

F

HVAC SPECIFICATIONS	
I. GENERAL CONDITIONS: A. THE SCOPE OF THE WORK SHALL INCLUDE THE FURNISHING AND INSTALLATION OF THE NECESSARY MATERIAL AND LABOR TO ACCOMPLISH THE WORK INDICATED BY THE DRAWINGS AND HEREIN SPECIFIED. COMPLY WITH ALL RULES, REGULATIONS, STANDARDS, CODES, ORDINANCES AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENTS AND THE AGREEMENTS AND INTERPRETATION OF SUCH REGULATIONS, RULES, REGULATIONS STANDARDS, CODES, ORDINANCES AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENTS BY THE AUTHORITIES HAVING LAWFUL JURISDICTION. APPLICABLE CODES IA. GUIDELINES FOR DESIGN AND CONSTRUCTION OF HEALTHCARE FACILITIES, 2006 FLORIDA BUILDING CODE, 2007 W/ 2009 SUPPLEMENTS FLORIDA FIRE PREVENTION CODE, 2007 EDITION NFPA 51B, 2003 EDITION NFPA 70, 2005 EDITION NFPA 72, 2002 EDITION NFPA 90A, 2002 EDITION NFPA 101B 2002 EDITION OTHER NFPA CODES AS REFERENCED BY STANDARD CODES. ANSI A117.1-1992-ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES. THE AMERICANS WITH DISABILITIES ACT (ADA), ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES-2004. B. CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE EXISTING CONDITIONS AT THE JOB SITE BEFORE SUBMITTING PROPOSALS. SUBMISSION OF PROPOSALS SHALL BE TAKEN AS EVIDENCE THAT SUCH INSPECTION HAS TAKEN PLACE. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE COMPLETE SET OF CONSTRUCTION DOCUMENTS, AND THE LACK OF SPECIFIC INFORMATION ON THE DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY. C. MATERIALS AND EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL BE NEW AND SHALL BEAR THE MFG. LABEL WHENEVER APPLICABLE, UNLESS NOTED OTHERWISE. ALL WORK SHALL BE GUARANTEED AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR AFTER COMPLETION AND ACCEPTANCE BY THE OWNER. D. CONTRACTOR SHALL INSTALL MECHANICAL SYSTEMS WITHOUT INTERFERENCE AND IN STRICT COORDINATION WITH OTHER TRADES. E. MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE CONTRACT DOCUMENTS AND APPLICABLE CODES AND STANDARDS. IN CASE OF DIFFERENCE BETWEEN APPLICABLE CODES AND STANDARDS AND THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ARCHITECT/ENGINEER AND THE OWNER IN WRITING OF SUCH DIFFERENCE. SHOULD THE CONTRACTOR PERFORM ANY WORK THAT DOES NOT COMPLY WITH THE REQUIREMENTS OF APPLICABLE CODES AND STANDARDS, HE SHALL BEAR ALL COSTS ARISING IN CORRECTING SUCH DEFECTS. APPLICABLE CODES AND STANDARDS SHALL INCLUDE ALL ORDINANCES, UTILITY COMPANY REGULATIONS, AND APPLICABLE REQUIREMENTS OF NATIONALLY ACCEPTED CODES AND STANDARDS. SHOULD THE CONTRACTOR SUPPLY EQUIPMENT DIFFERING FROM THE SPECIFIED ITEM IN THE CONTRACT DOCUMENTS WITHOUT NOTIFICATION TO THE ENGINEER, HE SHALL BEAR COSTS TO UPGRADE DEFICIENCIES ARISING FROM SUCH. F. WHERE ONLY ONE MANUFACTURER'S NAME LISTED IN THE EQUIPMENT SPECIFICATION, OTHER MANUFACTURERS OF SIMILAR CHARACTERISTICS AND OF EQUAL OR BETTER PERFORMANCE CAPACITIES MAY BE CONSIDERED FOR "OR EQUAL" APPROVAL BY THE ENGINEER. WHERE MORE THAN ONE MANUFACTURER IS LISTED IN THE NOTES AND EQUIPMENT SPECIFICATIONS, ONLY THOSE NAMED MANUFACTURERS WILL BE CONSIDERED FOR APPROVAL. G. SHOULD A SUBSTITUTION BE ACCEPTED AND SHOULD THE SUBSTITUTE MATERIAL PROVE DEFECTIVE, OR OTHERWISE UNSATISFACTORY FOR THE SERVICE INTENDED WITHIN THE GUARANTEED PERIOD, THIS MATERIAL OR EQUIPMENT SHALL BE REPLACED WITH THE MATERIAL OR EQUIPMENT SPECIFIED AT NO COST TO THE OWNER. H. PROVIDE ACCESS, INCLUDING NECESSARY ACCESS DOORS, FOR NEW AND EXISTING EQUIPMENT REQUIRING OPERATION AND/OR MAINTENANCE. RELOCATE EXISTING AND LOCATE ALL NEW EQUIPMENT SUCH THAT OPERATION OR MAINTENANCE IS NOT RESTRICTED. I. DO NOT RUN PIPING OR DUCTWORK, OR LOCATE EQUIPMENT, WITH RESPECT TO SWITCHBOARDS, PANEL BOARDS, POWER PANELS, MOTOR CONTROL CENTERS OR DRY TYPE TRANSFORMERS, WITHIN 42 INCHES IN FRONT OF EQUIPMENT, OVER EQUIPMENT, OR WITHIN 36 INCHES HORIZONTALLY OF SAME FACE. J. PROVIDE SNAP-ON OR ADHESIVES LABELS INDICATING CHILLED OR HOT WATER SUPPLY AND RETURN, CONDENSATE DRAINAGE, AND DOMESTIC HOT AND COLD WATER, MEDICAL GASES, ETC. II. PRODUCTS, EQUIPMENT AND EXECUTION: A. RELIEF AND DRAIN PIPING SHALL BE AMERICAN MANUFACTURED TYPE "M" COPPER WITH 9% SOLDER JOINT FITTING OR SCHEDULE 40 BLACK STEEL PIPES WITH SCREWED FITTINGS. B. PIPE, EQUIPMENT, ETC., SHALL BE PROPERLY SUPPORTED FROM STRUCTURE WITH THE USE OF APPROVED TYPE CLEVIS, TRAPEZE HANGERS OR FLOOR STANDS WITH SPACINGS AS FOLLOWS: 1. STEEL PIPE OR COPPER TUBING - 1-1/2" OR LESS, 6 FOOT INTERVALS. 2. CAST IRON - ONE (1) HANGER PER LENGTH OF PIPE AND NOT EXCEEDING 10'-0" O.C. 3. FITTINGS - WITHIN 2'-0" OF EACH CHANGE OF DIRECTION. C. INSULATION SHALL BE PROTECTED AT HANGERS BY A SECTION OF CALCIUM SILICATE PIPE INSULATION AND A 12" LONG HALF-ROUND SHEET METAL SHIELD ON THE OUTSIDE OF THE INSULATION. EXTEND PIPING INSULATION FULL THICKNESS WITHOUT INTERRUPTION THROUGH WALLS, FLOORS AND SIMILAR PENETRATIONS. D. PROVIDE AND INSTALL UNIONS AT PROPER POINTS TO PERMIT REMOVAL OF A PIPE, EQUIPMENT, ETC., WITHOUT INJURY TO OTHER PARTS OF THE SYSTEM AND TO PREVENT CORROSION DUE TO ELECTROLYSIS. ALL EQUIPMENT SHALL BE INSTALLED IN A MANNER TO PERMIT ACCESS FOR SERVICE WITHOUT DISASSEMBLY. UNIONS SHALL BE ELECTRIC WHERE DISSIMILAR MATERIALS OCCUR. PRESSURE RATINGS SAME AS FITTINGS. E. PROVIDE INSULATION PRODUCTS MANUFACTURED BY JOHNS-MANVILLE, OWENS-CORNING, ARMSTRONG AND CERTAINTED. FIBERGLASS PIPE INSULATION SHALL BE ASTM C547-77, CLASS 1. PROVIDE BARS, WIRES, AND CEMENT AS RECOMMENDED BY INSULATION MANUFACTURER FOR THE APPLICATIONS INDICATED. FLEXIBLE FIBERGLASS DUCTWORK INSULATION SHALL BE ASTM C553-70, TYPE I, CLASS B3. 1. PROVIDE COMPOSITE INSULATION (INSULATION JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVE) WITH FLAME-SPREAD RATINGS OF 25 OR LESS AND A SMOKE-DEVELOPED RATING OF 50 OR LESS, AS TESTED BY ASTM K04 (HFA 255) METHOD. 2. MAINTAIN INTEGRITY OF VAPOR BARRIER JACKETS ON PIPE AND DUCTWORK INSULATION, AND PROTECT TO PREVENT PUNCTURE OR OTHER DAMAGE. SEAL OPEN ENDS OF INSULATION WITH MASTIC. SECTIONALLY SEAL ALL BUTT ENDS OF CHILLED WATER INSULATION OF FITTINGS WITH WHITE VAPOR BARRIER COATING. EXTEND PIPING INSULATION WITHOUT INTERRUPTION THROUGH WALLS, FLOORS AND SIMILAR PIPING PENETRATIONS, EXCEPT WHERE OTHERWISE INDICATED. INSTALL PROTECTIVE METAL SHIELDS AND FOAM GLASS INSERTS WHERE PIPE HANGERS BEAR ON OUTSIDE OF INSULATION. F. RECTANGULAR "LOW PRESSURE" SHEET METAL DUCT SHALL BE FABRICATED OF CONTINUOUS HOT DIP MILL GALVANIZED MINIMUM 26 GAUGE STEEL SHEETS AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS FOR 1.0" W.C. AND FOR THE FIRST 10 TO 15 FEET DOWNSTREAM OF A TERMINAL UNIT (FF/VAV OR VAV) SHALL HAVE EXTERNAL INSULATION 2" THICK. 1. RECTANGULAR - DUCTMASTE SYSTEM, ROUND-SPIRAL DUCT SYSTEM G. ROUND "LOW PRESSURE" DUCT FITTINGS SHALL BE FABRICATED OF CONTINUOUS HOT DIP MILL GALVANIZED MINIMUM 26 GAUGE STEEL SHEETS AND INSTALLED IN ACCORDANCE WITH SMACNA RECOMMENDATIONS FOR 0.5" W.C. 1. RECTANGULAR - DUCTMASTE SYSTEM, ROUND-SPIRAL DUCT SYSTEM H. RECTANGULAR AND ROUND "PRIMARY AIR" SHEET METAL DUCT AND FITTINGS SHALL BE FABRICATED OF CONTINUOUS HOT DIP MILL GALVANIZED MINIMUM 26 GAUGE STEEL SHEETS AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS FOR 3.0" W.C., AND RECTANGULAR DUCT SHALL HAVE AN EXTERNAL INSULATION 2" THICK. 1. RECTANGULAR - DUCTMASTE SYSTEM, ROUND-SPIRAL DUCT SYSTEM I. FLEXIBLE DUCT SHALL BE AHCA APPROVED MANUFACTURER ONLY. FLEXMASTER BM, THERMAXX MKE FLEXIBLE DUCT SHALL BE USED FOR SUPPLY AND RETURN AIR DEVICE CONNECTION ONLY. (MAX 6 FEET) FLEX SHALL NOT BE USED FOR EXHAUST. J. PROVIDE FIBERGLASS INSULATION ON THE EXTERIOR OF ALL DUCTS, COMPLIANCE WITH ASHRAE 90.1, AND THE FLORIDA ENERGY CODE. K. RETARDANT PIPING INSULATION: INSULATE RETARDANT PIPING WITH 3/4" ELASTOMERIC PERFORMED JOINT INSULATION. INSULATION SHALL BE OF THE FLEXIBLE FOAM-TYPE EXPANDED CLOSED-CELL PERFORMED (TUBE), ROLL OR SHEET AS APPLICABLE. NITRILE RUBBER BASED CLOSED CELL STRUCTURE. MINIMUM K VALUE OF 0.27 AT 75 DEGREES FAHRENHEIT AND MAXIMUM WATER VAPOR TRANSMISSION OF 0.02 PERM. ALLOWABLE TEMPERATURE APPLICATIONS FROM -40 TO 220 DEGREES FAHRENHEIT WHEN INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. L. PERFORMED JACKETED FIBERGLASS PIPE INSULATION: FIBERGLASS PIPE INSULATION: THERMAL CONDUCTIVITY (K) OF 0.24 AT 100 DEGREES F, AND VAPOR TRANSMISSION OF 0.02 PERMS. INSULATION SHALL BE JACKETED WITH FACTORY-APPLIED KRAFT REINFORCED FOL AL-SERVICE VAPOR RETARDANT JACKET SUITABLE FOR USE IN SYSTEMS WITH TEMPERATURES FROM -40 TO 350 DEGREES F. THE JACKETING SHALL HAVE A WHITE FINISH SUITABLE FOR PAINTING WITHOUT SIZING. JACKET CLOSURE SYSTEM OF FACTORY-APPLIED DOUBLE PRESSURE-SENSITIVE ADHESIVE ON LONGITUDINAL JOINTS. SELF-SEALING BUTT STITCHES AT CIRCUMFERENTIAL JOINTS WHICH PROVIDE CLOSURE AND POSITIVE VAPOR RETARDANT SEAL. PROVIDE MINIMUM THICKNESS OF 2" INSULATION ON PIPING. M. PIPING: NEW PIPING SHALL BE STEEL OR COPPER PIPE TO ASTM STANDARDS, AND HOSPITAL STANDARDS. 1. CHILLED WATER PIPING SHALL BE TYPE "L" COPPER (UP TO 2") * ALL SIZES SOLDERED WITH 100% SILVERHITE SOLDER. 2. DRAIN PIPING SHALL BE TYPE "L" COPPER * ALL SIZES SOLDER WITH 100% SILVERHITE SOLDER. N. INSULATE ALL NEW (AND SMALL PORTIONS OF EXISTING AT NEW TIE INS) PIPING SYSTEMS AS FOLLOWS: 1. CHILLED WATER PIPING: * ALL SIZES INSULATE WITH 1 1/2" FIBERGLASS WITH ASJ. 2. DRAIN PIPING: * ALL SIZES INSULATE WITH 1" FIBERGLASS WITH ASJ. O. LABEL ALL PIPING AND EQUIPMENT IN ACCORDANCE WITH HOSPITAL STANDARDS AND IN EACH ROOM A EVERY 20' O.C.. P. FLEXIBLE DUCTS SHALL BE FLEXMASTER TYPE BM, THERMAXX MKE OR WIREMOLD WK. FLEXIBLE DUCTS SHALL BE LISTED AS U.L. 181 CLASS (1) AIR DUCT AND SHALL COMPLY WITH NFPA STANDARDS 90A AND 90B. Q. CONTRACTOR SHALL BALANCE THE HVAC SYSTEMS FOR DESIGNATED AIR AND WATER QUANTITIES AND SHALL BE N.E.B.B. OR A.A.B.C. APPROVED. SUBMIT REPORT ON N.E.B.B. OR SMACNA FORMS FOR APPROVAL BY THE ENGINEER. EXTENT OF BALANCING WORK TO INCLUDE REBALANCING OF EXISTING SUPPLY AND EXHAUST SYSTEMS AS REQUIRED TO ACHIEVE DESIGN CFM ON SUBJECT PROJECT. R. MOTOR STARTER/DISCONNECT: 1. MOTOR STARTER/DISCONNECT SWITCH FOR 3/4 HP, 3 PHASE MOTORS AND LARGER SHALL BE ACROSS-THE-LINE NON-REVERSING COMBINATION STARTERS WITH FUSIBLE DISCONNECT SWITCH TYPE RATED IN ACCORDANCE WITH NEMA STANDARDS, SIZES AND HORSHPERW RATINGS. UNITS SHALL BE MOUNTED IN NEMA 1 ENCLOSURES WHERE INSTALLED INDOORS, AND NEMA 4 ENCLOSURES WHERE INSTALLED OUTDOORS. MINIMUM SIZE SHALL BE NEMA SIZE 1. a. OVERLOAD RELAYS OF THE MELTING ALLOY TYPE SHALL BE PROVIDED IN ALL PHASES. THERMAL UNITS SHALL BE OF ONE-PIECE CONSTRUCTION AND INTERCHANGEABLE. b. STARTERS SHALL BE EQUIPPED WITH ONE SET OF AUXILIARY CONTACTS AND BE SUITABLE FOR THE ADDITION OF AT LEAST THREE EXTERNAL ELECTRICAL INTERLOCKS OF ANY ARRANGEMENT NORMALLY OPEN OR NORMALLY CLOSED. C. ALL MAGNETIC STARTERS WITH "HAND-OFF-AUTO" SELECTOR SWITCH AND PILOT LIGHT SHALL BE EQUAL TO SQUARE D CLASS 8538 OR SIEMENS CLASS 30F WITH MELTING ALLOY OVERLOAD RELAYS AND FOR EACH PHASE AND RECOMMENDED BY INSULATION MANUFACTURER FOR THE APPLICATIONS INDICATED. COIL VOLTAGE SHALL BE 120 VOLT AND STARTER SHALL HAVE A CONTROL VOLTAGE TRANSFORMER. D. PUSH BUTTON STATIONS AND/OR HAND-OFF-AUTOMATIC SWITCHES SHALL BE REMOTE LOCATED AND WIRED UNDER THIS SECTION WHERE SO SHOWN OR SCHEDULE ON THE DRAWINGS. E. TEMPERATURE CONTROLS: 1. ALL TEMPERATURE CONTROLS NECESSARY FOR RENOVATION AND FINISH-OUT OF THE SPACE SHALL COMPLY WITH THE BASE BUILDING SYSTEM AND CONTROL SPECIFICATIONS. STANDARD CONTROL SYSTEM COMPONENTS SHALL BE USED. 2. NEW THERMOSTATS OR SENSORS SHALL MATCH THE EXISTING THERMOSTATS OR SENSORS. 3. ALL CONTROL WIRING AND POWER WIRING FOR CONTROLS SHALL BE BY THE CONTROLS SUB-CONTRACTOR. 4. AT THE COMPLETION OF CONSTRUCTION, ALL NEW AND EXISTING THERMOSTATS AND SENSORS SHALL BE CALIBRATED. T. TEST AND BALANCE: 1. THE GENERAL CONTRACTOR SHALL RETAIN THE SERVICES OF AN INDEPENDENT CERTIFIED AIR BALANCE FIRM TO PERFORM THE TESTING AND BALANCING AND PREPARE REPORTS TO THE GENERAL CONTRACTOR. IF THE MECHANICAL CONTRACTOR IS NEBB CERTIFIED, THEY CAN BALANCE THE SYSTEM. 2. TESTING AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN ACCORDANCE WITH THE ASSOCIATED AIR BALANCE COUNCIL NATIONAL STANDARDS FOR FIELD MEASUREMENT AND INSTRUMENTATION, SECOND EDITION, 1974, OR NATIONAL ENVIRONMENTAL BALANCING BUREAU STANDARDS. 3. THE CONTRACTOR SHALL CORRECT ALL DEFICIENCIES IN THE OPERATION OF FACTORY SET VAV UNITS. 4. READINGS AND TEST OF DIFFUSERS, GRILLES AND REGISTERS SHALL INCLUDE DESIGN, INITIAL TEST, AND FINAL ADJUSTED FPM VELOCITY AND CFM. ALL DIFFUSERS, GRILLES AND REGISTERS SHALL BE BALANCED BY A HOOD THAT HAS BEEN CALIBRATED, INCLUDING A MANOMETER, AND PILOT TUBE READINGS SHALL BE TAKEN TO ESTABLISH TOTAL CFM FLOW IN ALL MAIN DUCTS. DIRECT READING INSTRUMENTS SUCH AS VELOMETERS AND ANEMOMETERS MAY BE USED AT TERMINAL UNITS. READINGS SHALL INCLUDE DESIGN, INITIAL TEST AND FINAL ADJUSTED VALUES FOR CHILLED WATER SYSTEMS. U. IN ADDITION TO THE ABOVE, CONTRACTOR SHALL ACCUMULATE DURING THE JOB'S PROGRESS, THE FOLLOWING DATA, IN TRIPlicate, PREPARED IN A NEAT BROCHURE OR POCKET FOLDER AND TURNED OVER TO THE ARCHITECT FOR REVIEW AND SUBSEQUENT DELIVERY TO THE OWNER. 1. ALL WARRANTIES AND GUARANTEES AND MANUFACTURER'S DIRECTIONS ON EQUIPMENT AND MATERIAL COVERED BY THE CONTRACT INCLUDING THE NAMES, ADDRESSES AND TELEPHONE NUMBERS OF THE MANUFACTURER'S REPRESENTATIVE. 2. APPROVED FUTURE BROCHURES, WIRING DIAGRAMS AND CONTROL DIAGRAMS (ORIGINAL DATA, NO COPIES). 3. COPIES OF APPROVED SHOP DRAWINGS. 4. OPERATING INSTRUCTIONS FOR HEATING AND COOLING AND OTHER MECHANICAL SYSTEM. OPERATING INSTRUCTIONS SHALL ALSO INCLUDE RECOMMENDED MAINTENANCE AND SEASONAL CHANGEOVER PROCEDURES. 5. TEST AND BALANCE REPORTS REQUIRED BY THESE SPECIFICATIONS. 6. ANY AND ALL OTHER DATA AND/OR DRAWINGS REQUIRED DURING CONSTRUCTION. 7. REPAIR PARTS LISTS OF ALL MAJOR ITEMS AND EQUIPMENT INCLUDING NAME, ADDRESS AND TELEPHONE NUMBERS OF LOCAL SUPPLIER OR AGENT. 8. VALVE TAG CHARTS AND DIAGRAMS. V. ALL OF THE ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR HIS REVIEW AT SUCH TIME AS THE CONTRACTOR SUBMITS HIS LAST ESTIMATE PRIOR TO HIS FINAL PAYMENT, BUT IN NO CASE, LESS THAN TWO WEEKS BEFORE FINAL INSPECTION.	

C

B

A

HVAC GENERAL NOTES

- HVAC DRAWINGS ARE DIAGRAMATIC IN NATURE AND REPRESENT EXISTING CONDITIONS BASED ON DRAWINGS AND SITE OBSERVATIONS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL ACTUAL CONDITIONS INCLUDING, DUCTWORK AND PIPING LOCATION AND SIZES.
- DUE TO DRAWINGS BEING DIAGRAMATIC IN NATURE RISERS AND DROPS ARE NOT SHOWN - CONTRACTOR SHALL INCLUDE THESE IN THE BID - WHERE POSSIBLE ALL RISERS AND DROPS SHALL BE CONSTRUCTED USING 45 DEGREE OR LONG RADIUS ELBOWS.
- PROVIDE AND INSTALL NECESSARY DUCTWORK TRANSITIONS AND PIPING INCREASES/REDUCERS AS REQUIRED FOR EQUIPMENT CONNECTIONS. CONSULT MANUFACTURER'S DATA FOR ACTUAL DUCTWORK AND PIPING CONNECTIONS SIZES, INCLUDING, BUT NOT LIMITED TO THOSE SHOWN.
- PROVIDE MANUAL VOLUME DAMPERS AT ALL LOW PRESSURE BRANCH DUCTS TO INDIVIDUAL DIFFUSERS AND GRILLES AND TO ALL LOW PRESSURE BRANCH DUCTS TO REHEAT COILS. PROVIDE DAMPERS AS CLOSE AS POSSIBLE TO BRANCH CONNECTION TO MAIN. SEE DIFFUSER AND GRILLE SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- SCHEDULE NEW CONSTRUCTION WORK WITH THE OWNER WELL IN ADVANCE. CONSTRUCTION WORK AND DEMOLITION SHALL BE PERFORMED OR REPLACED TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.
- ALL FINISHES AND SURFACES TO REMAIN WHICH ARE DAMAGED DURING CONSTRUCTION WORK SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.
- DO NOT BLOCK TUBE PULL OR SERVICE SPACE ON EQUIPMENT WITH PIPING, DUCTWORK, ETC., (FLANGED OR REMOVABLE SECTIONS MAY BE USED IN SOME INSTANCES WHERE TIGHT CLEARANCES EXIST).
- NO PIPING, DUCTWORK OR CONDUIT SHALL BE INSTALLED UNTIL IT IS COORDINATED WITH ALL OTHER TRADES AFFECTED. PROVIDE ALL OFFSETS REQUIRED TO AVOID INTERFERENCE WITH OTHER TRADES, EXISTING CONDITIONS AND WITH THE STRUCTURE, INCLUDING, BUT NOT LIMITED TO, THOSE SHOWN.
- IF NO SIZE IS SHOWN FOR DUCT SERVING DIFFUSER OR GRILLES, USE SIZE SHOWN ON DIFFUSER AND GRILLE SCHEDULE.
- DUCTWORK ROUTED PARALLEL TO A WALL, RATED OR CORRIDOR SHALL BE INSTALLED WITH MINIMUM 6" CLEARANCE TO ALLOW FOR INSPECTION OF WALL PENETRATIONS. CONTRACTOR SHALL PROVIDE 12" CLEARANCE WHERE POSSIBLE, COORDINATE.
- REFER TO DETAIL SHEETS AND SPECIFICATIONS FOR ADDITIONAL INSTALLATION REQUIREMENTS.
- CONTRACTOR SHALL SUBMIT A COMPLETE LIST OF EQUIPMENT AND ITEMS TO BE REMOVED TO THE OWNER. ALL ITEMS THAT THE OWNER WISHES TO RETAIN SHALL BE TURNED OVER TO OWNER AND THE REMAINDER SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A PROPER MANNER BY CONTRACTOR.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL WORK NECESSARY TO PREPARE THE STRUCTURE FOR THE INSTALLATION AND/OR DEMOLITION WORK OF THE MECHANICAL SYSTEMS, ALL HOLES, OPENINGS AND ANY DAMAGED MATERIALS OR SURFACES SHALL BE REPAIRED AND FINISHED TO MATCH EXISTING.
- ALL DEMOLITION WORK SHALL COMPLY WITH NFPA 241 AND THE REQUIREMENTS OF THE OWNER.
- PROVIDE TEMPORARY FILTERS ON ALL RETURN AIR GRILLES AND TRANSFER OPENINGS IN THE WORK AREA.
- EXISTING SYSTEMS SHOWN ON THE DRAWINGS ARE BASED ON AVAILABLE RECORD DRAWINGS. THIS INFORMATION IS ONLY PARTIALLY VERIFIED. THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY AND INVESTIGATE ALL CONDITIONS THAT AFFECTS THE WORK PRIOR TO SUBMITTING THE BID.
- INSTALL AHU CONTROL PANELS TO PROVIDE FOR 3'-0" MIN. CLEARANCE IN FRONT OF PANEL.
- UNLESS OTHERWISE NOTED ON PLANS, LOW RETURN AIR GRILLES AND LOW EXHAUST GRILLES SHALL BE 6" TO 8" AFF TO BOTTOM OF GRILLE.
- ALL DIFFUSERS IN SAME SPACE SHALL HAVE THE SAME FULL FACE SIZE USING LARGEST SIZE REQUIRED FROM DIFFUSER AND GRILLE SCHEDULE.
- PROVIDE CLEAR ACCESS TO FIRE DAMPERS, SMOKE DAMPERS, AND VALVES.
- PROVIDE MANUFACTURER'S CERTIFIED DATA (NQA) OR CALCULATIONS ON ALL EXTERIOR MOUNTED EQUIPMENT DURING SUBMITTAL PHASE, WHICH INDICATES THAT THE EQUIPMENT CAN WITHSTAND A WIND LOAD REQUIRED BY THE FBSC.
- ALL DUCTWORK EXCEPT HAZARDOUS EXHAUST DUCTS PENETRATING FIRE WALLS SHALL HAVE FIRE DAMPERS AT EACH PENETRATION.
- EXACT LOCATION OF CEILING DIFFUSER, GRILLED, REGISTERS, ETC. TO BE COORDINATED WITH ARCHITECTURAL REFLECTED CEILING PLANS.
- UNLESS OTHERWISE NOTED, ALL PIPING RUNOUTS TO TERMINAL BOX REHEAT COIL SHALL BE 3/4".
- HVAC CONTRACTOR SHALL PROVIDE ALL SHEET METAL AND PIPING TRANSITIONS TO DIFFUSERS, TERMINAL BOXES, COILS AND OTHER SIMILAR HVAC EQUIPMENT.
- FOR EQUIPMENT QUANTITIES SCHEDULED, SEE PLANS SCHEDULES DO NOT INDICATE EXACT QUANTITIES.
- ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S APPROVED PUBLISHED LITERATURE.
- PROVIDE INSTRUMENTAL TEST HOLES IN DUCTWORK WHEREVER VOLUME DAMPERS ARE REQUIRED.
- ALL WORK UNDER THIS SECTION SHALL BE COORDINATED WITH ALL OTHER TRADES BEFORE ANY INSTALLATION IS MADE.
- EXACT LOCATIONS OF THERMOSTATS TO BE COORDINATED WITH ALL OTHER TRADES BEFORE ANY INSTALLATION IS MADE.
- ALL EXPOSED EQUIPMENT (REGISTERS, GRILLES, DIFFUSERS, ETC.) SHALL HAVE COLORS SELECTED BY THE ARCHITECT UNLESS OTHERWISE NOTED.
- ALL TERMINAL UNITS SHALL BE INSTALLED IN SUCH A WAY SO THAT LIGHTS DO NOT BLOCK ACCESS TO UNITS AND RELATED ACCESSORIES.
- FURNISH ALL ACCESS PANELS FOR VALVES AND DAMPERS IN WALLS, CEILING AND FLOORS AS REQUIRED PER PLANS AND SPECIFICATIONS. ACTUAL NUMBERS TO BE FIELD DETERMINED - LOCATIONS TO BE APPROVED BY ARCHITECT.
- ALL STRAINER/RELIEF VALVE DISCHARGE PIPING SHALL RUN TO 12" ABOVE FINISHED FLOOR OR NEAREST FLOOR DRAIN.
- BRANCH DUCTS SERVING SUPPLY, RETURN OR EXHAUST GRILLES SHALL BE 2" LARGER (WIDER) THAN GRILLE NECK SIZE UNLESS NOTED OTHERWISE.
- PROVIDE EXPANSION LOOPS OR COMPENSATORS WITH GUIDES AND ANCHORS FOR ALL HOT WATER, PIPING RUNS WHICH EXCEED 75 FEET IN LENGTH.
- PROVIDE SEPARATE THERMOSTAT FOR EACH ZONE INDICATED ON THE DRAWINGS.
- PROVIDE 3/4" DRAIN VALVE WITH HOSE CONNECTION, CAP AND CHAIN AT SYSTEM LOW POINTS AND MANUAL AIR VENTS AT TOP OF ALL RISERS AND SYSTEM HIGH POINTS.
- COORDINATE ALL STRUCTURAL SUPPORT PAD REQUIREMENTS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL EQUIPMENT REQUIRING SAME.
- COORDINATE ALL MOTOR, STARTER, DISCONNECT REQUIREMENTS WITH ELECTRICAL DRAWINGS FOR ALL EQUIPMENT REQUIRING SAME.
- DUCT DIMENSIONS SHOWN ON PLANS REFER TO INSIDE CLEAR DIMENSIONS.
- PROVIDE ALL PIPE AND DUCT CONNECTIONS TO EQUIPMENT INDICATED ON THE ARCHITECTURAL DRAWINGS AND FOR EQUIPMENT FURNISHED NEW BY THE OWNER OR EQUIPMENT RELOCATED FROM EXISTING HOSPITAL AREAS. COORDINATE REQUIREMENTS WITH ARCHITECT, OWNER & CONSTRUCTION MANAGER REVIEW ALL DRAWINGS FOR THESE REQUIREMENTS AND ASCERTAIN THE EXACT SCOPE IN THE FIELD PRIOR TO SUBMITTING BIDS.
- THE HVAC CONTRACTOR SHALL VISIT THE SITE TO EXAMINE THE EXISTING CONDITIONS AND ALL WORK REQUIRED FOR PHASING, DEACTIVATION, TEMPORARY LINES ETC. QUESTIONS REGARDING PHASING, SCHEDULING OF WORK AND OTHER REQUIREMENTS ASSOCIATED WITH WORK IN THE EXISTING BUILDINGS SHALL BE DIRECTED TO THE ARCHITECT & OWNER PRIOR TO BIDDING. GENERALLY EACH SYSTEM OR SERVICE SHALL BE DEACTIVATED, DRAINED, MADE SAFE AND DISCONNECTED.
- DEACTIVATION, RELOCATION AND NEW WORK SHALL BE PLANNED TO MINIMIZE DISRUPTION OF HOSPITAL FUNCTIONS, PROVIDE TEMPORARY CAPPING AND CONNECTIONS AS REQUIRED TO MAINTAIN EXISTING SYSTEMS DURING CONSTRUCTION. COORDINATE ALL SHUT-DOWNS OF EXISTING SYSTEMS WITH THE HOSPITAL.
- REINSULATE EXISTING PIPING AND DUCTWORK WITHIN 10'-0" OF POINT OF CONNECTED NEW SYSTEM.
- THE HVAC CONTRACTOR, IN CONJUNCTION WITH THE CONSTRUCTION MANAGER, AND OR THE GENERAL CONTRACTOR SHALL MAKE PROVISIONS TO PROTECT THE EXISTING HVAC EQUIPMENT DURING CONSTRUCTION. ADDITIONALLY, THE HVAC CONTRACTOR AND CONSTRUCTION MANAGER SHALL CONSULT WITH THE HOSPITAL'S INDUSTRIAL HYGIENIST/ INFECTIOUS DISEASE OFFICER REGARDING FILTRATION MEASURES REQUIRED TO PROTECT THE EXISTING HOSPITAL AIR INTAKES AND ADJACENT SPACES FROM CONSTRUCTION DUST AND AIRBORNE ASPERGILLUS FUNGUS.

TEST AND BALANCE NOTES

- PRECONSTRUCTION:
PRIOR TO COMMENCEMENT OF ANY HVAC WORK AN INDEPENDENT AABC OR NEBB CERTIFIED TAB CONTRACTOR SHALL MEASURE AND DOCUMENT, IN A TYPED REPORT THE AIRFLOW QUANTITIES PROVIDED OR EXHAUSTED BY ALL EXISTING EQUIPMENT AND DUCTS TO REMAIN THAT SERVE OR ARE SERVED FROM THE RENOVATED AREA. SUBMIT TYPE WRITTEN DATA TO ENGINEER FOR REVIEW.

THE FOLLOWING INFORMATION IS REQUIRED:

- AIR FLOW OF ALL AIR DEVICES IN RENOVATED AREA(S).
- AIR FLOW (TRAVERSE) AT MAINS AND BRANCH DUCTS SERVING THE RENOVATED AREA(S).
- AIR FLOW AT MAINS (TRAVERSE) AT MAINS AND BRANCH DUCTS SERVING THE RENOVATED AREA(S).
- SUCTION AND DISCHARGE STATIC AT UNITS SERVING THE RENOVATED AREA(S).
- MEASURED FAN RPM, MOTOR IMPERFAGE FOR ALL UNITS SERVING THE RENOVATED AREA(S).
- PROVIDE EXISTING UNIT AND MOTOR NAME PLATE DATE.
- WATER FLOW TO COILS AS APPLICABLE.

2. FINAL CONSTRUCTION:
UPON COMPLETION OF THE HVAC RENOVATION WORK, THE SAME CONTRACTOR SHALL REBALANCE THE NEW AND EXISTING EQUIPMENT AND DUCTS TO PROVIDE INDICATED AIR QUANTITIES TO THE RENOVATED SPACE. ANY ADDITION OF DAMPERS ADJUSTMENTS, (FAN SPEED, CHANGE OUT OF PULLEYS, ETC.) REQUIRED FOR THIS SHALL BE INCLUDED IN THIS CONTRACTORS PROPOSAL.

3. FINAL REPORT:
SUBMIT FINAL TEST AND BALANCE REPORT TO ENGINEER FOR REVIEW AND ACCEPTANCE ONE WEEK PRIOR TO FINAL APCA INSPECTION FOR EACH PHASE.

GENERAL MECHANICAL NOTES

- LOCATIONS AND SIZES OF EXISTING SYSTEMS ARE APPROXIMATE. EXACT SIZES AND LOCATIONS OF ALL EXISTING PIPING, DUCTS, ETC. SHALL BE VERIFIED ON THE JOB BY THE CONTRACTOR.
- CONTRACTOR SHALL INSTALL MECHANICAL SYSTEMS WITHOUT INTERFERENCE AND IN STRICT COORDINATION WITH ALL OTHER TRADES. HOLD DUCTWORK TIGHT AGAINST UNDERSIDE OF STRUCTURE ABOVE/ AIR TIGHT.
- TAPE AND SEAL ALL ROUND DUCT CONNECTIONS TO BE PERMANENTLY.
- RIGID SHEET METAL DUCT SHALL BE RUN WITHIN SIX FEET OF DIFFUSERS. FLEX DUCT SHALL BE SUPPORTED AS OFTEN AS NECESSARY TO PREVENT KINKS, FOLDS OR OTHER OBSTRUCTIONS TO AIR FLOW. CEILING GRID AND ASSOCIATED SUPPORTS MAY NOT BE USED TO SUPPORT DUCTWORK. PROVIDE RIGID 90 DEGREE ELBOWS ON DIFFUSER NECKS.
- EQUIPMENT CAPACITIES AND CHARACTERISTICS SHALL BE AS SCHEDULED ON THE DRAWINGS.
- EXISTING CEILING DIFFUSERS MAY BE REUSED AND RELOCATED AS NECESSARY UNLESS NOTED OTHERWISE OR SIZE PROHIBITS USE.
- NEW CEILING DIFFUSERS TO BE TITUS, METALARE OR KRIEGER AND EQUAL TO TITUS MODEL PCS AND SUIT THE SPECIFIED SERVICE AND CEILING TYPE UNLESS NOTED OTHERWISE ON PLANS. COORDINATED WITH ARCHITECTURAL PLANS.
- ALL NEW FLOOR PENETRATIONS AND PENETRATIONS THROUGH RATED WALLS SHALL BE FIRE SAFE.
- RE-POUR ALL ABANDONED FLOOR PENETRATIONS.
- CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL BY THE ENGINEER ALL MAJOR ITEMS OF MATERIALS AND EQUIPMENT.

HVAC GENERAL NOTES

MECHANICAL DEMOLITION NOTES

- FOR EQUIPMENT AND SYSTEMS TO REMAIN IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE CONDITION OF, EXACT SIZES AND LOCATION OF EXISTING DUCT AND PIPING ETC. BEFORE DEMOLITION WORK IS BEGUN. REPORT ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL FIELD CONDITIONS TO THE OWNER AND ENGINEER PRIOR TO COMMENCEMENT OF DEMOLITION WORK.
- REMOVE THE INDICATED HVAC ITEMS AS SHOWN ON PLANS, THIS INCLUDES ALL HANGERS, STRAPS AND RELATED MATERIAL, AS DIRECTED THIS MATERIAL SHALL BE REMOVED FROM THE SITE OR TURNED OVER TO THE OWNER (AS DIRECTED BY THE OWNER).
- CAP AND SEAL AIR TIGHT ALL POINTS AT WHICH DUCTWORK IS REMOVED FROM DUCTWORK THAT WILL REMAIN.
- PATCH AND MATCH OPENINGS IN WALLS TO MAINTAIN THE INTEGRITY OF THE WALL WHERE AIR DEVICES DUCTS, PIPING, ETC. HAVE BEEN REMOVED. (MAINTAIN THE EXISTING RATINGS).
- CONTRACTOR SHALL VERIFY CLEARANCE REQUIREMENTS AND INDICATE ROUTING OF NEW DUCTWORK BEFORE FABRICATION BEGINS AS RISERS AND DROPS MAY BE NECESSARY DUE TO EXISTING FIELD CONDITIONS.
- ALL DEMOLITION WORK SHALL COMPLY WITH NFPA 241 AND THE REQUIREMENTS OF THE OWNER.

AHU OPERATION DURING CONSTRUCTION

THE USE OF NEW OR EXISTING AIR HANDLING UNITS DURING CONSTRUCTION IS PROHIBITED UNLESS APPROVED BY THE OWNER AND THE PROCEDURES OUTLINED IN THIS PARAGRAPH ARE FOLLOWED RIGIDLY.

- THE CONTRACTOR SHALL PROTECT THE INTERIOR OF ALL DUCTWORK AND AIR HANDLING UNITS FROM THEACCUMULATION OF DIRT AND DUST USUALLY ASSOCIATED WITH THE FINISHING STAGES OF THE CONSTRUCTION WORK.
- DUCTWORK STORE ON SITE AWAITING INSTALLATION SHALL BE CAREFULLY EXAMINED AND THOROUGHLY CLEANED BEFORE PLACEMENT IN ITS FINAL LOCATION. THE ENDS OF DUCTWORK SHALL BE CLOSED DURING CONSTRUCTION.
- THE AIR HANDLING UNITS WILL BE ALLOWED TO OPERATE DURING THE FINISHING STAGES OF THE GENERAL WORK PROVIDED THE PRE-FILTERS ARE IN PLACE AND THE ENDS OF ALL RETURN AIR INLETS ARE COVERED WITH ROLL-UP FILTER MATERIAL.
- WHEN THE SPACE IS TURNED OVER TO THE OWNER, THE CONTRACTOR SHALL REMOVE ALL FILTERS USED DURING CONSTRUCTION AND REPLACE THEM WITH NEW FILTERS.
- USE OF NEW AHU'S DURING CONSTRUCTION IS NOT ALLOWED.

SEQUENCE OF OPERATION

CONTRACTOR SHALL VERIFY THE EXISTING AIR HANDLING UNIT(S), AND ASSOCIATED EXHAUST FAN(S), SHALL SHUT DOWN UPON ACTIVATION OF FIRE ALARM SYSTEM. EXCEPTION: ISOLATION OR HAZARDOUS EXHAUST FANS SHALL RUN CONTINUOUS.

HVAC DRAWING INDEX

M0.01	HVAC LEGENDS & GENERAL NOTES
M0.02	HVAC ICRA NOTES AND DETAILS
M1.01	HVAC PARTIAL DEMOLITION PLAN
M2.01	HVAC PARTIAL NEW FLOOR PLAN
M3.01	HVAC CONTROLS & SCHEDULES
M4.01	HVAC DETAILS



healthcare facilities solution

6800 Broken Sound Boulevard NW
Suite 125
Boca Raton, FL 33487

t: 561.985.1700
f: 561.985.1701
www.arrayhfs.com

firm license number
A23000589

SEAL:

CONSULTANTS:

Miller Legg & Associates

2005 Vista Parkway, Suite 100
West Palm Beach, FL 33411

ONM&J, INC.

321 15th Street, Suite 200
West Palm Beach, FL 33401

BRA
Bard, Rao + Athanasius Consulting
Engineers, LLC
2800 Douglas Road
Suite 301
Coral Gables, FL 33134
tel 305.528.1816 fax 305.528.1112
www.brdplus.com

Firm Certification #0057
Nguyen Perez PE #72149
Rafaela Lujan PE #71768
Mehmet Lal PE #61766
Eric S. Walter PE #63629

OWNER:

TENET HEALTH

HOSPITAL:

DELRAY

MEDICAL

CENTER

PROJECT:

BULK OXYGEN REPLACEMENT

ADDRESS:

5352 LINTON BOULEVARD
DELRAY BEACH, FL 33324

ACHA File No. 23/100258

ID SUBMISSION: 126-001

NO.	DESCRIPTION	DATE
REVISIONS/ISSUES		

SHEET

TITLE:

GENERAL NOTES -HVAC

DRAWN: MTP
CON/REF. 00000
PROJECT # 11-635.00

DATE: 09-13-11 SCALE: 1/16" = 1'-0"

SHEET

NO.

M0.01

This document is a copyright protected instrument of service, property of ARRAY and
intended for use in the titled project only. Reproduction or use of this document
without written permission of ARRAY is illegal and will be prosecuted under the law.

© COPYRIGHT - 2011 ARRAY
HFS

F

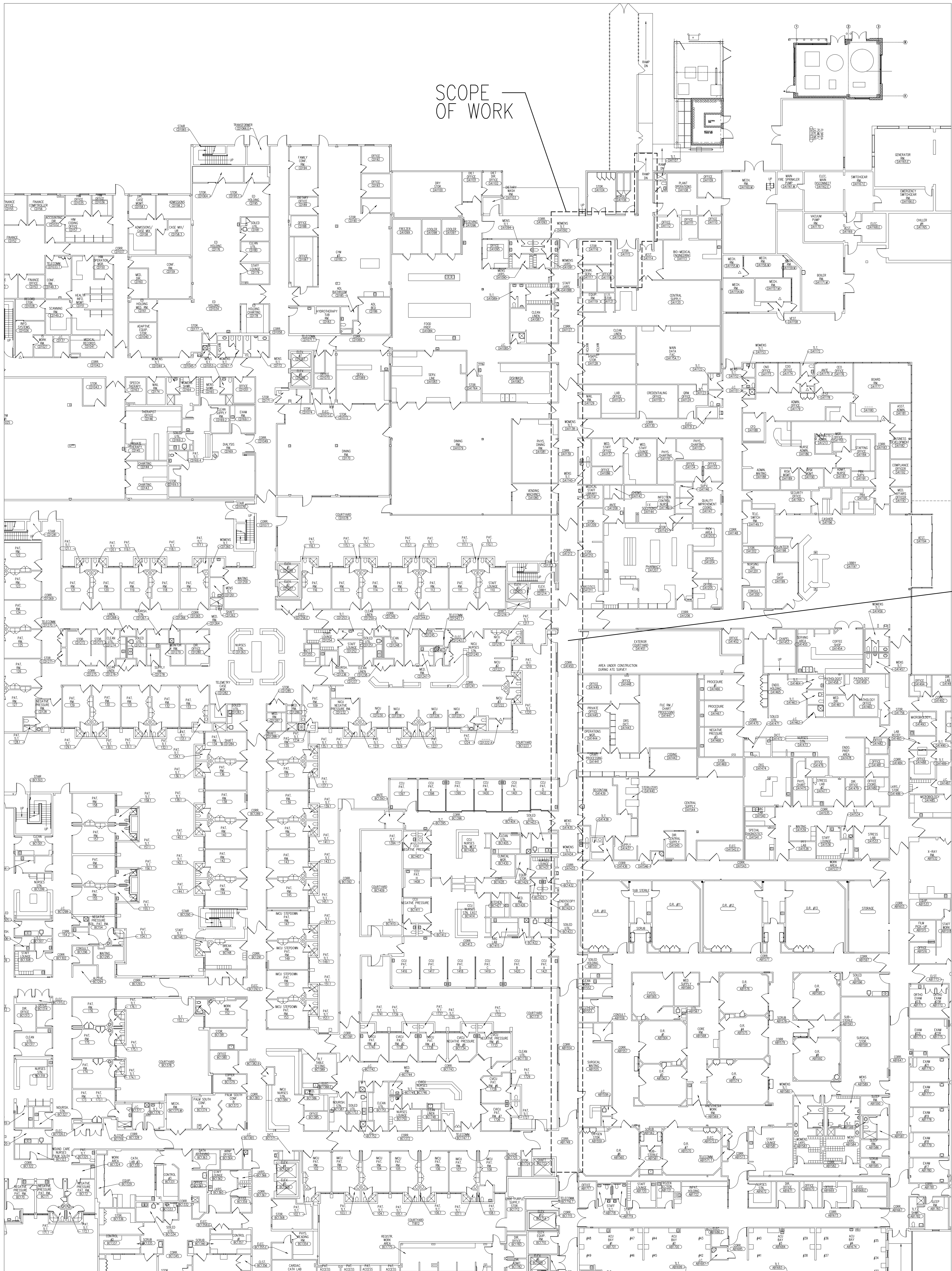
E

D

C

B

A



ICRA GENERAL NOTES

1. CONTRACTOR SHALL OBTAIN FROM THE OWNER A COPY OF THE INFECTION CONTROL RISK ASSESSMENT (ICRA) PREPARED FOR THIS PROJECT. CONTRACTOR SHALL REVIEW THE REQUIREMENTS IN THE REPORT AND PERFORM ALL WORK IN ACCORDANCE WITH THOSE REQUIREMENTS. CONTRACTOR SHALL STRICTLY ADHERE TO THE LIMITS OF THE CONSTRUCTION AREA, AND WHERE PHASING APPLIES SHALL ADHERE TO THE PHASING PLAN. ANY WORK OUTSIDE THE CONSTRUCTION AREA SHALL BE COORDINATED WITH THE OWNER AND PERFORMED IN ACCORDANCE WITH THE ICRA REPORT, UNDER THE SUPERVISION OF THE OWNER'S REPRESENTATIVE OR OTHER DESIGNATED ICRA COMMITTEE OFFICER.
2. TO THE EXTENT THAT IT IS REQUIRED BY THE ICRA, THE CONTRACTOR SHALL ENDEAVOR TO MAINTAIN EXISTING LEVELS OF INDOOR AIR QUALITY IN AREAS SURROUNDING AND ADJACENT TO THE CONSTRUCTION WORK ZONE, AND ELSEWHERE IN THE FACILITY. IT SHOULD BE ANTICIPATED THAT THE ICRA REPORT WILL REQUIRE MEASURES TO THIS EFFECT INCLUDING ERECTION OF CONSTRUCTION ZONE BARRIERS AND PROVISION OF NEGATIVE AIR PRESSURE IN THE CONSTRUCTION ZONE RELATIVE TO OTHER AREAS OF THE FACILITY AS SHOWN ON PLANS.
3. IN ADDITION TO MEETING THE REQUIREMENTS OF THE ICRA REPORT, THE CONTRACTOR SHALL PROVIDE EQUIPMENT AND COMPONENTS AS SHOWN ON CONSTRUCTION WORK ZONE VENTILATION PLAN TO CREATE A NEGATIVE PRESSURE IN THE CONSTRUCTION WORK ZONE RELATIVE TO ADJACENT AREA. EXISTING HVAC SYSTEMS AND COMPONENTS SHALL NOT BE USED FOR THIS FUNCTION, UNLESS SPECIFICALLY APPROVED BY THE OWNER'S INFECTION CONTROL OFFICER AND ONLY TO THE EXTENT INDICATED ON THE CONSTRUCTION WORK ZONE VENTILATION PLAN.

4. THE CONCEPT AND ALL ASPECTS OF THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE ICRA REQUIREMENTS AND AT A MINIMUM AS FOLLOWS:
 - VERIFY ALL EXISTING DUCTWORK WHICH PASSES THROUGH THE CONSTRUCTION ZONE, AND IS TO REMAIN, IS SEALED AND PROTECTED DURING THE CONSTRUCTION DURATION. COVER AND SEAL ALL DIFFUSERS, REGISTERS AND GRILLES.
 - AIR REMOVED FROM THE CONSTRUCTION ZONE SHALL BE FILTERED AND/OR DISCHARGED AS INDICATED ON THE CONSTRUCTION WORK ZONE VENTILATION PLAN.
 - MONITOR AND VERIFY NEGATIVE PRESSURE IS BEING MAINTAINED IN ACCORDANCE WITH THE ICRA REPORT, AND PROVIDE DOCUMENTATION TO THE OWNER AS REQUIRED.
5. COORDINATE IN ADVANCE ANY REQUIRED EQUIPMENT SHUTDOWN WITH THE OWNER, AND VERIFY BEFORE SHUTDOWN THAT EXISTING OR DESIRED AIR PRESSURE RELATIONSHIPS WILL NOT BE ADVERSELY AFFECTED.
6. CONTRACTOR SHALL HAVE AIR SCRUBBER, PRESSURE MONITORS, ALARMS, DISCHARGE AIR DUCTS AND ANY MODIFICATIONS TO EXISTING HVAC SYSTEMS READY PRIOR TO DEMOLITION AND READY FOR TAB CONTRACTOR TO PERFORM CONSTRUCTION WORK ZONE VENTILATION PLAN TESTING, ADJUSTING AND BALANCING.
7. DEMOLITION WORK SHALL NOT BEGIN UNTIL CONSTRUCTION WORK ZONE VENTILATION PLAN TAB REPORT HAS BEEN REVIEWED AND APPROVED BY THE ARCHITECT/ENGINEER AND THE OWNER'S INFECTION CONTROL COMMITTEE.

EQUIPMENT SPECIFICATIONS

- A) ROOM PRESSURE MONITOR** – ABATEMENT TECHNOLOGIES MODEL HCRPM-3N2 (800-634-9091) OR EQUIVALENT. PROVIDE WITH THE FOLLOWING FEATURES:
1. WALL MOUNT, LCD DISPLAY, 12 TO 24 VAC, 400 MILLI AMPS.
 2. ACCURACY +/- 1% OF SCALE, ALARM ACCURACY +/- 1% OF SETPOINT.
 3. LOCAL/REMOTE AUDIO/VISUAL ALARM WITH SPOT RELAY FOR REMOTE. CONTACTS RATED FOR 10 AMPS AT 250 VAC.
 4. ADJUSTABLE ALARM DELAY SET FOR THREE MINUTES, MAXIMUM FIVE MINUTES.
 5. AUTO CALIBRATION WITH DATE AND TIME MEMORY OF ALARMS.
 6. RANGE OF MEASUREMENT +/- 0.10 INCHES OF WATER COLUMN.
- B) PORTABLE AIR SCRUBBERS** – ABATEMENT TECHNOLOGIES MODEL HEPA – AIRE PAS (800-634-9091) OR EQUIVALENT. PROVIDE WITH THE FOLLOWING FEATURES:
1. U.L. OR E.T.L. LISTED.
 2. STAINLESS STEEL CABINET WITH INTEGRAL TRANSPORT DOLLY AND EXHAUST COLLAR.
 3. UP TO FOUR STAGES OF FILTRATION WITH ZERO BYPASS CABINET CONSTRUCTION.
 - a) FIRST STAGE 1" PARTICULATE FILTER.
 - b) SECOND STAGE 2" PLATED FILTER.
 - c) OPTION CARBON FILTER TRACK.
 - d) 99.97% EFFICIENT DOP HEPA FILTER.
 4. FILTER CHANGE INDICATOR LAMPS FOR PRE-FILTER AND FINAL FILTERS.
 5. POWER CORD FOR 120 VAC POWER CONNECTION, OPERATING HOUR METER, TWO SPEED OR VARIABLE SPEED BLOWER.

PRE-CONSTRUCTION NOTES

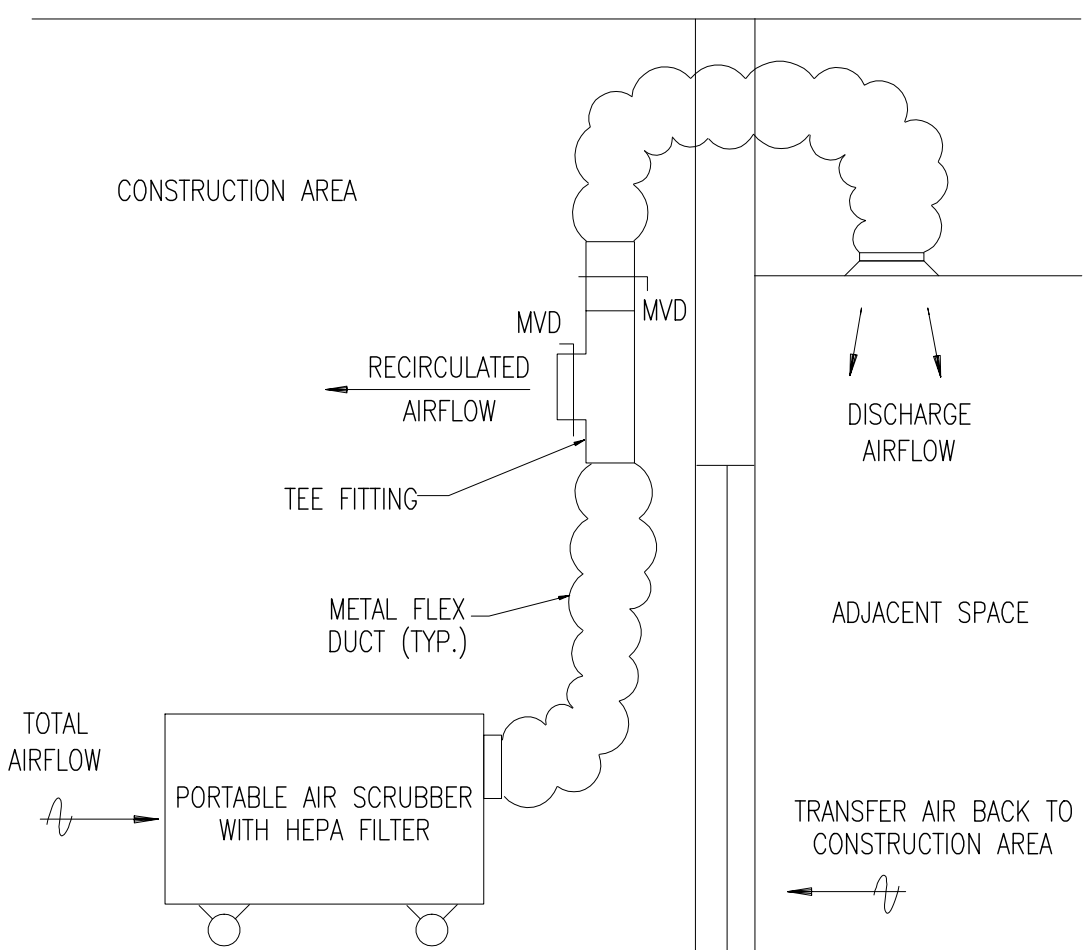
PRIOR TO COMMENCEMENT OF ANY DEMOLITION WORK IN THE CONSTRUCTION AREA AN INDEPENDENT AABC OR NEBB CERTIFIED TESTING, ADJUSTING AND BALANCING (TAB) CONTRACTOR SHALL MEASURE AND DOCUMENT IN A TYPED REPORT THE FOLLOWING INFORMATION:

- A) SPEED SETTING AND AIRFLOW OF ALL AIR SCRUBBER(S), RECIRCULATING AND EXHAUST.
- B) DIFFERENTIAL PRESSURE READING OF ALL AIR SCRUBBER FILTER GAUGES.
- C) DIFFERENTIAL PRESSURE BETWEEN CONSTRUCTION ZONE AND ADJACENT AREAS AT EACH DOORWAY ENTRANCE TO THE CONSTRUCTION ZONE.
- D) VERIFY ROOM PRESSURE DIFFERENTIAL MONITORS LOCATED NEAR DOORWAY ENTRANCE TO CONSTRUCTION ZONE ARE READING WITHIN +/- 10% OF FIELD READINGS OF ITEM 3 ABOVE.
- E) VERIFY THREE MINUTE ALARM DELAY IS FUNCTIONING ON ROOM PRESSURE DIFFERENTIAL MONITORS AND THAT LOCAL AND REMOTE AUDIO/VISUAL ALARMS FUNCTION WHEN CONSTRUCTION AREA NEGATIVE RELATIVE PRESSURE DROPS BELOW MINIMUM SETPOINT.
- F) ANY DEFICIENCIES IN MEETING THE OWNER'S ICRA REQUIREMENTS FOR AIR CHANGES, RELATIVE NEGATIVE PRESSURE OR FAULTY EQUIPMENT SHALL BE IDENTIFIED IN THE FINAL REPORT.

CONTRACTOR TO PROVIDE ZIP WALL CONTAINMENT FOR CORRIDOR CEILING WORK, AND MAINTAIN NEGATIVE RELATIVE AIR PRESSURE AND VENTILATION PER THE OWNER'S ICRA REPORT.

CONTRACTOR SHALL:

1. ADJUST THE DISCHARGE AIR FLOW TO THE ADJACENT SPACE IN ORDER TO MAINTAIN A MINIMUM OF 0.02" WG NEGATIVE RELATIVE AIR PRESSURE AS MEASURED AND DISPLAYED BY THE PRESSURE DIFFERENTIAL MONITOR(S).
2. PROVIDE AIR SCRUBBERS AS NECESSARY TO MAINTAIN THE AIR CHANGE REQUIREMENTS AS DETERMINED BY THE CALCULATIONS BELOW.
3. ISOLATE CONSTRUCTION ZONE DUCTWORK FROM OCCUPIED SPACES.



NEGATIVE AIR MACHINE DETAIL

SCALE: N.T.S.

ARRAY
healthcare facilities solution

6800 Broken Sound Boulevard NW
Suite 125
Boca Raton, FL 33487

t: 561.985.1700
f: 561.985.1701
www.arrayhs.com

firm license number
AA3000580

SEAL:

CONSULTANTS:

Miller Legg & Associates

2005 Vista Parkway, Suite 100
West Palm Beach, FL 33411

ONM&J, INC.

321 15th Street, Suite 200
West Palm Beach, FL 33401

BRA
Bard, Rao & Athanas Consulting
Engineers, LLC
2000 Douglas Road
Suite 301
Coral Gables, FL 33134
tel 305.528.1515 fax 305.528.1112
www.brdusa.com

Firm Certification #0057
Nagari Perez PE #72149
Ricardo Duran PE #61768
Miguel L. PE #61768
Eric S. Walker PE #63629

OWNER:

TENET
HEALTH

HOSPITAL:

DELRAY
MEDICAL
CENTER

PROJECT:

BULK OXYGEN
REPLACEMENT

ADDRESS:

5352 LINTON BOULEVARD
DELRAY BEACH, FL 33324

ACHA File No. 23/100258

ID SUBMISSION: 126-001

NO.	DESCRIPTION	DATE
REVISIONS/ISSUES		

SHEET

TITLE:

ICRA NOTES

DRAWN: MTP
CON/REF. 00000

PROJECT # 11-635.00

DATE: 09-13-11 SCALE: 1/16" = 1'-0"

SHEET

NO.

M0.02

This document is a copyright protected instrument of service, property of ARRAY and
intended for use in the titled project only. Reproduction or use of this document
without written permission of ARRAY is illegal and will be prosecuted under the law.

©COPYRIGHT - 2011 ARRAY
HFS

F

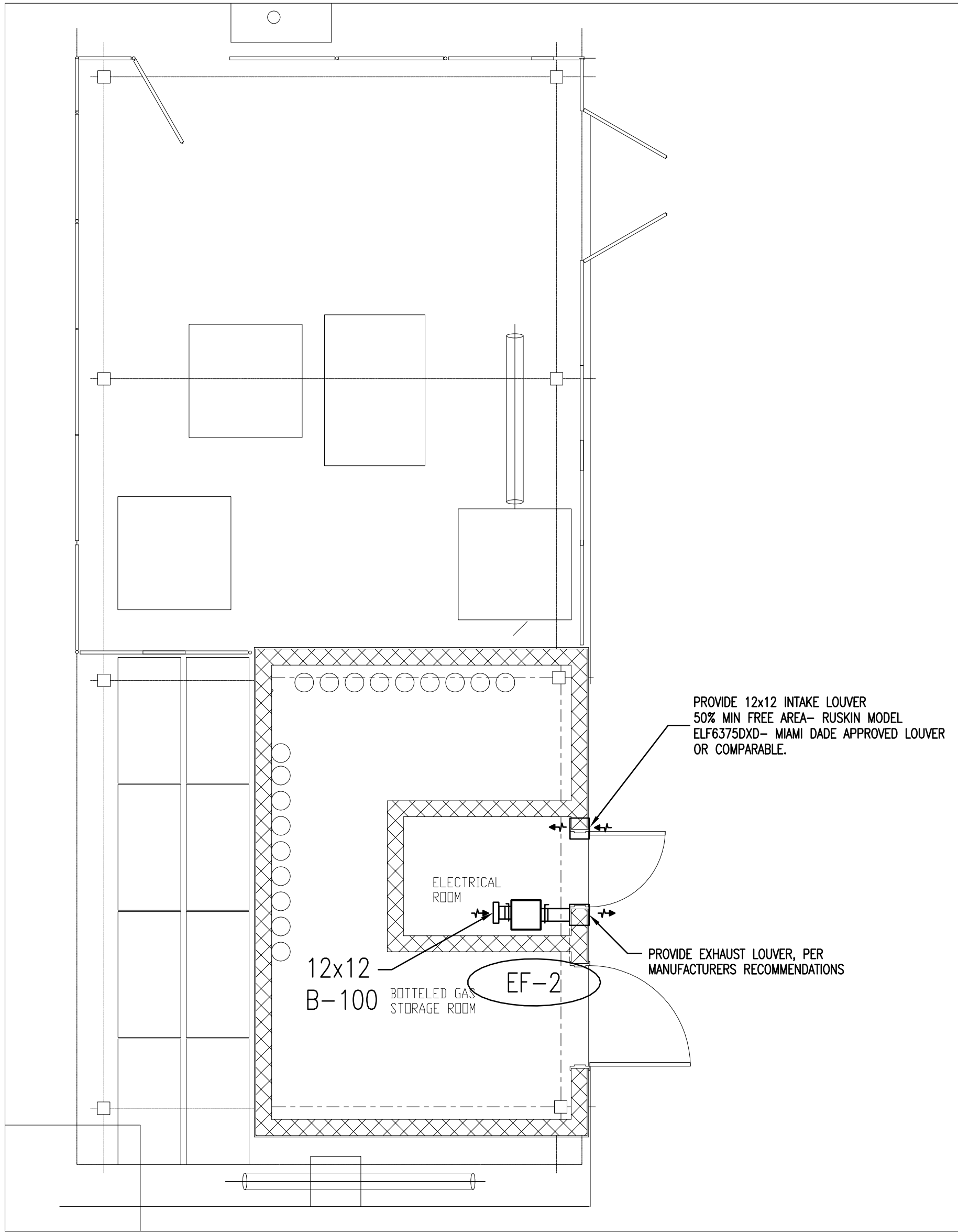
E

D

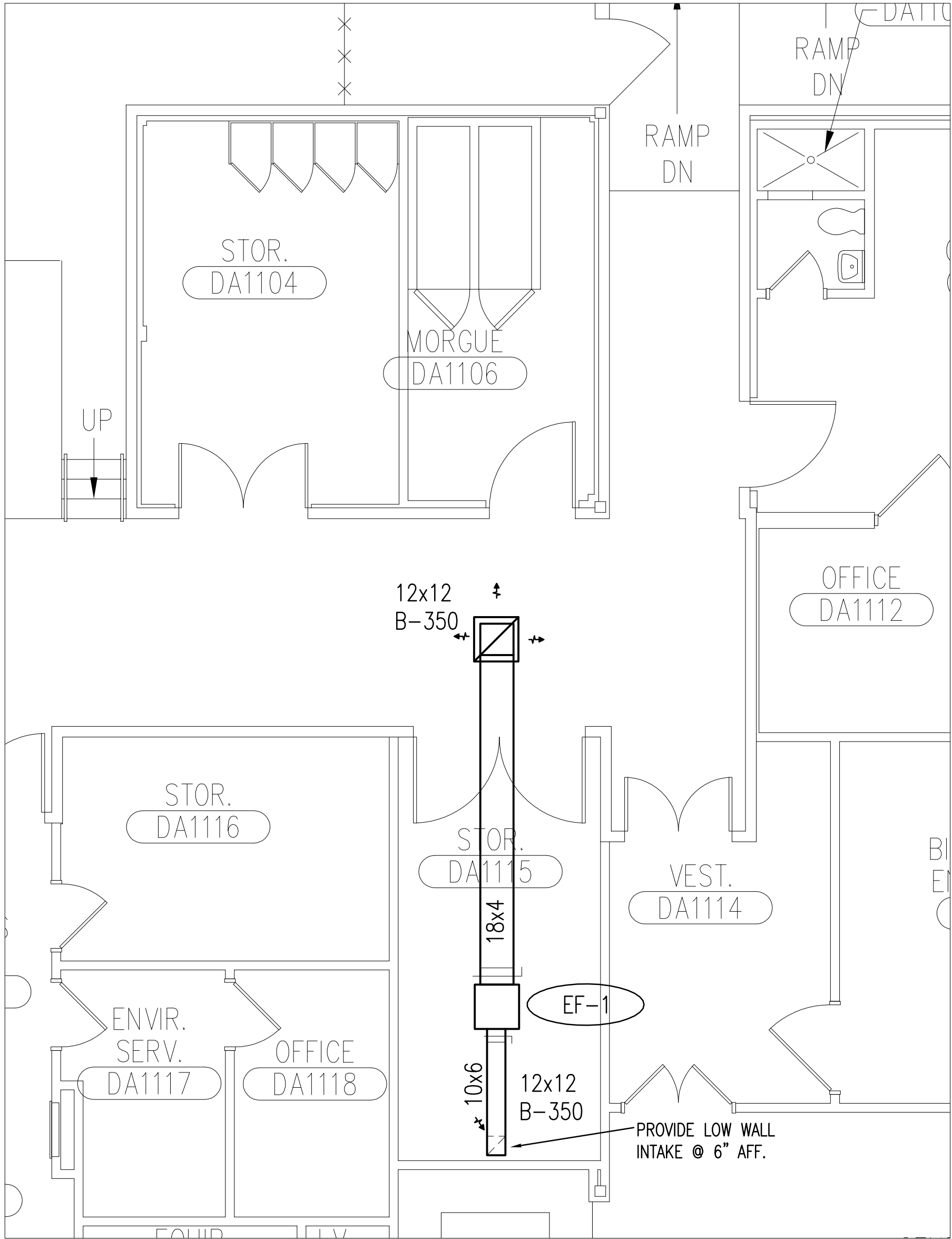
C

B

A



D1 PARTIAL FLOOR PLAN - ELECTRICAL RM
1/4" = 1'-0"

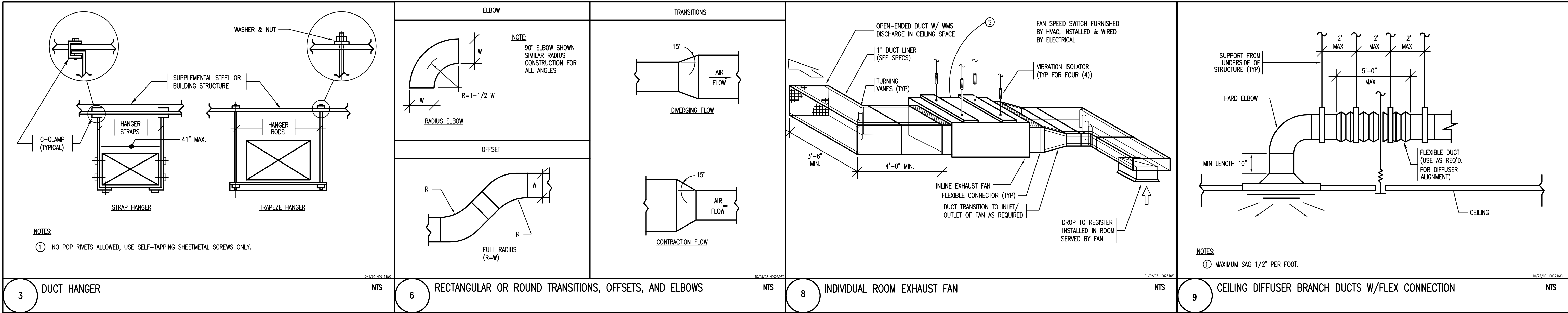


D2 PARTIAL FLOOR PLAN - STORAGE RM
1/4" = 1'-0"

AIR DISTRIBUTION DEVICE SCHEDULE						
UNIT TYPE	SERVICE	AIR FLOW (CFM)	NOMINAL FACE SIZE	NECK SIZE (IN)	MATERIAL	MANUFACTURER /MODEL
A	SUPPLY	0 ~ 100	12 x 12	6	ALUMINUM	TITUS / TMS-AA
A	SUPPLY	101 ~ 225	12 x 12	8	ALUMINUM	TITUS / TMS-AA
A	SUPPLY	226 ~ 350	12 x 12	10	ALUMINUM	TITUS / TMS-AA
A	SUPPLY	351 ~ 500	12 x 12	12	ALUMINUM	TITUS / TMS-AA
B	RETURN/EXHAUST	0 ~ 200	12 x 12	8 x 8	ALUMINUM	TITUS / 50F
B	RETURN/EXHAUST	201 ~ 500	12 x 12	12 x 12	ALUMINUM	TITUS / 50F
B	RETURN/EXHAUST	501 ~ 1000	12 x 12	16 x 16	ALUMINUM	TITUS / 50F

FAN SCHEDULE																			05/17/18 000000
UNIT NUMBER	LOCATION	SERVICE	ASSOCIATED AHUS, EQUIPMT.	CFM	S.P. (IN. H ₂ O)	FAN RPM	WHEEL DIAMETER (IN.)	CLASS	DRIVE (DIRECT/BELT)	MOTOR DATA @ 60 HZ				INLET VANES	FAN TYPE	SIMILAR TO	EQUIPMENT INTERLOCK	NOTES SEE BELOW	
										BHP	MIN. MHP	RPM	VOLTS						PHASE
EF-1	STORAGE	STOR/MED GAS	---	350	.25	1975	---	---	B	---	1/4	1725	115	1	---	INLINE	COOK 120V-S	---	1,2
EF-2	ELEC RM	ELEC RM	---	100	.25	1975	---	---	B	---	1/4	1725	115	1	---	INLINE	COOK 605QH-B	---	3

- NOTES:
1. PROVIDE EXPLOSION PROOF ENCLOSURE-- COOK XPROOF-SE OR SIMILAR.
2. PROVIDE ALL ALUMINUM CONSTRUCTION.
3. FANS TO RUN CONTINUOUSLY, NO INTERLOCK.



SEAL:

CONSULTANTS:

Miller Legg & Associates

2005 Vista Parkway, Suite 100
West Palm Beach, FL 33411

ONM&J, INC.

321 15th Street, Suite 200
West Palm Beach, FL 33401

BRA
Bard, Rao + Athanas
Consulting Engineers, LLC
2600 Douglas Road
Suite 301
Coral Gables, FL 33134
tel 305.529.1515 fax 305.529.1112
www.brplusa.com

Firm Certification #0057
Nguyen Perez PE #72149
Ricardo Duran PE #64768
Melissa Lui PE #67789
Erik S. Walter PE #03929

OWNER:

TENET HEALTH

HOSPITAL:

DELRAY MEDICAL
CENTER

PROJECT:

BULK OXYGEN
REPLACEMENT

ADDRESS:

5352 LINTON BOULEVARD
DELRAY BEACH, FL 33324

ACHA File No. 23/100258

ID SUBMISSION: 126-001

NO.	DESCRIPTION	DATE
REVISIONS/ISSUES		

SHEET TITLE:

PARTIAL FIRST FLOOR
PLAN - NEW WORK -
HVAC

DRAWN: MTP
CON/REF . 00000
PROJECT # 11-635.00
DATE: 09-13-11
CHECKED: ESW
SCALE: 1/16" = 1'-0"

SHEET NO.

M2.01