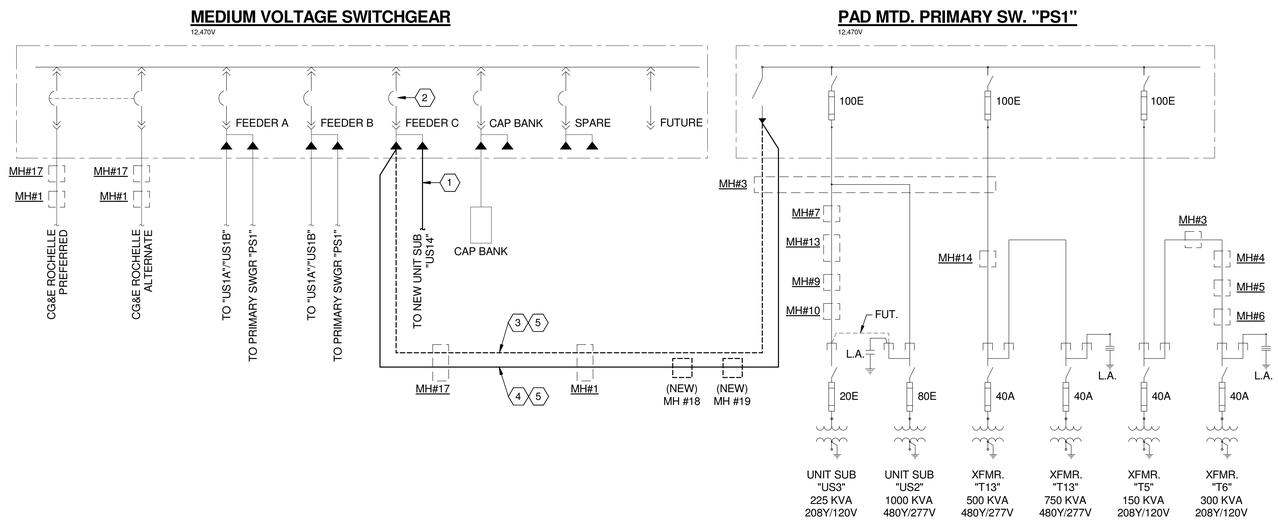
Office of Construction and Facilities Management

Department of Veterans Affairs

ALL LIGHT LINEWEIGHTS INDICATE EXISTING EQUIPMENT TO REMAIN. DASHED LINEWEIGHTS INDICATES FUTURE EQUIPMENT. DARK LINEWEIGHT INDICATES NEW WORK.

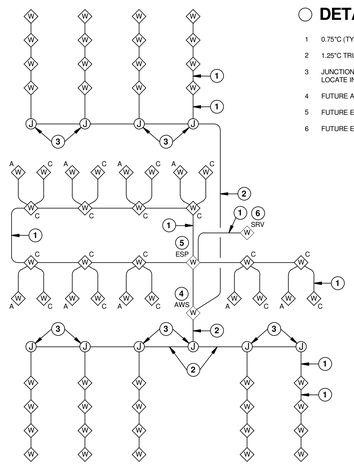
NOTES

1. RUN 3-#4/0, 1-#4/0 GRD. (600V) IN 4" RMC. REFER TO POWER PLAN.
2. PROVIDE UPDATED SHORT CIRCUIT ANALYSIS AND COORDINATION STUDY. ADJUST BREAKER SETTINGS AS REQUIRED.
3. REMOVE PRIMARY CIRCUIT AND SECTION OF UNDERGROUND DUCTBANK ONCE NEW CIRCUIT/ DUCTBANK IS COMPLETE. REFER TO SITE PLAN.
4. RUN 3-#4/0, 1-#4/0 GRD. (600V) IN 4"C. REFER TO SITE PLAN.
5. COORDINATE DOWNTIME WITH COTR. WORK SHALL BE DONE OUTSIDE OF NORMAL WORKING HOURS.



PRIMARY SINGLE LINE DIAGRAM (A / E4)

SCALE: NTS

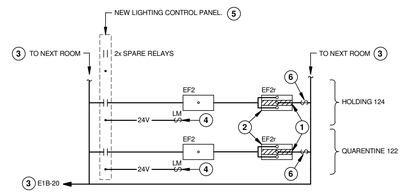


DETAIL NOTES

1. 0.75"C (TYPICAL UNLESS NOTED OTHERWISE).
2. 1.25"C TRUNK CONDUIT RUN DOWN CORRIDOR.
3. JUNCTION BOX FOR EACH HOLDING ROOM FUTURE AWS CABLING. LOCATE IN CORRIDOR NEXT TO COMPONENT BOX.
4. FUTURE AUTOMATIC WATERING SYSTEM CONTROL PANEL.
5. FUTURE ENVIRONMENTAL MONITORING SYSTEM CONTROL PANEL.
6. FUTURE ENVIRONMENTAL MONITORING SYSTEM SERVER.

ENVIRONMENTAL MONITORING/AUTOMATIC WATERING RACEWAY DIAGRAM (B / E4)

SCALE: NTS



DETAIL NOTES

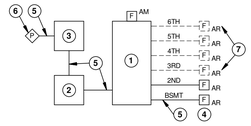
1. CENTER (RED) LAMP TO BE CONTROLLED VIA LINE VOLTAGE SWITCH ONLY.
2. OUTER TWO LAMPS TO BE CONTROLLED VIA LIGHTING CONTROL RELAY PANEL.
3. REFER TO FLOOR PLANS AND LIGHTING CONTROL PANEL SCHEDULE FOR REMAINING ROOMS/CIRCUITS TO BE CONTROLLED.
4. LOW VOLTAGE HOSPITAL GRADE MOMENTARY OVERRIDE TOGGLE SWITCH.
5. LIGHTING CONTROL RELAY PANEL IN A NEMA 1 ENCLOSURE WITH 24 RELAYS, DATA COMMUNICATION LINK, LAN INTEGRATOR, AND WEB BASED SOFTWARE CONTROL PACKAGE. REFER TO SPECIFICATIONS.
6. LINE VOLTAGE SWITCH TO CONTROL CENTER (RED) LAMP.

TYPICAL ROOM LIGHTING CONTROL DIAGRAM (C / E4)

SCALE: NTS

LIGHTING CONTROL PANEL "LCP1"

RELAY NO.	INPUT TYPE	CIRCUIT	AREA	CONTROL SEQUENCE	TIME OF DAY ON/OFF	OVERRIDE ON (MIN) (TIMEOUT)	INPUT MASK
1	LM	E1B-20	QUARENTINE 122	TIME OF DAY "ON" AND "OFF" (12 HR EA) OVERRIDE ON VIA LV SWITCH		15	NONE
2	LM	E1B-20	HOLDING 124	TIME OF DAY "ON" AND "OFF" (12 HR EA) OVERRIDE ON VIA LV SWITCH		15	
3	LM	E1B-20	HOLDING 130	TIME OF DAY "ON" AND "OFF" (12 HR EA) OVERRIDE ON VIA LV SWITCH		15	
4	LM	E1B-18	HOLDING 131	TIME OF DAY "ON" AND "OFF" (12 HR EA) OVERRIDE ON VIA LV SWITCH		15	
5	LM	E1B-18	HOLDING 132	TIME OF DAY "ON" AND "OFF" (12 HR EA) OVERRIDE ON VIA LV SWITCH		15	
6	LM	E1A-19	HOLDING 134	TIME OF DAY "ON" AND "OFF" (12 HR EA) OVERRIDE ON VIA LV SWITCH		15	
7	LM	E1A-19	HOLDING 135	TIME OF DAY "ON" AND "OFF" (12 HR EA) OVERRIDE ON VIA LV SWITCH		15	
8	LM	E1A-20	HOLDING 136	TIME OF DAY "ON" AND "OFF" (12 HR EA) OVERRIDE ON VIA LV SWITCH		15	
9	LM	E1A-20	HOLDING 137	TIME OF DAY "ON" AND "OFF" (12 HR EA) OVERRIDE ON VIA LV SWITCH		15	
10	PC	2EM-4	BLDG PERIMETER	PHOTOCELL/TIME OF DAY ON/OFF		N/A	
11			SPARE				
12			SPARE				
13-24			FUTURE RELAYS				



DETAIL NOTES

1. AREA OF RESCUE & ZONE ANNUNCIATOR/MASTER CONTROL PANEL WITH TWO WAY VOICE INTERCOM, ALTERNATE ACTION SWITCH, TWO INTERNAL LED INDICATORS FOR EACH ZONE (INTERCOM ON AND ZONE CALL), ONE YELLOW SUPERVISORY LED, AUDIBLE ALARM (90 db @ 30cm). ANODIZED ALUMINUM CONSTRUCTION WITH SILK SCREENED DESIGNATIONS.
2. 120V TO 12/24V POWER SUPPLY WITH SHORT CIRCUIT PROTECTION AND TROUBLE INDICATOR LIGHTS.
3. TELEPHONE ACCESS KIT WITH AUTO DIALER, DIGITAL ANNOUNCER, MESSEGE PLAYER (UP TO ONE MINUTE) AND UP TO TWO INPUTS. DIALER SHALL BE PROGRAMMED TO CALL POLICE.
4. FULLY SUPERVISED VANDAL RESISTANT CALL STATION WITH TWO WAY VOICE INTERCOM. MOMENTARY CALL IN FLUSH PUSHBUTTON, LED AND AUDIBLE ALARM (70 db @ 30cm). STAINLESS STEEL FACEPLATE AND TAMPERPROOF SCREW.
5. WIRING IN 0.75"C. PER MANUFACTURER.
6. VOICE JACK. REFER TO FLOOR PLANS.
7. FUTURE DEVICES AND WIRING.

AREA OF RESCUE SYSTEM DETAIL (D / E4)

SCALE: NTS

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JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: PRIMARY SINGLE LINE DIAGRAM AND DETAILS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: E4

Dwg. of

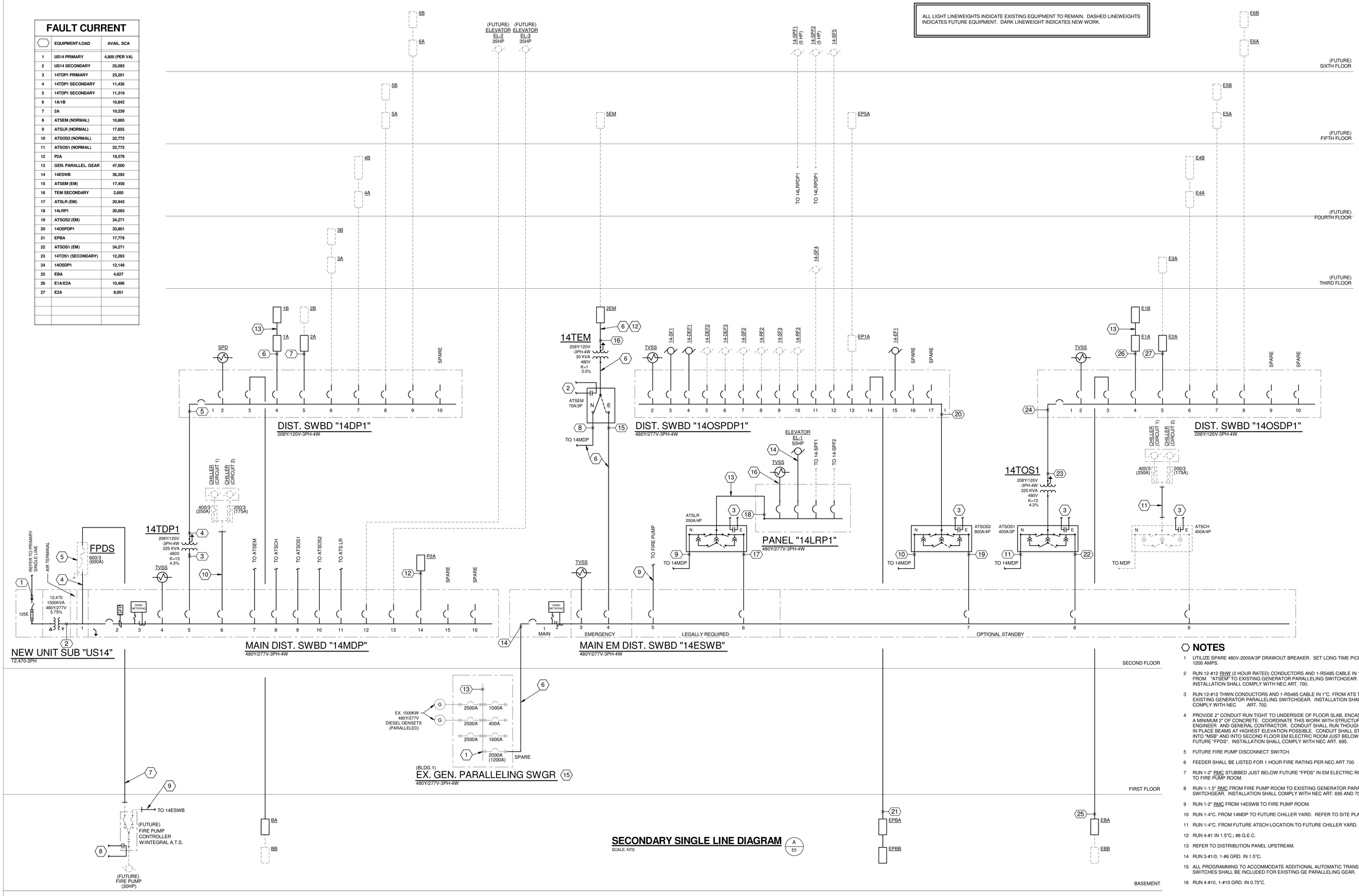
Office of Construction and Facilities Management

Department of Veterans Affairs

FAULT CURRENT

	EQUIPMENT/LOAD	AVAIL. SCA
1	US14 PRIMARY	4,800 (PER VA)
2	US14 SECONDARY	25,093
3	14TDP1 PRIMARY	23,201
4	14TDP1 SECONDARY	11,436
5	14TDP1 SECONDARY	11,319
6	1A/1B	10,842
7	2A	10,239
8	ATSEM (NORMAL)	10,885
9	ATSLR (NORMAL)	17,855
10	ATSOS2 (NORMAL)	22,772
11	ATSOS1 (NORMAL)	22,772
12	P2A	19,578
13	GEN. PARALLEL. GEAR	47,000
14	14ESWB	36,292
15	ATSEM (EM)	17,458
16	TEM SECONDARY	2,600
17	ATSLR (EM)	20,943
18	14LRP1	20,093
19	ATSOS2 (EM)	34,271
20	14OSPDP1	33,801
21	EPBA	17,779
22	ATSOS1 (EM)	34,271
23	14TOS1 (SECONDARY)	12,283
24	14OSDP1	12,148
25	EBA	4,627
26	E1A/E2A	10,496
27	E2A	9,051

ALL LIGHT LINEWEIGHTS INDICATE EXISTING EQUIPMENT TO REMAIN. DASHED LINEWEIGHTS INDICATES FUTURE EQUIPMENT. DARK LINEWEIGHT INDICATES NEW WORK.



SECONDARY SINGLE LINE DIAGRAM

SCALE: NTS

NOTES

1. UTILIZE SPARE 480V-2000A/3P DRAWOUT BREAKER. SET LONG TIME PICK UP AT 1200 AMPS.
2. RUN 12-#12 RHW (2 HOUR RATED) CONDUCTORS AND 1-RS485 CABLE IN 1.5" RMC FROM "ATSEM" TO EXISTING GENERATOR PARALLELING SWITCHGEAR. INSTALLATION SHALL COMPLY WITH NEC ART. 700.
3. RUN 12-#12 THWN CONDUCTORS AND 1-RS485 CABLE IN 1"C. FROM ATS TO EXISTING GENERATOR PARALLELING SWITCHGEAR. INSTALLATION SHALL COMPLY WITH NEC ART. 702.
4. PROVIDE 2" CONDUIT RUN TIGHT TO UNDERSIDE OF FLOOR SLAB, ENCASED IN A MINIMUM 2" OF CONCRETE. COORDINATE THIS WORK WITH STRUCTURAL ENGINEER AND GENERAL CONTRACTOR. CONDUIT SHALL RUN THOUGH POURED IN PLACE BEAMS AT HIGHEST ELEVATION POSSIBLE. CONDUIT SHALL STUB UP INTO "MSB" AND INTO SECOND FLOOR EM ELECTRIC ROOM JUST BELOW FUTURE "FPDS". INSTALLATION SHALL COMPLY WITH NEC ART. 695.
5. FUTURE FIRE PUMP DISCONNECT SWITCH.
6. FEEDER SHALL BE LISTED FOR 1 HOUR FIRE RATING PER NEC ART 700.
7. RUN 1-2" RMC STUBBED JUST BELOW FUTURE "FPDS" IN EM ELECTRIC ROOM TO FIRE PUMP ROOM.
8. RUN 1-1.5" RMC FROM FIRE PUMP ROOM TO EXISTING GENERATOR PARALLELING SWITCHGEAR. INSTALLATION SHALL COMPLY WITH NEC ART. 695 AND 701.
9. RUN 1-2" RMC FROM 14ESWB TO FIRE PUMP ROOM.
10. RUN 1-4"C. FROM 14MDP TO FUTURE CHILLER YARD. REFER TO SITE PLAN.
11. RUN 1-4"C. FROM FUTURE ATSCH LOCATION TO FUTURE CHILLER YARD.
12. RUN 4-#1 IN 1.5"C.; #6 G.E.C.
13. REFER TO DISTRIBUTION PANEL UPSTREAM.
14. RUN 3-#1/0, 1-#6 GRD. IN 1.5"C.
15. ALL PROGRAMMING TO ACCOMMODATE ADDITIONAL AUTOMATIC TRANSFER SWITCHES SHALL BE INCLUDED FOR EXISTING GE PARALLELING GEAR.
16. RUN 4-#10, 1-#10 GRD. IN 0.75"C.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SECONDARY SINGLE LINE DIAGRAM

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: E5

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs

MOTORS, STARTERS, DISCONNECTS & CONTROLS

MOTOR: MOTOR NUMBER	MOTOR: CIRCUIT NO.	MOTOR: NAMEPLATE	MOTOR: CHARACTERISTICS: HP (KVA)	120V-1PH	208V-1PH	208V-3PH	480V-1PH	480V-3PH	MOTOR: LOCATION	STARTER: NEMA SIZE	STARTER: TYPE: MANUAL	MAGNETIC	BUILT-IN OVERLOAD	2 SPEED 2 WINDING	VFD	SEE NOTE	STARTER: LOCATION: NEAR MOTOR	MOTOR CONT. CENTER EQUIP. CONT.	ROOM NUMBER	SEE NOTE	STARTER: FURNISHED BY	DISCONNECT MEANS: TYPE: DISC. SWITCH	MANUAL STARTER	RECEPTACLE	FEEDER SW. OR BREAKER	DISCONNECT MEANS: LOCATION: NEAR MOTOR	MOTOR CONT. CENTER EQUIP. CONT. PANEL	PANELBOARD	SEE NOTE	DISCONNECT MEANS: FURNISHED BY	CONTROL: INTERLOCK WITH MOTOR NO. BY E.C.	MANUAL A.T. STARTER	INTEGRAL WITH DISCONNECT	BY DIV 23	SEE NOTE	FEEDER: NUMBER OF CONDUCTORS	WIRE SIZE	GRD. SIZE	CONDUIT SIZE	SEE NOTE
14-SF1	OSPDP1-3	AIR HANDLING UNIT 1 (SUPPLY FAN)	40					•	MECHANICAL 203	-					•		•					DIV 26	•				•				DIV 26				•		SEE DIST. SCHED.				
14-DEF1	OSPDP1-4	DILUTION EXHAUST FAN 1	30					•	ROOF	-					•		•					DIV 26	•				•				DIV 26				•		SEE DIST. SCHED.				
14-EF1	14OSPDP1-15	EXHAUST FAN 1	5					•	ROOF	-					•				204			DIV 26	•				•				DIV 23				•		3	12	12	.75	
14-EF2	E2A-33,35,37	EXHAUST FAN 2	0.75			•			SHELL SPACE	0		•							204			DIV 26	•				•				DIV 23				•		3	12	12	.75	
14-EF3	2A-38,40,42	EXHAUST FAN 3	0.75			•			SHELL SPACE	0		•							205			DIV 26	•				•				DIV 23				•		3	12	12	.75	
14-EF4	14OSPDP1-16	EXHAUST FAN 4	3					•	SHELL SPACE	-					•				204			DIV 26	•				•				DIV 23				•		3	12	12	.75	
14-HWP1	EPBB-8,10,12	HOT WATER PUMP 1	5					•	MECHANICAL 002	-					•		•					DIV 26			•				•		DIV 26				•		3	12	12	.75	
14-SCWP1	EPBB-14,16,18	SECONDARY CHILLED WATER PUMP 1	15					•	MECHANICAL 002	-					•		•					DIV 26			•				•		DIV 26				•		3	8	10	.75	
14-ERP1	P2A-7,9,11	HEAT RECOVERY GLYCOL PUMP 1	5					•	MECHANICAL 203	0		•					•					DIV 26	•				•				DIV 26				•		3	12	12	.75	
14-CP1	EPBB-1,3,5	DUPLEX CONDENSATE PUMPS 1	2@3					•	MECHANICAL 002	-	•							•				DIV 23			•				•		DIV 26				•		3	12	12	.75	
14-SP1	EPBB-2,4,6	DUPLEX SUMP PUMPS	2@1.5					•	MECHANICAL 002	-		•						•				DIV 22	•					•			DIV 22		•				3	12	12	.75	
14-RCP1	EBA-10	DOMESTIC HOT WATER RECIRC. PUMP	0.17	•					MECHANICAL 002	-			•					•				DIV 22	•				•				DIV 26					(2)	2	12	12	.75	
14-DCP1	EBA-14	DOMESTIC HOT WATER CIRC. PUMP	0.5	•					MECHANICAL 002	-			•					•				DIV 22	•				•				DIV 26					(2)	2	12	12	.75	
14-CU1	E2A-39,41	CONDENSING UNIT 1	(5.2)		•				ROOF	-			•					•				DIV 23	•				•				DIV 26				•		2	8	10	.75	
14-FC1	14-CU1	FAN COIL 1	-		•				ELEV. EQUIP. 007	—	—	—	—	—	—	—	—	—	—	—	—	DIV 23	•				•				DIV 26				•		3	16	16	.75	(9)
14-PUH1	SEE PLANS	PROPELLER UNIT HEATER 1	(.025)	•					UNOCCUPIED 011	-			•					•				DIV 23		•			•				DIV 23				•		2	12	12	.75	
14-PUH2	SEE PLANS	PROPELLER UNIT HEATER 2	.05	•					UNOCCUPIED 010	-			•					•				DIV 23		•			•				DIV 23				•		2	12	12	.75	
14-PUH3	SEE PLANS	PROPELLER UNIT HEATER 3	.25	•					LOADING DOCK 140	-			•					•				DIV 23	•				•				DIV 23				•		2	12	12	.75	
14-CUH1	SEE PLANS	CABINET UNIT HEATER 1	.06	•					SEE PLANS	-			•					•				DIV 23	•				•				DIV 23				•		2	12	12	.75	

GENERAL NOTES

A CONNECTED AND DEMAND LOADS IN PARENTHESIS (577 KVA) INDICATE CURRENT LOAD PLUS ESTIMATED FUTURE LOAD.

NOTES

1. PROVIDE SEPARATE VERTICALLY BARRIERED SWITCHBOARD SECTIONS PER NEC ART. 700, AND 701.
2. WIRE THROUGH IMMERSION-STAT BY DIV 22.
3. UTILIZE RHW CONDUCTORS IN RIGID METAL CONDUIT (1HR. FIRE RATED).
4. PROVIDE 80% RATED ELECTRONIC TRIP SOLID STATE BREAKER WITH LSI ADJUSTMENT.
5. PROVIDE 100% RATED ELECTRONIC TRIP SOLID STATE BREAKER WITH LSIG ADJUSTMENT.
6. PROVIDE 100% RATED ELECTRONIC TRIP SOLID STATE BREAKER WITH LSI ADJUSTMENT.
7. PROVIDE 80% RATED THERMAL MAGNETIC BREAKER.
8. COORDINATE EXACT BREAKER TRIP WITH ENGINEER PRIOR TO ORDERING.
9. RUN CONTROL / POWER / GROUND WIRES INDIICATED TO 14-CU1 ON ROOF.

MAIN DIST. SWBD. "14MDP"

MAIN BUSSING: 2000 AMPS
FEEDER SIZE: 5 SETS OF (4-600 KCMIL), #3/0 G.E.C.
SPEC SECTION: 26 24 11
CONNECTED LOAD: (1925 KVA)
DEMAND LOAD: (1318 KVAD (1587 AMPS))
VOLTAGE: 480Y/277V-3PH-4W

SWITCH OR UNIT NO.	NAMEPLATE	CONNECTED KVA LOAD (FUTURE) (EST)	OVERCURRENT PROTECTION: BREAKER FRAME	POLES	BREAKER TRIP	SEE NOTE	FEEDER: NUMBER OF CONDUCTORS	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
1	FIRE PUMP TAP SECTION	(44)	-	-	-		-	-	-	-
2	MAIN BREAKER	(1817)	2000	3	2000	(5)	-	-	-	-
3	SWITCHBOARD METERING	-	-	-	-		-	-	-	-
4	TVSS	-	60	3	60	(7)	4	6	10	.75
5	14DP1/14TDP1	(330)	400	3	400	(4)	3	500	3	4
6	CHILLER (FUTURE)	(260)	400	3	(8)	(4)	-	-	-	4
7	ATSEM	(30)	60	3	50	(7)	3	6	10	0.75
8	ATSCH (FUTURE)	(260)	400	3	(8)	(4)	-	-	-	4
9	ATSOS1	(255)	400	3	400	(4)	3	500	3	4
10	ATSOS2	(559)	800	3	800	(4)	REFER TO 14OSPDP1			
11	ATSLR	(67)	200	3	150	(7)	4	1/0	6	2
12	ELEVATOR	(39)	100	3	(8)	(7)	-	-	-	-
13	ELEVATOR	(39)	100	3	(8)	(7)	-	-	-	-
14	P2A	(48)	200	3	200	(7)	4	3/0	6	2
15	SPARE		200	3	200	(7)	-	-	-	-
16	SPARE		400	3	400	(4)	-	-	-	-
17	SPACE (19")									
18	SPACE (44")									
19										
20										

DIST. SWBD. "14ESWB"

MAIN BUSSING: 1200 AMPS
FEEDER SIZE: 3 SETS OF (4-600 KCMIL, 1-#3/0 GRD. IN 4" RMC) (2)
SPEC SECTION: 26 24 11
CONNECTED LOAD: (1206 KVA)
DEMAND LOAD: (812 KVAD (977 AMPS))
VOLTAGE: 480Y/277V-3PH-4W

SWITCH OR UNIT NO.	NAMEPLATE	CONNECTED KVA LOAD (FUTURE) (EST)	OVERCURRENT PROTECTION: BREAKER FRAME	POLES	BREAKER TRIP	SEE NOTE	FEEDER: NUMBER OF CONDUCTORS	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
1	MAIN BREAKER	(1174)	1200	3	1200	(6)	-	-	-	-
2	SWITCHBOARD METERING (1)	-	-	-	-		-	-	-	-
3	TVSS	-	60	3	60		4	6	10	.75
4	ATSEM (4)	(30)	60	3	50	(7)	3	6	10	0.75
5	FIRE PUMP (FUTURE)	(33)	100	3	(8)	(7)	-	-	-	-
6	ATSLR (1)	(67)	200	3	150	(7)	4	1/0	6	2
7	ATSOS2	(559)	800	3	800	(4)	REFER TO 14OSPDP1			
8	ATSOS1 (1)	(255)	400	3	400	(4)	3	500	3	4
9	ATSCH (FUTURE)	(260)	400	3	(8)	(4)	-	-	-	-
10	SPACE (42")									
11	SPACE (60")									
12	SPACE (48")									

DIST. PANEL "14DP1"

MAIN BUSSING: 800 AMPS
FEEDER SIZE: 2 SETS OF (4-600 KCMIL IN 4"C.); #3/0 G.E.C.
SPEC SECTION: 26 24 16
CONNECTED LOAD: (330 KVA)
DEMAND LOAD: (216 KVAD (600 AMPS))
VOLTAGE: 208Y/120V-3PH-4W

SWITCH OR UNIT NO.	NAMEPLATE	CONNECTED KVA LOAD (FUTURE) (EST)	OVERCURRENT PROTECTION: BREAKER FRAME	POLES	BREAKER TRIP	SEE NOTE	FEEDER: NUMBER OF CONDUCTORS	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
1	MAIN BREAKER	(330)	800	3	800	(4)	-	-	-	-
2	TVSS	-	30	3	30	(7)	4	10	10	0.75
3	BA/BB (FUTURE)	10	200	3	150	(7)	4	1/0	6	2
4	1A/1B	60	200	3	200	(7)	4	3/0	6	2
5	2A/2B (FUTURE)	(40)	200	3	150	(7)	4	1/0	6	2
6	3A/3B (FUTURE)	(40)	200	3	(8)	(7)	-	-	-	-
7	4A/4B (FUTURE)	(60)	200	3	(8)	(7)	-	-	-	-
8	5A/5B (FUTURE)	(60)	200	3	(8)	(7)	-	-	-	-
9	6A/6B (FUTURE)	(60)	200	3	(8)	(7)	-	-	-	-
10	SPARE	-	200	3	200	(7)	-	-	-	-
11	SPACE (11")									
12										
13										
14										
15										
16										

DIST. PANEL "14OSDP1"

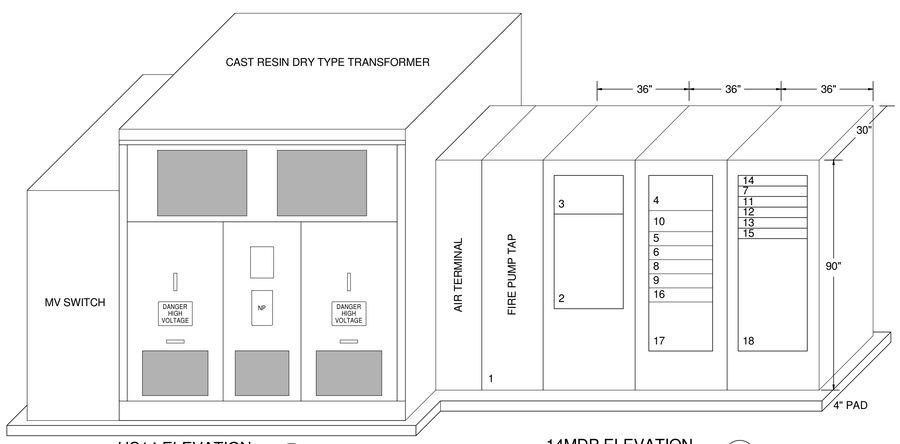
MAIN BUSSING: 800 AMPS
FEEDER SIZE: 2 SETS OF (4-600 KCMIL IN 4"C.); #3/0 G.E.C.
SPEC SECTION: 26 24 16
CONNECTED LOAD: (255 KVA)
DEMAND LOAD: (152 KVAD (423 AMPS))
VOLTAGE: 208Y/120V-3PH-4W

SWITCH OR UNIT NO.	NAMEPLATE	CONNECTED KVA LOAD (FUTURE) (EST)	OVERCURRENT PROTECTION: BREAKER FRAME	POLES	BREAKER TRIP	SEE NOTE	FEEDER: NUMBER OF CONDUCTORS	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
1	MAIN BREAKER	(255)	800	3	800	(4)	-	-	-	-
2	TVSS	-	30	3	30	(7)	4	10	10	0.75
3	EBA/EBB (FUTURE)	9	100	3	100	(7)	4	2	8	1.25
4	E1A/E1B	53	200	3	200	(7)	4	3/0	6	2
5	E2A/E3A (FUTURE)	(34)	100	3	100	(7)	4	2	8	1.25
6	E4A/E4B (FUTURE)	(53)	200	3	(8)	(7)	-	-	-	-
7	E5A/E5B (FUTURE)	(53)	200	3	(8)	(7)	-	-	-	-
8	E6A/E6B (FUTURE)	(53)	200	3	(8)	(7)	-	-	-	-
9	SPARE	-	200	3	200	(7)	-	-	-	-
10	SPARE	-	200	3	200	(7)	-	-	-	-
11	SPACE (11")									
12										
13										
14										
15										
16										

DIST. PANEL "14OSPDP1"

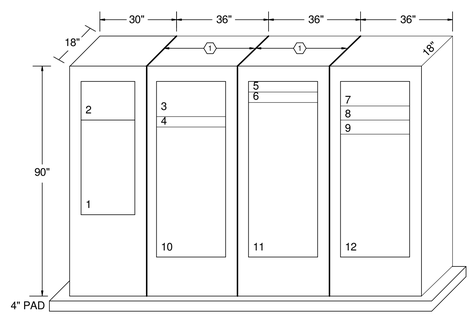
MAIN BUSSING: 800 AMPS
FEEDER SIZE: 2 SETS OF (4-500 KCMIL, 1-#1/0 GRD. IN 4"C.)
SPEC SECTION: 26 24 16
CONNECTED LOAD: (559 KVA)
DEMAND LOAD: (391 KVAD (470 AMPS))
VOLTAGE: 480Y/277V-3PH-4W

SWITCH OR UNIT NO.	NAMEPLATE	CONNECTED KVA LOAD (FUTURE) (EST)	OVERCURRENT PROTECTION: BREAKER FRAME	POLES	BREAKER TRIP	SEE NOTE	FEEDER: NUMBER OF CONDUCTORS	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
1	MAIN LUGS	(559)	-	-	-		-	-	-	-
2	TVSS	-	30	3	30		4	10	10	.75
3	14-SF1	44	100	3	90	(7)	3	2	8	1.25
4	14-DEF1	33	100	3	70	(7)	3	2	8	1.25
5	14-DEF2 (FUTURE)	(33)	100	3	70	(7)	-	-	-	-
6	14-DEF3 (FUTURE)	(33)	100	3	70	(7)	-	-	-	-
7	14-SF2 (FUTURE)	(44)	100	3	(8)	(7)	-	-	-	-
8	14-RF2 (FUTURE)	(17)	60	3	(8)	(7)	-	-	-	-
9	14-SF3 (FUTURE)	(44)	100	3	(8)	(7)	-	-	-	-
10	14-RF3 (FUTURE)	(17)	60	3	(8)	(7)	-	-	-	-
11	14-SF4 (FUTURE)	(44)	100	3	(8)	(7)	-	-	-	-
12	14-SF5 (FUTURE)	(44)	100	3	(8)	(7)	-	-	-	-
13	EP1A/EP5A (FUTURE)	(75)	100	3	(8)	(7)	-	-	-	-
14	EPBA/EPBB	(131)	200	3	200	(7)	4	3/0	6	2
15	14-EF1	6.3	20	3	20	(7)	3	12	12	0.75
16	14-EF4	4.0	20	3	20	(7)	3	12	12	0.75
17	SPARE	-	100	3	100	(7)	-	-	-	-
18	SPARE	-	60	3	60	(7)	-	-	-	-
19	SPACE (9")									

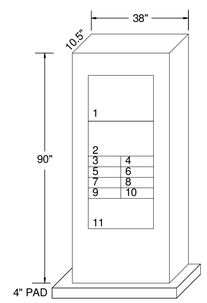


US14 ELEVATION (A / E6)
SCALE: 1/2" = 1'-0"

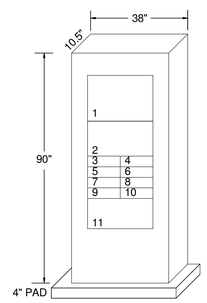
14MDP ELEVATION (B / E6)
SCALE: 1/2" = 1'-0"



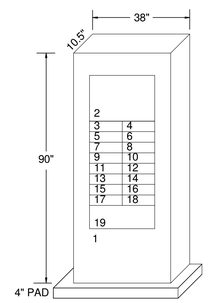
14ESWB ELEVATION (C / E6)
SCALE: 1/2" = 1'-0"



14DP1 ELEVATION (D / E6)
SCALE: 1/2" = 1'-0"



14OSDP1 ELEVATION (E / E6)
SCALE: 1/2" = 1'-0"



14OSPDP1 ELEVATION (F / E6)
SCALE: 1/2" = 1'-0"

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: ELECTRICAL SCHEDULES

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: E6

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs

Panel: BA

Location: Elec. 009 **Mounting:** Surface **A.I.C. Rating:**
Supply From: **Enclosure:** Type 1 **Mains Type:**
Voltage: 120/208 Wye-3PH-4W **Mains Rating:** 225 A

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	Power	20 A	1	1.08	1.08					1	20 A	Power	2
3	Power	20 A	1			0.9	0.9			1	20 A	Power	4
5	Power	20 A	1					0.36	1.54	1	20 A	Lighting	6
7	Lighting	20 A	1	1.43	1.2					1	20 A	EWC	8
9	Elev Pit	20 A	1			0.81	0			1	20 A	Spare	10
11	Power	20 A	1					0.36	0	1	20 A	Spare	12
13	Spare	20 A	1	0	0					1	20 A	Spare	14
15	Spare	20 A	1			0	0			1	20 A	Spare	16
17	Spare	20 A	1					0	0	1	20 A	Spare	18
19	Spare	20 A	1	0	0					1	20 A	Spare	20
21	Spare	20 A	1			0	0			1	20 A	Spare	22
23	Spare	20 A	1					0	0	1	20 A	Spare	24
25	Spare	20 A	1	0	0					1	20 A	Spare	26
27	Spare	20 A	1			0	0			1	20 A	Spare	28
29	Space	--	--					0	0	--	--	Space	30
31	Space	--	--	0	0					--	--	Space	32
33	Space	--	--			0	0			--	--	Space	34
35	Space	--	--					0	0	--	--	Space	36
37	Space	--	--	0	0					--	--	Space	38
39	Space	--	--			0	0			--	--	Space	40
41	Space	--	--					0	0	--	--	Space	42
			Total Load:	4.79 kVA		2.61 kVA		2.26 kVA					

Notes: PROVIDE FEED THROUGH LUGS

TOTAL CONNECTED		ESTIMATED DEMAND
9.65 kVA		8 KVAD (22A)

Panel: 1A

Location: Main Electric 205 **Mounting:** Surface **A.I.C. Rating:**
Supply From: **Enclosure:** Type 1 **Mains Type:**
Voltage: 120/208 Wye-3PH-4W **Mains Rating:** 225 A

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	Power	20 A	1	0.9	1.44					1	20 A	BSC	2
3	BSC	20 A	1			1.44	0.9			1	20 A	VCR	4
5	BSC	20 A	1					1.44	1.44	1	20 A	BSC	6
7	VCR	20 A	1	0.9	1.44					1	20 A	BSC	8
9	BSC	20 A	1			1.44	0.9			1	20 A	VCR	10
11	BSC	20 A	1					1.44	1.44	1	20 A	BSC	12
13	Power	20 A	1	1.44	0.78					1	20 A	Power	14
15	Power	20 A	1			0.54	0.72			1	20 A	Power	16
17	Power	20 A	1					0.9	1.2	1	20 A	Sterilizer	18
19	Power	20 A	1	0.72	1.14					1	20 A	Power	20
21	Lighting	20 A	1			1.32	0.8			1	20 A	Auto Door	22
23	Lighting	20 A	1					0.7	0	1	20 A	Spare	24
25	O/H Door	20 A	1	1.18	0					1	20 A	Spare	26
27	Spare	20 A	1			0	0			1	20 A	Spare	28
29	Spare	20 A	1					0	0	1	20 A	Spare	30
31	Spare	20 A	1	0	0					1	20 A	Spare	32
33	Space	--	--			0	0			--	--	Space	34
35	Space	--	--					0	0	--	--	Space	36
37	Space	--	--	0	0					--	--	Space	38
39	Space	--	--			0	0			--	--	Space	40
41	Space	--	--					0	0	--	--	Space	42
			Total Load:	9.94 kVA		8.06 kVA		8.56 kVA					

Notes: PROVIDE FEED THROUGH LUGS

TOTAL CONNECTED		ESTIMATED DEMAND
26.56 kVA		18 KVAD (50A)

Panel: 1B

Location: Main Electric 205 **Mounting:** Surface **A.I.C. Rating:**
Supply From: **Enclosure:** Type 1 **Mains Type:**
Voltage: 120/208 Wye-3PH-4W **Mains Rating:** 225 A

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	VCR	20 A	1	0.9	1.44					1	20 A	BSC	2
3	BSC	20 A	1			1.44	0.9			1	20 A	VCR	4
5	BSC	20 A	1					1.44	1.44	1	20 A	BSC	6
7	VCR	20 A	1	0.9	1.44					1	20 A	BSC	8
9	BSC	20 A	1			1.44	1.08			1	20 A	Power	10
11	VCR	20 A	1					0.9	1.44	1	20 A	BSC	12
13	BSC	20 A	1	1.44	1.08					1	20 A	VCR	14
15	Power	20 A	1			1.2	1.14			1	20 A	Power	16
17	Refrig	20 A	1					1.2	1.26	1	20 A	Power	18
19	Power	20 A	1	0.72	2.25					2	30 A	Dryer	20
21	Washer	20 A	1			1.2	2.25			--	--	--	22
23	Power	20 A	1					1.44	1.44	1	20 A	BSC	24
25	BSC	20 A	1	1.44	1.44					1	20 A	BSC	26
27	Power	20 A	1			0.36	1.42			1	20 A	Lighting	28
29	Lighting	20 A	1					0.9	0.7	1	20 A	14-PUH3	30
31	Lighting	20 A	1	0.55	0					1	20 A	Spare	32
33	Spare	20 A	1			0	0			1	20 A	Spare	34
35	Spare	20 A	1					0	0	1	20 A	Spare	36
37	Spare	20 A	1	0	0					1	20 A	Spare	38
39	Spare	20 A	1			0	0			1	20 A	Spare	40
41	Spare	20 A	1					0	0	1	20 A	Spare	42
			Total Load:	13.60 kVA		12.43 kVA		12.15 kVA					

Notes:

TOTAL CONNECTED		ESTIMATED DEMAND
38.18 kVA		28.5 KVAD (79A)

Panel: 2A

Location: Main Electric 205 **Mounting:** Surface **A.I.C. Rating:**
Supply From: **Enclosure:** Type 1 **Mains Type:**
Voltage: 120/208 Wye-3PH-4W **Mains Rating:** 225 A

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	Spare	20 A	1	0	0.45					1	20 A	Lighting	2
3	Lighting	20 A	1			0.64	0			1	20 A	Spare	4
5	Spare	20 A	1					0	0.36	1	20 A	Power	6
7	Spare	20 A	1	0	0.9					1	20 A	Power	8
9	Spare	20 A	1			0	0.84			1	20 A	EWC	10
11	Spare	20 A	1					0	0	1	20 A	Spare	12
13	Spare	20 A	1	0	0					1	20 A	Spare	14
15	Spare	20 A	1			0	0			1	20 A	Spare	16
17	Spare	20 A	1					0	0	1	20 A	Spare	18
19	Spare	20 A	1	0	0					1	20 A	Spare	20
21	Spare	20 A	1			0	0			1	20 A	Spare	22
23	Spare	20 A	1					0	0	1	20 A	Spare	24
25	Spare	20 A	1	0	0					1	20 A	Spare	26
27	Spare	20 A	1			0	0			1	20 A	Spare	28
29	Spare	20 A	1					0	0	1	20 A	Spare	30
31	Spare	20 A	1	0	0					1	20 A	Spare	32
33	Space	--	--			0	0			--	--	Space	34
35	Space	--	--					0	0	--	--	Space	36
37	Space	--	--	0	0.37					3	20 A	14-EF3	38
39	Space	--	--			0	0.37			--	--	--	40
41	Space	--	--					0	0.37	--	--	--	42
			Total Load:	1.72 kVA		1.85 kVA		0.73 kVA					

Notes: PROVIDE FEED THROUGH LUGS

TOTAL CONNECTED		ESTIMATED DEMAND
4.30 kVA		5 KVAD(14A)

Panel: P2A

Location: Main Electric 205 **Mounting:** Surface **A.I.C. Rating:**
Supply From: **Enclosure:** Type 1 **Mains Type:**
Voltage: 480/277 Wye-3PH-4W **Mains Rating:** 225 A

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	Cage Wash	20 A	3	3.6	9.14					3	50 A	Cage Rack Wsh	2
3	--	--	--			3.6	9.14			--	--	--	4
5	--	--	--					3.6	9.14	--	--	--	6
7	14-GP1	20 A	3	2.11	0.19					3	20 A	Dock Lift	8
9	--	--	--			2.11	0.19			--	--	--	10
11	--	--	--					2.11	0.19	--	--	--	12
13	Spare	20 A	3	0	0					--	--	Space	14
15	--	--	--			0	0			--	--	Space	16
17	--	--	--					0	0	--	--	Space	18
19	Spare	20 A	3	0	0					--	--	Space	20
21	--	--	--			0	0			--	--	Space	22
23	--	--	--					0	0	--	--	Space	24
25	Space	--	--	0	0					--	--	Space	26
27	Space	--	--			0	0			--	--	Space	28
29	Space	--	--					0	0	--	--	Space	30
31	Space	--	--	0	0					--	--	Space	32
33	Space	--	--			0	0			--	--	Space	34
35	Space	--	--					0	0	--	--	Space	36
37	Space	--	--	0	0					--	--	Space	38
39	Space	--	--			0	0			--	--	Space	40
41	Space	--	--					0	0	--	--	Space	42
			Total Load:	15.04 kVA		15.04 kVA		15.04 kVA					

Notes:

TOTAL CONNECTED		ESTIMATED DEMAND
45.12 kVA		41 KVAD (49A)

Panel: EBA

Location: Elec. 009 **Mounting:** Surface **A.I.C. Rating:**
Supply From: **Enclosure:** Type 1 **Mains Type:**
Voltage: 120/208 Wye-3PH-4W **Mains Rating:** 100 A

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	Power	20 A	1	0.8	1.54					1	20 A	Lighting	2
3	Power	20 A	1			0.54	0.72			1	20 A	Power	4
5	Sump	20 A	1					1.3	0.72	1	20 A	Power	6
7	Sump	20 A	1	1.3	0.36					1	20 A	Softener	8
9	Elev Pit	20 A	1			0.48	1.06			1	20 A	14-RCP1	10
11	Elev Mach	20 A	1					0.31	0.2	1	20 A	Unit Heaters	12
13	Spare	20 A	1	0	1.18					1	20 A	14-DCP1	14
15	Spare	20 A	1			0	0			1	20 A	Spare	16
17	Spare	20 A	1					0	0	1	20 A	Spare	18
19	Spare	20 A	1	0	0					1	20 A	Spare	20
21	Spare	20 A	1			0	0			1	20 A	Spare	22
23	Spare	20 A	1					0	0	1	20 A	Spare	24
25	Space	--	--	0	0					--	--	Space	26
27	Space	--	--			0	0			--	--	Space	28
29	Space	--	--					0	0	--	--	Space	30
31	Space	--	--	0	0					3	20 A	Spare	32
33	Space	--	--			0	0			--	--	--	34
35	Space	--	--					0	0	--	--	--	36
37	Space	--	--	0	0					3	20 A	Spare	38
39	Space	--	--			0	0			--	--	--	40
41	Space	--	--					0	0	--	--	--	42
			Total Load:	5.17 kVA		2.80 kVA		2.53 kVA					

Notes: PROVIDE FEED THROUGH LUGS

TOTAL CONNECTED		ESTIMATED DEMAND
10.50 kVA		6 KVAD (18A)

Panel: E1A

Location: Em. Electric 204 **Mounting:** Surface **A.I.C. Rating:**
Supply From: **Enclosure:** Type 1 **Mains Type:**
Voltage: 120/208 Wye-3PH-4W **Mains Rating:** 225 A

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	VCR	20 A	1	0.9	1.44					1	20 A	BSC	2
3	BSC	20 A	1			1.44	0.9			1	20 A	Power	4
5	BSC	20 A	1					1.44	1.44	1	20 A	BSC	6
7	VCR	20 A	1	0.9	1.44					1	20 A	BSC	8
9	BSC	20 A	1			1.44	1.44			1	20 A	BSC	10
11	BSC	20 A	1					1.44	0.9	1	20 A	VCR	12
13	Power	20 A	1	1.08	1.8					1	20 A	Hood	14
15	Power	20 A	1			0.54	0.54			1	20 A	Power	16
17	Chest Frz	20 A	1					1.2	1.38	1	20 A	Lighting	18
19	Lighting	20 A	1	1.22	1.22					1	20 A	Lighting	20
21	AWS/ESP	20 A	1			0.36	0			1	20 A	Spare	22
23	O/H Door	20 A	1					1.18	0	1	20 A	Spare	24
25	Spare	20 A	1	0	0					1	20 A	Spare	26
27	Spare	20 A	1			0	0			1	20 A	Spare	28
29	Spare	20 A	1					0	0	1	20 A	Spare	30
31	Spare	20 A	1	0	0					1	20 A	Spare	32
33	Spare	20 A	1			0	0			1	20 A	Spare	34
35	Space	--	--					0	0	--	--	Space	36
37	Space	--	--	0	0					--	--	Space	38
39	Space	--	--			0	0			--	--	Space	40
41	Space	--	--					0	0	--	--	Space	42
			Total Load:	9.99 kVA		6.66 kVA		8.98 kVA					

Notes: PROVIDE FEED THROUGH LUGS

TOTAL CONNECTED		ESTIMATED DEMAND
25.63 kVA		17 KVAD (47A)

Panel: E1B

Location: Em. Electric 204 **Mounting:** Surface **A.I.C. Rating:**
Supply From: **Enclosure:** Type 1 **Mains Type:**
Voltage: 120/208 Wye-3PH-4W **Mains Rating:** 225 A

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	VCR	20 A	1	0.9	1.44					1	20 A	BSC	2
3	BSC	20 A	1			1.44	0.9			1	20 A	VCR	4
5	BSC	20 A	1					1.44	1.44	1	20 A	BSC	6
7	BSC	20 A	1	1.44	1.44					1	20 A	BSC	8
9	VCR	20 A	1			0.9	1.2			1	20 A	Refrig	10
11	Power	20 A	1					0.36	0.9	1	20 A	VCR	12
13	BSC	20 A	1	1.44	1.44					1	20 A	BSC	14
15	VCR/BSC	20 A	1			1.8	1.44			1	20 A	BSC	16
17	BSC	20 A	1					1.44	1.22	1	20 A	Lighting	18
19	Lighting	20 A	1	0.94	1.6					1	20 A	Lighting	20
21	Power	20 A	1			1.3	0			1	0 A	Spare	22
23	Spare	20 A	1					0	0	1	20 A	Spare	24
25	Spare	20 A	1	0	0					1	20 A	Spare	26
27	Spare	20 A	1			0	0			1	20 A	Spare	28
29	Spare	20 A	1					0	0	1	20 A	Spare	30
31	Spare	20 A	1	0	0					1	20 A	Spare	32
33	Spare	20 A	1			0	0			1	20 A	Spare	34
35	Space	--	--					0	0	--	--	Space	36
37	Space	--	--	0	0					--	--	Space	38
39	Space	--	--			0	0			--	--	Space	40
41	Space	--	--					0	0	--	--	Space	42
			Total Load:	10.64 kVA		8.98 kVA		6.80 kVA					

Notes:

TOTAL CONNECTED		ESTIMATED DEMAND
26.42 kVA		18 KVAD (50A)

Panel: E2A

Location: Em. Electric 204 **Mounting:** Surface **A.I.C. Rating:**
Supply From: **Enclosure:** Type 1 **Mains Type:**
Voltage: 120/208 Wye-3PH-4W **Mains Rating:** 225 A

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	Lighting	20 A	1	0.9	1.08					1	20 A	Power	2
3	Power	20 A	1			0.72	0.2			1	20 A	LCP1	4
5	AHU Lights	20 A	1					0.6	0.36	1	20 A	Power	6
7	Humid/DDC	20 A	1	0.2	0.36					1	20 A	Power	8
9	Power	20 A	1			0.72	0			1	20 A	Spare	10
11	Power	20 A	1					0.72	0	1	20 A	Spare	12
13	Spare	20 A	1	0	0					1	20 A	Spare	14
15	Spare	20 A	1			0	0			1	20 A	Spare	16
17	Spare	20 A	1					0	0	1	20 A	Spare	18
19	Spare	20 A	1	0	0					1	20 A	Spare	20
21	Spare	20 A	1			0	0			1	20 A	Spare	22
23	Space	--	--					0	0	1	20 A	Spare	24
25	Space	--	--	0	0					1	20 A	Spare	26
27	Space	--	--			0	0			1	20 A	Spare	28
29	Space	--	--					0	0	1	20 A	Spare	30
31	Space	--	--	0	0					1	20 A	Spare	32
33	14-EF2	20 A	3			0.37	0			1	20 A	Spare	34
35	--	--	--					0.37	0	1	20 A	Spare	36
37	--	--	--	0.37	0					1	20 A	Spare	38
39	14-CU1	40 A	2			2.6	0			1	20 A	Spare	40
41	--	--	--					2.6	0	1	20 A	Spare	42
			Total Load:	2.91 kVA		4.61 kVA		4.65 kVA					

Notes: PROVIDE FEED THROUGH LUGS

TOTAL CONNECTED		ESTIMATED DEMAND
12.17 kVA		9 KVAD (25A)

Panel: 14LRP1

Location: Em. Electric 204 **Mounting:** Surface **A.I.C. Rating:**
Supply From: **Enclosure:** Type 1 **Mains Type:**
Voltage: 480/277 Wye-3PH-4W **Mains Rating:** 225 A

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	Elevator EL-1	125	3	18	2.11					3	20 A	14-SPF1	2
3	--	--	--			18	2.11			--	--	--	4
5	--	--	--					18	2.11	--	--	--	6
7	Space	--	--	0	2.11					3	20 A	14-SPF2	8
9	Space	--	--			0	2.11			--	--	--	10
11	Space	--	--					0	2.11	--	--	--	12
13	Space	--	--	0	0					--	--	Space	14
15	Space	--	--			0	0			--	--	Space	16
17	Space	--	--					0	0	--	--	Space	18
19	Space	--	--	0	0					--	--	Space	20
21	Space	--	--			0	0			--	--	Space	22
23	Space	--	--					0	0	--	--	Space	24
25	Space	--	--	0	0					--	--	Space	26
27	Space	--	--			0	0			--	--	Space	28
29	Space	--	--					0	0	--	--	Space	30
31													32
33													34
35													36
37													38
39													40
41													42
			Total Load:	22.21 kVA		22.21 kVA		22.21 kVA					

Notes:

TOTAL CONNECTED		ESTIMATED DEMAND
66.64 kVA		67 KVAD (81A)

Panel: EPBA

Location: Elec. 009 **Mounting:** Surface **A.I.C. Rating:**
Supply From: **Enclosure:** Type 1 **Mains Type:**
Voltage: 480/277 Wye-3PH-4W **Mains Rating:** 225 A

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	14-AC1(FUT)	30 A	3	4.21	6.1					3	40 A	14-VP1(FUT)	2
3	--	--	--			4.21	6.1			--	--	--	4
5	--	--	--					4.21	6.1	--	--	--	6
7	Spare	20 A	3	0	0					3	20 A	Spare	8
9	--	--	--			0	0			--	--	--	10
11	--	--	--					0	0	--	--	--	12
13	Spare	20 A	3	0	0					3	20 A	Spare	14
15	--	--	--			0	0			--	--	--	16
17	--	--	--					0	0	--	--	--	18
19	Space	--	--	0	0					--	--	Space	20
21	Space	--	--			0	0			--	--	Space	22
23	Space	--	--					0	0	--	--	Space	24
25	Space	--	--	0	0					--	--	Space	26
27	Space	--	--			0	0			--	--	Space	28
29	Space	--	--					0	0	--	--	Space	30
31	Space	--	--	0	0					--	--	Space	32
33	Space	--	--			0	0			--	--	Space	34
35	Space	--	--					0	0	--	--	Space	36
37	Space	--	--	0	0					--	--	Space	38
39	Space	--	--			0	0			--	--	Space	40
41	Space	--	--					0	0	--	--	Space	42
			Total Load:	10.31 kVA		10.31 kVA		10.31 kVA					

Notes: PROVIDE FEED THROUGH LUGS

TOTAL CONNECTED		ESTIMATED DEMAND
30.93 kVA		28 KVAD (34A)

Panel: EPBB

Location: Passage 001 **Mounting:** Surface **A.I.C. Rating:**
Supply From: **Enclosure:** Type 1 **Mains Type:**
Voltage: 480/277 Wye-3PH-4W **Mains Rating:** 225 A

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	14-CP1	20 A	3	2.07	1.44					3	20 A	14-SP1	2
3	--	--	--			2.07	1.44			--	--	--	4
5	--	--	--					2.07	1.44	--	--	--	6
7	14-SCWP3(FUT	40 A	3	5.82	2.11					3	20 A	14-HWP1	8
9	--	--	--			5.82	2.11			--	--	--	10
11	--	--	--					5.82	2.11	--	--	--	12
13	14-SCWP2(FUT	40 A	3	5.82	5.82					3	40 A	14-SCWP1	14
15	--	--	--			5.82	5.82			--	--	--	16
17	--	--	--					5.82	5.82	--	--	--	18
19	14-PCWP(FUT)	20 A	3	3.05	2.11					3	20 A	14-HWP3(FUT)	20
21	--	--	--			3.05	2.11			--	--	--	22
23	--	--	--					3.05	2.11	--	--	--	24
25	14-PCWP(FUT)	20 A	3	3.05	2.11					3	20 A	14-HWP2(FUT)	26
27	--	--	--			3.05	2.11			--	--	--	28
29	--	--	--					3.05	2.11	--	--	--	30
31	Spare	20 A	3	0	0					3	20 A	Spare	32
33	--	--	--			0	0			--	--	--	34
35	--	--	--					0	0	--	--	--	36
37	Spare	20 A	3	0	0					3	20 A	Spare	38
39	--	--	--			0	0			--	--	--	40
41	--	--	--					0	0	--	--	--	42
			Total Load:	33.39 kVA		33.39 kVA		33.39 kVA					

Notes:

TOTAL CONNECTED		ESTIMATED DEMAND
100.16 kVA		65 KVAD FUT (78A)

Panel: 2EM

Location: Em. Electric 204 **Mounting:** Surface **A.I.C. Rating:**
Supply From: **Enclosure:** Type 1 **Mains Type:**
Voltage: 120/208 Wye-3PH-4W **Mains Rating:** 100 A

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	Lighting	20 A	1	1.15	1.48					1	20 A	Lighting	2
3	Lighting	20 A	1			0.38	1.47			1	20 A	Bldg Lighting	4
5	Cab lights	20 A	1					0.6	0.32	1	20 A	Stair Lighting	6
7	FACP	20 A	1	0.4	0.19					1	20 A	Stair Lighting	8
9	Area Rescue	20 A	1			0.4	0			1	20 A	Spare	10
11	BDA	20 A	1					0.4	0	1	20 A	Spare	12
13	Spare	20 A	1	0	0					1	20 A	Spare	14
15	Spare	20 A	1			0	0			1	20 A	Spare	16
17	Spare	20 A	1					0	0	1	20 A	Spare	18
19	Space	--	--	0	0					--	--	Space	20
21	Space	--	--			0	0			--	--	Space	22
23	Space	--	--					0	0	--	--	Space	24
25	Space	--	--	0	0					--	--	Space	26
27	Space	--	--			0	0			--	--	Space	28
29	Space	--	--					0	0	--	--	Space	30
31	Space	--	--	0	0					--	--	Space	32
33	Space	--	--			0	0			--	--	Space	34
35	Space	--	--					0	0	--	--	Space	36
37	Space	--	--	0	0					--	--	Space	38
39	Space	--	--			0	0			--	--	Space	40
41	Space	--	--					0	0	--	--	Space	42
			Total Load:	3.22 kVA		2.25 kVA		1.32 kVA					

Notes: PROVIDE 100A MAIN BREAKER

TOTAL CONNECTED		ESTIMATED DEMAND
6.80 kVA		5 KVAD (14A)

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.: 2010-04004 FIRM LICENSE: 05128

STATE OF OHIO
JOHN A. BLACK
49341
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: PANELBOARD SCHEDULES

Approved: Project Director

Project Title: BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011
REVISED AUGUST 17, 2012
Checked: MSG
Drawn: MSG

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

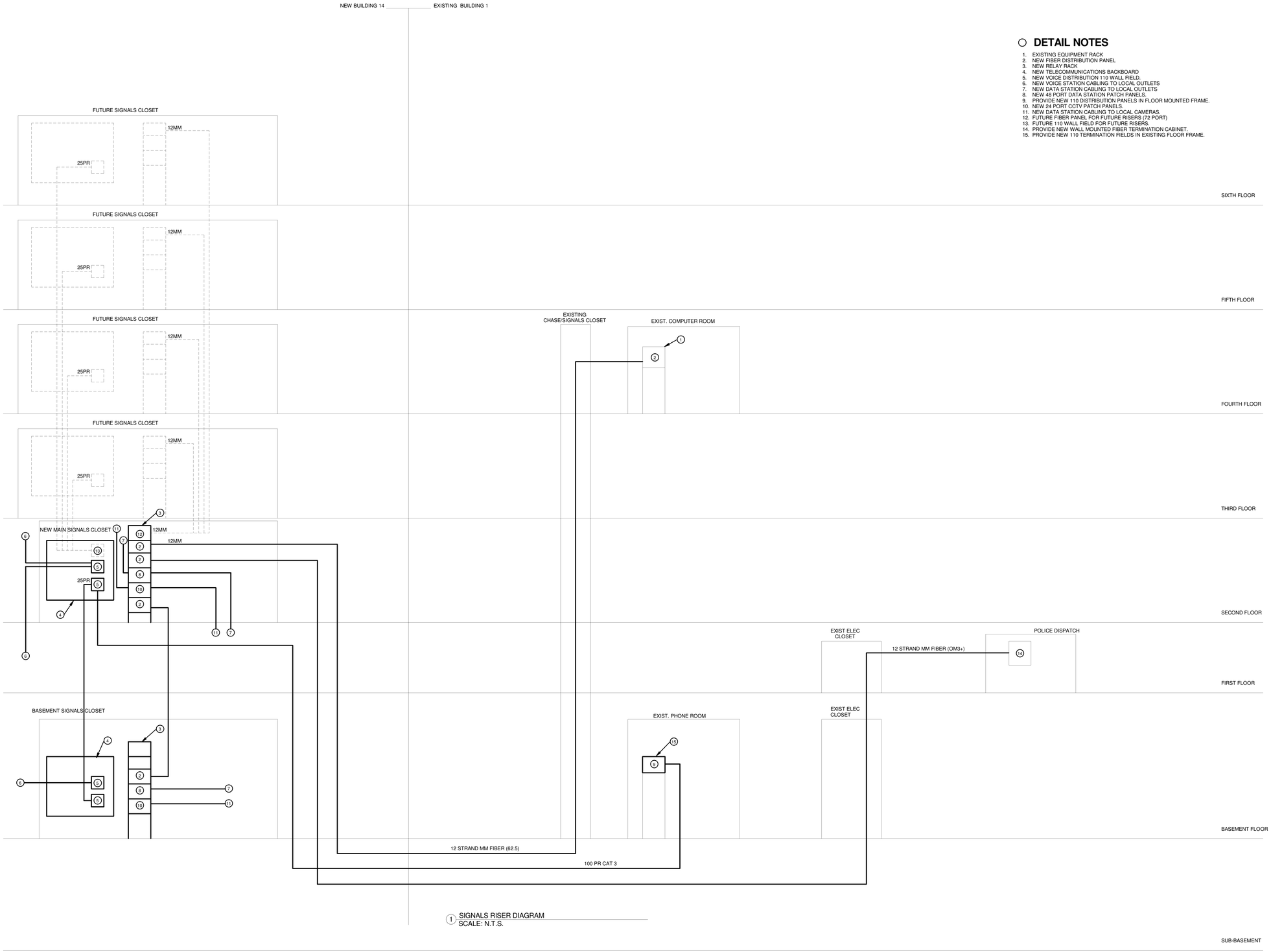
Building Number: 14

Drawing Number: E7

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs



1 SIGNALS RISER DIAGRAM
SCALE: N.T.S.

DETAIL NOTES

1. EXISTING EQUIPMENT RACK.
2. NEW FIBER DISTRIBUTION PANEL
3. NEW RELAY RACK
4. NEW TELECOMMUNICATIONS BACKBOARD
5. NEW VOICE DISTRIBUTION 110 WALL FIELD.
6. NEW VOICE STATION CABLING TO LOCAL OUTLETS
7. NEW DATA STATION CABLING TO LOCAL OUTLETS
8. NEW 48 PORT DATA STATION PATCH PANELS.
9. PROVIDE NEW 110 DISTRIBUTION PANELS IN FLOOR MOUNTED FRAME.
10. NEW 24 PORT CCTV PATCH PANELS.
11. NEW DATA STATION CABLING TO LOCAL CAMERAS.
12. FUTURE FIBER PANEL FOR FUTURE RISERS (72 PORT)
13. FUTURE 110 WALL FIELD FOR FUTURE RISERS.
14. PROVIDE NEW WALL MOUNTED FIBER TERMINATION CABINET.
15. PROVIDE NEW 110 TERMINATION FIELDS IN EXISTING FLOOR FRAME.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SIGNALS RISER DIAGRAM

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: JDK

Drawn: JDK

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: E8

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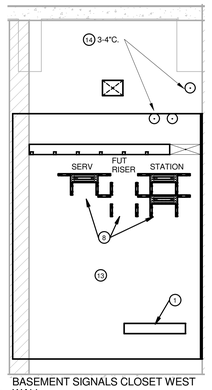
Department of Veterans Affairs

CAMERA SCHEDULE

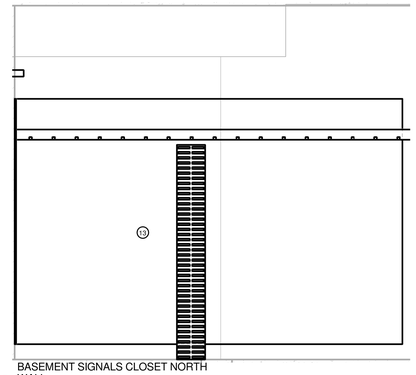
NOTES:
1. NOT USED
2. NOT USED
3. NOT USED
4. NOT USED

OPTIONS LEGEND: W - WIDE DYNAMIC RANGE; L - LOW LIGHT; D - DAY/NIGHT

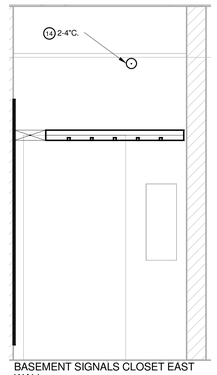
GENERAL				SPECIFICATIONS													TYPE AND MOUNTING							
					CAMERA TYPE					ANALYTICS		POWER			CABLE		INDOOR		OUTDOOR					
MARK	ROOM NO.	LOCATION	TECH CLOSET NO.	OPTION	LENS (mm)	VGA	MEGAPIXELS	PTZ	IP	CAM	SERV	POE	24V	120V	UTP	COAX	CLG	WALL	SURFACE	CLG	WALL	SURFACE	POLE	MOUNTING HEIGHT	SEE NOTE
1	EXTER IOR		1	D	25X		1.2	•	•				•		•					•	•			10' - 0"	
2	140		1		3-8	•			•			•			•		•								
3	141		1		3-8	•			•			•			•		•								
4	142		1		3-8	•			•			•			•		•								
5	121		1		3-8	•			•			•			•		•								
6	143		1		3-8	•			•			•			•		•								
7	144		1		3-8	•			•			•			•		•								
8	EXTER IOR		1	D	3-8	•			•				•		•					•	•			8' - 0"	
9	STAIR S-1-1		1		3-8	•			•			•			•		•								
10	211		1		3-8	•			•			•			•		•								
11	139		1		3-8	•			•			•			•		•								
12	S-2-1	Stair S-2-1			3-8	•			•			•			•			•	•					11' - 6"	



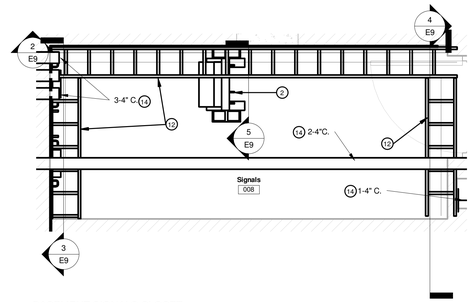
3 BASEMENT SIGNALS CLOSET WEST WALL
1/2" = 1'-0"



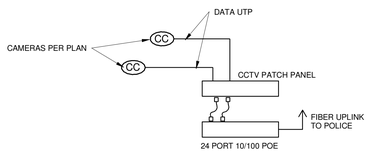
2 BASEMENT SIGNALS CLOSET NORTH WALL
1/2" = 1'-0"



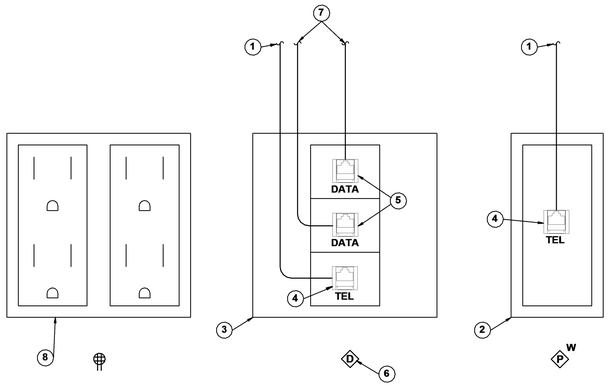
4 BASEMENT SIGNALS CLOSET EAST WALL
1/2" = 1'-0"



1 BASEMENT SIGNALS CLOSET
1/2" = 1'-0"



CCTV DETAIL
SCALE: NONE
A E9



VOICE/DATA OUTLET DIAGRAM
SCALE: NONE
B E9

DETAIL NOTES

1 RUN TO LOCAL VOICE STATION CABLE TERMINATION EQUIPMENT.

2 1-GANG BOX. SUBSCRIPT "W" INDICATES WALL PHONE PLATE. REFER TO LEGEND FOR M.H.

3 4" SQ., 3.5" DEEP BOX WITH FACEPLATE.

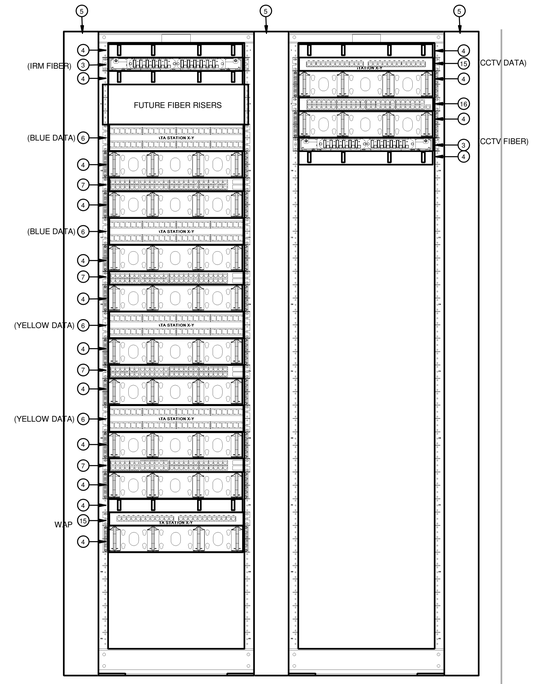
4 UTP VOICE JACK.

5 UTP DATA JACK.

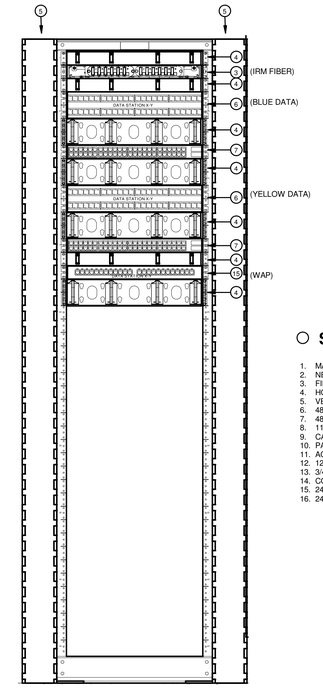
6 DEFAULT OUTLET IS 2 DATA JACKS AND 1 VOICE JACK.

7 RUN TO LOCAL DATA STATION CABLE TERMINATION EQUIPMENT.

8 ELECTRICAL OUTLET.



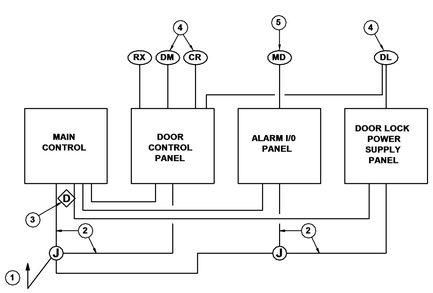
8 SECOND FLOOR RACK ELEVATION
1 1/2" = 1'-0"



5 BASEMENT RACK ELEVATION
1 1/2" = 1'-0"

SIGNALS DETAIL NOTES

1. MAIN TELECOMMUNICATIONS GROUND BAR (MTGB)
2. NEW RELAY RACK
3. FIBER TERMINATION PANEL
4. HORIZONTAL WIRE MANAGER
5. VERITCAL WIRE MANAGER
6. 48 PORT DATA STATION CABLE PATCH PANEL
7. 48 PORT LAYER 2 SWITCH
8. 110 WALL FIELD
9. CATV DISTRIBUTION EQUIPMENT
10. PAGING SYSTEM DISTRIBUTION EQUIPMENT
11. ACCESS CONTROL/SECURITY EQUIPMENT PANELS AND POWER SUPPLIES
12. 12"W LADDER RACK, WALL MOUNTED.
13. 3/4" PLAYWOOD BACKBOARD, FULL HEIGHT
14. CONDUIT SLEEVE THROUGH WALL, SIZE AS NOTED.
15. 24 PORT PATCH PANEL FOR CCTV CABLING.
16. 24 PORT 10/100 POE SWITCH FOR CCTV.



ACCESS CONTROL /INTRUSION ALARM SYSTEM SCHEMATIC
SCALE: NONE
C E9

NOTE: THIS DIAGRAM IS SCHEMATIC IN NATURE ONLY. IT IS INTENDED TO SHOW GENERAL CONFIGURATION OF THE SYSTEM. REFER TO DRAWINGS AND SPECIFICATIONS FOR WORK REQUIRED.

DETAIL NOTES

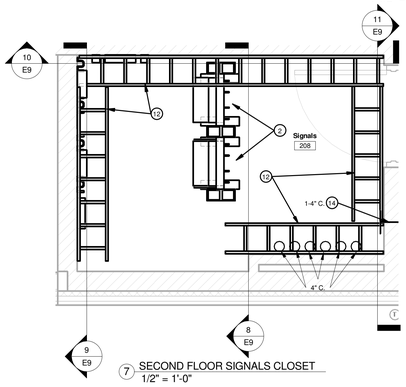
1 120V-20A DEDICATED EMERGENCY CIRCUIT IN WALL MOUNTED JUNCTION BOX.

2 PROVIDE 120V DIRECT CONNECTION TO PANELS.

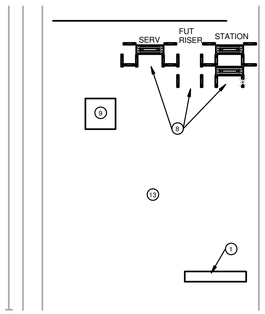
3 EXTEND DATA DROP INTO NEW CONTROL PANEL.

4 TYPICAL CONTROLLED DOOR DEVICES.

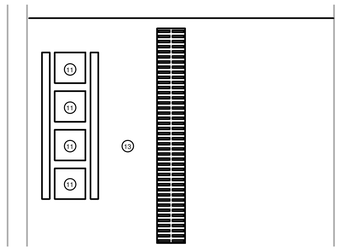
5 TYPICAL ALARM DEVICES.



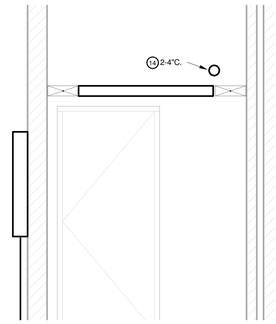
7 SECOND FLOOR SIGNALS CLOSET
1/2" = 1'-0"



9 SECOND FLOOR SIGNALS CLOSET WEST WALL
1/2" = 1'-0"



10 2ND FLOOR SIGNALS CLOSET NORTH WALL
1/2" = 1'-0"



11 2ND FLOOR SIGNALS CLOSET EAST WALL
1/2" = 1'-0"

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SIGNALS ROOM - RACK ELEVATIONS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: JDK

Drawn: JDK

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

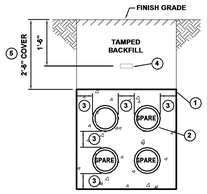
Building Number: 14

Drawing Number: E9

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs

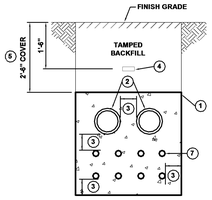


DETAIL NOTES

1. CONCRETE SHALL BE 3000 P.S.I. @ 28 DAYS.
2. 4" SCHEDULE 40 PVC DUCT.
3. MIN 3" SPACING BETWEEN DUCTS AND MIN. ENCASEMENT. PROVIDE CONDUIT SPACERS 6'-0" O.C. PROVIDE REINFORCING RODS ON TOP AND BOTTOM OF DUCTS WHEN CROSSING OR PLACED IN ROADWAYS.
4. RED DYE, DUST OR YELLOW MARKER TAPE ON COMPACTED FILL.
5. COORDINATE EXACT DEPTH WITH CIVIL ENGINEER.

A DUCT BANK DETAIL

NTS

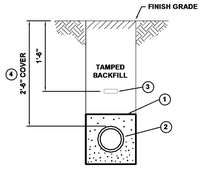


DETAIL NOTES

1. CONCRETE SHALL BE 3000 P.S.I. @ 28 DAYS.
2. 4" SCHEDULE 40 PVC DUCT FOR FUTURE CHILLER POWER.
3. MIN 3" SPACING BETWEEN DUCTS AND MIN. ENCASEMENT. PROVIDE CONDUIT SPACERS 6'-0" O.C. PROVIDE REINFORCING RODS ON TOP AND BOTTOM OF DUCTS WHEN CROSSING OR PLACED IN ROADWAYS.
4. RED DYE, DUST OR YELLOW MARKER TAPE ON COMPACTED FILL.
5. COORDINATE EXACT DEPTH WITH CIVIL ENGINEER.
6. 1" SCHEDULE 40 PVC DUCT FOR FUTURE CHILLER HEAT TRACE, CONTROL, ETC. (TYP 8)

B DUCT BANK DETAIL

NTS

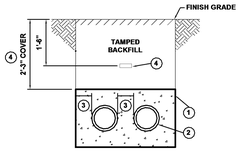


DETAIL NOTES

1. 3" SAND ENCASEMENT.
2. 1" SCHEDULE 40 PVC DUCT.
3. RED DYE, DUST OR YELLOW MARKER TAPE ON COMPACTED FILL.
4. COORDINATE EXACT DEPTH WITH CIVIL ENGINEER.

C DUCT BANK DETAIL

NTS

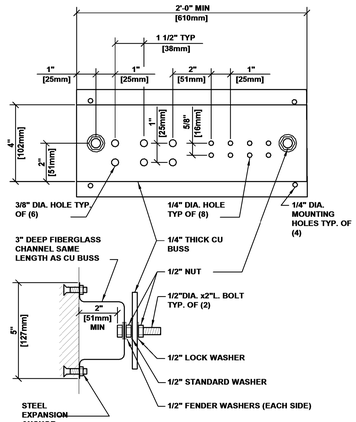


DETAIL NOTES

1. CONCRETE SHALL BE 3000 P.S.I. @ 28 DAYS.
2. 1-1" AND 1-0.75" SCHEDULE 40 PVC DUCTS.
3. MIN 3" SPACING BETWEEN DUCTS AND MIN. ENCASEMENT. PROVIDE CONDUIT SPACERS 6'-0" O.C. PROVIDE REINFORCING RODS ON TOP AND BOTTOM OF DUCTS WHEN CROSSING OR PLACED IN ROADWAYS.
4. RED DYE, DUST OR YELLOW MARKER TAPE ON COMPACTED FILL.
5. COORDINATE EXACT DEPTH WITH CIVIL ENGINEER.

D DUCT BANK DETAIL

NTS

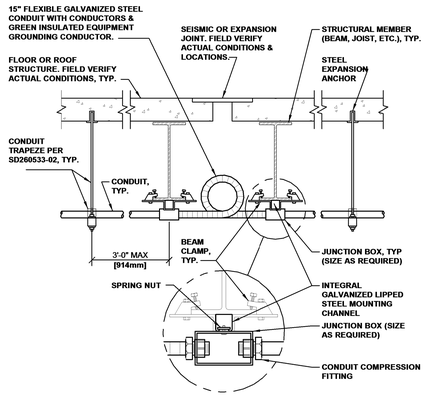


GENERAL NOTES

1. ALL HARDWARE SHOWN SHALL BE STAINLESS STEEL.
2. PROVIDE 1 MOUNTING POINT PER 12" OF BAR LENGTH.
3. HOLES MAY BE ADDED IF REQUIRED.

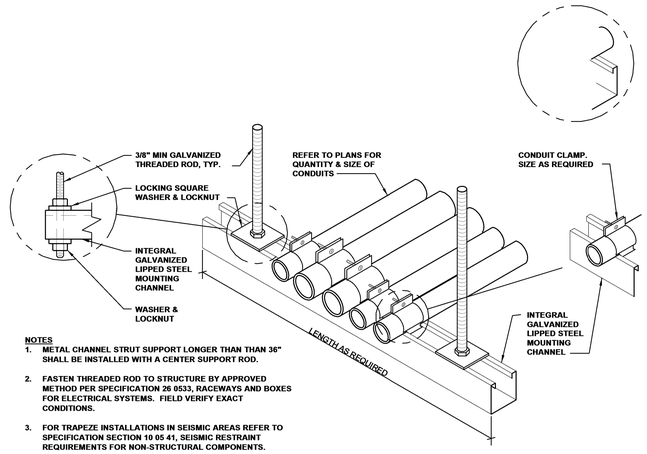
E GROUNDING BAR DETAIL

NTS



F CONDUIT JOINT CROSSING DETAIL

NTS

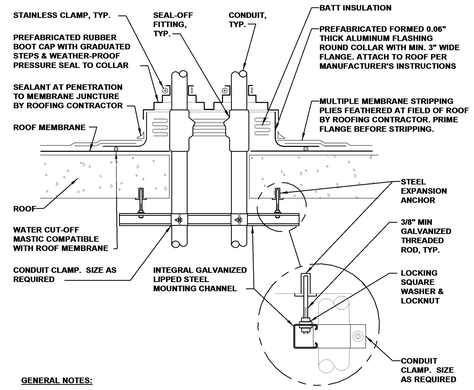


NOTES

1. METAL CHANNEL STRUT SUPPORT LONGER THAN THAN 36" SHALL BE INSTALLED WITH A CENTER SUPPORT ROD.
2. FASTEN THREADED ROD TO STRUCTURE BY APPROVED METHOD PER SPECIFICATION 26 0533, RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS. FIELD VERIFY EXACT CONDITIONS.
3. FOR TRAPEZE INSTALLATIONS IN SEISMIC AREAS REFER TO SPECIFICATION SECTION 10 05 41, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS.

G CONDUIT TRAPEZE MOUNTING DETAIL

NTS

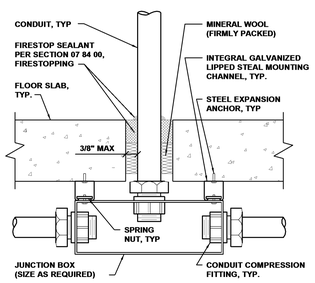


GENERAL NOTES:

1. MAINTAIN A MINIMUM CLEARANCE OF 12" [308mm] ON ALL SIDES OF ROOF PENETRATION FROM WALLS, CURBS, AND OTHER PROJECTIONS TO FACILITATE PROPER FLASHING.
2. FLANGES OF ADJACENT FLASHINGS SHALL NOT BE CUT OR OVERLAPPED.
3. VERIFY ROOF & STRUCTURAL SYSTEM WITH ARCHITECT.
4. COORDINATE FLASHING INSTALLATION WITH ROOFING CONTRACTOR TO ENSURE PROPER METHODS & MATERIALS ARE USED TO MAINTAIN ROOF WARRANTY.

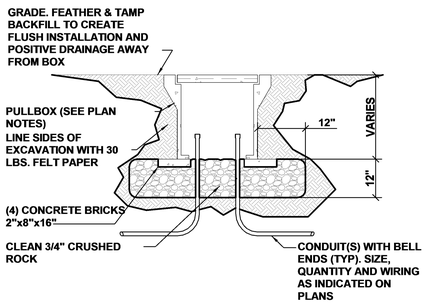
H ROOF PENETRATION DETAIL

NTS



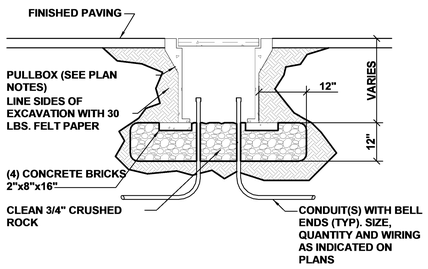
I FLOOR SLAB PENETRATION DETAIL

NTS



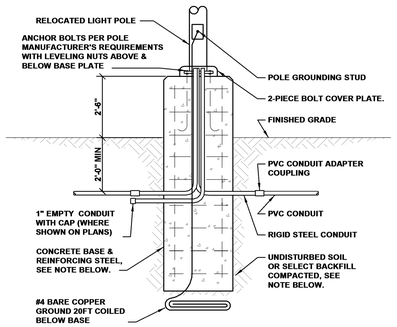
J UNDERGROUND CONCRETE PULLBOX

SCALE: NONE INSTALLATION IN TURF AREAS



K UNDERGROUND CONCRETE PULLBOX

SCALE: NONE INSTALLATION IN PAVED AREAS



L POLE BASE DETAIL

NTS

NOTE:

BACKFILL, CONCRETE, REINFORCING STEEL, AND ANCHOR BOLTS ARE SHOWN FOR REFERENCE ONLY.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: ELECTRICAL DETAILS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012 | Checked: MSG | Drawn: MSG

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: E10

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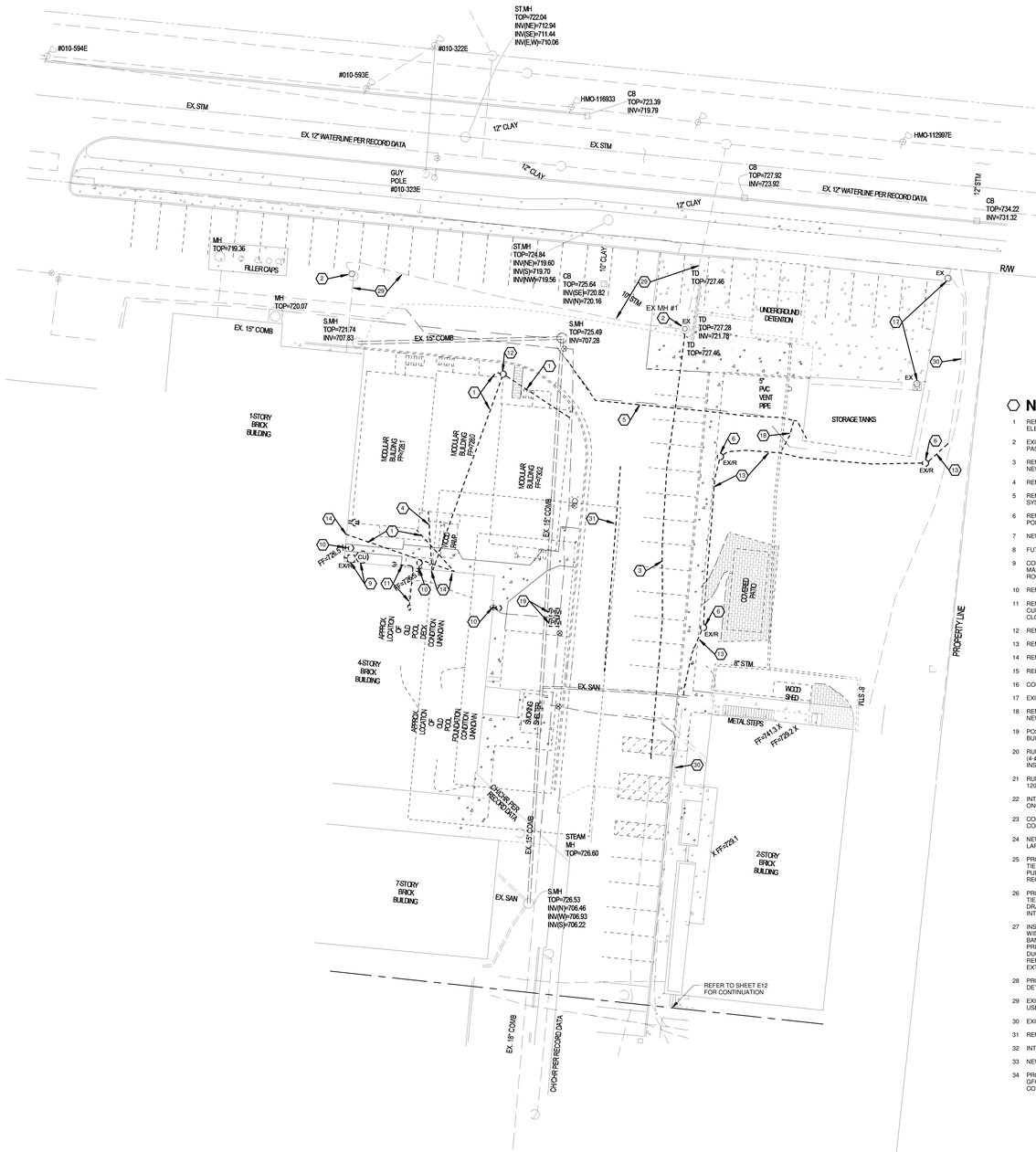


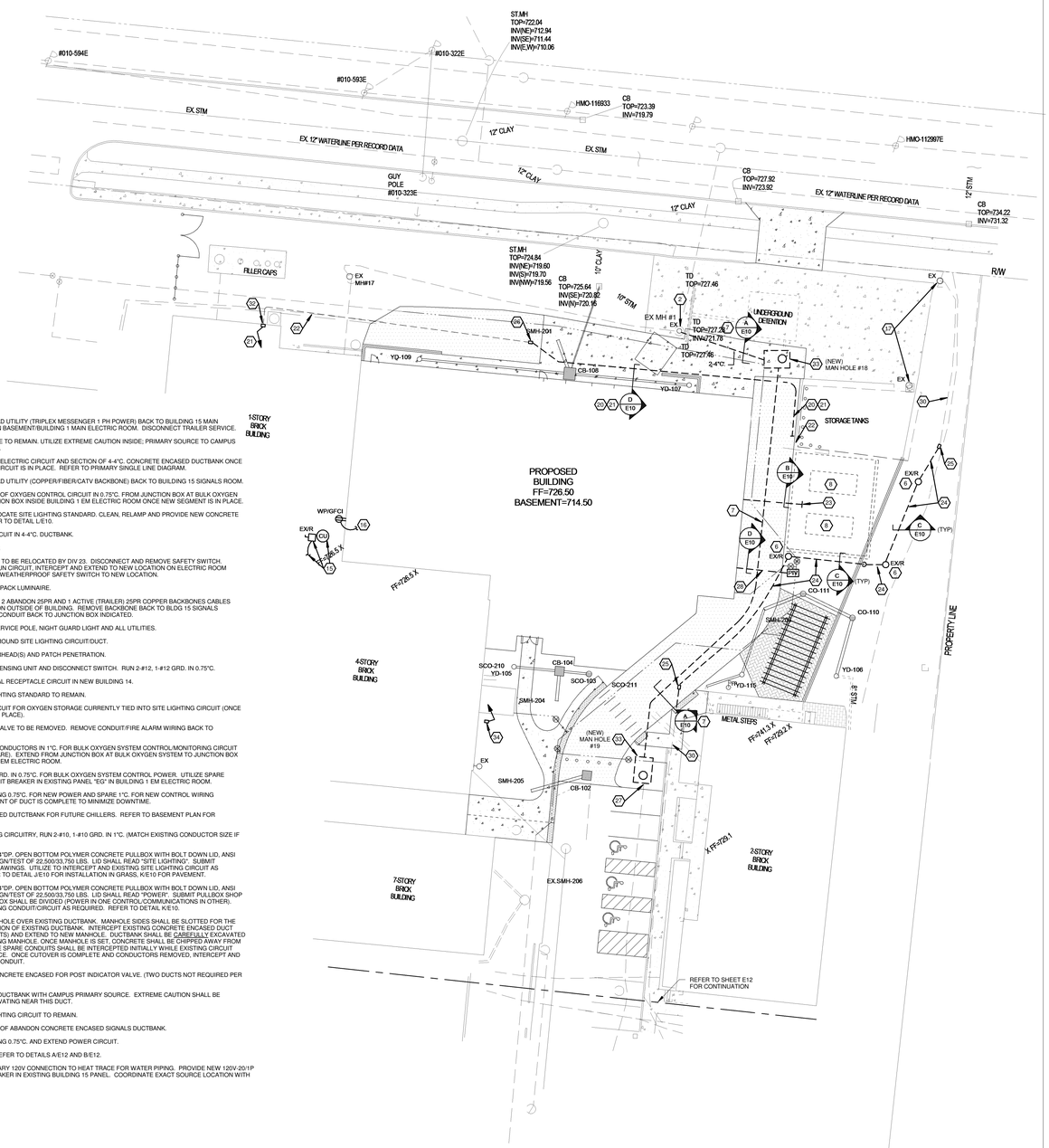
N

ELECTRICAL SITE PLAN - DEMO

Scale: 1" = 20'-0"

NOTES

1. REMOVE OVERHEAD UTILITY (TRIPLEX MESSENGER 1 PH POWER) BACK TO BUILDING 15 MAIN ELECTRIC ROOM IN BASEMENT/BUILDING 1 MAIN ELECTRIC ROOM. DISCONNECT TRAILER SERVICE.
2. EXISTING MANHOLE TO REMAIN. UTILIZE EXTREME CAUTION INSIDE; PRIMARY SOURCE TO CAMPUS PASSES THROUGH.
3. REMOVE PRIMARY ELECTRIC CIRCUIT AND SECTION OF 4-4"C. CONCRETE ENCASED DUCTBANK ONCE NEW REROUTED CIRCUIT IS IN PLACE. REFER TO PRIMARY SINGLE LINE DIAGRAM.
4. REMOVE OVERHEAD UTILITY (COPPER/FIBER/CATV BACKBONE) BACK TO BUILDING 15 SIGNALS ROOM.
5. REMOVE PORTION OF OXYGEN CONTROL CIRCUIT IN 0.75"C. FROM JUNCTION BOX AT BULK OXYGEN SYSTEM TO JUNCTION BOX INSIDE BUILDING 1 EM ELECTRIC ROOM ONCE NEW SEGMENT IS IN PLACE.
6. REMOVE AND RELOCATE SITE LIGHTING STANDARD. CLEAN, RELAMP AND PROVIDE NEW CONCRETE POLE BASE. REFER TO DETAIL L/E10.
7. NEW PRIMARY CIRCUIT IN 4-4"C. DUCTBANK.
8. FUTURE CHILLERS.
9. CONDENSING UNIT TO BE RELOCATED BY DIV 23. DISCONNECT AND REMOVE SAFETY SWITCH. MAINTAIN HOME RUN CIRCUIT. INTERCEPT AND EXTEND TO NEW LOCATION ON ELECTRIC ROOM ROOF. RELOCATE WEATHERPROOF SAFETY SWITCH TO NEW LOCATION.
10. REMOVE HID WALLPACK LUMINAIRE.
11. REMOVE 2"C. WITH 2 ABANDON 25PR AND 1 ACTIVE (TRAILER) 25PR COPPER BACKBONES CABLES CURRENTLY RUN ON OUTSIDE OF BUILDING. REMOVE BACKBONE BACK TO BLDG 15 SIGNALS CLOSET, REMOVE CONDUIT BACK TO JUNCTION BOX INDICATED.
12. REMOVE WOOD SERVICE POLE, NIGHT GUARD LIGHT AND ALL UTILITIES.
13. REMOVE UNDERGROUND SITE LIGHTING CIRCUIT/DUCT.
14. REMOVE WEATHERHEAD(S) AND PATCH PENETRATION.
15. RELOCATED CONDENSING UNIT AND DISCONNECT SWITCH. RUN 2-#12, 1-#12 GRD. IN 0.75"C.
16. CONNECT TO LOCAL RECEPTACLE CIRCUIT IN NEW BUILDING 14.
17. EXISTING SITE LIGHTING STANDARD TO REMAIN.
18. REMOVE 120V CIRCUIT FOR OXYGEN STORAGE CURRENTLY TIED INTO SITE LIGHTING CIRCUIT (ONCE NEW SOURCE IS IN PLACE).
19. POST INDICATOR VALVE TO BE REMOVED. REMOVE CONDUIT/FIRE ALARM WIRING BACK TO BUILDING 15.
20. RUN 14-#14 AWG CONDUCTORS IN 1"C. FOR BULK OXYGEN SYSTEM CONTROL/MONITORING CIRCUIT (4-#14 WILL BE SPARE). EXTEND FROM JUNCTION BOX AT BULK OXYGEN SYSTEM TO JUNCTION BOX INSIDE BUILDING 1 EM ELECTRIC ROOM.
21. RUN 2-#10, 1-#10 GRD. IN 0.75"C. FOR BULK OXYGEN SYSTEM CONTROL POWER. UTILIZE SPARE 120V-20A/1P CIRCUIT BREAKER IN EXISTING PANEL "EG" IN BUILDING 1 EM ELECTRIC ROOM.
22. INTERCEPT EXISTING 0.75"C. FOR NEW POWER AND SPARE 1"C. FOR NEW CONTROL WIRING ONCE NEW SEGMENT OF DUCT IS COMPLETE TO MINIMIZE DOWNTIME.
23. CONCRETE ENCASED DUTCTBANK FOR FUTURE CHILLERS. REFER TO BASEMENT PLAN FOR CONTINUATION.
24. NEW SITE LIGHTING CIRCUITRY, RUN 2-#10, 1-#10 GRD. IN 1"C. (MATCH EXISTING CONDUCTOR SIZE IF LARGER).
25. PROVIDE 11"x18"x24"DP. OPEN BOTTOM POLYMER CONCRETE PULLBOX WITH BOLT DOWN LID, ANSI TIER 15 LOAD DESIGN/TEST OF 22,500/33,750 LBS. LID SHALL READ "SITE LIGHTING". SUBMIT PULLBOX SHOP DRAWINGS. UTILIZE TO INTERCEPT AND EXISTING SITE LIGHTING CIRCUIT AS REQUIRED. REFER TO DETAIL J/E10 FOR INSTALLATION IN GRASS, K/E10 FOR PAVEMENT.
26. PROVIDE 11"x18"x24"DP. OPEN BOTTOM POLYMER CONCRETE PULLBOX WITH BOLT DOWN LID, ANSI TIER 15 LOAD DESIGN/TEST OF 22,500/33,750 LBS. LID SHALL READ "POWER". SUBMIT PULLBOX SHOP DRAWINGS. PULLBOX SHALL BE DIVIDED (POWER IN ONE CONTROL/COMMUNICATIONS IN OTHER). INTERCEPT EXISTING CONDUIT/CIRCUIT AS REQUIRED. REFER TO DETAIL K/E10.
27. INSTALL NEW MANHOLE OVER EXISTING DUCTBANK. MANHOLE SIDES SHALL BE SLOTTED FOR THE WIDTH AND LOCATION OF EXISTING DUCTBANK. INTERCEPT EXISTING CONCRETE ENCASED DUCT BANK (4-4" CONDUITS) AND EXTEND TO NEW MANHOLE. DUCTBANK SHALL BE CAREFULLY EXCAVATED PRIOR TO ORDERING MANHOLE. ONCE MANHOLE IS SET, CONCRETE SHALL BE CHIPPED AWAY FROM DUCTBANK. THREE SPARE CONDUITS SHALL BE INTERCEPTED INITIALLY WHILE EXISTING CIRCUIT REMAINS IN SERVICE. ONCE CUTOVER IS COMPLETE AND CONDUCTORS REMOVED, INTERCEPT AND EXTEND FOURTH CONDUIT.
28. PROVIDE 1-1"C. CONCRETE ENCASED FOR POST INDICATOR VALVE. (TWO DUCTS NOT REQUIRED PER DETAIL).
29. EXISTING POWER DUCTBANK WITH CAMPUS PRIMARY SOURCE. EXTREME CAUTION SHALL BE USED WHEN EXCAVATING NEAR THIS DUCT.
30. EXISTING SITE LIGHTING CIRCUIT TO REMAIN.
31. REMOVE PORTION OF ABANDON CONCRETE ENCASED SIGNALS DUCTBANK.
32. INTERCEPT EXISTING 0.75"C. AND EXTEND POWER CIRCUIT.
33. NEW MANHOLE. REFER TO DETAILS A/E12 AND B/E12.
34. PROVIDE TEMPORARY 120V CONNECTION TO HEAT TRACE FOR WATER PIPING. PROVIDE NEW 120V-20/1P GFCI CIRCUIT BREAKER IN EXISTING BUILDING 15 PANEL. COORDINATE EXACT SOURCE LOCATION WITH COTR.



N

ELECTRICAL SITE PLAN - NEW WORK

Scale: 1" = 20'-0"

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO
JOHN A. BLACK
49341
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: ELECTRICAL SITE PLANS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011
REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

Drawing Number: E11

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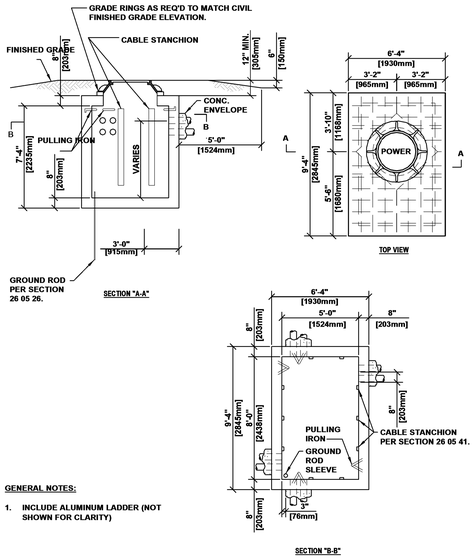
Department of Veterans Affairs

N ELECTRICAL SITE PLAN

Scale: 1" = 20'-0"

NOTES

1. EXISTING 4-4"C. DUCTBANK. REMOVE EXISTING PRIMARY CIRCUIT AND UTILIZE ONE OF 3-4"C. SPARE FOR NEW PRIMARY CIRCUIT.
2. EXISTING PAD MOUNTED PRIMARY SWITCH UNIT "PS1".
3. EXISTING MANHOLE TO REMAIN.
4. EXISTING PAD MOUNTED TRANSFORMER.

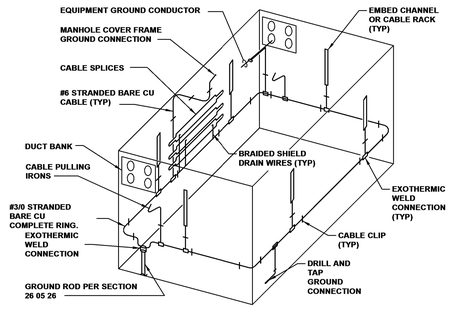


GENERAL NOTES:

1. INCLUDE ALUMINUM LADDER (NOT SHOWN FOR CLARITY)

A POWER MANHOLE DETAILS

NTS



B MANHOLE GROUNDING DETAILS

NTS

Revisions		Date
1	Addendum #1	08/17/2012

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Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: ELECTRICAL SITE PLAN

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: E12

Dwg. of

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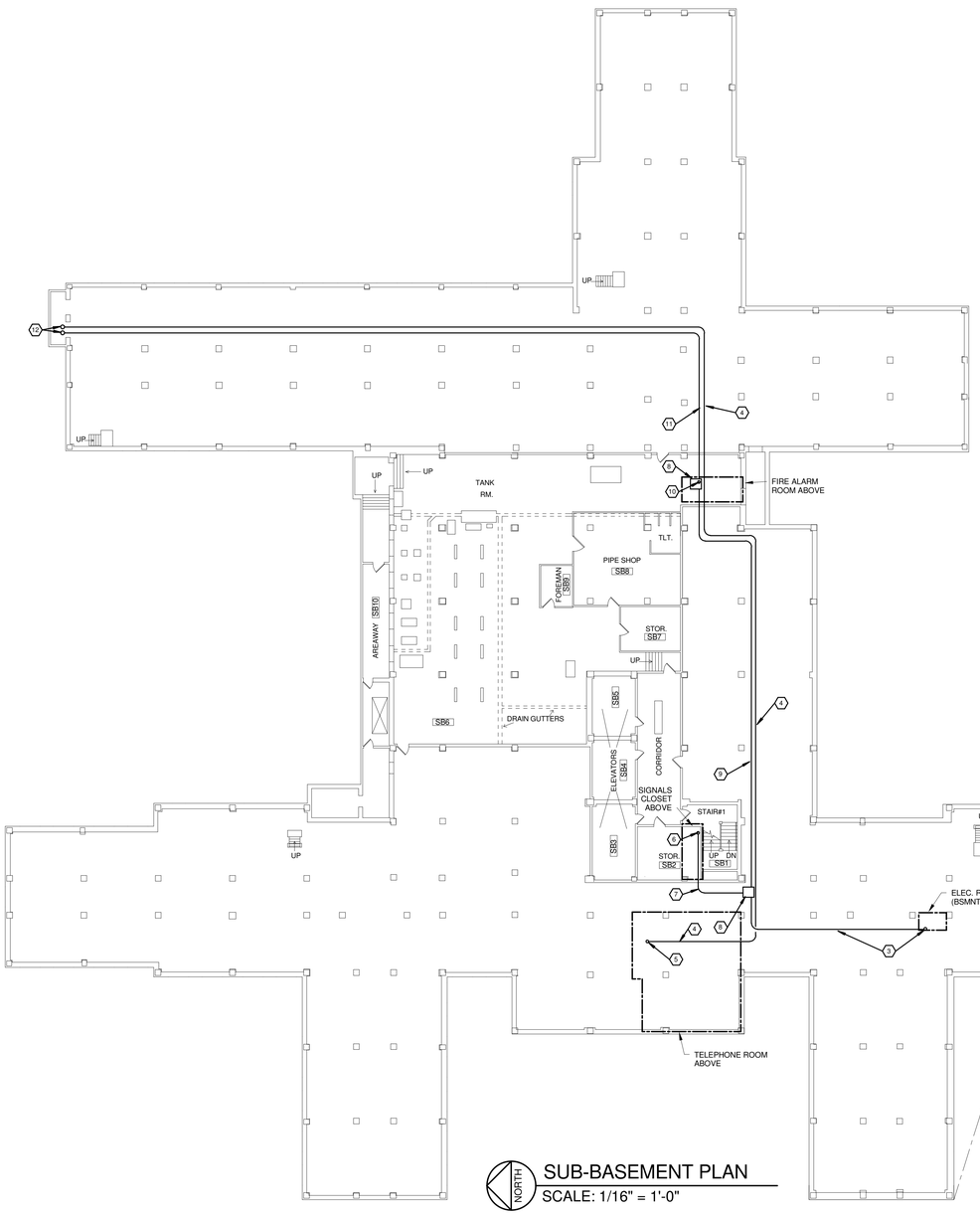
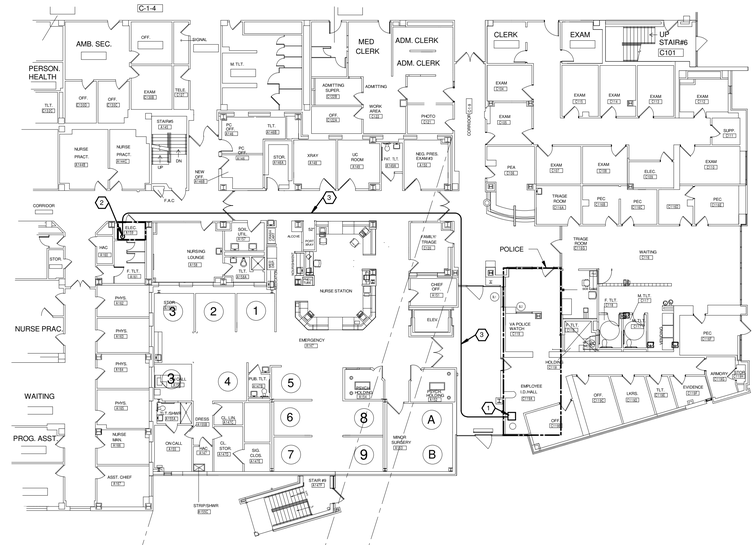
Department of Veterans Affairs



NORTH

SUB-BASEMENT PLAN

SCALE: 1/16" = 1'-0"



NORTH

PARTIAL FIRST FLOOR PLAN

SCALE: 1/16" = 1'-0"

GENERAL NOTES

A. PROVIDE PULLBOXES PER NEC/BICSI.

B. CONDUIT PATHWAYS SHOWN FOR REFERENCE ONLY. FIELD VERIFY EXACT CONDUIT ROUTES. SUBMIT PROPOSED ROUTES WITH SHOP DRAWINGS.

C. PROVIDE ALL FLOOR PENETRATIONS REQUIRED.

D. SUB-BASEMENT AREAS ARE CONGESTED WITH PIPING, CONDUIT, DUCTWORK, ETC.

NOTES

1. 1.25" CONDUIT WITH FIBER FOR NEW CCTV CAMERAS INTO POLICE DISPATCH ABOVE CEILING. DROP FIBER INTO NEW WALL MOUNTED FIBER TERMINATION PANEL. COORDINATE WITH EXISTING EQUIPMENT AND FIELD CONDITIONS.
2. 1.25" CONDUIT WITH CCTV FIBER TO DROP DOWN TO SUB BASEMENT LEVEL. COORDINATE WITH EXISTING FIELD CONDITIONS FOR EXACT RISER LOCATION.
3. 1.25" CONDUIT WITH CCTV FIBER.
4. 1-4" CONDUIT WITH NEW TELEPHONE BACKBONE
5. CONDUIT TO RISE UP INTO EXISTING TELEPHONE ROOM AND EXTEND NEW VOICE BACKBONE TO VOICE TERMINATION WALL FIELD. COORDINATE RISER WITH EXISTING FIELD CONITIONS.
6. 2" CONDUIT WITH NEW NETWORK FIBER TO RISE UP TO 4TH FLOOR AND EXTEND TO EXISTING COMPUTER ROOM. COORDINATE EXACT RISER LOCATION WITH EXISTING FIELD CONDITIONS.
7. 2" CONDUIT WITH NEW NETWORK FIBER.
8. PROVIDE PULLBOX SIZED PER NEC/BICSI.
9. PROVIDE 1-4" CONDUIT WITH NEW CCTV AND NETWORK FIBER BACKBONES. PROVIDE EACH FIBER IN AN INDIVIDUAL 1" INNERDUCT.
10. 1" CONDUIT WITH NEW FIRE ALARM FIBER TO RISE UP TO BASEMENT FIRE ALARM PANEL. COORDINATE EXACT RISER LOCATION WITH EXISTING FIELD CONDITIONS.
11. PROVIDE 1-4" CONDUIT WITH NEW CCTV, NETWORK AND FIRE ALARM FIBER BACKBONES. PROVIDE EACH FIBER WITH AN INDIVIDUAL 1" INNERDUCT.
12. RISE UP IN EXISTING AREAWELL/ELECTRICAL CHASE TO EMERGENCY GENERATOR ROOM.

Revisions		Date
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CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT NO.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO
JOHN A. BLACK
49341
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: BUILDING 1 SUB BASEMENT AND 1ST FLOOR PLANS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: 1-E1

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Office of Construction and Facilities Management

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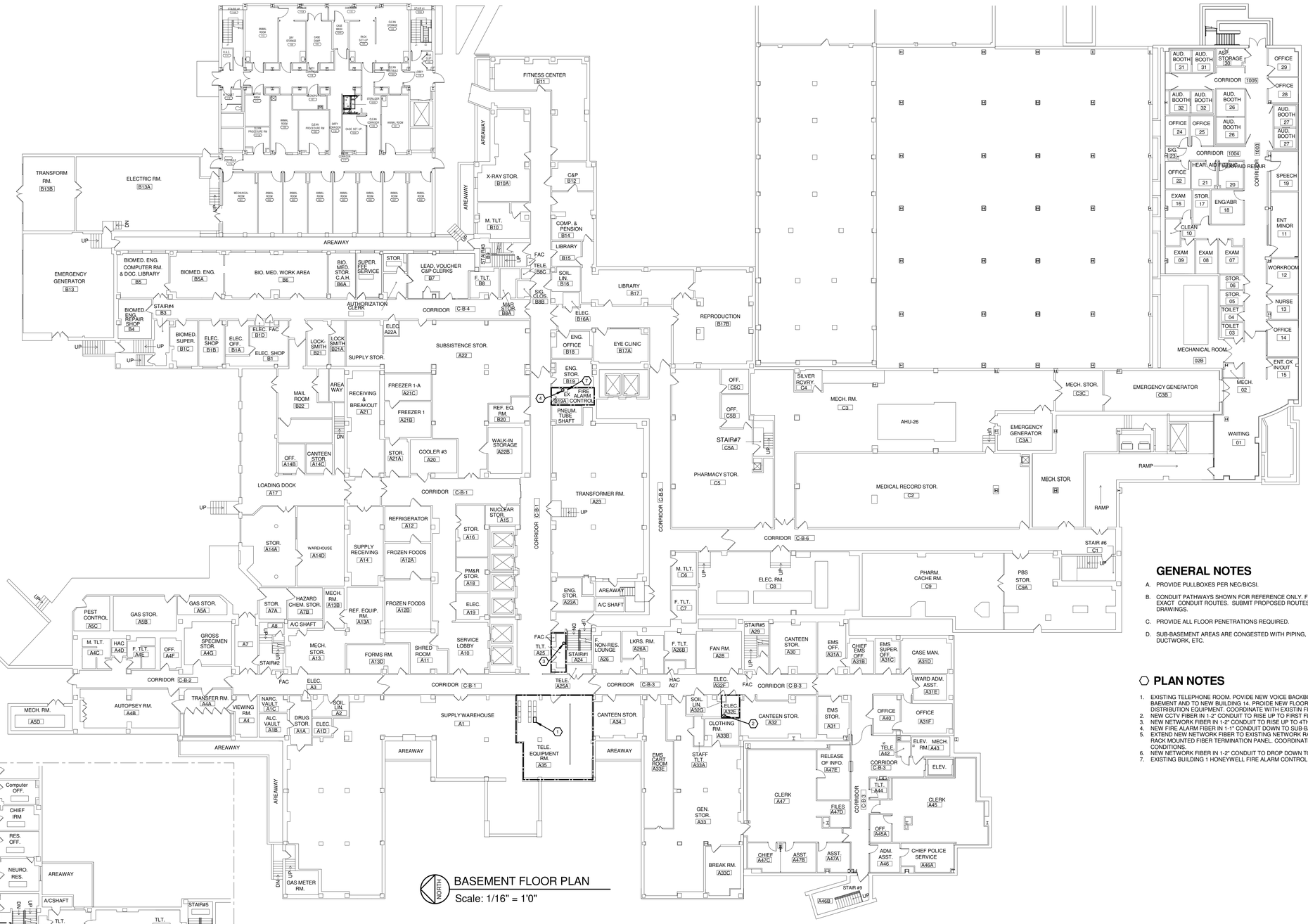

BASEMENT FLOOR PLAN

Scale: 1/16" = 1'0"

PARTIAL FOURTH FLOOR PLAN

Scale: 1/16" = 1'0"

GENERAL NOTES

A. PROVIDE PULLBOXES PER NEC/BICSI.

B. CONDUIT PATHWAYS SHOWN FOR REFERENCE ONLY. FIELD VERIFY EXACT CONDUIT ROUTES. SUBMIT PROPOSED ROUTES WITH SHOP DRAWINGS.

C. PROVIDE ALL FLOOR PENETRATIONS REQUIRED.

D. SUB-BASEMENT AREAS ARE CONGESTED WITH PIPING, CONDUIT, DUCTWORK, ETC.

PLAN NOTES

1. EXISTING TELEPHONE ROOM. POVIDE NEW VOICE BACKBONE CABLE DOWN TO SUB-BAEMENT AND TO NEW BUILDING 14. PROIDE NEW FLOOR FRAME AND VOICE DISTRIBUTION EQUIPMENT. COORDINATE WITH EXISTIN FIELD CONDITIONS.
2. NEW CCTV FIBER IN 1-2" CONDUIT TO RISE UP TO FIRST FLOOR.
3. NEW NETWORK FIBER IN 1-2" CONDUIT TO RISE UP TO 4TH FLOOR.
4. NEW FIRE ALARM FIBER IN 1-1" CONDUIT DOWN TO SUB-BASEMENT.
5. EXTEND NEW NETWORK FIBER TO EXISTING NETWORK RACK AND TERMINATE IN NEW RACK MOUNTED FIBER TERMINATION PANEL. COORDINATE WITH EXISTING FIELD CONDITIONS.
6. NEW NETWORK FIBER IN 1-2" CONDUIT TO DROP DOWN TO SUB-BASEMENT LEVEL.
7. EXISTING BUILDING 1 HONEYWELL FIRE ALARM CONTROL PANEL.

Revisions		Date
1	Addendum #1	08/17/2012

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Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
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ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: BUILDING 1 BASEMENTAND 4TH FLOOR PLANS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: 1-E2

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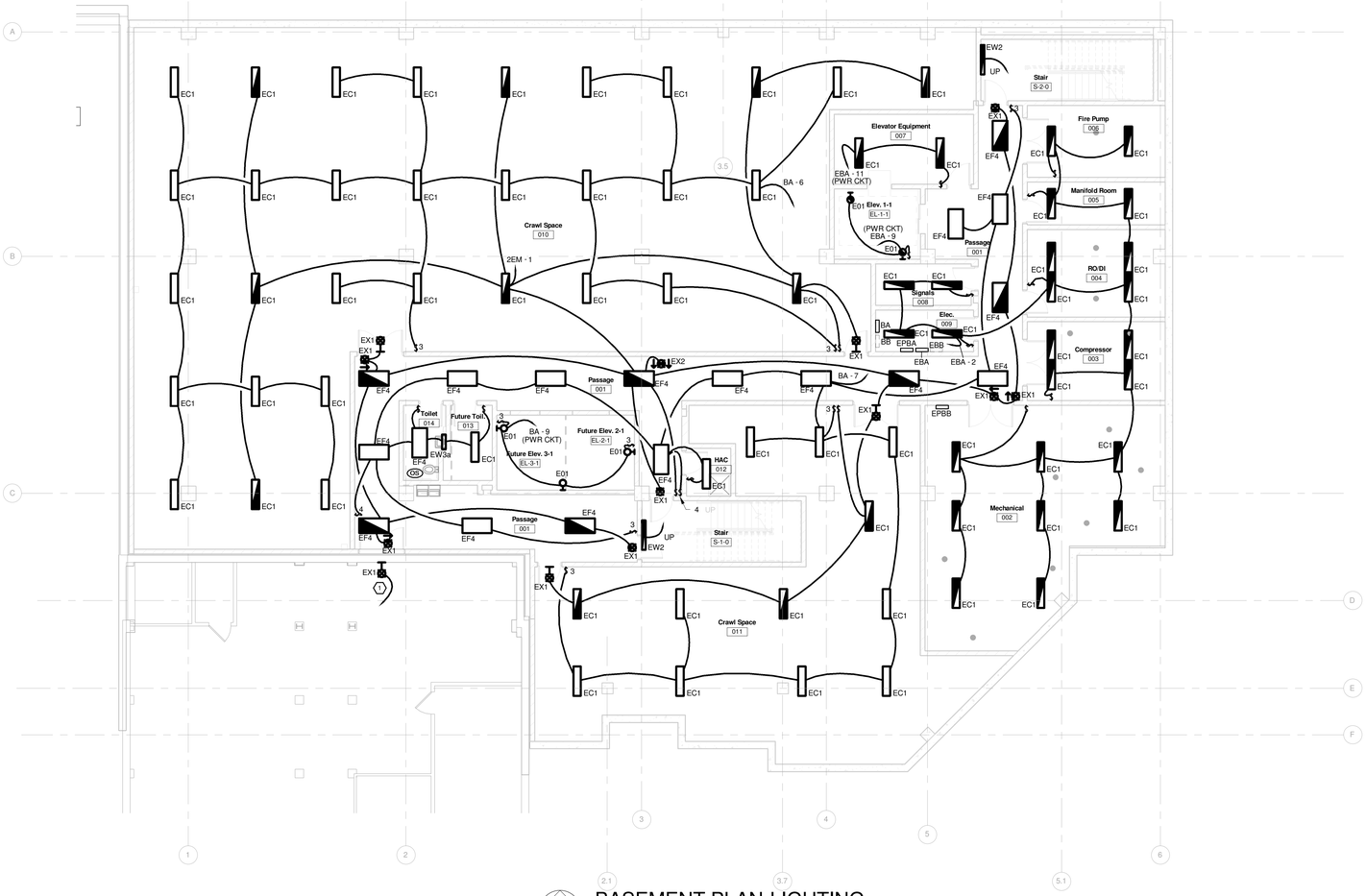

N

BASEMENT PLAN-LIGHTING

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

GENERAL NOTES

A REFER TO ARCHITECTURAL PHASING PLAN AND INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING.

B FIELD VERIFY EXISTING LIGHTING CIRCUIT VOLTAGE PRIOR TO ORDERING FIXTURES AND OCCUPANCY SENSORS.

C WIRE ALL OCCUPANCY SENSORS IN SAME SPACE IN PARALLEL (NORMAL POWER LIGHTING) FOR COMMON ZONE CONTROL.

D ALL FINAL LOCATIONS AND ARRANGEMENTS OF LIGHTING FIXTURES SHALL BE OBTAINED FROM THE ARCHITECTURAL REFLECTED CEILING PLAN.

E (1) EACH BRANCH CIRCUIT HOMERUN SHALL HAVE NO MORE THAN THREE CIRCUITS. EACH BREACH CIRCUIT HOMERUN SHALL HAVE A SEPARATE NEUTRAL AND (SHARED) GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR.

F MULTI-GANG BACKBOXES FOR DIFFERENT VOLTAGES AND TYPES OF EMERGENCY AND NORMAL BRANCH WIRING DEVICES SHALL HAVE DIVIDERS BETWEEN DEVICES.

G WHERE SWITCHES ARE SHOWN IN SPACES CONTROLLED BY OCCUPANCY SENSORS, WIRE SENSOR RELAY PACK AHEAD OF LOCAL SWITCHING.

H REFER TO ARCHITECTURAL DRAWINGS FOR INFORMATION ON SMOKE COMPARTMENTS, SMOKE PARTITIONS AND FIRE BARRIERS.

I REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED WALL ASSEMBLIES. ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE PROTECTED ABD/OR FIRE STOPPED AS REQUIRED TO MAINTAIN FIRE RATINGS AS INDICATED.

NOTES

1 CONNECT TO EXISTING BUILDING 15 EXIT SIGN CIRCUIT.

Revisions		Date
1	Addendum #1	08/17/2012

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Nationally Recognized Leader in Sustainability / LEED
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Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
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STATE OF OHIO
JOHN A. BLACK
49341
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: BASEMENT PLAN-LIGHTING

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011
REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-E1

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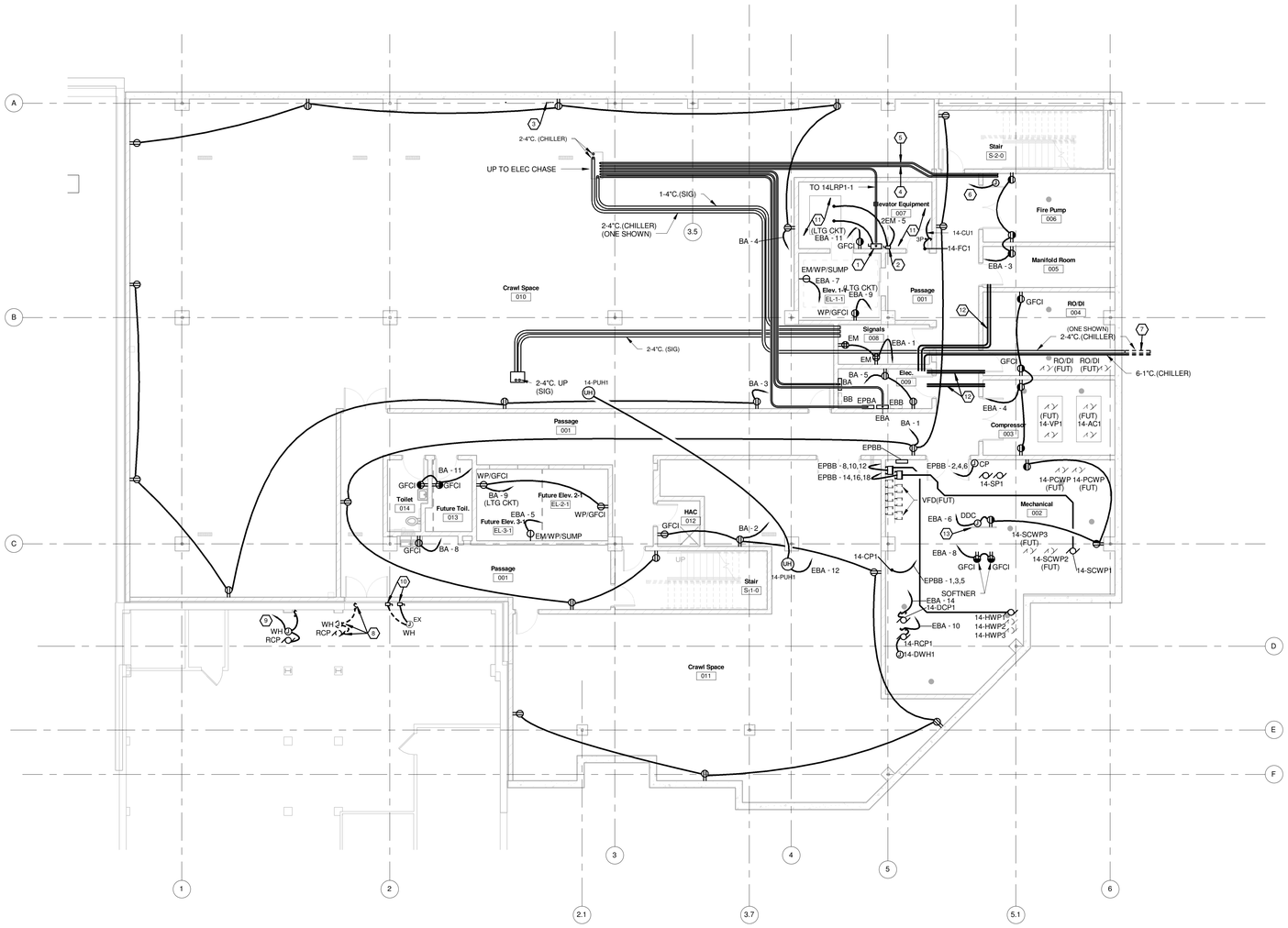

N

BASEMENT PLAN-POWER

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

GENERAL NOTES

A REFER TO ARCHITECTURAL PHASING PLAN AND INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING.

B COORDINATE ALL WIRING DEVICES WITH ARCHITECTURAL ELEVATIONS.

C (1) EACH BRANCH CIRCUIT HOMERUN SHALL HAVE NO MORE THAN THREE CIRCUITS. EACH BREACH CIRCUIT HOMERUN SHALL HAVE A SEPARATE NEUTRAL AND (SHARED) GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR.

D MULTI-GANG BACKBOXES FOR DIFFERENT VOLTAGES AND TYPES OF EMERGENCY AND NORMAL BRANCH WIRING DEVICES SHALL HAVE DIVIDERS BETWEEN DEVICES.

E REFER TO ARCHITECTURAL DRAWINGS FOR INFORMATION ON SMOKE COMPARTMENTS, SMOKE PARTITIONS AND FIRE BARRIERS.

F REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED WALL ASSEMBLIES. ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE PROTECTED ABD/OR FIRE STOPPED AS REQUIRED TO MAINTAIN FIRE RATINGS AS INDICATED.

G CONDUIT PATHWAYS ARE SHOWN FOR REFERENCE ONLY. COORDINATE EXACT ROUTE/ELEVATION WITH OTHER TRADES PRIOR TO ROUGH-IN.

H WHERE CONDUITS ARE REQUIRED TO PASS THROUGH STRUCTURAL BEAMS/FLOORS, COORDINATE EXACT LOCATION, SLEEVES, ETC. WITH STRUCTURAL ENGINEER.

NOTES

1 PROVIDE 480V-200A/3P (50HP) FUSIBLE POWER MODULE SWITCH (FUSED AT 125A LPJ) WITH SHUNT TRIP. FIRE ALARM VOLTAGE MONITORING, CONTROL RELAYS, PILOT LIGHTS, ETC.

2 PROVIDE 240V-30A/2P FUSIBLE DISCONNECT SWITCH (FUSED AT 20 AMP LPN-RK) FOR ELEVATOR CAB LIGHTS.

3 4-1°C. STUBS UP TO FIRE ALARM CONTROL PANEL.

4 1-2" RMC TO "FPDS".

5 1-2" RMC TO "14ESWB".

6 1-1.5" RMC TO EXISTING GENERATOR PARALLELING GEAR FOR FUTURE FIRE PUMP ATS CONTROL CABLING. REFER TO SINGLE LINE DIAGRAM.

7 REFER TO SITE PLAN FOR CONTINUATION.

8 WATER HEATER AND RECIRCULATING PUMP TO BE RELOCATED BY DIV 22. DISCONNECT AND EXTEND CIRCUIT TO NEW LOCATION.

9 RECONNECT TO EXISTING SOURCE. RUN 2-#12, 1-#12 GRD. IN 0.75"C.

10 REMOVE AND RELOCATE DISCONNECT FURTHER DOWN WALL TO ACCOMMODATE NEW DOOR.

11 ALL DEVICES, LIGHTING FIXTURES, BRANCH CIRCUITS, FEEDERS, FIRE ALARM MODULES, ETC. WITHIN THIS ROOM AND TO SERVE ELEVATOR SHALL REMAIN IN BASE BID (NOT BE DEDUCTED).

12 PROVIDE SPARE 1°C. FOR FUTURE MECHANICAL EQUIPMENT (QUANTITY AS SHOWN).

13 UNISTRUT BACKBOARD BY DIV 23.

14 REFER TO MOTOR STARTER SCHEDULE FOR CIRCUIT SIZE TO 14-CU1 ON ROOF. COORDINATE ALL REQUIREMENTS WITH DIV 23.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO
JOHN A. BLACK
49341
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: BASEMENT PLAN-POWER

Approved: Project Director

Project Title: BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011
REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-E2

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Office of Construction and Facilities Management

Department of Veterans Affairs

GENERAL NOTES

A REFER TO ARCHITECTURAL PHASING PLAN AND INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING.

B COORDINATE ALL DEVICES WITH ARCHITECTURAL ELEVATIONS.

C REFER TO ARCHITECTURAL DRAWINGS FOR INFORMATION ON SMOKE COMPARTMENTS, SMOKE PARTITIONS AND FIRE BARRIERS.

D REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED WALL ASSEMBLIES. ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE PROTECTED ABD/OR FIRE STOPPED AS REQUIRED TO MAINTAIN FIRE RATINGS AS INDICATED.

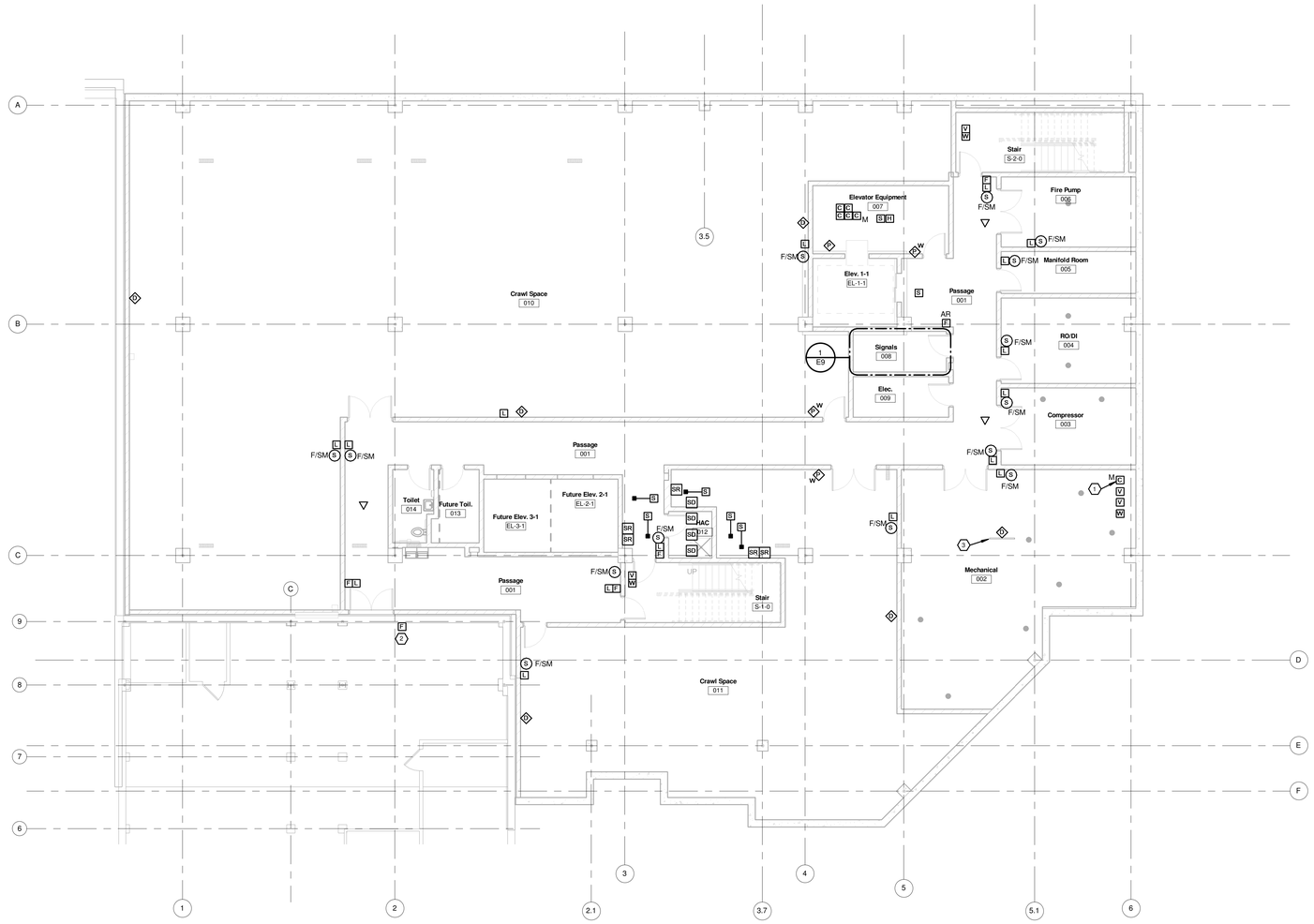
E CONDUIT PATHWAYS ARE SHOWN FOR REFERENCE ONLY. COORDINATE EXACT ROUTE/ELEVATION WITH OTHER TRADES PRIOR TO ROUGH-IN.

NOTES

1 FIRE ALARM MONITORING MODULE FOR POST INDICATOR VALVE ON SITE. REFER TO SITE PLAN.

2 CONNECT TO BUILDING 15 EXISTING FIRE ALARM CONTROL PANEL/IDC.

3 UNISTRUT BACKBOARD BY DIV 23.



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BASEMENT PLAN-SIGNALS

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

Revisions		Date
1	Addendum #1	08/17/2012

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Nationally Recognized Leader in Sustainability / LEED
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Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
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STATE OF OHIO
JOHN A. BLACK
49341
REGISTERED
PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title
BASEMENT PLAN-SIGNALS

Approved: Project Director

Project Title
BUILDING 14
ANIMAL RESEARCH FACILITY - BLDG 14

Location
Cincinnati, Ohio

Date 09/29/2011
REVISED AUGUST 17, 2012

Checked MSG

Drawn MSG

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

Building Number
14

Drawing Number
14-E3
Dwg. of

Office of Construction and Facilities Management
Department of Veterans Affairs

GENERAL NOTES

A REFER TO ARCHITECTURAL PHASING PLAN AND INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING.

B FIELD VERIFY EXISTING LIGHTING CIRCUIT VOLTAGE PRIOR TO ORDERING FIXTURES AND OCCUPANCY SENSORS.

C WIRE ALL OCCUPANCY SENSORS IN SAME SPACE IN PARALLEL (NORMAL POWER LIGHTING) FOR COMMON ZONE CONTROL.

D ALL FINAL LOCATIONS AND ARRANGEMENTS OF LIGHTING FIXTURES SHALL BE OBTAINED FROM THE ARCHITECTURAL REFLECTED CEILING PLAN.

E (1) EACH BRANCH CIRCUIT HOMERUN SHALL HAVE NO MORE THAN THREE CIRCUITS. EACH BREACH CIRCUIT HOMERUN SHALL HAVE A SEPARATE NEUTRAL AND (SHARED) GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR.

F MULTI-GANG BACKBOXES FOR DIFFERENT VOLTAGES AND TYPES OF EMERGENCY AND NORMAL BRANCH WIRING DEVICES SHALL HAVE DIVIDERS BETWEEN DEVICES.

G WHERE SWITCHES ARE SHOWN IN SPACES CONTROLLED BY OCCUPANCY SENSORS, WIRE SENSOR RELAY PACK AHEAD OF LOCAL SWITCHING.

H REFER TO ARCHITECTURAL DRAWINGS FOR INFORMATION ON SMOKE COMPARTMENTS, SMOKE PARTITIONS AND FIRE BARRIERS.

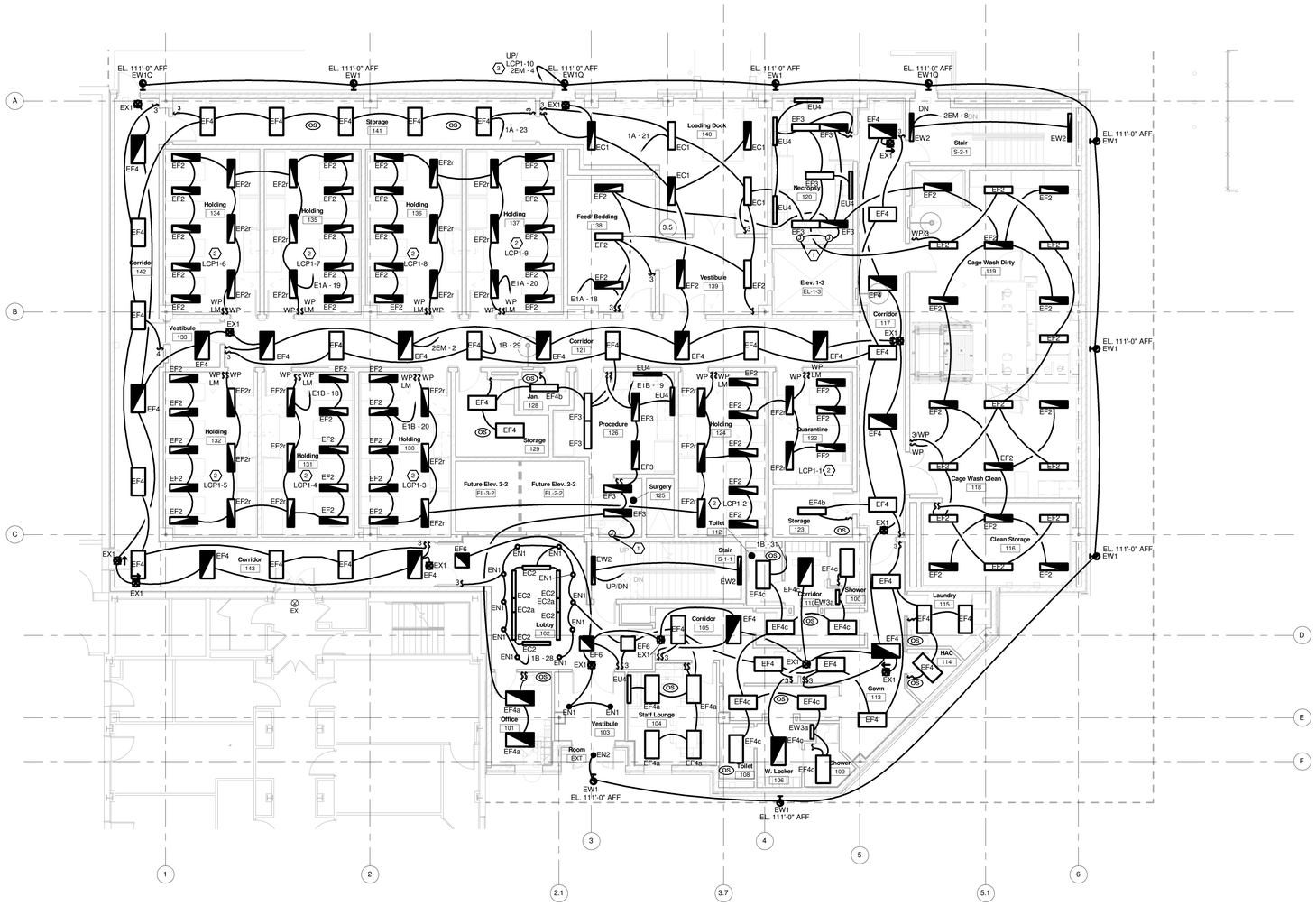
I REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED WALL ASSEMBLIES. ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE PROTECTED ABD/OR FIRE STOPPED AS REQUIRED TO MAINTAIN FIRE RATINGS AS INDICATED.

NOTES

1 PROVIDE 120V CONNECTION TO EXAM LIGHT.

2 RUN ROOM LIGHTING CIRCUIT THROUGH LIGHTING CONTROL PANEL. REFER TO LIGHTING CONTROL DIAGRAM, SHEET E3. RUN UNSWITCHED HOT TO LINE VOLTAGE SWITCH AND THEN TO RED LAMP IN FIXTURE TYPE EF2r (LAMP NOT TO BE CONTROLLED VIA LIGHTING CONTROL PANEL).

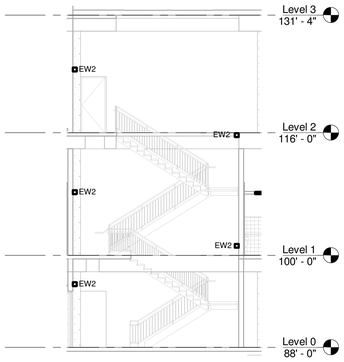
3 RUN CIRCUIT THROUGH LIGHTING CONTROL PANEL.



N

FIRST FLOOR PLAN-LIGHTING

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



1 TYP STAIRWELL SECTION
1/8" = 1'-0"

Revisions		Date
1	Addendum #1	08/17/2012

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STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: FIRST FLOOR PLAN-LIGHTING

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-E4

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs

GENERAL NOTES

A REFER TO ARCHITECTURAL PHASING PLAN AND INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING.

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F REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED WALL ASSEMBLIES. ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE PROTECTED ABD/OR FIRE STOPPED AS REQUIRED TO MAINTAIN FIRE RATINGS AS INDICATED.

NOTES

1 RUN 3-#6, 1-#10 GRD. IN 0.75"C.

2 RUN 3-#12, 1-#12 GRD. IN 0.75"C.

3 WIRING, RECEPTACLE TYPES AND MOUNTING HEIGHTS WITHIN THIS ROOM ARE TYPICAL OF OTHERS.

4 REFER TO HOLDING 134 FOR TYPICAL WIRING, RECEPTACLE TYPES AND MOUNTING HEIGHTS.

5 PROVIDE 250V-30A RECEPTACLE FOR RESIDENTIAL DRYER. RUN 3-#10, 1-#10 GRD. IN 0.75"C.

6 PROVIDE 120V ROUGH-IN TO FUTURE AUTOMATIC WATERING SYSTEM/ENVIRONMENTAL MONITORING SYSTEM CONTROL PANELS.

7 PROVIDE 480V-30A/3P FUSIBLE DISCONNECT SWITCH (FUSED AT 6 AMPS) FOR DOCK LIFT. COORDINATE EXACT REQUIREMENTS WITH SUPPLIER.

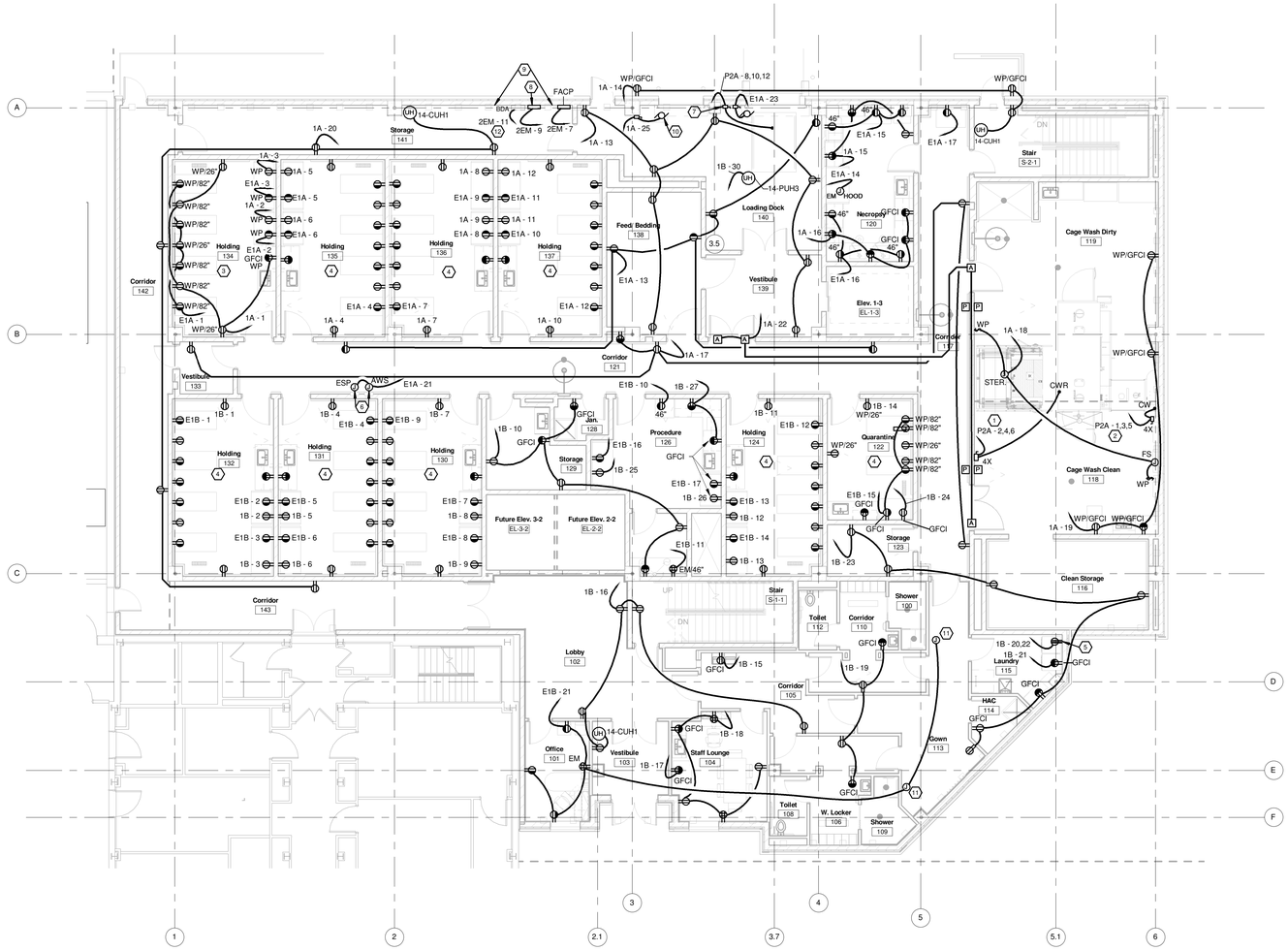
8 PROVIDE 120V CONNECTION TO AREA OF RESCUE MASTER STATION POWER SUPPLY.

9 FUTURE LOCATION FOR GENERATOR REMOTE ANNUNCIATOR, ATS POSITION ANNUNCIATOR, ELEVATOR ANNUNCIATOR, STAIR PRESSURIZATION CONTROL PANEL, DOOR CONTROL (UNLOCKING) PANEL, FIRE PUMP ANNUNCIATOR, ETC. FOR FUTURE FIRE COMMAND CENTER.

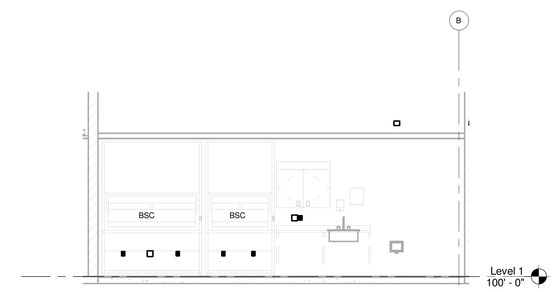
10 PROVIDE CONNECTION TO OVERHEAD COILING DOOR. ROUGH IN BACKBOX AND 1"C. FOR DOOR CONTROLS. COORDINATE EXACT LOCATION WITH COTR.

11 CONNECT TO L.V. TRANSFORMER ABOVE CEILING BY DIV. 22. PROVIDE 0.75"C. DOWN TO EACH LAVATORY FOR L.V. WIRING BY DIV. 22. COORDINATE CLOSELY WITH DIV. 22 CONTRACTOR PRIOR TO ROUGH-IN.

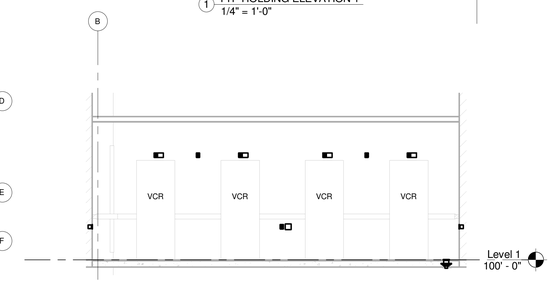
12 PROVIDE 120V CIRCUIT ROUGH-IN FOR FUTURE BI-DIRECTIONAL AMPLIFIER SYSTEM FOR FIRE DEPARTMENT MOBILE COMMUNICATIONS.



N FIRST FLOOR PLAN-POWER
Scale: 1/8" = 1'-0"



1 TYP HOLDING ELEVATION 1
1/4" = 1'-0"



2 TYP HOLDING ELEVATION 2
1/4" = 1'-0"

Revisions		Date
1	Addendum #1	08/17/2012

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STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: FIRST FLOOR PLAN-POWER

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-E5

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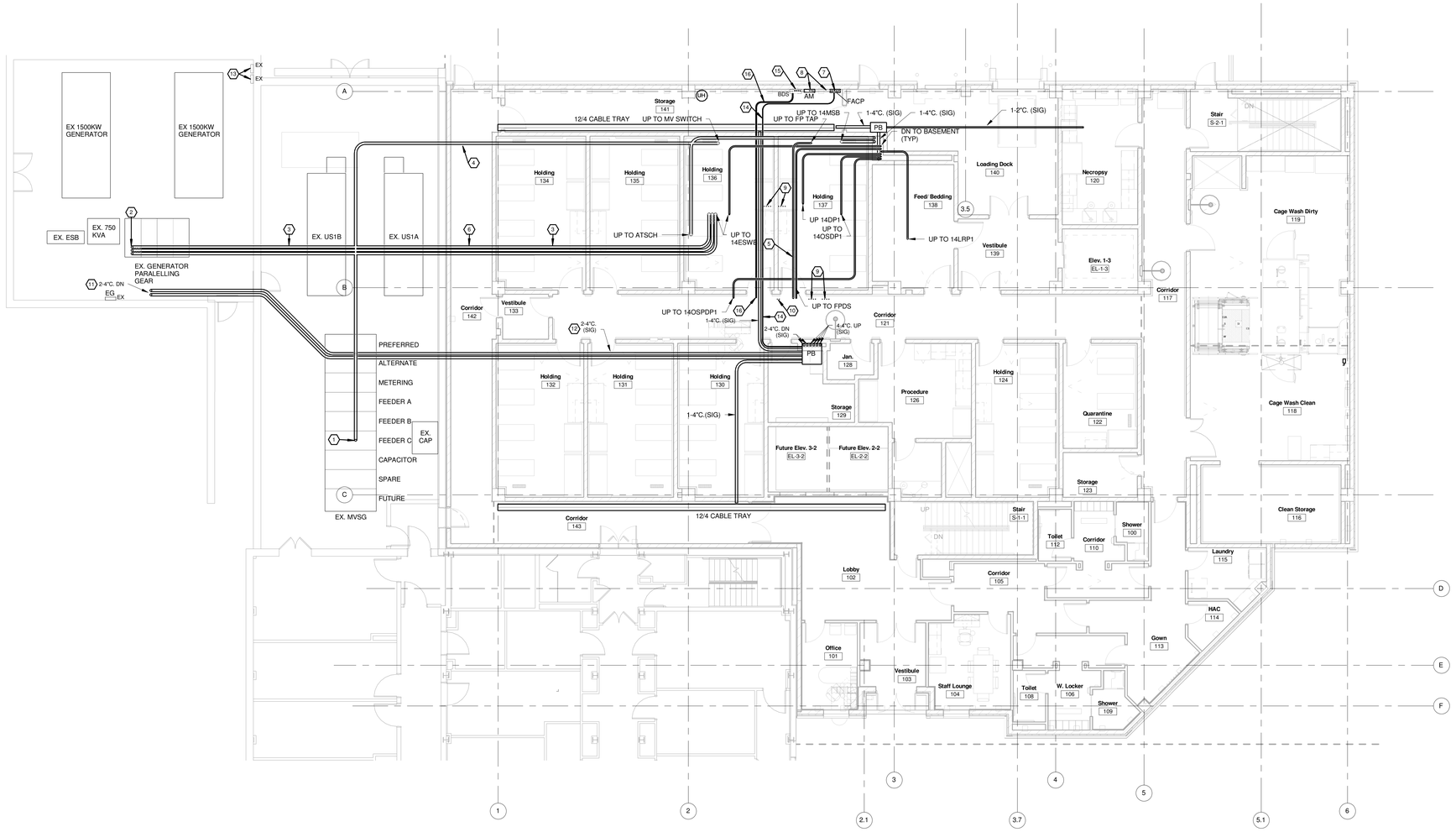
Office of Construction and Facilities Management

Department of Veterans Affairs



FIRST FLOOR PLAN-RACEWAY

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

GENERAL NOTES

A REFER TO ARCHITECTURAL PHASING PLAN AND INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING.

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G CONDUIT PATHWAYS ARE SHOWN FOR REFERENCE ONLY. COORDINATE EXACT ROUTE/ELEVATION WITH OTHER TRADES PRIOR TO ROUGH-IN.

H WHERE CONDUITS ARE REQUIRED TO PASS THROUGH STRUCTURAL BEAMS/FLOORS, COORDINATE EXACT LOCATION, SLEEVES, ETC. WITH STRUCTURAL ENGINEER.

NOTES

1 TERMINATE TO SPARE HV LUGS ON FEEDER C BREAKER. REFER TO PRIMARY SINGLE LINE DIAGRAM.

2 TERMINATE TO SPARE 2000AF (1200AT) SPARE BREAKER IN GENERATOR PARALELLING GEAR. REFER TO SECONDARY SINGLE LINE DIAGRAM.

3 1HR FIRE RATED FEEDER (RHW IN RMC). REFER TO SECONDARY SINGLE LINE DIAGRAM.

4 RUN 15KV FEEDER AS HIGH AS POSSIBLE IN RMC. PROVIDE ALL LABELLING PER NEC.

5 PROVIDE 1-2"C. ENCASED IN POURED IN PLACE CONCRETE BEAM/FLOOR SLAB (MIN 2" ENCASEMENT). REFER TO SECONDARY SINGLE LINE DIAGRAM.

6 SIX ATS CONDUITS/CONDUCTORS FROM RESPECTIVE ATS TO EXISTING GENERATOR PARALLELING GEAR SHALL PARALLEL THIS FEEDER. (NOT SHOWN FOR CLARITY)

7 PROVIDE SPARE 6-1"C. UP TO SECOND FLOOR PULLBOX FOR FUTURE FIRE ALARM CABLING.

8 PROVIDE SPARE 3-1"C. UP TO SECOND FLOOR PULLBOX FOR FUTURE AREA OF RESCUE STATION CABLING. NOTE: CONDUITS MUST OFFSET TO AVOID LOUVER AND BLAST RESISTANT BRACE ABOVE.

9 PROVIDE 4-0.75" SPARE CONDUITS UP TO PANELS ABOVE.

10 PROVIDE 2-0.75" SPARE CONDUITS UP TO EACH PANEL ABOVE.

11 DOWN TO SUB BASEMENT IN BUILDING 1. UTILIZE AREA WELL/ELECTICAL CHASE. REFER TO SHEETS 1-E1 AND 1-E2.

12 CONDUIT FOR FIBER, COPPER, FA FIBER, ETC. BACKBONES. REFER TO SHEETS 1-E1 AND 1-E2.

13 APPROXIMATE LOCATION OF BULK OXYGEN SYSTEM CONTROL JUNCTION BOXES. REFER TO SITE PLAN.

14 PROVIDE 1"C. FOR FIRE ALARM FIBER BACKBONE.

15 FUTURE BI-DIRECTIONAL AMPLIFIER FOR FIRE DEPARTMENT MOBILE COMMUNCATIONS. PROVIDE 3-1.5"C. UP (OFFSET) AND 1-1.5"C. DOWN FOR FUTURE ANTENNA CABLING.

16 PROVIDE 1-1.5"C. STUBBED ABOVE CORRIDOR CEILING FOR FUTURE BI-DIRECTIONAL ANTENNA CABLING.

Revisions		Date
1	Addendum #1	08/17/2012

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1400 W Dorothy Lane, Dayton OH 45409-1310
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STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: FIRST FLOOR PLAN-RACEWAY

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-E6

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Office of Construction and Facilities Management

Department of Veterans Affairs

GENERAL NOTES

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E CONDUIT PATHWAYS ARE SHOWN FOR REFERENCE ONLY. COORDINATE EXACT ROUTE/ELEVATION WITH OTHER TRADES PRIOR TO ROUGH-IN.

NOTES

1 DOOR FROM VESTIBULE INTO VIVARIUM TO BE INTERLOCKED WITH DOUBLE DOORS FROM DOCK TO VESTIBULE SUCH THAT VIVARIUM DOORS CAN NOT BE UNLOCKED OR OPENED IF DOCK DOORS ARE OPEN AND DOCK DOORS CAN NOT BE OPENED IF VIVARIUM SLIDING OPEN.

2 FUTURE CARD READER IN ELEVATOR LOBBY.

3 DOOR FROM BEDDING ROOM TO BE INTERLOCKED WITH DOUBLE DOORS FROM DOCK TO VESTIBULE SUCH THAT THE BEDDING ROOM VIVARIUM DOOR CAN NOT BE UNLOCKED OR OPENED IF THE DOCK VESTIBULE DOORS ARE OPENED.

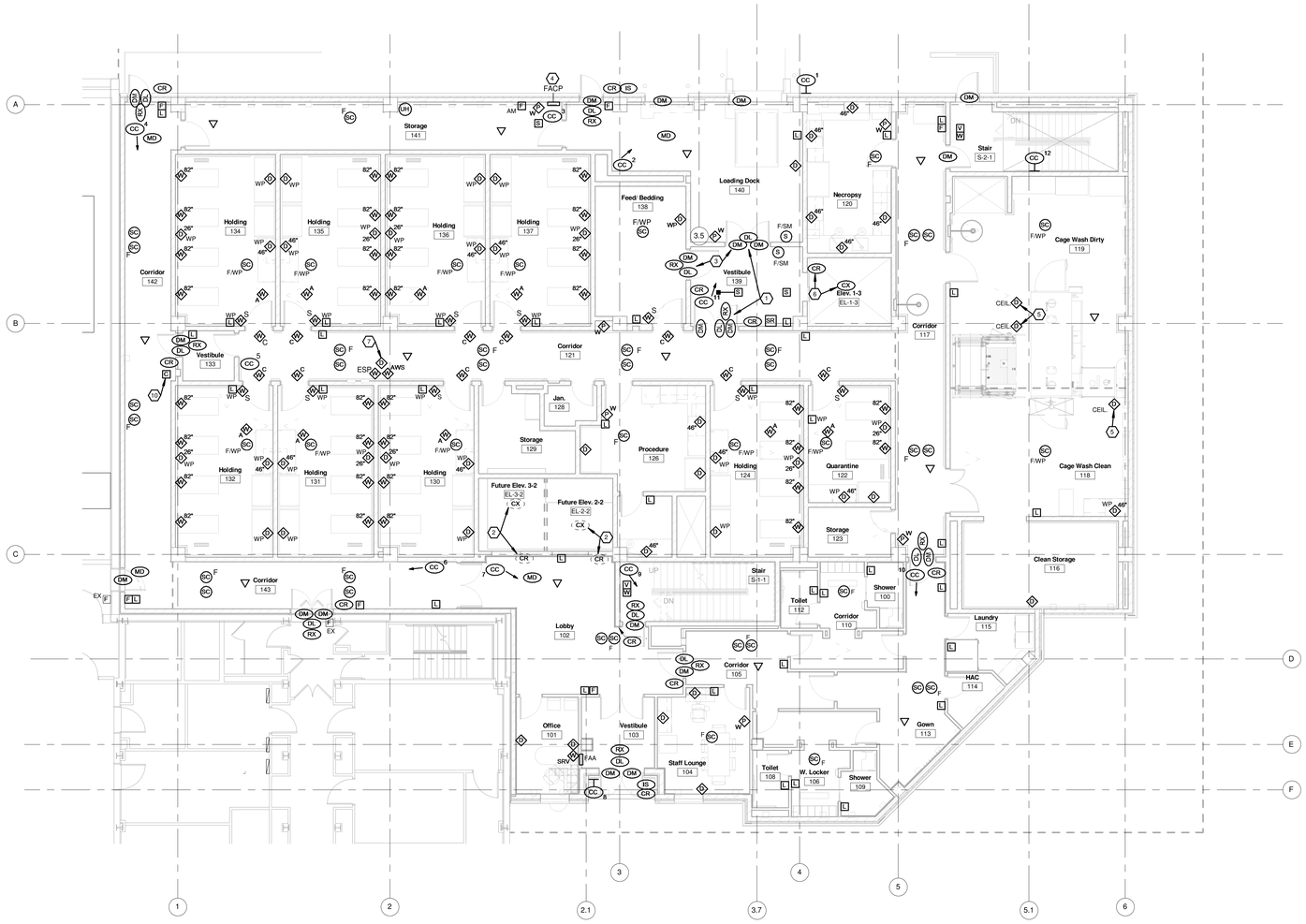
4 FIRE ALARM CONTROL PANEL WITH INTEGRAL AUDIO AMPLIFIER, FIBER OPTIC COMMUNICATIONS NETWORK AND PROVISIONS FOR FUTURE DIGITAL AUDIO SOURCE UNIT, AND MICROPHONE (ALL PROVISIONS REQUIRED FOR FUTURE FIRE COMMAND CENTER).

5 COORDINATE EXACT LOCATION IN CEILING WITH COTR.

6 PROVIDE CARD READER IN ELEVATOR CAB AND PROGRAM TO ALLOW SELECT FLOORS AS COORDINATED WITH COTR.

7 LOCATE ABOVE CEILING FOR AWS/ESP.

8 FIRE ALARM CONTROL MODULE TO RELEASE ACCESS CONTROLLED DOORS UPON BUILDING ALARM.



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FIRST FLOOR PLAN-SIGNALS

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

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

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STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
joa@ohmpoe.com

Drawing Title: FIRST FLOOR PLAN-SIGNALS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No. VA Project No. 539-317 JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-E7

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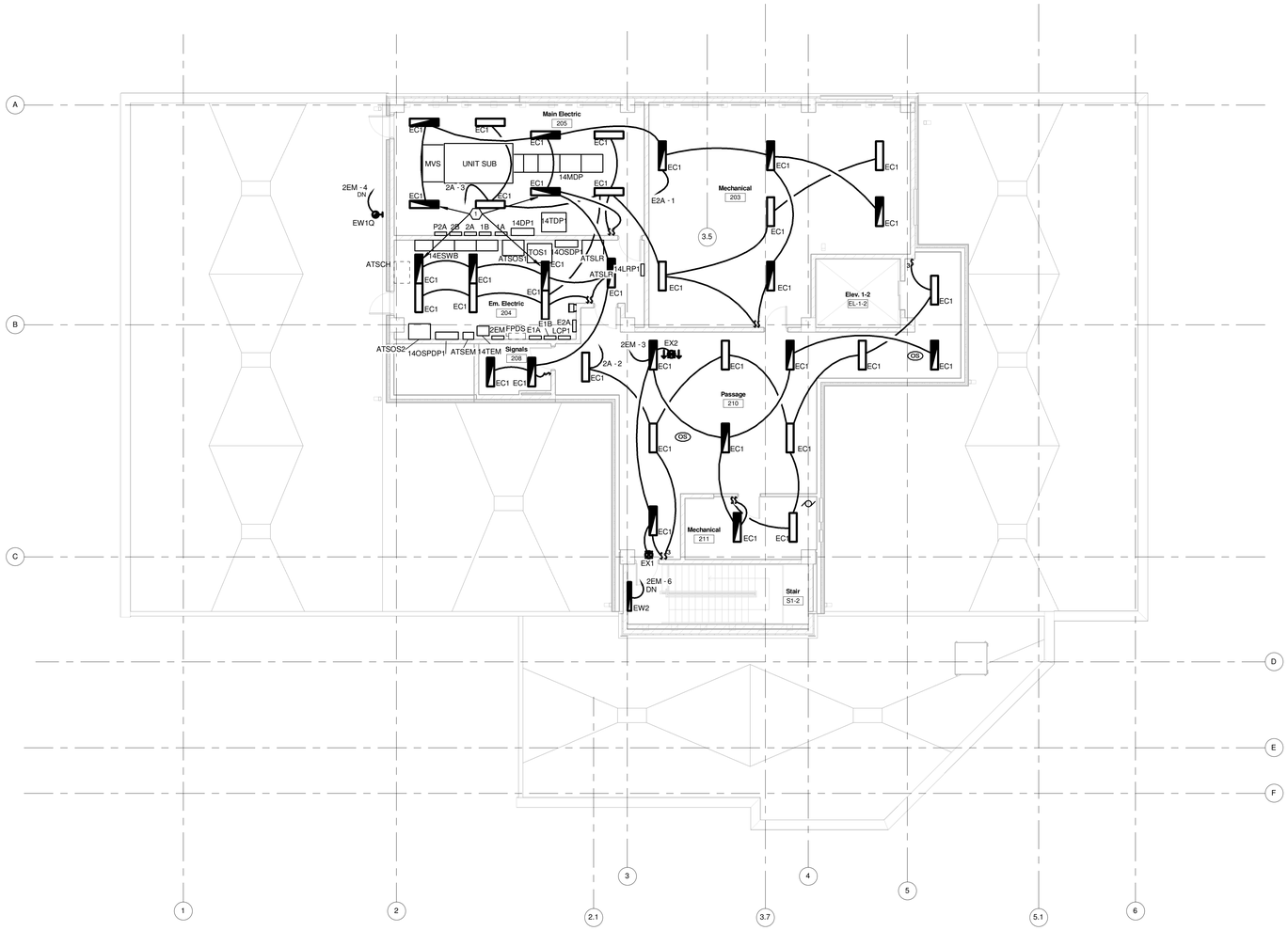
Department of Veterans Affairs



N

SECOND FLOOR PLAN-LIGHTING

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

GENERAL NOTES

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B FIELD VERIFY EXISTING LIGHTING CIRCUIT VOLTAGE PRIOR TO ORDERING FIXTURES AND OCCUPANCY SENSORS.

C WIRE ALL OCCUPANCY SENSORS IN SAME SPACE IN PARALLEL (NORMAL POWER LIGHTING) FOR COMMON ZONE CONTROL.

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NOTES

1 PROVIDE INTEGRAL BATTERY BALLAST.

Revisions		Date
1	Addendum #1	08/17/2012

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Mechanical Electrical Commissioning Technology
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STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SECOND FLOOR PLAN-LIGHTING

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011
REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No.
VA Project No. 539-317
JPA Project No. 10005.00

Building Number: 14

Drawing Number: 14-E8

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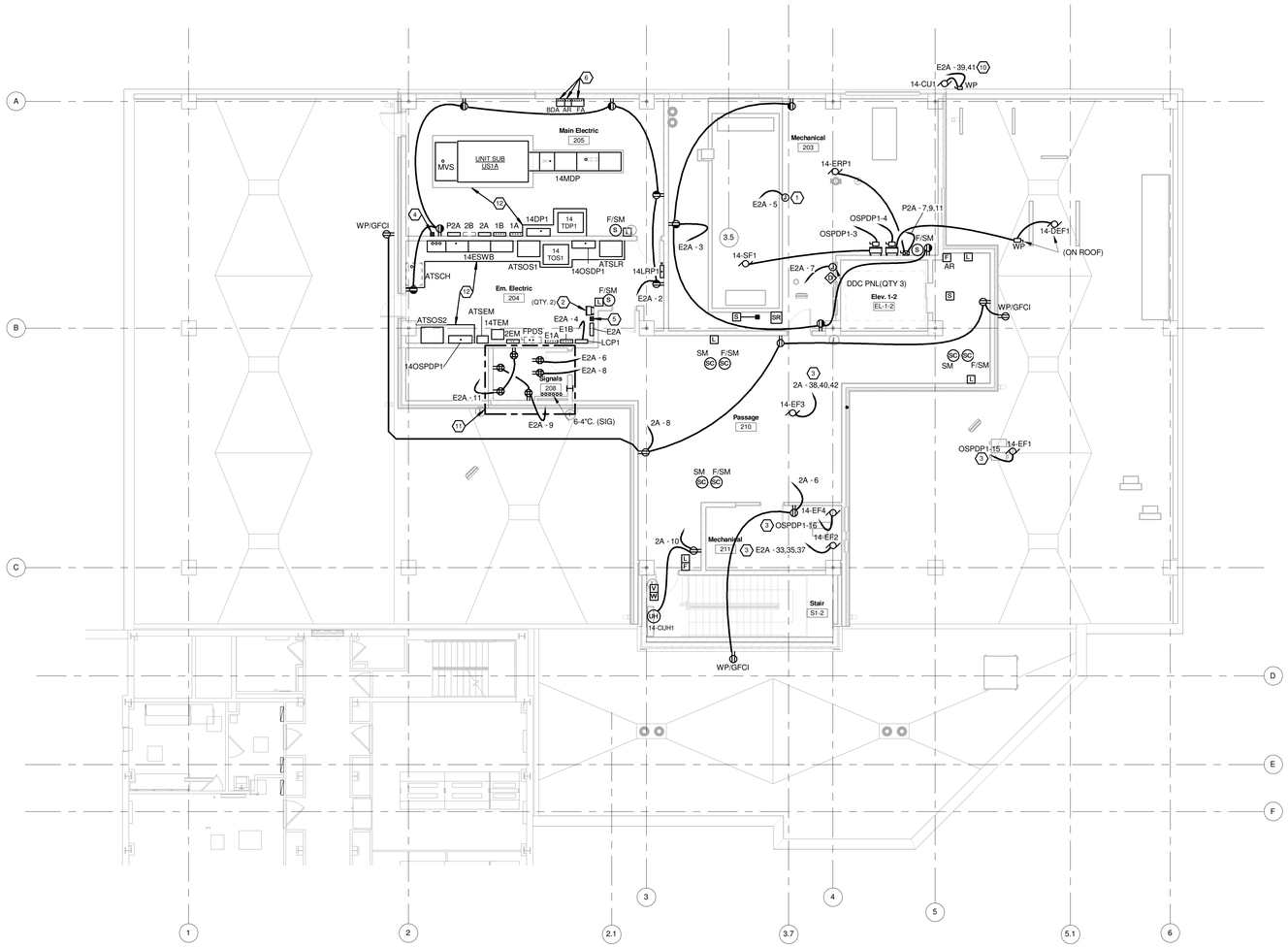
Department of Veterans Affairs



SECOND FLOOR PLAN-POWER & SIGNALS

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

NOTES

1. PROVIDE 120V CIRCUIT TO LIGHTS IN AIR HANDLING UNIT.
2. VFD FOR 14-EF1 AND 14-EF4 (QTY. 2 VFD's), STACK VFD's VERTICALLY.
3. RUN THROUGH STARTER/VFD IN ELECTRIC ROOM.
4. STARTER FOR 14-EF3.
5. STARTER FOR 14-EF2.
6. PROVIDE FIRE ALARM AND AREA OF RESCUE PULLBOX UP HIGH.
7. NOTE OMITTED.
8. NOTE OMITTED.
9. UNDER DEDUCT ALTERNATE, EXHAUST FAN MOVES TO THIS LOCATION.
10. RUN 3-#8, 1-#10 GRD. IN 0.75"C.
11. SEE SHEET "E9" FOR 1/2" SCALE DRAWING FOR ADDITIONAL SIGNALS INFO.
12. 4"H. CONCRETE HOUSEKEEPING PAD.

GENERAL NOTES

A. REFER TO ARCHITECTURAL PHASING PLAN AND INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING.

B. COORDINATE ALL WIRING DEVICES WITH ARCHITECTURAL ELEVATIONS.

C. (1) EACH BRANCH CIRCUIT HOMERUN SHALL HAVE NO MORE THAN THREE CIRCUITS. EACH BREACH CIRCUIT HOMERUN SHALL HAVE A SEPARATE NEUTRAL AND (SHARED) GREEN INSULATED EQUIPMENT GROUNDINCONDUCTOR.

D. MULTI-GANG BACKBOXES FOR DIFFERENT VOLTAGES AND TYPES OF EMERGENCY AND NORMAL BRANCH WIRING DEVICES SHALL HAVE DIVIDERS BETWEEN DEVICES.

E. REFER TO ARCHITECTURAL DRAWINGS FOR INFORMATION ON SMOKE COMPARTMENTS, SMOKE PARTITIONS AND FIRE BARRIERS.

F. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED WALL ASSEMBLIES. ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE PROTECTED ABD/OR FIRE STOPPED AS REQUIRED TO MAINTAIN FIRE RATINGS AS INDICATED.

G. CONDUIT PATHWAYS ARE SHOWN FOR REFERENCE ONLY. COORDINATE EXACT ROUTE/ELEVATION WITH OTHER TRADES PRIOR TO ROUGH-IN.

H. WHERE CONDUITS ARE REQUIRED TO PASS THROUGH STRUCTURAL BEAMS/FLOORS, COORDINATE EXACT LOCATION, SLEEVES, ETC. WITH STRUCTURAL ENGINEER.

Revisions		Date
1	Addendum #1	08/17/2012

CONSULTANTS:

Heapy Engineering
Mechanical Electrical Commissioning Technology
Nationally Recognized Leader in Sustainability / LEED
1400 W Dorothy Lane, Dayton OH 45409-1310
Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com
HEAPY PROJECT No.:2010-04004 FIRM LICENSE:05128

STATE OF OHIO — JOHN A. BLACK 49341 — REGISTERED PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
45402-2130
937 461 3290 PHONE
937 461 0260 FAX
jpa@johnpoe.com

Drawing Title: SECOND FLOOR PLAN-POWER AND SIGNALS

Approved: Project Director

Project Title: BUILDING 14 ANIMAL RESEARCH FACILITY - BLDG 14

Location: Cincinnati, Ohio

Date: 09/29/2011 REVISED AUGUST 17, 2012

Checked: MSG

Drawn: MSG

Project No.: VA Project No. 539-317; JPA Project No. 10005.00

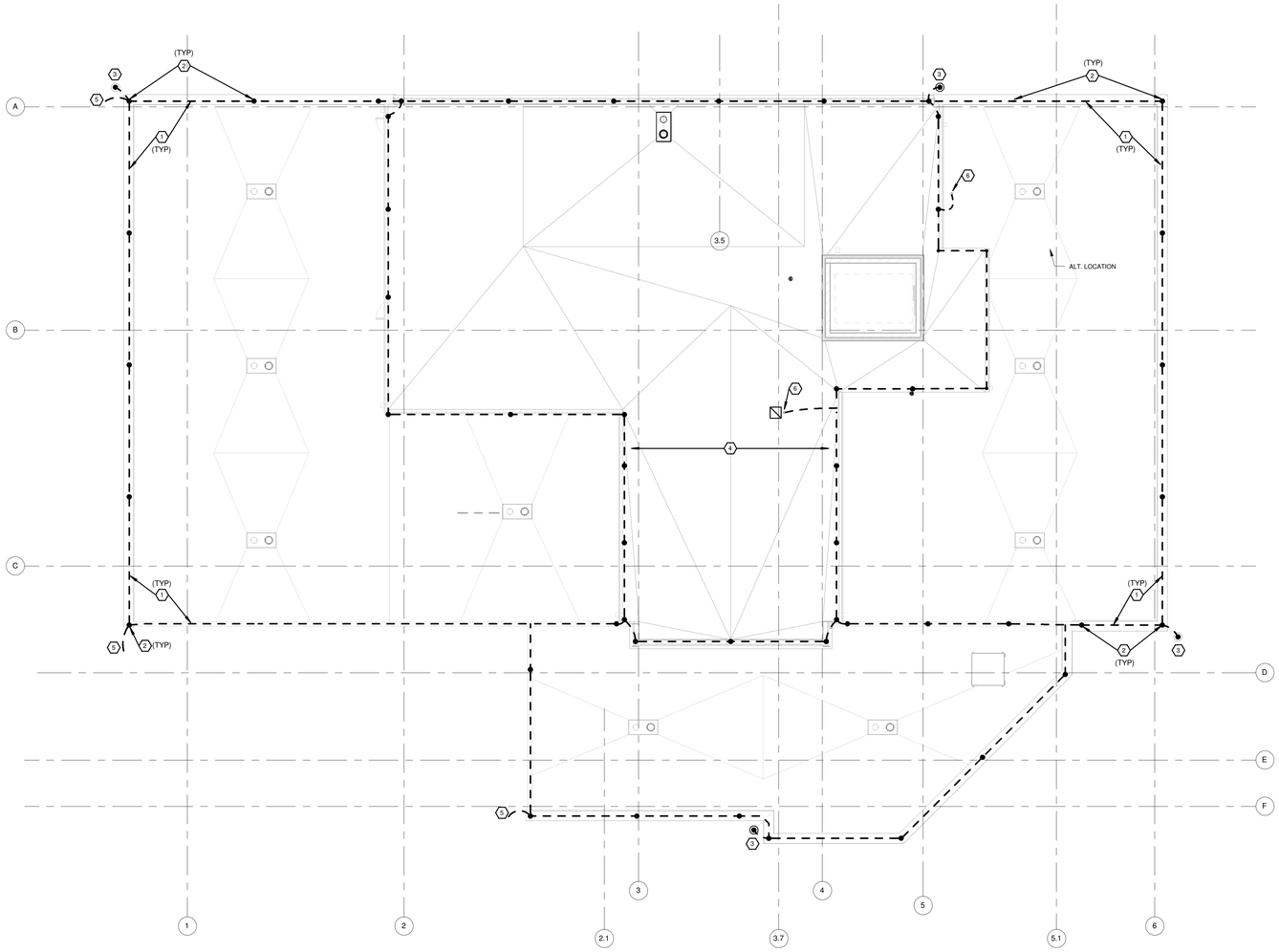
Building Number: 14

Drawing Number: 14-E9

Dwg. of

Office of Construction and Facilities Management

Department of Veterans Affairs



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ROOF PLAN-LIGHTNING PROTECTION

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

GENERAL NOTES

A REFER TO ARCHITECTURAL PHASING PLAN AND INCLUDE ALL WORK NECESSARY TO ACCOMMODATE PHASING.

B COORDINATE ALL DEVICES WITH ARCHITECTURAL ELEVATIONS.

C REFER TO ARCHITECTURAL DRAWINGS FOR INFORMATION ON SMOKE COMPARTMENTS, SMOKE PARTITIONS AND FIRE BARRIERS.

D REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED WALL ASSEMBLIES. ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE PROTECTED ABD/OR FIRE STOPPED AS REQUIRED TO MAINTAIN FIRE RATINGS AS INDICATED.

E LIGHTNING PROTECTION PLAN SHOWN FOR REFERENCE ONLY. SYSTEM SHALL BE DESIGNED PER NFPA 780 AND SUBMITTED WITH SHOP DRAWINGS.

NOTES

1 LIGHTNING PROTECTION ROOF CONDUCTOR.

2 LIGHTNING PROTECTION STRIKE TERMINATION DEVICE.

3 LIGHTNING PROTECTION DOWN CONDCUTOR CONCEALED IN BUILDING AND GROUND ROD.

4 NOTE OMITTED.

5 CONNECT TO EXISTING BUILDING 1/15 LIGHTNING PROTECTION SYSTEM.

6 BOND TO HVAC EQUIPMENT. PROVIDE STRIKE TERMINATION DEVICES AS REQUIRED.

Revisions		Date
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JOHN POE ARCHITECTS
116 EAST THIRD STREET
DAYTON, OHIO
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937 461 3290 PHONE
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