



March 10, 2015

Mr. Kurt Schulze, Ph.D., PE

Subject: M. Randall VA – Mechanical Improvements Ph. 3
VA-573-10-600 MES# 2012 578
Addendum #1

This Addendum No. 1 issued to clarify, add to, revise, and/or delete certain items of the contract documents for this work, constitutes a part of the contract documents.

Changes to the drawings are clouded with delta 1, and dated 03-11-2015.

1. Drawing A-102: Added note clarifying Lab construction and demolition Base Bid unless Deduct Alternate #3 is accepted.
2. Drawing A-122: Added note clarifying Lab construction and demolition Base Bid unless Deduct Alternate #3 is accepted.
3. Drawing AD-102: Added note clarifying Lab construction and demolition Base Bid unless Deduct Alternate #3 is accepted.
4. Drawing G-202: Added note clarifying Lab construction and demolition Base Bid unless Deduct Alternate #3 is accepted.
5. Drawing MH-123: Revised ductwork at the Heat Recovery Heat Pipes from parallel flow to counter flow.
6. Drawing MH-506: Revised Plan #7 Existing AC-3E – Refurbished.
Revised notes to read as follow:

Deductive bid alternate #2:

Reuse existing A/C-3E and A/C 9E. Contractor shall repair A/C-3E as required to improve its performance and efficiency:

- Provide a new heat wheel where the old one was removed.
- Seal all air gaps within unit.
- Seal air tight leaky access doors.
- Change fan belts.
- Clean Chilled water coils.

- Rebalance unit air flows to quantity as close as possible to quantity as indicated below.

7. Drawing MH-601: Revised Exhaust and Outside Fan schedule.
8. Electrical Drawings: All references to Drawing EP500 shall be changed to drawing E-000.

END OF ADDENDUM

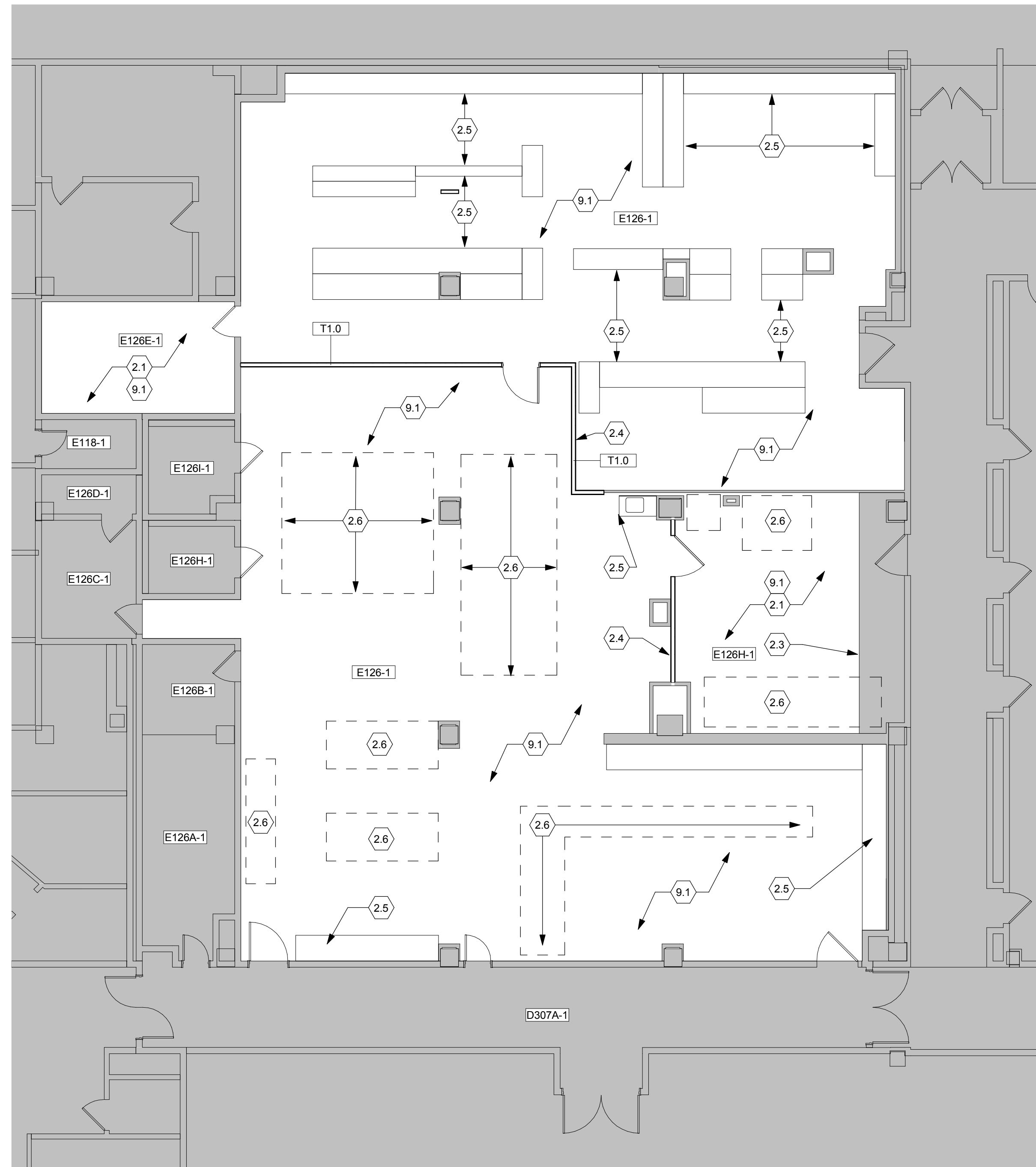
Attachments: (7): Drawings A-102, A-122, AD-102, G-202, MH-123, MH-506, and MH-601.

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. Edge of all door jambs at strike side not otherwise located are to be 18" minimum from the face of intersecting walls.
- C. All wood blocking to be fire retardant treated, unless noted otherwise.
- D. Contractor shall verify all conditions, dimensions, equipment locations and owner requirements in the field before fabricating any materials or beginning any work.
- E. All partitions shall be type 'S1.0-S' unless noted otherwise.
- F. 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 location the Contractor shall provide the finish indicated for other similar surfaces.
- G. It is the responsibility of the Contractor to notify the C.O.R. of any work which might require interruption of utility services, cause noise, or create vibration. Prior to the commencement of this work, the Contractor work and schedule shall be approved and coordinated before hand with the C.O.R. See General Conditions for further details.
- H. All Contractors shall be responsible to patch and repair surfaces where existing construction is removed or disturbed by work under their contract. Work that shall be repaired to a like new condition shall include, but not be limited to gypsum board walls, plaster walls, ACT ceiling and grid, hard ceilings, floor base, flooring surfaces, conduit, interior trim, painting, wall covering, etc. Confirm finishes with the Resident Interior Designer prior to beginning construction.
- I. 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, ceilings, window, trim, doors, frames, etc. and prepare areas as required for new construction finishes.
- J. All penetrations such as new or existing ducts, conduits, piping, electrical outlets, fire barriers, floor slabs shall be sealed to prevent passage of any smoke, flame, gases, etc. See Plumbing, HVAC, Electrical, Fire Protection Drawings and Specifications.
- K. The Contractor shall be responsible for creating a work area that is under negative pressure during all phases of construction. The Contractor shall provide temporary air moving units or units as mandated by code. The air changes will be as mandated by his/her ASHRAE calculations and a copy of the calculations shall be provided to the C.O.R. prior to beginning work. The AHU shall be the type that exhausts air to the outside via temporary duct system after passing through a HEPA filtering system.
- L. Paint P-1 is to match all existing conditions unless noted otherwise. Confirm color selections with Resident Interior Designer prior to beginning work. Paint P-2 to be Resinous Coating System for Walls and Ceilings. See specifications. Confirm specific type of system in use at Gainesville VA prior to beginning work. Match all existing conditions.
- M. Contractor is to patch and repair all floor finishes disturbed by work in this project. Match all existing conditions. Confirm finishes with Resident Interior Designer prior to beginning work.
- N. Unless otherwise directed the Contractor is to schedule work in public spaces to occur during "off-hours" to be confirmed with the C.O.R. prior to beginning work. All areas where such work is to occur will be returned to a clean and safe condition at the start of the next day's regular work times as designated by the C.O.R.
- O. Upon removal of Partition Type T-1 patch and repair all walls, base, and floor finishes adjacent to those areas where this partition type was erected. Match all existing conditions.
- P. At all new louver/wall penetrations provide a continuous reglet 4 inches min. above the top surface of the new temporary ductwork. Install flashing, counter flashing and continuous termination bar meeting all SMACNA requirements for the full width of the new opening and extending 8 inches either side of the opening. Provide all-around weather tight closure collar by duct manufacturer. Extend collar under wall flashing and counter flashing. Patch and repair all work at new opening to match all existing conditions. Paint to finish all areas and match existing conditions. Provide continuous water-proof sealant at all perimeter joints and review any color selection with CO prior to commencing work. Prior to conducting any penetrations through wall and/or slab, the area must first be x-rayed (or equivalently examined) to ensure that there are no utilities or structural members located within the penetration site. Coordinate with the Project Engineer. See Mechanical Drawings MH001 and M121 for scope of work related to AHU-Lab replacement.

PLAN NOTES

- 2.1 For work this area see MEP Drawings.
- 2.2 Protect existing washer/sterilization equipment in place. Confirm any specific requirements/preparations for down time with C.O.R. prior to beginning work. For electrical and plumbing requirement see MEP Drawings.
- 2.3 Confirm limits of construction in the field with the C.O.R. See MEP Drawings.
- 2.4 Temporary wall partition. Coordinate location in the field with the C.O.R. See Phasing Plans.
- 2.5 Existing laboratory equipment and casework including but not limited to, refrigerators, blood chemistry analysis, sinks, centrifuges, etc. not to be relocated, protect in place. See MEP Drawings for any specific shut-down or storage work related to these trades.
- 2.6 Existing portable lab equipment and casework including but not limited to, refrigerators, blood chemistry analysis, sinks, centrifuges, etc.. Protect in place and coordinate all requirements with the C.O.R. Any equipment or casework requiring relocation will be moved by the owner prior to beginning work. See MEP Drawings for any specific shut-down or storage work related to these trades.
- 2.7 Remove portion of existing concrete floor slab and carpet to provide opening for new HVAC ducts. See Structural Drawings for slab removal. See Mechanical Drawings for opening requirements.
- 2.8 Remove existing steel framing above ceiling. See Structural Drawings.
- 5.1 Remove portion of wall as required to install new structural steel for roof mechanical platform. Repair wall to match all existing conditions. See HVAC and Structural Drawings. Typical all columns to receive new work.
- 6.1 New shaftwall extending from underside of roof deck to top of first floor slab. See wall types.
- 6.2 Patch and repair wall to match existing at relocated electrical switch.
- 6.3 Patch and repair wall at existing light switch prior to constructing new shaft. Match all existing conditions.
- 9.1 For extent of ceiling work see Sheet A120 and A121.
- 9.2 Remove existing ceiling throughout to provide access to above ceiling and roof demolition and addition of new structural steel. Save back existing light fixtures and air devices for reinstallation. See HVAC and Structural Drawings.
- 9.3 Protect existing ceiling bulkhead in place. Bulkhead, column and wall finishes to remain in place during all work.
- 9.4 Remove wall to provide new switch location for room lighting. Patch and repair previous location and new work to match all existing conditions. See Electrical Drawings.
- 9.5 Remove two full ceiling tiles and grid minimum at corridor columns to facilitate structural work above ceiling. Save back tiles, grid runners and tees, lighting and air devices for reinstallation to match all existing conditions. Contractor is responsible to determine exact amount of ceiling removal required to provide adequate work space for steel installation. See Structural Drawings.
- 9.6 Patch and repair carpet and wall base adjacent to shaftwall. Provide new wall base at shaft wall. Match all existing conditions. Confirm color selections with Resident Interior Designer prior to beginning work.
- 9.7 Re-install ceiling tiles, grid, lights and air devices that were saved back at the beginning of work. Match all existing conditions.
- 9.8 Reinstall lights and air devices saved back at the beginning of work in new ACT ceiling and grid.
- 9.9 For work this area see Sheet A100.
- 9.10 For work this area see Sheet A101.



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

Work on this drawing is deduct if Deduct Alternate #3 is accepted.

LEGEND

- [Symbol] NOT IN CONTRACT
- [Symbol] NEW WALLS / MATERIALS / EQUIPMENT
- [Symbol] EXISTING WALLS / MATERIALS / EQUIPMENT TO REMAIN

FINAL BID SUBMITTAL

<p>CONSULTANTS:</p> <p>RDC/JOHN POE ARCHITECTS</p> <p>524 FERNWOOD DRIVE ALTA MONTTE SPRINGS, FLORIDA 32701</p> <p>800 362 1523 PHONE repstein@rdcpjnpoe.com</p>		<p>ARCHITECT/ENGINEERS:</p> <p>MES GROUP</p> <p>550 N. Reo Street Suite 203, Tampa, FL 33609 813.289.4700</p> <p>COA # 8304 Project # 2012 578</p>		<p>Drawing Title</p> <p>FIRST FLOOR LAB PLAN</p> <p>Approved: Project Director</p>		<p>Project Title</p> <p>REPLACE AIR CONDITIONING AND ENVIRONMENTAL CONTROLS (FCA D) MECH IMPROVEMENTS PHASE 3</p> <p>Location GAINESVILLE, FLORIDA</p> <p>Date 07/02/2014</p> <p>Checked WS</p> <p>Drawn NS</p>		<p>Project No. VA Project No. 073-10-600 RDC/JPA Project No. 12032.00</p> <p>Building Number 1</p> <p>Drawing Number A102</p> <p>Dwg. of</p>		<p>Office of Construction and Facilities Management</p> <p>Department of Veterans Affairs</p>	
<p>1 Addendum 1 3/11/2015</p> <p>Revisions Date</p>											

three inches = one foot
 one and one-half inches = one foot
 one inch = one foot
 three-quarters inch = one foot
 one-half inch = one foot
 three-eighths inch = one foot
 one-quarter inch = one foot
 one-eighth inch = one foot

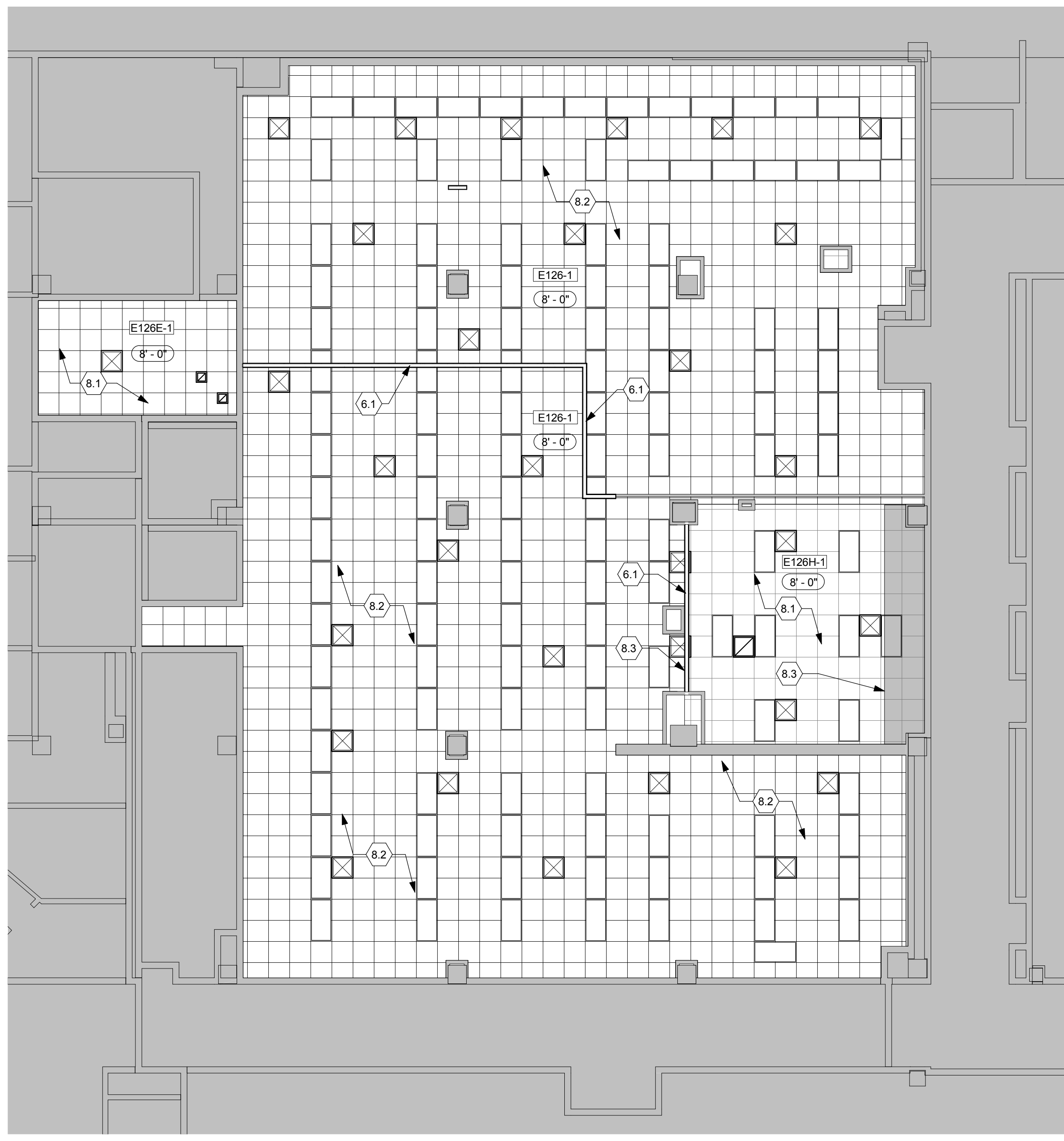
GENERAL NOTES

- 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 quantities of fixtures/devices to be installed in ceiling.
- D. See Electrical Drawings for lighting specifications.
- E. If ceiling information is not provided, intent is to match existing type and height. Confirm conditions w/ C.O.R. prior to beginning work.
- F. Ceiling height to be 8'-6" AFF, unless noted otherwise.
- G. All suspended items such as ceilings, ducts, pipes, conduits, etc., shall be suspended (attached) directly to structure and shall not be attached or anchored to existing plaster, acoustic tile, etc.
- H. All hard ceilings to be painted P-2 unless noted otherwise. Confirm color selection with the resident Interior Designer prior to beginning construction. See General Plan Note M.
- I. All ACT ceiling tiles installed are to be ACT-2 unless noted otherwise.

CEILING NOTES

- 2.1 Existing wall structure, protect in place.
- 6.1 Temporary wall partition, coordinate location in the field with the C.O.R. See Phasing Plans
- 7.1 Sealant
- 8.1 Existing ceiling to remain, remove and replace ceiling tile/ceiling surfaces as required to complete new Mechanical and Electrical installation. Re-install ceiling tiles, grid, lights, air devices removed during partial demolition.
- 8.2 Install new ceiling throughout. Coordinate exact boundaries in the field with C.O.R. See MEP Drawings.
- 8.3 Coordinate boundary of work in field with the C.O.R.
- 8.4 See MEP Drawings for work this area.
- 8.6 Open to above. Re-install lights, air devices removed during partial demolition.
- 9.1 New 5/8" type "X" gypsum board suspended ceiling, Level 5 finish to match existing.
- 9.2 Drywall joint reinforcement

REFLECTED CEILING PLAN LEGEND



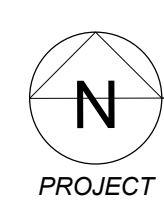
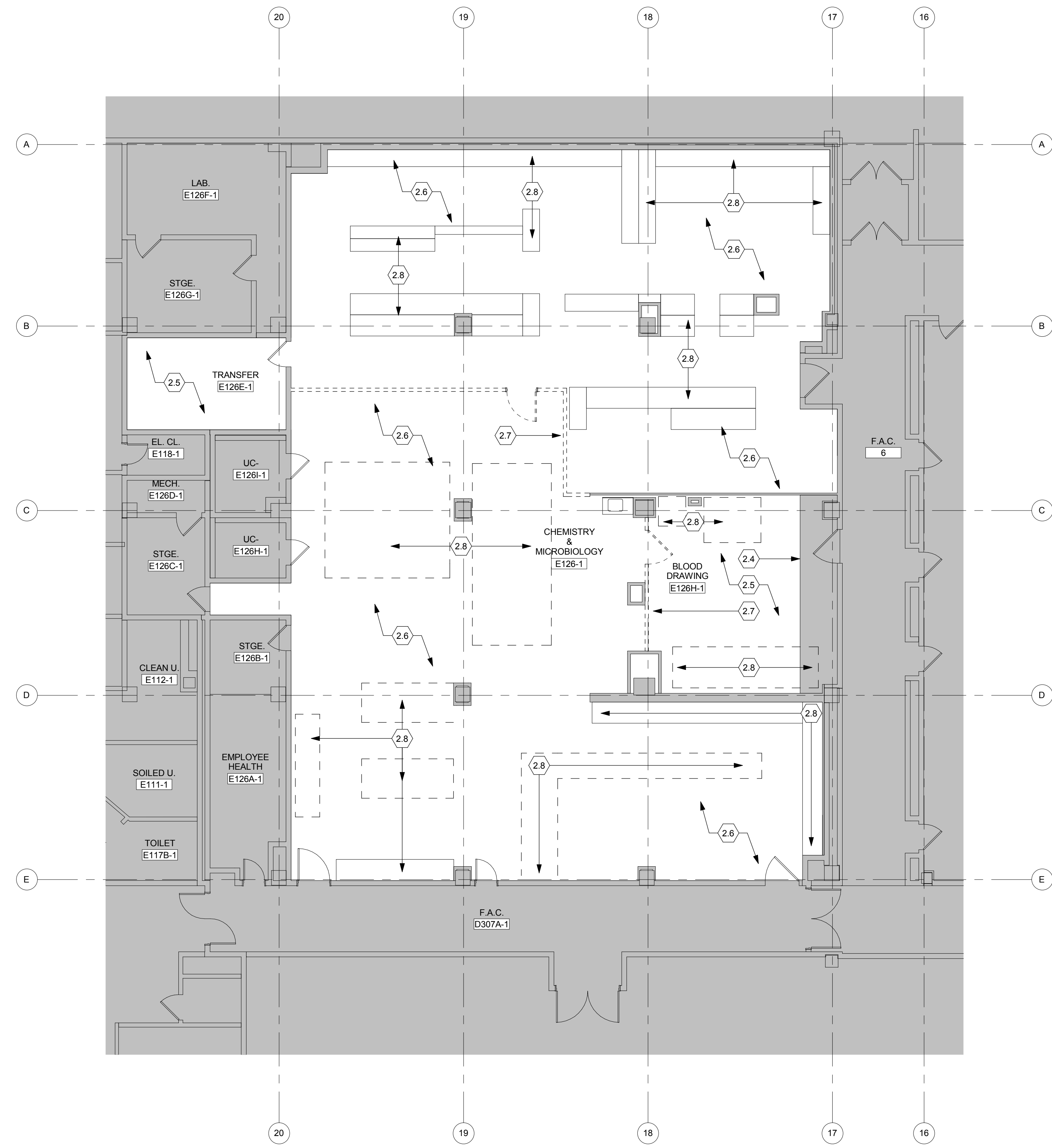
REFLECTED CEILING PLAN - FIRST FLOOR
 Scale: 1/8" = 1'-0"
 PROJECT

Work on this drawing is deduct if Deduct Alternate #3 is accepted.

FINAL BID SUBMITTAL

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Revisions</th> <th style="text-align: left;">Addendum</th> <th style="text-align: left;">Date</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	Revisions	Addendum	Date							<p>CONSULTANTS:</p> <p style="text-align: center;">RDC/JOHN POE ARCHITECTS</p> <p style="text-align: right; font-size: small;">524 FERNWOOD DRIVE ALTA MONTAÑE SPRINGS, FLORIDA 32701 800 362 1523 PHONE rpepsten@rdcpoe.com</p>		<p>ARCHITECT/ENGINEERS:</p> <p style="text-align: center;">MES GROUP</p> <p style="font-size: x-small;">550 N. Reo Street Suite 203, Tampa, FL 33609 813.289.4700 COA # 8304 Project # 2012 578</p>	<p>Drawing Title</p> <p style="text-align: center;">REFLECTED CEILING LAB PLAN - FIRST FLOOR</p> <p style="font-size: x-small;">Approved: Project Director</p>	<p>Project Title</p> <p style="text-align: center;">REPLACE AIR CONDITIONING AND ENVIRONMENTAL CONTROLS (FCA D) MECH IMPROVEMENTS PHASE 3</p> <p style="font-size: x-small;">Location GAINESVILLE, FLORIDA</p> <p style="font-size: x-small;">Date 07/02/2014</p> <p style="font-size: x-small;">Checked WS</p> <p style="font-size: x-small;">Drawn NS</p>	<p style="font-size: x-small;">Project No. VA Project No. 573-10-600 RDC/PA Project No. 12032.00</p> <p style="font-size: x-small;">Building Number 1</p> <p style="font-size: x-small;">Drawing Number A122</p> <p style="font-size: x-small;">Dwg. of</p>	<p>Office of Construction and Facilities Management</p> <p style="font-size: x-small;">Department of Veterans Affairs</p>
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DEMOLITION PLAN - FIRST FLOOR

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

Work on this drawing is deduct if Deduct Alternate #3 is accepted.

GENERAL DEMOLITION NOTES

- A. See Plumbing, HVAC and Electrical Drawings for removal work associated with those trades.
- B. Computer and communication cables and/or other wiring, piping, tubing, etc. serving other areas and functions located above ceiling or in walls of area to be remodeled shall be maintained during demolition/construction process. Coordinate any required changes to these systems with the C.O.R.
- C. Prepare walls and floor slabs as required to receive new finish materials where existing finish is indicated to be removed.
- D. Remove existing ceiling in all areas of work, unless noted otherwise.
- E. East Wing is partially abated of asbestos. However, if asbestos is suspected or encountered during construction contact the C.O.R. immediately.
- F. Within the building, provide sticky mats at all exits from the construction area during the entire length of the construction project.
- G. Sprinklers and water supply to be maintained throughout as required. See MEP Drawings.
- H. Existing power must be maintained throughout as required. Coordinate power turnover with requirements as dictated by the Project Engineer. See Electrical Drawings.
- J. Protect all existing doors that are to remain. Refinish to like new any doors damaged during construction.
- K. Contractor shall not proceed with work until construction permit is approved.
- L. Contractor shall x-ray any and all penetrations through the existing floor slab and roof deck. Coordinate all work with the C.O.R.
- M. Contractor shall remove floor finishes to the extent necessary to accomplish the work per the Contract Documents. The Contractor will patch and repair all floor finishes disturbed to match all existing conditions. Confirm finishes with Resident Interior Designer prior to beginning work.
- N. See Electrical Drawings for extent of new lighting installation. All other lighting that is affected by ceiling replacement is to be salvaged and stored on site for re-installation. Coordinate on-site storage with the COR. See Electrical Drawings.

DEMOLITION NOTES

- 2.1 Protect existing washer and sterilization equipment in place. Coordinate specific measures as required by the VA with the C.O.R.
- 2.2 Remove entire ceiling in the area indicated. Coordinate exact extents in the field with the C.O.R. as required to provide installation of new mechanical ductwork. See MEP Drawings.
- 2.3 See MEP Plans for work in this area.
- 2.4 Coordinate limit of demolition/work in the field with C.O.R. and MEP requirements. See MEP Drawings.
- 2.5 The contractor will remove ceiling systems as required to provide complete installation of new mechanical and electrical systems. Save back existing lighting fixtures as directed for re-installation. Confirm all work in the field with the C.O.R. prior to beginning construction. See MEP Drawings.
- 2.6 Remove existing ceiling throughout. Save back existing light fixtures for re-installation as directed. See MEP Drawings.
- 2.7 Approximate line of phasing boundary. See Phasing Plans.
- 2.8 Protect all existing casework and lab equipment in place. Coordinate any specific requirements with the C.O.R. in the field prior to beginning construction.

LEGEND

- Wall to be Demolished
- ===== Existing Wall to Remain
- ===== New Wall
- Not In Contract

FINAL BID SUBMITTAL

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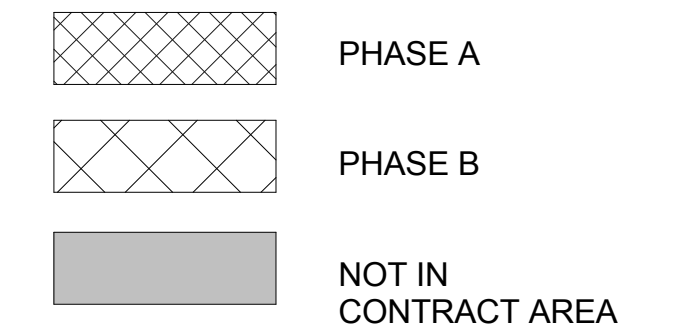
GENERAL PHASING NOTES

- A. For temporary partition locations see Demolition Plans. Temporary partitions are suggested locations. Coordinate final location in field with C.O.R.
- B. Verify all conditions in the field prior to fabrication, erection and construction.
- C. All asbestos containing material (ACM) must be abated per the direction of the C.O.R. and project requirements and local state and federal regulations. Abatement if required is to be scheduled in appropriate sequence with demolition, new construction and project phasing.
- D. Coordinate phase completion and start-up with requirements as set forth by the C.O.R. to maintain daily operations to near as normal as possible.
- E. Coordinate location of job dumpster with the C.O.R. so as to disrupt daily operations as little as possible.
- F. Coordinate access to all phases of construction, deliveries, and debris removal with the C.O.R. See General Requirements.
- G. Temporary door locations and sizes are as required by the General Contractor. Doors will interfere with daily operations as little as possible. Confirm all locations with the C.O.R.
- H. Existing HVAC, medical gases, sprinklers and water supply to be maintained throughout as required during each phase of construction. Coordinate phasing with Mechanical and Plumbing contractor. Support and protect all lines during each phase of construction. See MEP Drawings.
- J. Provide and maintain negative air pressure at all construction. Coordinate with HVAC contractor. See HVAC plans for temporary venting requirements and duct locations.
- K. Temporary partition to structural deck above. See A103 for temporary partition type.
- L. Existing power must be maintained throughout as required during each phase of construction. Coordinate power turnover with requirements as dictated by the C.O.R. See Electrical Drawings.
- M. Coordinate sequence construction with C.O.R. so that only one side of any corridor in use is obstructed at any one time. All public areas will remain open during all Phases of Construction. See General Phasing Note N.
- N. Coordinate all work involving the generation of excessive noise so as to occur during non-peak operating hours. 1700 to 0200 daily. Activities to occur during this time include, but are not limited to saw cutting, jack hammering, hammer drilling and core drilling. If there is any question as to whether an operation should occur during this time the Contractor will contact the C.O.R.
- O. All penetrations such as new or existing ducts, conduits, piping, electrical outlets, penetrations, created voids, etc. in all existing, modified and new walls, smoke partitions, fire barriers, floor slabs shall be sealed to prevent passage of any smoke, flame, gases, etc. See Plumbing, HVAC, Electrical, Fire Protection Drawings and Specifications.

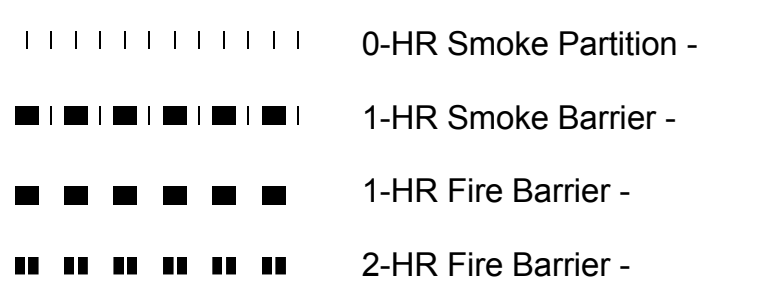
PHASING NOTES

- 2.1 Provide temporary partition and lockable 4(four) foot clear width hollow core door with egress/panic hardware. Hold open and vision panel at demarcation of construction line as shown. Temporary partitions shall only remain during the demolition and new work within the area enclosed and shall be removed once new work is complete as approved by the C.O.R. Doors will be opened and unlocked during normal business hours or as required by the C.O.R. to provide access for the owner. Provide all hardware needed for a functioning opening able to maintain negative pressure when closed. Coordinate wall placement and door location in the field with the C.O.R. prior to beginning work. See Sheet A102 for wall types.
- 2.2 Coordinate work in Phase One/A to the extent required to complete Phase Two/B. Confirm all work with the C.O.R. prior to beginning construction.
- 2.3 Coordinate ceiling removal only to the extent needed to complete work. See Demolition Plans for complete scope of ceiling demolition.
- 2.4 See MEP Drawings for complete scope of work in this area.
- 2.5 Coordinate boundary of phasing in field with the C.O.R.

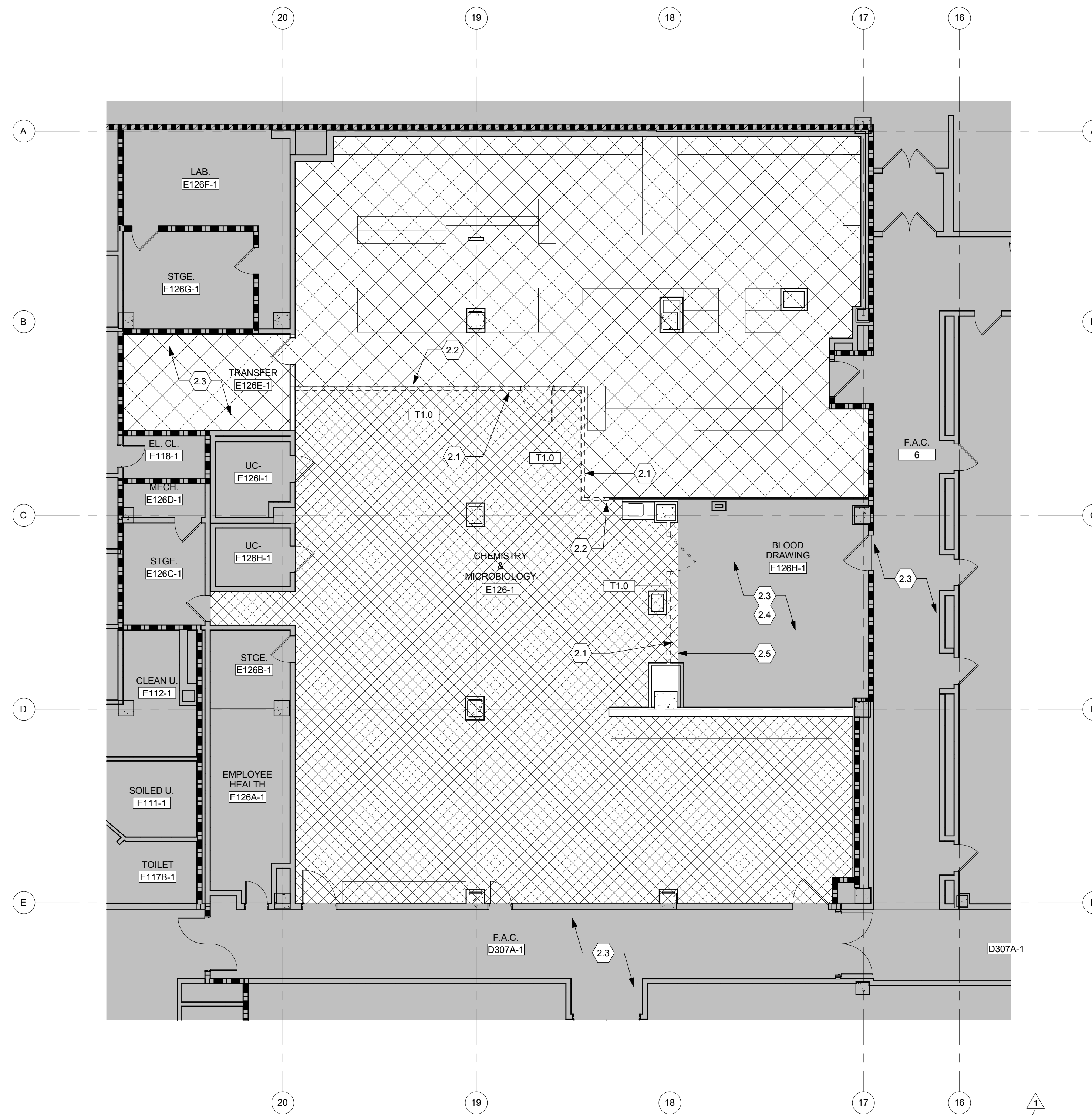
PHASING LEGEND



CODE LEGEND



When providing rated partitions use only approved UL rated systems. Match UL rated system in use by the VA unless directed otherwise by the C.O.R.



PHASING PLAN - FIRST FLOOR
Scale: 1/8" = 1'-0"
PROJECT

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FINAL BID SUBMITTAL

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SECTION 23 72 00
AIR-TO-AIR ENERGY RECOVERY EQUIPMENT

PART 1 - GENERAL

1.1 DESCRIPTION

This Section specifies rotary air-to-air heat exchangers.

1.2 RELATED WORK

- A. Section 01 00 00, GENERAL REQUIREMENTS: Requirements for pre-test of equipment.
- B. (Paragraph deleted)
- C. Section 23 05 11, COMMON WORK RESULTS FOR HVAC: General mechanical requirements and items, which are common to more than one section of Division 23.
- D. Section 23 21 23, HYDRONIC PUMPS: Requirements for pumping equipment.
- E. Section 23 07 11, HVAC and BOILER PLANT INSULATION: Requirements for piping insulation.
- F. Section 23 21 13, HYDRONIC PIPING: Requirements for piping for expansion tanks.
- G. Section 23 82 16, AIR COILS: Requirements for run-around system coils.
- H. Section 23 31 00, HVAC DUCTS and CASINGS: Requirements for sheet metal ducts and fittings.
- I. Section 23 40 00, HVAC AIR CLEANING DEVICES: Requirements for filters used before heat recovery coils.
- J. Section 23 09 23, DIRECT-DIGITAL CONTROL SYSTEM FOR HVAC: Requirements for controls and instrumentation.
- K. Section 23 05 93, TESTING, ADJUSTING and BALANCING FOR HVAC: Requirements for testing, adjusting and balancing of HVAC system.
- L. Section 01 91 00 - GENERAL COMMISSIONING REQUIREMENTS

1.3 QUALITY ASSURANCE

- A. Refer to paragraph, GUARANTEE in specification Section 00 72 00, GENERAL CONDITIONS.
- B. Refer to specification Section 01 00 00, GENERAL REQUIREMENTS for performance tests and instructions to VA personnel.
- C. Refer to paragraph QUALITY ASSURANCE in specification Section 23 05 11, COMMON WORK RESULTS FOR HVAC.
- D. Performance Criteria: Heat recovery equipment shall be provided by a manufacturer who has been manufacturing such equipment and the equipment has a good track record for at least 3 years.
- E. Performance Test: In accordance with PART 3.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, and SAMPLES.
- B. Manufacturer's Literature and Data:
 - 1. Rotary Heat Exchanger
- C. Certificate: Submit, simultaneously with shop drawings, an evidence of satisfactory service of the equipment on three similar installations.
- D. Submit type, size, arrangement and performance details. Present application ratings in the form of tables, charts or curves.
- E. Provide installation, operating and maintenance instructions, in accordance with Article, INSTRUCTIONS, in Section 01 00 00, GENERAL REQUIREMENTS.
- F. Completed System Readiness Checklists provided by the Commissioning Agent and completed by the contractor, signed by a qualified technician and dated on the date of completion, in accordance with the requirements of Section 23 08 00 COMMISSIONING OF HVAC SYSTEMS.

1.5 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. Air Conditioning, Heating, and Refrigeration Institute (AHRI)
AHRI 1060-2005.....Performance Rating of Air-to-Air Heat Exchangers
for Energy Recovery Ventilation Equipment
- C. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE):
 - 15-10.....Safety Standard for Refrigeration Systems (ANSI)
 - 52.1-92.....Gravimetric and Dust-Spot Procedures for Testing
Air-Cleaning Devices Used in General Ventilation
for Removing Particulate Matter
 - 52.2-07.....Method of Testing General Ventilation Air-
Cleaning Devices for Removal Efficiency by
Particle Size
 - 84-08.....Method of Testing Air-to-Air Heat/Energy
Exchangers
- D. American Society for Testing and materials (ASTM)
 - D635-10.....Standard Test Method for Rate of Burning and/or
Extent and Time of Burning of Plastics in a
Horizontal Position
 - E84-10.....Standard Test Method for Surface Burning
Characteristics of Building Materials

- E. American Society of Civil Engineers (ASCE)
ASCE 7-10.....Minimum Design Loads for Buildings and Other Structures
- F. Underwriters Laboratories, Inc (UL)
1812-2009.....Standard for Ducted Heat Recovery Ventilators
1815-2009.....Standard for Nonducted Heat Recovery Ventilators

PART 2 - PRODUCTS

2.1 ROTARY AIR-TO-AIR HEAT EXCHANGER:

- A. Exchanger Rotor or Wheel: Aluminum transfer media with a flame spread rating of 25 and less and smoke developed rating of 50 and less, and independently tested in accordance with ASTM standard E-84. Rotor media shall be independently tested in accordance with ASHRAE Standard 84. It shall allow laminar flow (but not radial) when operating within published operating airflow ranges and prevent leakage, bypassing and cross contamination by cross flow within wheel. Size the transfer media to allow passage of 500 micrometers particles without fouling or clogging. When latent heat transfer is required, treat media with non-degrading or desiccant coating that is bacteriostatic, non-corroding and non-toxic. No asbestos material will be allowed. Wheel shall not condense water directly or require a condensate drain for summer or winter operation. Performance rating shall be in accordance with AHRI Standard 1060.
- B. Rotor: Polymer segmented wheel strengthened with radial spokes impregnated with non-migrating, water-selected, 3A molecular-sieve desiccant coating.
 - 1. Maximum Solid Size for media to pass: 500 micrometers.
- C. Casings shall be sealed on periphery of rotor as well as on duct divider and purge section. Seals shall be adjustable, of extended life materials and effective in limiting air leakage.
- D. Wheel shall be supported by ball or roller bearings and belt driven by a fractional horsepower, totally enclosed, NEMA Standard motor through a close coupled positively lubricated speed reducer, or gear/chain speed reduction. Refer to Section 23 05 12, GENERAL MOTOR REQUIREMENTS FOR HVAC and STEAM GENERATION EQUIPMENT.
 - 1. Motors for constant speed exchanger wheels shall be an AC motor.
 - 2. Variable-speed exchanger wheels shall have exchanger wheel speed and leaving-air temperature controlled by means of a variable-speed motor controller. Automatic changeover for summer-winter operations shall be controlled by an adjustable thermostat. Set point of adjustable proportioning temperature controller and thermostat shall be

indicated on visible scale. System shall be capable of speed reduction down to 5 percent of capacity while maintaining adequate torque at any point of operation to rotate wheel.

- E. An automatic, factory-fabricated, field-adjustable purge unit shall limit exhaust air carry-over to less than 1.0 percent of rated volume. Purge shall be effective when static pressure difference between supply and exhaust is 125 Pa (one-half, inch wg) or greater, and it shall have provision for restriction or adjustment to limit purge air volume to not over five percent of rated air flow when a static pressure difference up to 2.5 kPa (10 inch wg) exists.
- F. Unit shall be constructed of heavy gage steel to insure rigidity and stability. Casing side panels shall be removable to insure easy access to internal parts and have integral flanges for flanged duct connection and lifting holes or lugs.
- G. Controls starting relay shall be factory mounted and wired, and include a manual motor starter for field wiring. Variable frequency controller shall be factory mounted and wired, with exhaust- and outdoor-air sensors, automatic changeover thermostat and set-point adjuster, to vary rotor speed and maintain air differential temperature above set point. When exhaust-air temperature is less than outdoor-air temperature, the rotor shall be at maximum speed.
 - 1. Pilot-Light Indicator: Display rotor rotation and speed. Speed Settings: Adjustable settings for maximum and minimum rotor speed limits.
- H. Filters: MERV 7, 2-inch throw-away type. Refer to Section 23 40 00 HVAC Air Cleaning Devices.

2.5 AIR FILTERS

Air Filters: Disposable air filters, with a MERV rating of 7, shall be provided standard on all air entering sides of air-to-air heat exchangers. Comply with requirements in specification Section 23 40 00, HVAC AIR CLEANING DEVICES.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Follow the equipment manufacturer's instructions for handling and installation, and setting up of ductwork for makeup and exhaust air steamers for maximum efficiency.
- B. Rotary Air-to-Air Exchanger: Adjust seals and purge as recommended by the manufacturer. Verify correct installation of controls.
- C. Seal ductwork tightly to avoid air leakage.

- D. Install units with adequate spacing and access for cleaning and maintenance of heat recovery coils as well as filters.

3.2 FIELD QUALITY CONTROL

- A. Operational Test: Perform tests as per manufacturer's written instructions for proper and safe operation of the heat recovery system.
 - 1. After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 - 2. Adjust seals and purge.
 - 3. Test and adjust controls and safeties.
- B. Replace damaged and malfunctioning controls and equipment.
- C. Set initial temperature and humidity set points. Set field-adjustable switches and circuit-breaker trip ranges as indicated.
- D. Prepare test and inspection reports to the Senior Resident Engineer in accordance with specification Section 01 00 00, GENERAL REQUIREMENTS.

3.3 INSTRUCTIONS

Provide services of manufacturer's technical representative for four hours to instruct VA personnel in operation and maintenance of heat recovery equipment.

3.4 STARTUP AND TESTING

- A. The Commissioning Agent will observe startup and contractor testing of selected equipment. Coordinate the startup and contractor testing schedules with the Resident Engineer and Commissioning Agent. Provide a minimum of 7 days prior notice.

3.5 COMMISSIONING

- A. Provide commissioning documentation in accordance with the requirements of Section 23 08 00 - COMMISSIONING OF HVAC SYSTEMS for all inspection, start up, and contractor testing required above and required by the System Readiness Checklist provided by the Commissioning Agent.
- B. Components provided under this section of the specification will be tested as part of a larger system. Refer to Section 23 08 00 - COMMISSIONING OF HVAC SYSTEMS and related sections for contractor responsibilities for system commissioning.

3.6 DEMONSTRATION AND TRAINING

- A. Provide services of manufacturer's technical representative for four hours to instruct VA personnel in operation and maintenance of units.
- B. Submit training plans and instructor qualifications in accordance with the requirements of Section 23 08 00 - COMMISSIONING OF HVAC SYSTEMS.

- - - E N D - - -

Note # 2 says “Provide scroll type compressors”. Note # 3 says “...electronic soft start or VFD controlled compressor...” superseded by Addendum 1 which is only applicable to screw compressor type chillers. Both scroll & screw compressor chillers are available at this capacity. Section 2.3 of 236400 references both crew & scroll compressors. Please clarify if scroll compressor chillers are acceptable and if so that note # 3 is only applicable to screw compressor chillers. A scroll compressor chiller of this size would have two (2) circuits & three (3) compressors per circuit which would differ *from section 2.3A of 23640*. As you may be aware, scroll compressor chillers are lower first cost.

AE Response- Drawing M-601: Screw chiller was the basis of design (Addendum 1- dated 3-11-15 Bid set dated 07-02-14). Refer to “Basis of Design” Notes on MH-601 for acceptable Equal. Submit a side by side comparison chart for review and approval. Section 2.3A is part of the VA specification and shall be met. (Please note changes to the chiller notes were not clouded).

Specification section 2.1M of 236400 calls for chiller controls to be in a NEMA 4X enclosure. The standard construction enclosure for an air-cooled chiller is NEMA 3R. NEMA 4X would be highly unusual and an extreme price ADD but can be provided if absolutely required. Please clarify the enclosure required for the air-cooled chiller.

Keep NEMA 4X as per spec

Specification section 2.1I indicates the condenser coil shall be “...copper tube with aluminum fins...”. Many manufacturers today are utilizing all aluminum condenser coils as they are more efficient and lower the refrigerant charge as encouraged by LEED. Please confirm that all aluminum (microchannel) condenser coils can be provided (with the required corrosion protection).

Specification section 2.1I: Provide “...copper tube with aluminum fins...” per the VA’s requirement.

Remaining concern’s.....

- a. Attachments: (7): Drawings A-102, A-122, **AD-102, G-202, MH-123, MH-506, and MH-601. See Amend00005**
- b. **Based on the attached letter from MES**

6. Drawing MH-506: Revised Plan #7 Existing AC-3E – Refurbished.
Revised notes to read as follow:
Deductive bid alternate #2:
Reuse existing A/C-3E and A/C 9E. Contractor shall repair A/C-3E as required to improve its performance and efficiency:
- Provide a new heat wheel where the old one was removed.

The letter from MES Group references revised notes on the MH506 one of which is “Provide a new heat wheel where the old one was removed” Trane says there is not enough info in plans to quote a replacement Heat Wheel for refurbishing the old Lab unit. Mechanical contractors are questioning the ability to quote the refurbish without a quote from Trane for the heat wheel.

See Amend 00005

SECTION 23 72 00 AIR-TO-AIR ENERGY RECOVERY EQUIPMENT