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- M1.1 HVAC LEGEND & NOTES
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SCHOOL-BASED HEALTH CLINIC



HOWARD Connect Academy

IOO E 25TH STREET CHATTANOOGA, TN 37408



HAMILTON COUNTY DEPARTMENT OF EDUCATION

Division of Auxiliary Services 2501 Dodds Avenue Chattanooga, Tennessee 37407 Telephone: 423/498-7255

at





BUIL	DING CODE SUMMARY
ADDRESS: PROPOSED USE: OWNER/CONTACT PERSO	IOWARD CONNECT SCHOOL-BASED HEALTH CLINIC HOWARD CONNECT ACADEMY IOO E 25TH STREET CHATTANOOGA, TN 37408 GROUP B AS ACCESSORY TO GROUP E DN: MR. JUSTIN WITT PH #(423) 498-7255 RISDIC TION: CITY OF CHATTANOOGA
CODE (IFC), 2018 INTERNATION 2018 INTERNATIONAL PLUMBI	CITY OF CHATTANOOGA: CODE (IBC), 2017 NATIONAL ELECTRIC CODE (NEC), 2018 INTERNATIONAL FIRE AL MECHANICAL CODE (IMC), 2018 INTERNATIONAL FUEL GAS CODE (IFGC), NG CODE (IPC), 2012 INTERNATIONAL ENERGY CONSERVATION CODE (IECC), INGS & FACILITIES (ANSIIICC AII7.I), 2009 EDITION
ELECTRICAL	NAME LICENSE # TELEPHONE # DANIEL L. FLOYD / TN-18558 (423) 498-7255 JOHN F. GERM / TN-8589 (423) 267-9718 MATTHEW J. WILLIAMS / TN-105321 (423) 267-9718
EXISTING & RENOVATION OCCUPANCY: MIXED OCCUPANCY:	ASSEMBLY ASSEMPLY
CONSTRUCTION TYPE:	П-В
SPRINKLED? (EXISTING) FIRE DISTRICT? BUILDING HEIGHT: MEZZANINE: HIGH RISE? GROSS EXISTING BLDG AREA FLOOR IST FLOOR (EXISTING) 2ST FLOOR (EXISTING) 3RD FLOOR (EXISTING) 4TH FLOOR AREA INCREASE? SPECIAL REQUIREMENTS:	MIXED CONSTRUCTION YES NO YTPE YES NO (13, 13R, 13D) 13 YES NO X 123 YES GROUP E) 5TH FLOOR 116,062 SF (GROUP E) YES GROUP E) 6TH FLOOR 116,062 SF (GROUP E) YES NO X YES: CODE REFERENCE N/A YES NO X
LIFE SAFETY SYSTEM: EMERGENCY LIGHTING AND E FIRE ALARM AND SMOKE DE PANIC HARDWARE	
EXIT REQUIREMENTS (FO DEAD END LIMIT-MAXIMUM CC TRAVEL DISTANCE TO EXIT-N EXIT WIDTHS: Ist FLOOR (RENOVATED ARE/ GROSS SQUARE FOOT/ OCCUPANCY EXIT WIDTHS PROVIDED	O FEET MAXIMUM CONDITION 0 FEET MAGE OF FLOOR 740 DIVIDED BY 100 SQ. FT. PER MAGE OF FLOOR 8 TOTAL NUMBER OF PEOPLE ON FLOOR

REVISIONS

Avenue 37407 3-7255

EDUC ATION

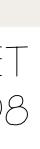
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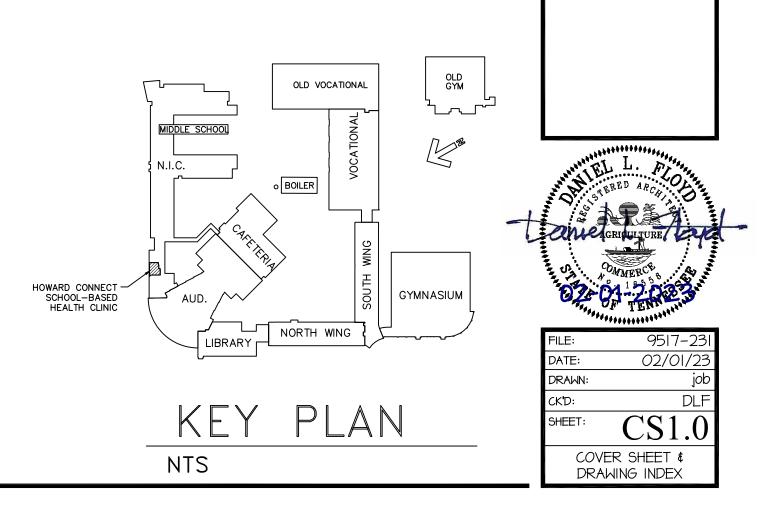
ARTMENT

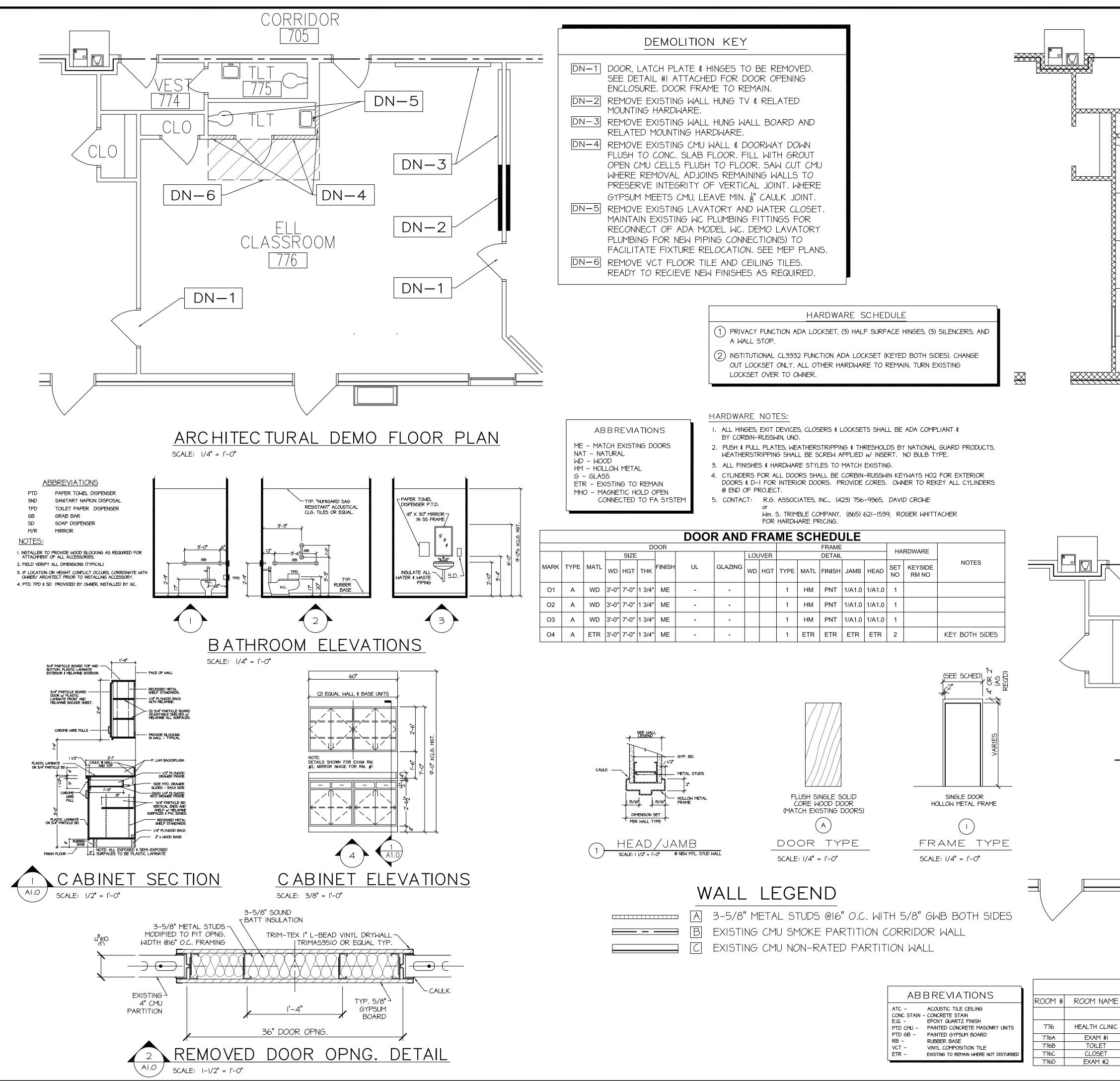
SCHOOL-BASED HEALTH CLINIC

CONNECT ACADEMY

HOWARD







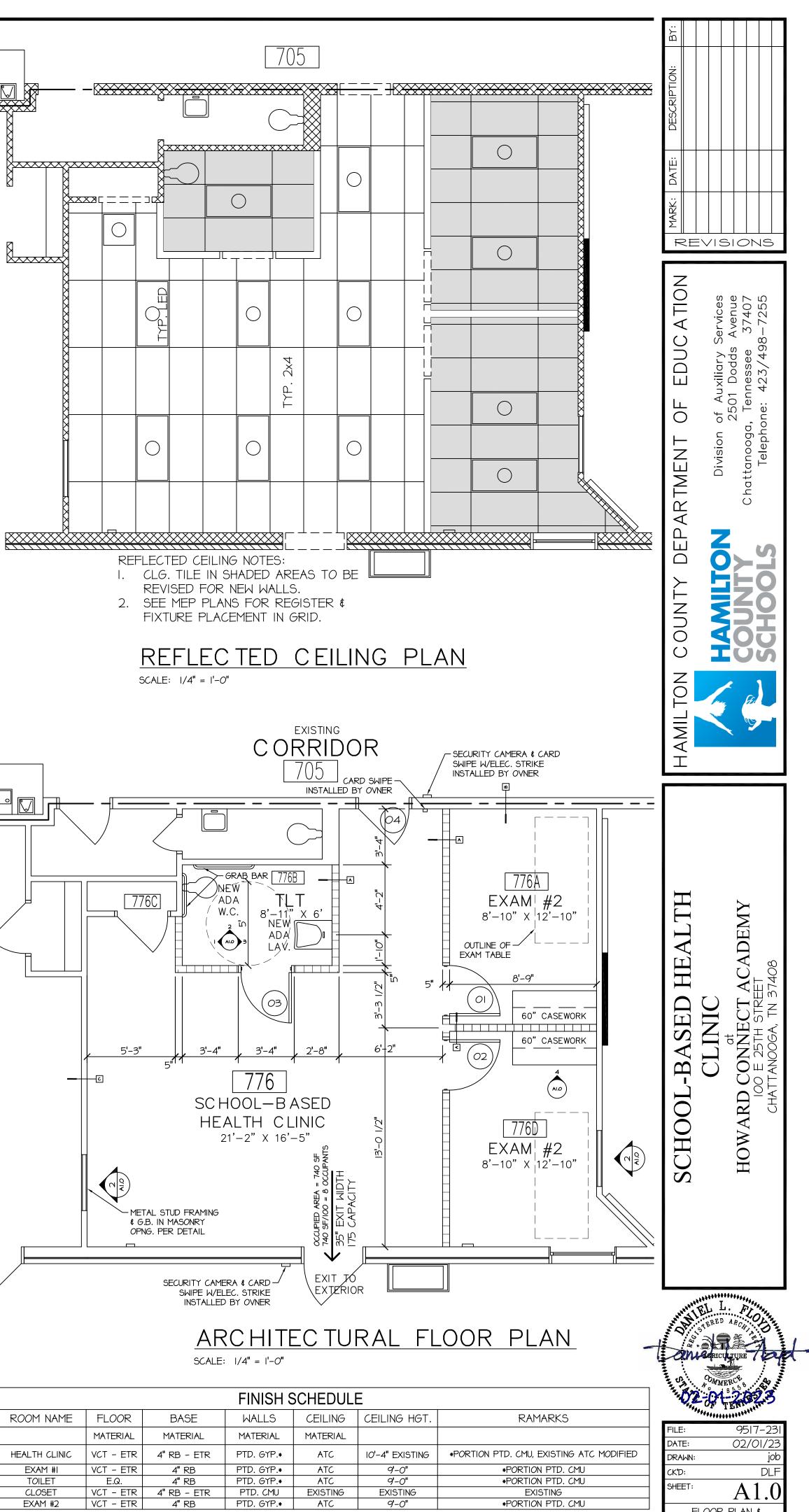
DN-1	DOOR, LATCH PLATE & HINGES TO BE REMOVED. SEE DETAIL #I ATTACHED FOR DOOR OPENING ENCLOSURE. DOOR FRAME TO REMAIN.
DN-2	REMOVE EXISTING WALL HUNG TV & RELATED MOUNTING HARDWARE.
DN-3	REMOVE EXISTING WALL HUNG WALL BOARD AND RELATED MOUNTING HARDWARE.
DN-4	REMOVE EXISTING CMU WALL & DOORWAY DOWN FLUSH TO CONC. SLAB FLOOR. FILL WITH GROUT OPEN CMU CELLS FLUSH TO FLOOR. SAW CUT CMU WHERE REMOVAL ADJOINS REMAINING WALLS TO PRESERVE INTEGRITY OF VERTICAL JOINT. WHERE GYPSUM MEETS CMU, LEAVE MIN. # CAULK JOINT.
DN-5	REMOVE EXISTING LAVATORY AND WATER CLOSET. MAINTAIN EXISTING WC PLUMBING FITTINGS FOR RECONNECT OF ADA MODEL WC. DEMO LAVATORY PLUMBING FOR NEW PIPING CONNECTION(S) TO FACILITATE FIXTURE RELOCATION. SEE MEP PLANS.
DN-6	REMOVE VCT FLOOR TILE AND CEILING TILES. READY TO RECIEVE NEW FINISHES AS REQUIRED.

ABBREVIATIONS
ME – MATCH EXISTING DOORS NAT – NATURAL WD – WOOD HM – HOLLOW METAL G – GLASS ETR – EXISTING TO REMAIN MHO – MAGNETIC HOLD OPEN CONNECTED TO FA SYSTEM

	DOOR AND FRAME SCHEDULE																	
	DOOR FRAME HARDWA								RDWARE									
				SIZE					LOU	JVER			DETAIL		-	пА	RUWARE	
MARK	TYPE	MATL	WD	HGT	тнк	FINISH	UL	GLAZING	WD	HGT	TYPE	MATL	FINISH	JAMB	HEAD	SET NO	KEYSIDE RM NO	NOTES
01	А	WD	3'-0"	7'-0"	1 3/4"	ME	-	-			1	НМ	PNT	1/A1.0	1/A1.0	1		
02	А	WD	3'-0"	7'-0"	1 3/4"	ME	-	-			1	ΗМ	PNT	1/A1.0	1/A1.0	1		
O3	А	WD	3'-0"	7'-0"	1 3/4"	ME	-	-			1	НМ	PNT	1/A1.0	1/A1.0	1		
04	А	ETR	3'-0"	7'-0"	1 3/4"	ME	-	-			1	ETR	ETR	ETR	ETR	2		KEY BOTH SIDES

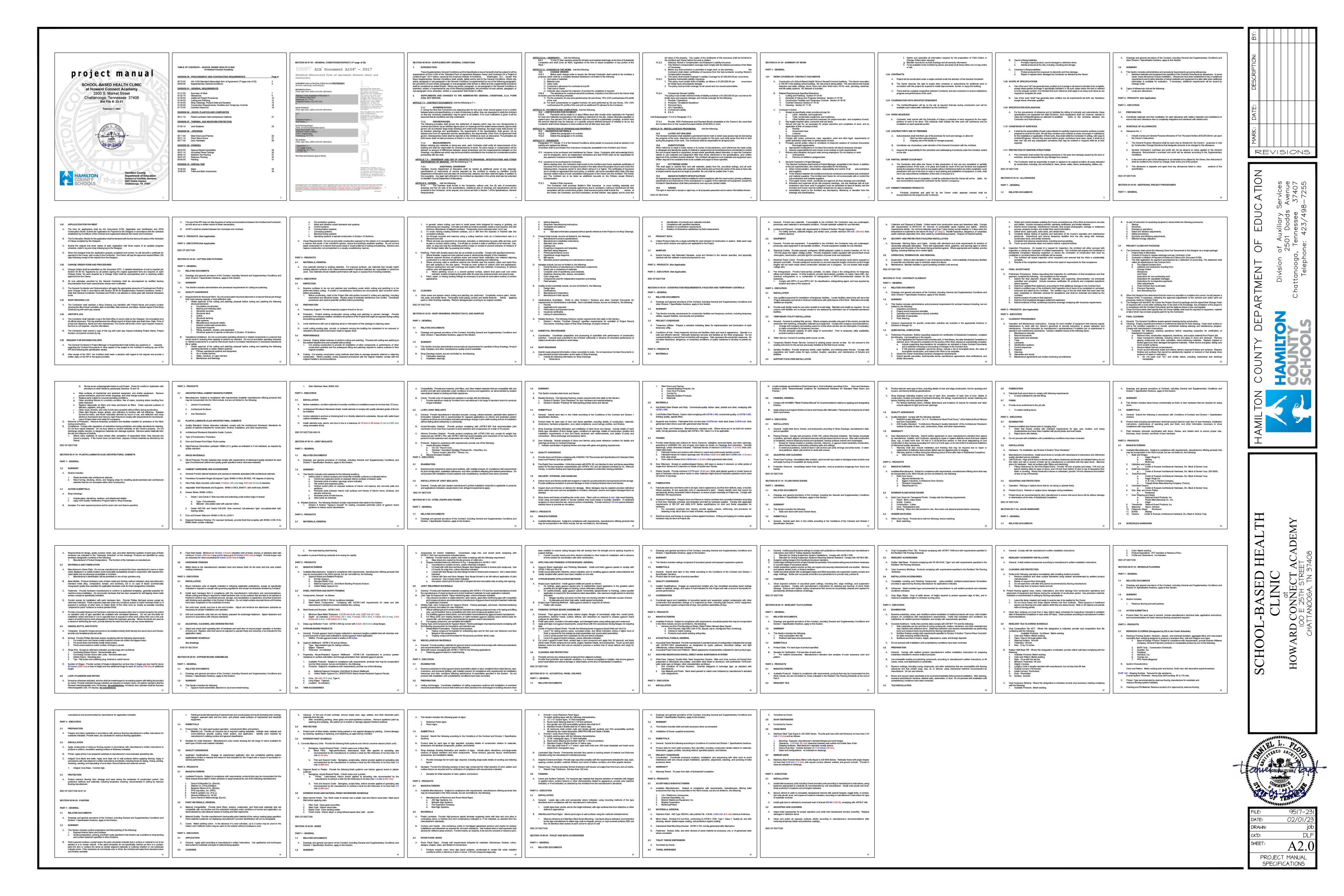
EXISTING CMU SMURE PARTITION CORRIDUR WALL	
EXISTING CMU NON-RATED PARTITION WALL	

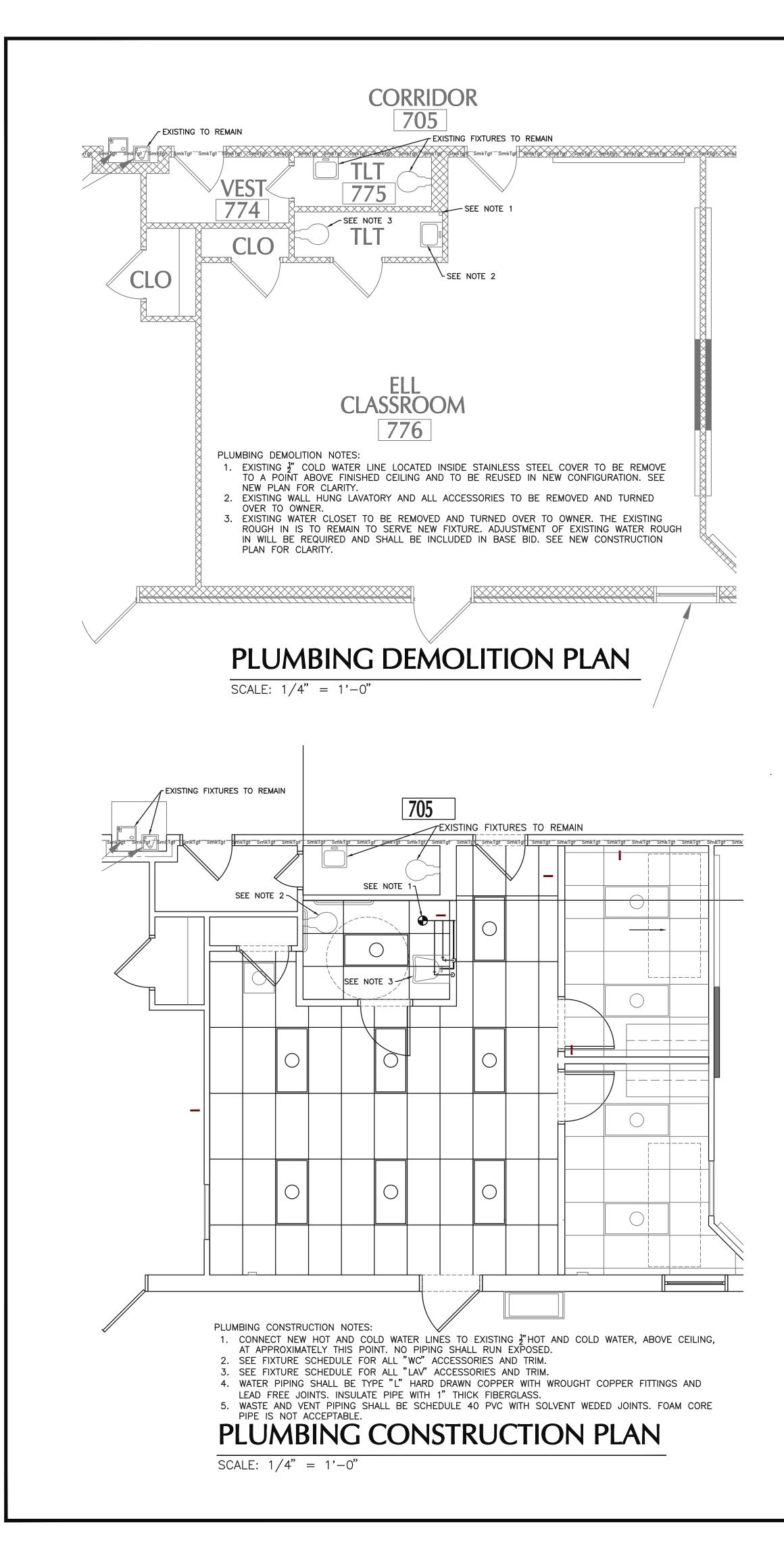
	BREVIATIONS		
ADI	BREVIATIONS	ROOM #	ROOM NAME
	ACOUSTIC TILE CEILING CONCRETE STAIN		
PTD CMU -	EPOXY QUARTZ FINISH PAINTED CONCRETE MASONRY UNITS	776	HEALTH CLINIC
PTD GB - RB -	PAINTED GYPSUM BOARD RUBBER BASE	776A	EXAM #I
VCT -	VINYL COMPOSITION TILE	776B	TOILET
ETR -	EXISTING TO REMAIN WHERE NOT DISTURBED	776C	CLOSET
		776D	EXAM #2

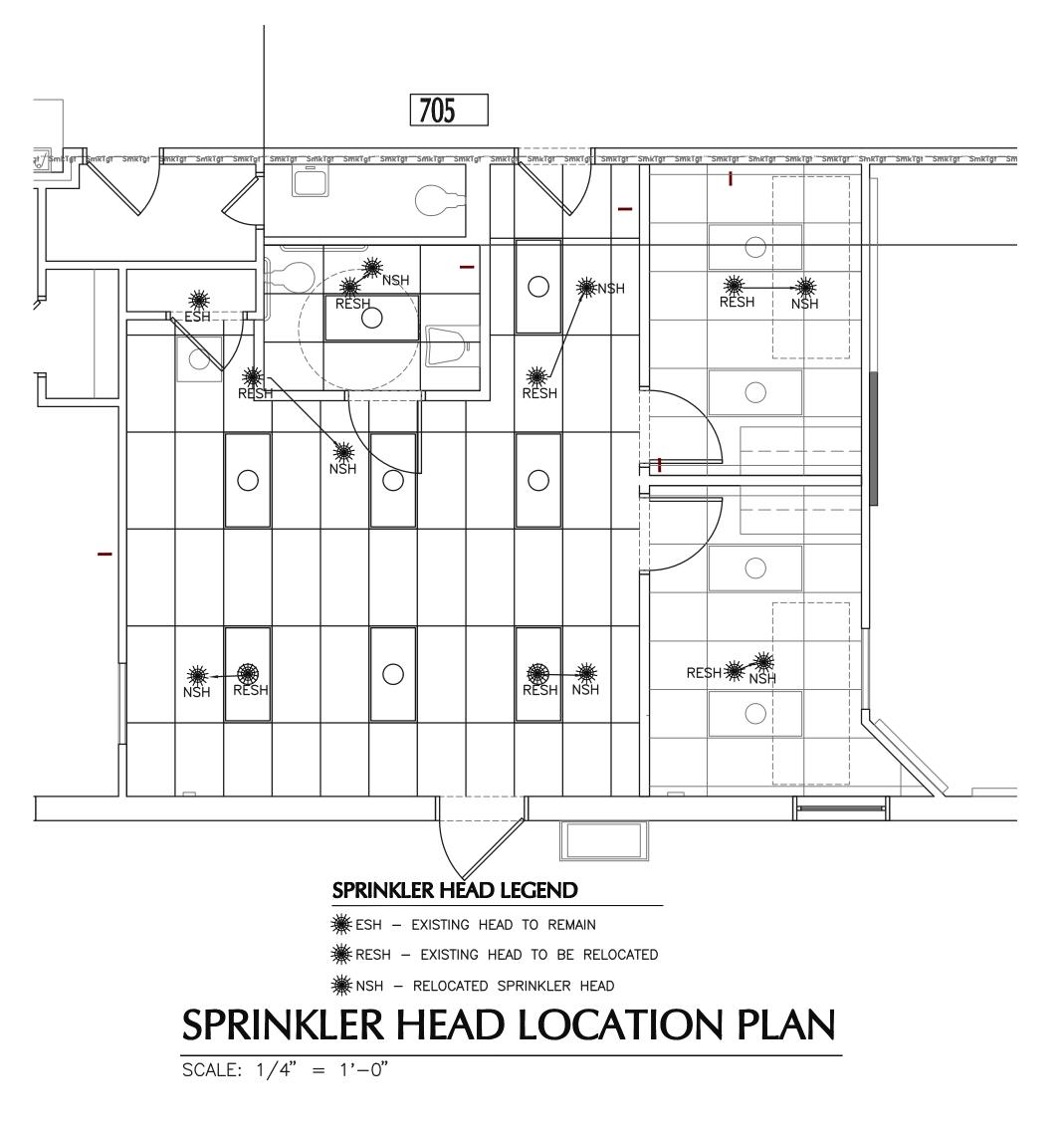


NOTE: ALL NEW MATERIALS SHALL MATCH EXISTING IN TYPE, FINISH & COLOR.

FLOOR PLAN & **ELEVATIONS**







FIXTURE SCHEDULE									ROUGHIN CONNEC			REMARKS
SYM.	MANUFACTURE	FIXTURE NO.	SIZE	TRIM	SUPPLIES	WASTE	TRAP	C.W.	H.W.	WASTE	VENT	
WC	ZURN	Z5665-BWL1	16.75"H	ZTR6200-ONE-LL	Z5955SS-EL	Z5972-COMB		1"		4"	2"	H.C WATER CLOSET
LAV	ZURN	Z5324	23" x21.5"	Z812B4-XL-FC0.5	HD 🛔 TURN	Z8946-3-NT	SEMI-CAST "P"	1" 2	1" 2	1 <u>1</u> "	2"	WITH ZURN CARRIER

L-BASEDHAMILTON COUNTY DEPARTMENT OF EDUCATIONMARK:DATE:DESCRIPTION:MAMILTON COUNTY DEPARTMENT OF ALLDivision of Auxiliary Services2501 Dodds AvenueDivision of Auxiliary ServicesDivision of Auxiliary ServicesMYSchooolsSchooolsTelephone: 423/498-7255Division of Auxiliary ServicesDivision of Auxiliary Services
HAMILTON COUNTY DEPARTMENT OF EDUCATION
HAMILTON COUNTY DEPARTMENT OF EDUCATION Prision of Auxiliary Services 2501 Dodds Avenue Chattanooga, Tennessee 37407 Telephone: 423/498–7255
HAMLTON COUNTY DEPARTMENT O Provision of Division of Chattanooga, Telephone
L-BASED _{dY}
HOWARD CONNECT SCHOOL-BASED HEALTH CLINIC HOWARD CONNECT ACADEMY 100 E 25TH STREET CHATTANOOGA, TN 37408
FILE: 9517-231
DRAWN:



ELECTRICAL SPECIFICATIONS

ALL CONDUCTORS SHALL BE COPPER.

- ALL WORK SHALL CONFORM TO THE LATEST APPROVED VERSION OF THE N.E.C., I.E.C. NATIONAL, STATE AND LOCAL CODES WHICH APPLY. ALL MATERIAL AND EQUIPMENT SHALL CONFORM TO U.L. AND NEMA
- STANDARDS WHICH APPLY.
- THIS CONTRACTOR SHALL PAY ALL FEES AND OBTAIN ALL PERMITS REQUIRED FOR THE EXECUTION OF HIS WORK. HE SHALL ALSO PROVIDE PROOF OF FINAL APPROVAL BY THE AUTHORITY HAVING JURISDICTION BEFORE FINAL PAYMENT IS MADE.
- THIS CONTRACTOR SHALL PROVIDE A WRITTEN GUARANTEE OF HIS ENTIRE ELECTRICAL INSTALLATION AGAINST DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE BY OWNER.
- CONDUCTORS: MINIMUM WIRE SIZE SHALL BE #12 UNLESS NOTED OTHERWISE. CONDUCTORS SMALLER THAN #2 AWG SHALL BE "THHN/THWN". CONDUCTORS #2 AWG AND LÄRGER SHALL BE "XHHW".

CONDUCTORS SHALL BE AS MANUFACTURED BY AETNA, AMERICAN INSULATED, ENCORE, ESSEX, PARANITE, PIRELLI OR SOUTHWIRE.

CONDUITS: INTERIOR CONDUIT SHALL BE ELECTRICAL METALLIC TUBING (EMT) UNLESS NOTED OTHERWISE. FLEXIBLE METAL CONDUIT SHALL BE USED FOR "MAKE UP" CONNECTIONS

TO ROTATING MACHINERY (72" MAXIMUM LENGTH), EQUIPMENT OR FLUSH LIGHT FIXTURES.

CONDUIT CONNECTORS SHALL BE STEEL SETSCREW OR COMPRESSION. FLEXIBLE METALLIC COUPLINGS AND CONNECTORS SHALL BE MALLEABLE IRON OR STAMPED STEEL FITTINGS.

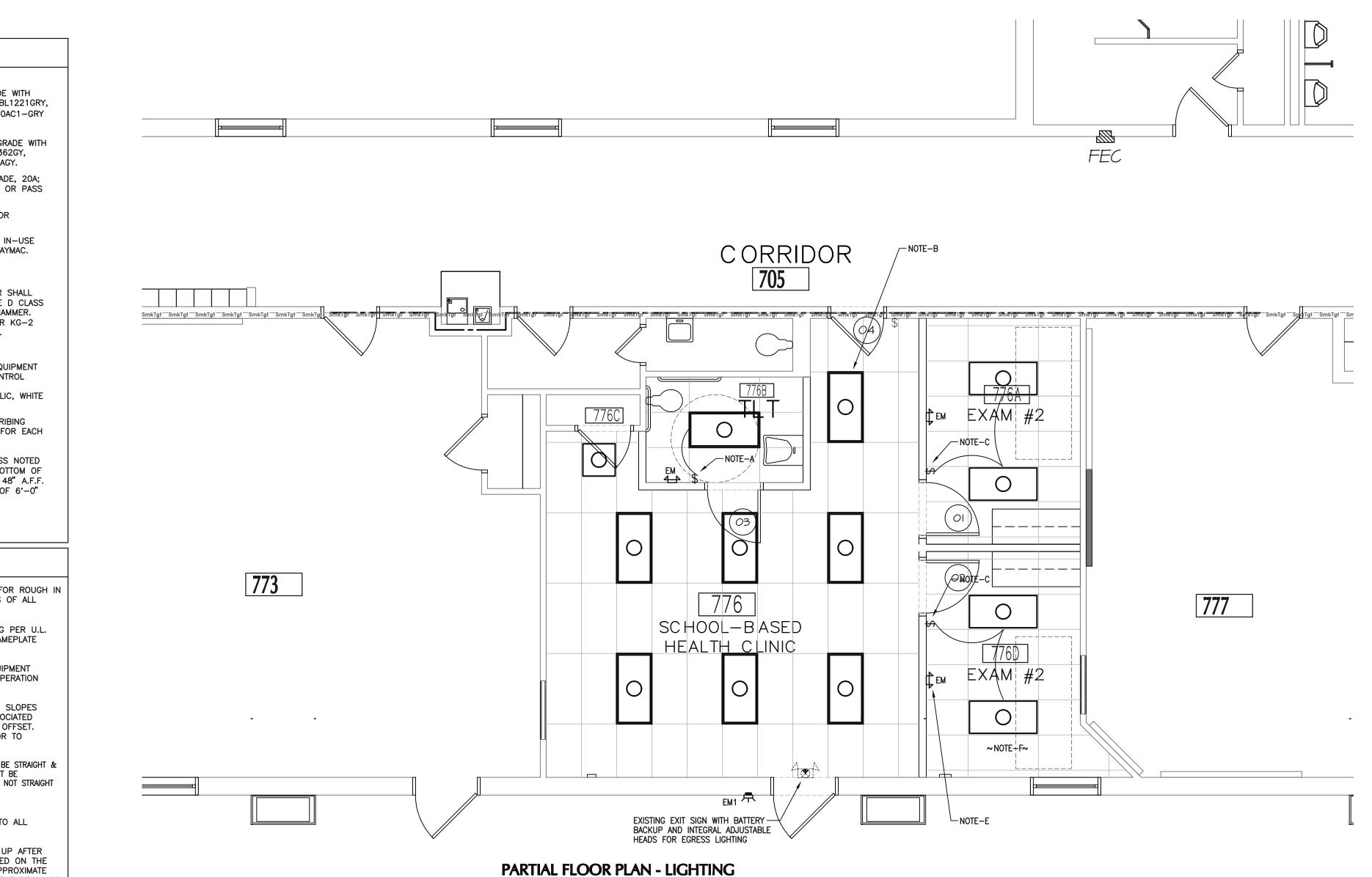
MINIMUM CONDUIT SIZE IS 3/4" UNLESS NOTED OTHERWISE. MINIMUM CONDUIT SIZE SHALL BE 1" FOR CONDUITS CONCEALED UNDER FLOOR SLABS OR EXTERIOR BELOW GRADE.

- DISCONNECT SWITCHES SHALL BE SQUARE D "HD" OR EQUAL BY GENERAL ELECTRIC, SIEMENS OR CUTLER-HAMMER.
- FUSES SHALL BE CLASS "R" MANUFACTURED BY BUSSMANN AS FOLLOWS: 0-99A FUSETRON, 100-600A LOW PEAK, ABOVE 600A HI-CAP, OR EQUAL BY FERRAZ-SHAWMUT OR LITTELFUSE.

ELECTRICAL GENERAL NOTES:

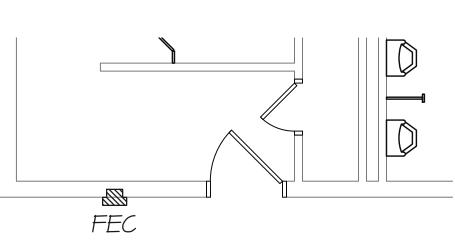
- VERIFY CEILING TYPE FOR GRID OR FLANGE-TYPE HOUSING CONSTRUCTION 8. REFER TO EQUIPMENT CUT SHEETS AND MANUFACTURER'S DATA FOR ROUGH IN OF LIGHTING FIXTURES.
- ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING AND PATCHING FOR INSTALLATION OF ALL ELECTRICAL WORK. ALL CONDUIT SHALL BE RUN CONCEALED IN WALLS AND CEILINGS, WIREMOLD OR EXPOSED CONDUITS ARE NOT ACCEPTABLE UNLESS SPECIFICALLY NOTED ON THE DRAWINGS. ELECTRICAL CONTRACTOR TO PROVIDE ACCESS PANELS IN WALLS AND CEILINGS AS REQUIRED. MATCH ALL EXISTING CONDITIONS.
- OPENINGS AROUND CONDUITS OR IN SLEEVES FOR CONDUITS PENETRATING FIRE-RATED FLOOR SLABS, WALLS, PARTITIONS, CEILINGS OR SMOKE PARTITIONS, SHALL BE SEALED AT BOTH SIDES OF THE PENETRATION. INSULATION SHALL NOT EXTEND THROUGH SLEEVES. PACK OPENINGS WITH CALCIUM SILICATE BLOCK, DOW CORNING 3-6548 RTV SILICON FOAM, 3M CP25 CAULK, OR 303 PUTTY FIRE BARRIER SYSTEM, OR MATERIAL HAVING THE SAME FIRE-RATING AS THE FLOOR OR WALL PENETRATED. FIBERGLASS IS NOT ACCEPTABLE.
- ALL WORK SHALL BE COORDINATED WITH THE WORK OF OTHER TRADES TO AVOID INTERFERENCES AND CONFLICTS. REFER TO THE DRAWINGS OF THE RESPECTIVE SYSTEMS PRIOR TO SUBMISSION OF BIDS FOR ADDITIONAL WORK WHICH MAY BE REQUIRED AS PART OF THIS WORK. NO ALLOWANCES WILL BE MADE FOR THE LACK OF COORDINATION BETWEEN DISCIPLINES OR SYSTEMS AND EQUIPMENT.
- THE WORK SHALL BE COORDINATED WITH THE ENGINEERING DOCUMENTS FOR THE EXACT LOCATION OF LIGHT FIXTURES, EQUIPMENT, DEVICES, ETC. TO ASSURE PROPER PLACEMENT OF SAID DEVICES AND EQUIPMENT. WHERE A CONFLICT EXISTS BETWEEN ANY TWO DOCUMENTS, NOTIFY THE ENGINEER FOR RESOLUTION PRIOR TO ANY ROUGH-IN OR INSTALLATION.
- THE CONTRACTOR SHALL VERIFY ALL EQUIPMENT BEING INSTALLED PRIOR TO INSTALLATION TO ASSURE THAT THE FEEDER, DISCONNECT, STARTER, OVERCURRENT PROTECTION, ETC. MATCHES THE ACTUAL NAMEPLATE DATA AS SUPPLIED BY THE MANUFACTURER.
- . SPECIFIC REQUIREMENTS REGARDING MATERIALS, WORKMANSHIP AND THE WORK TO BE DONE ARE COVERED BY THE SPECIFICATIONS WHICH COMPLEMENT THE PLANS. WORK CALLED FOR BY THE SPECIFICATIONS OR THE PLANS IS REQUIRED THE SAME AS IF REQUIRED BY BOTH. WHERE A CONFLICT EXISTS BETWEEN THE PLANS AND SPECIFICATIONS, THE MORE STRINGENT REQUIREMENTS OF THE TWO SHALL APPLY UNLESS SPECIFICALLY APPROVED IN WRITING BY THE ENGINEER.

- 9. WIRING DEVICES:
- SWITCHES SHALL BE HEAVY DUTY INDUSTRIAL SPECIFICATION GRADE WITH SOLID BRASS CONSTRUCTION, 120/240-20A RATING; HUBBELL HBL1221GRY, COOPER 2221GY, LEVITON 1221-2GY OR PASS & SEYMOUR PS20AC1-GRY (SINGLE POLE DEVICES INDICATED).
- RECEPTACLES SHALL BE HEAVY DUTY INDUSTRIAL SPECIFICATION GRADE WITH SOLID BRASS CONSTRUCTION, 120V-20A RATING; HUBBELL HBL5362GY, COOPER 5362GY, LEVITON 5362GY OR PASS & SEYMOUR 5362-AGY.
- GFI DUPLEX RECEPTACLES SHALL BE HEAVY DUTY INDUSTRIAL GRADE, 20A; HUBBELL GF5362GYA OR APPROVED EQUAL BY COOPER, LEVITON OR PASS & SEYMOUR.
- PLATES SHALL BE SATIN STAINLESS STEEL; HUBBELL S1 SERIES OR APPROVED EQUAL BY LISTED MANUFACTURERS. WEATHERPROOF COVER PLATES SHALL BE CLEAR THERMOPLASTIC, IN-USE
- RATED; RED DOT CKNM OR APPROVED EQUAL BY HUBBELL OR TAYMAC. DEVICE COLOR AND PLATE COLOR SHALL BE SELECTED BY THE ARCHITECT/OWNER.
- 10. MOTOR STARTERS FOR MOTORS SMALLER THAN 1/2 HORSEPOWER SHALL BE MANUAL STARTERS WITH OVERLOAD AND PILOT LIGHT; SQUARE D CLASS 2510 OR EQUAL BY GENERAL ELECTRIC, SIEMENS, OR CUTLER-HAMMER. MANUAL ON-OFF SWITCHES SHALL BE SQUARE D 2510-KG-1 OR KG-2 OR EQUAL BY GENERAL ELECTRIC, SIEMENS OR CUTLER-HAMMER.
- 11. PANELBOARDS:
- 12. NAMEPLATES SHALL BE INSTALLED ON ALL OF THE FOLLOWING EQUIPMENT TYPES: PANELBOARDS, MOTOR STARTERS, CONTROL PANELS, CONTROL DEVICES, TELEPHONE CABINETS, EMERGENCY SYSTEM EQUIPMENT, TRANSFORMERS, ETC. NAMEPLATES SHALL BE LAMINATED PHENOLIC, WHITE WITH BLACK CORE.
- 13. PROVIDE TYPED PANEL SCHEDULES FOR ALL PANELBOARDS DESCRIBING LOCATION OF DEVICE SERVED. PROVIDE PHENOLIC NAMEPLATES FOR EACH SWITCHBOARD DISCONNECT SWITCH OR CIRCUIT BREAKER.
- 14. SWITCHES SHALL BE MOUNTED 48" A.F.F. TO CENTER LINE UNLESS NOTED OTHERWISE. RECEPTACLES SHALL BE MOUNTED 18" A.F.F. TO BOTTOM OF DEVICE UNLESS NOTED OTHERWISE. PANELS SHALL BE MOUNTED 48" A.F.F. TO CENTER LINE OR LOWER, WITH TOP OF CABINET A MAXIMUM OF 6'-0" A.F.F.
- LOCATIONS OF ELECTRICAL CONNECTIONS AND INTERCONNECTIONS OF ALL EQUIPMENT.
- INSTALL OVER CURRENT PROTECTION AND BRANCH CIRCUIT WIRING PER U.L. LISTING REQUIREMENTS FOR EQUIPMENT SERVED - REFER TO NAMEPLATE DATA.
- 10. PROVIDE START-UP ASSISTANCE TO OWNER PERSONNEL AND EQUIPMENT TECHNICIANS TO CONFIRM CORRECT PHASE ROTATION, PROPER OPERATION AND SEQUENCE, AND CONTROLS.
- 11. CONTRACTOR SHALL COORDINATE ELEVATIONS AND PIPING SYSTEM SLOPES SUCH THAT DUCTWORK, PIPING, RACEWAY, CABLE TRAY, AND ASSOCIATED EQUIPMENT IS INSTALLED AT UNIFORM ELEVATIONS WITH MINIMAL OFFSET. PROVIDE COORDINATION DRAWING TO ENGINEER FOR REVIEW PRIOR TO EQUIPMENT ORDERS AND ROUGH-IN.
- 12. ALL POWER, TELECOM, DATA, SWITCH, & OTHER ELECTRICAL BOXES ARE TO BE STRAIGHT & LEVEL. NOTE ESPECIALLY THAT IN MULTI-GANG BOXES THE DEVICES CANNOT BE STRAIGHTENED BY ADJUSTING THE DEVICES. BOXES WHICH ARE NOTICEABLY NOT STRAIGHT WILL BE REJECTED, TO BE CHISELED OUT & RESET STRAIGHT!
- 13. RUN SEPARATE GREEN GROUND WIRE IN ALL CONDUIT SYSTEMS TO ALL DEVICES.
- 14. THIS CONTRACTOR SHALL ROUGH-IN AND COMPLETELY CONNECT UP AFTER EQUIPMENT INSTALLATION BY OTHERS, ALL EQUIPMENT AS DETAILED ON THE DRAWINGS AND SPECIFIED HEREIN. ELECTRICAL OUTLETS AND APPROXIMATE LOADS FOR THE VARIOUS ITEMS OF EQUIPMENT ARE NOTED ON THE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY EXACT LOCATIONS OF SUCH OUTLETS SERVING VARIOUS EQUIPMENT UNITS, AS WELL AS TO VERIFY THE EQUIPMENT MANUFACTURER'S REQUIRED CIRCUIT TERMINATION METHODS TO BEST SUIT REQUIREMENTS FOR EACH EQUIPMENT ITEM (E.G., BLANKED BOX, PLUG-IN, RECEPTACLES, ETC.). COMPLIANCE
- WITH SUCH REQUIREMENTS OF THE EQUIPMENT MANUFACTURER SHALL BE A PART OF THE CONTRACT AND SHALL BE MET WITHOUT ADDITIONAL EXPENSE TO THE OWNER.



	LUMINAIRE SCHEDULE									
Symbol	Type Mark	Description	Wattage	Lamp	Fixture ID					
-	'X'	Compac LED Multi-Purpose Exit Sign	3.3W	LED	Chloride #VERW / Or Engineer Approved Equal					
	А	2'x4' Standard Recessed Lighting Fixture, 80CRI, 4300 lumens	38W	LED	Signify: 2FPZ-42B-840-4-DS-UNV-DIM / Or Engineer Approved Equal					
-	EM	Compac LED Emergency Unit, Verify Voltage	2.2W	LED	Chloride: CLUNW / Or Engineer Approved Equal					
-	EM1	Die-Cast Aluminum Wall Exterior Emergency Egress Fixture, AC only, 6V, 700 Lumen Output	8-3W	LED	Chloride #PLACTT-BAC / Or Engineer Approved Equal					

SCALE: $1/4^{*} = 1'-0^{*}$

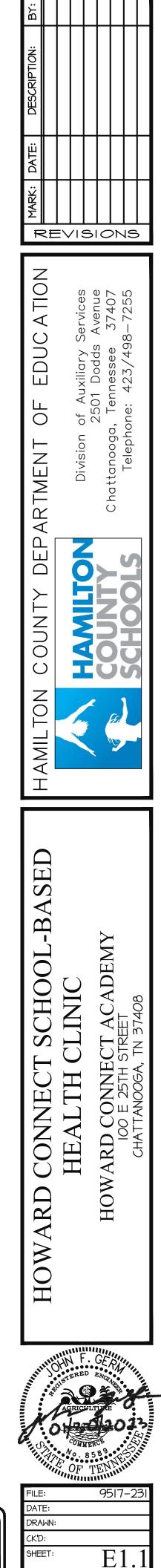


LIGHTING PLAN NOTES:

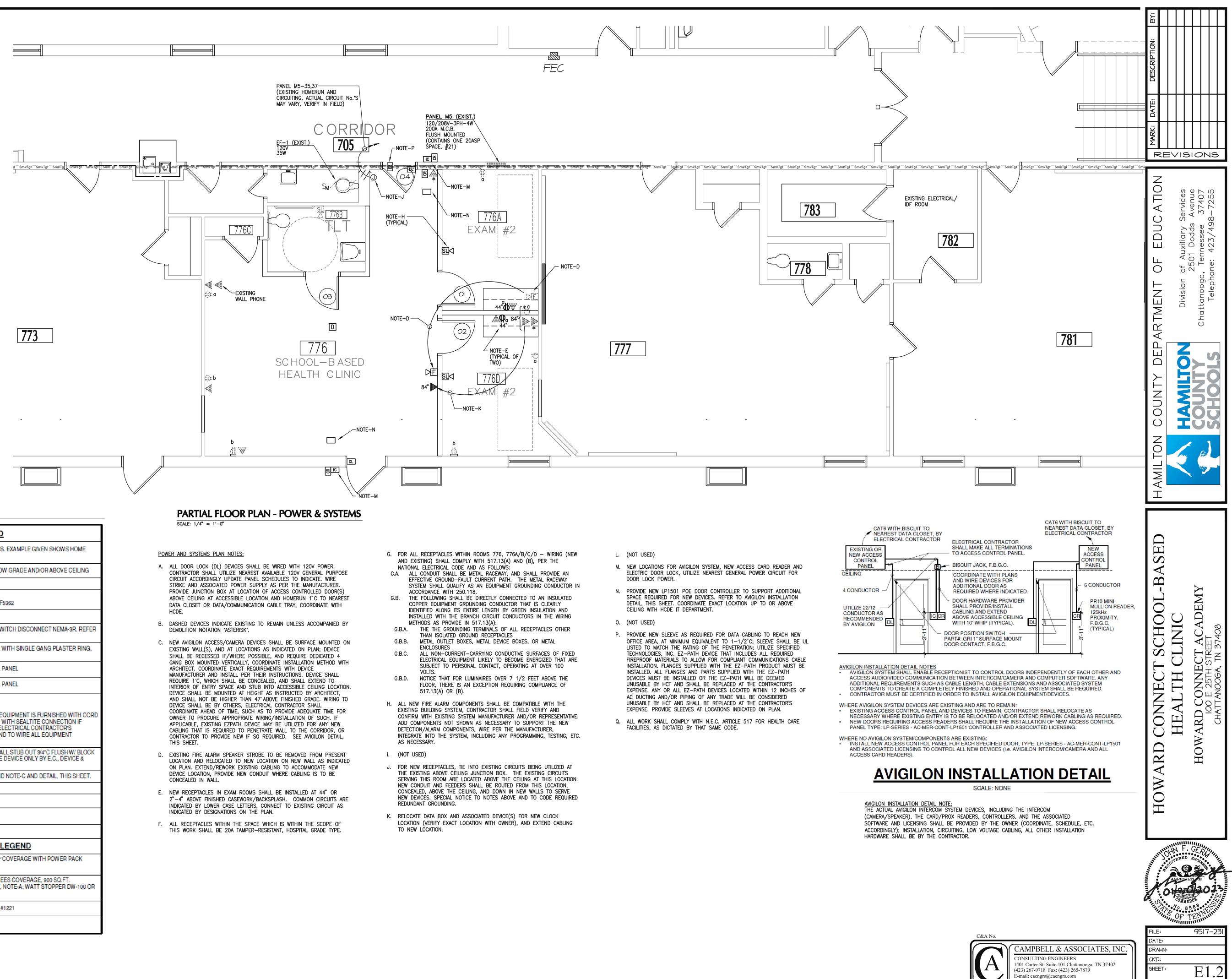
- A. EXISTING TOILET ROOM LIGHT SWITCH SHALL BE REMOVED FROM WALL THAT IS TO BE DEMOLISHED; PROVIDE NEW SWITCH INSTALLED AT LOCATION AS INDICATED ON PLAN, EXTEND/REWORK EXISTING WIRING TO ACCOMMODATE NEW ROOM SWITCH LOCATION. LUMINAIRE IN TOILET ROOM SHALL BE REPLACED WITH EXISTING 2'x4' TYPE, AND EXISTING 2'x2' FROM TOILET ROOM SHALL BE USED IN THE OPEN RM 776 SPACE
- B. ALL LUMINAIRES INDICATED ON PLAN ARE EXISTING DEVICES. EXISTING LUMINAIRES SHALL BE CAREFULLY REMOVED AND STORED AWAY SAFELY AND SECURELY AS NECESSARY (ONLY THOSE THAT NEED BE REMOVED SHALL BE REQUIRED TO BE). CLEAN ALL LUMINAIRES WITHIN THE PROJECT SPACE. FOR THOSE BEING RELOCATED, CLEAN PRIOR TO INSTALLATION, RE-INSTALL AT LOCATION(S) AS INDICATED ON PLAN.
- C. LUMINAIRES IN EXAM ROOMS 1 & 2 SHALL BE REWIRED SO AS TO HAVE LOCAL ROOM CONTROL, AS INDICATED ON THE PLAN; THOSE IN THE OPEN SPACE OF ROOM 776 SHALL REMAIN CONTROLLED FROM EXISTING SWITCH.
- D. ALL LUMINAIRES WITHIN THIS SPACE SHALL UTILIZE EXISTING CIRCUITING, EXTEND/REWORK ANY BRANCH CONDUCTORS, FIXTURE WHIPS, ETC. AS REQUIRED TO ACCOMMODATE THE RENOVATION.
- E. EMERGENCY EGRESS DEVICES SHALL BE WIRED HOT TO LOCAL LIGHTING CIRCUIT, AHEAD OF ANY SWITCHING OR CONTROLS.
- F. IN ALL CASES, BUT ESPECIALLY IN EXAM ROOM 2, COORDINATE WITH OTHER TRADES AS THERE MAY BE SOME CONFLICT, OR ITEMS IN CLOSE PROXIMITY TO ONE OTHER. IN EXAM 2, THERE IS TO BE EXPOSED DUCTWORK, ROUTED BELOW THE ACT CEILING, AND ALTHOUGH IT IS NOT EXPECTED TO CONFLICT WITH LIGHTING, THE INTENT IS TO ENSURE THAT IT DOES NOT. COORDINATE WITH ARCHITECT AS NECESSARY, AND IF ANY POTENTIAL CONFLICT DOES ARISE, DEFER TO ARCHITECT FOR RESOLUTION.



CAMPBELL & ASSOCIATES, INC CONSULTING ENGINEERS 1401 Carter St. Suite 101 Chattanooga, TN 37402 (423) 267-9718 Fax: (423) 265-7879 E-mail: caengrs@caengrs.com www.caengrs.com



FLOOR PLAN -POWER & LIGHTING



POWER	AND	SYSTEMS	PLAN

	ELECTRICAL SYMBOL LEGEND						
X-1,3,5	HOMERUN TO PANEL, ARROWHEADS INDICATE CIRCUITS. EXAMPLE GIVEN SHOWS HOME RUN TO PANEL 'X' WITH CIRCUITS 1,3, AND 5.						
\frown	RACEWAY INSTALLED CONCEALED IN SLAB, WALL, BELOW GRADE AND/OR ABOVE CEILING						
0/0	CONDUIT UP / CONDUIT DOWN						
œ, e	TR DUPLEX RECEPTACLE OUTLET- HUBBELL #5362, TR G.F.C.I DUPLEX RECEPTACLE OUTLET - HUBBELL #GF5362						
⊕=	TR QUADRUPLEX RECEPTACLE OUTLET - (2)-5362						
	HEAVY DUTY SAFETY SWITCH DISCONNECT / SAFTEY SWITCH DISCONNECT NEMA-3R. REFER TO PLANS & SPECS FOR SIZES/RATINGS.						
\triangleleft	COMMUNICATION OUTLET, 4-11/16" SQ. 2-1/8" DEEP BOX WITH SINGLE GANG PLASTER RING, 1-1/4"C STUBBED UP ABOVE ACCESSIBLE CEILING.						
	277/480V 3-PHASE 4W SURFACE MOUNTED ELECTRICAL PANEL						
	120/208V 3-PHASE 4W SURFACE MOUNTED ELECTRICAL PANEL						
IJ, ∭,₹	- JUNCTION BOX: WALL, CEILING AND FLOOR MOUNTED						
۹	OUTLET TO BE DUPLEX OR MATCHING RECEPTACLE IF EQUIPMENT IS FURNISHED WITH CORD AND PLUG, OR JUNCTION BOX AND/OR SAFTEY SWITCH WITH SEALTITE CONNECTION IF EQUIPMENT IS TO BE WIRED DIRECT. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBLILITY TO VERIFY THE REQUIRED OUTLET AND TO WIRE ALL EQUIPMENT COMPLETE.						
CR	CARD READER FOR ACCESS CONTROL; F.B.G.C. EC SHALL STUB OUT 3/4"C FLUSH W/ BLOCK (NO BOX REQUIRED); ROUGH-IN FOR READER OR SWIPE DEVICE ONLY BY E.C., DEVICE & CABLING BY OTHERS.						
IC	AVIGILON DOOR ACCESS/CAMERA SYSTEM; SEE LEGEND NOTE-C AND DETAIL, THIS SHEET.						
DL	ELECTRIC DOOR LOCK, STRIKE TYPE, 120V POWER						
\$ _M	MANUAL MOTOR STARTER WITH PILOT LIGHT						
\$ _R	MANUAL ON-OFF SWITCH						
*	NOTATION INDICATES ITEMS TO BE DEMOLISHED						
	LIGHTING CONTROL SYMBOL LEGEND						
09	CEILING MOUNTED OCCUPANCY SENSOR, 1100 SQ.FT. 360° COVERAGE WITH POWER PACK (24VDC-150mA) AND AUXILIARY RELAY AS REQUIRED.						
\$ _{os}	LIGHTING CONTROL, AUTOMATIC WALL SWITCH, 180 DEGREES COVERAGE, 900 SQ.FT. COVERAGE, DUAL TECHNOLOGY, DUAL VOLTAGE 120/277V, NOTE-A; WATT STOPPER DW-100 OR EQUAL BY HUBBELL, NOVITAS, OR SENSOR SWITCH						
\$	SINGLE POLE SINGLE THROW TOGGLE SWITCH - HUBBELL #1221						
<u></u> , O	ELECTRICAL KEYNOTE, MECHANICAL KEYNOTE						

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FLOOR PLAN -POWER & SYSTEMS

MECHANICAL GENERAL NOTES:

INTENT: IT IS THE INTENT OF THE CONTRACT DOCUMENTS THAT THE CONTRACTOR FURNISH AND INSTALL ALL MATERIALS AND SYSTEMS, WITH NECESSARY AND INCIDENTAL APPURTANCES, FOR A COMPLETE, FUNCTIONAL INSTALLATION, READY AND SUITABLE FOR THE OWNER'S USE. CODES: WORK UNDER THIS CONTRACT SHALL BE GOVERNED BY ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES. THE INTERNATIONAL MECHANICAL, ENERGY CONSERVATION, AND PLUMBING CODES SHALL FORM THE BASIS FOR MINIMUM CONSTRUCTION STANDARDS FOR THIS PROJECT. FEES, PERMITS, AND TAXES: CONTRACTOR SHALL MAKE ARRANGEMENTS FOR INSPECTIONS AND PAY

ALL LAWFUL FEES AND PERMITS REQUIRED BY LOCAL AUTHORITIES. CONTRACTOR SHALL PAY TAXES LEVIED FOR LABOR AND MATERIALS ASSOCIATED WITH WORK ON THIS PROJECT. INSPECTION OF SITE: THE DRAWINGS ARE PREPARED FROM THE BEST INFORMATION AVAILABLE AND

VISIT THE SITE PRIOR TO SUBMITTING A PROPOSAL AND SHALL VERIFY THE LOCATIONS, SIZES, DEPTH, PRESSURE, ETC., OF ALL EXISTING UTILITIES; AND FAMILIARIZE HIMSELF WITH WORKING CONDITIONS, HAZARDS FXISTING GRADES SOIL CONDITIONS OBSTRUCTIONS, ETC. IF IT BECOMES EVIDENT THAT EXISTING SITE CONDITIONS WILL IMPAIR THE PROPER OPERATION OF THE UTILITIES. OR THE CONSTRUCTION PROCESS, THE ARCHITECT SHALL BE NOTIFIED IN WRITING. ALL PROPOSALS AND BIDS SHALL TAKE THESE EXISTING CONDITIONS AND ANY REVISIONS REQUIRED INTO ACCOUNT, AND THE LACK OF SPECIFIC SITE INFORMATION ON THE DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY

DATA AND SHOP DRAWINGS: PRIOR TO ORDERING, SUBMIT CERTIFIED PRINTS AND/OR DESCRIPTIVE DATA FOR MAJOR PIECES OF EQUIPMENT, FIXTURES, VALVES, INSULATION, CONTROLS, ETC. STAMP, SIGN, AND CERTIFY TO BE CORRECT AND IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EACH DRAWING SUBMITTED FOR REVIEW. DRAWINGS SUBMITTED WITHOUT SIGNED CERTIFICATION WILL BI RETURNED WITHOUT REVIEW. ANY DEVIATION IN SUBMITTAL FROM CONTRACT DOCUMENTS OF MATERIALS, CAPACITIES, SPACE REQUIREMENTS IN ITEMS FURNISHED, ETC., SHALL BE LISTED IN A LETTER ACCOMPANYING SUBMITTAL STATING DEVIATION AND REASON REQUESTED FOR CONSIDERATION OF ACCEPTANCE. SUBMITTALS SHALL INCLUDE ONE PAPER COPY (IF REQUESTED) AND ONE ELECTRONIC COPY, CLEARLY MARKED, AND IN ORDER AS INDICATED IN DRAWINGS. ITEMS SUBMITTED PARTIALLY AND "A" OR TO DUCT SEAL SCHEDULE IF PRESENT ON DRAWINGS; DUCT LEAKAGE SHALL NOT EXCEED 1 IN AN UNORGANIZED MANNER SHALL BE RETURNED WITHOUT REVIEW. SUBMITTAL SHALL SHOW: MANUFACTURER'S CATALOG NUMBER, PERFORMANCE DATA WITH INDICATED OPERATING POINTS, FINISHES, OPTIONAL FEATURES AND MODIFICATIONS. EACH SHEET OF PRINTED SUBMITTAL DATA SHALL BE CLEARLY MARKED (USING ARROWS, UNDERLINING, CIRCLING, OR HIGHLIGHTING) TO SHOW THE PARTICULAR SIZE, TYPE, MODEL NUMBER, RATINGS AND OPTIONS ACTUALLY PROPOSED. WHEN WORK IN FACTORY INSTALLED FIBERGLASS INSULATION AND A FIRE RETARDANT VAPOR BARRIER JACKET WITH A ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION IS SPECIFIED, A COPY OF THESE RECOMMENDATIONS SHALL BE KEPT IN THE JOB OFFICE. SHOP DRAWINGS SHALL SHOW SIZES AND DETAILS OF REQUIRED CONCRETE AND STEEL MACHINE FOUNDATION, LOCATION OF ANCHOR BOLTS, PHYSICAL DIMENSION OF EQUIPMENT, EQUIPMENT WEIGHT OR OTHER PERTINENT DATA REQUIRED FOR EQUIPMENT SUPPORT OR INSTALLATION. APPROVED SHOP DRAWINGS DO NOT MEAN THAT DRAWINGS HAVE BEEN CHECKED IN DETAIL; SAID APPROVAL DOES NOT IN ANY WAY RELIEVE THE CONTRACTOR FROM HIS RESPONSIBILITY OR NECESSITY OF FURNISHING MATERIAL OR PERFORMING WORK AS REQUIRED BY THE CONTRACT DRAWINGS OR SPECIFICATIONS.

GUARANTEE: WORK AND MATERIALS TO BE GUARANTEED FOR ONE (1) YEAR AFTER PROJECT COMPLETION. HVAC REFRIGERATION SYSTEM COMPONENTS SHALL HAVE AN ADDITIONAL 4-YEAR WARRANTY. EACH PIECE OF EQUIPMENT SHALL MEET PERFORMANCE SPECIFICATIONS AFTER ONE (1) YEAR'S ACTUAL OPERATION. THE CONTRACTOR SHALL REPLACE, OR MAKE GOOD, ANY DEFECT DUE TO FAULTY WORKMANSHIP OR MATERIAL, WHICH SHALL DEVELOP WITHIN ONE (1) YEAR FROM DATE OF ACCEPTANCE AT NO COST TO THE OWNER. THIS GUARANTEE SHALL COVER BOTH MATERIAL AND LABOR WRITTEN RECOMMENDATIONS. CONTRACTOR SHALL PROVIDE WRITTEN CERTIFICATION FROM THE AND SHALL INCLUDE: (A) REFRIGERANT AND OIL REPLACEMENT, (B) ANY ADJUSTMENTS OR SERVICE REQUIRED, AND (C) ANY NECESSARY ADJUSTMENTS IN SYSTEM CONTROL SET POINTS WHEN REQUIRED, BUT NO FILTER MAINTENANCE. THE CONTRACTOR IS RESPONSIBLE TO REPLACE WORK FOUND NOT IN COMPLIANCE WITH THE CONTRACT AT ANY TIME DURING THE LIFE OF THE INSTALLATION; REPLACEMENT OF NON-CONFORMING WORK IS NOT SUBJECT TO THE ONE-YEAR WARRANTY LIMITATION. WHERE TYPE "L" COPPER SHALL BE USED. PIPING SHALL BE INSTALLED WITHOUT ANY SAGGING TO ENSURE COMPLETE DRAINAGE. THE CONDENSATE DRAIN SHALL BE THE SAME SIZE AS THE UNIT DRAI

WHERE THE WORK OF VARIOUS TRADES WILL BE INSTALLED IN CLOSE PROXIMITY TO ONE ANOTHER, OR WHERE THERE IS EVIDENCE THAT THE WORK OF ONE TRADE WILL INTERFERE WITH WORK OR REQUIRED ACCESS/CLEARANCE SPACE OF OTHER TRADES, COORDINATE ADJUSTMENTS PRIOR TO INSTALLATION TO PROVIDE SATISFACTORY CLEARANCE. FOR ANY WORK INSTALLED WITHOUT COORDINATION AND/OR CAUSING CONFLICTS, PROVIDE ALL NECESSARY CHANGES TO CORRECT THE CONDITIONS. THE CONSTRUCTION WORK SHALL BE PERFORMED IN A MANNER ACCEPTABLE TO ARCHITECT AND ENGINEER AND SHALL BEAR NO ADDITIONAL COSTS.

ROUND.

A.F.F.	ABOVE FINISHED FLOOR
AMB.	AMBIENT
B.F.C.	BELOW FINISHED CEILING
CFM	CUBIC FEET PER MINUTE
EA	EXHAUST AIR
E.A.D.B.	ENTERING AIR DRY BULB TEMPERATURE
E.A.W.B.	ENTERING AIR WET BULB TEMPERATURE
E.S.P.	EXTERNAL STATIC PRESSURE
FD-2	2-HOUR FIRE DAMPER
GPM	GALLONS PER MINUTE
мвн	THOUSAND BTU/HOUR
MCDB	MEAN COINCIDENT DRY BULB TEMP.
мсwв	MEAN COINCIDENT WET BULB TEMP.
MUA	MAKE-UP AIR
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
N/A	NOT APPLICABLE
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
OA	OUTSIDE AIR
RA	RETURN AIR
RH	RELATIVE HUMIDITY
SA	SUPPLY AIR
CHWS	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	LOW-TEMPERATURE HOT WATER SUPPLY
	LOW-TEMPERATURE HOT WATER RETURN
	HOT/CHILLED WATER SUPPLY
-	HOT/CHILLED WATER RETURN
	CONDENSER WATER SUPPLY
	CONDENSER WATER RETURN
	HEAT PUMP WATER SUPPLY
	HEAT PUMP WATER RETURN
	REFRIGERANT LIQUID
	REFRIGERANT SUCTION
	CONDENSATE DRAIN ABOVE FLOOR/GRADE
	CONDENSATE DRAIN BELOW FLOOR/GRADE
ф	· · · · ·
	BUTTERFLY VALVE
	CHECK VALVE
	GATE OR GLOBE VALVE
	THREE-WAY VALVE
[Ŷ	· –

NOTE: NOT ALL SYMBOLS SHOWN IN LEGEND MAY BE ON THE DRAWINGS.

LOCATE ALL EQUIPMENT REQUIRING SERVICING, OPERATIONAL, OR MAINTENANCE CLEARANCES IN A FULLY ACCESSIBLE POSITION. EQUIPMENT REQUIRING THESE CLEARANCES SHALL INCLUDE, BUT NOT BE ARMAFLEX OR EQUAL, WITH MANUFACTURER'S RECOMMENDED ADHESIVE AT ALL JOINTS. LIMITED TO: DAMPERS, VALVES, TRAPS, CLEANOUTS, MOTORS, CONTROLLERS, DISCONNECTS, DRAIN DEVIATIONS FROM THE CONTRACT DOCUMENTS MAY BE MADE TO ALLOW FOR BETTER ACCESSIBILITY. WHERE FIRE DAMPERS ARE REQUIRED, PROVIDE ACCESS PANELS TO ALLOW RE-LINKING OF DAMPER FUSIBLE LINKS. PANELS IN RATED CONSTRUCTION SHALL BEAR UL LABEL.

INSTALL ALL DUCTWORK AND HORIZONTAL PIPING AS HIGH AS POSSIBLE AND ABOVE THE FINISHED CEILING, UNLESS NOTED OTHERWISE. PROVIDE OFFSETS, AS REQUIRED, TO AVOID ALL OBSTRUCTIONS. PIPING, CONDUITS, CABLES, ETC., SHALL BE RUN NEATLY, PARALLEL TO EXISTING AND NEW PIPING AND BUILDING WALLS AND FLOORS

DO NOT SCALE DRAWINGS; USE GIVEN DIMENSIONS ONLY. IF NOT SHOWN, VERIFY AND DOCUMENT REFLECT THE CONDITIONS COMMENSURATE WITH THIS INFORMATION. HOWEVER, THE CONTRACTOR SHALL CORRECT DIMENSION WITH THE ARCHITECT OR ENGINEER. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE JOB SITE

> A TECHNICIAN, FACTORY TRAINED AND CERTIFIED BY THE MANUFACTURER OF THE HVAC EQUIPMENT PROVIDED, SHALL PERFORM PRE START-UP CHECK AND SHALL SUBMIT A REPORT TO THE OWNER ON EACH AIR HANDLING UNIT, ROOFTOP UNIT, AND SPLIT SYSTEM. THIS REPORT SHALL INCLUDE CERTIFICATION, IN WRITING, THAT THE EQUIPMENT IS CORRECTLY INSTALLED (INCLUDING PROPER DRAINAGE FROM DRAIN PANS AND SEALING OF AIR LEAKS); ELECTRICAL CONNECTIONS AND TERMINAL 'IGHTNESS; GAS PIPING IS LEAK FREE; INDOOR FILTERS ARE CLEAN, IN PLACE, AND EASILY REPLACEABLE; FANS AND COMPRESSORS ROTATE CORRECTLY; ELECTRICAL AMP DRAWS SHALL BE RECORDED AND CERTIFIED WITHIN MANUFACTURER'S RECOMMENDED LIMITS; REFRIGERANT SUCTION AND DISCHARGE PRESSURES FOR ALL CIRCUITS WITH STATEMENT THAT SYSTEMS ARE CORRECTLY CHARGED. ALL DUCTWORK DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS.

> DUCTWORK: RIGID - GALVANIZED SHEET METAL PER SMACNA WITH THE EXCEPTION THAT ALL DUCTWORK SHALL BE CONSTRUCTED WITH A MINIMUM OF 26 GA. SHEET METAL. USE ROUND DUCTWORK WHERE CLEARANCES PERMIT. SEAL ALL SUPPLY AIR DUCTWORK JOINTS TO SMACNA CLASS PERCENT OF THE SPECIFIED AIRFLOWS WHEN TESTED AT 1" W.G.

> DUCTWORK: FLEXIBLE – UL LISTED, CLASSIFIED AS A CLASS 1 AIR DUCT, TESTED UNDER UL STANDARD 181, AND MEET LOCAL CODE REQUIREMENTS. FLEXIBLE SUPPLY DUCTS SHALL HAVE PERM RATING OF NOT OVER 0.1, A "C" FACTOR OF NOT OVER 0.23 (OR A "U" FACTOR OF NOT OVER 0.22 WITH 1000 FPM VELOCITY IN THE DUCT), AND WHICH COMPLY WITH NFPA-90A. CONNECT FLEXIBLE DUCTS TO DIFFUSERS AND RIGID DUCT USING STAINLESS STEEL CLAMPS, FLEXMASTER QUICK RELEASE-LS SERIES OR EQUAL. FLEXIBLE DUCT SHALL BE CUT TO EXACT LENGTH REQUIRED. FLEXIBLE DUCTWORK SHALL BE SUPPORTED IN ACCORDANCE WITH FIGURES 3-10 AND 3-11 IN THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE (3RD EDITION). FLEXIBLE DUCTWORK RUNNING THROUGH JOIST WEBBING SHALL NOT BE CRUSHED OR DEFORMED OUT OF

AIR DISTRIBUTION DEVICES: AS SCHEDULED ON DRAWINGS.

REFRIGERANT PIPING: HARD-DRAWN TYPE "K" SEAMLESS COPPER TUBING, ASTM B88-74. FITTINGS SHALL BE WROUGHT COPPER, ANSI B16-22-63, WITH A WORKING PRESSURE OF NOT LESS THAN 300 PSIG. REFRIGERANT PIPING SHALL BE SIZED AND INSTALLED WITH THE EQUIPMENT MANUFACTURER'S EQUIPMENT MANUFACTURER AS TO THE CORRECTNESS OF THE LINE SIZES PRIOR TO INSTALLATION.

CONDENSATE DRAIN PIPING: SCHEDULE 40 PVC WITH DWV FITTINGS, EXCEPT IN RETURN AIR PLENUMS, ENSURE COMPLETE DRAINAGE. THE CONDENSATE DRAIN SHALL BE THE SAME SIZE AS THE UNIT DRAIN CONNECTION BUT SHALL NOT BE LESS THAN 3/4" DIAMETER PIPE. ALL CONDENSATE DRAIN PIPING SHALL SLOPE DOWN 1/8" IN 12" MINIMUM IN DIRECTION OF FLOW.

INSULATION: DUCTWORK; SUPPLY, RETURN, OUTSIDE AIR, OR MAKE-UP AIR (CONCEALED) - 2" THICK, 1 PCF DENSITY FIBERGLASS BLANKET WITH FIRE RATED VAPOR BARRIER (INSTALLED R-VALUE SHALL BE 5.0 MINIMUM). OVERLAP BUTTING EDGES, FOLD, SEAL AND TAPE, AND PROVIDE A CONTINUOUS VAPOR BARRIER. USE OF STAPLES SHALL NOT BE PERMITTED. RETURN AIR DUCT INSIDE THE CONDITIONED SPACE NEED NOT BE EXTERNALLY INSULATED. ALL SHEET METAL SURFACES, INCLUDING THE TOPS OF SUPPLY AIR DIFFUSERS EXPOSED ABOVE THE CEILING, SHALL BE INSULATED.

INSULATION: DUCTWORK: RETURN (CONCEALED) - 1" THICK CLOSED CELL ELASTOMERIC INSULATION,

PANS, ETC. IF EQUIPMENT IS CONCEALED, PROVIDE ACCESS DOORS TO MAINTAIN ACCESSIBILITY. MINOR INSULATION: ALL DUCTWORK EXPOSED TO EXTERIOR CONDITIONS OR IN MECHANICAL ROOM OR ATTICS - 2" THICK FIBERGLASS BLANKET WITH FIRE-RATED VAPOR BARRIER HAVING A DENSITY OF 6 PCF MINIMUM, A THERMAL CONDUCTIVITY OF NO GREATER THAN 0.23 BTU-IN/HR-FT2-*F AT 75* F AND A MINIMUM INSTALLED R-VALUE OF 8.0. SEAL ALL INSULATION SEAMS AND BUTTING EDGES VAPOR TIGHT TO ENSURE A CONTINUOUS VAPOR BARRIER. FOR DUCTWORK ON THE EXTERIOR OF THE BUILDING, SLOPE INSULATION ON TOP OF DUCTWORK FROM A HIGH POINT ON THE CENTERLINE OF THE DUCT TO THE SIDES, WITH A MINIMUM THICKNESS OF 2" AT THE SIDES, TO ENSURE NO WATER BUILDS UP ON TOP OF DUCT. INSTALL AN ALUMINUM JACKET OR VENTURECLAD PVC JACKET ON THE OUTSIDE OF HE INSULATION.

> INSULATION: DUCTWORK; SUPPLY, RETURN, OUTSIDE AIR, OR MAKE-UP AIR (EXPOSED) - AS FOR CONCEALED DUCT INSULATION, WITH AN ALUMINUM JACKET OR VENTURECLAD PVC JACKET ON THE OUTSIDE OF THE INSULATION.

INSULATION: REFRIGERANT PIPING (EXTERIOR AND INTERIOR OF BUILDING) AND CONDENSATE DRAIN PIPING (INTERIOR OF BUILDING) - 1" THICK CLOSED CELL ELASTOMERIC FOAM INSULATION, ARMAFLEX AP OR EQUAL, WITH MANUFACTURER'S RECOMMENDED ADHESIVE AT ALL JOINTS. INSULATION EXPOSED TO EXTERIOR CONDITIONS SHALL BE COVERED IN A FLEXIBLE PVC JACKET AND SEALED WEATHERPROOF.

HVAC EQUIPMENT: AS SCHEDULED ON DRAWINGS.

MOUNT TEMPERATURE SENSORS, REMOTE CONTROL PANELS, ETC., AS INDICATED ON PLANS 48" A.F.F. O CENTER OF DEVICE UNLESS OTHERWISE NOTED OR AS REQUIRED FOR ACCESSIBILITY CODE COMPLIANCE. COORDINATE LOCATION OF SENSORS WITH CABINETRY AND OTHER SERVICES. THE TEMPERATURE SENSORS SHALL NOT BE INSTALLED ON OUTSIDE WALLS, IN THE DIRECT AIR STREAM FROM ANY DIFFUSER, OR WHERE IT MAY BE INFLUENCED BY HEAT GIVEN OFF FROM EQUIPMENT.

ADJUSTING AND BALANCING: ALL EQUIPMENT AND SYSTEMS SHALL BE ADJUSTED AND BALANCED SO THAT THEY PERFORM TO THE SATISFACTION OF THE ARCHITECT. AIR DISTRIBUTION SYSTEM(S) SHALL BE ADJUSTED TO THE AIR QUANTITIES INDICATED AND TO ELIMINATE ANY TEMPERATURE GRADIENTS BETWEEN ROOMS OR WITHIN ROOMS GREATER THAN 3" F. CONTRACTOR SHALL ENGAGE THE SERVICES OF A TEST AND BALANCE AGENCY TO PERFORM THE ADJUSTING AND BALANCING OF THE MECHANICAL SYSTEM(S). ALL ADJUSTING AND BALANCING WORK SHALL BE PERFORMED BY THE PROCEDURAL STANDARDS AS SET FORTH BY THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB), THE ASSOCIATED AIR BALANCE COUNCIL (AABC), OR THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA). THE CONTRACTOR SHALL SUBMIT TAB REPORTS TO THE ENGINEER FOR REVIEW; ALL TAB REPORTS SHALL BE SUBMITTED ON FORMS AS SET FORTH BY THE ORGANIZATIONS LISTED ABOVE.

ALL SAFETY DEVICES SHALL BE CHECKED FOR PROPER OPERATION.

PRIOR TO COMPLETION AND FINAL ACCEPTANCE OF THE FACILITY, FURNISH TO THE ENGINEER CERTIFICATION THAT THE MECHANICAL SYSTEMS HAVE BEEN TESTED AND THAT THE INSTALLATION AND PERFORMANCE OF THOSE SYSTEMS CONFORM TO THE CONTRACT DOCUMENTS.

THE CONTRACTOR SHALL MAINTAIN AT THE JOB SITE A SET OF CONTRACT RECORD DOCUMENTS KEPT CURRENT BY INDICATING THEREON ALL CHANGES, SUBSTITUTIONS, ETC., BETWEEN WORK AS SPECIFIED AND AS INSTALLED. SHOW ON RECORD DRAWINGS ACTUAL AIR QUANTITIES, WATER FLOW RATES, VALVE OR DAMPER POSITIONS AFTER BALANCING, ETC.; ALSO SHOW, BY ACTUAL DIMENSION, LOCATION OF ALL UNDERGROUND WORK. FURNISH THE ENGINEER AND THE OWNER WITH ONE (1) COMPLETE SET EACH OF ELECTRONIC DRAWING FILES SHOWING INSTALLED LOCATION, SIZE, ETC. OF ALL WORK AND MATERIAL IN .PDF AND .DWG FORMATS.

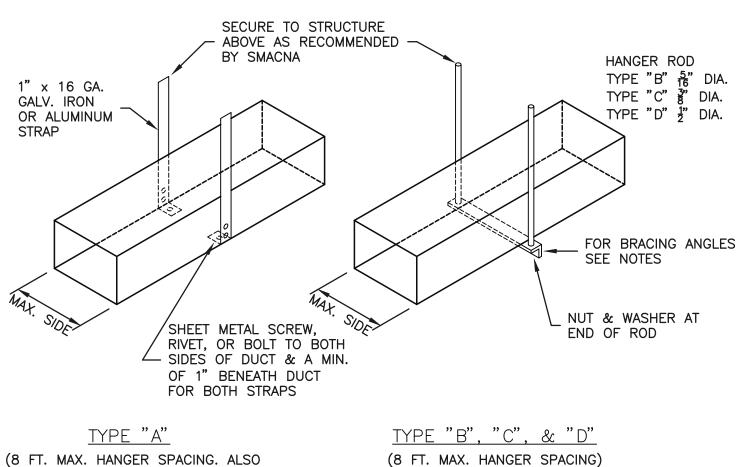
RECORD AND AS-BUILT DRAWINGS: MAINTAIN AT THE JOB SITE A SET OF CONTRACT RECORD DRAWINGS KEPT CURRENT BY INDICATING THEREON ALL CHANGES, SUBSTITUTIONS, ETC., BETWEEN WORK AS SPECIFIED AND AS INSTALLED. FURNISH THE ENGINEER WITH ONE (1) COMPLETE SET OF ELECTRONIC DRAWING FILES SHOWING INSTALLED LOCATION, SIZE, ETC., OF ALL WORK AND MATERIAL IN .PDF AND .DWG FORMAT. SHOW ON RECORD DRAWINGS ACTUAL AIR QUANTITIES, WATER FLOW RATES. VALVE AND/OR DAMPER POSITIONS AFTER BALANCING, ETC.; ALSO SHOW, BY ACTUAL DIMENSION, LOCATION OF ALL UNDERGROUND WORK. FOR EACH PIECE OF EQUIPMENT, PROVIDE THE OWNER THREE (3) SETS OF: (A) MANUFACTURER'S PRINTED CATALOG PAGES, OPERATING AND MAINTENANCE INSTRUCTIONS, WIRING AND CONNECTION DIAGRAM, ETC.; (B) TEMPERATURE-HUMIDITY AND MOTOR INTERLOCK CONTROL AND WIRING DIAGRAMS SHOWING OPERATION INSTRUCTIONS FOR, AND NORMAL POSITION OF. EACH MOTOR AND CONTROLLER, CONTROL VALVE, THERMOSTAT, ETC.; AND (C) LUBRICATION CHART. BIND THIS INFORMATION INTO $8-1/2^{\circ} \times 11^{\circ}$ BOOKLETS. ALL THREE (3) SETS SHALL BE ASSEMBLED IN HARDBACK BINDERS.

HVAC	LEGEND AND SYMBOLS		
-	VALVE ACTUATORS:	$\boxtimes \otimes$	SUPPLY, OUTSIDE AIR, OR MAKE-UP AIR DUCTWORK CROSS-SECTION
T 199 1 1 1	MANUAL, NON-RISING STEM ELECTRIC MOTOR	$\square 0$	RETURN DUCTWORK CROSS-SECTION
	ELECTRIC SOLENOID CAP ELBOW, FACING TOWARD VIEWER	$\boxtimes \otimes$	EXHAUST DUCTWORK CROSS-SECTION
 	ELBOW, FACING AWAY FROM VIEWER REDUCER, CONCENTRIC		RADIUS ELBOW (45° SHOWN)
FOB	REDUCER, ECCENTRIC, FLAT ON BOTTOM REDUCER, ECCENTRIC, FLAT ON TOP		MITERED ELBOW WITH DOUBLE THICK TURNING VANES (90° SHOWN)
	TEE, FACING TOWARD VIEWER		SUPPLY DUCTWORK SHOWN TURNING UP
	UNION, SCREWED UNION, FLANGED		RETURN DUCTWORK SHOWN TURNING DOWN
	STRAINER STRAINER, BLOW OFF	FD-2	FIRE DAMPER WITH ACCESS DOOR IN DUCT
	PETE'S PLUG		SMOKE DAMPER WITH ACCESS DOOR IN DUCT
<u>्</u> षे ।	PRESSURE GAGE AND COCK		FIRE/SMOKE DAMPER WITH ACCESS DOOR
	THERMOMETER PUMP DIRECTION OF FLOW		MANUAL VOLUME BALANCING DAMPER
		\$	PROGRAMMABLE TEMPERATURE SENSOR
12x6 /	RECTANGULAR DUCTWORK; DIMENSIONS SHOWN ARE NET INTERNAL DIMENSIONS	С	REMOTE WIRED WALL-MOUNTED CONTROLLER
12"ø 7	ROUND DUCTWORK; DIMENSION SHOWN IS NET INTERNAL DIMENSION		DUCT-MOUNTED SMOKE DETECTOR
<u>12x6</u> F.O.	FLAT OVAL DUCTWORK; DIMENSION SHOWN IS NET INTERNAL DIMENSION	Ρ	MANUAL PULL STATION FOR KITCHEN EXHAUST HOOD FIRE SUPPRESSION SYSTEM
	FLEXIBLE DUCTWORK (MAX. LENGTH = 4 FEET) EXISTING DUCTWORK TO BE REMOVED		DUCT CONNECTION TO THE NECK OF A DIFFUSER, REGISTER, OR GRILLE (DIFFUSER CONNECTION SHOWN)
├	EXISTING DUCTWORK TO REMAIN IN PLACE		SIDEWALL GRILLE OR REGISTER; ARROW INDICATES FLOW DIRECTION
₽₽ ₽₽	NEW DUCTWORK		
@	POINT WHERE NEW TO EXISTING DUCTWORK CONNECT	20x10 (H)	-SIZE OF DIFFUSER/GRILLE NECK -DIFFUSER/GRILLE TYPE (SEE SCHEDULE)
		\	- AIR VOLUME OF DIFFUSER/GRILLE

ВЦ				
DESCRIPTION:				
MARK: DATE:				
NAR!		BIONS		
HAMILTON COUNTY DEPARTMENT OF EDUCATION	LAMITON Division of Auxiliary Services	of Auxiliary Services 2501 Dodds Avenue 1, Tennessee 37407 one: 423/498-7255		
OOL-BASED	U	DEMY		
HOWARD CONNECT SCHOOL-BASE	HEALTH CLINIC	HOWARD CONNECT ACADEMY 100 E 25TH STREET CHATTANOOGA, TN 37408		



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(8 FT. MAX. HANGER SPACING. ALSO PROVIDE 3 HANGERS AT EACH TAKE-OFF OR BRANCH.)

DUCT HANGER SCHEDULE			
DUCT DIMENSIONS (INCHES)	TYPE HANGER		
UP THRU 12	A		
13 THRU 18	A		
19 THRU 30	A/B		
31 THRU 42	В		
43 THRU 54	В		
55 THRU 60	В		
61 THRU 84	С		
85 THRU 96	С		
OVER 96	D		

NOTES:

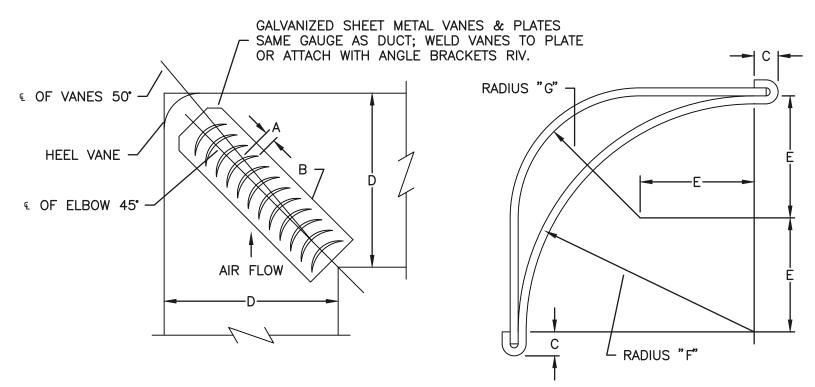
- 1. FOR SEVERAL DUCTS ON ONE HANGER, TYPE "B", "C", OR "D" MAY BE USED. SIZE OF HANGER WILL BE SELECTED ON SUM OF DUCT WIDTHS EQUAL TO MAXIMUM WIDTH OF DUCT HANGER SCHEDULE.
- 2. SCHEDULES FOR ANGLES FOR BRACING: TYPE "B" - $1\frac{1}{2}$ " x $1\frac{1}{2}$ " x $\frac{1}{8}$ " ANGLE, MAX. SPACING 8'-0" CENTERS; TYPE "C" - $1\frac{1}{2}$ " x $1\frac{1}{2}$ " x $\frac{3}{16}$ " ANGLE, MAX. SPACING 8'-0" CENTERS; TYPE "D" - 2" x 2" x $\frac{1}{4}$ " ANGLE, MAX. SPACING 4'-0" CENTERS.

DUCT	HANGERS
	NO SCALE

REGISTERS, GRILLES, & DIFFUSERS							
MARK	MANUFAC.	DESCRIPTION	MODEL/CAT#	AIR CONTROL	MATERIAL	FINISH	
А	TITUS	SUPPLY SIDE WALL GRILLE	272RS	NONE	STEEL	#26 WHITE	
В	TITUS	EGGCRATE RETURN GRILLE	50F	OBD	ALUMINUM	#26 WHITE	

NOTES:

- 1. SIZE SHOWN ON THE DRAWINGS ARE NECK SIZES. MOUNTING TO BE SURFACE OR LAY IN AS REQUIRED. 2. INSULATE TOP OF ALL SUPPLY REGISTERS AND DIFFUSERS WITH 2" THICK FIBERGLASS INSULATION.
- 3. EGGCRATES TO BE PROVIDED WITH 2"x2"x2" ALUMINUM CORES. EGGCRATE DAMPERS TO BE TITUS MODEL AG-15 OR EQUIVALENT.
- 4. PROVIDE SIDEWALL SUPPLY GRILLES WITH TITUS MODEL AG-35 DAMPERS. PROVIDE SIDEWALL RETURN/EXHAUST WITH TITUS MODEL AG-15 DAMPERS.
- 5. SIDEWALL SUPPLY GRILLES TO HAVE $rac{2}{3}$ BLADE SPACING AND BE SINGLE DEFLECTION.

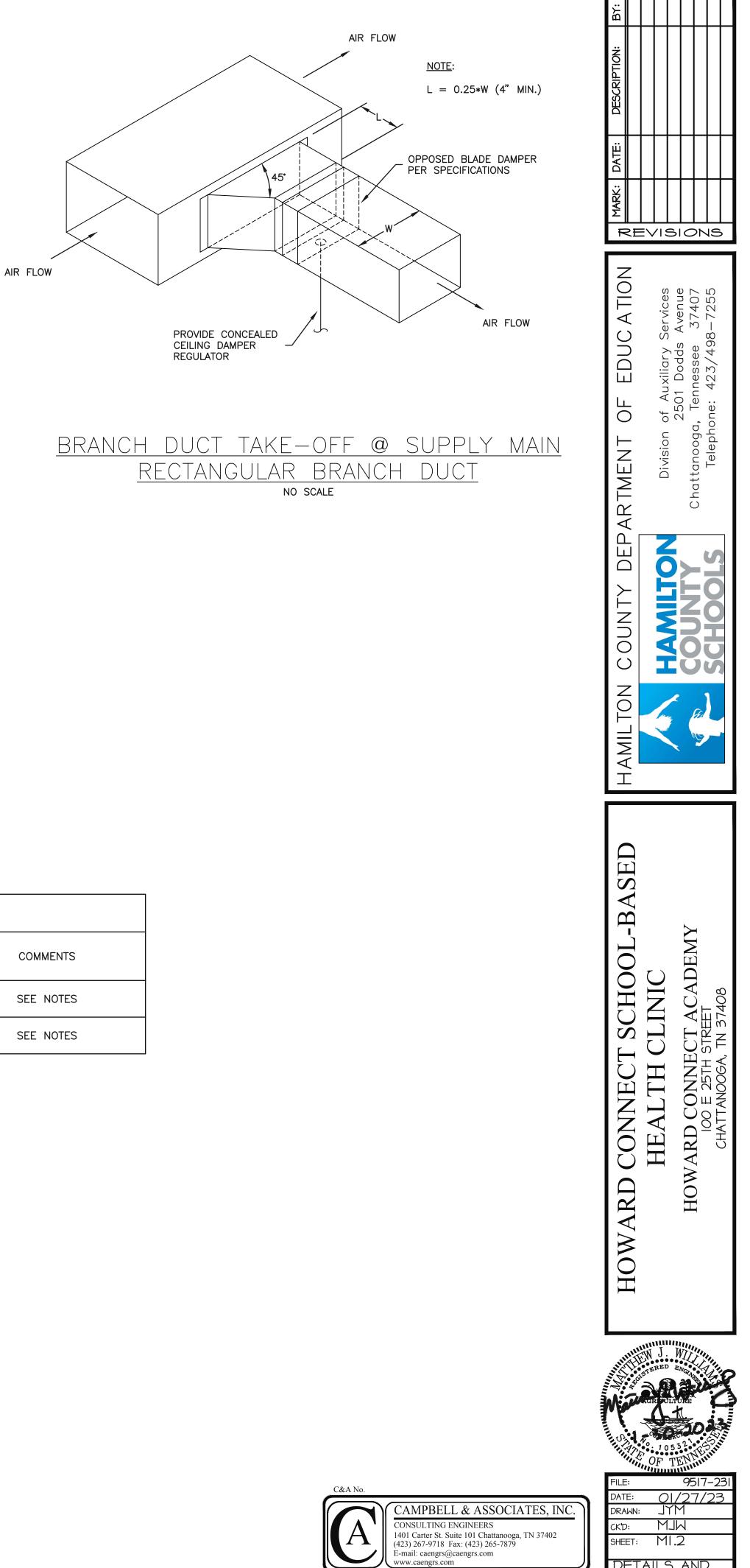


VANES PRE-ASSEMBLED ON RUNNERS IN ALL CASES

PROVIDE 1 STAY FOR DUCTS 12" TO 120" WIDE & 2 STAYS AT ¹/₃ POINTS FOR 120" & ABOVE

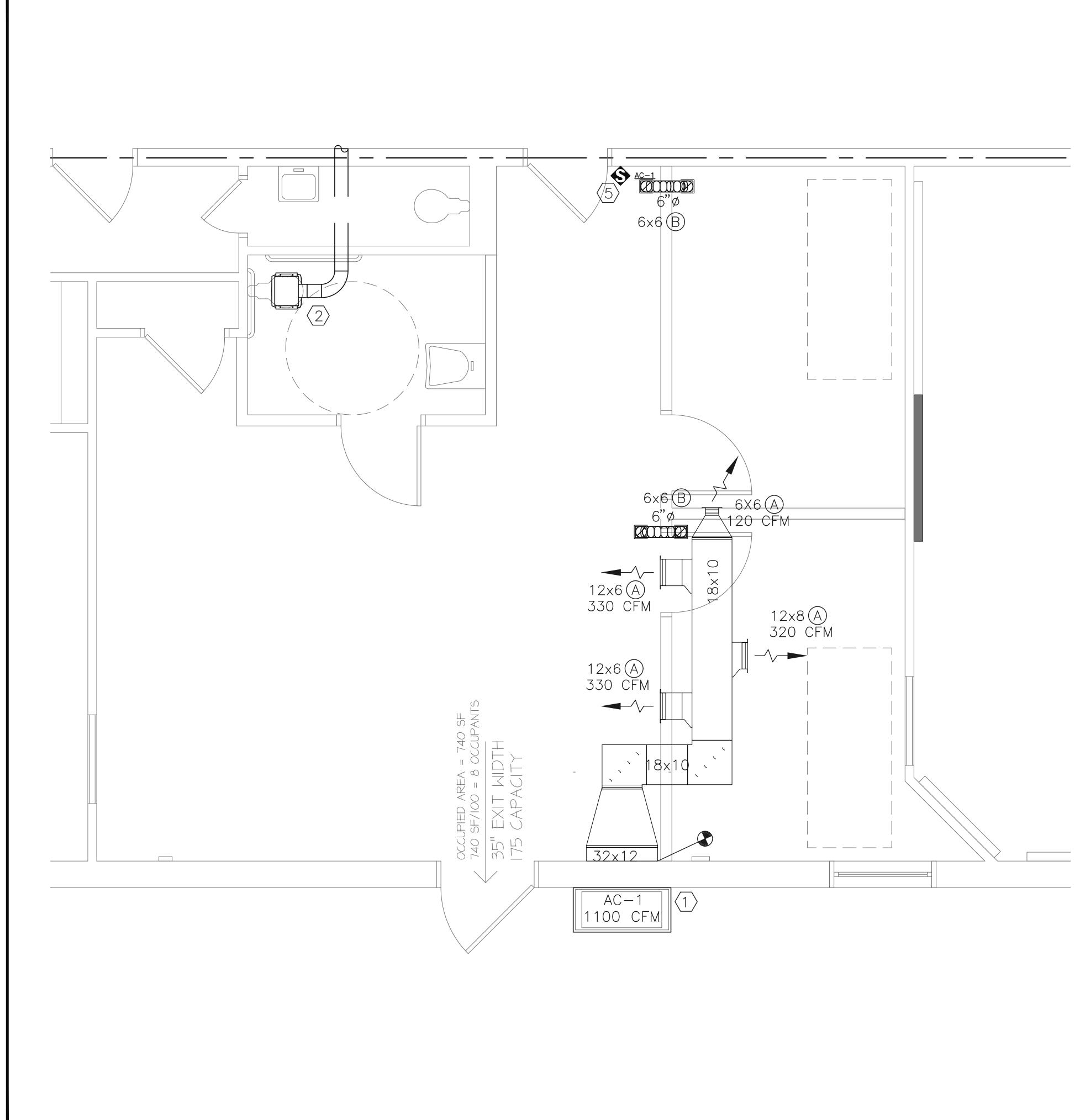
D & D UP TO 24" D & D OVER 24"	A=1 <mark>1</mark> " A=3 <u>1</u> "	B=5" B=9"	TYPE "B" VANES TYPE "A" VANES
TYPE "A"	$C = \frac{1}{2}$	E=2 1 "	RADIUS "F" = $4\frac{1}{2}$ ", RADIUS "G" = $2\frac{1}{4}$ "
TYPE "B"	C= <u>1</u> "	E=1"	RADIUS "F"=2", RADIUS "G"=1"

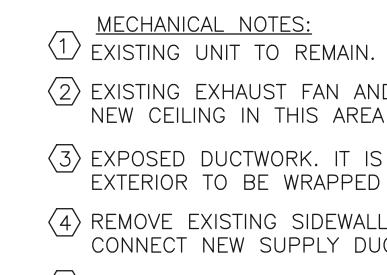
SQUARE ELBOW DETAIL NO SCALE



DETAILS AND SCHEDULE



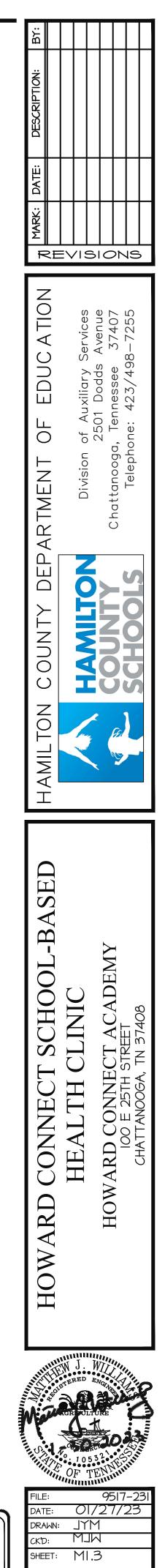




 $\langle 2 \rangle$ existing exhaust fan and duct to remain. Set existing fan in New Ceiling in this area as required.

 $\overline{(3)}$ EXPOSED DUCTWORK. IT IS TO BE WRAPPED BY 2" INSULATION. THE EXTERIOR TO BE WRAPPED WITH PVC JACKET VENTURECLAD. $\langle 4 \rangle$ REMOVE EXISTING SIDEWALL SUPPLY GRILL AT THIS LOCATION AND CONNECT NEW SUPPLY DUCTWORK HERE.

 $\langle 5 \rangle$ EXISTING TEMPERATURE SENSOR TO REMAIN AS LOCATED.





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HVAC PLAN