UNITED STATES DEPARTMENT OF VETERANS AFFAIRS
EDWARD HINES, JR V.A. HOSPITAL
HINES, ILLINOIS

HVAC FOR SUPPLY & STORAGE - BLDG. 200
PROJECT #578-12-056

DRAWING LIST

CS - BUILDING 200 TITLE SHEET AND LOCATION PLAN
M-1 - PARTIAL BASEMENT LEVEL MECHANICAL DEMO & NEW PLANS
M-2 - PARTIAL BASEMENT LEVEL MECHANICAL PLAN
M-3 - PARTIAL 3RD FLOOR MECHANICAL DEMOLITION & NEW PLANS
M-4 - PARTIAL 4TH & 6TH FLOOR MECHANICAL DEMOLITION & NEW PLANS
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M-6 - PARTIAL 9TH FLOOR MECHANICAL DEMOLITION & NEW PLANS
M-7 - PARTIAL 10TH FLOOR MECHANICAL DEMOLITION & NEW PLANS
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SPECIFICATIONS

REFER TO CONSTRUCTION DOCUMENTS PROJECT SPECIFICATION.

BRIEF SUMMARY OF SCOPE OF WORK

MANY OF CLEAN/STERILE STORAGE ROOMS LISTED ON THE DRAWINGS DO NOT COMPLY WITH CODE REQUIRED AIR CHANGES PER HOUR. IN SOME ROOMS, NEW VAV BOXES, DUAL DUCT BOXES, NEW DUCT WORK, REHEAT COILS, DIFFUSERS, GRILLES, TEMPERATURE CONTROLS HAVE BEEN ADDED. IN SOME ROOMS AIR VOLUMES CAN BE INCREASED BY ADDING A NEW VOLUME DAMPER OR ADJUST AIR VOLUME FROM EXISTING AIR VOLUME DAMPERS. AFTER NEW WORK IS DONE, CONTRACTOR IS REQUIRED TO PROVIDE AIR AND WATER TESTING & BALANCING OF SUPPLY AIR DIFFUSERS, RETURN AIR & EXHAUST GRILLES AND HOT WATER REHEAT COILS. ALL EXISTING TEMPERATURE CONTROLS ARE PNEUMATIC. CHANGE CONTROLS TO DIGITAL CONTROLS AND TIE CONTROL POINTS TO BUILDING AUTOMATION SYSTEM.

ALL VAV BOXES TO REMAIN SHALL BE TESTED ACTUATORS AND THERMOSTATS, CONTROL VALVES REPLACED WITH DIGITAL CONTROLS. CLEAN ALL EXISTING REHEAT COILS IN CONTRACT.

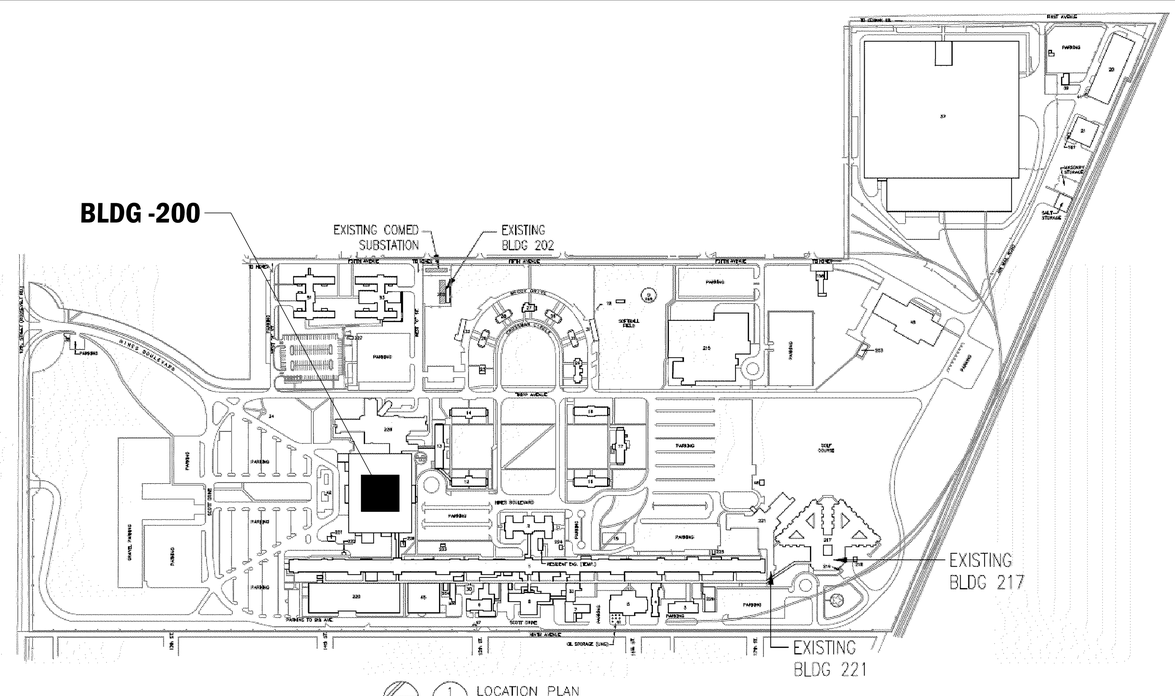
PROJECT INCLUDES CLEAN ROOM STORAGES. CONTRACTOR IS REQUIRED TO MAINTAIN CLEANLINESS IN THESE ROOMS PER VA STANDARDS. CONTRACTOR SHALL INFORM COTR A FEW DAYS IN ADVANCE WHEN HE/SHE IS PLANNING TO WORK IN ANY SPECIFIC ROOM. USE OF THE SPACE NEED ADEQUATE TIME TO REMOVE CRITICAL STORAGE THINGS FROM THE ROOM PRIOR TO ANY MECHANICAL WORK DONE IN THAT ROOM.

ALL WORK SHALL BE DONE IN NIGHT SHIFT AS PER COTR'S INSTRUCTIONS.

SOME ROOM NUMBERS LISTED ON THE VENTILATION SCHEDULE MAY BE DIFFERENT FROM ROOM NUMBERS LISTED ON DOORS. COORDINATE WITH DESIGN ENGINEER TO CLARIFY.

CONTRACTOR SHALL REMOVE CEILING TILES AND PLASTER CEILINGS WHERE REQUIRED TO REMOVE EXISTING DUCTWORK, DIFFUSERS AND INSTAL NEW DUCTWORK, PIPING, DIFFUSERS, ETC. AFTER INSTALLATION OF NEW WORK ABOVE CEILING IS COMPLETED, CONTRACTOR SHALL FINISH CEILING TO ITS ORIGINAL CONDITION. ADD NEW CEILING TILES THAT ARE DAMAGED DURING CONSTRUCTION. IF EXISTING WALLS ARE AFFECTED BY NEW WORK, CONTRACTOS SHALL RE-FINISH WALLS.

SITE PLAN



1 CS LOCATION PLAN
SCALE: 1" = 300'

ISSUED FOR CONSTRUCTION	12/11/2014
100% OWNER'S REVIEW	11/21/2014
Revisions:	Date

CONSULTANTS: MECHANICAL, ELECTRICAL, PLUMBING

T&M ASSOCIATES, INC.
CONSULTING ENGINEERS
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105 W. MADISON, STE. 950 CHICAGO, IL 60602
(312) 346-3102
FAX: (312) 346-3103

Approved: Chief Maintenance & repair

Drawing Title: ***BUILDING 200 TITLE SHEET AND LOCATION PLAN***

Approved: Devision Chief

Approved: Service Director

Project Title: **HVAC FOR SUPPLY STORAGE**

Building No. **200** | Checked **JM** | Drawn **EL**

Location: **V.A. HOSPITAL, HINES, IL**

Date: **06/20/2013**

Project No. **22165**

Drawing Number: ***CS***

Dwg. XX of XX

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Department of Veterans Affairs

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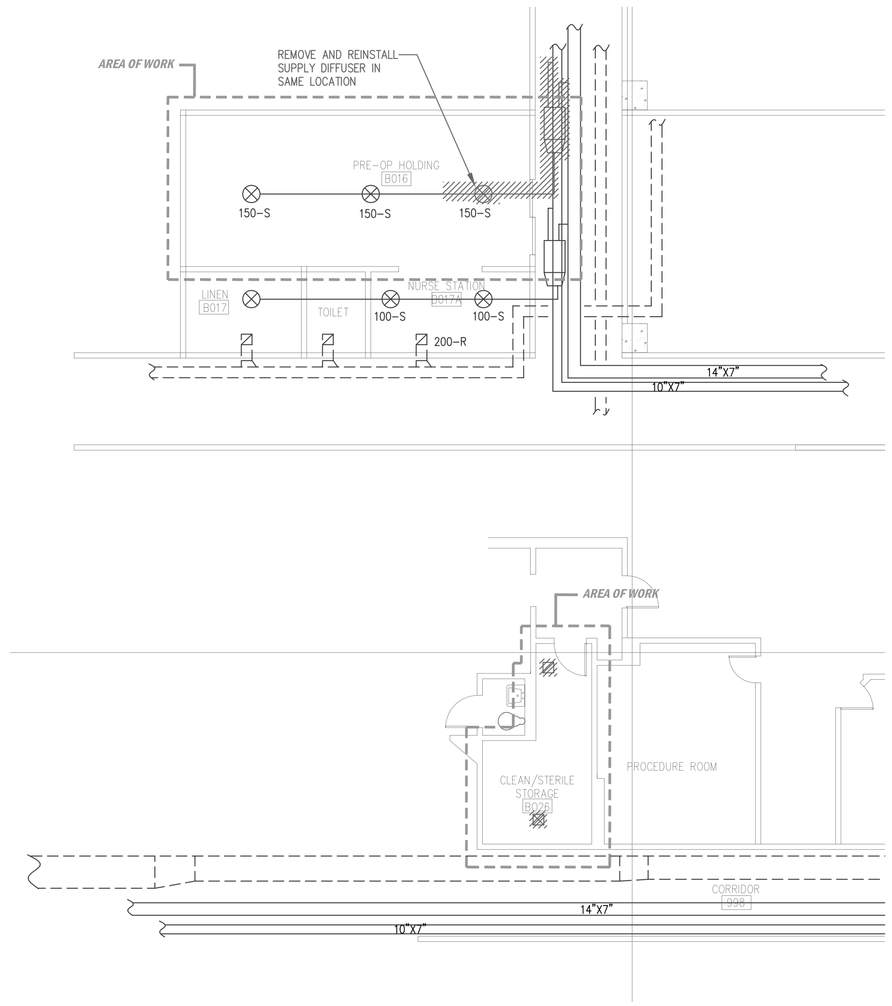

PARTIAL BASEMENT LEVEL MECHANICAL DEMOLITION PLAN

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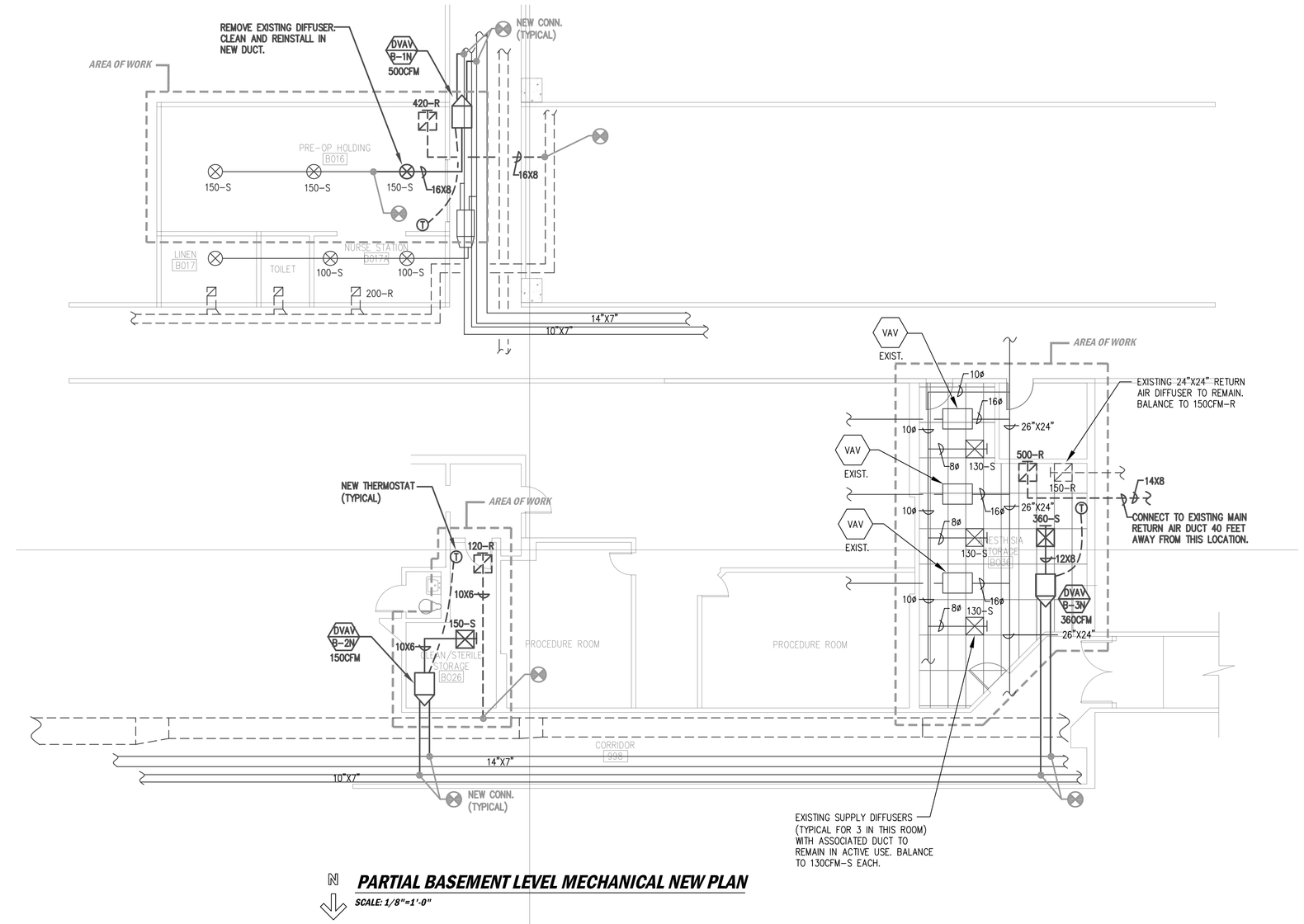
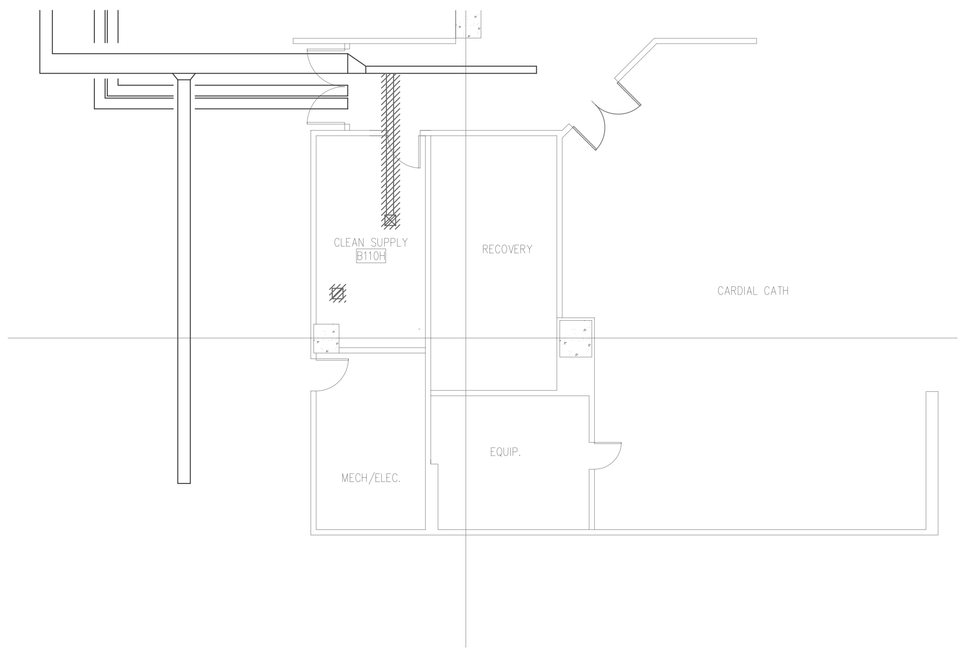


PARTIAL BASEMENT LEVEL MECHANICAL NEW PLAN

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



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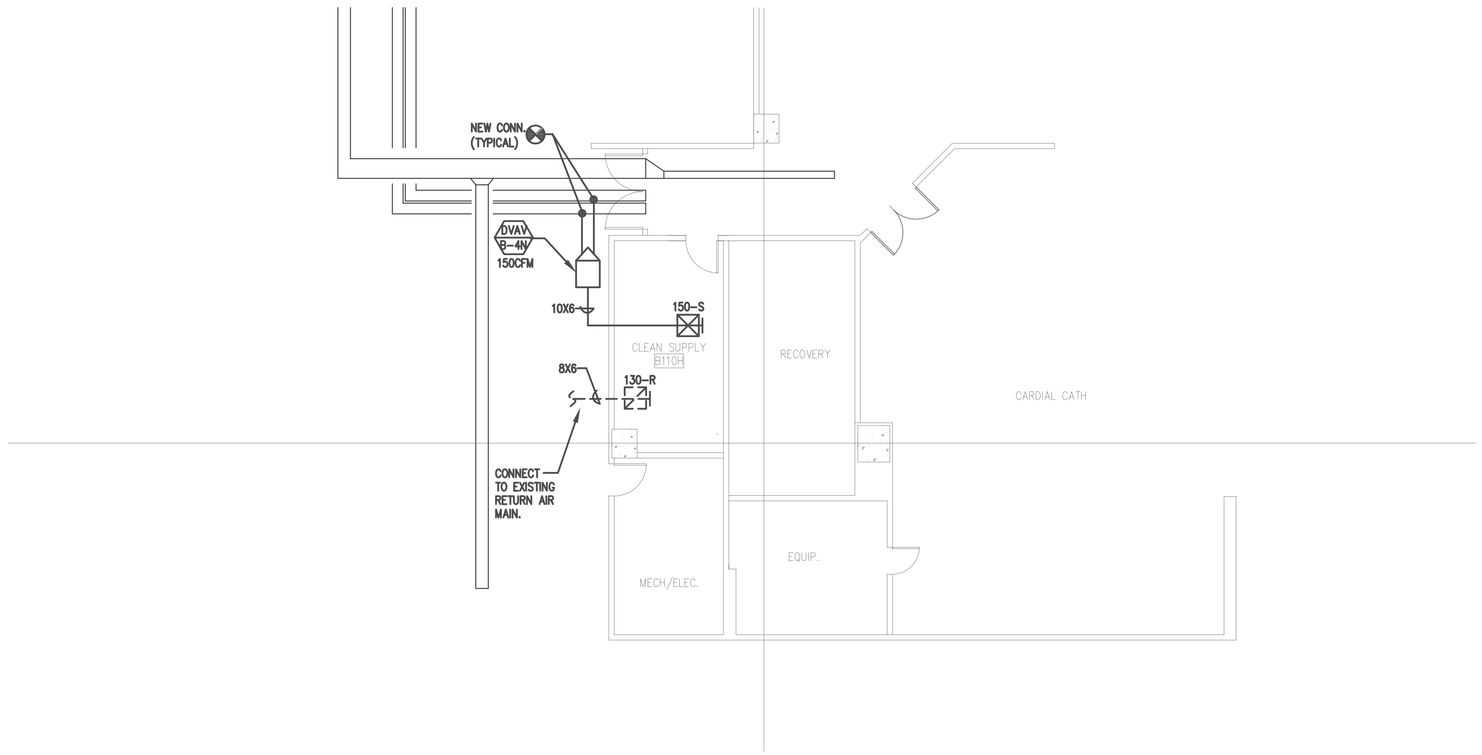

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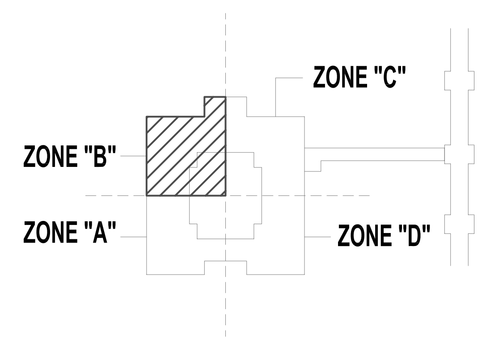

BLDG. 200 - KEY PLAN

ISSUED FOR CONSTRUCTION	12/11/2014
100% OWNER'S REVIEW	11/21/2014
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CONSULTANTS: MECHANICAL & ELECTRICAL

T&M ASSOCIATES, INC.
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Approved: Chief Maintenance & repair

Drawing Title: PARTIAL BASEMENT LEVEL MECHANICAL DEMO & NEW PLANS

Approved: Devision Chief

Approved: Service Director

Project Title: HVAC FOR SUPPLY & STORAGE

Building No.

Checked: DM,JM

Drawn: EL

Location: V.A. HOSPITAL, HINES, IL

Date: 06/20/2013

Project No. 22165

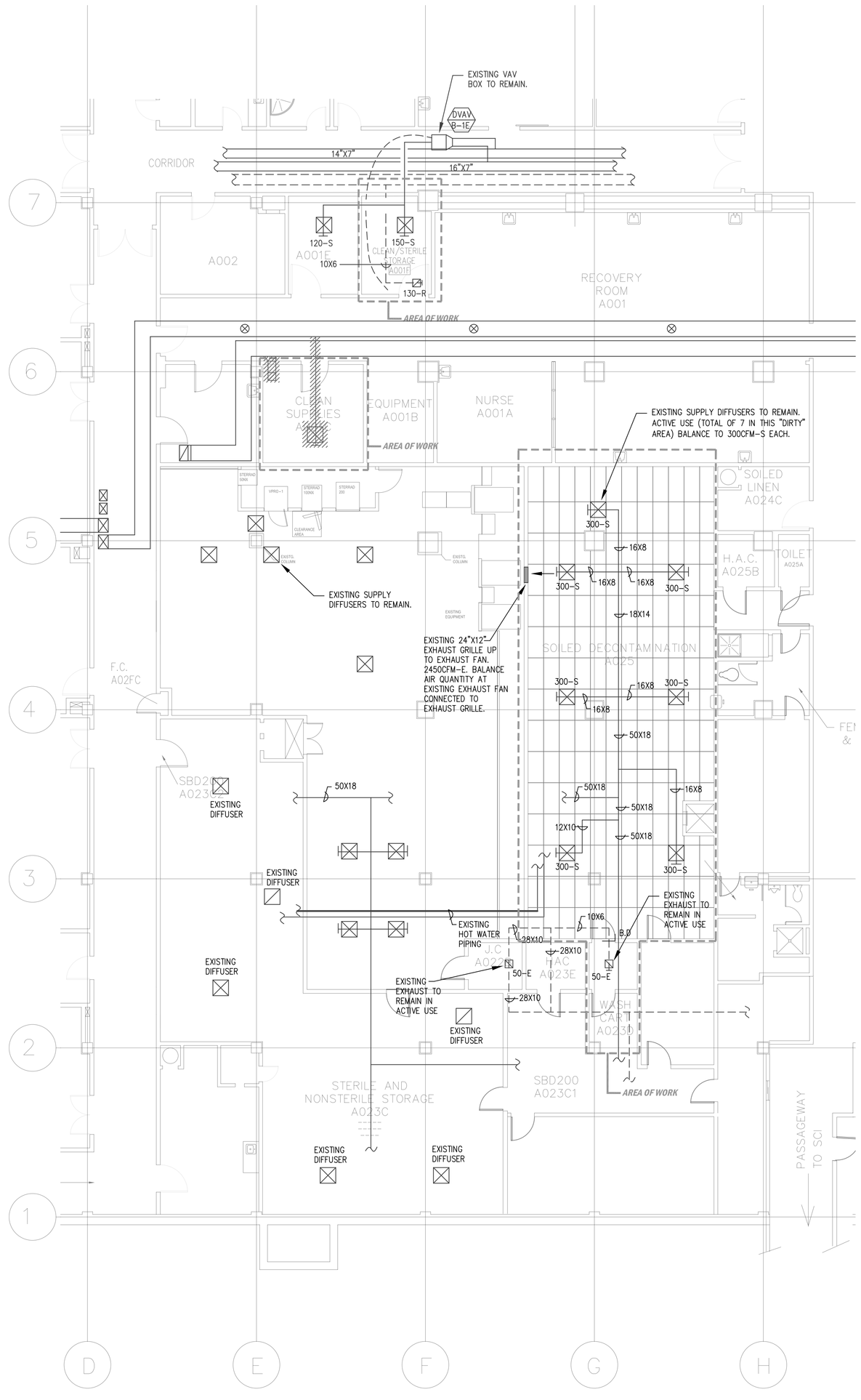
Drawing Number: M-1

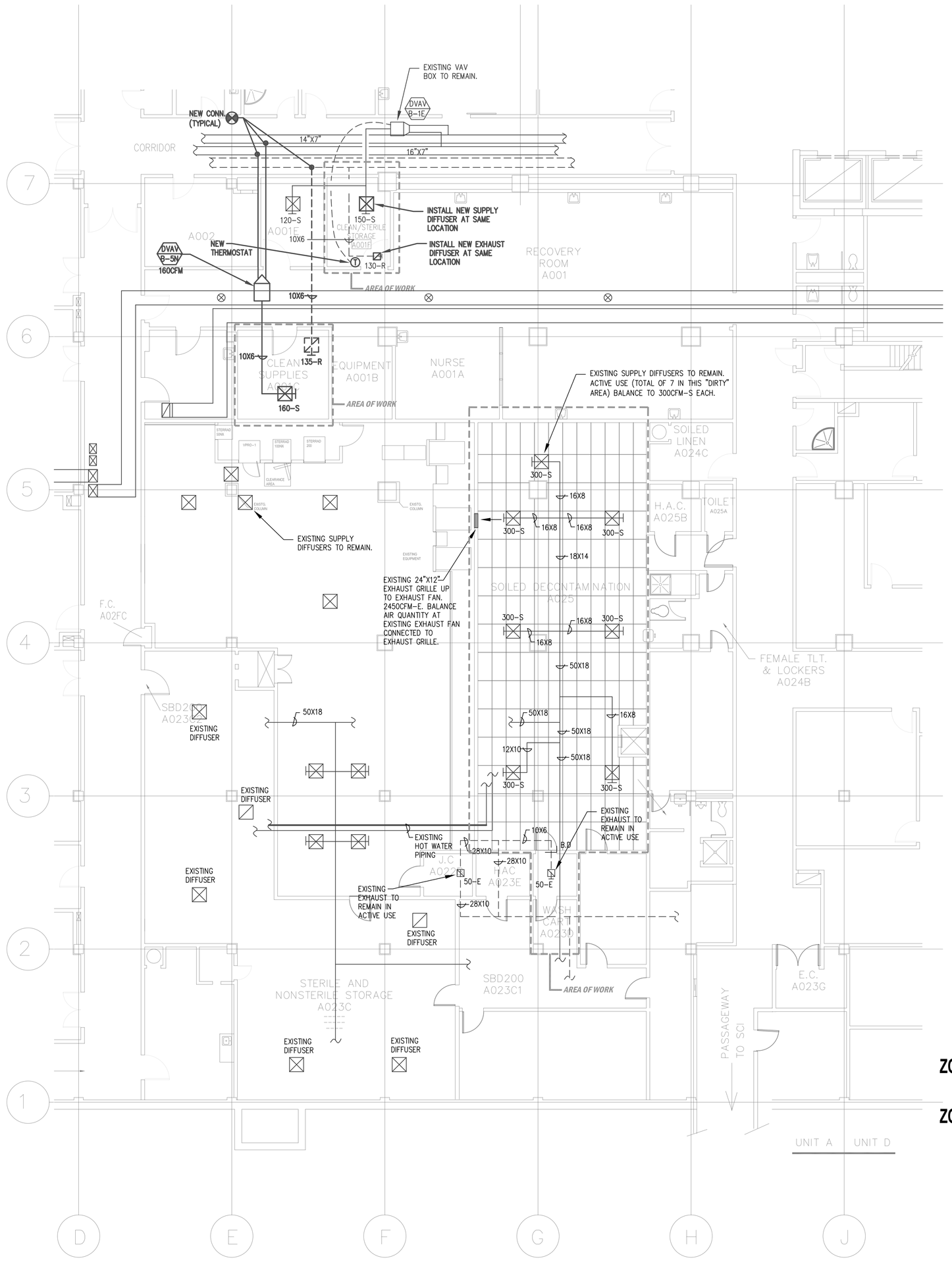
Dwg. 1 of 15

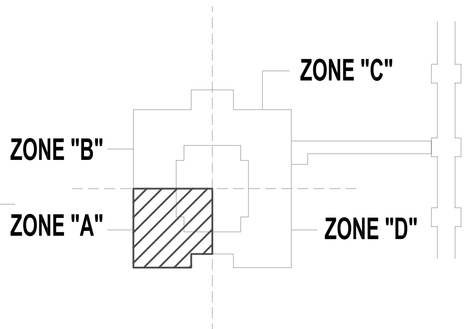
Office of Facilities

Department of Veterans Affairs

VA FORM 08-6231, FEB. 1983







N BLDG. 200 - KEY PLAN

N **PARTIAL BASEMENT LEVEL NEW MECHANICAL PLAN**

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

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FAX: (312) 346-3103

Approved: Chief Maintenance & repair

Drawing Title: ***PARTIAL BASEMENT LEVEL DEMOLITION & NEW MECHANICAL PLAN***

Approved: Devision Chief

Approved: Service Director

Project Title: **HVAC FOR SUPPLY & STORAGE**

Building No.

Checked: DM,JM

Drawn: EL

Location: **V.A. HOSPITAL, HINES, IL**

Date: **06/20/2013**

Project No.: **22165**

Drawing Number: **M-2**

Dwg. 2 of 15

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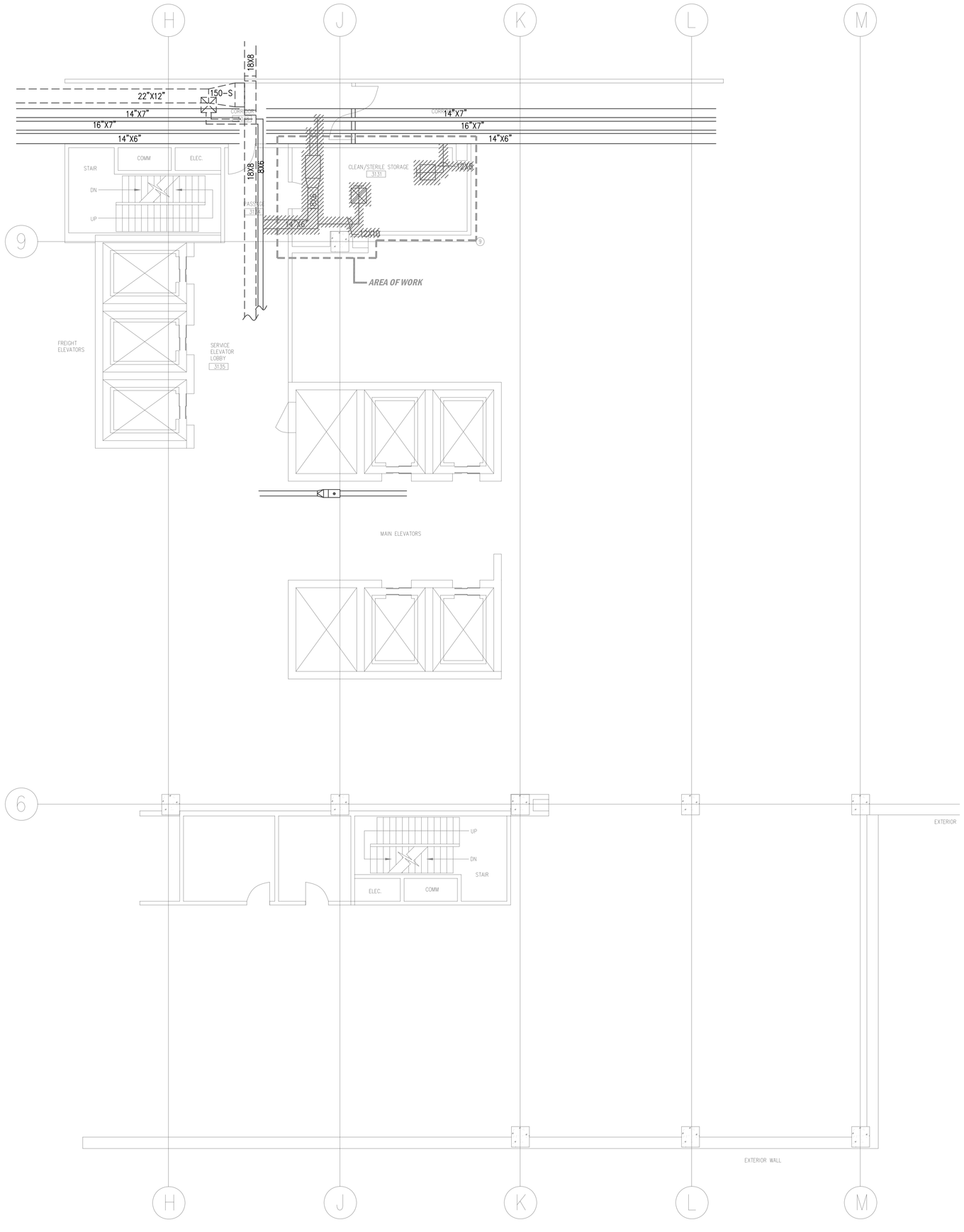

PARTIAL 3RD FLOOR MECHANICAL DEMOLITION PLAN

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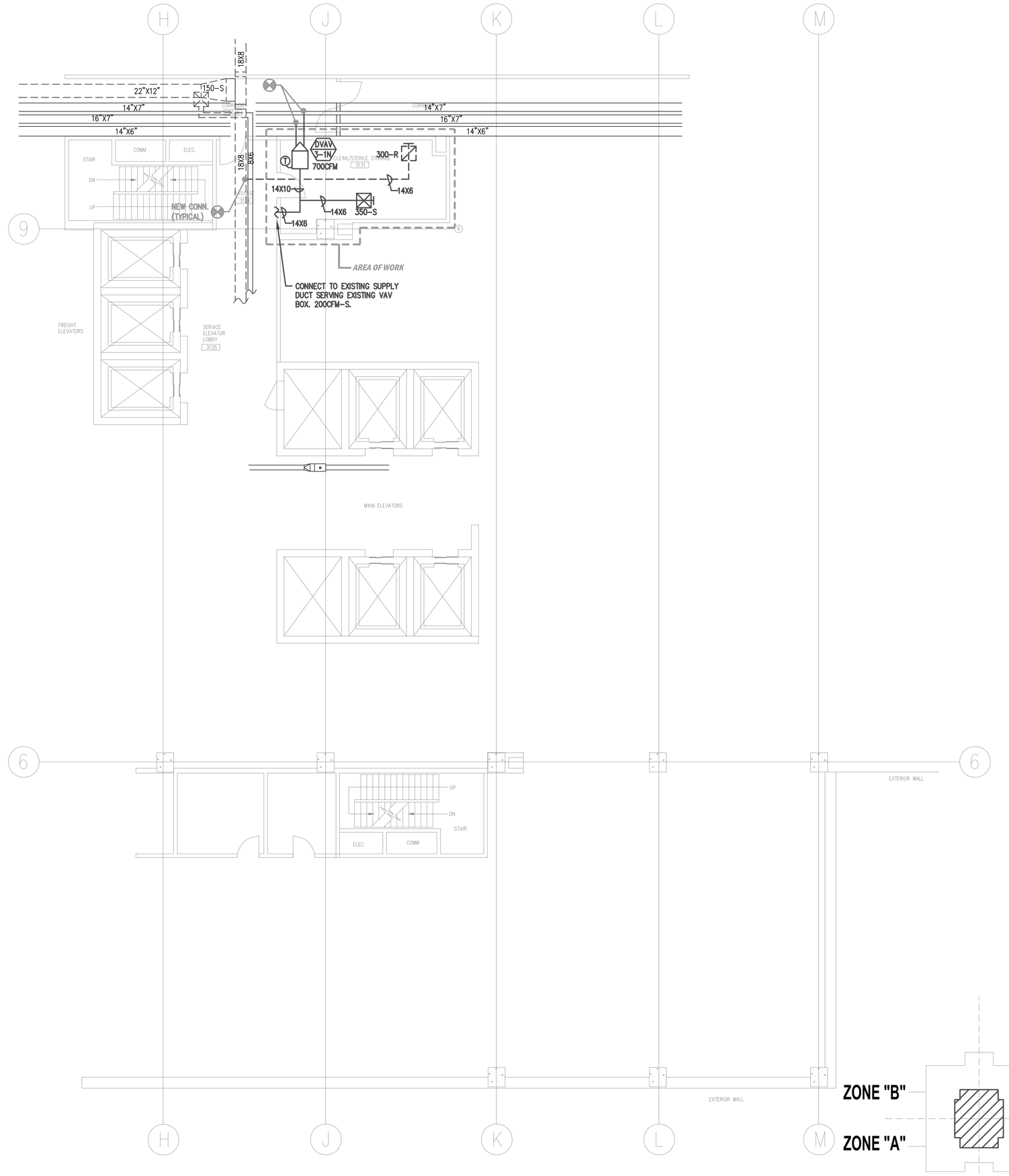

PARTIAL 3RD FLOOR NEW MECHANICAL PLAN

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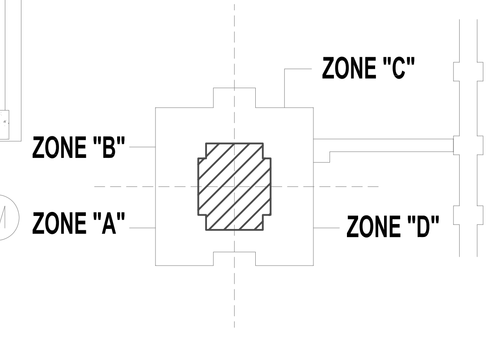

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Approved: Chief Maintenance & repair

Drawing Title: *PARTIAL 3RD FLOOR MECHANICAL DEMOLITION & NEW PLANS*

Approved: Devision Chief

Approved: Service Director

Project Title: HVAC FOR SUPPLY & STORAGE

Building No.

Checked: DM,JM

Drawn: EL

Location: V.A. HOSPITAL, HINES, IL

Date: 06/20/2013

Project No.: 22165

Drawing Number: M-3

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Office of Facilities

Department of Veterans Affairs

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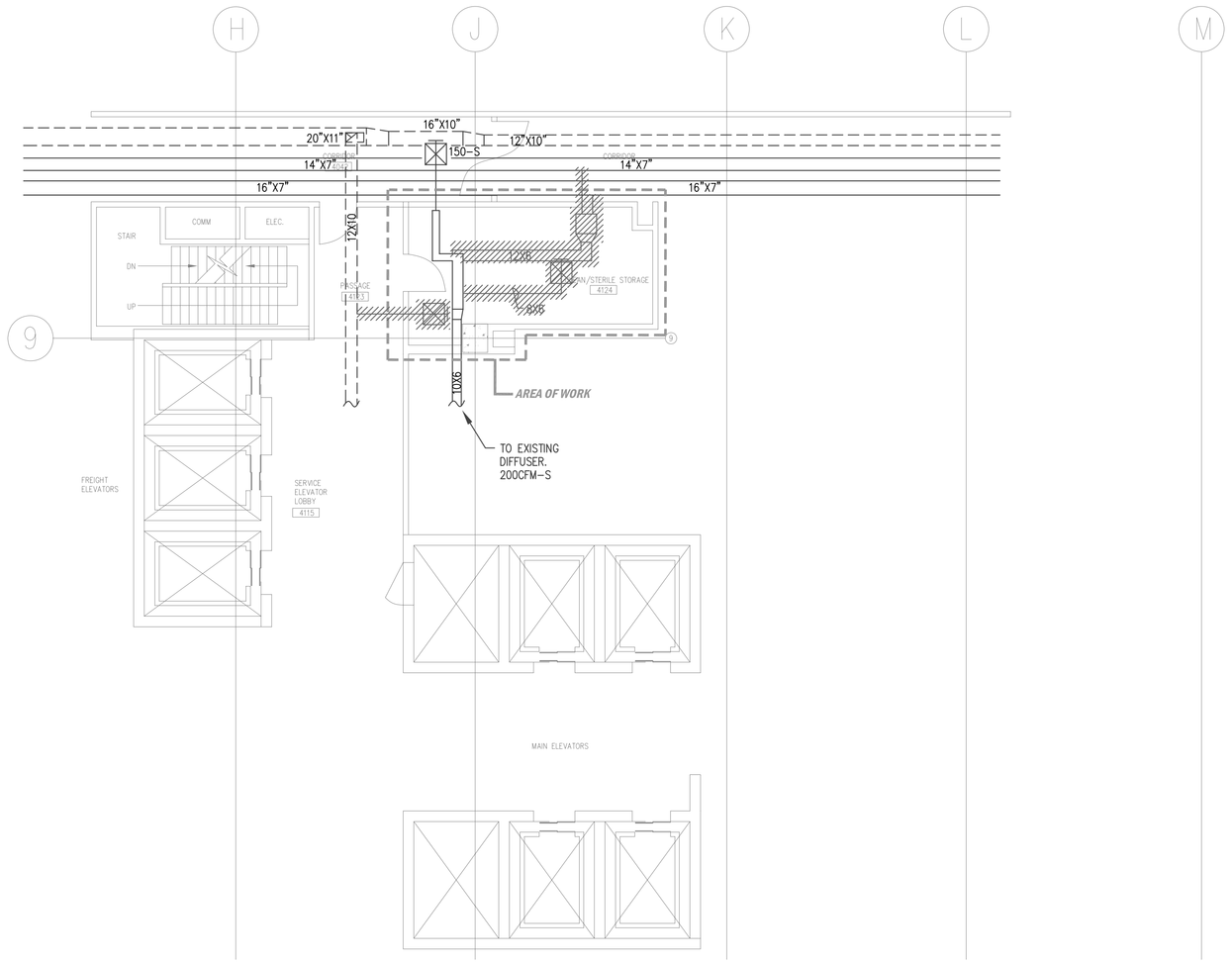

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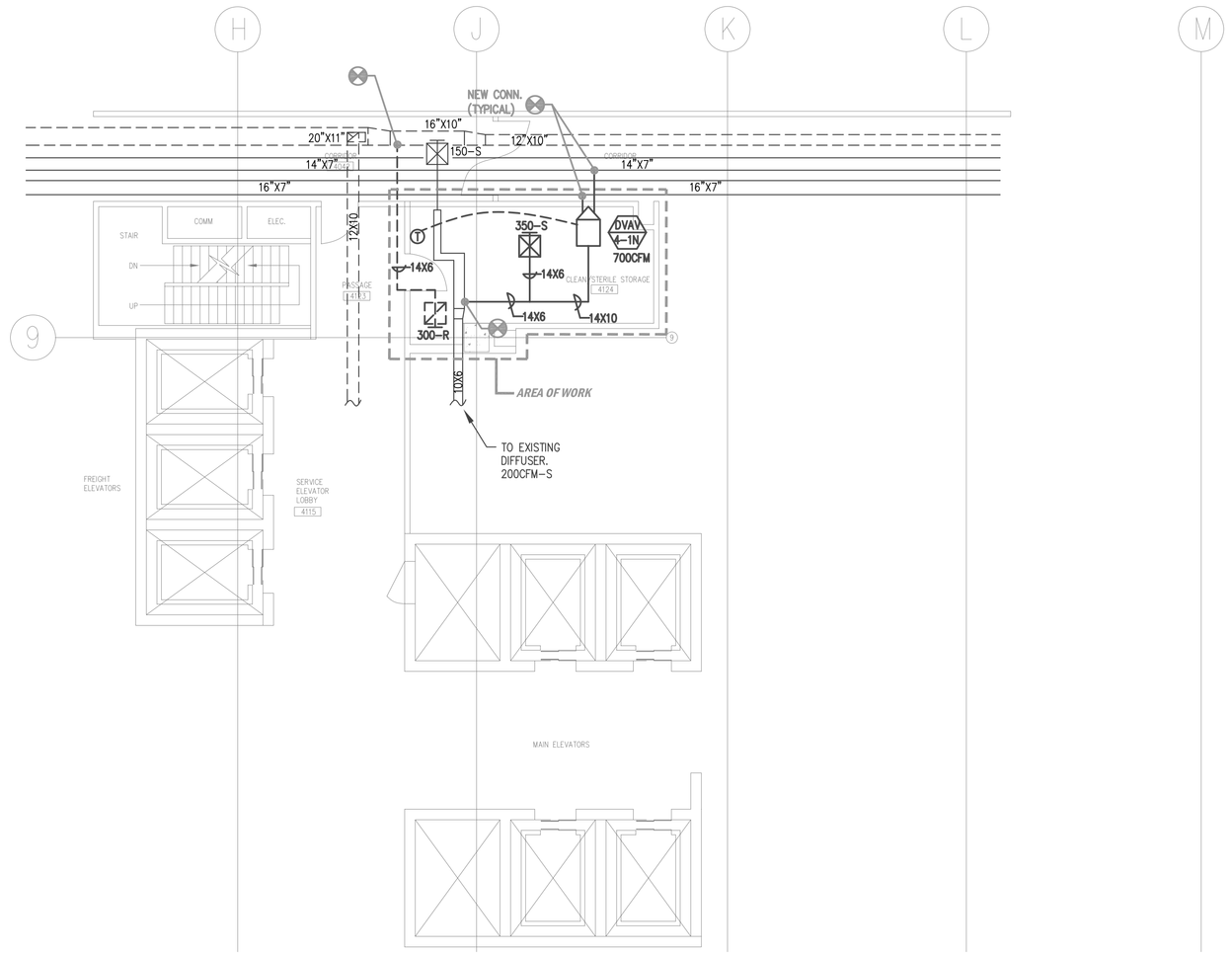

PARTIAL 4TH FLOOR NEW MECHANICAL PLAN

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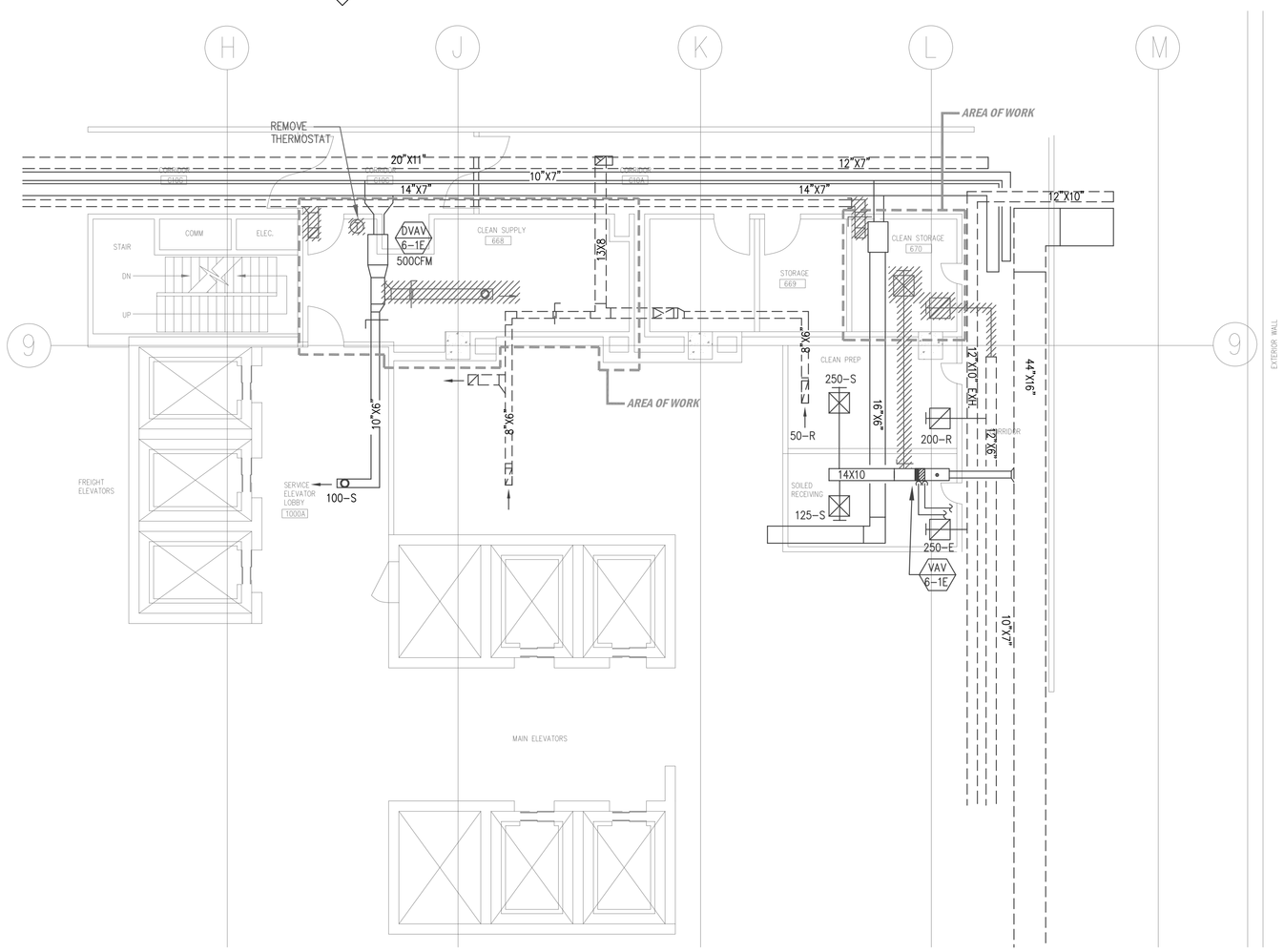

PARTIAL 6TH FLOOR MECHANICAL DEMOLITION PLAN

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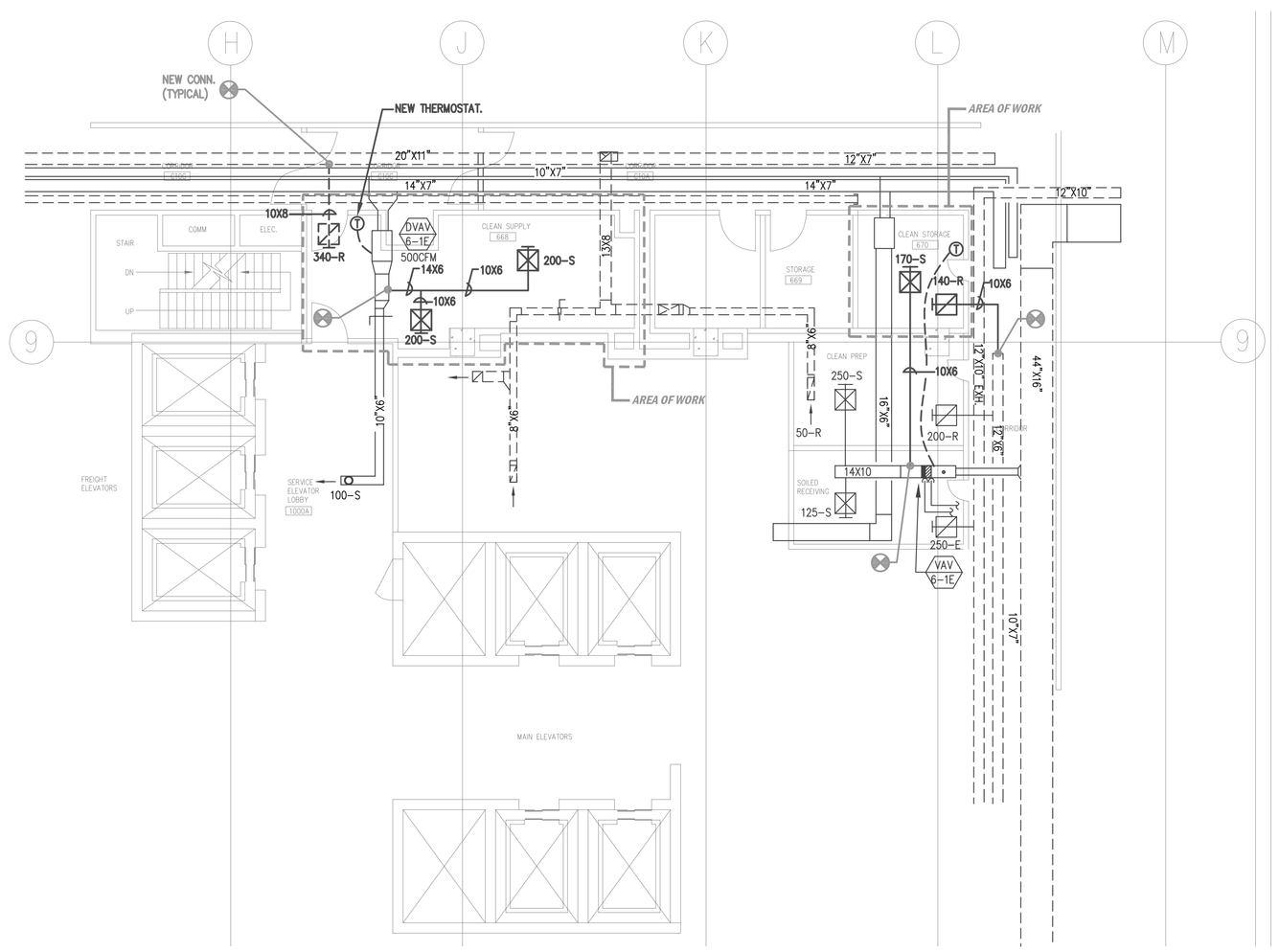

PARTIAL 6TH FLOOR NEW MECHANICAL PLAN

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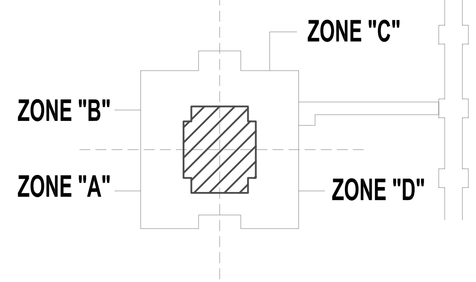

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(312) 346-3102
FAX: (312) 346-3103

Approved: Chief Maintenance & repair

Drawing Title: *PARTIAL 4TH & 6TH FLOOR MECHANICAL DEMOLITION & NEW PLANS*

Approved: Devision Chief

Approved: Service Director

Project Title: HVAC FOR SUPPLY & STORAGE

Building No.

Checked: DM,JM

Drawn: EL

Location: V.A. HOSPITAL, HINES, IL

Date: 06/20/2013

Project No.: 22165

Drawing Number: M-4

Dwg. 4 of 15

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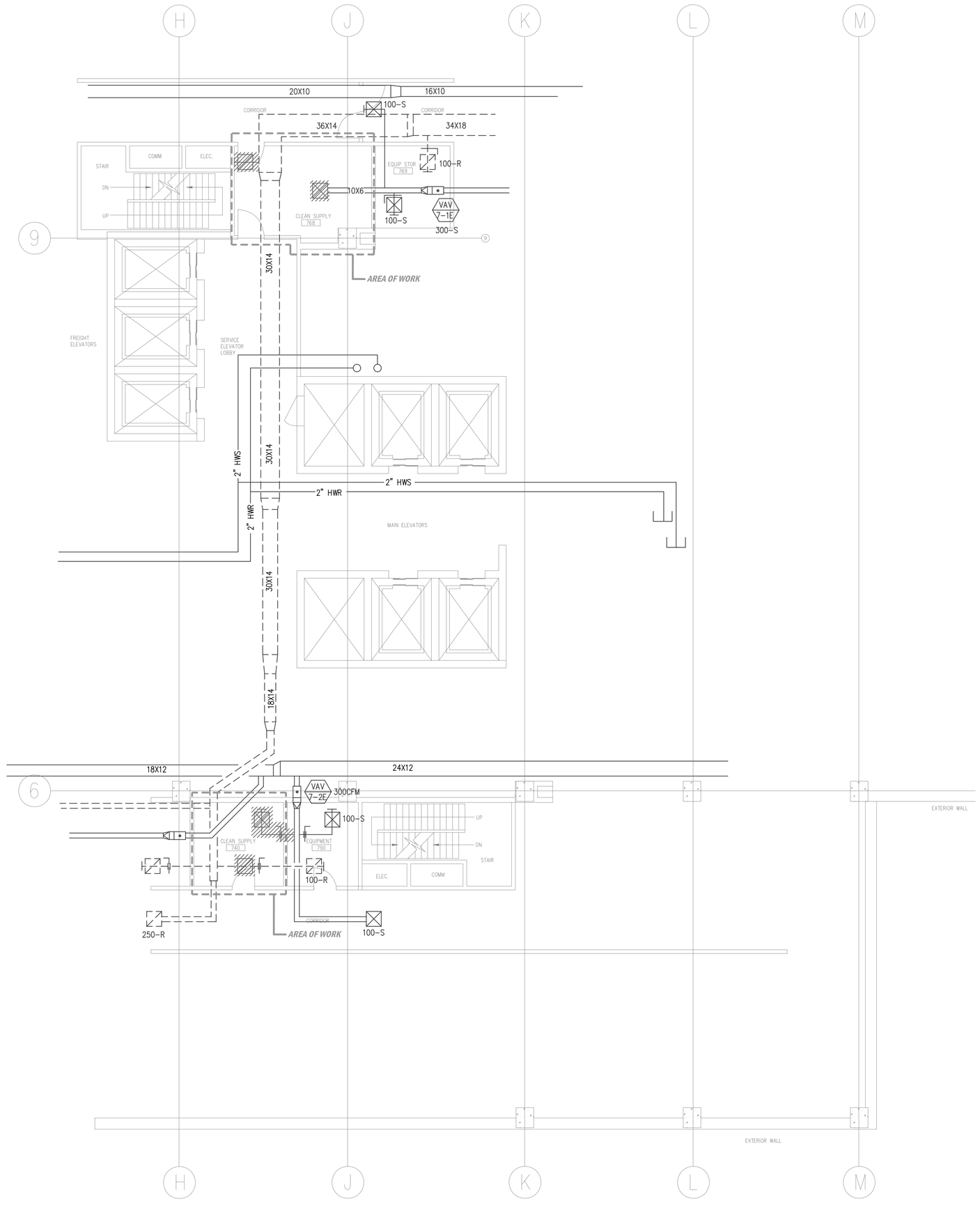
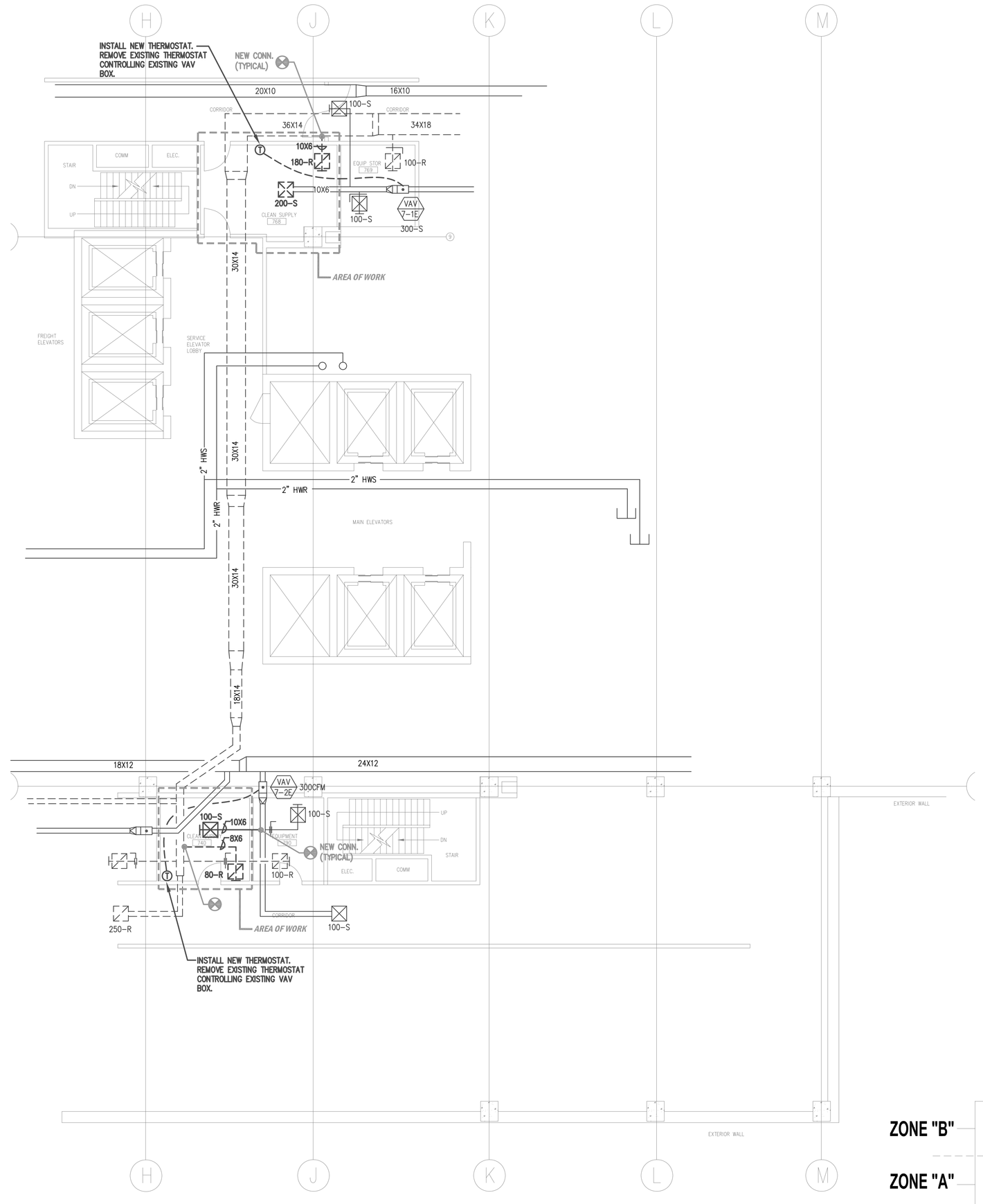
Department of Veterans Affairs

VA FORM 08-6231, FEB. 1983



PARTIAL 7TH FLOOR MECHANICAL DEMOLITION PLAN

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



PARTIAL 7TH FLOOR NEW MECHANICAL PLAN

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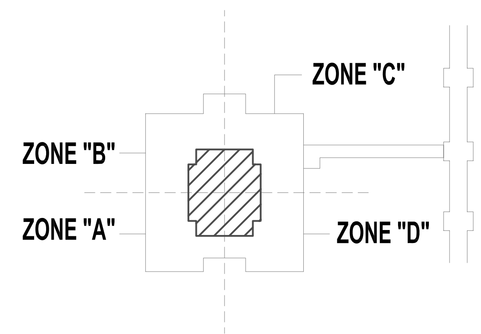

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FAX: (312) 346-3103

Approved: Chief Maintenance & repair

Drawing Title: *PARTIAL 7TH FLOOR MECHANICAL DEMOLITION & NEW PLANS*

Approved: Devision Chief

Approved: Service Director

Project Title: HVAC FOR SUPPLY & STORAGE

Building No.

Checked: DM,JM

Drawn: EL

Location: V.A. HOSPITAL, HINES, IL

Date: 06/20/2013

Project No.: 22165

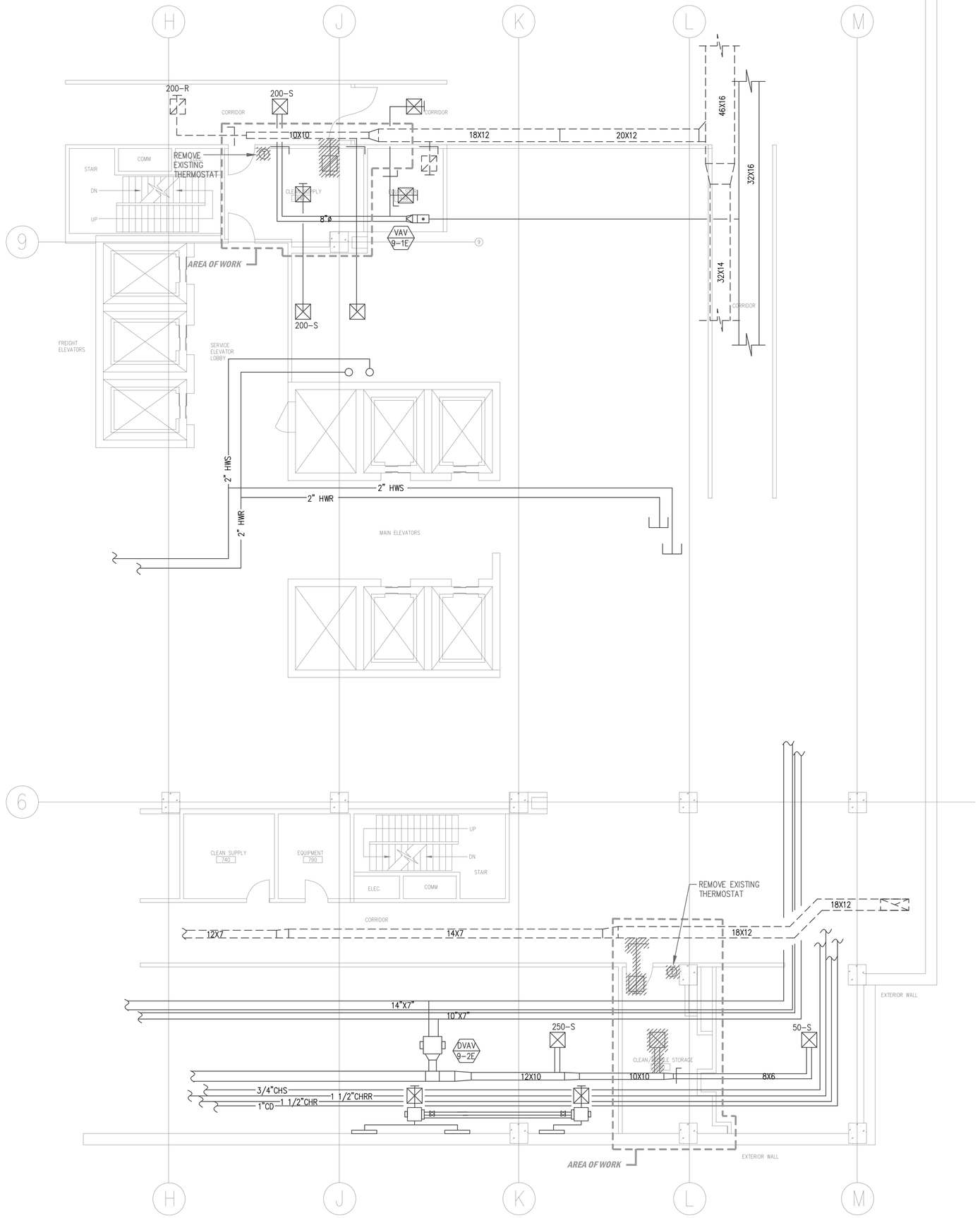
Drawing Number: M-5

Dwg. 5 of 15

Office of Facilities

Department of Veterans Affairs

VA FORM 08-6231, FEB. 1983



PARTIAL 9TH FLOOR MECHANICAL DEMOLITION PLAN

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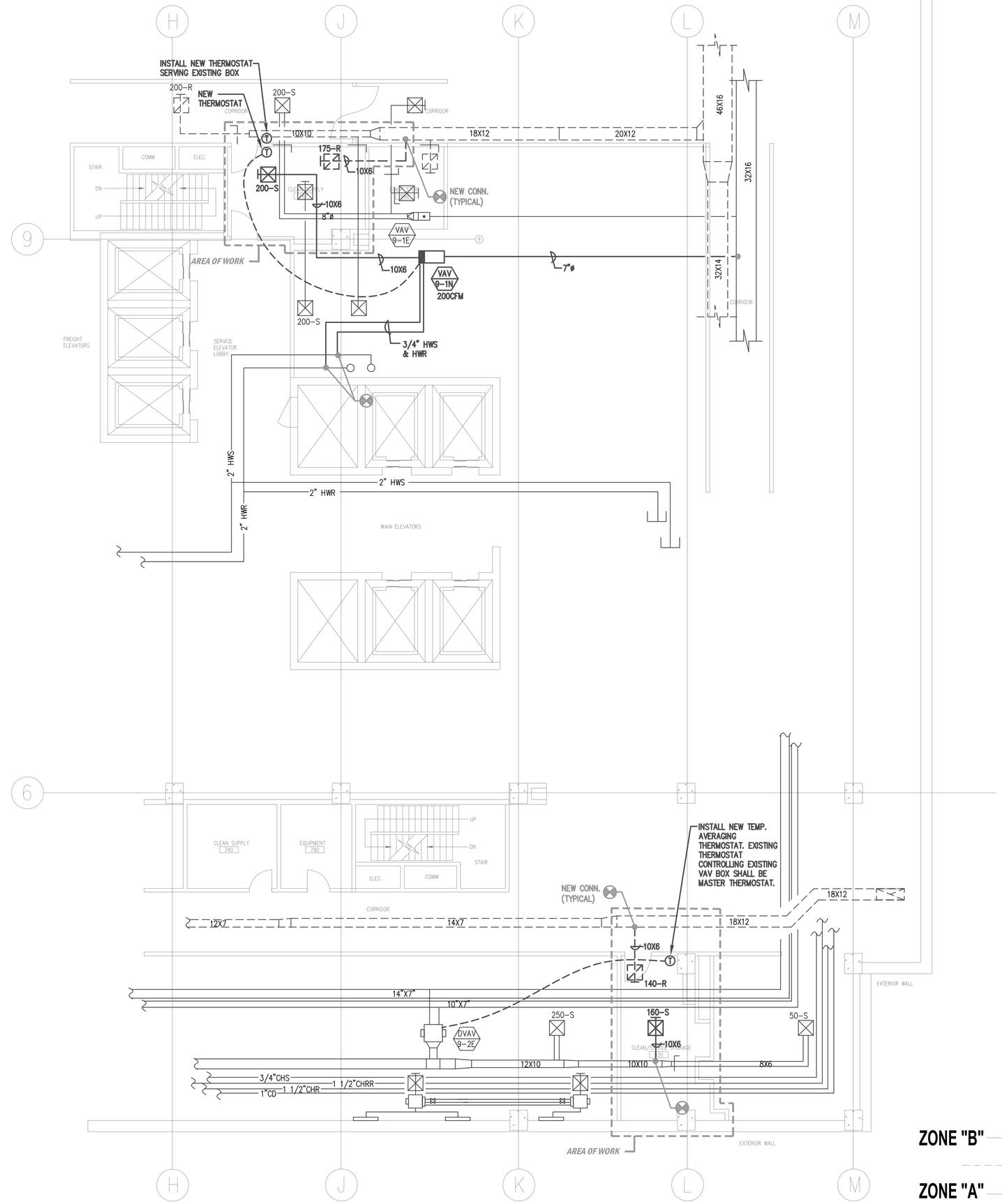

PARTIAL 9TH FLOOR NEW MECHANICAL PLAN

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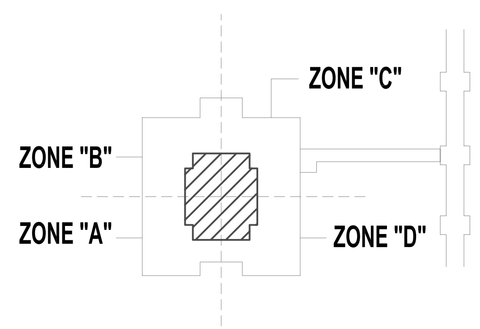

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Approved: Chief Maintenance & repair

Drawing Title: *PARTIAL 9TH FLOOR MECHANICAL DEMOLITION & NEW PLANS*

Approved: Devision Chief

Approved: Service Director

Project Title: HVAC FOR SUPPLY & STORAGE

Building No.

Checked: DM,JM

Drawn: EL

Location: V.A. HOSPITAL, HINES, IL

Date: 06/20/2013

Project No. 22165

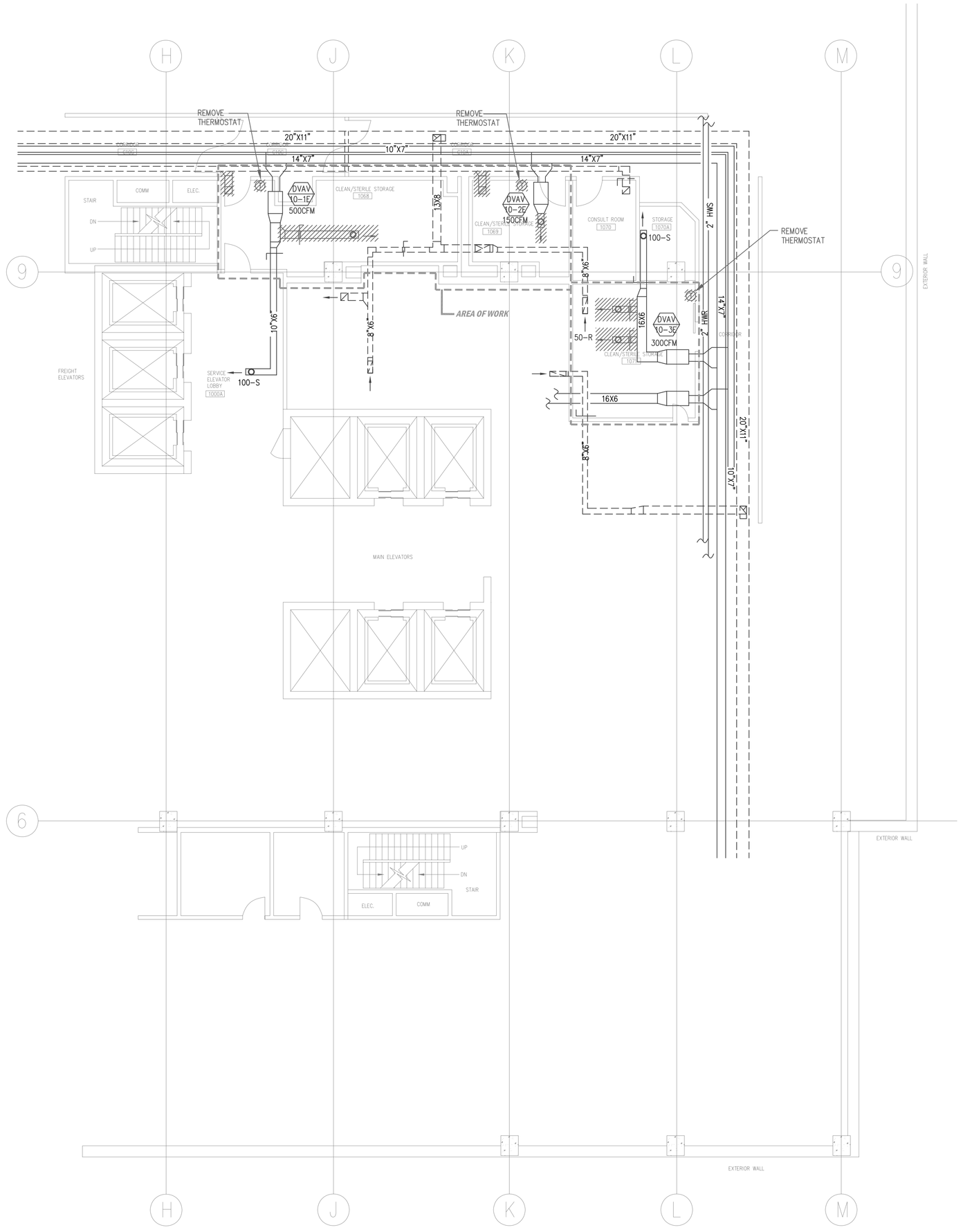
Drawing Number: M-6

Dwg. 6 of 15

Office of Facilities

Department of Veterans Affairs

VA FORM 08-6231, FEB. 1983



PARTIAL 10TH FLOOR MECHANICAL DEMOLITION PLAN

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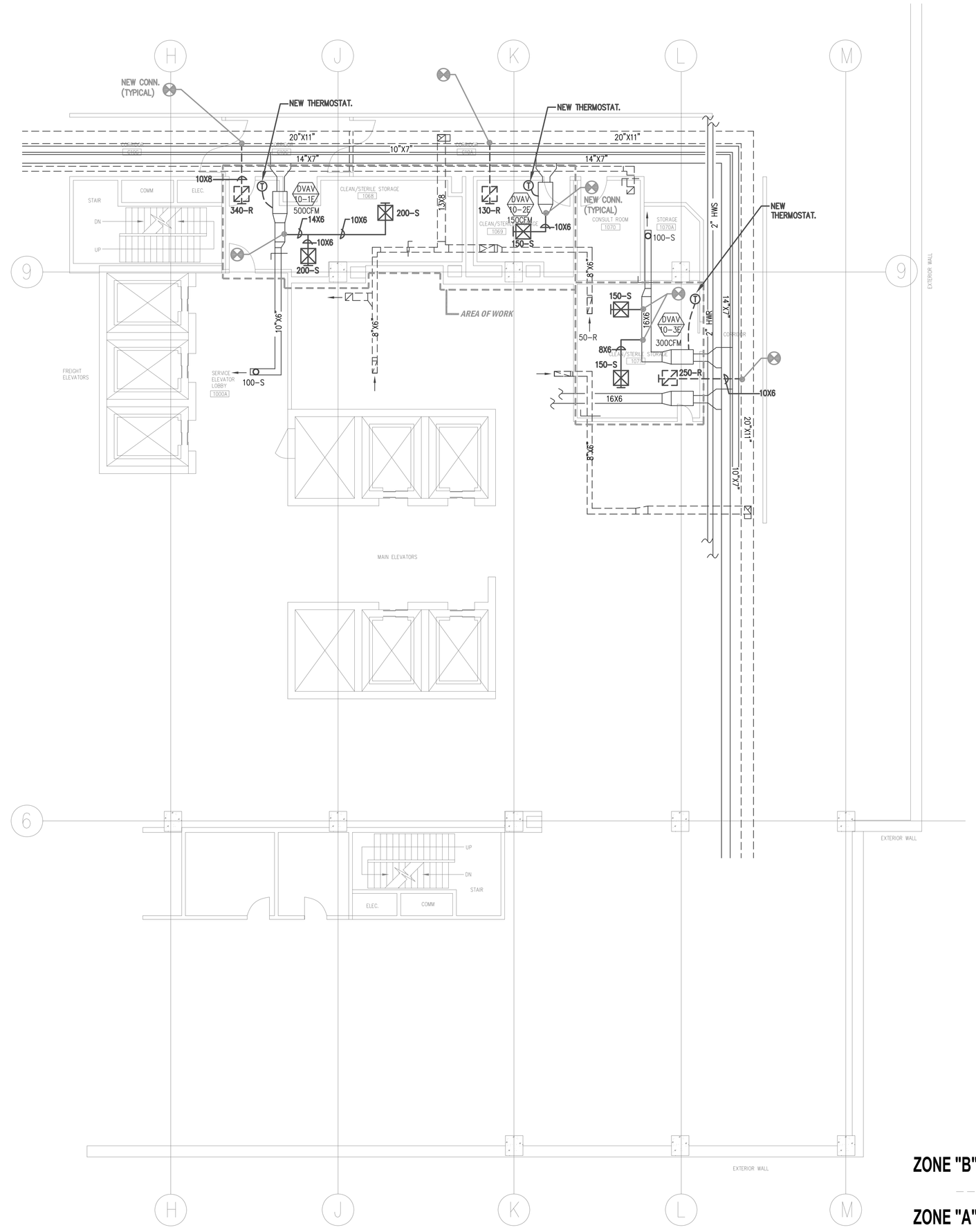
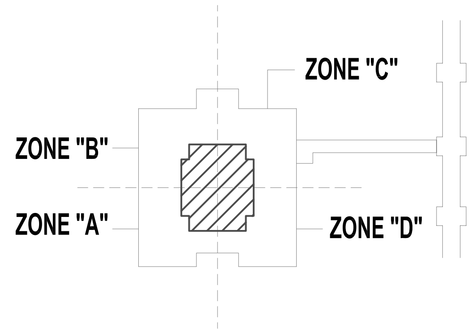


PARTIAL 10TH FLOOR NEW MECHANICAL PLAN

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



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(312) 346-3102
FAX: (312) 346-3103

Approved: Chief Maintenance & repair

Drawing Title: *PARTIAL 10TH FLOOR MECHANICAL DEMOLITION & NEW PLANS*

Approved: Devision Chief

Approved: Service Director

Project Title: HVAC FOR SUPPLY & STORAGE

Building No.

Checked: DM,JM

Drawn: EL

Location: V.A. HOSPITAL, HINES, IL

Date: 06/20/2013

Project No.: 22165

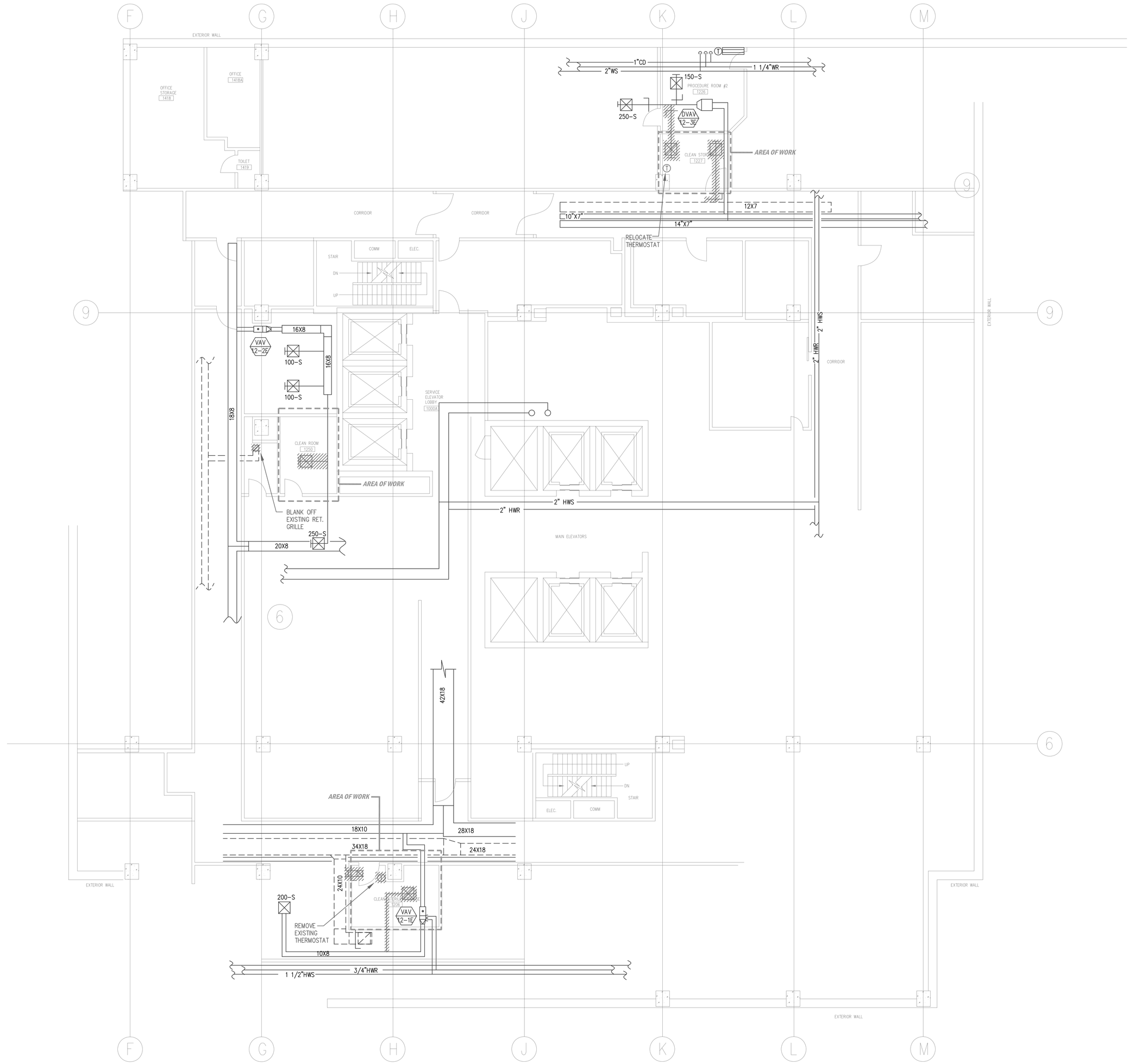
Drawing Number: M-7

Dwg. 7 of 15

Office of Facilities

Department of Veterans Affairs

VA FORM 08-6231, FEB. 1983



PARTIAL 12TH FLOOR MECHANICAL DEMOLITION PLAN

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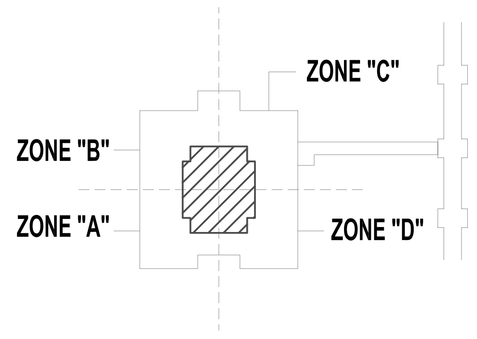

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FAX: (312) 346-3103

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Drawing Title: *PARTIAL 12TH FLOOR MECHANICAL DEMOLITION PLAN*

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Approved: Service Director

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Building No.

Checked: DM,JM

Drawn: EL

Location: V.A. HOSPITAL, HINES, IL

Date: 06/20/2013

Project No.: 22165

Drawing Number: M-8

Dwg. 8 of 15

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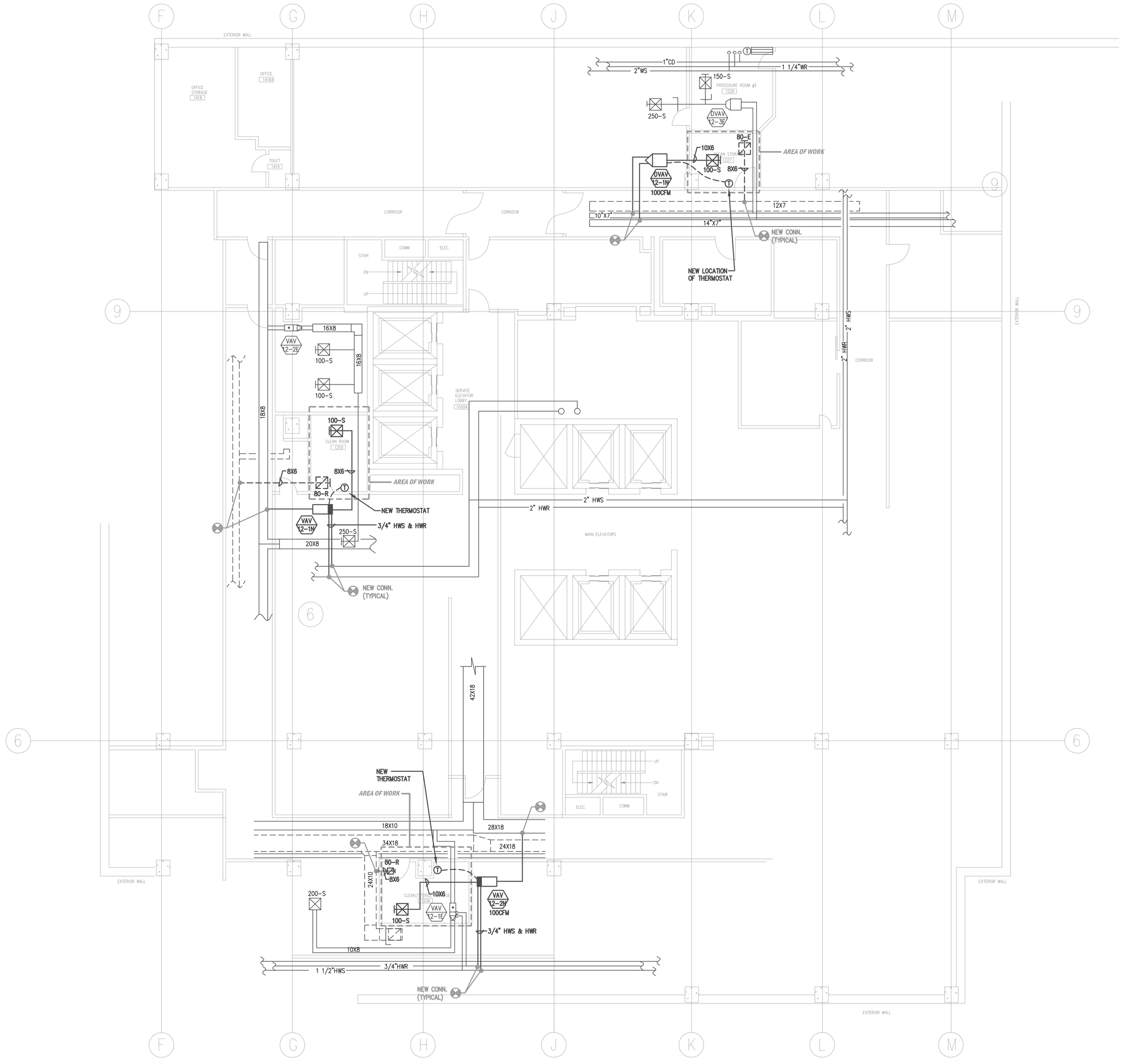
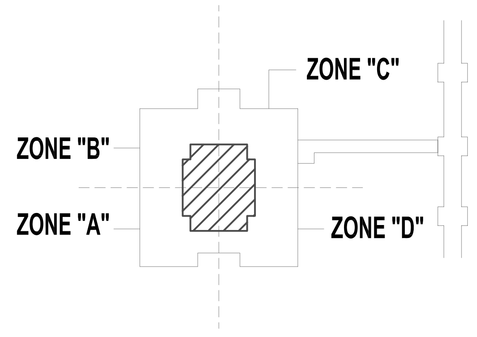


PARTIAL 12TH FLOOR NEW MECHANICAL PLAN

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



BLDG. 200 - KEY PLAN

Revisions:	Date
ISSUED FOR CONSTRUCTION	12/11/2014
100% OWNER'S REVIEW	11/21/2014

CONSULTANTS: MECHANICAL & ELECTRICAL

T&M ASSOCIATES, INC.
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Approved: Chief Maintenance & repair

Drawing Title: PARTIAL 12TH FLOOR MECHANICAL NEW PLAN

Approved: Devision Chief

Approved: Service Director

Project Title: HVAC FOR SUPPLY & STORAGE

Building No.

Checked: DM,JM

Drawn: EL

Location: V.A. HOSPITAL, HINES, IL

Date: 06/20/2013

Project No.: 22165

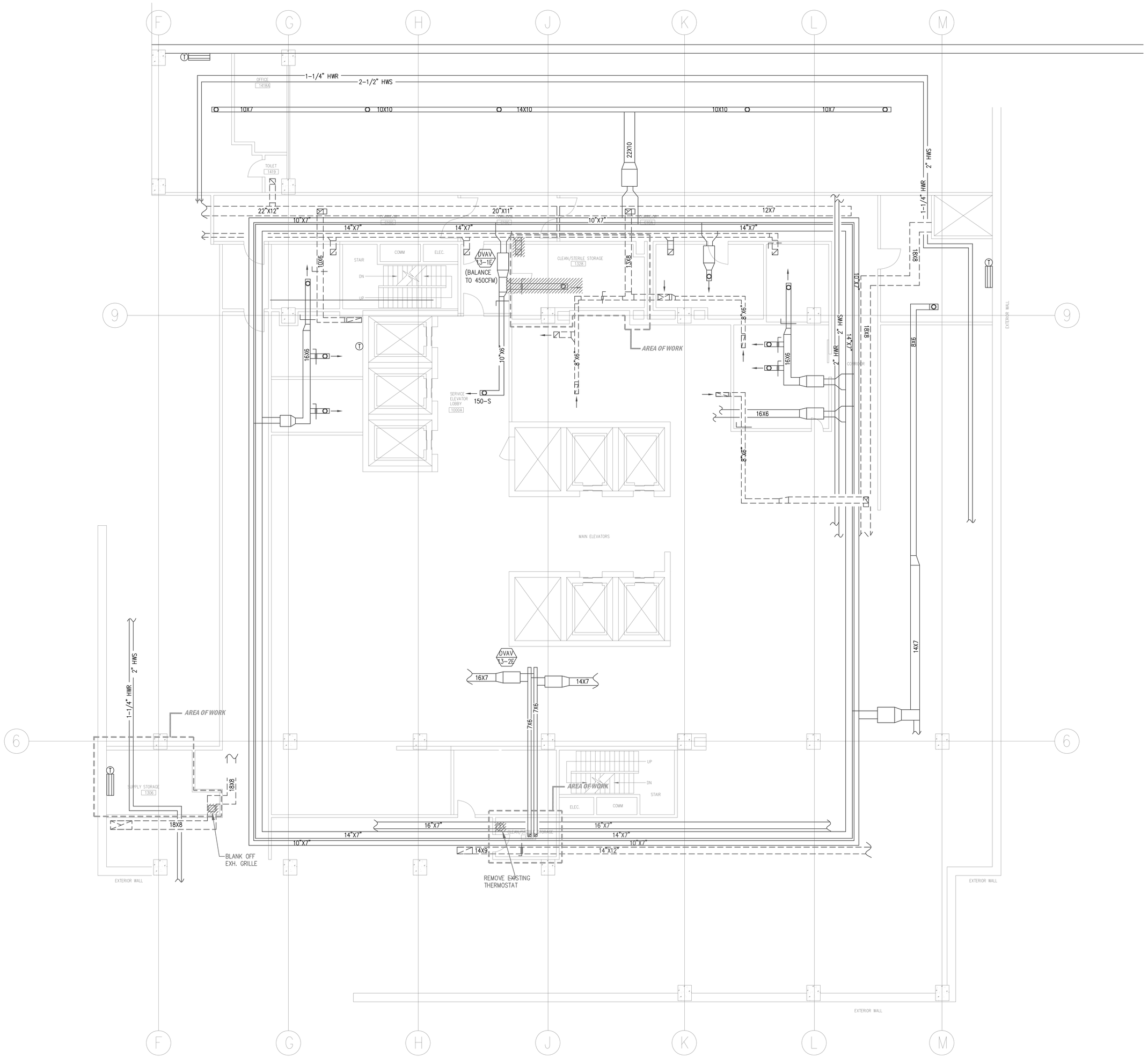
Drawing Number: M-9

Dwg. 9 of 15

Office of Facilities

Department of Veterans Affairs

VA FORM 08-6231, FEB. 1983



PARTIAL 13TH FLOOR MECHANICAL DEMOLITION PLAN

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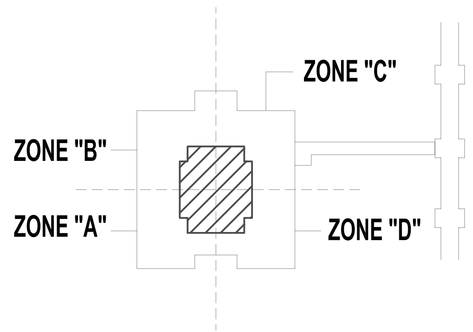

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Approved: Service Director

Approved: Division Chief

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Project Title: HVAC FOR SUPPLY & STORAGE

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Date: 06/20/2013

Project No. 22165

Drawing Number: M-10

Dwg. 10 of 15

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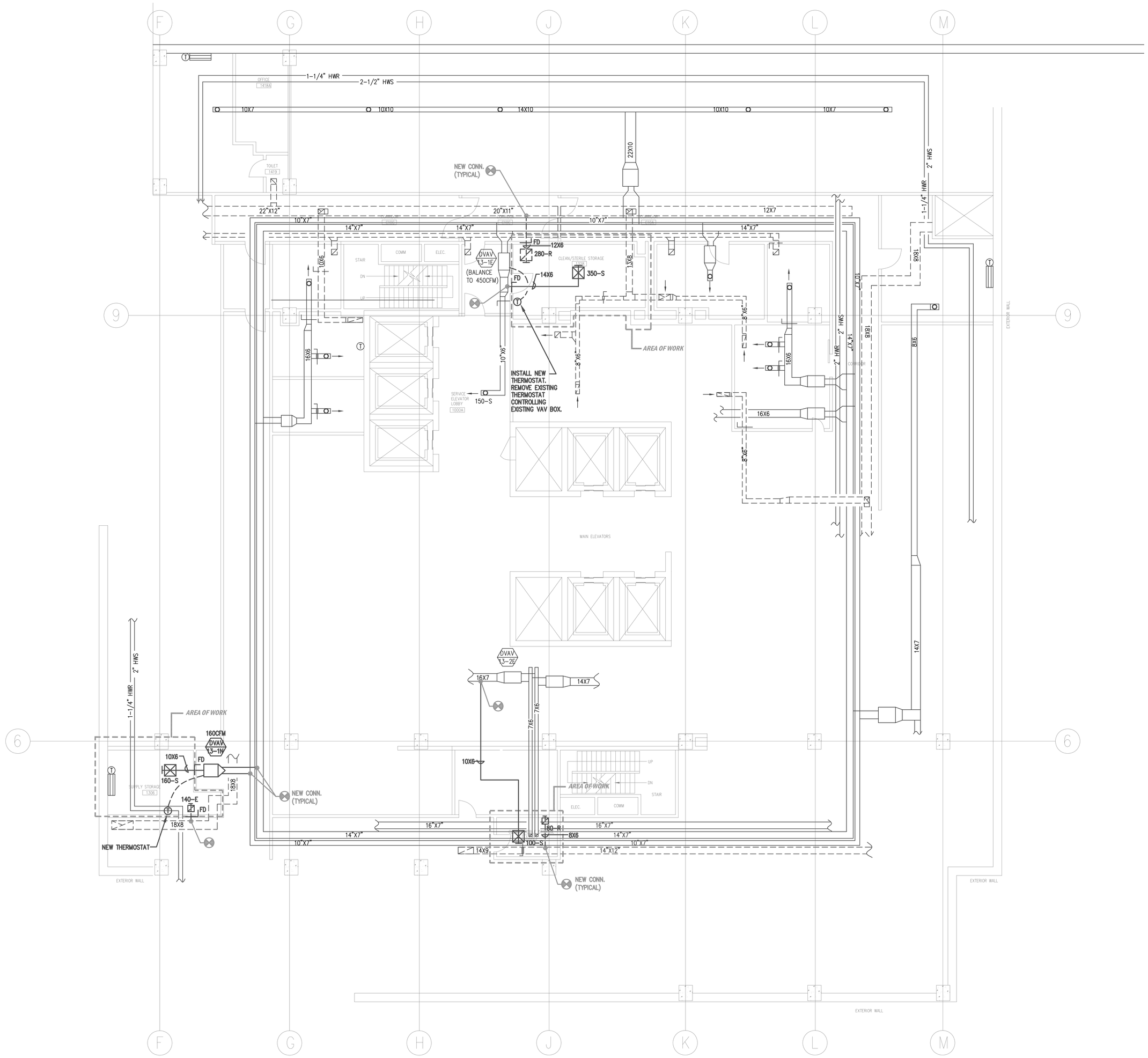

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PARTIAL 13TH FLOOR NEW MECHANICAL PLAN

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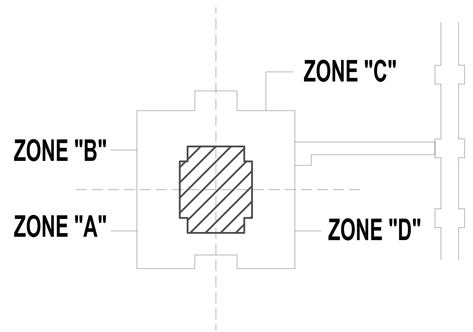

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Building No.

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Location: V.A. HOSPITAL, HINES, IL

Date: 06/20/2013

Project No. 22165

Drawing Number: M-11

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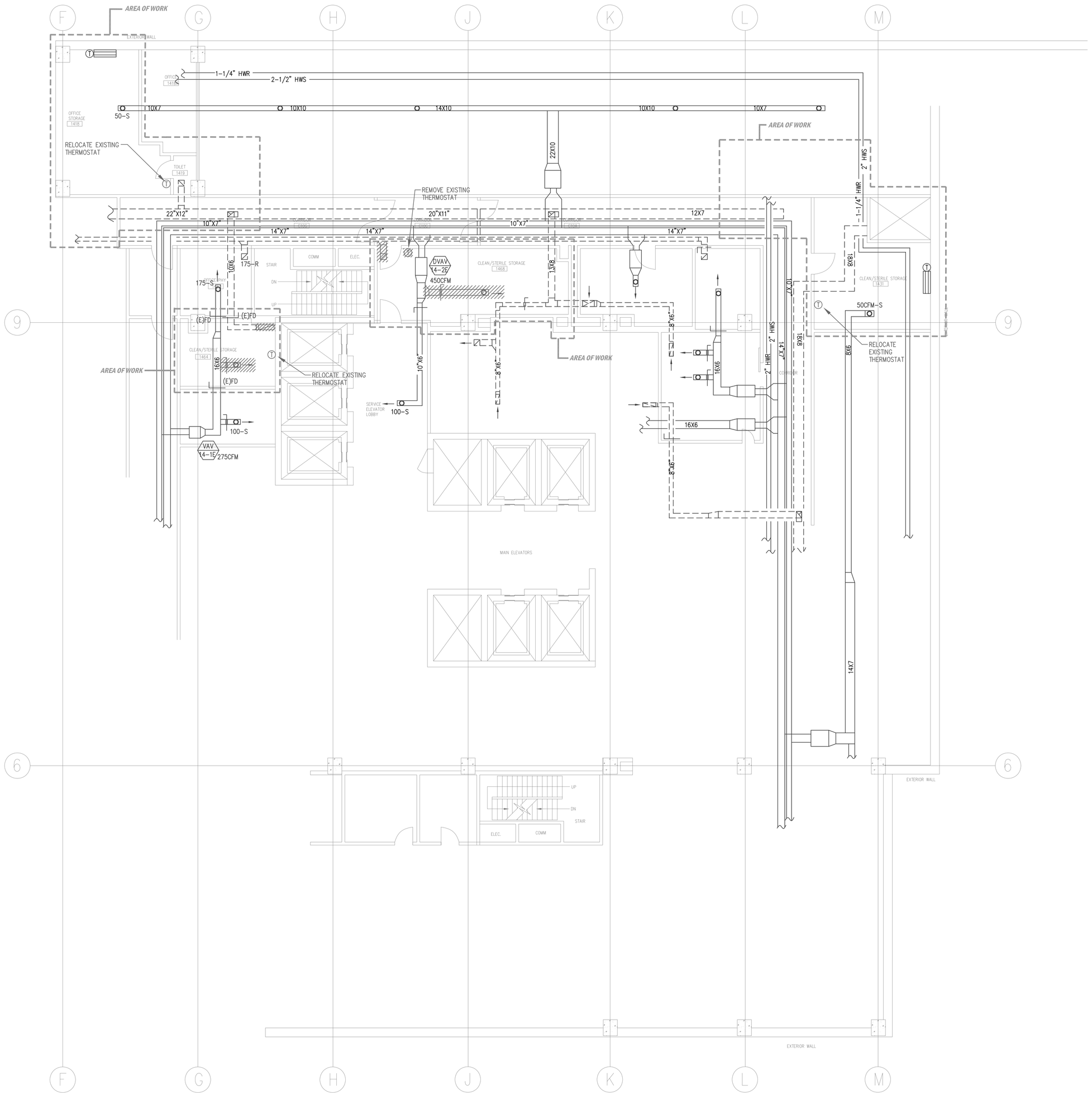

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PARTIAL 14TH FLOOR MECHANICAL DEMOLITION PLAN

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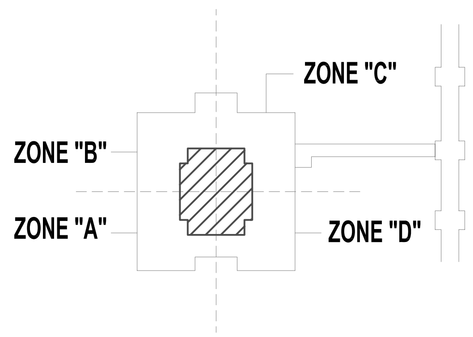

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Approved: Division Chief

Approved: Service Director

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Building No.

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Drawn: EL

Location: V.A. HOSPITAL, HINES, IL

Date: 06/20/2013

Project No. 22165

Drawing Number: M-12

Dwg. 12 of 15

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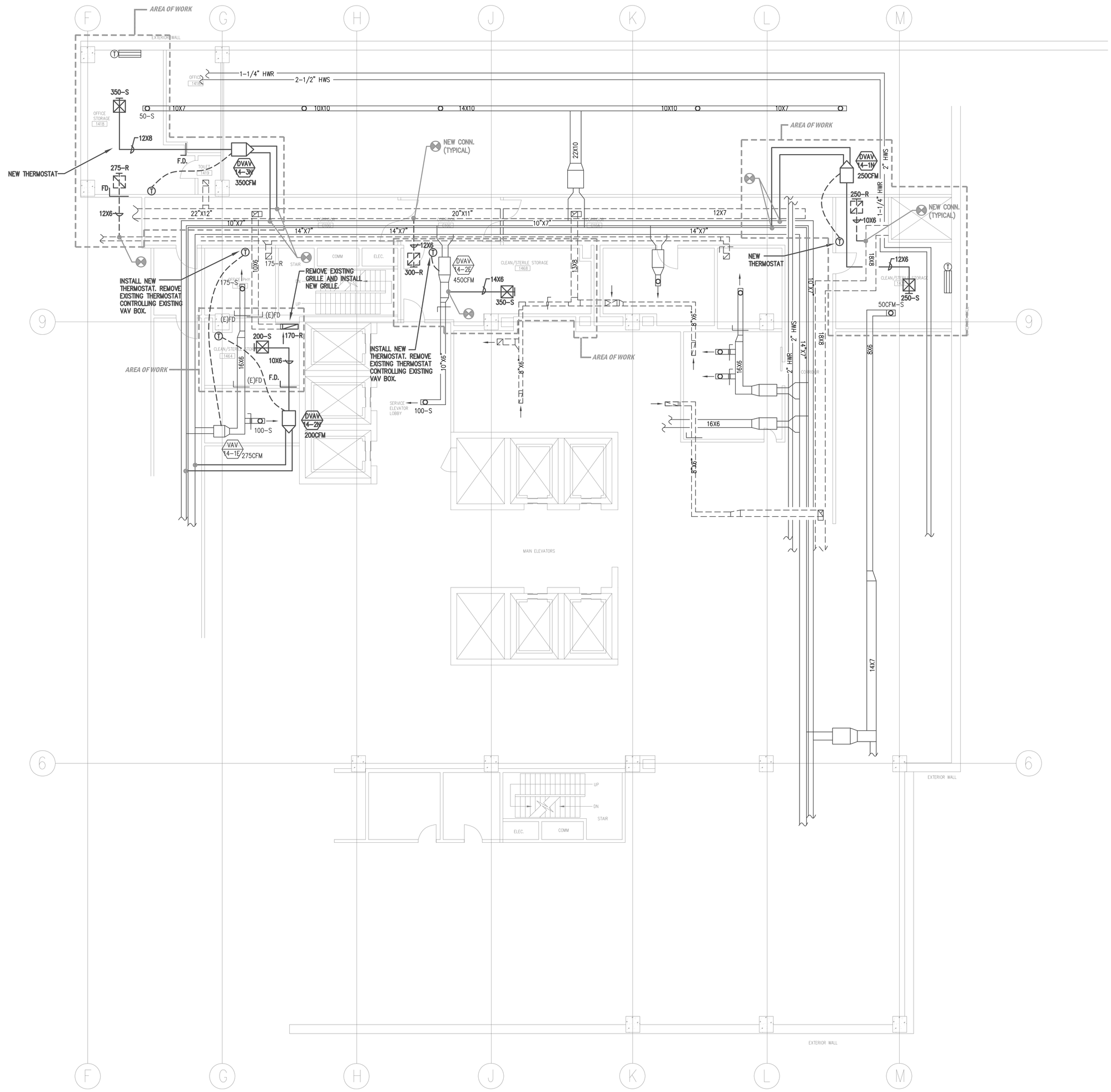

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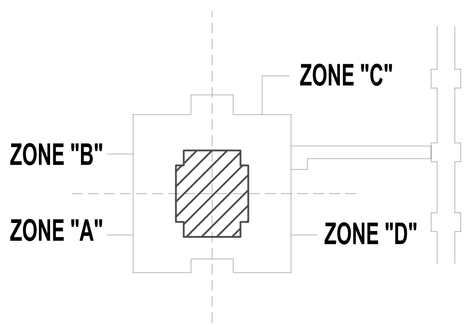

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Location: V.A. HOSPITAL, HINES, IL

Date: 06/20/2013

Project No. 22165

Drawing Number: M-13

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Department of Veterans Affairs

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MECHANICAL SPECIFICATIONS AND BUILDING STANDARDS

SECTION ONE

SCOPE OF WORK

THIS CONTRACTOR SHALL FURNISH, INSTALL AND MAKE OPERATIONAL ALL NEW VAV BOXES, REHEAT COILS, HOT WATER PIPING, CONTROLS, DIFFUSERS, GRILLES, DUCTWORK, ETC. AS SHOWN ON DRAWINGS AND AS DESCRIBED IN SPECIFICATIONS. MODIFY EXISTING VAV BOXES AS REQUIRED. ALSO REFER TO CONSTRUCTION DOCUMENTS PROJECT SPECIFICATION MANUAL.

CONTRACTOR IS RESPONSIBLE TO COMPLY WITH REQUIREMENTS OF DRAWINGS AND SPECIFICATIONS. SOME INFORMATION MAY NOT BE COVERED ON BOTH DOCUMENTS.

BIDDING

FURNISH A BASE PRICE FOR ALL WORK SHOWN ON THE PLANS AND DESCRIBED IN THE SPECIFICATIONS.

AIR AND WATER BALANCING

THIS CONTRACTOR SHALL INCLUDE TESTING AND AIR BALANCING IN HIS BID BY AN INDEPENDENT, AABC CERTIFIED AIR TESTING AND BALANCING CONTRACTOR AS SPECIFIED.

THE AIR BALANCER SHALL ADJUST THE AIR SUPPLY TO AND RETURNED AND EXHAUSTED FROM ALL THE OUTLETS SHOWN ON THE PLANS TO WITHIN 5% OF THE ASSIGNED AIR QUANTITY.

THE BALANCER SHALL UTILIZE THE DUCT DAMPERS AND BRANCH SPLITTERS TO SET INITIAL VOLUMES. DIFFUSER AND GRILLE DAMPERS SHALL BE USED FOR FINE TUNE ADJUSTMENTS.

THIS CONTRACTOR SHALL PROVIDE VENTILATION TEST REPORTS WITH MARKED-UP PRINTS TO VA AND TO THE ENGINEERS, T & M ASSOCIATES. NUMBER OF REPORTS SHALL BE AS INDICATED IN SPECIFICATIONS.

VISIT TO SITE

THE MECHANICAL CONTRACTOR SHALL VISIT THE SITE, PRIOR TO SUBMITTING THE BID, TO VERIFY ALL EXISTING CONDITIONS AND ASSURE THAT ALL REQUIRED WORK IS INCLUDED IN THE BID PRICE.

THERE ARE SOME DUCTS AND PIPES TO BE REMOVED FROM THE SCOPE OF WORK. HOWEVER, SOME EXISTING PIPES IN THIS AREA ARE TO BE LEFT IN PLACE AS THESE PIPES SERVE AREAS OTHER THAN THE AREA IN CONTRACT. SOME OF THESE EXISTING PIPES TO REMAIN WILL BE REQUIRED TO BE RAISED OR RELOCATED. CONTRACTOR SHALL INCLUDE ADEQUATE COST OF RELOCATING THESE PIPES.

NO EXTRA CHARGES SHALL BE ACCEPTED BY THE VA HOSPITAL FOR WORK THAT HAS TO BE PERFORMED DUE TO THE CONTRACTOR'S FAILURE TO ADEQUATELY VERIFY EXISTING CONDITIONS.

HVAC DRAWINGS

THESE DRAWINGS ARE TO SHOW THE SCOPE OF THE REQUIRED WORK. THEY ARE NOT COORDINATED SHOP DRAWINGS NOR ARE THEY DIMENSIONALLY PERFECT. BIDDING CONTRACTORS SHALL MAKE WHATEVER ALLOWANCES ARE NECESSARY IN ORDER TO FIT, COORDINATE, AND COMPLETE THIS WORK FOR THE QUOTED SUM. PRIOR TO BIDDING CONTRACTOR SHALL VISUALLY INSPECT EXISTING CONDITIONS ABOVE CEILING. NEW DUCTWORK HAS TO FIT WITHIN ALLOCATED SPACE ABOVE CEILING.

COORDINATION OF TRADES

THE MECHANICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER TRADES TO AVOID INTERFERENCE WITH THE WORK OF OTHER TRADES. HVAC WORK THAT INTERFERES WITH THAT OF OTHER TRADES DUE TO LACK OF COORDINATION SHALL BE CHANGED AT NO ADDITIONAL COST TO THE OWNER.

CEILING ACCESS

THE CONTRACTOR SHALL PROVIDE CEILING ACCESS TO EACH VAV BOX, BOOSTER COIL VALVES, AND OTHER VALVES, DAMPERS, ABOVE CEILING. ACCESS SHALL BE OF ADEQUATE SIZE TO ALLOW NORMAL MAINTENANCE. DO NOT INSTALL THESE ITEMS DIRECTLY ABOVE LIGHTS. CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE CEILING TILES AND CEILING GRID WHERE REQUIRED TO INSTALL NEW DUCTWORK, VAV BOXES, REHEAT COILS, ETC, REINSTALL CEILING TILES AND GRID AT SAME LOCATION. WHERE CEILINGS ARE REMOVED WHERE DRYWALL CEILING ARE CUT TO ACCESS NEW WORK, REFINISH CEILINGS AFTER MECHANICAL WORK IS INSTALLED. PROVIDE ACCESS PANELS IN THE CEILING TO ACCESS ALL CONTROLS AND REHEAT COILS.

CONTRACT LIMITS

THE CONTRACT AREA SHALL BE WITHIN THE CONTRACT LIMIT LINES SHOWN ON THE DRAWINGS. DRAWINGS NOT HAVING CONTRACT LIMIT LINES, SHALL BE ENTIRELY WITHIN CONTRACT LIMITS.

CUTTING

EACH TRADE SHALL DO THE REQUIRED CUTTING NECESSARY FOR THE PASSAGE OF HIS OWN WORK. THE GENERAL CONTRACTOR SHALL PATCH THE CONSTRUCTION, AS LONG AS THE CUTTING IS DONE IN A TIMELY AND PROPER MANNER.

PROTECTION OF EXISTING CONDITIONS

THE CONTRACTOR SHALL PROTECT ALL EXISTING BUILDING SURFACES, EQUIPMENT AND FIXTURES FROM DAMAGE FROM THE CONSTRUCTION WORK FOR THIS PROJECT. ANY DAMAGE CAUSED BY THIS CONTRACTOR SHALL BE REPAIRED AT HIS OWN EXPENSE.

CODES

ALL WORK PERFORMED AND MATERIALS INSTALLED ON THIS PROJECT SHALL BE IN ACCORDANCE WITH V.A. STANDARDS, LOCAL CODES AND ALL OTHER APPLICABLE CODES AND STANDARDS.

CLEANING

ALL AREAS SHALL BE BROOM CLEANED UPON COMPLETION AND ALL EXCESS MATERIALS AND WASTE SHALL BE REMOVED FROM THE JOB SITE DAILY.

INTERFERENCE'S

IF THE FOREMAN FEELS THAT THE INSTALLATION CAN BE IMPROVED, EXPEDITED OR CAN NOT BE LAID OUT AS SHOWN ON THE PLANS CONTRACTOR SHALL SUBMIT ALTERANTE LAYOUT TO PROJECT MANAGER.

IDENTIFICATION

PIPING:– IDENTIFY ALL HOT WATER HEATING PIPING SHOW ARROW IN THE DIRECTION FLOW OF WATER.

DUCTWORK:– IDENTIFY SUPPLY, RETURN AND EXHAUST DUCTWORK WITH ARROW DIRECTION OF AIR FLOW AND UNIT NUMBER DUCTWORK IS CONNECTED TO.

VALVES & EQUIPMENT:– IDENTIFY ALL VALVES & EQUIPMENT PER VA STANDARDS.

SUBMITTALS

THIS CONTRACTOR SHALL COORDINATE WITH G.C. AND OTHER SUBCONTRACTORS, SUBMIT MANUFACTURES DATA SHEETS ON ALL EQUIPMENT, VALVES, MOTORIZED DAMPERS, ACTUATORS, VAV BOXES, BOOSTER COIL, DIFFUSERS 1/4" SCALE SHEET METAL LAYOUTS AND OTHER COMPONENTS SHOWN ON THESE PLANS AND DESCRIBED IN THE SPECIFICATIONS TO THE AND COTR SHEET METAL SHOP DRAWINGS SHALL INDICATE DUCT SIZES, ELEVATIONS, ETC. ALL SHOP DRAWINGS SHALL BE APPROVED BY ENGINEER' PRIOR TO INSTALLATION BY THE CONTRACTOR. AFTER COMPLETION OF WORK SUBMIT AS-BUILTS ON AUTOCAD R14.

EXISTING REHEAT COILS

ALL EXISTING REHEAT COILS TO REMAIN SHALL BE CLEANED FROM INSIDE AND OUTSIDE. VERIFY TEMPERATURE CONTROLS FOR EACH REHEAT COIL.

WARRANTY

THIS CONTRACTOR SHALL WARRANTY ALL MATERIALS, PURCHASED EQUIPMENT INSTALLED AND LABOR PERFORMED UNDER THIS CONTRACT TO BE FREE OF DEFECTS FOR A PERIOD OF ONE FULL YEAR FROM THE DATE OF SIGN OFF FOR FINAL PAYMENT. THIS INCLUDES ENFORCEMENT OF THE MANUFACTURES WARRANTIES ON ALL NEW EQUIPMENT.

COPIES OF ALL WARRANTIES SHALL BE GIVEN TO COTR..

SERVICE ACCESS

NEW EQUIPMENT SHALL BE INSTALLED SUCH THAT IT DOES NOT INTERFERE WITH ACCESS TO ANY EXISTING EQUIPMENT OR COMPONENTS.

SECTION TWO

CEILING GRID

COORDINATE DUCT RUNS AND DIFFUSER LOCATIONS WITH CEILING LAYOUT, VERIFY TILE AND LIGHTING LOCATIONS, AND CENTER DIFFUSERS AND GRILLES ON TILE GRID OR IN LAY-IN-TILE.

MANUAL DAMPERS

THIS CONTRACTOR SHALL FURNISH AND INSTALL A MANUAL VOLUME DAMPER, OR A SPLITTER DAMPER IN EACH NEW LOW PRESSURE DUCT TAKE-OFF, AND AT EACH NEW RETURN/EXHAUST OPENING. FURNISH & INSTALL A SPIN COLLAR DAMPER (SCD) OR OVAL COLLAR DAMPER (OCD) AS REQUIRED.

SEAL ALL SPIN COLLAR AND OVAL COLLAR CONNECTIONS WITH UNITED DUCT SEALER.

DUCTWORK FABRICATION–GENERAL

ALL DUCTWORK SHALL BE FURNISHED AND INSTALLED IN A WORKMAN–LIKE MANNER, CONSISTENT WITH SMACNA STANDARDS. ALL DUCTWORK SHALL BE METAL. ALL DUCTWORK SHALL BE FABRICATED FROM PRIME QUALITY GALVANZED SHEET STEEL. WATER STAINED MATERIAL IS UNACCEPTABLE. TURNING VANES SHALL BE OMITTED.

LOW PRESSURE DUCT SIZES SHALL BE BASED ON MAXIMUM 1500FPM AND SP DROP 0.08"/100FT

MEDIUM PRESSURE DUCTWORK

ALL SUPLLY DUCTWORK FROM SUPPLY MAINS OF VAV SYSTEMS FROM SUPPLY FAN DISCHARGE TO EACH VAV BOX SHALL BE MEDIUM PRESSURE DUCTWORK. SMACNA STANDARD 5" SP(WG). DUCTWORK FROM DISCHARGE OF VAV BOXES TO SUPPLY AIR DIFFUSERS, GRILLES SHALL BE LOW PRESSURE DUCTS.

MEDIUM PRESSURE DUCT SIZES SHALL BE BASED ON MAXIMUM 2000FPM.

LOW PRESSURE RECTANGULAR DUCTWORK

ALL DUCTWORK SHALL BE FURNISHED AND INSTALLED IN A WORKMAN–LIKE MANNER, CONSISTENT WITH SMACNA STANDARDS FOR 3" SP (WG).

DUCTWORK SHALL BE FABRICATED USING THE FOLLOWING MINIMUM GAUGES FOR THE WIDTHS LISTED. 26 GA FOR DUCTS UP TO 12" WIDE, 24 GA FOR DUCTS 13" TO 29" WIDE, AND 22 GA FOR DUCTS 30" TO 54" WIDE. ALL DUCTWORK SHALL BE FABRICATED FROM PRIME QUALITY GALVANIZED SHEET STEEL. WATER STAINED MATERIAL IS UNACCEPTABLE, TURNING VANS SHALL BE OMITTED.

LOW PRESSURE ROUND DUCTWORK

ROUND RIGID SHEET METAL DUCTWORK SHALL BE USED FOR ALL RUN OUTS TO DIFFUSERS MORE THAN FIVE LINEAL FEET (5'–0") FROM THE RECTANGULAR DUCT, I.E. 5'–0" MAXIMUM FLEX LENGTH. ALL ROUND ELBOWS & OFFSETS SHALL BE STAMPED TWO PIECE SHEET METAL PER SMACNA STANDARDS. NO SEGMENTED OR GORE ELBOWS WILL BE ACCEPTED. INSULATE PER SPECIFICATION.

LOW–PRESSURE FLEXIBLE DUCTWORK

FLEXIBLE DUCTWORK SHALL BE WIREMOLD TYPE WK, GENFLEX OR EQUIVALENT, THERMAFLEX M–KE (PRE–INSULATED) OR APPROVED EQUAL. ALL FLEX DUCT ON SUPPLY SHALL BE EXTERNALLY INSULATED WITH 1" FOIL BACKED FIBERGLASS. SEAL ALL JOINTS WITH FSK TAPE. RUN & SUPPORT FLEX DUCTWORK SUCH THAT IT MAINTAINS ITS FULL DIAMETER THROUGHOUT. SHARP BENDS, KINKS & CONDITIONS THAT RESTRICT AIR FLOW IN ANY WAY WILL NOT BE ACCEPTED. 5'–0" MAXIMUM FLEX LENGTH. SEE THE FLEXIBLE DUCTWORK SUPPORT DETAIL FOR MORE INFORMATION.

FLEXIBLE DUCTWORK TO BE USED FOR THE FINAL CONNECTION BETWEEN SPIN/OVAL COLLAR DAMPER OR ROUND RIGID DUCT AND THE DIFFUSER ONLY. FLEXIBLE DUCT IS NOT TO BE USED IN PLACE OF ELBOWS OR BETWEEN TWO (2) PIECES OF ROUND RIGID DUCT.

ACOUSTIC LINING

ACOUSTINC LINING IN THE DUCT IS NOT PERMITTED IN THIS PROJECT

INSULATION:–

PIPING:– UNLESS NOTED SPECIFICATION OTHERWISE INSULATE ALL HOT WATER HIEATING PIPING WITH MIN. 1" THICK FIBERGLASS INSULATION.

DUCTWORK:– INSULATE ALL SUPPLY AIR DUCT WITH 1–1/2" THICK FIBERGLASS.

HANGERS

DUCTWORK SHALL BE SUPPORTED WITH STANDARD GALVANIZED BAND IRON HANGERS. ALL HANGERS SHALL BE SECURE AND PROPER.

FLEXIBLE DUCTWORK SHALL BE SUPPORTED AS SHOWN IN THE FLEXIBLE DUCTWORK SUPPORT DETAIL. SHARP BEND, KINKS & CONDITIONS THAT RESTRICT AIR FLOW IN ANY WAY WILL NOT BE ACCEPTED.

OFFSETS

ALL REQUIRED OFFSETS ARE NOT SPECIFICALLY SHOWN ON THESE DRAWINGS. THIS CONTRACTOR SHALL VISIT THE JOB SITE AND BE SATISFIED THAT HE HAS INCLUDED ALL NECESSARY OFFSETS IN HIS BID.

ALL RISES AND DROPS IN RECTANGULAR DUCTWORK SHALL HAVE RADIUS FITTINGS.

SECTION THREE

CONTROLS

ALL TEMPERATURE CONTROLS SHALL BE NON–PROPRIETARY. CONTROLS SHOULD NOT BE LOCKED. VA ENGINEERS SHOULD HAVE ACCESS TO ALL CONTROLS AND ABLE TO MAKE NECESSARY CHANGES TO PROGRAM AND NECESSARY ADJUSTMENTS TO CONTROLS AS HE FEELS NECESSARY.

EXISTING CONTROLS ARE PNEUMATIC. ALL CONTROLS FOR NEW & EXISTING VAV SINGLE DUCT BOXES, VAV DUAL DUCT BOXES, REHEAT COILS, ETC SHALL BE ELECTRONIC/DIGITAL. CHANGE CONTROLS FOR EXISTING VAV BOXES (SINGLE DUCT & DUAL DUCT), REHEAT COILS, ETC TO DIGITAL CONTROLS. TIE CONTROLS TO EXISTING BUILDING AUTOMATION SYSTEM AS LISTED.

CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL PNEUMATIC CONTROLS INCLUDING PNEUMATIC TUBING UP TO EXISTING MAINS.

CONTROLS MANUFACTURER SHALL BE OF JOHNSON CONTROLS OR APPROVED EQUAL.

SEQUENCE OF OPERATION

EXISTING AND NEW VAV SINGLE DUCT WITH REHEAT COIL UNITS

SET VAV BOXES AT CONSTANT AIR VOLUME SUPPLY, I.E. 100% OF DESIGN CAPACITY. VARIABLE AIR VOLUME WILL BE FOR FUTURE USE. IF ROOM TEMPERATURE IS LOWER THAN PRESET TEMPERATURE, HOT WATER HEATING COIL IS ACTIVATED, 2–WAY CONTROL VALVE AT REHEAT COIL SHAL MODULATE TO MAINTAIN PRESET TEMPERATURE AT THE THERMOSTAT. WHEN ROOM TEMPERATURE IS SATISFIED FOR ABOUT 15 MINUTES, HOT WATER FLOW THROUGH HEATING COIL SHALL BE ADJUSTED. IT WILL GRADUALLY CLOSE CONTROL VALVE.

EXISTING AND NEW VAV DUAL DUCT UNITS

SET VAV BOXES AT CONSTANT AIR VOLUME SUPPLY, I.E. 100% OF DESIGN CAPACITY. UPON CALL FOR HEATING, DAMPERS IN COLD AIR DUCT AND HOT AIR DUCT SHALL SLOWLY MODULATE. SUPPLY AIR TEMPERATURE IS INCREASED MAINTAINING CONSTANT AIR SUPPLY FROM VAV BOX AND MAINTAINING DESIRED ROOM TEMPERATURE AS SET ON THERMOSTAT. WHEN ROOM TEMPERATURE IS SATISFIED AFTER A FEW MINUTES HOT AIR SUPPLY FROM HOT AIR DUCT SHALL GRADUALLY CLOSE.

TIE TO BUILDING AUTOMATION SYSTEM

EACH DUAL DUCT VAV BOX:	DAMPER POSITION, ROOM TEMP.
EACH SINGLE DUCT VAV BOX W/REHEAT COIL:	DAMPER POSITION, CONTROL VALVE PERCENTAGE OPEN, LEAVING AIR TEMP. ROOM TEMP.
EACH HOT WATER REHEAT COIL:	CONTROL VALVE PERCENTAGE OPEN, LEAVING AIR TEMP. ROOM TEMP.

ALL REQUIRED CONTROL DEVICES SHALL BE INCLUDED IN PERFORMANCE OF REQUIRED SEQUENCE OF OPERATION AND CONTROL/STATUS POINTS AT EXISTING BUILDING AUTOMATION SYSTEM (BAS). ALL CONTROL POINTS SHALL INDICATE STATUS AND ADJUSTMENTS OF DAMPERS, VALVE OPERATION, SPACE TEMP. FROM BUILDING AUTOMATION SYSTEM.

IF EXISTING BUILDING AUTOMATION (BAS) NEEDS TO EXPAND IN ORDER TO MEET ALL CONTROL POINTS OF THIS PROJECT. CONTRACTOR SHALL BE RESPONSIBLE TO EXPAND EXISTING BAS.

ALLOWANCES:

IN THIS PROJECT, INCLUDE ALLOWANCES FOR THE FOLLOWING ITEMS INSTALLED (LABOR & MATERIAL):

1. TWO(2) SINGLE DUCT VAV BOXES, 300CFM CAP. WITH HOT WATER REHEAT COILS & TEMPERATURE CONTROLS.
2. FIFTY(50) FEET OF 12"X8" SUPPLY DUCT WITH 1" THICK INSULATION.
3. SIX(6)0 DIFFUSERS, 200CFM EACH.
4. SIX(6) RETURN AIR GRILLES 14"X10" EACH.
5. TWO(2) DUAL DUCT VAV BOXES, 800CFM CAP. EACH.
6. FOUR(4) ACTUATORS TO BE REPLACED AT EXISTING VAV BOXES.
7. THREE(3) NEW THERMOSTATS
8. FOUR(4) FIRE DAMPERS IN 12X8 DUCT.

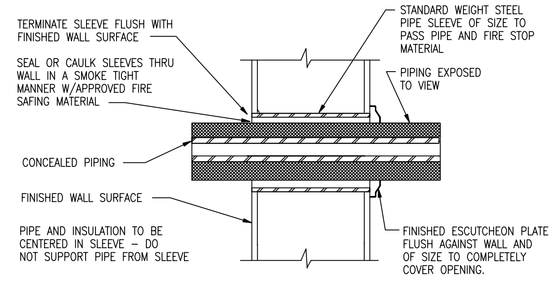
UPON COMPLETION OF PROJECT CONTRACTOR SHALL CREDIT AMOUNT TO VA IF ANY ITEM IS NOT USED ON THIS PROJECT.

GENERAL NOTES

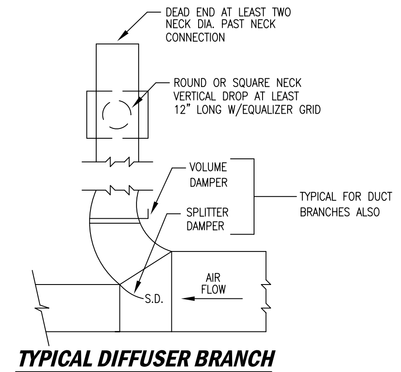
1. WHERE EXISTING VAV BOXES ARE TO REMIAN, IT HAS DUCT SUPPLY TO MANY DIFFUSERS WHETHER EXISTING OR NEW, CONTRACTOR SHALL BALANCE AIR QUANTITIES AT EACH DIFFUSER AS PER PLAN.

2. LOCATION OF SUPPLY DIFFUSERS & RETURN AIR GRILLES SHALL BE COORDINATED IN FIELD WITH LIGHTS, SPRINKLER HEADS, ETC. SUBMIT LOCATION OF DIFFUSERS, GRILLES, VAV BOXES & DUCTWORK IN SHOP DRAWINGS FOR APPROVAL.

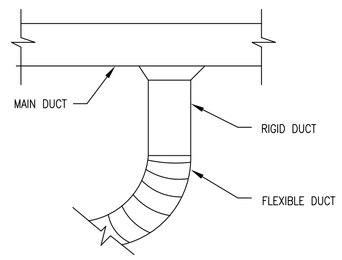
3. WHERE EXISTING THERMOSTATS ARE REMOVED, INSTALL STEEL PLATE ON THE WALL TO COVER OPENING.



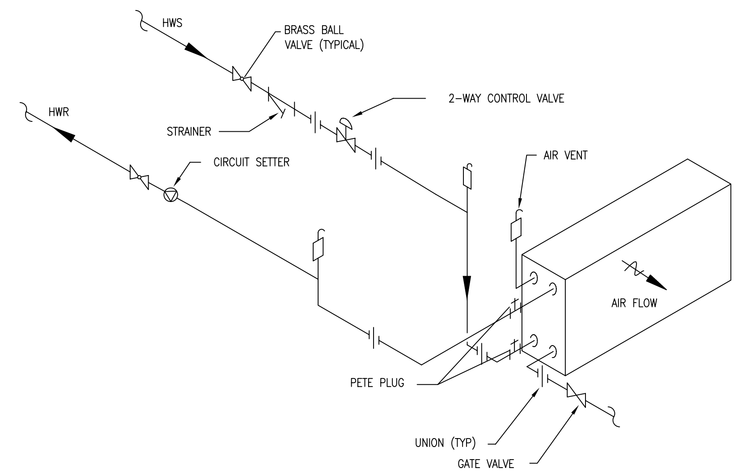
PIPE THRU WALL



TYPICAL DIFFUSER BRANCH
NOT TO SCALE

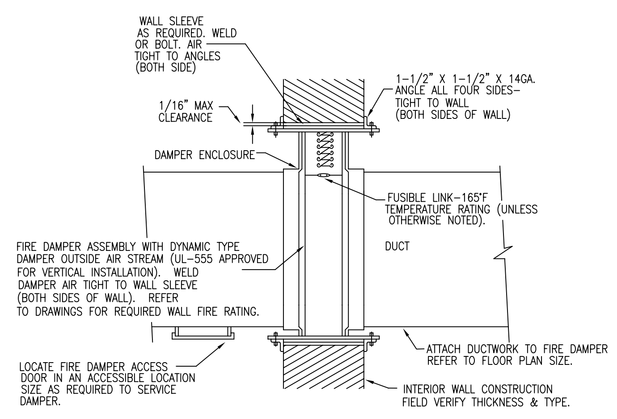


DUCT CONNECTION PLAN DETAIL
NOT TO SCALE

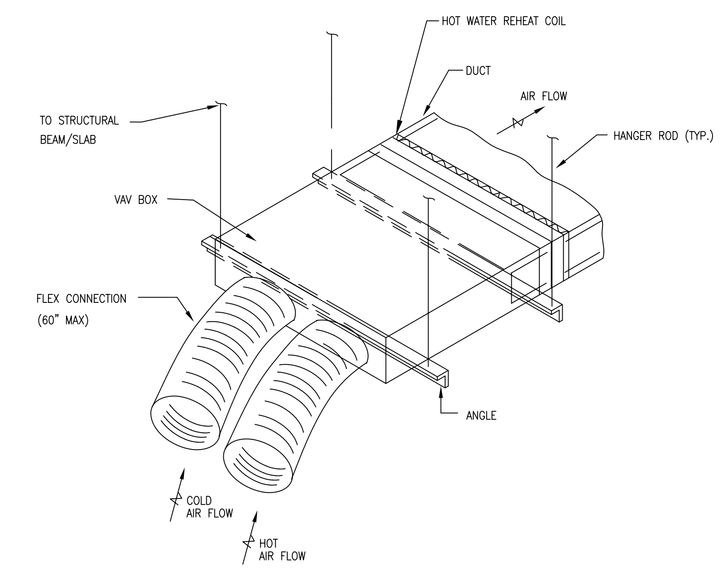


TYPICAL HOT WATER REHEAT COIL PIPING DIAGRAM (2-WAY VALVE)
N.T.S.

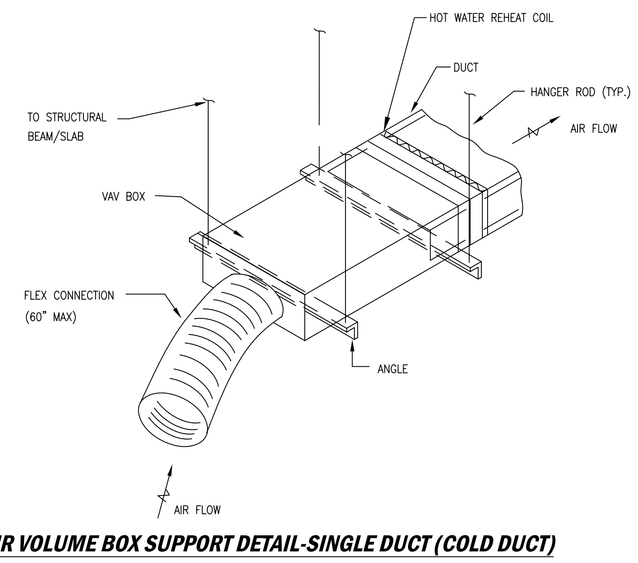
NOTES:
1. BUTTERFLY TYPE TEMPERATURE CONTROL VALVES WILL NOT BE PERMITTED.
2. PROVIDE UNION CONNECTIONS AT VALVES & STRAINERS.
3. ALL CONTROLS SHALL BE ELECTRONIC/DIGITAL.



FIRE DAMPER DETAIL
NTS



VARIABLE AIR VOLUME BOX SUPPORT DETAIL-DUAL DUCT
NOT TO SCALE



VARIABLE AIR VOLUME BOX SUPPORT DETAIL-SINGLE DUCT (COLD DUCT)
NOT TO SCALE

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Revisions:	Date

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Approved: Chief Maintenance & repair

Drawing Title: MECHANICAL SPECIFICATIONS & DETAILS	Project Title: HVAC FOR SUPPLY & STORAGE		Date: 06/20/2013
Approved: Devision Chief	Building No.	Checked: DM,JM	Drawn: EL	Project No. 22165
Approved: Service Director	Location: V.A. HOSPITAL, HINES, IL		Drawing Number: M-14 Dwg. 14 of 15

Office of Facilities

Department of Veterans Affairs

BUILDING 200 - SUPPLY & STORAGE VENTILATION SCHEDULE

ROOM #	ROOM NAME	ROOM VOLUME	CODE REQD. AIR CFM/MIN	ACH	MIN. DESIGN SUP. CFM	MIN. DESIGN RET. CFM	CURRENT READINGS SUP. CFM	CURRENT READINGS RET. CFM	ACTUAL DESIGN ACH	ACTUAL DESIGN SUP. CFM	ACTUAL DESIGN RET. CFM	REMARKS
	BASEMENT											
A023D	JANITOR'S CLOSET	2048	10	12	–	50	–	NEG. 317				EXHAUST ONLY
A025C	SOILED DECONTAMINATION	1240	12	12	2100	2450	2149	2132				
A001F	CLEAN/STERILE STORAGE	960	4	6	150	130	52	80				
A001C	CLEAN SUPPLIES	1190	4	6	160	135						
B016	PRE-OP HOLDING	4955	6	6	500	420	200	392				
B026	CLEAN/STERILE STORAGE	1139	4	6	150	120	NEG.	90				
B036	CLEAN/STERILE STORAGE	6060	4	6	750	650	384	98				
B110H	CLEAN/STERILE STORAGE	1020	4	6	150	130	–	–				
D006A	CLEAN/STERILE STORAGE	510	4	6	60	50	186	82				
	3RD FLOOR											
3131	CLEAN/STERILE STORAGE	2108	4	6	350	300	100	0				
	4TH FLOOR											
4124	CLEAN/STERILE STORAGE	2065	4	6	350	300	129	113				
	6TH FLOOR											
668	CLEAN SUPPLY	2601	4	6	400	340	–	–				
670	CLEAN STORAGE	1233	4	6	170	140	–	–				
	7TH FLOOR											
740	CLEAN/STERILE STORAGE	833	4	6	100	80	90	40				
768	CLEAN/STERILE STORAGE	1870	4	6	200	180	180	150				
	9TH FLOOR											
930	CLEAN/STERILE STORAGE	1343	4	6	160	140	63	170				
947	CLEAN/STERILE STORAGE	1802	4	6	200	175	146	52				
	10TH FLOOR											
1061	SOILED DECONTAMINATION	850	12	12	–	–	–	–				
1069	CLEAN/STERILE STORAGE	850	4	6	150	130	77	0				
1071	CLEAN/STERILE STORAGE	1190	4	6	300	250	109	0				
1068	CLEAN/STERILE STORAGE	2601	4	6	400	340	149	112				
	12TH FLOOR											
1250	CLEAN ROOM	731	4	6	100	80	49	–				
1206	CLEAN/STERILE STORAGE	705	4	6	100	80	39	46				
1227	CLEAN STORAGE	425	4	6	100	80	36	42				
	13TH FLOOR											
1328	CLEAN/STERILE STORAGE	1139	4	6	350	280	23	152				
1350	CLEAN/STERILE STORAGE	799	4	6	100	80	119	92				
1306	SUPPLY STORAGE	1343	4	6	160	140	–	50				
	14TH FLOOR											
1418	OFFICE/STORAGE	3595	4	6	350	275	129	–				
1431	CLEAN/STERILE STORAGE	1785	4	6	300	250	42	–				
1464	CLEAN/STERILE STORAGE	1088	4	6	200	170	174	63				
1468	CLEAN/STERILE STORAGE	1190	4	6	350	300	–	–				
	✳ ADJUST EXISTING DAMPERS TO PROVIDE MINIMUM AIR QUANTITY PER DESIGN FOR THE FOLLOWING ROOMS:–											
566	CLEAN/STERILE STORAGE	1280	4	6	160	125						NOTE #2
679	CLEAN/STERILE STORAGE	1102	4	6	200	125						NOTE #2
1568	CLEAN/STERILE STORAGE	3001	4	6	300	250						NOTE #2
A132	CLEAN/STERILE STORAGE	352	4	6	60	40						NOTE #2, TRANSFER THRU UNDERCUT DOOR
A140	CLEAN/STERILE STORAGE	485	4	6	60	40						NOTE #2, TRANSFER THRU UNDERCUT DOOR
C140	CLEAN/STERILE STORAGE	1224	4	6	60	40						NOTE #2, TRANSFER THRU UNDERCUT DOOR
B003	CLEAN/STERILE STORAGE	3884	4	6	400	350						NOTE #2
A142R	CLEAN/STERILE STORAGE	982	4	6	100	80						NOTE #2
A156A	CLEAN/STERILE STORAGE	990	4	6	100	80						NOTE #2
C103F	CLEAN/STERILE STORAGE	1967	4	6	250	200						NOTE #2
B0248	CLEAN/STERILE STORAGE	3814	4	6	380	300						NOTE #2, NOTE #3
A2091	CLEAN/STERILE STORAGE	1486	4	6	250	200						NOTE #2
B151	CLEAN/STERILE STORAGE	3043	4	6	300	250						NOTE #2, NOTE #3
2B33	CLEAN/STERILE STORAGE	956	4	6	100	80						NOTE #2
2C40	CLEAN/STERILE STORAGE	194	4	6	60	40						NOTE #2, TRANSFER THRU UNDERCUT DOOR

NOTES:

1. CONTRACTOR SHALL COMPLETE INFORMATION OF ACTUAL AIR VOLUMES & AIR CHANGES AFTER AIR & WATER TEST & BALANCING IS COMPLETED.
2. CONTRACTOR SHALL BALANCE AIR VOLUME TO THE MINIMUM AIR VOLUME PER DESIGN CFM. IF POSSIBLE GREATER THAN AIR VOLUME IS LISTED UNDER DESIGN COLUMN IS PREFERRED. HOWEVER, ALL CLEAN/STERILE STORAGE ROOMS SHALL BE KEPT AT +VE PRESSURE.
3. EXTEND 10"X8" SUPPLY AND 10"X8" RETURN AIR DUCT FROM EXISTING MAIN LOCATED 40 FEET FROM EACH ROOM. INSTALL NEW SUPPLY DIFFUSER RETURN AIR GRILLE.

NEW VARIABLE AIR VOLUME BOX SCHEDULE (DUAL DUCT)

DVAV B-1E — BASED ON TITUS

UNIT NO.	INLET SIZE ø COLD DUCT	INLET SIZE ø HOT DUCT	CFM	P.D @ MAX CFM	MAX. N.C. LEVEL	REMARKS
DVAV-B-1N	8"	5"	500	0.4"	30 DB	
DVAV-B-2N	5"	4"	150	0.4"	30 DB	
DVAV-B-3N	6"	4"	360	0.4"	30 DB	
DVAV-B-4N	5"	4"	150	0.4"	30 DB	
DVAV-B-5N	5"	4"	160	0.4"	30 DB	
DVAV-3-1N	9"	6"	700	0.4"	30 DB	
DVAV-4-1N	9"	6"	700	0.4"	30 DB	
DVAV-12-1N	5"	4"	100	0.4"	30 DB	
DVAV-13-1N	5"	4"	160	0.4"	30 DB	
DVAV-14-1N	6"	4"	250	0.4"	30 DB	
DVAV-14-2N	5"	4"	200	0.4"	30 DB	
DVAV-14-3N	6"	4"	350	0.4"	30 DB	

NOTES:

1. BASED ON TITUS MODEL PESV OR APPROVED EQUAL METALAIRE, AMENOSTAT.
2. CONTROLS FOR VAV BOXES SHALL BE SUPPLIED AND INSTALLED BY TEMPERATURE CONTROL CONTRACTOR.
3. SET ALL BOXES AT CONSTANT AIR VOLUME.

EXISTING VARIABLE AIR VOLUME BOX SCHEDULE (DUAL DUCT)

DVAV B-1E — BASED ON TITUS

UNIT NO.	INLET SIZE ø COLD DUCT	INLET SIZE ø HOT DUCT	CFM	P.D @ MAX CFM	MAX. N.C. LEVEL	REMARKS
DVAV-B-1E	–	–	270	0.4"	30 DB	
DVAV-6-1E	–	–	500	0.4"	30 DB	
DVAV-7-1E	–	–	300	0.4"	30 DB	
DVAV-7-2E	–	–	300	0.4"	30 DB	
DVAV-9-2E	–	–	–	0.4"	30 DB	SERVES MANY EXIST. DIFFUSERS INDICATE UNIT CAP.
DVAV-10-1E	–	–	500	0.4"	30 DB	
DVAV-10-2E	–	–	150	0.4"	30 DB	
DVAV-10-3E	–	–	400	0.4"	30 DB	
DVAV-12-3E	–	–	400	0.4"	30 DB	
DVAV-13-1E	–	–	500	0.4"	30 DB	
DVAV-13-2E	–	–	–	0.4"	30 DB	SERVES MANY EXIST. DIFFUSERS INDICATE UNIT CAP.
DVAV-14-1E	–	–	275	0.4"	30 DB	
DVAV-14-2E	–	–	450	0.4"	30 DB	

GRILLES, REGISTERS AND DIFFUSERS SCHEDULE

BASED ON TITUS

PLAN MARK	MODEL NO.	FRAME	DAMPER	MATERIAL FINISH	REMARKS
24"X24" SUPPLY DIFFUSER	OMNI	*	OPPOSED BLADE	* *	BORDER TYPE AS REQUIRED FOR CEILING
24"X24" RET/EXH DIFFUSER	PAR	*	OPPOSED BLADE	* *	BORDER TYPE AS REQUIRED FOR CEILING
RET/EXH GRILLES	350 FL	*	OPPOSED BLADE	* *	

NOTES:

- * FRAME SHALL BE SUITABLE FOR MOUNTING SURFACES.
- * * FINISH TO BE APPROVED BY OWNER.
- * ALL GRILLES & DIFFUSERS TO BE ALUMINIUM CONSTRUCTION.

NEW VARIABLE AIR VOLUME - SUPPLY BOX SCHEDULE (SINGLE DUCT)

VAV B-1E — BASED ON TITUS — WITH HOT WATER BOOSTER COIL

UNIT NO.	INLET SIZE DIA.	MAX CFM	AIR P.D @ MAX CFM IN INCH WG	MAX. N.C. LEVEL Db	E.A.T	L.A.T	HTG MAX. CAP MBH	HOT WATER GPM AT 15°ΔT	E.W.T	L.W.T	NO OF ROWS	REMARKS
VAV-9-1N	5"	200	0.3	28	55	75	4.4	0.5	180°F	165°F	1	
VAV-12-1N	5"	100	0.3	28	55	75	2.2	0.5	180°F	165°F	1	
VAV-12-2N	5"	100	0.3	28	55	75	2.2	0.5	180°F	165°F	1	
VAV-14-1N	5"	200	0.3	28	55	75	4.4	0.6	180°F	165°F	1	

NOTES:

1. SET ALL VAV BOXES AT CONSTANT AIR VOLUME, I.E. AT MAX AIR QUANTITY PER DESIGN CFM.
2. ENTERING WATER TEMP. AT HOT WATER BOOSTER COIL SHALL BE 180°F & LEAVING WATER TEMPERATURE OF 165°F. ENTERING AIR TEMP. SHALL BE 55°F AND LEAVING AIR TEMP. OF MIN. 85°F.
3. EACH VAV BOX IS BASED ON TITUS, METALAIRE OR AMENOSTAT.
4. EACH HEATING COIL SHALL BE SINGLE ROW UNLESS NOTED OTHERWISE.
5. MAXIMUM AIR PRESSURE DROP THRU REHEAT COIL SHALL BE 0.15 IN.
6. MAXIMUM WATER PRESSURE DROP THRU REHEAT COIL SHALL BE 7 FT. HEAD
7. BALANCE HOT WATER FLOW FOR REHEAT COILS PER GPM SHOWN ON THIS DRAWING.
8. PNEUMATIC CONTROLS SIMILAR TO TITUS PESV.

EXISTING VARIABLE AIR VOLUME SUPPLY BOX SCHEDULE (SINGLE DUCT)

VAV B-1E

UNIT NO.	INLET SIZE DIA.	MAX CFM	E.A.T.	L.A.T.	HOT WATER REHEAT COIL MBH	HOT WATER REHEAT COIL GPM	E.W.T.	L.W.T.	REMARKS
VAV-9-1E	–	500	55°F	75°F	10.5	NOTE #1	180°F	165°F	NOTE #1
VAV-6-1E	–	500	55°F	75°F	10.5	0.9	180°F	165°F	
VAV-7-1E	–	400	55°F	75°F	8.5	0.9	180°F	165°F	
VAV-7-2E	–	300	55°F	75°F	6.5	0.7	180°F	165°F	
VAV-12-1E	–	400	55°F	75°F	8.5	0.9	180°F	165°F	
VAV-12-2E	–	450	55°F	75°F	9.8	NOTE #1	180°F	165°F	

NOTE:

1. VERIFY EXISTING WATER FLOW SETTING AND MAINTAIN SAME GPM AS EXISTING.

NECK SCHEDULE FOR GRILLES AND DIFFUSERS

CFM RANGE	SUPPLY/RETURN	NECK SIZE	REMARKS
150	SUPPLY/RETURN	8X6	
175 – 200	SUPPLY/RETURN	10X6	
201 – 300	SUPPLY/RETURN	12X6 OR 10X8	
301 – 400	SUPPLY/RETURN	12X8	
401 – 500	SUPPLY/RETURN	14X8	
501 – 700	SUPPLY/RETURN	14X10	
701 – 800	SUPPLY/RETURN	14X12 OR 16X10	
810 – 900	SUPPLY/RETURN	18X10 OR 14" DIA.	
901 – 1200	SUPPLY/RETURN	15" DIA.	

NOTES

1. ALL SIZES ARE IN INCHES. FOR RECTANGULAR RETURN/EXHAUST GRILLES USE NECK SIZES OF EQUIVALENT NECK AREA.
2. UNLESS OTHERWISE NOTES ON PLANS. PROVIDE DIFFUSER NECK SIZE AS PER THIS SCHEDULE.

POINTS LIST FOR VAV BOXES WITH REHEAT & DUAL DUCT BOXES (EXISTING & NEW)

POINT LEGEND / SYSTEM OUTPUTS (DIGITAL, ANALOG)

SYSTEM COMPONENT:	POINT ID	ABBREVIATION	PRIORITY/ADD-ALTERNATE NO.	--	ELECTRIC DEVICE	START/STOP	OPEN/CLOSE	--	TEMPERATURE	VALVE POSITION	DAMPER POSITION (EA.)	OUTDOOR AIR TEMP.	--	PRESSURE	--	--
VAV-DUAL DUCT BOXES (EXISTING & NEW)											●					
VAV-SINGLE DUCT BOXES (EXISTING & NEW)											●					
HOT WATER REHEAT COILS (EXISTING & NEW)																
SPACE TEMPERATURE																
DISCHARGE AIR TEMP. FROM EACH VAV BOX									●							

SYSTEM INPUTS (DIGITAL, ANALOG)

SYSTEM COMPONENT:	LOW TEMPERATURE	SPACE TEMP.	TEMPERATURE (TI)	PRESSURE	POSITION	FLOW	% VALVE OPEN POSITION	STATIC PRESSURE	CARBON MONOXIDE	HUMIDITY	VACUUM	Local Alarm Panel	Area Alarm Panel	Master Alarm Panel
VAV-DUAL DUCT BOXES (EXISTING & NEW)		●												
VAV-SINGLE DUCT BOXES (EXISTING & NEW)		●												
HOT WATER REHEAT COILS (EXISTING & NEW)		●					●							
SPACE TEMPERATURE													●	
DISCHARGE AIR TEMP. FROM EACH VAV BOX														

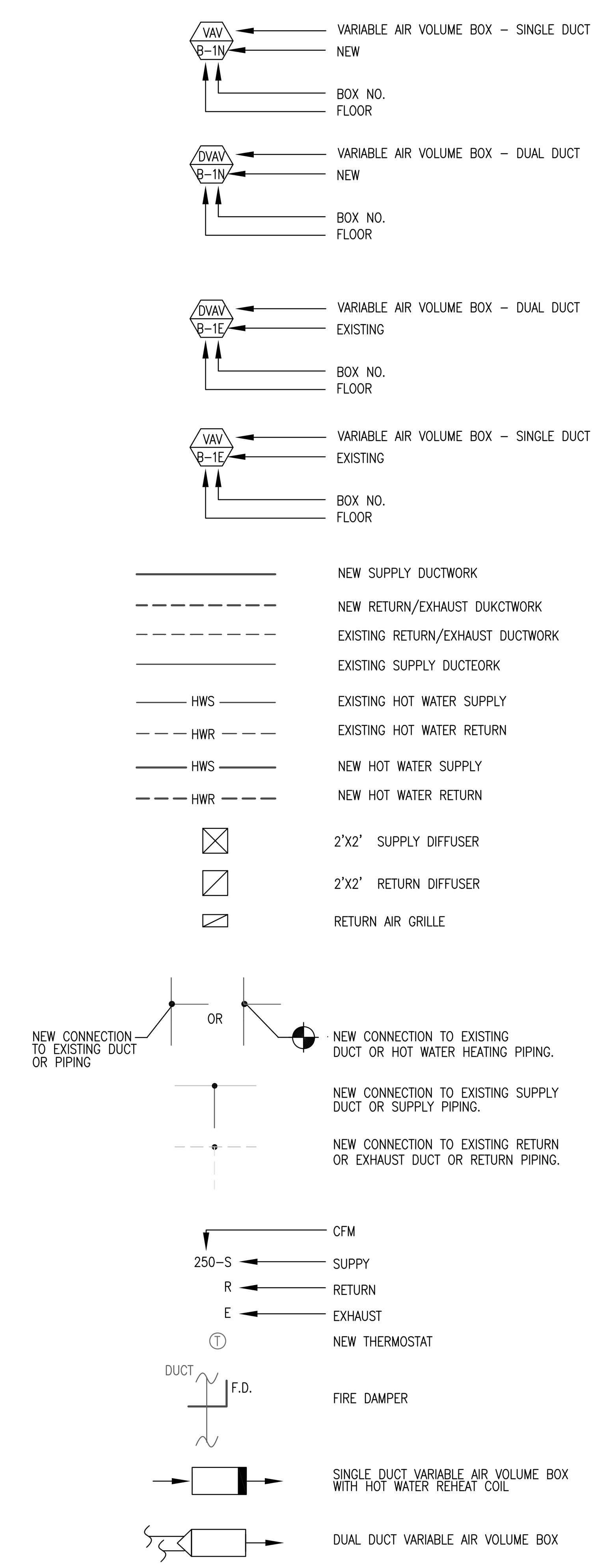
SYSTEM SOFTWARE/CONTROL (ALARM PROCESSING, APPLICATION/FUNCTION)

SYSTEM COMPONENT:	HIGH LIMIT	LOW LIMIT	PRESSURE DROP	PRESSURE DROP (WATER)	SCHEDULE START/STOP	FUNCTION	DUTY CYCLE	TEMPERATURE ECONOMIZER	ENTHALPY ECONOMIZER	TEMPERATURE RESET	DEMAND LIMITING	TEMPERATURE OVERRIDE	STATIC PRESSURE RESET	--	--	PRESSURE/VOLUME CONTROL	FAILURE MODE	SPACE TEMP. CONTROL	FULL COMMUNICATION	TRENDING	REMARKS
VAV-DUAL DUCT BOXES (EXISTING & NEW)																				●	
VAV-SINGLE DUCT BOXES (EXISTING & NEW)																				●	
HOT WATER REHEAT COILS (EXISTING & NEW)																				●	
SPACE TEMPERATURE												●								●	
DISCHARGE AIR TEMP. FROM EACH VAV BOX																				●	

NOTES:

1. BACNET & INTERFACE TO VSD.
2. INTERFACE TO THE EXISTING BUILDING AUTOMATION SYSTEM.

SYMBOL LIST



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Approved: Chief Maintenance & repair

Drawing Title: MECHANICAL SCHEDULES & SYMBOL LIST

Approved: Devision Chief

Approved: Service Director

Project Title: HVAC FOR SUPPLY & STORAGE

Building No.: | Checked: DM,JM | Drawn: EL

Location: V.A. HOSPITAL, HINES, IL

Date: 06/20/2013

Project No.: 22165

Drawing Number: M-15

Dwg. 15 of 15

Office of Facilities

Department of Veterans Affairs

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