

WARWICK PUBLIC SCHOOLS

34 WARWICK LAKE AVE.
WARWICK, RI 02889

DUST COLLECTION REPLACEMENT

APRIL 10, 2007

ALDRICH JUNIOR HIGH SCHOOL

789 POST ROAD, WARWICK, RI 02888
CEC JOB NO.: 20710

GORTON JUNIOR HIGH SCHOOL

69 DRAPER AVENUE, WARWICK, RI 02889
CEC JOB NO.: 20711

WINMAN JUNIOR HIGH SCHOOL

575 CENTERVILLE ROAD, WARWICK, RI 02886
CEC JOB NO.: 20712

TOLL GATE HIGH SCHOOL

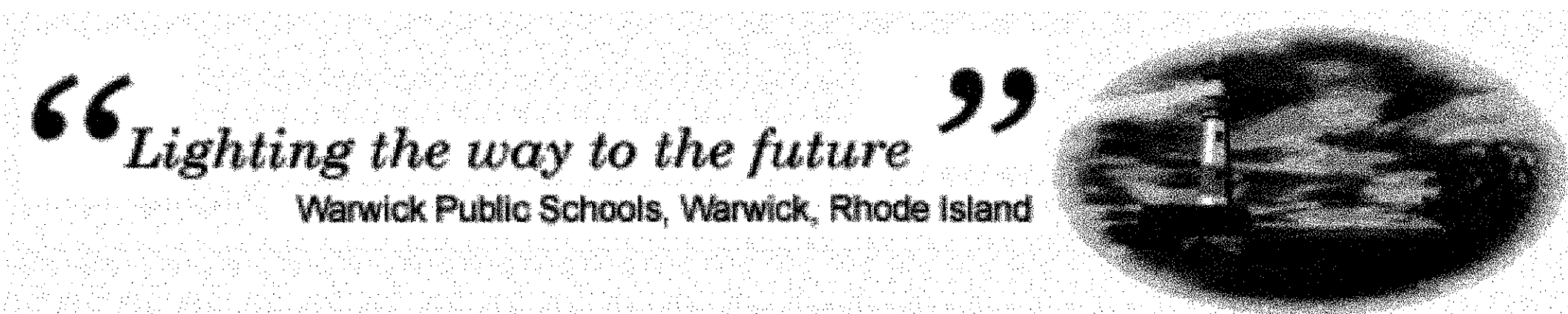
575 CENTERVILLE ROAD, WARWICK, RI 02886
CEC JOB NO.: 20713

PILGRIM HIGH SCHOOL

111 PILGRIM PARKWAY, WARWICK, RI 02888
CEC JOB NO.: 20714

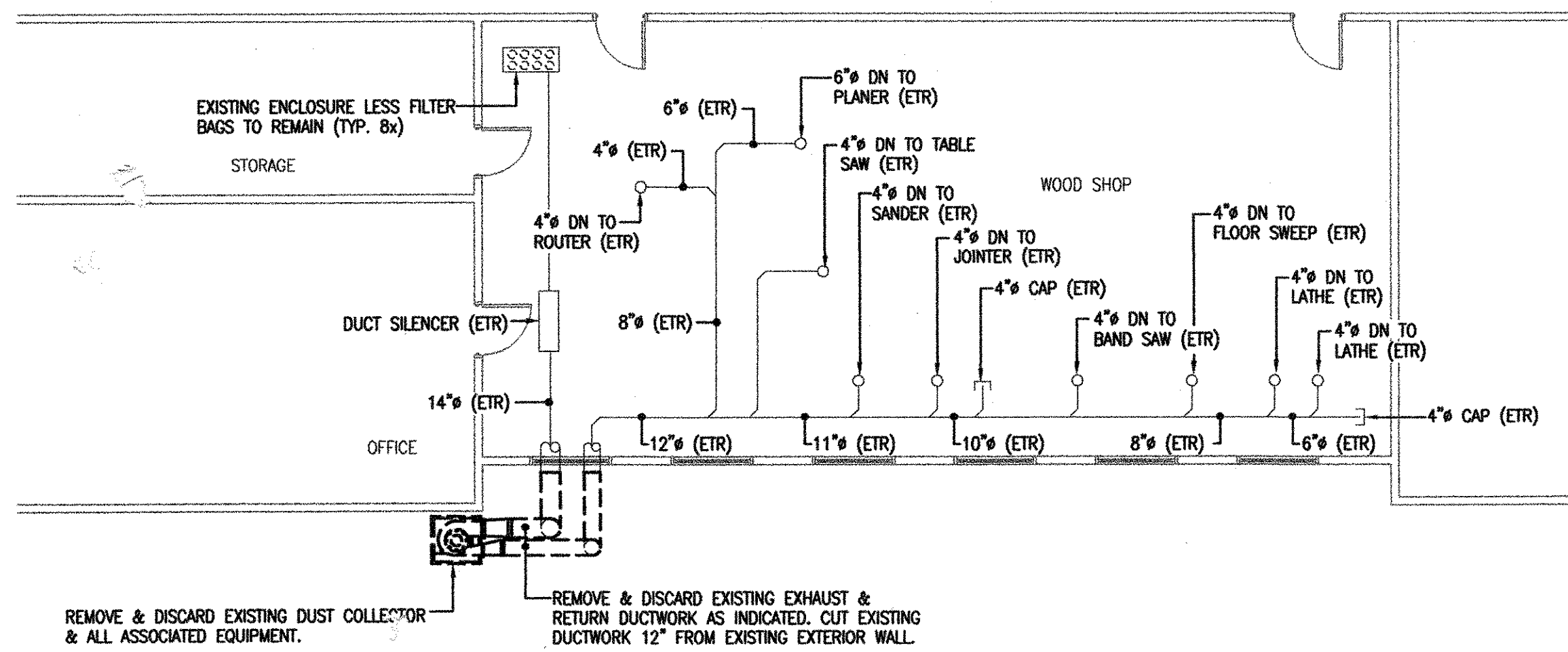
WARWICK VETERANS MEMORIAL HIGH SCHOOL

2401 WEST SHORE ROAD, WARWICK, RI 02889
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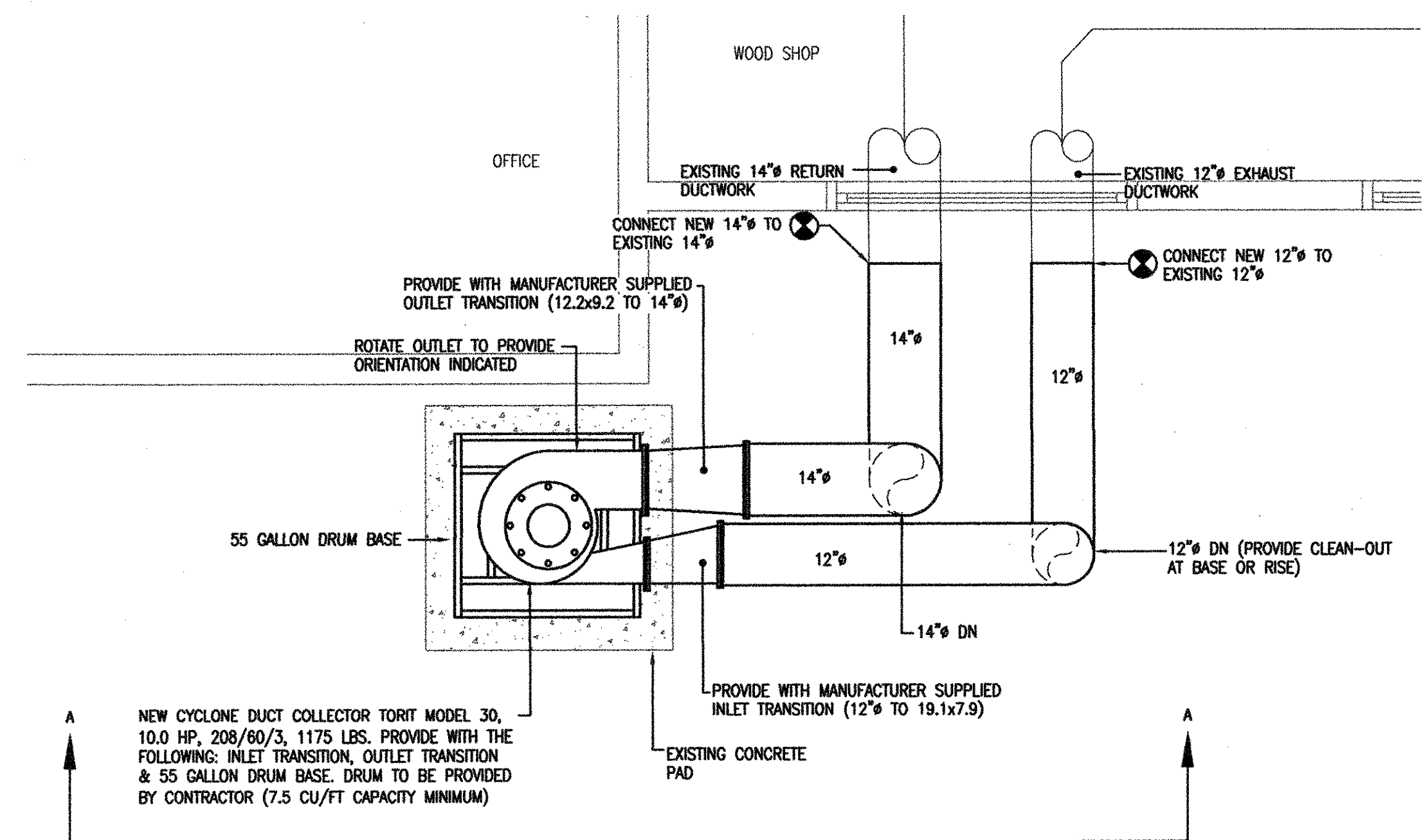


PARTIAL FLOOR PLAN - MECHANICAL DEMOLITION
SCALE: 1/8"=1'-0"

DEMOLITION NOTES

UNDER DEMOLITION, THE FOLLOWING IS, IN BRIEF, THE EXTENT OF THE WORK TO BE PERFORMED BY THE MECHANICAL CONTRACTOR UNDER THIS CONTRACT.

- PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF THE EXISTING MECHANICAL EQUIPMENT & DUCTWORK IN DESIGNATED AREAS. PATCH ALL ROOF AND WALL PENETRATIONS TO MATCH EXISTING.
- THIS CONTRACTOR SHALL PROTECT WORK AGAINST INJURY OR DAMAGE; AND CAREFULLY STORE MATERIAL AND EQUIPMENT TO BE RELOCATED. OPEN ENDS OF WORK SHALL BE CLOSED WITH TEMPORARY COVERS OR PLUGS DURING STORAGE AND CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.



PARTIAL FLOOR PLAN - MECHANICAL NEW WORK
SCALE: 1/2"=1'-0"

MECHANICAL SPECIFICATIONS

PART 1 - GENERAL REQUIREMENTS

- SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, ETC., TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED FOR A COMPLETE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION, AS INTERPRETED BY THE ARCHITECT/ENGINEER.
- APPLY AND PAY FOR ALL NECESSARY INSPECTION FEES, LICENSES AND PERMITS REQUIRED BY THE PROPER AUTHORITIES HAVING JURISDICTION.
- "PROVIDE" AND "INSTALL" ALL MATERIALS, LABOR AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS OR HEREIN SPECIFIED.
- ALL CUTTING, PATCHING & REQUIRED FLASHING WILL BE DONE BY THIS CONTRACTOR.
- ALL MATERIALS SHALL BE NEW. ALL EQUIPMENT SHALL BEAR THE U.L. LABEL.
- COORDINATE LOCATIONS OF ALL NEW DUCTWORK WITH EXISTING EQUIPMENT, LIGHTING, OTHER TRADES, AND THE OWNER PRIOR TO INSTALLATION OR FABRICATION OF SAME.
- CONTRACTOR TO GUARANTEE THE QUALITY OF ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF OWNER ACCEPTANCE. ALL DEFECTIVE MATERIAL AND WORKMANSHIP SHALL BE REPLACED AT CONTRACTOR'S EXPENSE DURING THIS TIME.
- ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR'S EMPLOYEES, MATERIALS OR EQUIPMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INJURIES OR DAMAGE DONE TO BUILDING PREMISES OR ADJOINING AREAS OR WORK RESULTING FROM EXECUTION OF HIS PART OF WORK IN ANY MANNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTION OF HIS WORK AT HIS OWN EXPENSE.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR ALL EQUIPMENT SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS PRIOR TO ORDERING, FABRICATING OR INSTALLING SAME.
- THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWING AND/OR SITE CONDITIONS, THE HVAC CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED. THE CONTRACTOR SHALL CONDUCT A THOROUGH FIELD INVESTIGATION TO VERIFY WORK SHOWN ON THE DRAWINGS. THE DRAWINGS REFLECT THE BEST AVAILABLE INFORMATION FROM EXISTING PLANS AND SITE INVESTIGATIONS.

PART 2 - PRODUCTS

- DUCTWORK
 - ALL DUCTWORK SHALL BE OF TOP GRADE GALVANIZED STEEL, CONSTRUCTED AND SUPPORTED AS PER S.M.A.C.S.A. INDUSTRIAL DUCT CONSTRUCTION STANDARDS CLASS 2. ALL ELBOWS SHALL BE LOW RADIUS TYPE. ALL JOINTS, SEAMS, AND FITTINGS SHALL BE AIR AND WATER TIGHT USING SOLDER JOINTS AND SHALL BE FORMED TO PROVIDE A MINIMUM RESISTANCE TO THE AIR FLOW.
 - THE FOLLOWING METAL THICKNESS SHALL BE UTILIZED:

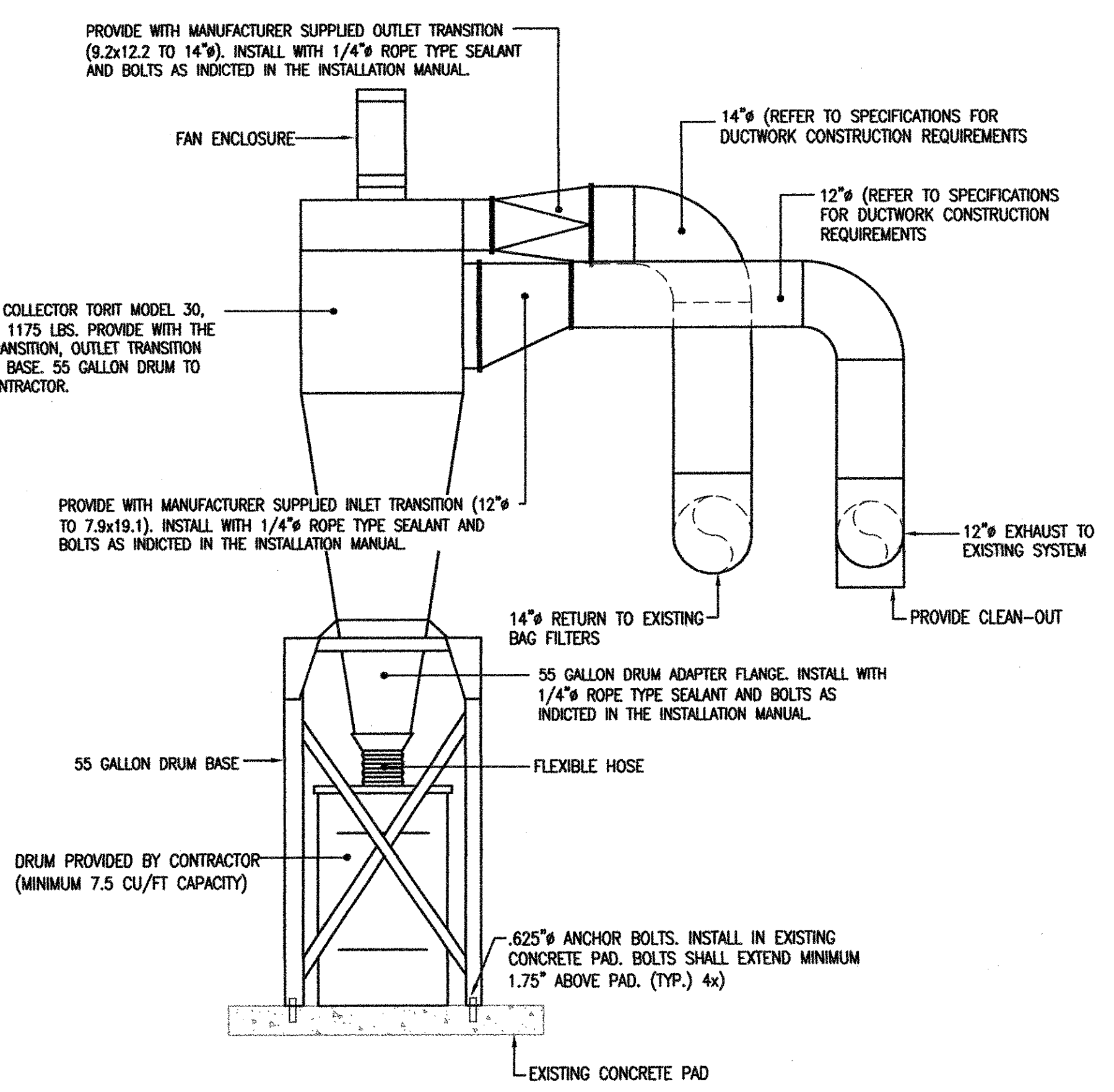
DIAMETER OF STRAIGHT DUCTS (INCHES) U.S. STANDARD GAUGE	
DUCT SIZE	GUAGE
UP TO 8"	22-18
OVER 8" UP TO 18"	22-12

- ELBOWS & ANGLES SHALL BE A MINIMUM OF TWO GAUGES HEAVIER THAN STRAIGHT LENGTHS OF EQUAL DIAMETER. ROUND ELBOWS AND ANGLES SHOULD HAVE AN INSIDE OR THROAT RADIUS OF TWO PIPE DIAMETERS. CONSTRUCT ELBOWS SIX INCHES OR LESS IN DIAMETER OF AT LEAST FIVE SECTIONS, ELBOWS OVER SIX INCHES DIAMETER OF SEVEN SECTIONS. ANGLES SHALL BE PIECED PROPORTIONATELY.
 - RECTANGULAR ELBOWS & ANGLES SHALL BE CONSTRUCTED HAVING A W/D & R/D EQUAL TO OR GREATER THAN 1.
 - LONGITUDINAL JOINTS OF DUCTS SHALL BE LAPPED AND SEAMED OR WELDED.
 - GIRTH JOINTS OF DUCTS SHALL BE MADE WITH LAP IN DIRECTION OF AIR FLOW AND ONE INCH LAP FOR DIAMETERS THRU 19 INCHES AND 1-1/2 INCH LAP FOR DIAMETERS OVER 19 INCHES.
 - INTERIOR OF ALL DUCTS SHALL BE SMOOTH AND FREE FROM OBSTRUCTIONS WITH JOINTS SOLDERED AIR TIGHT.
 - SUPPORT DUCTS SUFFICIENTLY TO PLACE NO LOAD ON CONNECTING EQUIPMENT AND TO CARRY WEIGHT OF SYSTEM IF SOX PLUGGED WITH MATERIAL. MAXIMUM SUPPORTING INTERVALS SHALL BE TWELVE FEET ON HORIZONTAL DUCTS, AT ALL CHANGES OF DIRECTION, TOP OF RISERS AND ON THREE FOOT CENTERS FOR DUCTS LOCATED ON WALLS. BOTH CROSS AND HORIZONTAL BRACING SHALL BE PROVIDED AS REQUIRED.
 - DUCT RESTING ON SUPPORT MEMBERS WITHOUT SADDLES MUST BE REINFORCED WITH PLATES AT LEAST TWICE THE THICKNESS OF THE DUCT MATERIAL. THESE WEAR PLATES SHALL BE HALF THE CIRCUMFERENCE AND AT LEAST TWICE AS LONG AS THE WIDTH OF THE MEMBER SUPPORTING THE DUCT.
 - PROVIDE SIX INCH MINIMUM CLEARANCE BETWEEN DUCTS AND CEILING, WALL OR FLOORS.
 - WHERE LAWS CONFLICT WITH THE PRECEDING, THE MORE STRINGENT REQUIREMENT SHALL BE FOLLOWED. DEVIATION FROM EXISTING REGULATIONS MAY REQUIRE APPROVAL.
 - ALL EXTERIOR DUCTWORK SHALL BE CLEANED & PAINTED WITH (2) COATS RUST INHIBITING PAINT. COLOR TO MATCH DUCT COLLECTOR.
 - THIS ABOVE INFORMATION SHALL PROVIDE FOR COMPLETE AND OPERABLE SYSTEM TO MEET INTENT OF SPECIFICATIONS & TO THE SATISFACTION OF THE ENGINEERS.
- CYCLONE DUST COLLECTOR
 - FURNISH A COMPLETE CONTINUOUS-DUTY DUST COLLECTOR SYSTEM AS SHOWN ON THE PLANS AND/OR LISTED IN THE EQUIPMENT SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF PROVIDING CYCLONIC CLEANING OF INCOMING AIR.
 - THE CONTINUOUS-DUTY COLLECTOR SHALL BE SUPPLIED IN FACTORY-ASSEMBLED UNITS OR IN MAJOR SUBASSEMBLIES SIZED TO MEET AIRFLOW CAPACITIES AND DESIGN REQUIREMENTS. INSTRUCTION MANUAL AND REPLACEMENT PARTS LIST SHALL BE INCLUDED FOR EASY INSTALLATION AND MAINTENANCE.
 - EACH COLLECTOR SHALL BE OF BOLTED AND WELDED CONSTRUCTION USING 14 GAUGE HRS DESIGNED FOR -20" WATER GAUGE AND COMPLETE WITH A REMOVABLE BOTTOM CONE SECTION. THE MOTOR AND FAN ASSEMBLY SHALL BE SHIPPED LOOSE.
 - DUST-LADEN AIR WILL ENTER THE COLLECTOR ON THE SIDE AND BE DIVERTED BY A HELICAL BAFFLE. THE AIR WILL THEN HAVE A "SPIN" IMPARTED TO IT. CENTRIFUGAL FORCES MOVE THE HEAVY DIRT AND DUST TO THE SIDE WALLS AND CARRY IT DOWN TO THE BASE OF THE UNIT. CLEAN AIR IS THEN EXHAUSTED FROM THE UNIT.
 - THE COLLECTOR SHALL INCLUDE AN INLET FLANGE MOUNTED ON THE SIDE OF THE COLLECTOR AT THE DIRTY AIR INLET. AN OUTLET FLANGE WILL BE PROVIDED ON THE SIDE OF THE FAN. THE FAN OUTLET SHALL ACCEPT A TORIT-BUILT FILTER BAG ASSEMBLY INCLUDING STANDARD FILTER BAGS.
 - FILTER BAGS SHALL BE MANUFACTURED OF POLYESTER FELT AND PROVIDE IN THE APPROPRIATE QUANTITIES FOR THE COLLECTION CAPACITY.
 - THE COLLECTOR SHALL BE A DONALDSON TORIT CYCLONE CONTINUOUS DUTY DUST COLLECTOR AS MANUFACTURED BY DONALDSON COMPANY, INC. OR ENGINEER APPROVED EQUAL.

PART 3 - EXECUTION

- IT IS THE INTENT OF THESE SPECIFICATIONS THAT THIS CONTRACTOR BE RESPONSIBLE FOR PROVIDING ALL DEVICES AND WIRING (REGARDLESS OF VOLTAGE) NECESSARY TO PROVIDE THE SEQUENCES AS SPECIFIED HEREIN.
- ALL MECHANICAL SYSTEMS SHALL BE AUTOMATICALLY CONTROLLED. WHERE NO DESCRIPTION OF OPERATION IS INDICATED FOR A PARTICULAR SYSTEM OR DEVICE, THE CONTRACTOR SHALL SELECT APPROPRIATE CONTROL SCENARIOS AND REVIEW THEM WITH THE ENGINEER PRIOR TO PROCEEDING. ALL CONTROLS SHALL BE ARRANGED AND DESIGNED FOR MAXIMUM ENERGY CONSERVATION.
- SEQUENCE OF OPERATION

PROVIDE NEW WALL MOUNTED SWITCH TO ENERGIZE/DE-ENERGIZE THE DUST COLLECTION SYSTEM.
- PROJECT CLOSE-OUT
 - RESTORE EXISTING FACILITIES USED DURING CONSTRUCTION TO ORIGINAL CONDITION. CLEAN PORTIONS OF THE SITE AFFECTED BY WORK OF THIS CONTRACT. REMOVE WASTE AND SURPLUS MATERIALS FROM THE SITE.
 - SUBMIT TWO COPIES OF OPERATION AND MAINTENANCE DATA BOUND IN THREE-RING BINDERS. INCLUDE WARRANTIES, SUBMITTALS, BALANCING REPORT, AND PROJECT DOCUMENTS AND CERTIFICATES.
 - CONTRACTOR SHALL DEMONSTRATE ALL SEQUENCES OF CONTROL TO THE ENGINEER. THE TEMPERATURE CONTROL AND BALANCING SUBCONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING CHECK-OUT PROCEDURE. PERSONNEL SHALL BE EQUIPPED WITH TOOLS AND SPARE PARTS TO MAKE MINOR REPAIRS AND ADJUSTMENTS.



SECTION A-A
NO SCALE

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WARWICK SCHOOLS
ALDRICH HIGH SCHOOL
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DUST COLLECTION REPLACEMENT

RICHARD C. NEWELL
No. 8486
4.10.07
REGISTERED
PROFESSIONAL ENGINEER
MECHANICAL

Status: **ISSUED FOR CONSTRUCTION**

Date: _____

Revision/Issue: _____

No. _____

Sheet Title:
MECHANICAL FLOOR PLANS DETAILS SCHEDULES & SPECIFICATIONS

Project No: 20710
Drawn By: JAA
Checked By: RCN/JPS
Scale: AS SHOWN
Date: 4/10/2007

Drawing No:
M-1
Sheet 1 of 14

SYMBOL LEGEND

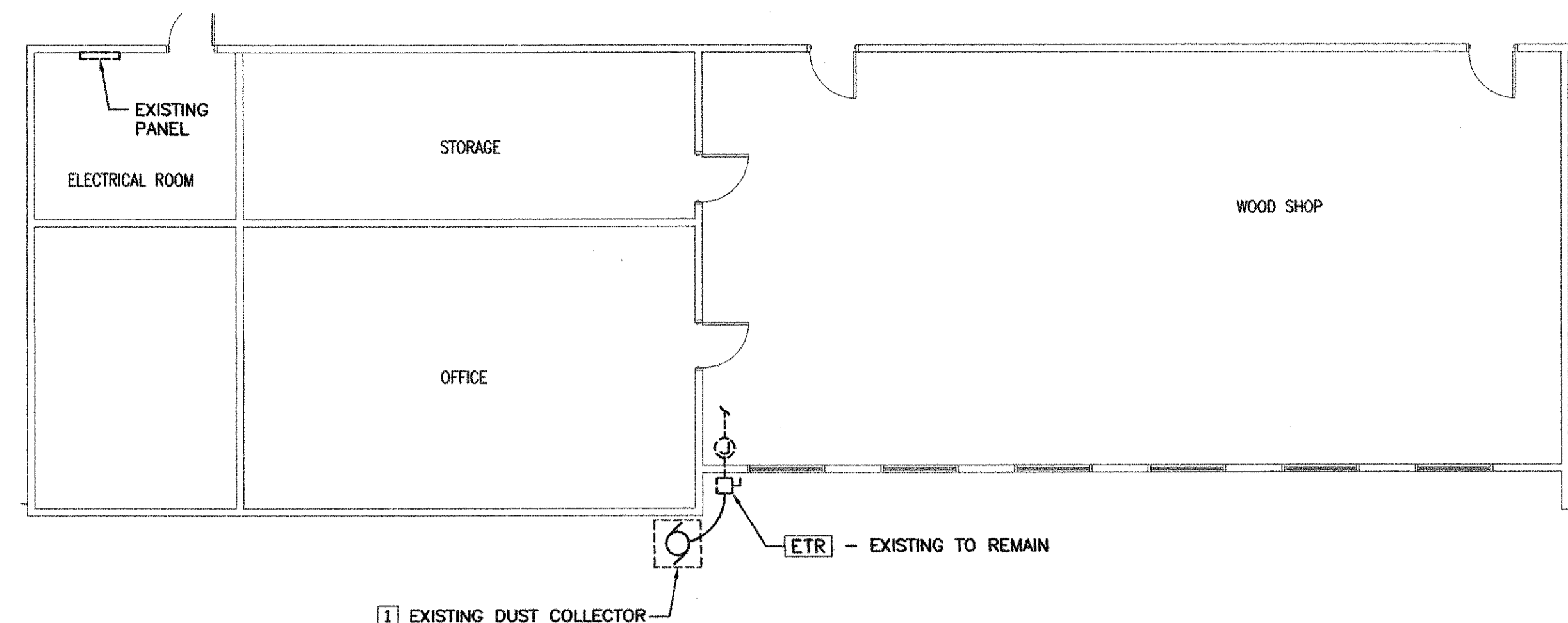
USE MOUNTING HEIGHTS SPECIFIED ON ARCHITECTURAL DRAWINGS. IF NOT LISTED, USE MOUNTING HEIGHTS ON THIS DRAWING.

- | SYMBOL | DESCRIPTION |
|----------------|---|
| S | SINGLE POLE SWITCH - 48" A.F.F., P&S CAT. NO. CS120-LA |
| S _P | SINGLE POLE SWITCH WITH PILOT LIGHT - 48" A.F.F. P&S CAT. NO. 20AC1-RPL |
| S ₃ | 3-WAY SWITCH - 48" A.F.F., P&S CAT. NO. CS320-LA |
| S ₄ | FOUR WAY SWITCH - 48" A.F.F.; P&S CAT. NO. CS420-LA |
| S _T | SINGLE POLE MOTOR RATED SWITCH WITH OVERLOAD HEATER SQUARE D CLASS 2510, TYPE FGJ-1 |
| S _M | MOTION SENSOR W/MANUAL OVERRIDE: WALL OR CEILING MOUNTED. "WA" OR "CI." |
| Ⓜ | JUNCTION BOX |
| Ⓢ | SPECIAL PURPOSE OUTLET WITH NEMA CONFIGURATION |
| Ⓞ | DUPLEX RECEPTACLE - MTD. 18" A.F.F. - 20A, 125V. P&S CAT. NO. CR-20LA. "C"-MOUNT 6" ABOVE COUNTER |
| Ⓡ | ISOLATED GROUND RECEPTACLE - MTD 48" A.F.F. - 20A, 125V. ARROW-HART CAT. NO. IGS362HG |
| Ⓜ | GROUND FAULT INTERRUPTING RECEPTACLE - MTD. 48" A.F.F., 20A, 125V., P&S CAT. NO. 2091-LA |

- | SYMBOL | DESCRIPTION |
|--------|--|
| — | SURFACE MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F. |
| — | FLUSH MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F. |
| — | UP TO FLOOR ABOVE |
| — | TIE INTO EQUIPMENT OR DOWN TO FLOOR BELOW |
| — | WIRING CONCEALED IN WALL OR CEILING |
| --- | WIRING CONCEALED IN FLOOR OR WALL |
| --- | WIRING EXPOSED |
| — — — | CROSSHATCHING INDICATES NUMBER OF CURRENT CARRYING CONDUCTORS IF MORE THAN TWO ARE REQUIRED. LONGER MARK INDICATES NEUTRAL. GROUNDWIRE IS ALWAYS INSTALLED AND NEVER INDICATED. NO CROSSHATCHING INDICATES 1 HOT, 1 NEUTRAL, AND 1 GROUND, ALL #12 THIN. |
| —A | HOME RUN TO PANELBOARD - "A" DESIGNATES PANEL, "1,3" INDICATES CIRCUIT NUMBERS |
| Ⓜ | MOTOR WITH RATING IN HORSEPOWER |
| Ⓜ | COMBINATION STARTER/DISCONNECT SWITCH WITH SWITCH AND FUSE RATINGS |
| — | INDICATES RAINTIGHT |
| — | INDICATES DUAL ELEMENT FUSES |
| — | NUMBER OF POLES |
| — | FUSE SIZE |
| — | SWITCH SIZE |
| Ⓜ | MAGNETIC MOTOR STARTER |
| Ⓜ | DISCONNECT SWITCH |

ABBREVIATIONS

- | | | | |
|------|-----------------------------|-------|------------------------------------|
| A | AMPS | EG | EQUIPMENT GROUND |
| AG | ABOVE GRADE | EX | EXISTING |
| AFF | ABOVE FINISHED FLOOR | FACP | FIRE ALARM CONTROL PANEL |
| BL | BLANK PLATE | G, GR | GROUND |
| BOF | BOTTOM OF FIXTURE | GFI | GROUND FAULT CIRCUIT INTERRUPTER |
| C | CONDUIT | IG | ISOLATED GROUND |
| CB | CIRCUIT BREAKER | N | NEW |
| CD | CANDELA | NG | NATIONAL GRID (ELECTRICAL UTILITY) |
| CU | COPPER | UNO | UNLESS NOTED OTHERWISE |
| DWG | DRAWING | V | VOLT |
| ECPS | EMPTY CONDUIT W/PULL STRING | W/ | WITH |
| EF | EXHAUST FAN | WP | WEATHERPROOF |



PARTIAL PLAN - ELECTRICAL DEMOLITION
SCALE: 1/8"=1'-0"

GENERAL DEMOLITION NOTES:

- CONTRACTOR SHALL VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING.
- ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. CONTRACTOR SHALL SECURE ALL REQUIRED DEMOLITION PERMITS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- IT IS NOT THE INTENT TO SHOW ALL CONDUIT AND MATERIAL, AND EXACT SIZES TO BE REMOVED IN THE DEMOLITION WORK. DRAWING INDICATES EQUIPMENT DIAGRAMMATICALLY. EXACT LOCATION AND SIZE OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO RETURN BACK TO THE ORIGINAL LOCATION ANY DEVICE OR MATERIAL THAT MUST BE TEMPORARILY REMOVED OR RELOCATED TO ALLOW DEMOLITION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVING AND DISPOSING OF ALL EXISTING ELECTRICAL EQUIPMENT AS SHOWN ON DRAWINGS, EXCEPT WHERE NOTED OTHERWISE.

DEMOLITION KEYNOTES:

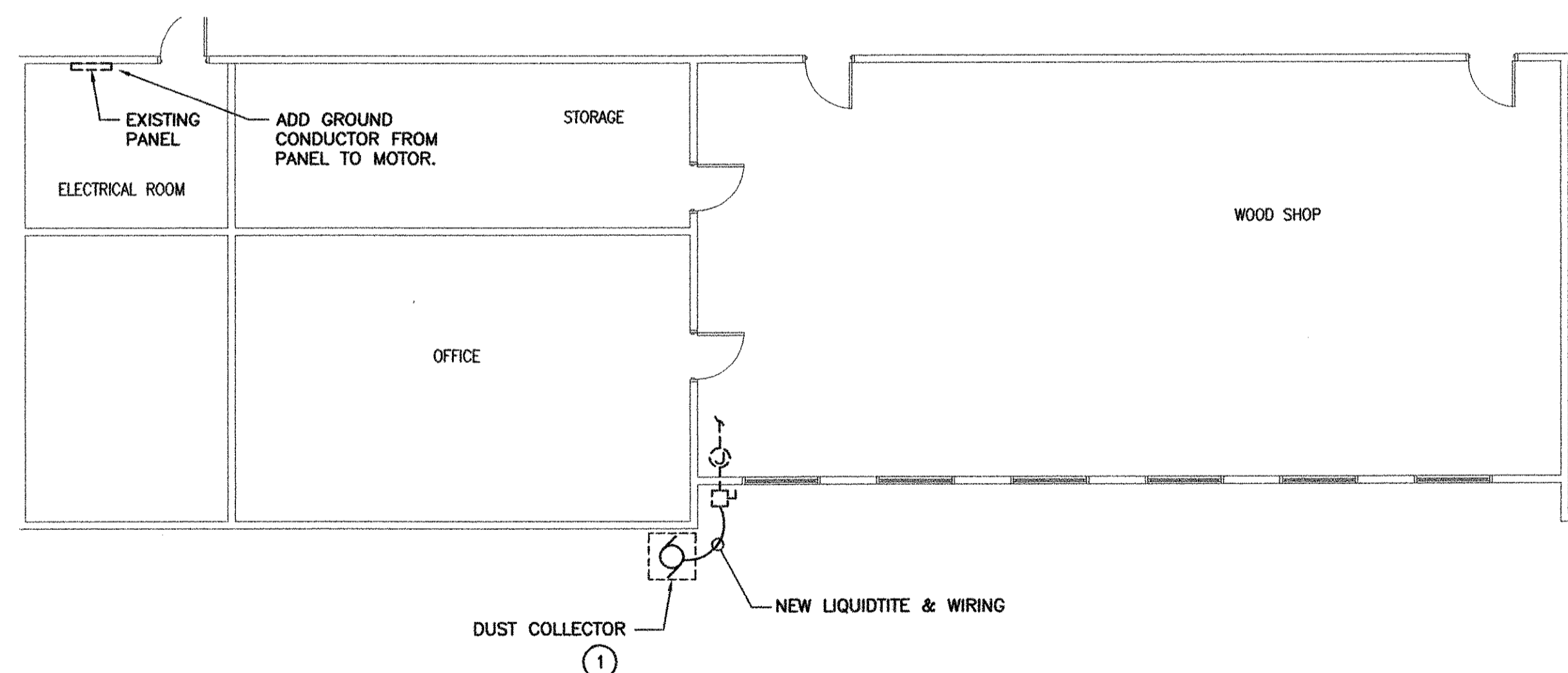
- EXISTING DUST COLLECTOR TO BE REMOVED PER MECHANICAL DRAWINGS. DISCONNECT CONDUIT AND WIRING FROM DUST COLLECTOR. REMOVE LIQUID-TITE FROM MOTOR TO DISCONNECT. ALL JUNCTION BOXES, CONDUIT, WIRING, ELECTRICAL DEVICES, ETC. ASSOCIATED WITH THE EXISTING DUST COLLECTOR FROM OUTSIDE DISCONNECT BACK TO SOURCE TO REMAIN.

ETR - EXISTING TO REMAIN

ETL - EXISTING TO BE RELOCATED

ELECTRICAL SPECIFICATIONS

- FURNISH LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE PROPER AND COMPLETE INSTALLATION OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED.
- ALL ITEMS NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE SPECIFICATIONS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE ELECTRICAL INSTALLATION, SHALL BE FURNISHED AND INSTALLED AS PART OF THIS SECTION.
- ALL ELECTRICAL INSTALLATIONS AND GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE LOCAL, STATE AND NATIONAL CODES:
 - BUILDING CODE OF THE STATE OF RI (BOCA W/RI AMENDMENTS)
 - ELECTRICAL CODE OF THE STATE OF RI (NFPA 70W/RI AMENDMENTS)
 - FIRE ALARM REQUIREMENTS OF THE STATE OF RI.
- OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
- ALL EQUIPMENT AND THE INSTALLATION OF ELECTRICAL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- MATERIALS AND WORKMANSHIP SHALL BE THE BEST OF THEIR RESPECTIVE KINDS AND IN FULL ACCORD WITH THE MOST MODERN ELECTRICAL CONSTRUCTION. ALL MATERIALS SHALL BE NEW, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
- FURNISH AND INSTALL TEMPORARY POWER AS REQUIRED TO OPERATE TOOLS AND LIGHTING. PROVIDE PANELS AND LIGHTING FIXTURES FOR CONSTRUCTION, AS REQUIRED.
- THE ELECTRICAL SUB-CONTRACTOR SHALL INSPECT THE SITE PRIOR TO SUBMITTING HIS BID, AND SHALL INVESTIGATE ALL CONDITIONS UNDER WHICH THIS WORK WILL BE PERFORMED. FAILURE TO INSPECT EXISTING CONDITIONS OR TO FULLY UNDERSTAND THE WORK WHICH IS REQUIRED SHALL NOT EXCUSE THE ELECTRICAL SUB-CONTRACTOR FROM HIS OBLIGATIONS TO SUPPLY AND INSTALL THE WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND THE DRAWINGS AND UNDER ALL SITE CONDITIONS AS THEY EXIST.
- THE ELECTRICAL CONTRACTOR SHALL CLEAN, AT THE END OF EACH DAY, ALL AREAS WORKED IN. EMPTY BOXES, RUBBISH, AND OTHER MATERIALS OF NO USE SHALL BE REMOVED FROM THE SITE.
- WORK SEQUENCE SHALL BE COORDINATED WITH THE PROJECT MANAGER AND SHALL BE IN COORDINATION WITH OTHER BUILDING TRADES AND THE BUILDING SCHEDULE.
- NEW 120/208V. BRANCH CIRCUIT PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELBOARDS SHALL BE EQUAL TO GE TYPE AQ WITH BOLTED BRANCH CIRCUIT BREAKERS. BRANCH CIRCUIT BREAKERS SHALL BE RATED 10,000 A.I.C. MINIMUM. NEW 277/480V PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELS SHALL BE EQUAL TO G.E. TYPE AE WITH BOLTED BRANCH BREAKERS. BRANCH BREAKERS SHALL BE RATED 14,000 A.I.C. MINIMUM. PANELBOARD SCHEDULES SHALL BE FILLED OUT AND PLACED IN EACH PANEL BOARD; BOTH EXISTING AND NEW, ALL SCHEDULES SHALL BE TYPED.
- WIRE AND CABLE SHALL BE TYPE THWN/THHN, UL LISTED FOR BUILDING WIRE, 75 DEGREES CENTIGRADE, WET OR DRY LOCATIONS, RATED FOR 900 VOLT. WIRE SHALL BE A MINIMUM OF NO. 12 AWG SOLID. ALL CONDUCTORS SHALL BE COPPER. METAL-CLAD CABLE TYPE MC WITH GROUND CONDUCTORS, MAY BE USED IN AREAS WHERE APPROVED BY THE LOCAL ELECTRICAL INSPECTOR. FIRE ALARM WIRING SHALL BE FIRE ALARM TYPE MC CABLE, WITH PERMISSION AND APPROVAL OF THE FIRE ALARM SUPERINTENDENT, SIZES NOTED, AND/OR REQUIRED, OR SHALL BE INDIVIDUAL CONDUCTORS RUN IN CONDUIT.
- CONDUITS SHALL BE E.M.T. WITH STEEL CONNECTORS AND COUPLINGS IN FURRED SPACES, ABOVE CEILINGS, AND IN EXPOSED INTERIOR SPACES. FLEXIBLE STEEL CONDUIT (GREENFIELD) SHALL BE USED FOR CONNECTIONS TO FIXTURES AND EQUIPMENT.
- ALL OUTLET BOXES FOR LIGHTING, SWITCHES, RECEPTACLES, TELEPHONE, TELEVISION, ETC. SHALL BE GALVANIZED STEEL, MINIMUM 1-1/2" DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE DEVICE TO BE UTILIZED THEREIN. PROVIDE PLASTER RINGS AS REQUIRED. BOXES SHALL HAVE MOUNTING LUGS OR EARS FOR COVERS AND KNOCKOUTS FOR CONDUIT TERMINATIONS. PROVIDE SEALANT AROUND OUTLET BOXES TO PREVENT SOUND TRANSMISSION TO ADJACENT ROOM.
- ALL CONDUIT/WIRING PENETRATIONS THROUGH FIRE WALLS SHALL BE FIRESTOPPED WITH MATERIAL CONFORMING TO ASTM E136 AND SHALL BE UL CLASSIFIED, FM APPROVED, AND APPROVED FOR USE IN 1-, 2-, OR 3-HOUR RATED SYSTEMS. FIRE STOP MATERIAL SHALL BE EQUAL TO DOW CORNING CAT. NO. 2000 FIRE STOP SEALANT OR 2001 FIRE STOP FOAM AS REQUIRED BY THE PARTICULAR FIRE STOPPING CONDITION.
- ALL WIRING DEVICES SHALL BE BY ONE MANUFACTURER AND SHALL BE G.E., P&S, BRYANT OR HUBBELL. THE CATALOG NUMBERS ON THE DRAWINGS ARE THOSE OF THE G.E. COMPANY, EXCEPT AS OTHERWISE INDICATED AND ARE USED TO DENOTE TYPE AND QUALITY. COLOR SHALL BE AS SELECTED BY THE ARCHITECT/CONSTRUCTION MANAGER.
- ALL DEVICE PLATES SHALL MATCH EXISTING.
- THE PLANS DEPICT THE LOCATION OF ALL FIXTURES AND EQUIPMENT AND ARE INTENDED TO INDICATE THE GENERAL INTENT OF THE WORK IN SCOPE, LAYOUT AND QUALITY OF WORKMANSHIP.
- THE CONTRACTOR SHALL CAREFULLY VERIFY ALL MEASUREMENTS AT THE SITE, DETERMINE THE EXACT LOCATION OF ALL CHASES AND OPENINGS REQUIRED BY HIS WORK AND SHALL FURNISH AND SET ALL SLEEVES, INSERTS, AND HANGERS AS REQUIRED FOR THE WORK HEREIN.
- THE CONTRACTOR SHALL COORDINATE HIS WORK SO THAT IT DOES NOT INTERFERE WITH THE WORK OF OTHER TRADES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT HIS WORK IS INSTALLED IN A TIMELY MANNER.
- ALL HVAC CONTROLS, CONTROL WIRING AND INTER-CONNECTIONS SHALL BE BY DIV. 15, EXCEPT AS OTHERWISE NOTED AND SHOWN ON ELECTRICAL DRAWINGS. ALL 120V HVAC CONTROL WIRING SHALL BE BY THIS CONTRACTOR (DIV. 16).
- THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT. THE CONTRACTOR SHALL FURNISH TO THE OWNER ALL INSTRUCTION PAMPHLETS, BOOKS AND OTHER LITERATURE FURNISHED BY THE MANUFACTURER AND EXPLAIN THE PROPER OPERATING AND MAINTENANCE PROCEDURES.
- SUBMIT TO THE OWNER FOR REVIEW AND APPROVAL SIX COMPLETE COPIES OF THE FOLLOWING SHOP DRAWINGS:
 - JUNCTION BOXES
 - WIRING DEVICES AND PLATES
 - CIRCUIT BREAKERS
 - DISCONNECT SWITCHES
 - WIRE
 - CONDUIT
- PROVIDE CONDUIT EXPANSION JOINTS AT ALL STRUCTURAL EXPANSION JOINTS.
- ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY.

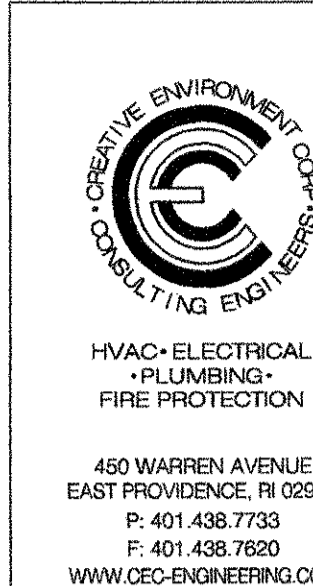


PARTIAL PLAN - MECHANICAL EQUIPMENT POWER
SCALE: 1/8"=1'-0"

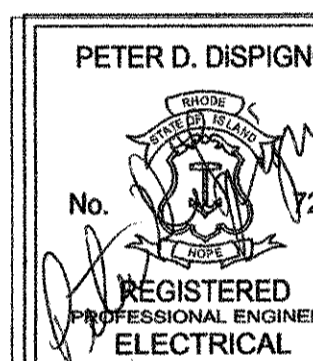
MECH ID#	DESCRIPTION	EQUIPMENT CHARACTERISTICS							PANEL	CIRCUIT	BREAKER	FEEDER AND CONDUIT	EQUIPMENT LOCATION	DISCONNECT SWITCH				MOTOR CONTROL	REMARKS
		VOLTS	AMPS	PH	HP	WATTS	MCA	MOCF						CFM	SIZE	FUSE	POLES		
1	DUST COLLECTOR	208		3	10							RE-USE EXISTING	WOOD SHOP	RE-USE EXISTING					1,2,3

REMARKS:

- DUST COLLECTOR TO BE POWERED BY SAME CIRCUIT THAT EXISTING DUST COLLECTOR TO BE REMOVED WAS CONNECTED.
- RE-USE EXISTING CIRCUIT BREAKER.
- EXISTING FEEDER TO BE RE-USED. REPLACE 3/4" LIQUID-TITE WITH NEW WITH 3/8" FROM EXISTING DISCONNECT TO MOTOR. 1#10 GROUND TO BE ADDED TO FEEDER FROM PANEL TO THE DUST COLLECTOR MOTOR.



WARWICK SCHOOLS
ALDRICH HIGH SCHOOL
789 POST ROAD, WARWICK, RI 02888
DUST COLLECTION REPLACEMENT



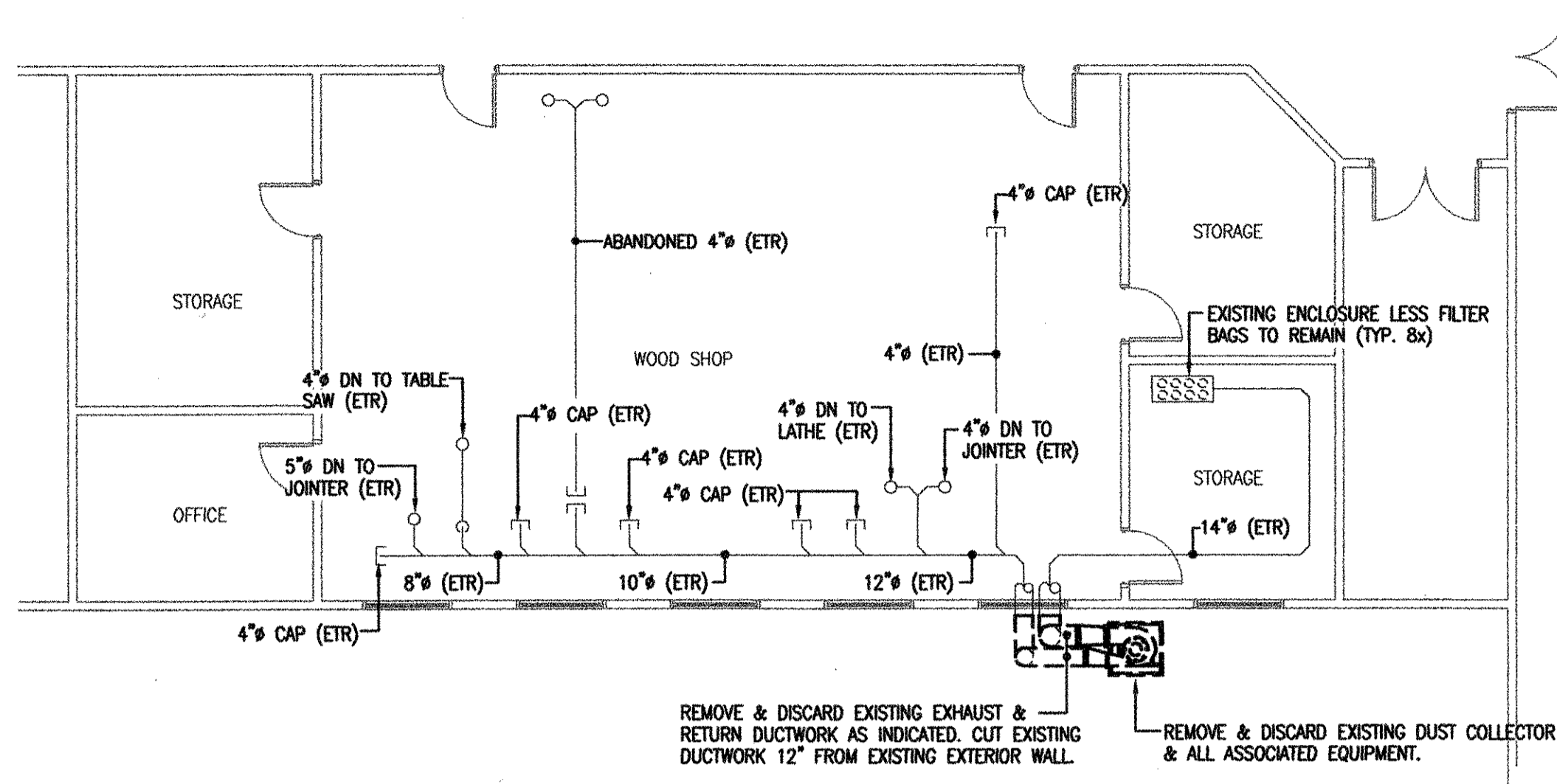
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Date	Revision/Issue	No.

Sheet Title:
ELECTRICAL FLOOR PLANS, SCHEDULES & SPECIFICATIONS

Project No: 20710
Drawn By: MSO
Checked By: PDS
Scale: AS SHOWN
Date: 4/10/2007

Drawing No:
E-1
Sheet 2 of 14

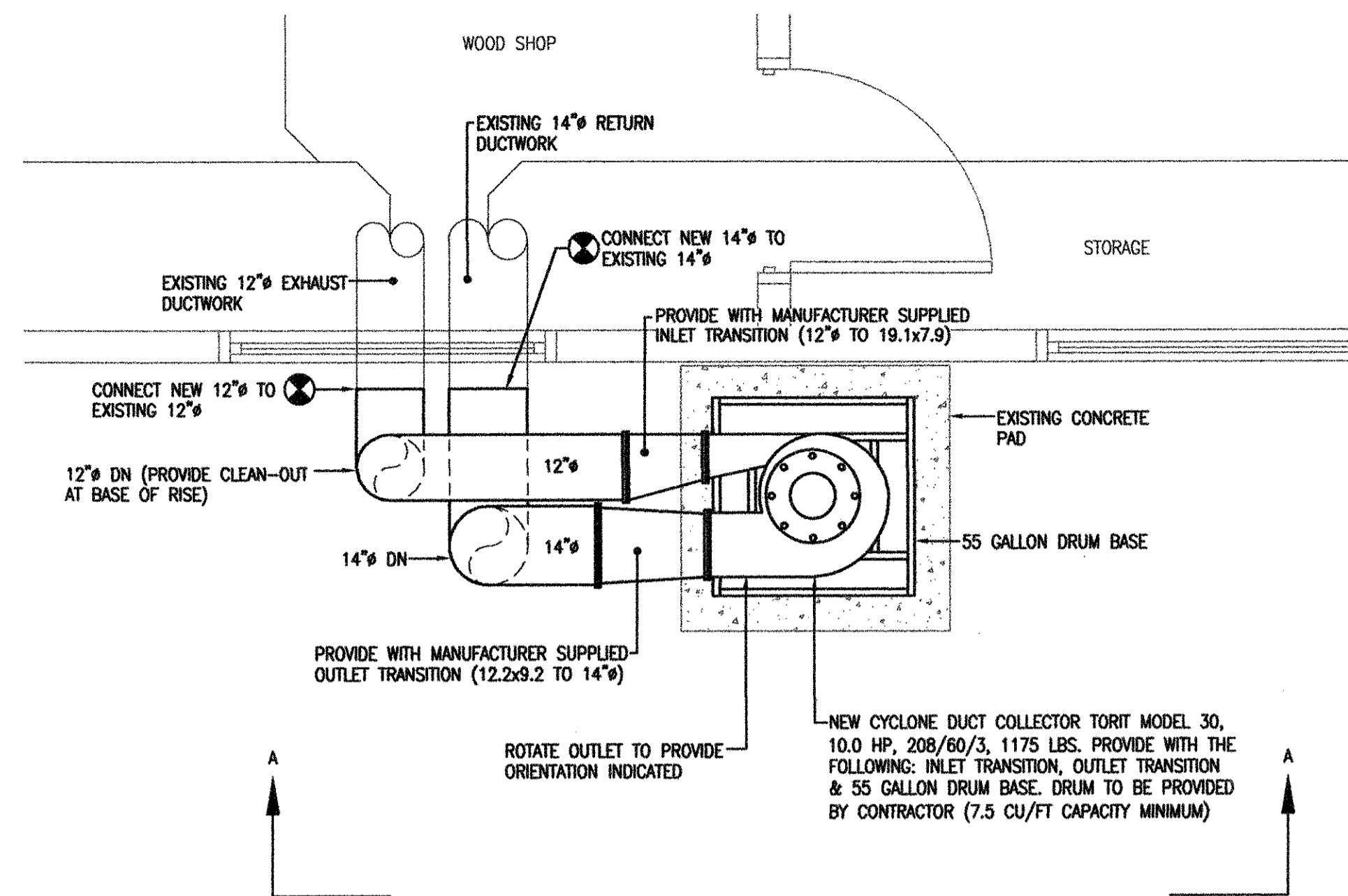


PARTIAL FLOOR PLAN - MECHANICAL DEMOLITION
SCALE: 1/8"=1'-0"

DEMOLITION NOTES

UNDER DEMOLITION, THE FOLLOWING IS, IN BRIEF, THE EXTENT OF THE WORK TO BE PERFORMED BY THE MECHANICAL CONTRACTOR UNDER THIS CONTRACT.

1. PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS.
2. PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
3. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF THE EXISTING MECHANICAL EQUIPMENT & DUCTWORK IN DESIGNATED AREAS. PATCH ALL ROOF AND WALL PENETRATIONS TO MATCH EXISTING.
4. THIS CONTRACTOR SHALL PROTECT WORK AGAINST INJURY OR DAMAGE, AND CAREFULLY STORE MATERIAL AND EQUIPMENT TO BE RELOCATED. OPEN ENDS OF WORK SHALL BE CLOSED WITH TEMPORARY COVERS OR PLUGS DURING STORAGE AND CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.



PARTIAL FLOOR PLAN - MECHANICAL NEW WORK
SCALE: 1/2"=1'-0"

MECHANICAL SPECIFICATIONS

PART 1 - GENERAL REQUIREMENTS

1. SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, ETC., TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED FOR A COMPLETE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION, AS INTERPRETED BY THE ARCHITECT/ENGINEER.
2. APPLY AND PAY FOR ALL NECESSARY INSPECTION FEES, LICENSES AND PERMITS REQUIRED BY THE PROPER AUTHORITIES HAVING JURISDICTION.
3. "PROVIDE" AND "INSTALL" ALL MATERIALS, LABOR AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS OR HEREIN SPECIFIED.
4. ALL CUTTING, PATCHING & REQUIRED FALSHING WILL BE DONE BY THIS CONTRACTOR.
5. ALL MATERIALS SHALL BE NEW. ALL EQUIPMENT SHALL BEAR THE U.L. LABEL.
6. COORDINATE LOCATIONS OF ALL NEW DUCTWORK WITH EXISTING EQUIPMENT, LIGHTING, OTHER TRADES, AND THE OWNER PRIOR TO INSTALLATION OR FABRICATION OF SAME.
7. CONTRACTOR TO GUARANTEE THE QUALITY OF ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF OWNER ACCEPTANCE. ALL DEFECTIVE MATERIAL AND WORKMANSHIP SHALL BE REPLACED AT CONTRACTOR'S EXPENSE DURING THIS TIME.
8. ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR'S EMPLOYEES, MATERIALS OR EQUIPMENT.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INJURIES OR DAMAGE DONE TO BUILDING PREMISES OR ADJOINING AREAS OR WORK RESULTING FROM EXECUTION OF HIS PART OF WORK IN ANY MANNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTION OF HIS WORK AT HIS OWN EXPENSE.
10. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR ALL EQUIPMENT SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS PRIOR TO ORDERING, FABRICATING OR INSTALLING SAME.
11. THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWING AND/OR SITE CONDITIONS, THE HVAC CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED. THE CONTRACTOR SHALL CONDUCT A THOROUGH FIELD INVESTIGATION TO VERIFY WORK SHOWN ON THE DRAWINGS. THE DRAWINGS REFLECT THE BEST AVAILABLE INFORMATION FROM EXISTING PLANS AND SITE INVESTIGATIONS.

PART 2 - PRODUCTS

1. DUCTWORK

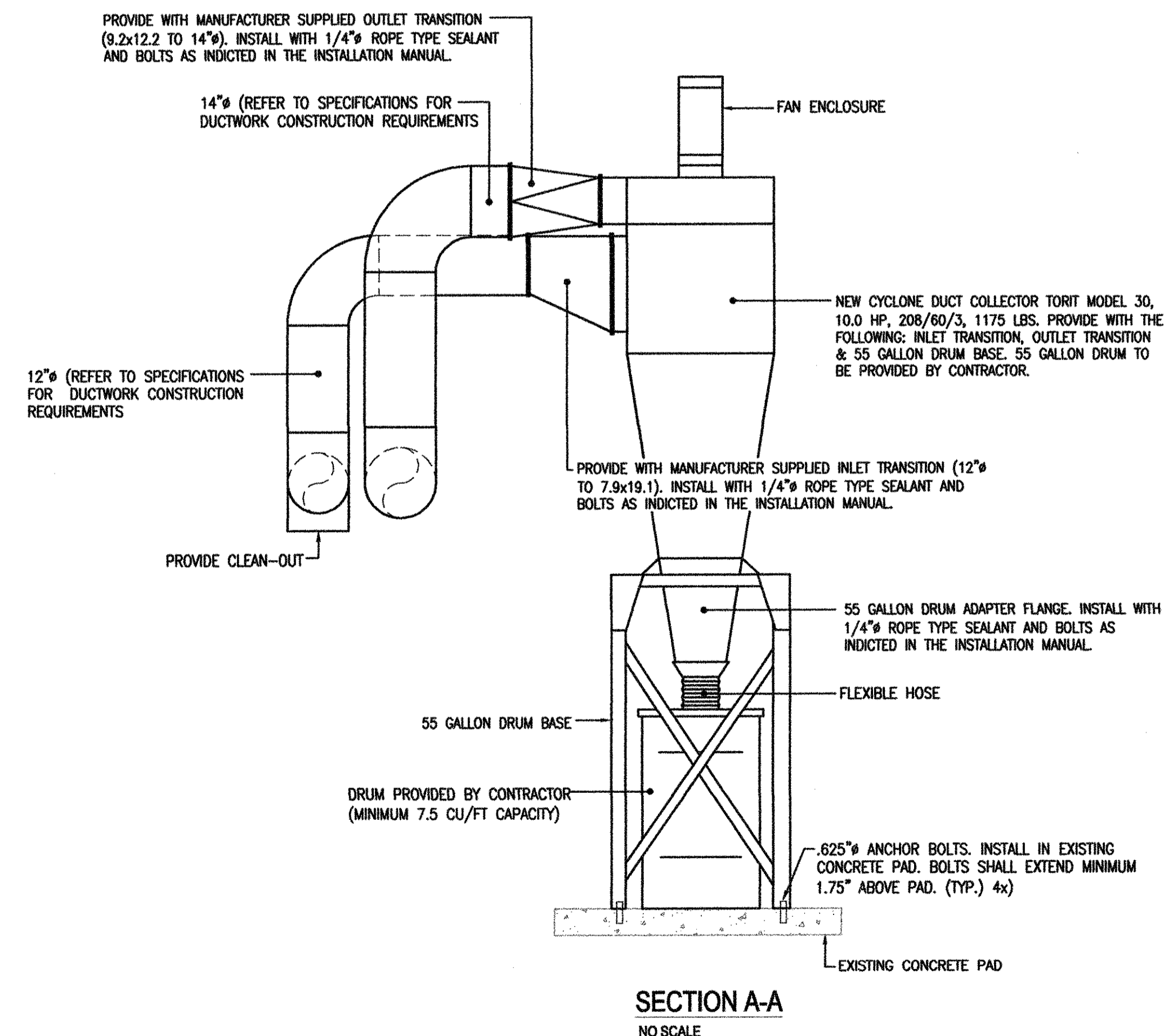
- A. ALL DUCTWORK SHALL BE OF TOP GRADE GALVANIZED STEEL, CONSTRUCTED AND SUPPORTED AS PER S.M.A.C.N.A. INDUSTRIAL DUCT CONSTRUCTION STANDARDS CLASS 2. ALL ELBOWS SHALL BE LONG RADIUS TYPE. ALL JOINTS, SEAMS, AND FITTINGS SHALL BE AIR AND WATER TIGHT USING SOLDER JOINTS AND SHALL BE FORMED TO PROVIDE A MINIMUM RESISTANCE TO THE AIR FLOW.
- B. THE FOLLOWING METAL THICKNESS SHALL BE UTILIZED:

DIAMETER OF STRAIGHT DUCTS (INCHES) U.S. STANDARD GAUGE	
DUCT SIZE	GAUGE
UP TO 8"	22-18
OVER 8" UP TO 18"	22-12

- A. ELBOWS & ANGLES SHALL BE A MINIMUM OF TWO GAUGES HEAVIER THAN STRAIGHT LENGTHS OF EQUAL DIAMETER. ROUND ELBOWS AND ANGLES SHOULD HAVE AN INSIDE OR THROAT RADIUS OF TWO PIPE DIAMETERS. CONSTRUCT ELBOWS SIX INCHES OR LESS IN DIAMETER OF AT LEAST FIVE SECTIONS, ELBOWS OVER SIX INCHES DIAMETER OF SEVEN SECTIONS. ANGLES SHALL BE PIECED PROPORTIONATELY.
 - D. RECTANGULAR ELBOWS & ANGLES SHALL BE CONSTRUCTED HAVING A W/D & R/D EQUAL TO OR GREATER THAN 1.
 - E. LONGITUDINAL JOINTS OF DUCTS SHALL BE LAPPED AND SEALED OR WELDED.
 - F. GIRTH JOINTS OF DUCTS SHALL BE MADE WITH LAP IN DIRECTION OF AIR FLOW AND ONE INCH LAP FOR DIAMETERS THRU 19 INCHES AND 1-1/2 INCH LAP FOR DIAMETERS OVER 19 INCHES.
 - G. INTERIOR OF ALL DUCTS SHALL BE SMOOTH AND FREE FROM OBSTRUCTIONS WITH JOINTS SOLDERED AIR TIGHT.
 - H. SUPPORT DUCTS SUFFICIENTLY TO PLACE NO LOAD ON CONNECTING EQUIPMENT AND TO CARRY WEIGHT OF SYSTEM IF 50% PLUGGED WITH MATERIAL. MAXIMUM SUPPORTING INTERVALS SHALL BE TWELVE FEET ON HORIZONTAL DUCTS, AT ALL CHANGES OF DIRECTION, TOP OF RISERS AND ON THREE FOOT CENTERS FOR DUCTS LOCATED ON WALLS. BOTH CROSS AND HORIZONTAL BRACING SHALL BE PROVIDED AS REQUIRED.
 - I. DUCT RESTING ON SUPPORT MEMBERS WITHOUT SADDLES MUST BE REINFORCED WITH PLATES AT LEAST TWICE THE THICKNESS OF THE DUCT MATERIAL. THESE WEAR PLATES SHALL BE HALF THE DUCT CIRCUMFERENCE AND AT LEAST TWICE AS LONG AS THE WIDTH OF THE MEMBER SUPPORTING THE DUCT.
 - J. PROVIDE SIX INCH MINIMUM CLEARANCE BETWEEN DUCTS AND CEILING, WALL OR FLOORS.
 - K. WHERE LAWS CONFLICT WITH THE PRECEDING, THE MORE STRINGENT REQUIREMENT SHALL BE FOLLOWED. DEVIATION FROM EXISTING REGULATIONS MAY REQUIRE APPROVAL.
 - L. ALL EXTERIOR DUCTWORK SHALL BE CLEANED & PAINTED WITH (2) COATS RUST INHIBITING PAINT. COLOR TO MATCH DUCT COLLECTOR.
 - M. THIS ABOVE INFORMATION SHALL PROVIDE FOR COMPLETE AND OPERABLE SYSTEM TO MEET INTENT OF SPECIFICATIONS & TO THE SATISFACTION OF THE ENGINEERS.
- 2. CYCLONE DUST COLLECTOR**
- A. FURNISH A COMPLETE CONTINUOUS-DUTY DUST COLLECTOR SYSTEM AS SHOWN ON THE PLANS AND/OR LISTED IN THE EQUIPMENT SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF PROVIDING CYCLONIC CLEANING OF INCOMING AIR.
 - B. THE CONTINUOUS-DUTY COLLECTOR SHALL BE SUPPLIED IN FACTORY-ASSEMBLED UNITS OR IN MAJOR SUBASSEMBLIES SIZED TO MEET AIRFLOW CAPACITIES AND DESIGN REQUIREMENTS. INSTRUCTION MANUAL AND REPLACEMENT PARTS LIST SHALL BE INCLUDED FOR EASY INSTALLATION AND MAINTENANCE.
 - C. EACH COLLECTOR SHALL BE OF BOLTED AND WELDED CONSTRUCTION USING 1/4" GAUGE HRS DESIGNED FOR -20" WATER GAUGE AND COMPLETE WITH A REMOVABLE BOTTOM CONE SECTION. THE MOTOR AND FAN ASSEMBLY SHALL BE SHIPPED LOOSE.
 - D. DUST-LADEN AIR WILL ENTER THE COLLECTOR ON THE SIDE AND BE DIVERTED BY A HELICAL BAFFLE. THE AIR WILL THEN HAVE A "SPIN" IMPARTED TO IT. CENTRIFUGAL FORCES MOVE THE HEAVY DIRT AND DUST TO THE SIDE WALLS AND CARRY IT DOWN TO THE BASE OF THE UNIT. CLEAN AIR IS THEN EXHAUSTED FROM THE UNIT.
 - E. THE COLLECTOR SHALL INCLUDE AN INLET FLANGE MOUNTED ON THE SIDE OF THE COLLECTOR AT THE DIRTY AIR INLET. AN OUTLET FLANGE WILL BE PROVIDED ON THE SIDE OF THE FAN. THE FAN OUTLET SHALL ACCEPT A TORIT-BUILT FILTER BAG ASSEMBLY INCLUDING STANDARD FILTER BAGS.
 - F. FILTER BAGS SHALL BE MANUFACTURED OF POLYESTER FELT AND PROVIDE IN THE APPROPRIATE QUANTITIES FOR THE COLLECTION CAPACITY.
 - G. THE COLLECTOR SHALL BE A DONALDSON TORIT CYCLONE CONTINUOUS DUTY DUST COLLECTOR AS MANUFACTURED BY DONALDSON COMPANY, INC. OR ENGINEER APPROVED EQUAL.

PART 3 - EXECUTION

1. IT IS THE INTENT OF THESE SPECIFICATIONS THAT THIS CONTRACTOR BE RESPONSIBLE FOR PROVIDING ALL DEVICES AND WIRING (REGARDLESS OF VOLTAGE) NECESSARY TO PROVIDE THE SEQUENCES AS SPECIFIED HEREIN.
2. ALL MECHANICAL SYSTEMS SHALL BE AUTOMATICALLY CONTROLLED. WHERE NO DESCRIPTION OF OPERATION IS INDICATED FOR A PARTICULAR SYSTEM OR DEVICE, THE CONTRACTOR SHALL SELECT APPROPRIATE CONTROL SCENARIOS AND REVIEW THEM WITH THE ENGINEER PRIOR TO PROCEEDING. ALL CONTROLS SHALL BE ARRANGED AND DESIGNED FOR MAXIMUM ENERGY CONSERVATION.
3. SEQUENCE OF OPERATION
PROVIDE NEW WALL MOUNTED SWITCH TO ENERGIZE/DE-ENERGIZE THE DUST COLLECTION SYSTEM.
4. PROJECT CLOSE-OUT
A. RESTORE EXISTING FACILITIES USED DURING CONSTRUCTION TO ORIGINAL CONDITION. CLEAN PORTIONS OF THE SITE AFFECTED BY WORK OF THIS CONTRACT. REMOVE WASTE AND SURPLUS MATERIALS FROM THE SITE.
B. SUBMIT TWO COPIES OF OPERATION AND MAINTENANCE DATA BOUND IN THREE-RING BINDERS. INCLUDE WARRANTIES, SUBMITTALS, BALANCING REPORT, AND PROJECT DOCUMENTS AND CERTIFICATES.
C. CONTRACTOR SHALL DEMONSTRATE ALL SEQUENCES OF CONTROL TO THE ENGINEER. THE TEMPERATURE CONTROL AND BALANCING SUBCONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING CHECK-OUT PROCEDURE. PERSONNEL SHALL BE EQUIPPED WITH TOOLS AND SPARE PARTS TO MAKE MINOR REPAIRS AND ADJUSTMENTS.



CREATIVE ENVIRONMENT CORP.
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DUST COLLECTION REPLACEMENT

Project:

RICHARD C. NEWELL

8486

REGISTERED PROFESSIONAL ENGINEER
MECHANICAL

4-10-07

Status:

ISSUED FOR CONSTRUCTION

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Sheet Title:

MECHANICAL FLOOR PLANS DETAILS, SCHEDULES & SPECIFICATIONS

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 Drawn By: JAA
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 Scale: AS SHOWN
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M-1

Sheet 3 of 14

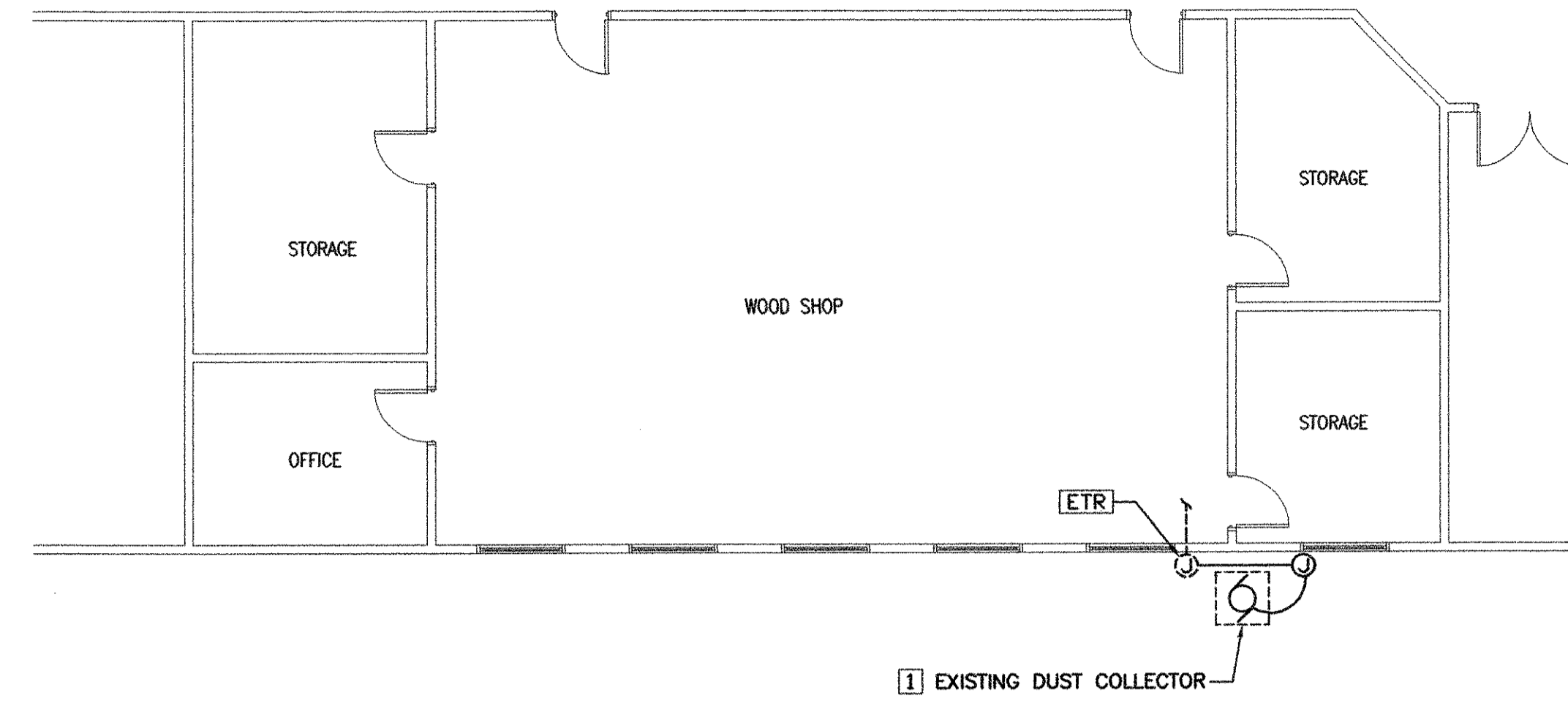
SYMBOL LEGEND

USE MOUNTING HEIGHTS SPECIFIED ON ARCHITECTURAL DRAWINGS. IF NOT LISTED, USE MOUNTING HEIGHTS ON THIS DRAWING.

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	SINGLE POLE SWITCH - 48" A.F.F., P&S CAT. NO. CS120-LA	—	SURFACE MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S _P	SINGLE POLE SWITCH WITH PILOT LIGHT - 48" A.F.F. P&S CAT. NO. 20AC1-RPL	—	FLUSH MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S ₃	3-WAY SWITCH - 48" A.F.F., P&S CAT. NO. CS320-LA	—	UP TO FLOOR ABOVE
S ₄	FOUR WAY SWITCH - 48" A.F.F.; P&S CAT. NO. CS420-LA	—	TIE INTO EQUIPMENT OR DOWN TO FLOOR BELOW
S _T	SINGLE POLE MOTOR RATED SWITCH WITH OVERLOAD HEATER SQUARE D CLASS 2510, TYPE FGJ-1	—	WIRING CONCEALED IN WALL OR CEILING
S _M	MOTION SENSOR W/MANUAL OVERRIDE: WALL OR CEILING MOUNTED. "W" OR "C".	—	WIRING CONCEALED IN FLOOR OR WALL
Ⓜ	JUNCTION BOX	—	WIRING EXPOSED
Ⓢ	SPECIAL PURPOSE OUTLET WITH NEMA CONFIGURATION 10-30T	—	CROSSHATCHING INDICATES NUMBER OF CURRENT CARRYING CONDUCTORS IF MORE THAN TWO ARE REQUIRED. LONGER MARK INDICATES NEUTRAL. GROUNDWIRE IS ALWAYS INSTALLED AND NEVER INDICATED. NO CROSSHATCHING INDICATES 1 HOT, 1 NEUTRAL AND 1 GROUND, ALL #12 THHN.
Ⓞ	DUPLEX RECEPTACLE - MTD. 18" A.F.F. - 20A, 125V. P&S CAT. NO. CR-20LA. "C"=MOUNT 6" ABOVE COUNTER	—	HOME RUN TO PANELBOARD - "A" DESIGNATES PANEL, "1,3" INDICATES CIRCUIT NUMBERS
Ⓡ	ISOLATED GROUND RECEPTACLE - MTD 48" A.F.F. - 20A, 125V. ARROW-HART CAT. NO. IG5362HC	②	MOTOR WITH RATING IN HORSEPOWER
Ⓜ	GROUND FAULT INTERRUPTING RECEPTACLE - MTD. 48" A.F.F., 20A, 125V., P&S CAT. NO. 2091-LA	Ⓜ	COMBINATION STARTER/DISCONNECT SWITCH WITH SWITCH AND FUSE RATINGS
Ⓜ	INDICATES WEATHERPROOF	—	INDICATES RAINTIGHT
		—	INDICATES DUAL ELEMENT FUSES
		—	NUMBER OF POLES
		—	FUSE SIZE
		—	SWITCH SIZE
		Ⓜ	MAGNETIC MOTOR STARTER
		Ⓜ	DISCONNECT SWITCH

ABBREVIATIONS

A	AMPS	EG	EQUIPMENT GROUND
AG	ABOVE GRADE	EX	EXISTING
AFF	ABOVE FINISHED FLOOR	FACP	FIRE ALARM CONTROL PANEL
BL	BLANK PLATE	G, GR	GROUND
BOF	BOTTOM OF FIXTURE	GFI	GROUND FAULT CIRCUIT INTERRUPTER
C	CONDUIT	IG	ISOLATED GROUND
CB	CIRCUIT BREAKER	N	NEW
CD	CANDELA	NG	NATIONAL GRID (ELECTRICAL UTILITY)
CU	COPPER	UNO	UNLESS NOTED OTHERWISE
DWG	DRAWING	V	VOLT
ECPS	EMPTY CONDUIT W/PULL STRING	W/	WITH
EF	EXHAUST FAN	WP	WEATHERPROOF



PARTIAL PLAN - ELECTRICAL DEMOLITION
SCALE: 1/8"=1'-0"

GENERAL DEMOLITION NOTES:

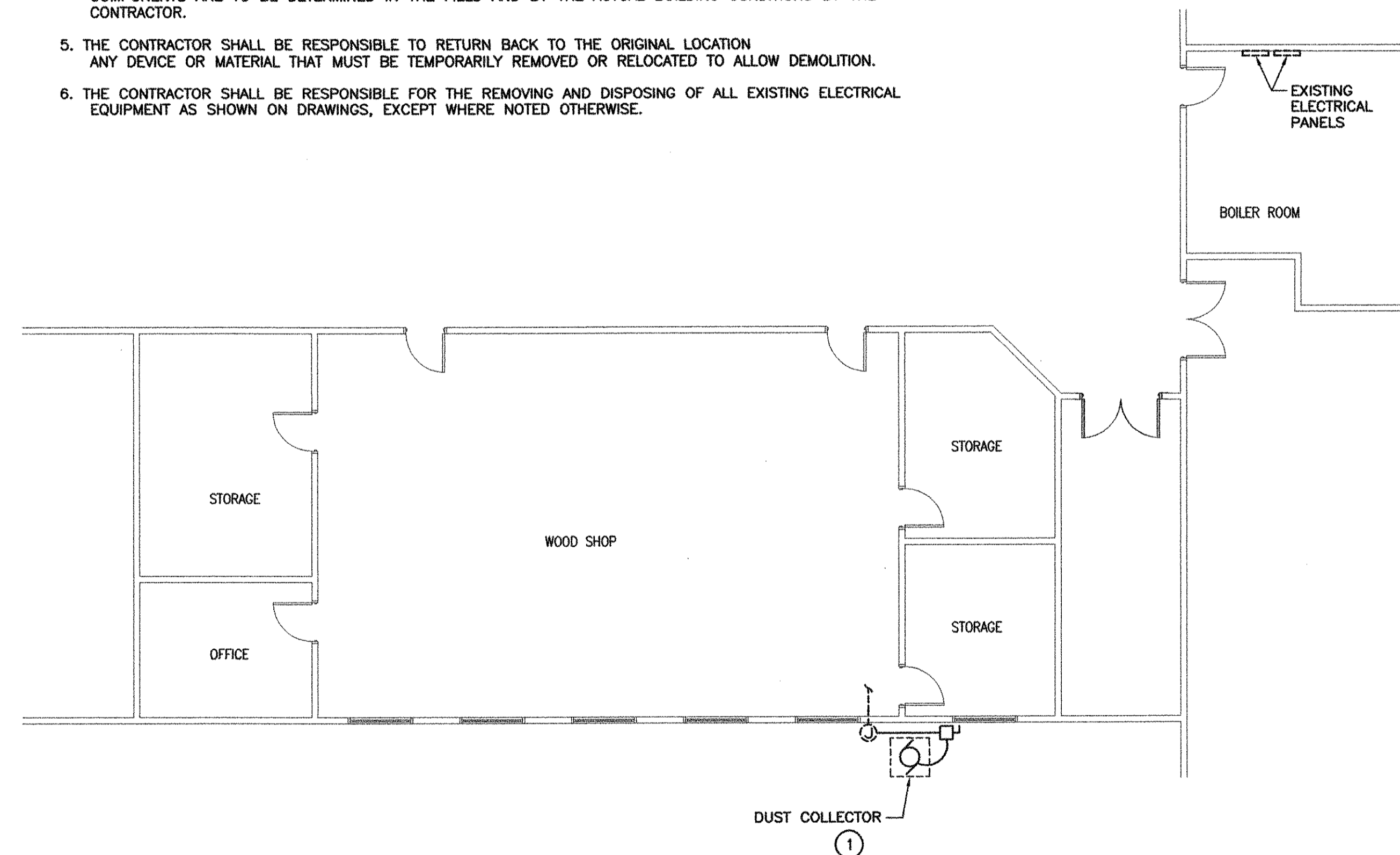
- CONTRACTOR SHALL VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING.
- ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. CONTRACTOR SHALL SECURE ALL REQUIRED DEMOLITION PERMITS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- IT IS NOT THE INTENT TO SHOW ALL CONDUIT AND MATERIAL, AND EXACT SIZES TO BE REMOVED IN THE DEMOLITION WORK. DRAWING INDICATES EQUIPMENT DIAGRAMMATICALLY. EXACT LOCATION AND SIZE OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO RETURN BACK TO THE ORIGINAL LOCATION ANY DEVICE OR MATERIAL THAT MUST BE TEMPORARILY REMOVED OR RELOCATED TO ALLOW DEMOLITION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVING AND DISPOSING OF ALL EXISTING ELECTRICAL EQUIPMENT AS SHOWN ON DRAWINGS, EXCEPT WHERE NOTED OTHERWISE.

DEMOLITION KEYNOTES:

- ① - EXISTING DUST COLLECTOR TO BE REMOVED PER MECHANICAL DRAWINGS. DISCONNECT CONDUIT AND WIRING FROM DUST COLLECTOR. REMOVE ALL CONDUIT, WIRING AND JUNCTION BOXES FROM JUNCTION BOX LOCATED OUTSIDE TO MOTOR. EXISTING FEEDER FROM JUNCTION BOX BACK TO SOURCE TO REMAIN.
- ETR - EXISTING TO REMAIN
- ETL - EXISTING TO BE RELOCATED

ELECTRICAL SPECIFICATIONS

- FURNISH LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE PROPER AND COMPLETE INSTALLATION OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED.
- ALL ITEMS NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE SPECIFICATIONS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE ELECTRICAL INSTALLATION, SHALL BE FURNISHED AND INSTALLED AS PART OF THIS SECTION.
- ALL ELECTRICAL INSTALLATIONS AND GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE LOCAL, STATE AND NATIONAL CODES:
 - A. BUILDING CODE OF THE STATE OF RI (BOCA W/RI AMENDMENTS).
 - B. ELECTRICAL CODE OF THE STATE OF RI (NFPA 70W/RI AMENDMENTS)
 - C. FIRE ALARM REQUIREMENTS OF THE STATE OF RI.
- OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
- ALL EQUIPMENT AND THE INSTALLATION OF ELECTRICAL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- MATERIALS AND WORKMANSHIP SHALL BE THE BEST OF THEIR RESPECTIVE KINDS AND IN FULL ACCORD WITH THE MOST MODERN ELECTRICAL CONSTRUCTION. ALL MATERIALS SHALL BE NEW, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
- FURNISH AND INSTALL TEMPORARY POWER AS REQUIRED TO OPERATE TOOLS AND LIGHTING. PROVIDE PANELS AND LIGHTING FIXTURES FOR CONSTRUCTION, AS REQUIRED.
- THE ELECTRICAL SUB-CONTRACTOR SHALL INSPECT THE SITE PRIOR TO SUBMITTING HIS BID, AND SHALL INVESTIGATE ALL CONDITIONS UNDER WHICH THIS WORK WILL BE PERFORMED. FAILURE TO INSPECT EXISTING CONDITIONS OR TO FULLY UNDERSTAND THE WORK WHICH IS REQUIRED SHALL NOT EXCUSE THE ELECTRICAL SUB-CONTRACTOR FROM HIS OBLIGATIONS TO SUPPLY AND INSTALL THE WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND THE DRAWINGS AND UNDER ALL SITE CONDITIONS AS THEY EXIST.
- THE ELECTRICAL CONTRACTOR SHALL CLEAN, AT THE END OF EACH DAY, ALL AREAS WORKED IN. EMPTY BOXES, RUBBISH, AND OTHER MATERIALS OF NO USE SHALL BE REMOVED FROM THE SITE.
- WORK SEQUENCE SHALL BE COORDINATED WITH THE PROJECT MANAGER AND SHALL BE IN COORDINATION WITH OTHER BUILDING TRADES AND THE BUILDING SCHEDULE.
- NEW 120/208V. BRANCH CIRCUIT PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELBOARDS SHALL BE EQUAL TO GE TYPE AQ WITH BOLTED BRANCH CIRCUIT BREAKERS. BRANCH CIRCUIT BREAKERS SHALL BE RATED 10,000 A.I.C. MINIMUM. NEW 277/480V PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELS SHALL BE EQUAL TO G.E. TYPE AE WITH BOLTED BRANCH BREAKERS. BRANCH BREAKERS SHALL BE RATED 14,000 A.I.C. MINIMUM. PANELBOARD SCHEDULES SHALL BE FILLED OUT AND PLACED IN EACH PANEL BOARD; BOTH EXISTING AND NEW, ALL SCHEDULES SHALL BE TYPED.
- WIRE AND CABLE SHALL BE TYPE THWN/THHN, UL LISTED FOR BUILDING WIRE, 75 DEGREES CENTIGRADE, WET OR DRY LOCATIONS, RATED FOR 600 VOLT. WIRE SHALL BE A MINIMUM OF NO. 12 AWG SOLID. ALL CONDUCTORS SHALL BE COPPER. METAL-CLAD CABLE TYPE MC, WITH GROUND CONDUCTORS, MAY BE USED IN AREAS WHERE APPROVED BY THE LOCAL ELECTRICAL INSPECTOR. FIRE ALARM WIRING SHALL BE FIRE ALARM TYPE MC CABLE, WITH PERMISSION AND APPROVAL OF THE FIRE ALARM SUPERINTENDENT, SIZES NOTED, AND/OR REQUIRED, OR SHALL BE INDIVIDUAL CONDUCTORS RUN IN CONDUIT.
- CONDUITS SHALL BE E.M.T. WITH STEEL CONNECTORS AND COUPLINGS IN FURRED SPACES, ABOVE CEILINGS, AND IN EXPOSED INTERIOR SPACES. FLEXIBLE STEEL CONDUIT (GREENFIELD) SHALL BE USED FOR CONNECTIONS TO FIXTURES AND EQUIPMENT.
- ALL OUTLET BOXES FOR LIGHTING, SWITCHES, RECEPTACLES, TELEPHONE, TELEVISION, ETC. SHALL BE GALVANIZED STEEL, MINIMUM 1-1/2" DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE DEVICE TO BE UTILIZED THEREIN. PROVIDE PLASTER RINGS AS REQUIRED. BOXES SHALL HAVE MOUNTING LUGS OR EARS FOR COVERS AND KNOCKOUTS FOR CONDUIT TERMINATIONS. PROVIDE SEALANT AROUND OUTLET BOXES TO PREVENT SOUND TRANSMISSION TO ADJACENT ROOM.
- ALL CONDUIT/WIRING PENETRATIONS THROUGH FIRE WALLS SHALL BE FIRESTOPPED WITH MATERIAL CONFORMING TO ASTM E136 AND SHALL BE UL CLASSIFIED, FM APPROVED, AND APPROVED FOR USE IN 1-, 2-, OR 3-HOUR RATED SYSTEMS. FIRE STOP MATERIAL SHALL BE EQUAL TO DOW CORNING CAT. NO. 2000 FIRE STOP SEALANT OR 2001 FIRE STOP FOAM AS REQUIRED BY THE PARTICULAR FIRE STOPPING CONDITION.
- ALL WIRING DEVICES SHALL BE BY ONE MANUFACTURER AND SHALL BE G.E., P&S, BRYANT OR HUBBELL. THE CATALOG NUMBERS ON THE DRAWINGS ARE THOSE OF THE G.E. COMPANY, EXCEPT AS OTHERWISE INDICATED AND ARE USED TO DENOTE TYPE AND QUALITY. COLOR SHALL BE AS SELECTED BY THE ARCHITECT/CONSTRUCTION MANAGER.
- ALL DEVICE PLATES SHALL MATCH EXISTING.
- THE PLANS DEPICT THE LOCATION OF ALL FIXTURES AND EQUIPMENT AND ARE INTENDED TO INDICATE THE GENERAL INTENT OF THE WORK IN SCOPE, LAYOUT AND QUALITY OF WORKMANSHIP.
- THE CONTRACTOR SHALL CAREFULLY VERIFY ALL MEASUREMENTS AT THE SITE, DETERMINE THE EXACT LOCATION OF ALL CHASES AND OPENINGS REQUIRED BY HIS WORK AND SHALL FURNISH AND SET ALL SLEEVES, INSERTS, AND HANGERS AS REQUIRED FOR THE WORK HEREIN.
- THE CONTRACTOR SHALL COORDINATE HIS WORK SO THAT IT DOES NOT INTERFERE WITH THE WORK OF OTHER TRADES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT HIS WORK IS INSTALLED IN A TIMELY MANNER.
- ALL HVAC CONTROLS, CONTROL WIRING AND INTER-CONNECTIONS SHALL BE BY DIV. 15, EXCEPT AS OTHERWISE NOTED AND SHOWN ON ELECTRICAL DRAWINGS. ALL 120V HVAC CONTROL WIRING SHALL BE BY THIS CONTRACTOR (DIV. 16).
- THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT. THE CONTRACTOR SHALL FURNISH TO THE OWNER ALL INSTRUCTION PAMPHLETS, BOOKS AND OTHER LITERATURE FURNISHED BY THE MANUFACTURER AND EXPLAIN THE PROPER OPERATING AND MAINTENANCE PROCEDURES.
- SUBMIT TO THE OWNER FOR REVIEW AND APPROVAL SIX COMPLETE COPIES OF THE FOLLOWING SHOP DRAWINGS:
 - A. JUNCTION BOXES
 - B. WIRING DEVICES AND PLATES
 - C. CIRCUIT BREAKERS
 - D. DISCONNECT SWITCHES
 - E. WIRE
 - F. CONDUIT
- PROVIDE CONDUIT EXPANSION JOINTS AT ALL STRUCTURAL EXPANSION JOINTS.
- ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY.



PARTIAL PLAN - MECHANICAL EQUIPMENT POWER
SCALE: 1/8"=1'-0"

MECHANICAL EQUIPMENT ELECTRICAL CONNECTION SCHEDULE																
MECH ID#	DESCRIPTION	EQUIPMENT CHARACTERISTICS						PANEL	CIRCUIT BREAKER	FEEDER AND CONDUIT	EQUIPMENT LOCATION	DISCONNECT SWITCH			MOTOR CONTROL	REMARKS
		VOLTS	AMPS	PH	HP	WATTS	MCA					MCCP	CFM	SIZE		
①	DUST COLLECTOR	208		3	10					4#8 & 1#10G IN 3/4" C	WOOD SHOP	30/NF/3/RT			1,2,3	

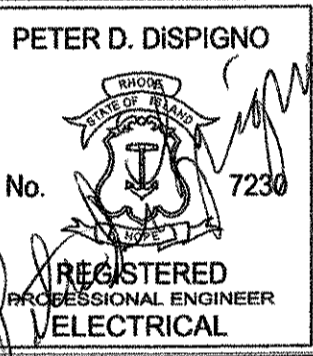
REMARKS:

- DUST COLLECTOR (DC-2) TO BE POWERED BY SAME CIRCUIT THAT EXISTING DUST COLLECTOR TO BE REMOVED WAS CONNECTED.
- RE-USE EXISTING CIRCUIT BREAKER.
- EXISTING FEEDER TO BE RE-USED UP TO JUNCTION BOX LOCATED OUTSIDE WOOD SHOP. 3/4" LIQUID-TITE WITH 3#8 TO BE INSTALLED FROM DISCONNECT TO MOTOR. 1#10 GROUND TO BE ADDED TO FEEDER FROM PANEL TO THE DUST COLLECTOR MOTOR. REPLACE ANY MATERIAL OR DEVICE DEMOLISHED WITH NEW.



HVAC-ELECTRICAL
PLUMBING-
FIRE PROTECTION
450 WARREN AVENUE
EAST PROVIDENCE, RI 02914
P: 401.438.7733
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WARWICK SCHOOLS
GORTON JUNIOR HIGH SCHOOL
68 DRAPER AVENUE, WARWICK, RI 02889
DUST COLLECTION REPLACEMENT



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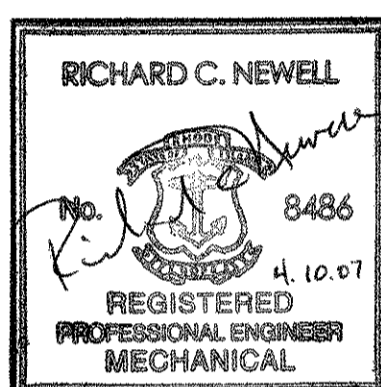
Sheet Title:
ELECTRICAL LEGEND SHEET, FLOOR PLANS, SCHEDULES & SPECIFICATIONS

Project No: 20711
Drawn By: MSO
Checked By: PDS
Scale: AS SHOWN
Date: 4/10/2007

Drawing No:
E-1
Sheet 4 of 14



WARWICK SCHOOLS
WINMAN JUNIOR HIGH SCHOOL
 575 CENTERVILLE ROAD, WARWICK, RI 02886
 DUST COLLECTION REPLACEMENT



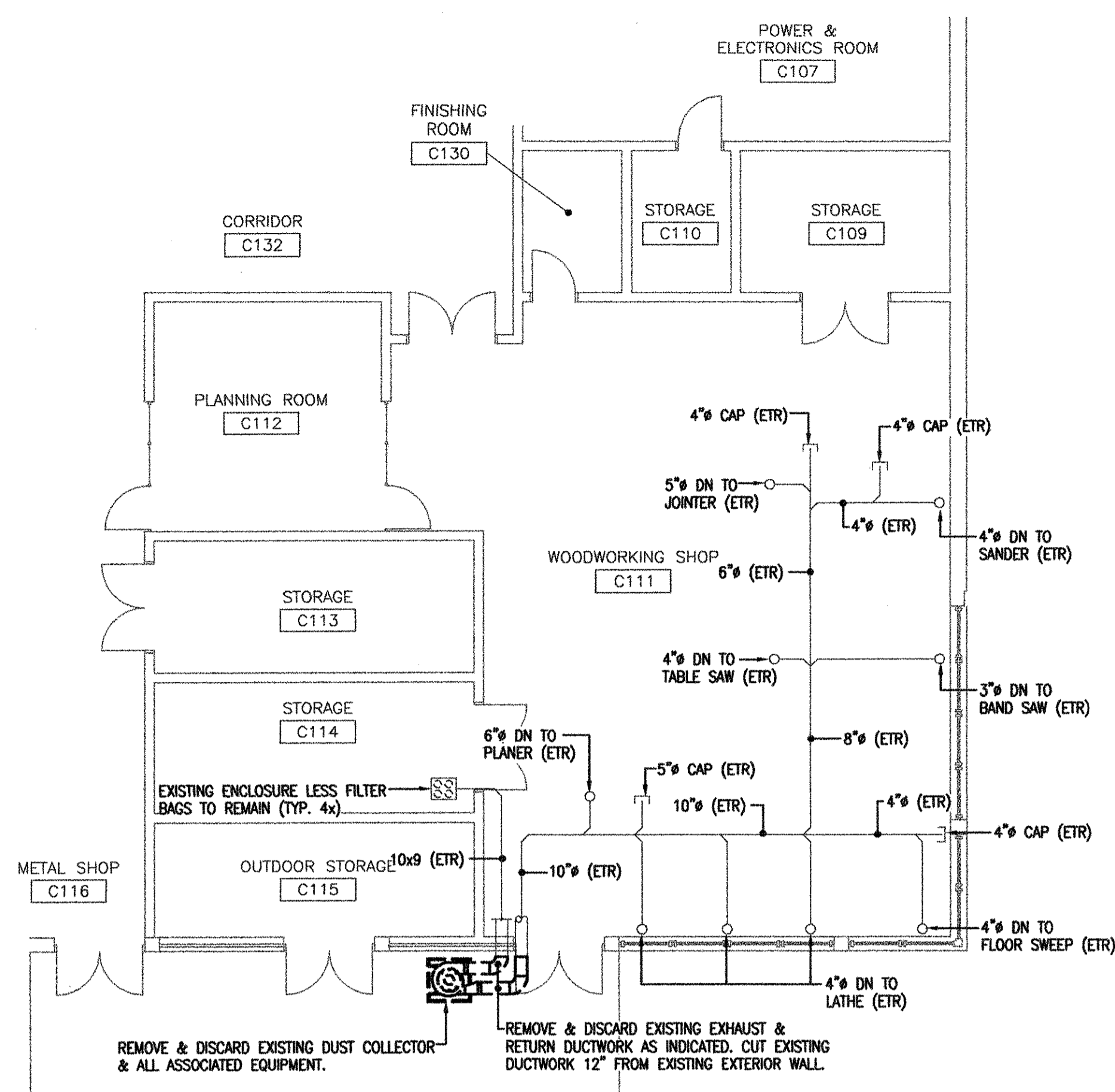
Status:
ISSUED FOR CONSTRUCTION

Date	Revision/Issue	No.

Sheet Title:
MECHANICAL FLOOR PLANS DETAILS, SCHEDULES & SPECIFICATIONS

Project No: 20712
 Drawn By: JAA
 Checked By: RCN/UPS
 Scale: AS SHOWN
 Date: 4/10/2007

Drawing No:
M-1
 Sheet 5 of 14

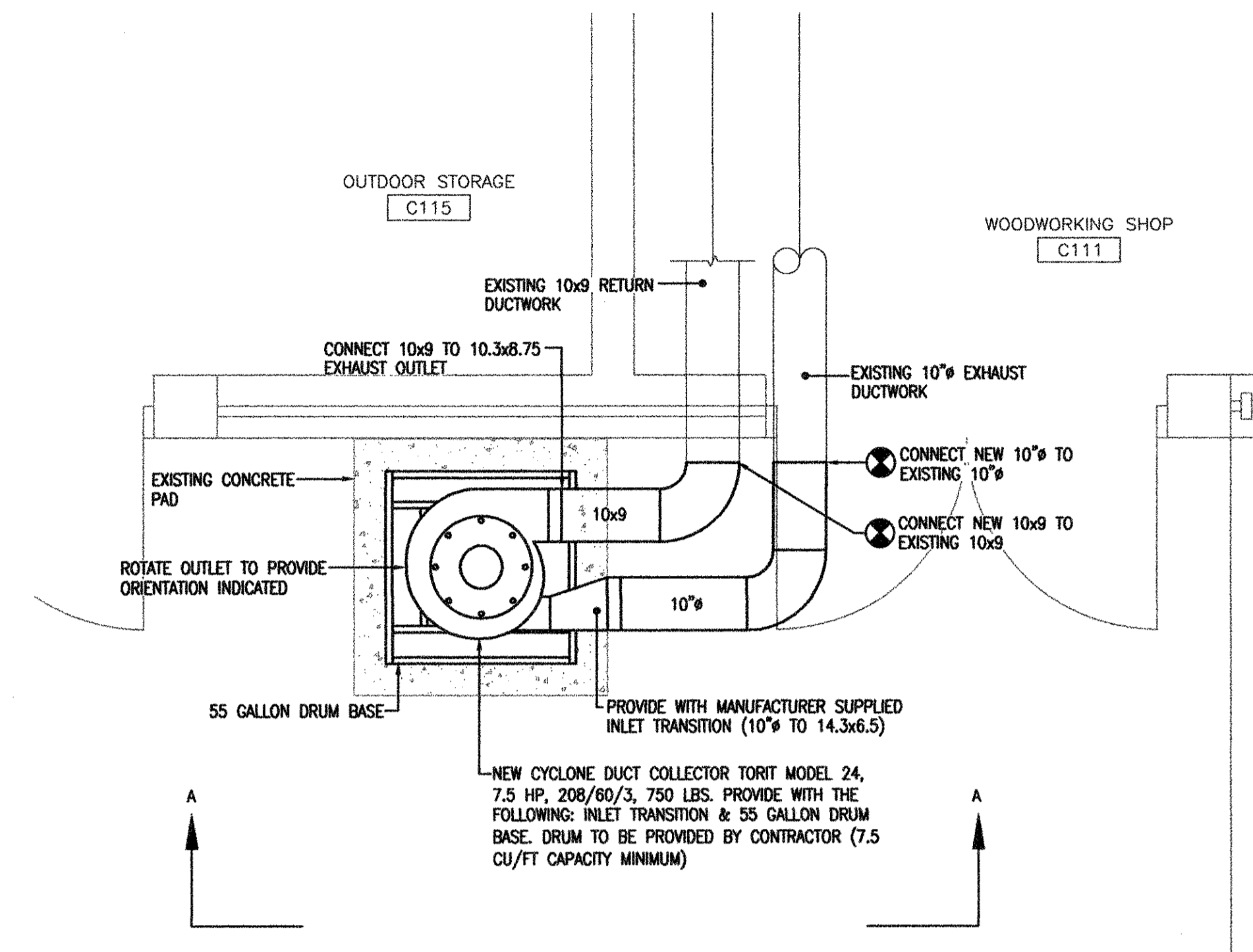


PARTIAL FLOOR PLAN - MECHANICAL DEMOLITION
 SCALE: 1/8"=1'-0"

DEMOLITION NOTES

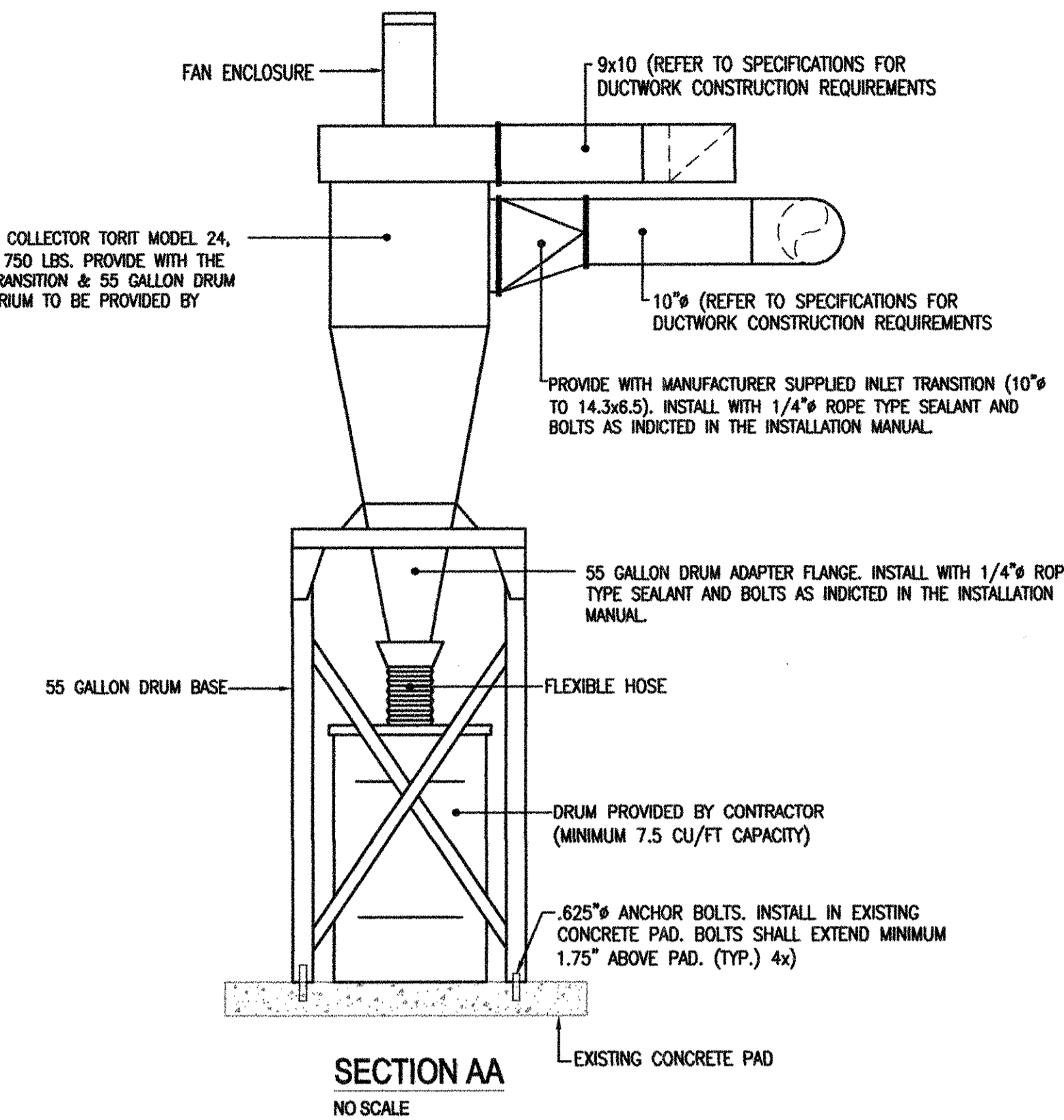
UNDER DEMOLITION, THE FOLLOWING IS, IN BRIEF, THE EXTENT OF THE WORK TO BE PERFORMED BY THE MECHANICAL CONTRACTOR UNDER THIS CONTRACT.

- PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF THE EXISTING MECHANICAL EQUIPMENT & DUCTWORK IN DESIGNATED AREAS. PATCH ALL ROOF AND WALL PENETRATIONS TO MATCH EXISTING.
- THIS CONTRACTOR SHALL PROTECT WORK AGAINST INJURY OR DAMAGE; AND CAREFULLY STORE MATERIAL AND EQUIPMENT TO BE RELOCATED. OPEN ENDS OF WORK SHALL BE CLOSED WITH TEMPORARY COVERS OR PLUGS DURING STORAGE, AND CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.



PARTIAL FLOOR PLAN - MECHANICAL NEW WORK
 SCALE: 1/2"=1'-0"

NEW CYCLONE DUCT COLLECTOR TORIT MODEL 24, 7.5 HP, 208/60/3, 750 LBS. PROVIDE WITH THE FOLLOWING: INLET TRANSITION & 55 GALLON DRUM BASE. 55 GALLON DRUM TO BE PROVIDED BY CONTRACTOR.



MECHANICAL SPECIFICATIONS

PART 1 - GENERAL REQUIREMENTS

- SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, ETC., TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED FOR A COMPLETE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION, AS INTERPRETED BY THE ARCHITECT/ENGINEER.
- APPLY AND PAY FOR ALL NECESSARY INSPECTION FEES, LICENSES AND PERMITS REQUIRED BY THE PROPER AUTHORITIES HAVING JURISDICTION.
- "PROVIDE" AND "INSTALL" ALL MATERIALS, LABOR AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS OR HEREIN SPECIFIED.
- ALL CUTTING, PATCHING & REQUIRED FLASHING WILL BE DONE BY THIS CONTRACTOR.
- ALL MATERIALS SHALL BE NEW. ALL EQUIPMENT SHALL BEAR THE U.L. LABEL.
- COORDINATE LOCATIONS OF ALL NEW DUCTWORK WITH EXISTING EQUIPMENT, LIGHTING, OTHER TRADES, AND THE OWNER PRIOR TO INSTALLATION OR FABRICATION OF SAME.
- CONTRACTOR TO GUARANTEE THE QUALITY OF ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF OWNER ACCEPTANCE. ALL DEFECTIVE MATERIAL AND WORKMANSHIP SHALL BE REPLACED AT CONTRACTOR'S EXPENSE DURING THIS TIME.
- ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR'S EMPLOYEES, MATERIALS OR EQUIPMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INJURIES OR DAMAGE DONE TO BUILDING PREMISES OR ADJOINING AREAS OR WORK RESULTING FROM EXECUTION OF HIS PART OF WORK IN ANY MANNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTION OF HIS WORK AT HIS OWN EXPENSE.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR ALL EQUIPMENT SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS PRIOR TO ORDERING, FABRICATING OR INSTALLING SAME.
- THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWING AND/OR SITE CONDITIONS, THE HVAC CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED. THE CONTRACTOR SHALL CONDUCT A THOROUGH FIELD INVESTIGATION TO VERIFY WORK SHOWN ON THE DRAWINGS. THE DRAWINGS REFLECT THE BEST AVAILABLE INFORMATION FROM EXISTING PLANS AND SITE INVESTIGATIONS.

PART 2 - PRODUCTS

- DUCTWORK
 - ALL DUCTWORK SHALL BE OF TOP GRADE GALVANIZED STEEL, CONSTRUCTED AND SUPPORTED AS PER S.M.A.C.N.A. INDUSTRIAL DUCT CONSTRUCTION STANDARDS CLASS 2. ALL ELBOWS SHALL BE LONG RADIUS TYPE. ALL JOINTS, SEAMS, AND FITTINGS SHALL BE AIR AND WATER TIGHT USING SOLDER JOINTS AND SHALL BE FORMED TO PROVIDE A MINIMUM RESISTANCE TO THE AIR FLOW.
 - THE FOLLOWING METAL THICKNESS SHALL BE UTILIZED:

DUCT SIZE	GAUGE
UP TO 8"	22-18
OVER 8" UP TO 18"	22-12

- ELBOWS & ANGLES SHALL BE A MINIMUM OF TWO GAUGES HEAVIER THAN STRAIGHT LENGTHS OF EQUAL DIAMETER. ROUND ELBOWS AND ANGLES SHOULD HAVE AN INSIDE OR THROAT RADIUS OF TWO PIPE DIAMETERS. CONSTRUCT ELBOWS SIX INCHES OR LESS IN DIAMETER OF AT LEAST FIVE SECTIONS, ELBOWS OVER SIX INCHES DIAMETER OF SEVEN SECTIONS. ANGLES SHALL BE PIECED PROPORTIONATELY.
 - RECTANGULAR ELBOWS & ANGLES SHALL BE CONSTRUCTED HAVING A W/D & R/D EQUAL TO OR GREATER THAN 1.
 - LONGITUDINAL JOINTS OF DUCTS SHALL BE LAPPED AND SEAMED OR WELDED.
 - GIRTH JOINTS OF DUCTS SHALL BE MADE WITH LAP IN DIRECTION OF AIR FLOW AND ONE INCH LAP FOR DIAMETERS THRU 19 INCHES AND 1-1/2 INCH LAP FOR DIAMETERS OVER 19 INCHES.
 - INTERIOR OF ALL DUCTS SHALL BE SMOOTH AND FREE FROM OBSTRUCTIONS WITH JOINTS SOLDERED AIR TIGHT.
 - SUPPORT DUCTS SUFFICIENTLY TO PLACE NO LOAD ON CONNECTING EQUIPMENT AND TO CARRY WEIGHT OF SYSTEM IF SOX PLUGGED WITH MATERIAL. MAXIMUM SUPPORTING INTERVALS SHALL BE TWELVE FEET ON HORIZONTAL DUCTS, AT ALL CHANGES OF DIRECTION, TOP OF RISERS AND ON THREE FOOT CENTERS FOR DUCTS LOCATED ON WALLS. BOTH CROSS AND HORIZONTAL BRACING SHALL BE PROVIDED AS REQUIRED.
 - DUCT RESTING ON SUPPORT MEMBERS WITHOUT SADDLES MUST BE REINFORCED WITH PLATES AT LEAST TWICE THE THICKNESS OF THE DUCT MATERIAL. THESE WEAR PLATES SHALL BE HALF THE DUCT CIRCUMFERENCE AND AT LEAST TWICE AS LONG AS THE WIDTH OF THE MEMBER SUPPORTING THE DUCT.
 - PROVIDE SIX INCH MINIMUM CLEARANCE BETWEEN DUCTS AND CEILING, WALL OR FLOORS.
 - WHERE LAWS CONFLICT WITH THE PRECEDING, THE MORE STRINGENT REQUIREMENT SHALL BE FOLLOWED. DEVIATION FROM EXISTING REGULATIONS MAY REQUIRE APPROVAL.
 - ALL EXTERIOR DUCTWORK SHALL BE CLEANED & PAINTED WITH (2) COATS RUST INHIBITING PAINT. COLOR TO MATCH DUCT COLLECTOR.
 - THIS ABOVE INFORMATION SHALL PROVIDE FOR COMPLETE AND OPERABLE SYSTEM TO MEET INTENT OF SPECIFICATIONS & TO THE SATISFACTION OF THE ENGINEERS.
- CYCLONE DUST COLLECTOR
 - FURNISH A COMPLETE CONTINUOUS-DUTY DUST COLLECTOR SYSTEM AS SHOWN ON THE PLANS AND/OR LISTED IN THE EQUIPMENT SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF PROVIDING CYCLONIC CLEANING OF INCOMING AIR.
 - THE CONTINUOUS-DUTY COLLECTOR SHALL BE SUPPLIED IN FACTORY-ASSEMBLED UNITS OR IN MAJOR SUBASSEMBLES SIZED TO MEET AIRFLOW CAPACITIES AND DESIGN REQUIREMENTS. INSTRUCTION MANUAL AND REPLACEMENT PARTS LIST SHALL BE INCLUDED FOR EASY INSTALLATION AND MAINTENANCE.
 - EACH COLLECTOR SHALL BE OF BOLTED AND WELDED CONSTRUCTION USING 14 GAUGE HRS DESIGNED FOR -20" WATER GAUGE AND COMPLETE WITH A REMOVABLE BOTTOM CONE SECTION. THE MOTOR AND FAN ASSEMBLY SHALL BE SHIPPED LOOSE.
 - DUST-LADEN AIR WILL ENTER THE COLLECTOR ON THE SIDE AND BE DIVERTED BY A HELICAL BAFFLE. THE AIR WILL THEN HAVE A "SPIN" IMPARTED TO IT. CENTRIFUGAL FORCES MOVE THE HEAVY DIRT AND DUST TO THE SIDE WALLS AND CARRY IT DOWN TO THE BASE OF THE UNIT. CLEAN AIR IS THEN EXHAUSTED FROM THE UNIT.
 - THE COLLECTOR SHALL INCLUDE AN INLET FLANGE MOUNTED ON THE SIDE OF THE COLLECTOR AT THE DIRTY AIR INLET. AN OUTLET FLANGE WILL BE PROVIDED ON THE SIDE OF THE FAN. THE FAN OUTLET SHALL ACCEPT A TORIT-BUILT FILTER BAG ASSEMBLY INCLUDING STANDARD FILTER BAGS.
 - FILTER BAGS SHALL BE MANUFACTURED OF POLYESTER FELT AND PROVIDE IN THE APPROPRIATE QUANTITIES FOR THE COLLECTION CAPACITY.
 - THE COLLECTOR SHALL BE A DONALDSON TORIT CYCLONE CONTINUOUS DUTY DUST COLLECTOR AS MANUFACTURED BY DONALDSON COMPANY, INC. OR ENGINEER APPROVED EQUAL.

PART 3 - EXECUTION

- IT IS THE INTENT OF THESE SPECIFICATIONS THAT THIS CONTRACTOR BE RESPONSIBLE FOR PROVIDING ALL DEVICES AND WIRING (REGARDLESS OF VOLTAGE) NECESSARY TO PROVIDE THE SEQUENCES AS SPECIFIED HEREIN.
- ALL MECHANICAL SYSTEMS SHALL BE AUTOMATICALLY CONTROLLED. WHERE NO DESCRIPTION OF OPERATION IS INDICATED FOR A PARTICULAR SYSTEM OR DEVICE, THE CONTRACTOR SHALL SELECT APPROPRIATE CONTROL SCENARIOS AND REVIEW THEM WITH THE ENGINEER PRIOR TO PROCEEDING. ALL CONTROLS SHALL BE ARRANGED AND DESIGNED FOR MAXIMUM ENERGY CONSERVATION.
- SEQUENCE OF OPERATION

THE EXISTING WALL MOUNTED SWITCH SHALL ENERGIZE/DE-ENERGIZE THE DUST COLLECTION SYSTEM.
- PROJECT CLOSE-OUT
 - RESTORE EXISTING FACILITIES USED DURING CONSTRUCTION TO ORIGINAL CONDITION. CLEAN PORTIONS OF THE SITE AFFECTED BY WORK OF THIS CONTRACT. REMOVE WASTE AND SURPLUS MATERIALS FROM THE SITE.
 - SUBMIT TWO COPIES OF OPERATION AND MAINTENANCE DATA BOUND IN THREE-RING BINDERS. INCLUDE WARRANTIES, SUBMITTALS, BALANCING REPORT, AND PROJECT DOCUMENTS AND CERTIFICATES.
 - CONTRACTOR SHALL DEMONSTRATE ALL SEQUENCES OF CONTROL TO THE ENGINEER. THE TEMPERATURE CONTROL AND BALANCING SUBCONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING CHECK-OUT PROCEDURE. PERSONNEL SHALL BE EQUIPPED WITH TOOLS AND SPARE PARTS TO MAKE MINOR REPAIRS AND ADJUSTMENTS.
 - CONTRACTOR SHALL DEMONSTRATE COMPLIANCE WITH BALANCING OF SYSTEMS IN THE PRESENCE OF THE ENGINEER BY ACTUAL MEASUREMENT OF WATER FLOWS. IF REQUESTED BY THE ENGINEER, RE-BALANCING SHALL BE DONE AT NO ADDITIONAL CHARGE.

ELECTRICAL SPECIFICATIONS

- FURNISH LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE PROPER AND COMPLETE INSTALLATION OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED.
- ALL ITEMS NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE SPECIFICATIONS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE ELECTRICAL INSTALLATION, SHALL BE FURNISHED AND INSTALLED AS PART OF THIS SECTION.
- ALL ELECTRICAL INSTALLATIONS AND GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE LOCAL, STATE AND NATIONAL CODES:
 - BUILDING CODE OF THE STATE OF RI (BOCA W/RI AMENDMENTS).
 - ELECTRICAL CODE OF THE STATE OF RI (NFPA 70W/RI AMENDMENTS)
 - FIRE ALARM REQUIREMENTS OF THE STATE OF RI.
- OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
- ALL EQUIPMENT AND THE INSTALLATION OF ELECTRICAL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- MATERIALS AND WORKMANSHIP SHALL BE THE BEST OF THEIR RESPECTIVE KINDS AND IN FULL ACCORD WITH THE MOST MODERN ELECTRICAL CONSTRUCTION. ALL MATERIALS SHALL BE NEW, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
- FURNISH AND INSTALL TEMPORARY POWER AS REQUIRED TO OPERATE TOOLS AND LIGHTING. PROVIDE PANELS AND LIGHTING FIXTURES FOR CONSTRUCTION, AS REQUIRED.
- THE ELECTRICAL SUB-CONTRACTOR SHALL INSPECT THE SITE PRIOR TO SUBMITTING HIS BID, AND SHALL INVESTIGATE ALL CONDITIONS UNDER WHICH THIS WORK WILL BE PERFORMED. FAILURE TO INSPECT EXISTING CONDITIONS OR TO FULLY UNDERSTAND THE WORK WHICH IS REQUIRED SHALL NOT EXCUSE THE ELECTRICAL SUB-CONTRACTOR FROM HIS OBLIGATIONS TO SUPPLY AND INSTALL THE WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND THE DRAWINGS AND UNDER ALL SITE CONDITIONS AS THEY EXIST.
- THE ELECTRICAL CONTRACTOR SHALL CLEAN, AT THE END OF EACH DAY, ALL AREAS WORKED IN. EMPTY BOXES, RUBBISH, AND OTHER MATERIALS OF NO USE SHALL BE REMOVED FROM THE SITE.
- WORK SEQUENCE SHALL BE COORDINATED WITH THE PROJECT MANAGER AND SHALL BE IN COORDINATION WITH OTHER BUILDING TRADES AND THE BUILDING SCHEDULE.
- NEW 120/208V. BRANCH CIRCUIT PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELBOARDS SHALL BE EQUAL TO GE TYPE AQ WITH BOLTED BRANCH CIRCUIT BREAKERS. BRANCH CIRCUIT BREAKERS SHALL BE RATED 10,000 A.I.C. MINIMUM. NEW 277/480V PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELS SHALL BE EQUAL TO G.E. TYPE AE WITH BOLTED BRANCH BREAKERS. BRANCH BREAKERS SHALL BE RATED 14,000 A.I.C. MINIMUM. PANELBOARD SCHEDULES SHALL BE FILLED OUT AND PLACED IN EACH PANEL BOARD; BOTH EXISTING AND NEW, ALL SCHEDULES SHALL BE TYPED.
- WIRE AND CABLE SHALL BE TYPE THWN/THHN, UL LISTED FOR BUILDING WIRE. 75 DEGREES CENTIGRADE, WET OR DRY LOCATIONS, RATED FOR 600 VOLT. WIRE SHALL BE A MINIMUM OF NO. 12 AWG SOLID. ALL CONDUCTORS SHALL BE COPPER. METAL-CLAD CABLE TYPE MC, WITH GROUND CONDUCTORS, MAY BE USED IN AREAS WHERE APPROVED BY THE LOCAL ELECTRICAL INSPECTOR. FIRE ALARM WIRING SHALL BE FIRE ALARM TYPE MC CABLE, WITH PERMISSION AND APPROVAL OF THE FIRE ALARM SUPERINTENDENT, SIZES NOTED, AND/OR REQUIRED, OR SHALL BE INDIVIDUAL CONDUCTORS RUN IN CONDUIT.
- CONDUITS SHALL BE E.M.T. WITH STEEL CONNECTORS AND COUPLINGS IN FURRED SPACES, ABOVE CEILINGS, AND IN EXPOSED INTERIOR SPACES. FLEXIBLE STEEL CONDUIT (GREENFIELD) SHALL BE USED FOR CONNECTIONS TO FIXTURES AND EQUIPMENT.
- ALL OUTLET BOXES FOR LIGHTING, SWITCHES, RECEPTACLES, TELEPHONE, TELEVISION, ETC. SHALL BE GALVANIZED STEEL, MINIMUM 1-1/2" DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE DEVICE TO BE UTILIZED THEREIN. PROVIDE PLASTER RINGS AS REQUIRED. BOXES SHALL HAVE MOUNTING LUGS OR EARS FOR COVERS AND KNOCKOUTS FOR CONDUIT TERMINATIONS. PROVIDE SEALANT AROUND OUTLET BOXES TO PREVENT SOUND TRANSMISSION TO ADJACENT ROOM.
- ALL CONDUIT/WIRING PENETRATIONS THROUGH FIRE WALLS SHALL BE FIRESTOPPED WITH MATERIAL CONFORMING TO ASTM E136 AND SHALL BE UL CLASSIFIED, FM APPROVED, AND APPROVED FOR USE IN 1-, 2-, OR 3-HOUR RATED SYSTEMS. FIRE STOP MATERIAL SHALL BE EQUAL TO DOW CORNING CAT. NO. 2000 FIRE STOP SEALANT OR 2001 FIRE STOP FOAM AS REQUIRED BY THE PARTICULAR FIRE STOPPING CONDITION.
- ALL WIRING DEVICES SHALL BE BY ONE MANUFACTURER AND SHALL BE G.E., P&S, BRYANT OR HUBBELL. THE CATALOG NUMBERS ON THE DRAWINGS ARE THOSE OF THE G.E. COMPANY, EXCEPT AS OTHERWISE INDICATED AND ARE USED TO DENOTE TYPE AND QUALITY. COLOR SHALL BE AS SELECTED BY THE ARCHITECT/CONSTRUCTION MANAGER.
- ALL DEVICE PLATES SHALL MATCH EXISTING.
- THE PLANS DEPICT THE LOCATION OF ALL FIXTURES AND EQUIPMENT AND ARE INTENDED TO INDICATE THE GENERAL INTENT OF THE WORK IN SCOPE, LAYOUT AND QUALITY OF WORKMANSHIP.
- THE CONTRACTOR SHALL CAREFULLY VERIFY ALL MEASUREMENTS AT THE SITE, DETERMINE THE EXACT LOCATION OF ALL CHASES AND OPENINGS REQUIRED BY HIS WORK AND SHALL FURNISH AND SET ALL SLEEVES, INSERTS, AND HANGERS AS REQUIRED FOR THE WORK HEREIN.
- THE CONTRACTOR SHALL COORDINATE HIS WORK SO THAT IT DOES NOT INTERFERE WITH THE WORK OF OTHER TRADES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT HIS WORK IS INSTALLED IN A TIMELY MANNER.
- ALL HVAC CONTROLS, CONTROL WIRING AND INTER-CONNECTIONS SHALL BE BY DIV. 15, EXCEPT AS OTHERWISE NOTED AND SHOWN ON ELECTRICAL DRAWINGS. ALL 120V HVAC CONTROL WIRING SHALL BE BY THIS CONTRACTOR (DIV. 16).
- THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT. THE CONTRACTOR SHALL FURNISH TO THE OWNER ALL INSTRUCTION PAMPHLETS, BOOKS AND OTHER LITERATURE FURNISHED BY THE MANUFACTURER AND EXPLAIN THE PROPER OPERATING AND MAINTENANCE PROCEDURES.
- SUBMIT TO THE OWNER FOR REVIEW AND APPROVAL SIX COMPLETE COPIES OF THE FOLLOWING SHOP DRAWINGS:
 - JUNCTION BOXES
 - WIRING DEVICES AND PLATES
 - CIRCUIT BREAKERS
 - DISCONNECT SWITCHES
 - WIRE
 - CONDUIT
- PROVIDE CONDUIT EXPANSION JOINTS AT ALL STRUCTURAL EXPANSION JOINTS.
- ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY.

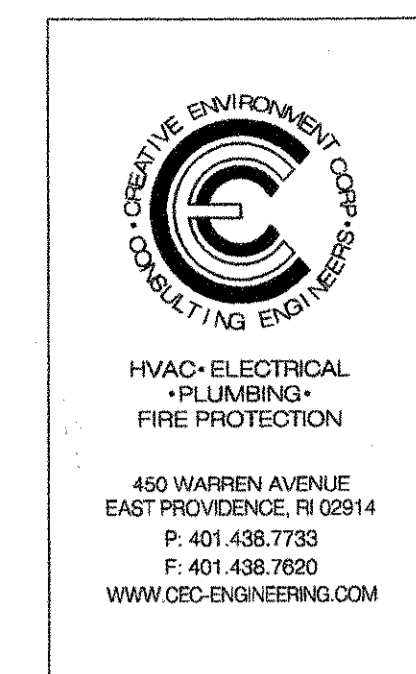
SYMBOL LEGEND

USE MOUNTING HEIGHTS SPECIFIED ON ARCHITECTURAL DRAWINGS. IF NOT LISTED, USE MOUNTING HEIGHTS ON THIS DRAWING.

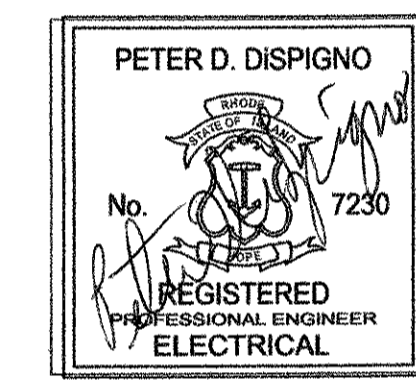
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	SINGLE POLE SWITCH - 48" A.F.F., P&S CAT. NO. CS120-LA	[Symbol]	SURFACE MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
Sp	SINGLE POLE SWITCH WITH PILOT LIGHT - 48" A.F.F. P&S CAT. NO. 20AC1-RPL	[Symbol]	FLUSH MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S3	3-WAY SWITCH - 48" A.F.F., P&S CAT. NO. CS320-LA	[Symbol]	UP TO FLOOR ABOVE
S4	FOUR WAY SWITCH - 48" A.F.F.; P&S CAT. NO. CS420-LA	[Symbol]	THE INTO EQUIPMENT OR DOWN TO FLOOR BELOW
S1	SINGLE POLE MOTOR RATED SWITCH WITH OVERLOAD HEATER SQUARE D CLASS 2510, TYPE FGJ-1	[Symbol]	WIRING CONCEALED IN WALL OR CEILING
Sm	MOTION SENSOR W/MANUAL OVERRIDE: WALL OR CEILING MOUNTED. 'WA' OR 'CI'.	[Symbol]	WIRING CONCEALED IN FLOOR OR WALL
[Symbol]	JUNCTION BOX	[Symbol]	WIRING EXPOSED
[Symbol]	SPECIAL PURPOSE OUTLET WITH NEMA CONFIGURATION	[Symbol]	CROSSHATCHING INDICATES NUMBER OF CURRENT CARRYING CONDUCTORS IF MORE THAN TWO ARE REQUIRED. LONGER MARK INDICATES NEUTRAL. GROUNDWIRE IS ALWAYS INSTALLED AND NEVER INDICATED. NO CROSSHATCHING INDICATES 1 HOT, 1 NEUTRAL, AND 1 GROUND, ALL #12 THHN.
[Symbol]	DUPLEX RECEPTACLE - MTD. 18" A.F.F. - 20A, 125V. P&S CAT. NO. CR-20LA. 'C'-MOUNT 6" ABOVE COUNTER	[Symbol]	HOME RUN TO PANELBOARD - "A" DESIGNATES PANEL, "1,3" INDICATES CIRCUIT NUMBERS
[Symbol]	ISOLATED GROUND RECEPTACLE - MTD 48" A.F.F. - 20A, 125V. ARROW-HART CAT. NO. IG5362HG	[Symbol]	MOTOR WITH RATING IN HORSEPOWER
[Symbol]	GROUND FAULT INTERRUPTING RECEPTACLE - MTD. 48" A.F.F., 20A, 125V., P&S CAT. NO. 2091-LA	[Symbol]	COMBINATION STARTER/DISCONNECT SWITCH WITH SWITCH AND FUSE RATINGS
[Symbol]	INDICATES WEATHERPROOF	[Symbol]	INDICATES RAINIGHT
		[Symbol]	INDICATES DUAL ELEMENT FUSES
		[Symbol]	NUMBER OF POLES
		[Symbol]	FUSE SIZE
		[Symbol]	SWITCH SIZE
		[Symbol]	MAGNETIC MOTOR STARTER
		[Symbol]	DISCONNECT SWITCH

ABBREVIATIONS

A	AMPS
AG	ABOVE GRADE
AFF	ABOVE FINISHED FLOOR
BL	BLANK PLATE
BOF	BOTTOM OF FIXTURE
C	CONDUIT
CB	CIRCUIT BREAKER
CD	CANDELA
CU	COPPER
DWG	DRAWING
ECPS	EMPTY CONDUIT W/PULL STRING
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EX	EXISTING
FACP	FIRE ALARM CONTROL PANEL
G, GR	GROUND
GFI	GROUND FAULT CIRCUIT INTERRUPTER
IG	ISOLATED GROUND
N	NEW
NG	NATIONAL GRID (ELECTRICAL UTILITY)
UNO	UNLESS NOTED OTHERWISE
V	VOLT
W/	WITH
WP	WEATHERPROOF



WARWICK SCHOOLS
WINMAN
 JUNIOR HIGH SCHOOL
 575 CENTERVILLE ROAD, WARWICK, RI 02886
 DUST COLLECTION REPLACEMENT



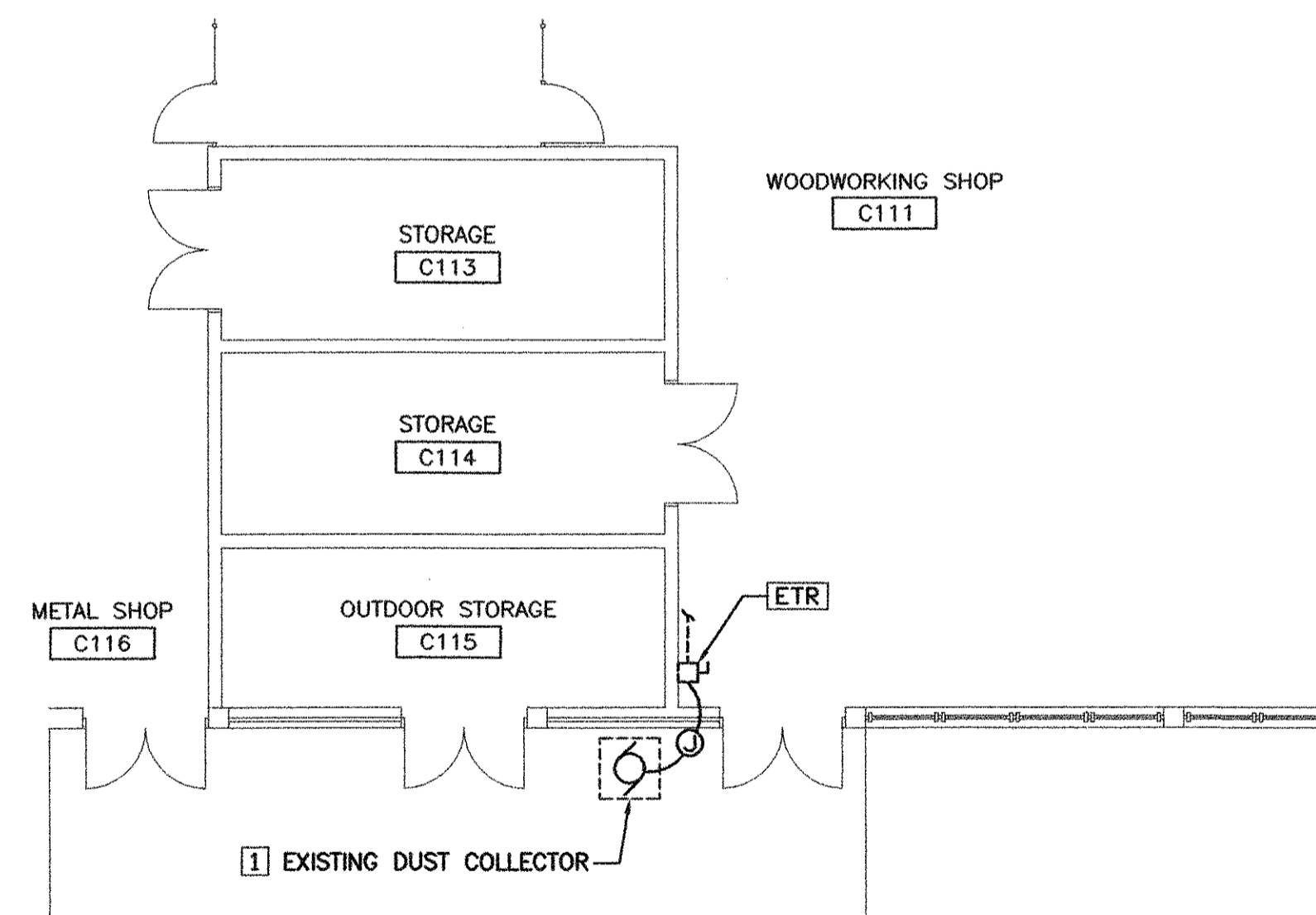
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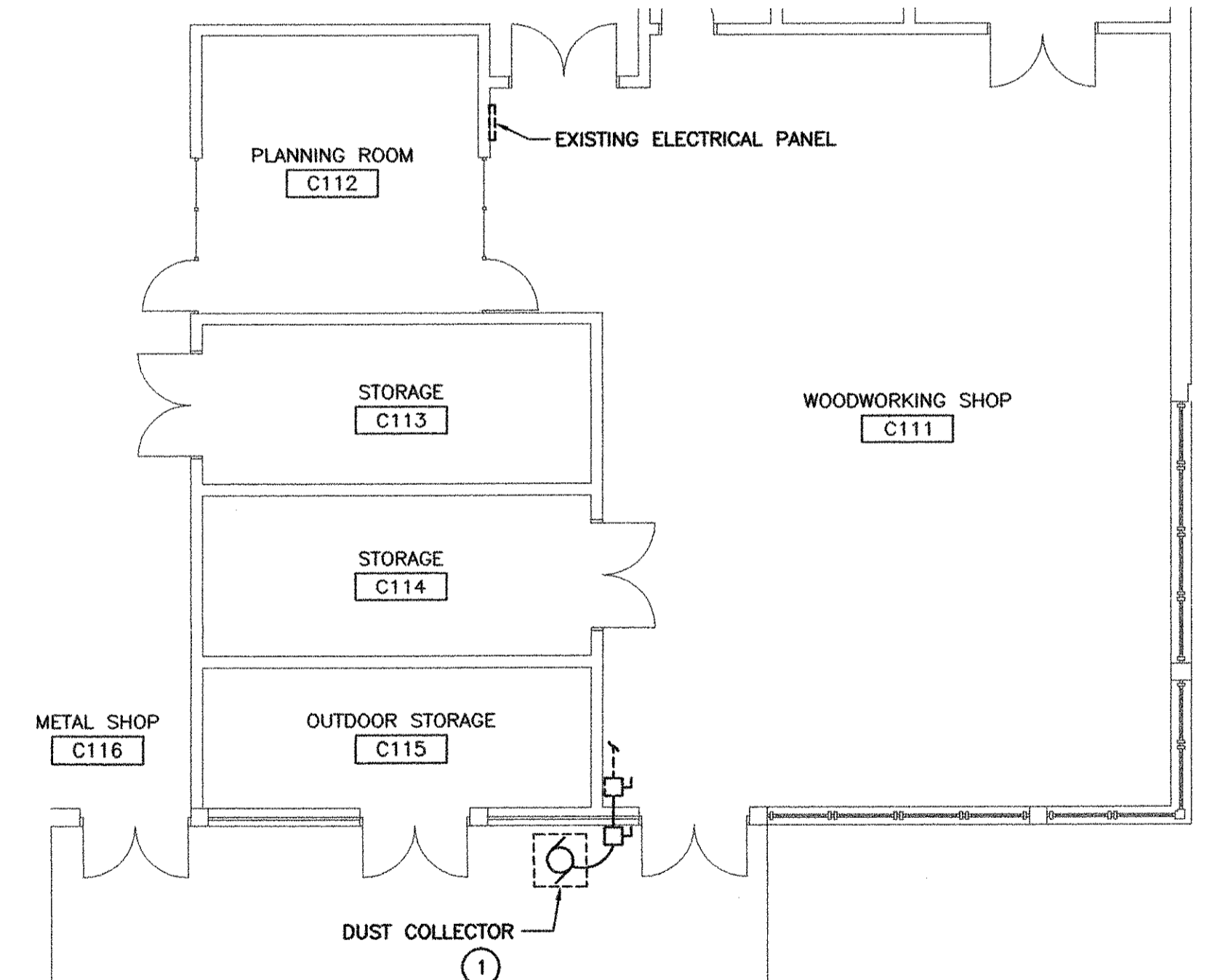
Sheet Title:
MECHANICAL FLOOR PLANS, DETAILS, SCHEDULES & SPECIFICATIONS

Project No: 20712
 Drawn By: MSO
 Checked By: PDS
 Scale: AS SHOWN
 Date: 4/10/2007

Drawing No:
E-1
 Sheet 6 of 14



PARTIAL FLOOR PLAN - ELECTRICAL DEMOLITION
 SCALE: 1/8"=1'-0"



PARTIAL FLOOR PLAN - MECHANICAL EQUIPMENT POWER
 SCALE: 1/8"=1'-0"

GENERAL DEMOLITION NOTES:

- CONTRACTOR SHALL VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING.
- ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. CONTRACTOR SHALL SECURE ALL REQUIRED DEMOLITION PERMITS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- IT IS NOT THE INTENT TO SHOW ALL CONDUIT AND MATERIAL, AND EXACT SIZES TO BE REMOVED IN THE DEMOLITION WORK. DRAWING INDICATES EQUIPMENT DIAGRAMMATICALLY. EXACT LOCATION AND SIZE OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO RETURN BACK TO THE ORIGINAL LOCATION ANY DEVICE OR MATERIAL THAT MUST BE TEMPORARILY REMOVED OR RELOCATED TO ALLOW DEMOLITION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVING AND DISPOSING OF ALL EXISTING ELECTRICAL EQUIPMENT AS SHOWN ON DRAWINGS, EXCEPT WHERE NOTED OTHERWISE.

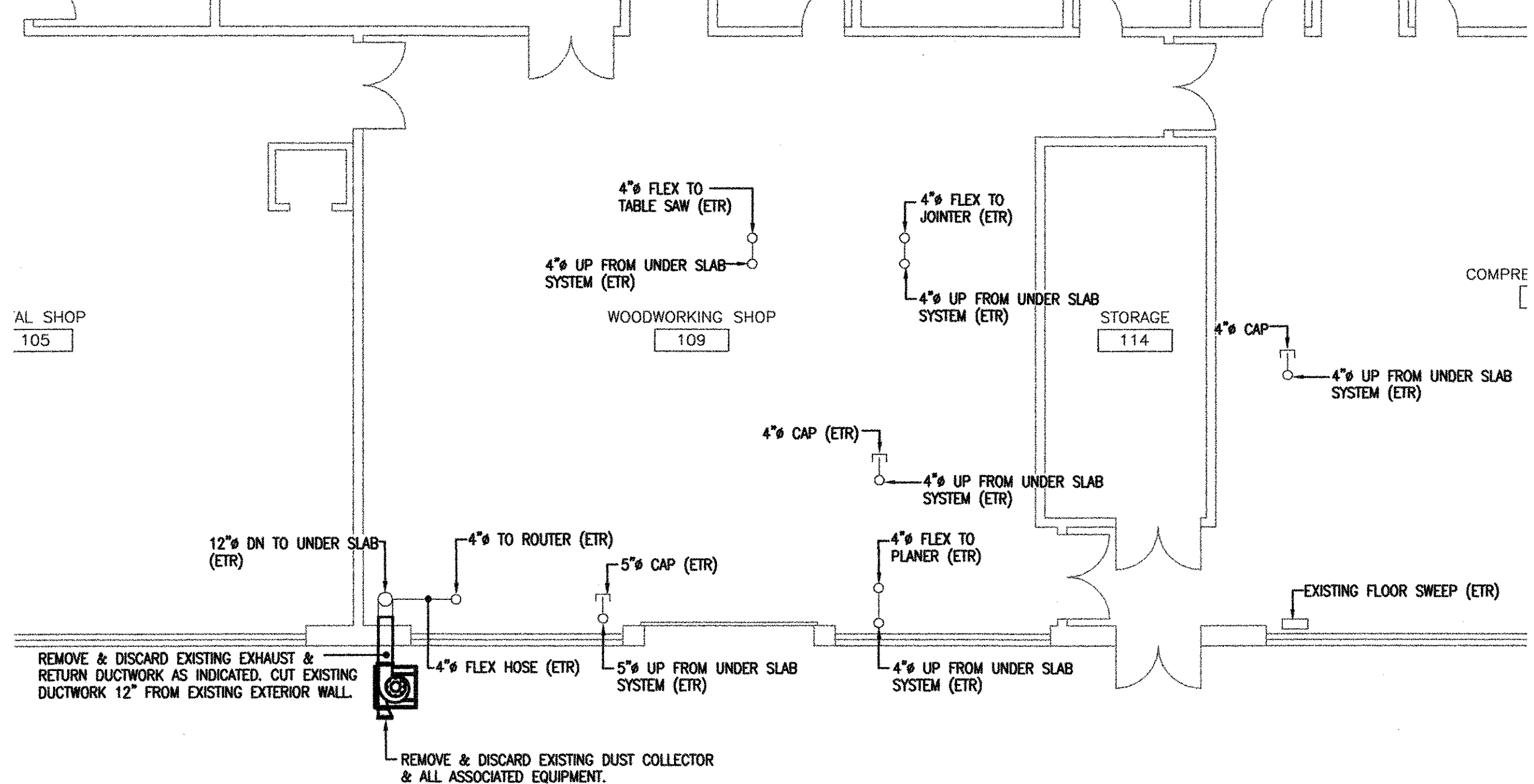
DEMOLITION KEYNOTES:

- [1] - EXISTING DUST COLLECTOR TO BE REMOVED PER MECHANICAL DRAWINGS. DISCONNECT CONDUIT AND WIRING FROM DUST COLLECTOR. REMOVE ALL WIRING, CONDUIT AND JUNCTION BOX TO MOTOR. EXISTING FEEDER FROM DISCONNECT BACK TO SOURCE TO REMAIN.
- [ETR] - EXISTING TO REMAIN
- [ETL] - EXISTING TO BE RELOCATED

MECH (ID#)	DESCRIPTION	EQUIPMENT CHARACTERISTICS							PANEL	CIRCUIT	BREAKER	FEEDER AND CONDUIT	EQUIPMENT LOCATION	DISCONNECT SWITCH		MOTOR CONTROL	REMARKS
		VOLTS	AMPS	PH	HP	WATTS	MCA	MOCF						CFM	SIZE		
[1]	DUST COLLECTOR	208		3	7.5							3#8 & 1#10G IN 3/4" C	WOOD SHOP	30/NF/3/RT			1,2,3

REMARKS:

- DUST COLLECTOR (DC-1) TO BE POWERED BY SAME CIRCUIT THAT EXISTING DUST COLLECTOR TO BE REMOVED WAS CONNECTED.
- RE-USE EXISTING CIRCUIT BREAKER.
- EXISTING FEEDER TO BE RE-USED UP TO JUNCTION BOX IN WOOD SHOP. NEW 3/4" CONDUIT AND WIRING TO BE INSTALLED FROM JUNCTION BOX TO DISCONNECT. NEW 3/4" LIQUID-TITE WITH 3#8 TO BE INSTALLED FROM DISCONNECT TO MOTOR. 1#10 GROUND TO BE ADDED TO FEEDER FROM PANEL TO THE DUST COLLECTOR MOTOR.

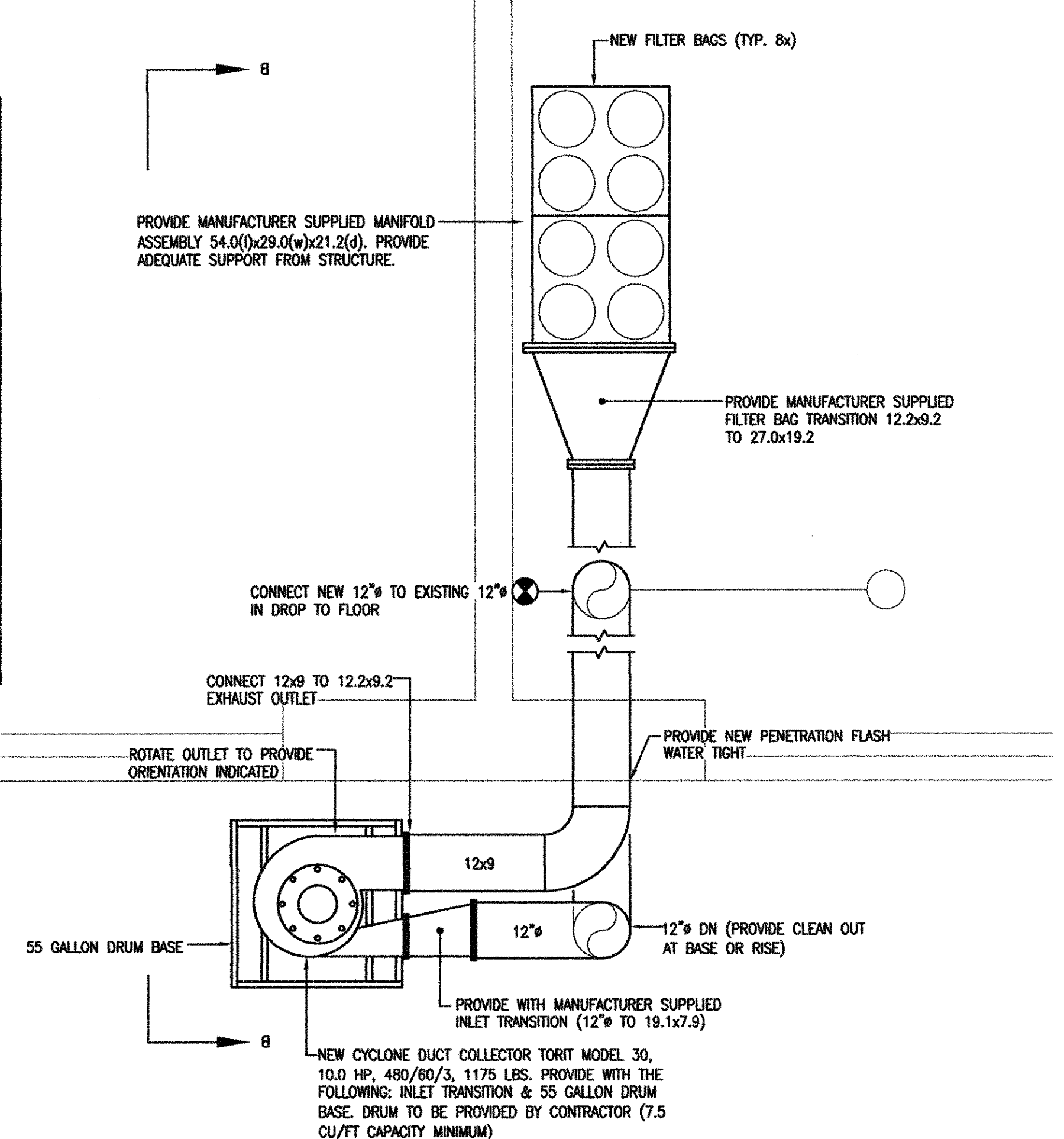


PARTIAL FLOOR PLAN - MECHANICAL DEMOLITION
SCALE: 1/8"=1'-0"

DEMOLITION NOTES

UNDER DEMOLITION, THE FOLLOWING IS, IN BRIEF, THE EXTENT OF THE WORK TO BE PERFORMED BY THE MECHANICAL CONTRACTOR UNDER THIS CONTRACT.

- PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF THE EXISTING MECHANICAL EQUIPMENT & DUCTWORK IN DESIGNATED AREAS. PATCH ALL ROOF AND WALL PENETRATIONS TO MATCH EXISTING.
- THIS CONTRACTOR SHALL PROTECT WORK AGAINST INJURY OR DAMAGE; AND CAREFULLY STORE MATERIAL AND EQUIPMENT TO BE RELOCATED. OPEN ENDS OF WORK SHALL BE CLOSED WITH TEMPORARY COVERS OR PLUGS DURING STORAGE AND CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.



PARTIAL FLOOR PLAN - MECHANICAL NEW WORK
SCALE: 1/8"=1'-0"

MECHANICAL SPECIFICATIONS

PART 1 - GENERAL REQUIREMENTS

- SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, ETC., TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED FOR A COMPLETE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION, AS INTERPRETED BY THE ARCHITECT/ENGINEER.
- APPLY AND PAY FOR ALL NECESSARY INSPECTION FEES, LICENSES AND PERMITS REQUIRED BY THE PROPER AUTHORITIES HAVING JURISDICTION.
- "PROVIDE" AND "INSTALL" ALL MATERIALS, LABOR AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS OR HEREIN SPECIFIED.
- ALL CUTTING, PATCHING & REQUIRED FLASHING WILL BE DONE BY THIS CONTRACTOR.
- ALL MATERIALS SHALL BE NEW. ALL EQUIPMENT SHALL BEAR THE U.L. LABEL.
- COORDINATE LOCATIONS OF ALL NEW DUCTWORK WITH EXISTING EQUIPMENT, LIGHTING, OTHER TRADES, AND THE OWNER PRIOR TO INSTALLATION OR FABRICATION OF SAME.
- CONTRACTOR TO GUARANTEE THE QUALITY OF ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF OWNER ACCEPTANCE. ALL DEFECTIVE MATERIAL AND WORKMANSHIP SHALL BE REPLACED AT CONTRACTOR'S EXPENSE DURING THIS TIME.
- ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR'S EMPLOYEES, MATERIALS OR EQUIPMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INJURIES OR DAMAGE DONE TO BUILDING PREMISES OR ADJOINING AREAS OR WORK RESULTING FROM EXECUTION OF HIS PART OF WORK IN ANY MANNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTION OF HIS WORK AT HIS OWN EXPENSE.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR ALL EQUIPMENT SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS PRIOR TO ORDERING, FABRICATING OR INSTALLING SAME.
- THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWING AND/OR SITE CONDITIONS, THE HVAC CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED. THE CONTRACTOR SHALL CONDUCT A THOROUGH FIELD INVESTIGATION TO VERIFY WORK SHOWN ON THE DRAWINGS. THE DRAWINGS REFLECT THE BEST AVAILABLE INFORMATION FROM EXISTING PLANS AND SITE INVESTIGATIONS.

PART 2 - PRODUCTS

- DUCTWORK
 - ALL DUCTWORK SHALL BE OF TOP GRADE GALVANIZED STEEL, CONSTRUCTED AND SUPPORTED AS PER S.M.A.C.N.A. INDUSTRIAL DUCT CONSTRUCTION STANDARDS CLASS 2. ALL ELBOWS SHALL BE LONG RADIUS TYPE. ALL JOINTS, SEAMS, AND FITTINGS SHALL BE AIR AND WATER TIGHT USING SOLDER JOINTS AND SHALL BE FORMED TO PROVIDE A MINIMUM RESISTANCE TO THE AIR FLOW.
 - THE FOLLOWING METAL THICKNESS SHALL BE UTILIZED:

DIAMETER OF STRAIGHT DUCTS (INCHES) U.S. STANDARD GAUGE	
DUCT SIZE	GAUGE
UP TO 8"	22-18
OVER 8" UP TO 18"	22-12

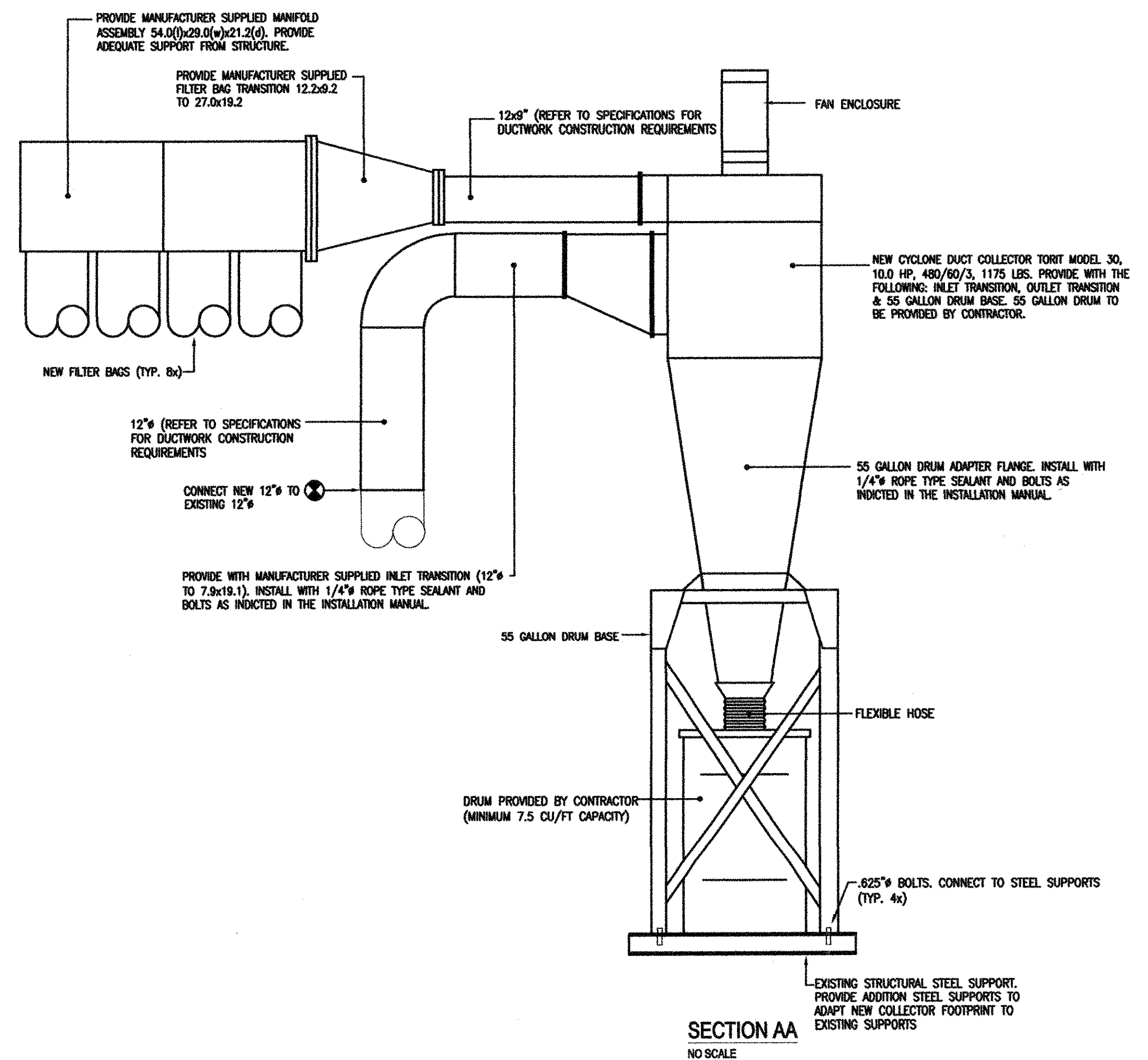
- ELBOWS & ANGLES SHALL BE A MINIMUM OF TWO GAUGES HEAVIER THAN STRAIGHT LENGTHS OF EQUAL DIAMETER. ROUND ELBOWS AND ANGLES SHOULD HAVE AN INSIDE OR THROAT RADIUS OF TWO PIPE DIAMETERS. CONSTRUCT ELBOWS SIX INCHES OR LESS IN DIAMETER OF AT LEAST FIVE SECTIONS, ELBOWS OVER SIX INCHES DIAMETER OF SEVEN SECTIONS. ANGLES SHALL BE PIECED PROPORTIONATELY.
- RECTANGULAR ELBOWS & ANGLES SHALL BE CONSTRUCTED HAVING A W/D & R/D EQUAL TO OR GREATER THAN 1.
- LONGITUDINAL JOINTS OF DUCTS SHALL BE LAPPED AND SEALED OR WELDED.
- GIRTH JOINTS OF DUCTS SHALL BE MADE WITH LAP IN DIRECTION OF AIR FLOW AND ONE INCH LAP FOR DIAMETERS THRU 19 INCHES AND 1-1/2 INCH LAP FOR DIAMETERS OVER 19 INCHES.
- INTERIOR OF ALL DUCTS SHALL BE SMOOTH AND FREE FROM OBSTRUCTIONS WITH JOINTS SOLDERED AIR TIGHT.
- SUPPORT DUCTS SUFFICIENTLY TO PLACE NO LOAD ON CONNECTING EQUIPMENT AND TO CARRY WEIGHT OF SYSTEM IF 50% FLUJGED WITH MATERIAL. MAXIMUM SUPPORTING INTERVALS SHALL BE TWELVE FEET ON HORIZONTAL DUCTS, AT ALL CHANGES OF DIRECTION, TOP OF RISERS AND ON THREE FOOT CENTERS FOR DUCTS LOCATED ON WALLS. BOTH CROSS AND HORIZONTAL BRACING SHALL BE PROVIDED AS REQUIRED.
- DUCT RESTING ON SUPPORT MEMBERS WITHOUT SADDLES MUST BE REINFORCED WITH PLATES AT LEAST TWICE THE THICKNESS OF THE DUCT MATERIAL. THESE WEAR PLATES SHALL BE HALF THE DUCT CIRCUMFERENCE AND AT LEAST TWICE AS LONG AS THE WIDTH OF THE MEMBER SUPPORTING THE DUCT.
- PROVIDE SIX INCH MINIMUM CLEARANCE BETWEEN DUCTS AND CEILING, WALL OR FLOORS.
- WHERE LAWS CONFLICT WITH THE PRECEDING, THE MORE STRINGENT REQUIREMENT SHALL BE FOLLOWED. DEVIATION FROM EXISTING REGULATIONS MAY REQUIRE APPROVAL.
- ALL EXTERIOR DUCTWORK SHALL BE CLEANED & PAINTED WITH (2) COATS RUST INHIBITING PAINT. COLOR TO MATCH DUCT COLLECTOR.
- THIS ABOVE INFORMATION SHALL PROVIDE FOR COMPLETE AND OPERABLE SYSTEM TO MEET INTENT OF SPECIFICATIONS & TO THE SATISFACTION OF THE ENGINEERS.

- CYCLONE DUST COLLECTOR
 - FURNISH A COMPLETE CONTINUOUS-DUTY DUST COLLECTOR SYSTEM AS SHOWN ON THE PLANS AND/OR LISTED IN THE EQUIPMENT SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF PROVIDING CYCLONIC CLEANING OF INCOMING AIR.
 - THE CONTINUOUS-DUTY COLLECTOR SHALL BE SUPPLIED IN FACTORY-ASSEMBLED UNITS OR IN MAJOR SUBASSEMBLIES SIZED TO MEET AIRFLOW CAPACITIES AND DESIGN REQUIREMENTS. INSTRUCTION MANUAL AND REPLACEMENT PARTS LIST SHALL BE INCLUDED FOR EASY INSTALLATION AND MAINTENANCE.
 - EACH COLLECTOR SHALL BE OF BOLTED AND WELDED CONSTRUCTION USING 14 GAUGE HRS DESIGNER FOR -20" WATER GAUGE AND COMPLETE WITH A REMOVABLE BOTTOM CONE SECTION. THE MOTOR AND FAN ASSEMBLY SHALL BE SHIPPED LOOSE.
 - DUST-LADEN AIR WILL ENTER THE COLLECTOR ON THE SIDE AND BE DIVERTED BY A HELICAL BAFFLE. THE AIR WILL THEN HAVE A "SPIN" IMPARTED TO IT. CENTRIFUGAL FORCES MOVE THE HEAVY DIRT AND DUST TO THE SIDE WALLS AND CARRY IT DOWN TO THE BASE OF THE UNIT. CLEAN AIR IS THEN EXHAUSTED FROM THE UNIT.
 - THE COLLECTOR SHALL INCLUDE AN INLET FLANGE MOUNTED ON THE SIDE OF THE COLLECTOR AT THE DIRTY AIR INLET. AN OUTLET FLANGE WILL BE PROVIDED ON THE SIDE OF THE FAN. THE FAN OUTLET SHALL ACCEPT A TORIT-BUILT FILTER BAG ASSEMBLY INCLUDING STANDARD FILTER BAGS.
 - FILTER BAGS SHALL BE MANUFACTURED OF POLYESTER FELT AND PROVIDE IN THE APPROPRIATE QUANTITIES FOR THE COLLECTION CAPACITY.
 - THE COLLECTOR SHALL BE A DONALDSON TORIT CYCLONE CONTINUOUS DUTY DUST COLLECTOR AS MANUFACTURED BY DONALDSON COMPANY, INC. OR ENGINEER APPROVED EQUAL.

PART 3 - EXECUTION

- IT IS THE INTENT OF THESE SPECIFICATIONS THAT THIS CONTRACTOR BE RESPONSIBLE FOR PROVIDING ALL DEVICES AND WIRING (REGARDLESS OF VOLTAGE) NECESSARY TO PROVIDE THE SEQUENCES AS SPECIFIED HEREIN.
- ALL MECHANICAL SYSTEMS SHALL BE AUTOMATICALLY CONTROLLED, WHERE NO DESCRIPTION OF OPERATION IS INDICATED FOR A PARTICULAR SYSTEM OR DEVICE, THE CONTRACTOR SHALL SELECT APPROPRIATE CONTROL SCENARIOS AND REVIEW THEM WITH THE ENGINEER PRIOR TO PROCEEDING. ALL CONTROLS SHALL BE ARRANGED AND DESIGNED FOR MAXIMUM ENERGY CONSERVATION.
- SEQUENCE OF OPERATION

THE EXISTING WALL MOUNTED SWITCH SHALL ENERGE/DE-ENERGIZE THE DUST COLLECTION SYSTEM.
- PROJECT CLOSE-OUT
 - RESTORE EXISTING FACILITIES USED DURING CONSTRUCTION TO ORIGINAL CONDITION. CLEAN PORTIONS OF THE SITE AFFECTED BY WORK OF THIS CONTRACT. REMOVE WASTE AND SURPLUS MATERIALS FROM THE SITE.
 - SUBMIT TWO COPIES OF OPERATION AND MAINTENANCE DATA BOUND IN THREE-RING BINDERS. INCLUDE WARRANTIES, SUBMITTALS, BALANCING REPORT, AND PROJECT DOCUMENTS AND CERTIFICATES.
 - CONTRACTOR SHALL DEMONSTRATE ALL SEQUENCES OF CONTROL TO THE ENGINEER. THE TEMPERATURE CONTROL AND BALANCING SUBCONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING CHECK-OUT PROCEDURE. PERSONNEL SHALL BE EQUIPPED WITH TOOLS AND SPARE PARTS TO MAKE MINOR REPAIRS AND ADJUSTMENTS.
 - CONTRACTOR SHALL DEMONSTRATE COMPLIANCE WITH BALANCING OF SYSTEMS IN THE PRESENCE OF THE ENGINEER BY ACTUAL MEASUREMENT OF WATER FLOWS. IF REQUESTED BY THE ENGINEER, RE-BALANCING SHALL BE DONE AT NO ADDITIONAL CHARGE.



SECTION AA
NO SCALE

CREATIVE ENVIRONMENT CORP.
COLLECTING ENGINEERS

HVAC-ELECTRICAL
PLUMBING
FIRE PROTECTION

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PILGRIM HIGH SCHOOL
111 PILGRIM PARKWAY, WARWICK, RI 02886

Project: **DUST COLLECTION REPLACEMENT**

RICHARD C. NEWELL

No. 8486

REGISTERED PROFESSIONAL ENGINEER
MECHANICAL

Status: **ISSUED FOR CONSTRUCTION**

Date	Revision/Issue	No.

Sheet Title: **MECHANICAL FLOOR PLANS DETAILS, SCHEDULES & SPECIFICATIONS**

Project No: 20713
 Drawn By: JAA
 Checked By: RCN/UPS
 Scale: AS SHOWN
 Date: 4/10/2007

Drawing No: **M-1**
 Sheet 7 of 14

ELECTRICAL SPECIFICATIONS

- FURNISH LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE PROPER AND COMPLETE INSTALLATION OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED.
- ALL ITEMS NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE SPECIFICATIONS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE ELECTRICAL INSTALLATION, SHALL BE FURNISHED AND INSTALLED AS PART OF THIS SECTION.
- ALL ELECTRICAL INSTALLATIONS AND GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE LOCAL, STATE AND NATIONAL CODES:
 - BUILDING CODE OF THE STATE OF RI (BOCA W/RI AMENDMENTS).
 - ELECTRICAL CODE OF THE STATE OF RI (NFPA 70W/RI AMENDMENTS)
 - FIRE ALARM REQUIREMENTS OF THE STATE OF RI.
- OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
- ALL EQUIPMENT AND THE INSTALLATION OF ELECTRICAL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- MATERIALS AND WORKMANSHIP SHALL BE THE BEST OF THEIR RESPECTIVE KINDS AND IN FULL ACCORD WITH THE MOST MODERN ELECTRICAL CONSTRUCTION. ALL MATERIALS SHALL BE NEW, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
- FURNISH AND INSTALL TEMPORARY POWER AS REQUIRED TO OPERATE TOOLS AND LIGHTING. PROVIDE PANELS AND LIGHTING FIXTURES FOR CONSTRUCTION, AS REQUIRED.
- THE ELECTRICAL SUB-CONTRACTOR SHALL INSPECT THE SITE PRIOR TO SUBMITTING HIS BID, AND SHALL INVESTIGATE ALL CONDITIONS UNDER WHICH THIS WORK WILL BE PERFORMED. FAILURE TO INSPECT EXISTING CONDITIONS OR TO FULLY UNDERSTAND THE WORK WHICH IS REQUIRED SHALL NOT EXCUSE THE ELECTRICAL SUB-CONTRACTOR FROM HIS OBLIGATIONS TO SUPPLY AND INSTALL THE WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND THE DRAWINGS AND UNDER ALL SITE CONDITIONS AS THEY EXIST.
- THE ELECTRICAL CONTRACTOR SHALL CLEAN, AT THE END OF EACH DAY, ALL AREAS WORKED IN. EMPTY BOXES, RUBBISH, AND OTHER MATERIALS OF NO USE SHALL BE REMOVED FROM THE SITE.
- WORK SEQUENCE SHALL BE COORDINATED WITH THE PROJECT MANAGER AND SHALL BE IN COORDINATION WITH OTHER BUILDING TRADES AND THE BUILDING SCHEDULE.
- NEW 120/208V. BRANCH CIRCUIT PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELBOARDS SHALL BE EQUAL TO GE TYPE AQ WITH BOLTED BRANCH CIRCUIT BREAKERS. BRANCH CIRCUIT BREAKERS SHALL BE RATED 10,000 A.I.C. MINIMUM. NEW 277/480V PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELS SHALL BE EQUAL TO G.E. TYPE AE WITH BOLTED BRANCH BREAKERS. BRANCH BREAKERS SHALL BE RATED 14,000 A.I.C. MINIMUM. PANELBOARD SCHEDULES SHALL BE FILLED OUT AND PLACED IN EACH PANEL BOARD; BOTH EXISTING AND NEW, ALL SCHEDULES SHALL BE TYPED.
- WIRE AND CABLE SHALL BE TYPE THWN/THHN, UL LISTED FOR BUILDING WIRE, 75 DEGREES CENTIGRADE, WET OR DRY LOCATIONS, RATED FOR 600 VOLT. WIRE SHALL BE A MINIMUM OF NO. 12 AWG SOLID. ALL CONDUCTORS SHALL BE COPPER. METAL-CLAD CABLE TYPE MC, WITH GROUND CONDUCTORS, MAY BE USED IN AREAS WHERE APPROVED BY THE LOCAL ELECTRICAL INSPECTOR. FIRE ALARM WIRING SHALL BE FIRE ALARM TYPE MC CABLE, WITH PERMISSION AND APPROVAL OF THE FIRE ALARM SUPERINTENDENT, SIZES NOTED, AND/OR REQUIRED, OR SHALL BE INDIVIDUAL CONDUCTORS RUN IN CONDUIT.
- CONDUITS SHALL BE E.M.T. WITH STEEL CONNECTORS AND COUPLINGS IN FURRED SPACES, ABOVE CEILINGS, AND IN EXPOSED INTERIOR SPACES. FLEXIBLE STEEL CONDUIT (GREENFIELD) SHALL BE USED FOR CONNECTIONS TO FIXTURES AND EQUIPMENT.
- ALL OUTLET BOXES FOR LIGHTING, SWITCHES, RECEPTACLES, TELEPHONE, TELEVISION, ETC. SHALL BE GALVANIZED STEEL, MINIMUM 1-1/2" DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE DEVICE TO BE UTILIZED THEREIN. PROVIDE PLASTER RINGS AS REQUIRED. BOXES SHALL HAVE MOUNTING LUGS OR EARS FOR COVERS AND KNOCKOUTS FOR CONDUIT TERMINATIONS. PROVIDE SEALANT AROUND OUTLET BOXES TO PREVENT SOUND TRANSMISSION TO ADJACENT ROOM.
- ALL CONDUIT/WIRING PENETRATIONS THROUGH FIRE WALLS SHALL BE FIRESTOPPED WITH MATERIAL CONFORMING TO ASTM E136 AND SHALL BE UL CLASSIFIED, FM APPROVED, AND APPROVED FOR USE IN 1-, 2-, OR 3-HOUR RATED SYSTEMS. FIRE STOP MATERIAL SHALL BE EQUAL TO DOW CORNING CAT. NO. 2000 FIRE STOP SEALANT OR 2001 FIRE STOP FOAM AS REQUIRED BY THE PARTICULAR FIRE STOPPING CONDITION.
- ALL WIRING DEVICES SHALL BE BY ONE MANUFACTURER AND SHALL BE G.E., P&S, BRYANT OR HUBBELL. THE CATALOG NUMBERS ON THE DRAWINGS ARE THOSE OF THE G.E. COMPANY, EXCEPT AS OTHERWISE INDICATED AND ARE USED TO DENOTE TYPE AND QUALITY. COLOR SHALL BE AS SELECTED BY THE ARCHITECT/CONSTRUCTION MANAGER.
- ALL DEVICE PLATES SHALL MATCH EXISTING.
- THE PLANS DEPICT THE LOCATION OF ALL FIXTURES AND EQUIPMENT AND ARE INTENDED TO INDICATE THE GENERAL INTENT OF THE WORK IN SCOPE, LAYOUT AND QUALITY OF WORKMANSHIP.
- THE CONTRACTOR SHALL CAREFULLY VERIFY ALL MEASUREMENTS AT THE SITE, DETERMINE THE EXACT LOCATION OF ALL CHASES AND OPENINGS REQUIRED BY HIS WORK AND SHALL FURNISH AND SET ALL SLEEVES, INSERTS, AND HANGERS AS REQUIRED FOR THE WORK HEREIN.
- THE CONTRACTOR SHALL COORDINATE HIS WORK SO THAT IT DOES NOT INTERFERE WITH THE WORK OF OTHER TRADES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT HIS WORK IS INSTALLED IN A TIMELY MANNER.
- ALL HVAC CONTROLS, CONTROL WIRING AND INTER-CONNECTIONS SHALL BE BY DIV. 15, EXCEPT AS OTHERWISE NOTED AND SHOWN ON ELECTRICAL DRAWINGS. ALL 120V HVAC CONTROL WIRING SHALL BE BY THIS CONTRACTOR (DIV. 16).
- THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT. THE CONTRACTOR SHALL FURNISH TO THE OWNER ALL INSTRUCTION PAMPHLETS, BOOKS AND OTHER LITERATURE FURNISHED BY THE MANUFACTURER AND EXPLAIN THE PROPER OPERATING AND MAINTENANCE PROCEDURES.
- SUBMIT TO THE OWNER FOR REVIEW AND APPROVAL SIX COMPLETE COPIES OF THE FOLLOWING SHOP DRAWINGS:
 - JUNCTION BOXES
 - WIRING DEVICES AND PLATES
 - CIRCUIT BREAKERS
 - DISCONNECT SWITCHES
 - WIRE
 - CONDUIT
- PROVIDE CONDUIT EXPANSION JOINTS AT ALL STRUCTURAL EXPANSION JOINTS.
- ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY.

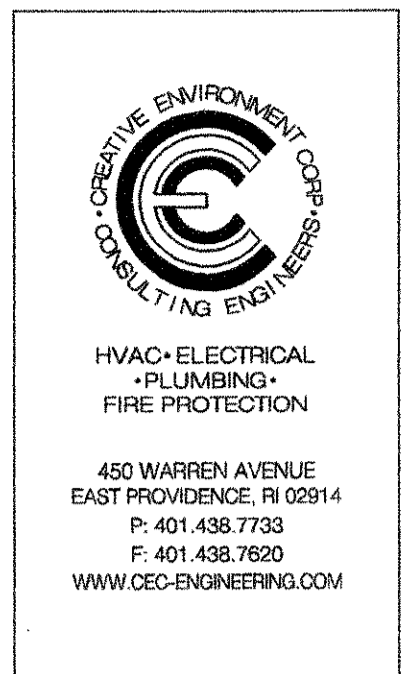
SYMBOL LEGEND

USE MOUNTING HEIGHTS SPECIFIED ON ARCHITECTURAL DRAWINGS. IF NOT LISTED, USE MOUNTING HEIGHTS ON THIS DRAWING.

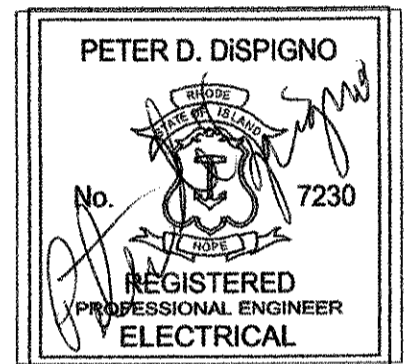
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	SINGLE POLE SWITCH - 48" A.F.F., P&S CAT. NO. CS120-LA	[Symbol]	SURFACE MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S _P	SINGLE POLE SWITCH WITH PILOT LIGHT - 48" A.F.F. P&S CAT. NO. 204C1-RPL	[Symbol]	FLUSH MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S ₃	3-WAY SWITCH - 48" A.F.F., P&S CAT. NO. CS320-LA	[Symbol]	UP TO FLOOR ABOVE
S ₄	FOUR WAY SWITCH - 48" A.F.F., P&S CAT. NO. CS420-LA	[Symbol]	TIE INTO EQUIPMENT OR DOWN TO FLOOR BELOW
S _T	SINGLE POLE MOTOR RATED SWITCH WITH OVERLOAD HEATER SQUARE D CLASS 2510, TYPE FGJ-1	[Symbol]	WIRING CONCEALED IN WALL OR CEILING
S _M	MOTION SENSOR W/MANUAL OVERRIDE: WALL OR CEILING MOUNTED. "WA" OR "CI".	[Symbol]	WIRING CONCEALED IN FLOOR OR WALL
[Symbol]	JUNCTION BOX	[Symbol]	WIRING EXPOSED
[Symbol]	SPECIAL PURPOSE OUTLET WITH NEMA CONFIGURATION	[Symbol]	CROSSHATCHING INDICATES NUMBER OF CURRENT CARRYING CONDUCTORS IF MORE THAN TWO ARE REQUIRED. LONGER MARK INDICATES NEUTRAL. GROUNDWIRE IS ALWAYS INSTALLED AND NEVER INDICATED. NO CROSSHATCHING INDICATES 1 HOT, 1 NEUTRAL, AND 1 GROUND, ALL #12 THHN.
[Symbol]	DUPLEX RECEPTACLE - MTD. 18" A.F.F. - 20A, 125V. P&S CAT. NO. CR-20LA. "C"=MOUNT 6" ABOVE COUNTER	[Symbol]	HOME RUN TO PANELBOARD - "A" DESIGNATES PANEL, "1,3" INDICATES CIRCUIT NUMBERS
[Symbol]	ISOLATED GROUND RECEPTACLE - MTD 48" A.F.F. - 20A, 125V. ARROW-HART CAT. NO. IG5362HG	[Symbol]	MOTOR WITH RATING IN HORSEPOWER
[Symbol]	GROUND FAULT INTERRUPTING RECEPTACLE - MTD. 48" A.F.F., 20A, 125V., P&S CAT. NO. 2091-LA	[Symbol]	COMBINATION STARTER/DISCONNECT SWITCH WITH SWITCH AND FUSE RATINGS
[Symbol]	INDICATES WEATHERPROOF	[Symbol]	INDICATES RAINIGHT
		[Symbol]	INDICATES DUAL ELEMENT FUSES
		[Symbol]	NUMBER OF POLES
		[Symbol]	FUSE SIZE
		[Symbol]	SWITCH SIZE
		[Symbol]	MAGNETIC MOTOR STARTER
		[Symbol]	DISCONNECT SWITCH

ABBREVIATIONS

A	AMPS
AG	ABOVE GRADE
AFF	ABOVE FINISHED FLOOR
BL	BLANK PLATE
BOF	BOTTOM OF FIXTURE
C	CONDUIT
CB	CIRCUIT BREAKER
CD	CANDELA
CU	COPPER
DWG	DRAWING
ECPS	EMPTY CONDUIT W/PULL STRING
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EX	EXISTING
FACP	FIRE ALARM CONTROL PANEL
G, GR	GROUND
GFI	GROUND FAULT CIRCUIT INTERRUPTER
IG	ISOLATED GROUND
N	NEW
NG	NATIONAL GRID (ELECTRICAL UTILITY)
UNO	UNLESS NOTED OTHERWISE
V	VOLT
W/	WITH
WP	WEATHERPROOF



Project:
**WARWICK SCHOOLS
 PILGRIM HIGH SCHOOL**
 111 PILGRIM PARKWAY, WARWICK, RI 02888
DUST COLLECTION REPLACEMENT



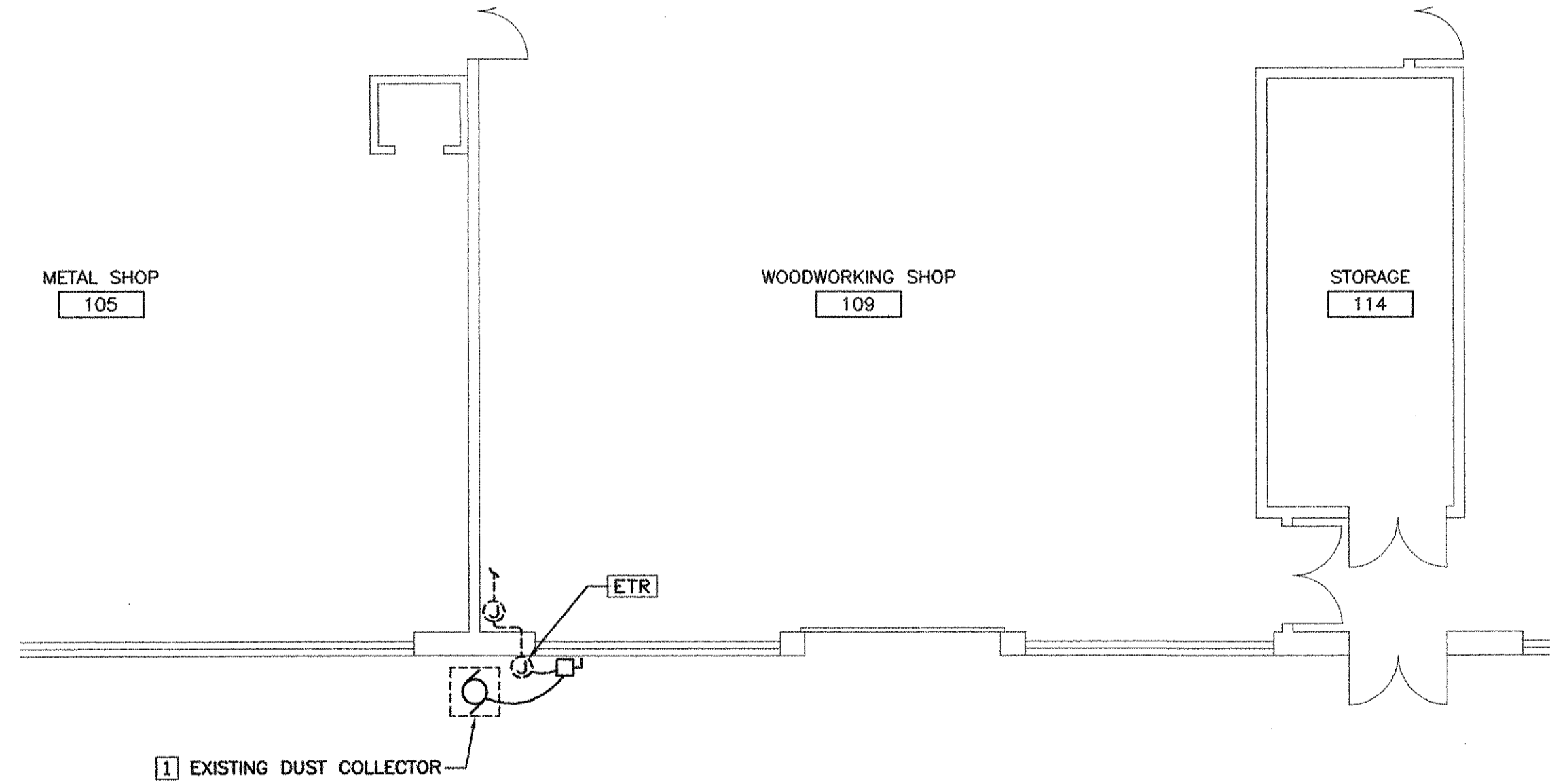
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ISSUED FOR CONSTRUCTION

Date	Revision/Issue	No.

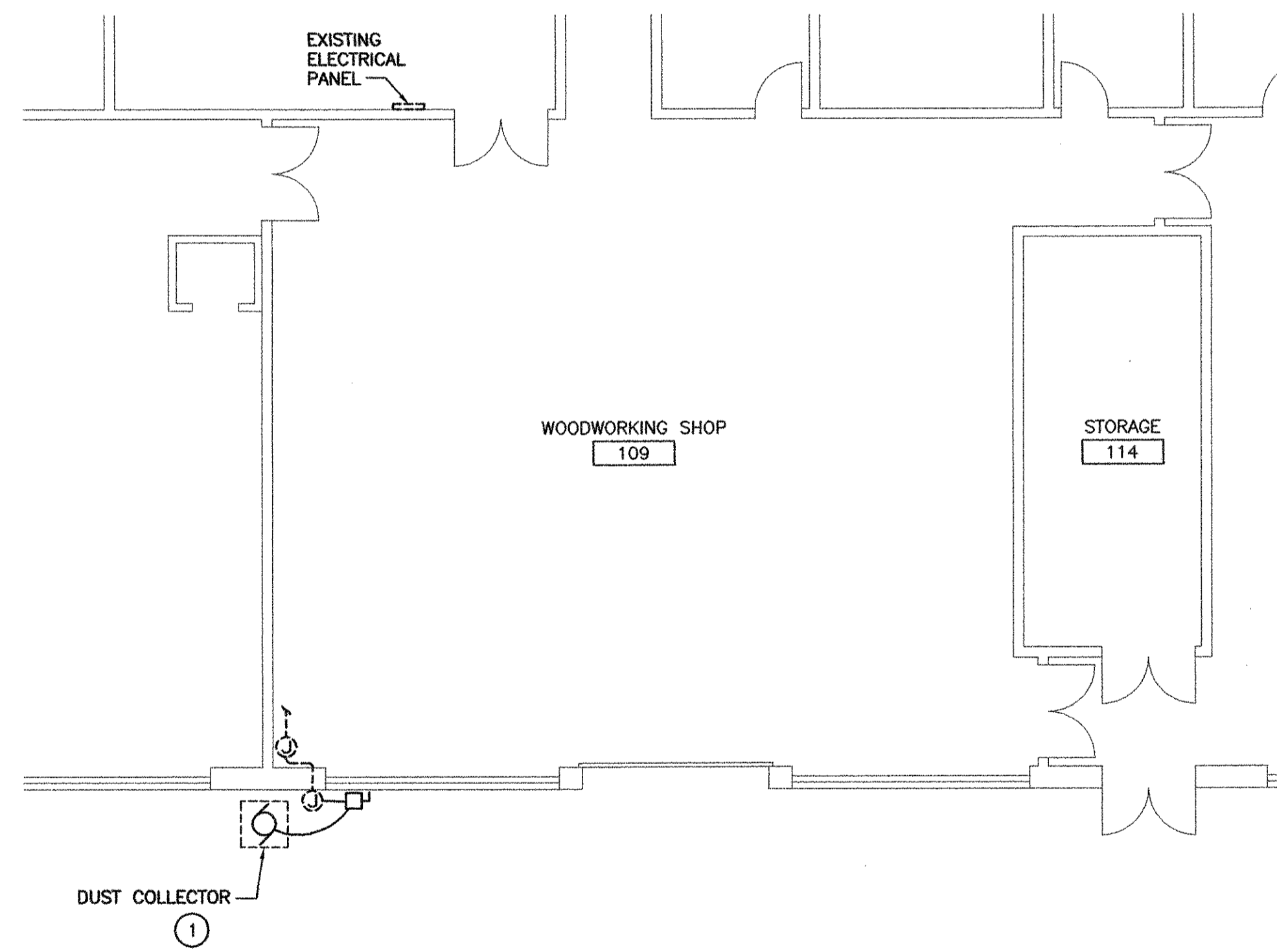
Sheet Title:
ELECTRICAL LEGEND SHEET, FLOOR PLANS, SCHEDULES & SPECIFICATIONS

Project No: 20713
 Drawn By: MSO
 Checked By: PDS
 Scale: AS SHOWN
 Date: 4/10/2007

Drawing No:
E-1
 Sheet 8 of 14



PARTIAL PLAN - ELECTRICAL DEMOLITION
 SCALE: 1/8"=1'-0"



PARTIAL PLAN - MECHANICAL EQUIPMENT POWER
 SCALE: 1/8"=1'-0"

GENERAL DEMOLITION NOTES:

- CONTRACTOR SHALL VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING.
- ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. CONTRACTOR SHALL SECURE ALL REQUIRED DEMOLITION PERMITS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- IT IS NOT THE INTENT TO SHOW ALL CONDUIT AND MATERIAL, AND EXACT SIZES TO BE REMOVED IN THE DEMOLITION WORK. DRAWING INDICATES EQUIPMENT DIAGRAMMATICALLY. EXACT LOCATION AND SIZE OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO RETURN BACK TO THE ORIGINAL LOCATION ANY DEVICE OR MATERIAL THAT MUST BE TEMPORARILY REMOVED OR RELOCATED TO ALLOW DEMOLITION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVING AND DISPOSING OF ALL EXISTING ELECTRICAL EQUIPMENT AS SHOWN ON DRAWINGS, EXCEPT WHERE NOTED OTHERWISE.

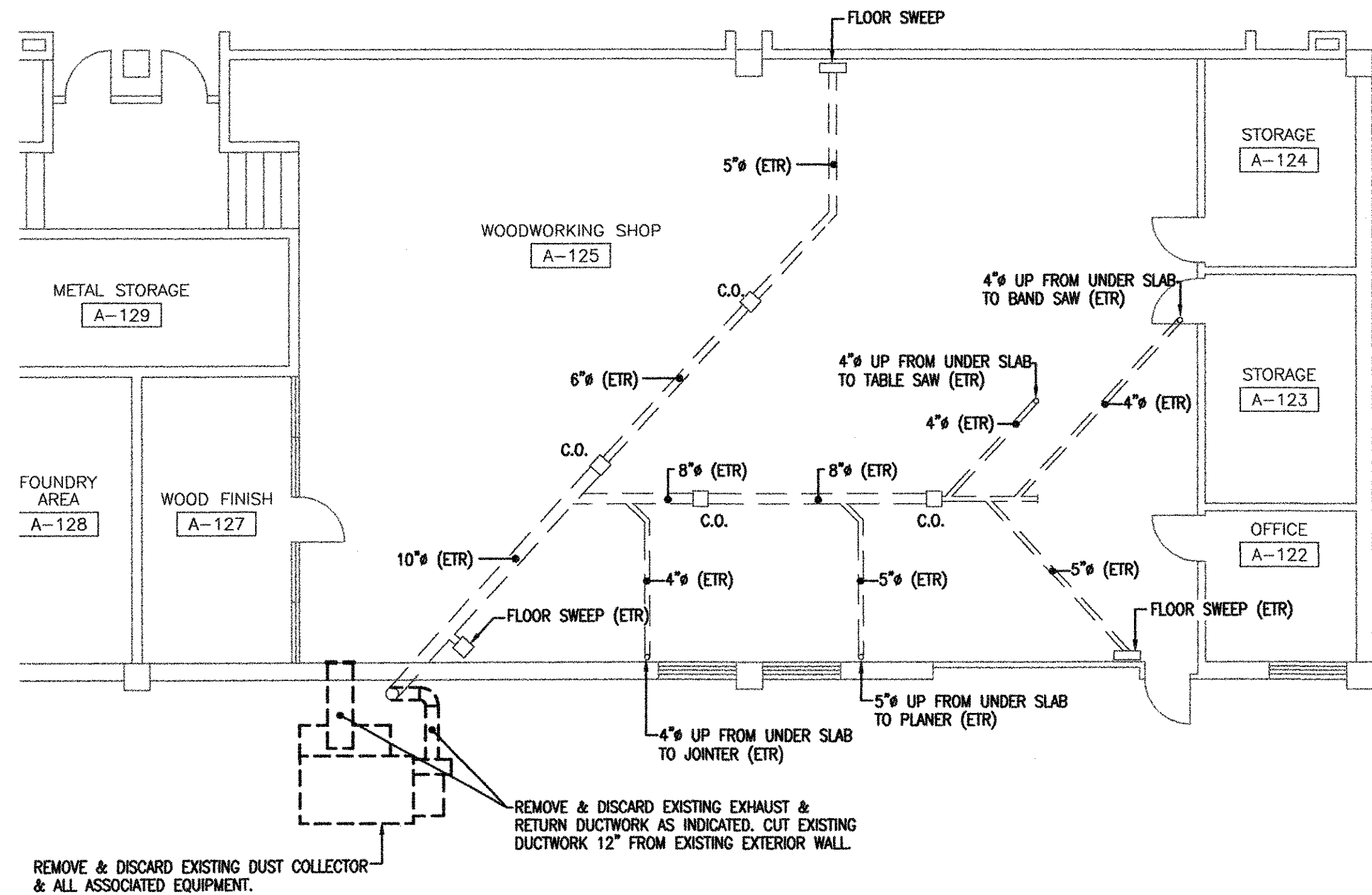
DEMOLITION KEYNOTES:

- [1] - EXISTING DUST COLLECTOR TO BE REMOVED PER MECHANICAL DRAWINGS. DISCONNECT CONDUIT AND WIRING FROM DUST COLLECTOR. REMOVE DISCONNECT, CONDUIT AND WIRING FROM JUNCTION BOX LOCATED OUTSIDE TO MOTOR. EXISTING FEEDER FROM JUNCTION BOX BACK TO SOURCE TO REMAIN.
- [ETR] - EXISTING TO REMAIN
- [ETL] - EXISTING TO BE RELOCATED

MECH (ID#)	DESCRIPTION	EQUIPMENT CHARACTERISTICS							PANEL	CIRCUIT	BREAKER	FEEDER AND CONDUIT	EQUIPMENT LOCATION	DISCONNECT SWITCH				MOTOR CONTROL	REMARKS
		VOLTS	AMPS	PH	HP	WATTS	MCA	MOCP						CFM	SIZE	FUSE	POLES		
[1]	DUST COLLECTOR	480		3	10							RE-USE EXISTING	WOOD SHOP	30/NF/3/RT					1,2,3

REMARKS:

- DUST COLLECTOR TO BE POWERED BY SAME CIRCUIT THAT EXISTING DUST COLLECTOR TO BE REMOVED WAS CONNECTED.
- RE-USE EXISTING CIRCUIT BREAKER.
- EXISTING FEEDER TO BE RE-USED UP TO JUNCTION BOX LOCATED OUTSIDE WOOD SHOP. NEW 3/4" LIQUID-TITE WITH 3#8 TO BE INSTALLED FROM NEW DISCONNECT TO MOTOR. 1#10 GROUND TO BE ADDED TO FEEDER FROM EXISTING ELECTRICAL PANEL TO THE DUST COLLECTOR MOTOR. REPLACE ANY MATERIAL OR DEVICE DEMOLISHED WITH NEW.



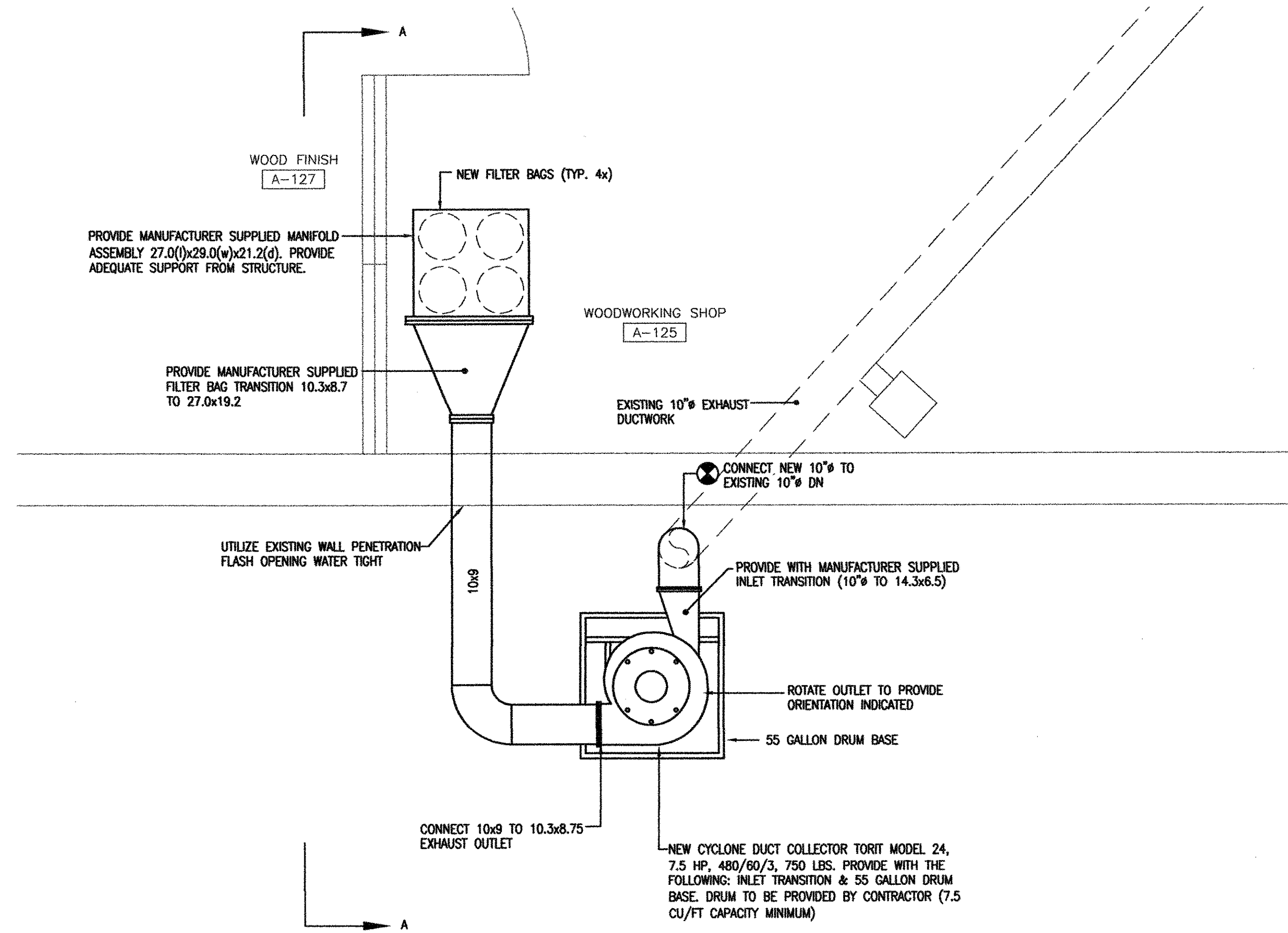
PARTIAL FLOOR PLAN - MECHANICAL DEMOLITION
SCALE: 1/8"=1'-0"

DEMOLITION NOTES

UNDER DEMOLITION, THE FOLLOWING IS, IN BRIEF, THE EXTENT OF THE WORK TO BE PERFORMED BY THE MECHANICAL CONTRACTOR UNDER THIS CONTRACT.

- PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF THE EXISTING MECHANICAL EQUIPMENT & DUCTWORK IN DESIGNATED AREAS. PATCH ALL ROOF AND WALL PENETRATIONS TO MATCH EXISTING.

THIS CONTRACTOR SHALL PROTECT WORK AGAINST INJURY OR DAMAGE, AND CAREFULLY STORE MATERIAL AND EQUIPMENT TO BE RELOCATED. OPEN ENDS OF WORK SHALL BE CLOSED WITH TEMPORARY COVERS OR PLUGS DURING STORAGE AND CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.



PARTIAL FLOOR PLAN - MECHANICAL NEW WORK
SCALE: 1/2"=1'-0"

MECHANICAL SPECIFICATIONS

PART 1 - GENERAL REQUIREMENTS

- SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, ETC., TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED FOR A COMPLETE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION, AS INTERPRETED BY THE ARCHITECT/ENGINEER.
- APPLY AND PAY FOR ALL NECESSARY INSPECTION FEES, LICENSES AND PERMITS REQUIRED BY THE PROPER AUTHORITIES HAVING JURISDICTION.
- "PROVIDE" AND "INSTALL" ALL MATERIALS, LABOR AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS OR HEREIN SPECIFIED.
- ALL CUTTING, PATCHING & REQUIRED FLASHING WILL BE DONE BY THIS CONTRACTOR.
- ALL MATERIALS SHALL BE NEW. ALL EQUIPMENT SHALL BEAR THE U.L. LABEL.
- COORDINATE LOCATIONS OF ALL NEW DUCTWORK WITH EXISTING EQUIPMENT, LIGHTING, OTHER TRADES, AND THE OWNER PRIOR TO INSTALLATION OR FABRICATION OF SAME.
- CONTRACTOR TO GUARANTEE THE QUALITY OF ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF OWNER ACCEPTANCE. ALL DEFECTIVE MATERIAL AND WORKMANSHIP SHALL BE REPLACED AT CONTRACTOR'S EXPENSE DURING THIS TIME.
- ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR'S EMPLOYEES, MATERIALS OR EQUIPMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INJURIES OR DAMAGE DONE TO BUILDING PREMISES OR ADJOINING AREAS OR WORK RESULTING FROM EXECUTION OF HIS PART OF WORK IN ANY MANNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTION OF HIS WORK AT HIS OWN EXPENSE.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR ALL EQUIPMENT SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS PRIOR TO ORDERING, FABRICATING OR INSTALLING SAME.
- THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWING AND/OR SITE CONDITIONS, THE HVAC CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED. THE CONTRACTOR SHALL CONDUCT A THOROUGH FIELD INVESTIGATION TO VERIFY WORK SHOWN ON THE DRAWINGS. THE DRAWINGS REFLECT THE BEST AVAILABLE INFORMATION FROM EXISTING PLANS AND SITE INVESTIGATIONS.

PART 2 - PRODUCTS

- DUCTWORK
 - ALL DUCTWORK SHALL BE OF TOP GRADE GALVANIZED STEEL, CONSTRUCTED AND SUPPORTED AS PER S.M.A.C.M.A. INDUSTRIAL DUCT CONSTRUCTION STANDARDS CLASS 2. ALL ELBOWS SHALL BE LONG RADIUS TYPE. ALL JOINTS, SEAMS, AND FITTINGS SHALL BE AIR AND WATER TIGHT USING SOLDER JOINTS AND SHALL BE FORMED TO PROVIDE A MINIMUM RESISTANCE TO THE AIR FLOW.
 - THE FOLLOWING METAL THICKNESS SHALL BE UTILIZED:

DIAMETER OF STRAIGHT DUCTS (INCHES)	U.S. STANDARD GAUGE
DUCT SIZE	GUAGE
UP TO 8"	22-18
OVER 8" UP TO 18"	22-12

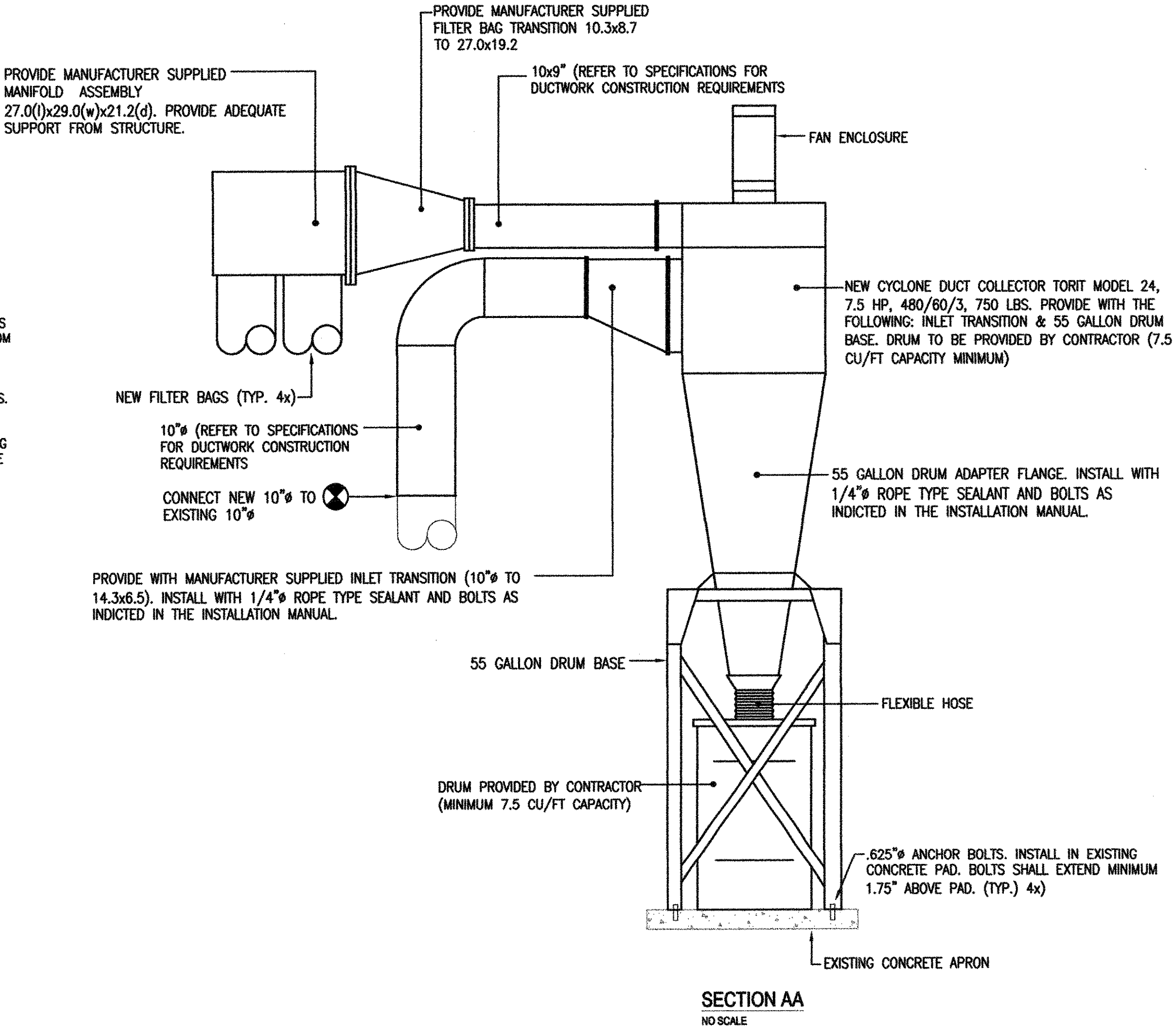
- ELBOWS & ANGLES SHALL BE A MINIMUM OF TWO GAUGES HEAVIER THAN STRAIGHT LENGTHS OF EQUAL DIAMETER. ROUND ELBOWS AND ANGLES SHOULD HAVE AN INSIDE OR THROAT RADIUS OF TWO PIPE DIAMETERS. CONSTRUCT ELBOWS SIX INCHES OR LESS IN DIAMETER OF AT LEAST FIVE SECTIONS, ELBOWS OVER SIX INCHES DIAMETER OF SEVEN SECTIONS. ANGLES SHALL BE PIECED PROPORTIONATELY.
- RECTANGULAR ELBOWS & ANGLES SHALL BE CONSTRUCTED HAVING A W/D & R/D EQUAL TO OR GREATER THAN 1.
- LONGITUDINAL JOINTS OF DUCTS SHALL BE LAPPED AND SEALED OR WELDED.
- GIRTH JOINTS OF DUCTS SHALL BE MADE WITH LAP IN DIRECTION OF AIR FLOW AND ONE INCH LAP FOR DIAMETERS THRU 19 INCHES AND 1-1/2 INCH LAP FOR DIAMETERS OVER 19 INCHES.
- INTERIOR OF ALL DUCTS SHALL BE SMOOTH AND FREE FROM OBSTRUCTIONS WITH JOINTS SOLDERED AIR TIGHT.
- SUPPORT DUCTS SUFFICIENTLY TO PLACE NO LOAD ON CONNECTING EQUIPMENT AND TO CARRY WEIGHT OF SYSTEM IF 50% PLUGGED WITH MATERIAL. MAXIMUM SUPPORTING INTERVALS SHALL BE TWELVE FEET ON HORIZONTAL DUCTS, AT ALL CHANGES OF DIRECTION, TOP OF RISERS AND ON THREE FOOT CENTERS FOR DUCTS LOCATED ON WALLS. BOTH CROSS AND HORIZONTAL BRACING SHALL BE PROVIDED AS REQUIRED.
- DUCT RESTING ON SUPPORT MEMBERS WITHOUT SADDLES MUST BE REINFORCED WITH PLATES AT LEAST TWICE THE THICKNESS OF THE DUCT MATERIAL. THESE WEAR PLATES SHALL BE HALF THE DUCT CIRCUMFERENCE AND AT LEAST TWICE AS LONG AS THE WIDTH OF THE MEMBER SUPPORTING THE DUCT.
- PROVIDE SIX INCH MINIMUM CLEARANCE BETWEEN DUCTS AND CEILING, WALL OR FLOORS.
- WHERE LAWS CONFLICT WITH THE PRECEDING, THE MORE STRINGENT REQUIREMENT SHALL BE FOLLOWED. DEVIATION FROM EXISTING REGULATIONS MAY REQUIRE APPROVAL.
- ALL EXTERIOR DUCTWORK SHALL BE CLEANED & PAINTED WITH (2) COATS RUST INHIBITING PAINT. COLOR TO MATCH DUCT COLLECTOR.
- THIS ABOVE INFORMATION SHALL PROVIDE FOR COMPLETE AND OPERABLE SYSTEM TO MEET INTENT OF SPECIFICATIONS & TO THE SATISFACTION OF THE ENGINEERS.

- CYCLONE DUST COLLECTOR**
 - FURNISH A COMPLETE CONTINUOUS-DUTY DUST COLLECTOR SYSTEM AS SHOWN ON THE PLANS AND/OR LISTED IN THE EQUIPMENT SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF PROVIDING CYCLONIC CLEANING OF INCOMING AIR.
 - THE CONTINUOUS-DUTY COLLECTOR SHALL BE SUPPLIED IN FACTORY-ASSEMBLED UNITS OR IN MAJOR SUBASSEMBLIES SIZED TO MEET AIRFLOW CAPACITIES AND DESIGN REQUIREMENTS. INSTRUCTION MANUAL AND REPLACEMENT PARTS LIST SHALL BE INCLUDED FOR EASY INSTALLATION AND MAINTENANCE.
 - EACH COLLECTOR SHALL BE OF BOLTED AND WELDED CONSTRUCTION USING 14 GAUGE HRS DESIGNED FOR -20" WATER GAUGE AND COMPLETE WITH A REMOVABLE BOTTOM CONE SECTION. THE MOTOR AND FAN ASSEMBLY SHALL BE SHIPPED LOOSE.
 - DUST-LADEN AIR WILL ENTER THE COLLECTOR ON THE SIDE AND BE DIVERTED BY A HELICAL BAFFLE. THE AIR WILL THEN HAVE A "SPIN" IMPARTED TO IT. CENTRIFUGAL FORCES MOVE THE HEAVY DIRT AND DUST TO THE SIDE WALLS AND CARRY IT DOWN TO THE BASE OF THE UNIT. CLEAN AIR IS THEN EXHAUSTED FROM THE UNIT.
 - THE COLLECTOR SHALL INCLUDE AN INLET FLANGE MOUNTED ON THE SIDE OF THE COLLECTOR AT THE DIRTY AIR INLET. AN OUTLET FLANGE WILL BE PROVIDED ON THE SIDE OF THE FAN. THE FAN OUTLET SHALL ACCEPT A TORIT-BUILT FILTER BAG ASSEMBLY INCLUDING STANDARD FILTER BAGS.
 - FILTER BAGS SHALL BE MANUFACTURED OF POLYESTER FELT AND PROVIDE IN THE APPROPRIATE QUANTITIES FOR THE COLLECTION CAPACITY.
 - THE COLLECTOR SHALL BE A DONALDSON TORIT CYCLONE CONTINUOUS DUTY DUST COLLECTOR AS MANUFACTURED BY DONALDSON COMPANY, INC. OR ENGINEER APPROVED EQUAL.

PART 3 - EXECUTION

- IT IS THE INTENT OF THESE SPECIFICATIONS THAT THIS CONTRACTOR BE RESPONSIBLE FOR PROVIDING ALL DEVICES AND WIRING (REGARDLESS OF VOLTAGE) NECESSARY TO PROVIDE THE SEQUENCES AS SPECIFIED HEREIN.
- ALL MECHANICAL SYSTEMS SHALL BE AUTOMATICALLY CONTROLLED. WHERE NO DESCRIPTION OF OPERATION IS INDICATED FOR A PARTICULAR SYSTEM OR DEVICE, THE CONTRACTOR SHALL SELECT APPROPRIATE CONTROL SCENARIOS AND REVIEW THEM WITH THE ENGINEER PRIOR TO PROCEEDING. ALL CONTROLS SHALL BE ARRANGED AND DESIGNED FOR MAXIMUM ENERGY CONSERVATION.
- SEQUENCE OF OPERATION

THE EXISTING WALL MOUNTED SWITCH SHALL ENERGIZE/DE-ENERGIZE THE DUST COLLECTION SYSTEM.
- PROJECT CLOSE-OUT
 - RESTORE EXISTING FACILITIES USED DURING CONSTRUCTION TO ORIGINAL CONDITION. CLEAN PORTIONS OF THE SITE AFFECTED BY WORK OF THIS CONTRACT. REMOVE WASTE AND SURPLUS MATERIALS FROM THE SITE.
 - SUBMIT TWO COPIES OF OPERATION AND MAINTENANCE DATA BOUND IN THREE-RING BINDERS. INCLUDE WARRANTIES, SUBMITTALS, BALANCING REPORT, AND PROJECT DOCUMENTS AND CERTIFICATES.
 - CONTRACTOR SHALL DEMONSTRATE ALL SEQUENCES OF CONTROL TO THE ENGINEER. THE TEMPERATURE CONTROL AND BALANCING SUBCONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING CHECK-OUT PROCEDURE. PERSONNEL SHALL BE EQUIPPED WITH TOOLS AND SPARE PARTS TO MAKE MINOR REPAIRS AND ADJUSTMENTS.
 - CONTRACTOR SHALL DEMONSTRATE COMPLIANCE WITH BALANCING OF SYSTEMS IN THE PRESENCE OF THE ENGINEER BY ACTUAL MEASUREMENT OF WATER FLOWS. IF REQUESTED BY THE ENGINEER, RE-BALANCING SHALL BE DONE AT NO ADDITIONAL CHARGE.



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DUST COLLECTION REPLACEMENT

RICHARD C. NEWELL

REGISTERED PROFESSIONAL ENGINEER
MECHANICAL

4.10.07

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Sheet Title:
MECHANICAL FLOOR PLANS DETAILS, SCHEDULES & SPECIFICATIONS

Project No: 20714
 Drawn By: JAA
 Checked By: RCNUPS
 Scale: AS SHOWN
 Date: 4/10/2007

Drawing No:
M-1
Sheet 9 of 14

ELECTRICAL SPECIFICATIONS

1. FURNISH LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE PROPER AND COMPLETE INSTALLATION OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED.
2. ALL ITEMS NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE SPECIFICATIONS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE ELECTRICAL INSTALLATION, SHALL BE FURNISHED AND INSTALLED AS PART OF THIS SECTION.
3. ALL ELECTRICAL INSTALLATIONS AND GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE LOCAL, STATE AND NATIONAL CODES:
 - A. BUILDING CODE OF THE STATE OF RI (BOCA W/RI AMENDMENTS).
 - B. ELECTRICAL CODE OF THE STATE OF RI (NFPA 70W/RI AMENDMENTS)
 - C. FIRE ALARM REQUIREMENTS OF THE STATE OF RI.
4. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
5. ALL EQUIPMENT AND THE INSTALLATION OF ELECTRICAL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
6. MATERIALS AND WORKMANSHIP SHALL BE THE BEST OF THEIR RESPECTIVE KINDS AND IN FULL ACCORD WITH THE MOST MODERN ELECTRICAL CONSTRUCTION. ALL MATERIALS SHALL BE NEW, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
7. FURNISH AND INSTALL TEMPORARY POWER AS REQUIRED TO OPERATE TOOLS AND LIGHTING. PROVIDE PANELS AND LIGHTING FIXTURES FOR CONSTRUCTION, AS REQUIRED.
8. THE ELECTRICAL SUB-CONTRACTOR SHALL INSPECT THE SITE PRIOR TO SUBMITTING HIS BID, AND SHALL INVESTIGATE ALL CONDITIONS UNDER WHICH THIS WORK WILL BE PERFORMED. FAILURE TO INSPECT EXISTING CONDITIONS OR TO FULLY UNDERSTAND THE WORK WHICH IS REQUIRED SHALL NOT EXCUSE THE ELECTRICAL SUB-CONTRACTOR FROM HIS OBLIGATIONS TO SUPPLY AND INSTALL THE WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND THE DRAWINGS AND UNDER ALL SITE CONDITIONS AS THEY EXIST.
9. THE ELECTRICAL CONTRACTOR SHALL CLEAN, AT THE END OF EACH DAY, ALL AREAS WORKED IN. EMPTY BOXES, RUBBISH, AND OTHER MATERIALS OF NO USE SHALL BE REMOVED FROM THE SITE.
10. WORK SEQUENCE SHALL BE COORDINATED WITH THE PROJECT MANAGER AND SHALL BE IN COORDINATION WITH OTHER BUILDING TRADES AND THE BUILDING SCHEDULE.
11. NEW 120/208V. BRANCH CIRCUIT PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELBOARDS SHALL BE EQUAL TO GE TYPE AQ WITH BOLTED BRANCH CIRCUIT BREAKERS. BRANCH CIRCUIT BREAKERS SHALL BE RATED 10,000 A.I.C. MINIMUM. NEW 277/480V PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELS SHALL BE EQUAL TO G.E. TYPE AE WITH BOLTED BRANCH BREAKERS. BRANCH BREAKERS SHALL BE RATED 14,000 A.I.C. MINIMUM. PANELBOARD SCHEDULES SHALL BE FILLED OUT AND PLACED IN EACH PANEL BOARD; BOTH EXISTING AND NEW, ALL SCHEDULES SHALL BE TYPED.
12. WIRE AND CABLE SHALL BE TYPE THWN/THHN, UL LISTED FOR BUILDING WIRE, 75 DEGREES CENTIGRADE, WET OR DRY LOCATIONS, RATED FOR 600 VOLT. WIRE SHALL BE A MINIMUM OF NO. 12 AWG SOLID. ALL CONDUCTORS SHALL BE COPPER. METAL-CLAD CABLE TYPE MC, WITH GROUND CONDUCTORS, MAY BE USED IN AREAS WHERE APPROVED BY THE LOCAL ELECTRICAL INSPECTOR. FIRE ALARM WIRING SHALL BE FIRE ALARM TYPE MC CABLE, WITH PERMISSION AND APPROVAL OF THE FIRE ALARM SUPERINTENDENT, SIZES NOTED, AND/OR REQUIRED, OR SHALL BE INDIVIDUAL CONDUCTORS RUN IN CONDUIT.
13. CONDUITS SHALL BE E.M.T. WITH STEEL CONNECTORS AND COUPLINGS IN FURRED SPACES, ABOVE CEILINGS, AND IN EXPOSED INTERIOR SPACES. FLEXIBLE STEEL CONDUIT (GREENFIELD) SHALL BE USED FOR CONNECTIONS TO FIXTURES AND EQUIPMENT.
14. ALL OUTLET BOXES FOR LIGHTING, SWITCHES, RECEPTACLES, TELEPHONE, TELEVISION, ETC. SHALL BE GALVANIZED STEEL, MINIMUM 1-1/2" DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE DEVICE TO BE UTILIZED THEREIN. PROVIDE PLASTER RINGS AS REQUIRED. BOXES SHALL HAVE MOUNTING LUGS OR EARS FOR COVERS AND KNOCKOUTS FOR CONDUIT TERMINATIONS. PROVIDE SEALANT AROUND OUTLET BOXES TO PREVENT SOUND TRANSMISSION TO ADJACENT ROOM.
15. ALL CONDUIT/WIRING PENETRATIONS THROUGH FIRE WALLS SHALL BE FIRESTOPPED WITH MATERIAL CONFORMING TO ASTM E136 AND SHALL BE UL CLASSIFIED, FM APPROVED, AND APPROVED FOR USE IN 1-, 2-, OR 3-HOUR RATED SYSTEMS. FIRE STOP MATERIAL SHALL BE EQUAL TO DOW CORNING CAT. NO. 2000 FIRE STOP SEALANT OR 2001 FIRE STOP FOAM AS REQUIRED BY THE PARTICULAR FIRE STOPPING CONDITION.
16. ALL WIRING DEVICES SHALL BE BY ONE MANUFACTURER AND SHALL BE G.E., P&S, BRYANT OR HUBBELL. THE CATALOG NUMBERS ON THE DRAWINGS ARE THOSE OF THE G.E. COMPANY, EXCEPT AS OTHERWISE INDICATED AND ARE USED TO DENOTE TYPE AND QUALITY. COLOR SHALL BE AS SELECTED BY THE ARCHITECT/CONSTRUCTION MANAGER.
17. ALL DEVICE PLATES SHALL MATCH EXISTING.
18. THE PLANS DEPICT THE LOCATION OF ALL FIXTURES AND EQUIPMENT AND ARE INTENDED TO INDICATE THE GENERAL INTENT OF THE WORK IN SCOPE, LAYOUT AND QUALITY OF WORKMANSHIP.
19. THE CONTRACTOR SHALL CAREFULLY VERIFY ALL MEASUREMENTS AT THE SITE, DETERMINE THE EXACT LOCATION OF ALL CHASES AND OPENINGS REQUIRED BY HIS WORK AND SHALL FURNISH AND SET ALL SLEEVES, INSERTS, AND HANGERS AS REQUIRED FOR THE WORK HEREIN.
20. THE CONTRACTOR SHALL COORDINATE HIS WORK SO THAT IT DOES NOT INTERFERE WITH THE WORK OF OTHER TRADES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT HIS WORK IS INSTALLED IN A TIMELY MANNER.
21. ALL HVAC CONTROLS, CONTROL WIRING AND INTER-CONNECTIONS SHALL BE BY DIV. 15, EXCEPT AS OTHERWISE NOTED AND SHOWN ON ELECTRICAL DRAWINGS. ALL 120V HVAC CONTROL WIRING SHALL BE BY THIS CONTRACTOR (DIV. 16).
22. THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT. THE CONTRACTOR SHALL FURNISH TO THE OWNER ALL INSTRUCTION PAMPHLETS, BOOKS AND OTHER LITERATURE FURNISHED BY THE MANUFACTURER AND EXPLAIN THE PROPER OPERATING AND MAINTENANCE PROCEDURES.
24. SUBMIT TO THE OWNER FOR REVIEW AND APPROVAL SIX COMPLETE COPIES OF THE FOLLOWING SHOP DRAWINGS:
 - A. JUNCTION BOXES
 - B. WIRING DEVICES AND PLATES
 - C. CIRCUIT BREAKERS
 - D. DISCONNECT SWITCHES
 - E. WIRE
 - F. CONDUIT
25. PROVIDE CONDUIT EXPANSION JOINTS AT ALL STRUCTURAL EXPANSION JOINTS.
26. ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY.

SYMBOL LEGEND

USE MOUNTING HEIGHTS SPECIFIED ON ARCHITECTURAL DRAWINGS.
IF NOT LISTED, USE MOUNTING HEIGHTS ON THIS DRAWING.

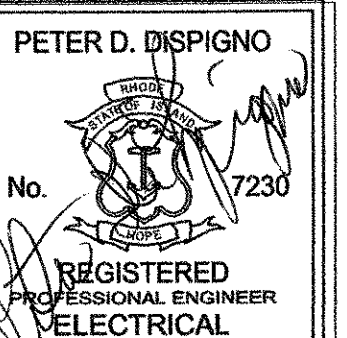
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	SINGLE POLE SWITCH -- 48" A.F.F., P&S CAT. NO. CS120-LA	[Symbol]	SURFACE MOUNTED PANELBOARD -- MTD TOP 6'6" A.F.F.
S _P	SINGLE POLE SWITCH WITH PILOT LIGHT -- 48" A.F.F. P&S CAT. NO. 20AC1-RPL	[Symbol]	FLUSH MOUNTED PANELBOARD -- MTD TOP 6'6" A.F.F.
S ₃	3-WAY SWITCH -- 48" A.F.F., P&S CAT. NO. CS320-LA	[Symbol]	UP TO FLOOR ABOVE
S ₄	FOUR WAY SWITCH -- 48" A.F.F., P&S CAT. NO. CS420-LA	[Symbol]	TIE INTO EQUIPMENT OR DOWN TO FLOOR BELOW
S _T	SINGLE POLE MOTOR RATED SWITCH WITH OVERLOAD HEATER SQUARE D CLASS 2510, TYPE FG-1	[Symbol]	WIRING CONCEALED IN WALL OR CEILING
S _M	MOTION SENSOR W/MANUAL OVERRIDE; WALL OR CEILING MOUNTED, 'WA' OR 'CI'.	[Symbol]	WIRING CONCEALED IN FLOOR OR WALL
[Symbol]	JUNCTION BOX	[Symbol]	WIRING EXPOSED
[Symbol]	SPECIAL PURPOSE OUTLET WITH NEMA CONFIGURATION	[Symbol]	CROSSHATCHING INDICATES NUMBER OF CURRENT CARRYING CONDUCTORS IF MORE THAN TWO ARE REQUIRED. LONGER MARK INDICATES NEUTRAL. GROUNDWIRE IS ALWAYS INSTALLED AND NEVER INDICATED. NO CROSSHATCHING INDICATES 1 HOT, 1 NEUTRAL, AND 1 GROUND, ALL #12 THHN.
[Symbol]	DUPLEX RECEPTACLE -- MTD. 18" A.F.F. -- 20A., 125V. P&S CAT. NO. CR-20LA. "C"-MOUNT 6" ABOVE COUNTER	[Symbol]	HOME RUN TO PANELBOARD -- "A" DESIGNATES PANEL, "1,3" INDICATES CIRCUIT NUMBERS
[Symbol]	ISOLATED GROUND RECEPTACLE -- MTD 48" A.F.F. -- 20A., 125V. ARROW-HART CAT. NO. IGS362HG	[Symbol]	MOTOR WITH RATING IN HORSEPOWER
[Symbol]	GROUND FAULT INTERRUPTING RECEPTACLE -- MTD. 48" A.F.F., 20A.,125V. P&S CAT. NO. 2091-LA	[Symbol]	COMBINATION STARTER/DISCONNECT SWITCH WITH SWITCH AND FUSE RATINGS
[Symbol]	INDICATES WEATHERPROOF	[Symbol]	INDICATES RAINTIGHT
[Symbol]		[Symbol]	INDICATES DUAL ELEMENT FUSES
[Symbol]		[Symbol]	NUMBER OF POLES
[Symbol]		[Symbol]	FUSE SIZE
[Symbol]		[Symbol]	SWITCH SIZE
[Symbol]		[Symbol]	MAGNETIC MOTOR STARTER
[Symbol]		[Symbol]	DISCONNECT SWITCH

ABBREVIATIONS

A	AMPS
AG	ABOVE GRADE
AFF	ABOVE FINISHED FLOOR
BL	BLANK PLATE
BOF	BOTTOM OF FIXTURE
C	CONDUIT
CB	CIRCUIT BREAKER
CD	CANDELA
CU	COPPER
DWG	DRAWING
ECPS	EMPTY CONDUIT W/PULL STRING
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EX	EXISTING
FACP	FIRE ALARM CONTROL PANEL
GI	GROUND
GF	GROUND FAULT CIRCUIT INTERRUPTER
IG	ISOLATED GROUND
N	NEW
NG	NATIONAL GRID (ELECTRICAL UTILITY)
UNO	UNLESS NOTED OTHERWISE
V	VOLT
W/	WITH
WP	WEATHERPROOF



Project: **WARWICK SCHOOLS TOLL GATE HIGH SCHOOL**
575 CENTERVILLE ROAD, WARWICK, RI 02886
DUST COLLECTION REPLACEMENT



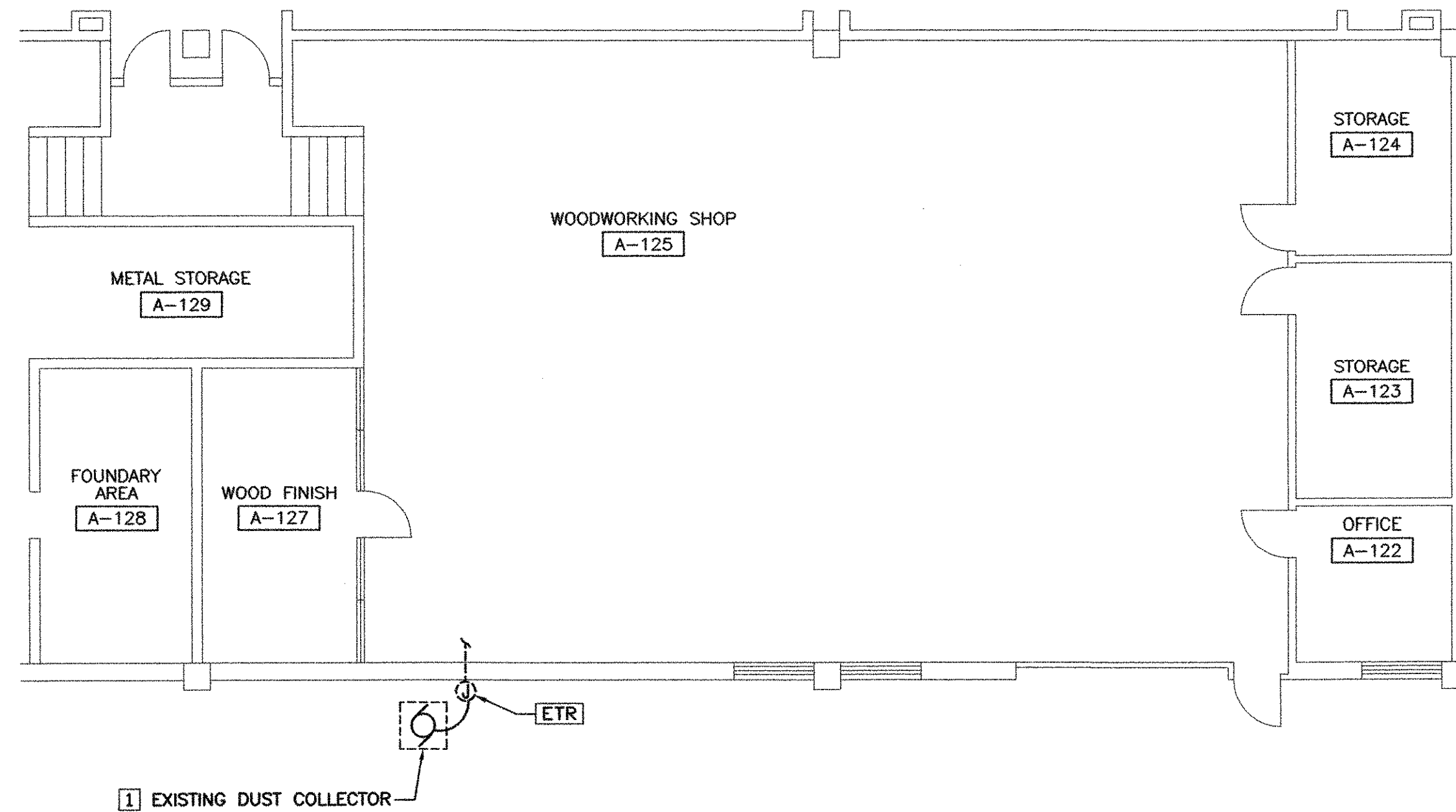
Status: **ISSUED FOR CONSTRUCTION**

Date	Revision/Issue	No.

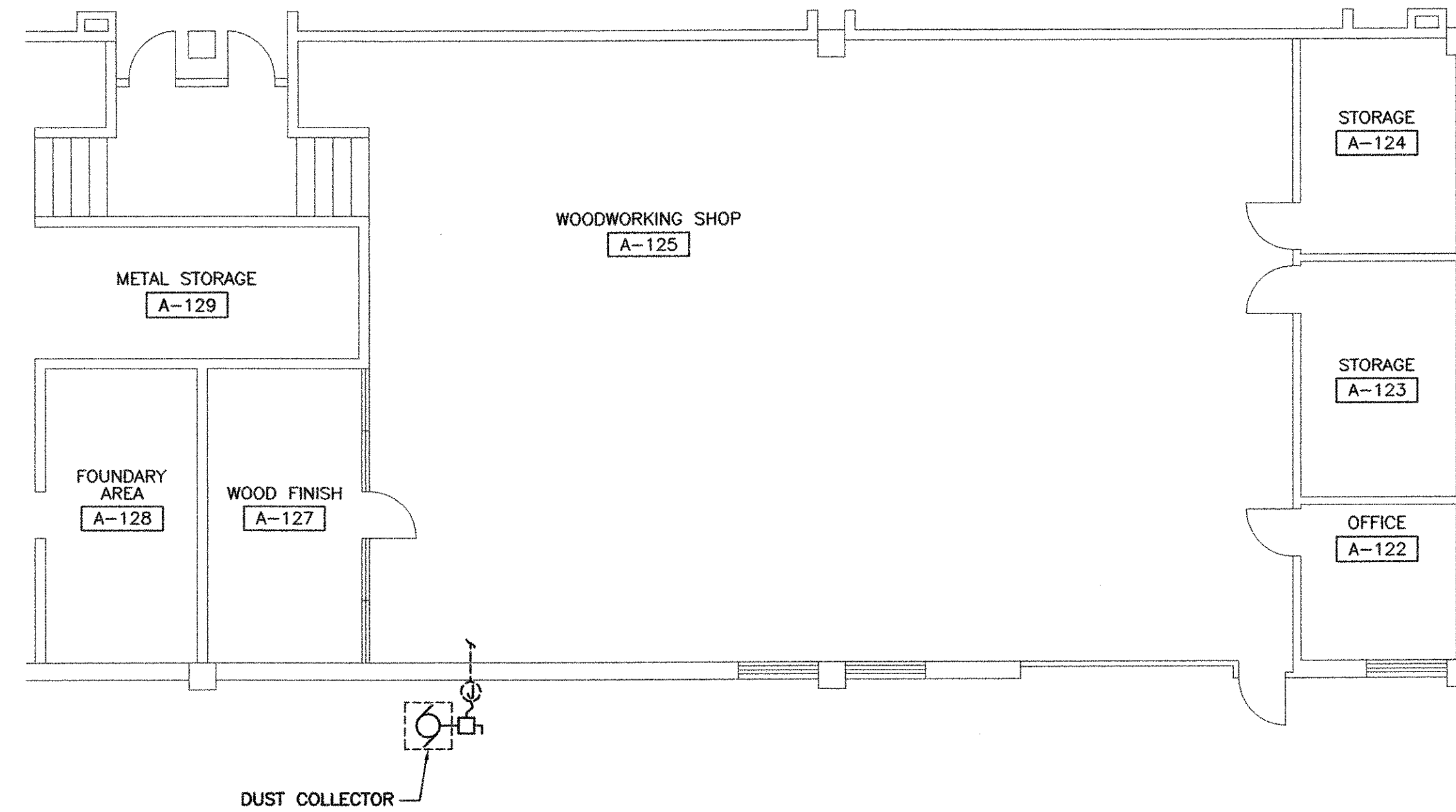
Sheet Title: **ELECTRICAL LEGEND SHEET, FLOOR PLANS, SCHEDULES & SPECIFICATIONS**

Project No: 20714
Drawn By: MSO
Checked By: PDS
Scale: AS SHOWN
Date: 4/10/2007

Drawing No: **E-1**
Sheet 10 of 14



PARTIAL FLOOR PLAN - ELECTRICAL DEMOLITION
SCALE: 1/8"=1'-0"



PARTIAL FLOOR PLAN - MECHANICAL EQUIPMENT POWER
SCALE: 1/8"=1'-0"

GENERAL DEMOLITION NOTES:

1. CONTRACTOR SHALL VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING.
2. ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. CONTRACTOR SHALL SECURE ALL REQUIRED DEMOLITION PERMITS.
3. PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
4. IT IS NOT THE INTENT TO SHOW ALL CONDUIT AND MATERIAL, AND EXACT SIZES TO BE REMOVED IN THE DEMOLITION WORK. DRAWING INDICATES EQUIPMENT DIAGRAMMATICALLY. EXACT LOCATION AND SIZE OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS BY THE CONTRACTOR.
5. THE CONTRACTOR SHALL BE RESPONSIBLE TO RETURN BACK TO THE ORIGINAL LOCATION ANY DEVICE OR MATERIAL THAT MUST BE TEMPORARILY REMOVED OR RELOCATED TO ALLOW DEMOLITION.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVING AND DISPOSING OF ALL EXISTING ELECTRICAL EQUIPMENT AS SHOWN ON DRAWINGS, EXCEPT WHERE NOTED OTHERWISE.

DEMOLITION KEYNOTES:

- ① - EXISTING DUST COLLECTOR TO BE REMOVED PER MECHANICAL DRAWINGS. DISCONNECT CONDUIT AND WIRING FROM DUST COLLECTOR. REMOVE LIQUID-TITE AND WIRING FROM EXTERIOR JUNCTION BOX TO MOTOR. EXISTING FEEDER FROM JUNCTION BOX BACK TO SOURCE TO REMAIN.
- [ETR] - EXISTING TO REMAIN
- [ETL] - EXISTING TO BE RELOCATED

MECH (ID#)	DESCRIPTION	EQUIPMENT CHARACTERISTICS								PANEL	CIRCUIT	BREAKER	FEEDER AND CONDUIT	EQUIPMENT LOCATION	DISCONNECT SWITCH				MOTOR CONTROL	REMARKS
		VOLTS	AMPS	PH	HP	WATTS	MCA	MCCP	CFM						SIZE	FUSE	POLES	NEMA		
①	DUST COLLECTOR	480		3	7.5								RE-USE EXISTING	WOOD SHOP	30/NF/3/RT					1,2,3

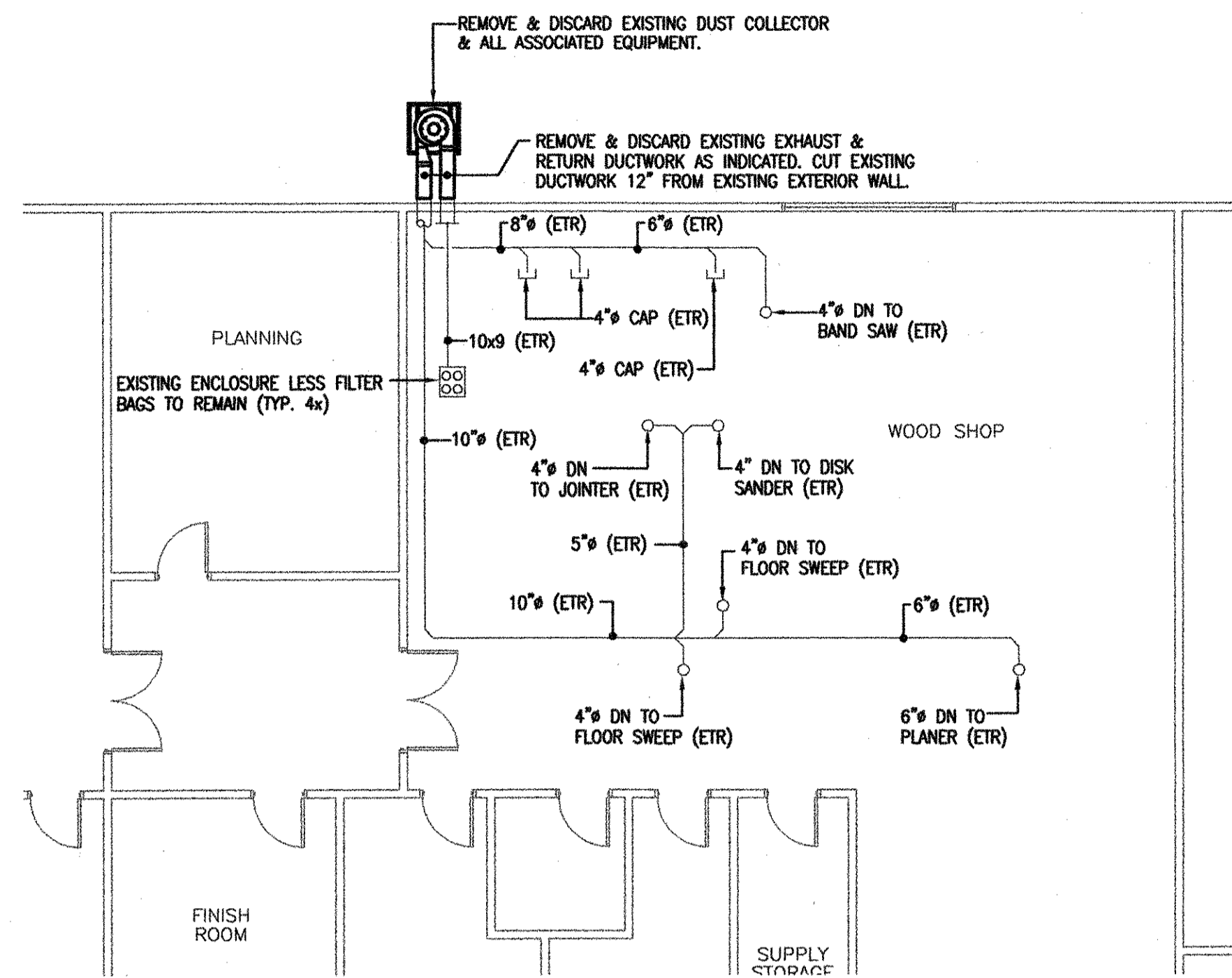
REMARKS:
1. DUST COLLECTOR TO BE POWERED BY SAME CIRCUIT THAT EXISTING DUST COLLECTOR TO BE REMOVED WAS CONNECTED.
2. RE-USE EXISTING CIRCUIT BREAKER.
3. EXISTING FEEDER TO BE RE-USED UP TO JUNCTION BOX LOCATED OUTSIDE WOOD SHOP. NEW 3/4" LIQUID-TITE WITH 3#8 TO BE INSTALLED FROM FROM JUNCTION BOX TO DISCONNECT TO MOTOR. 1#10 GROUND TO BE ADDED TO FEEDER FROM EXISTING ELECTRICAL PANEL TO THE DUST COLLECTOR MOTOR, APPROXIMATELY 200'.

Date	Revision/Issue	No.

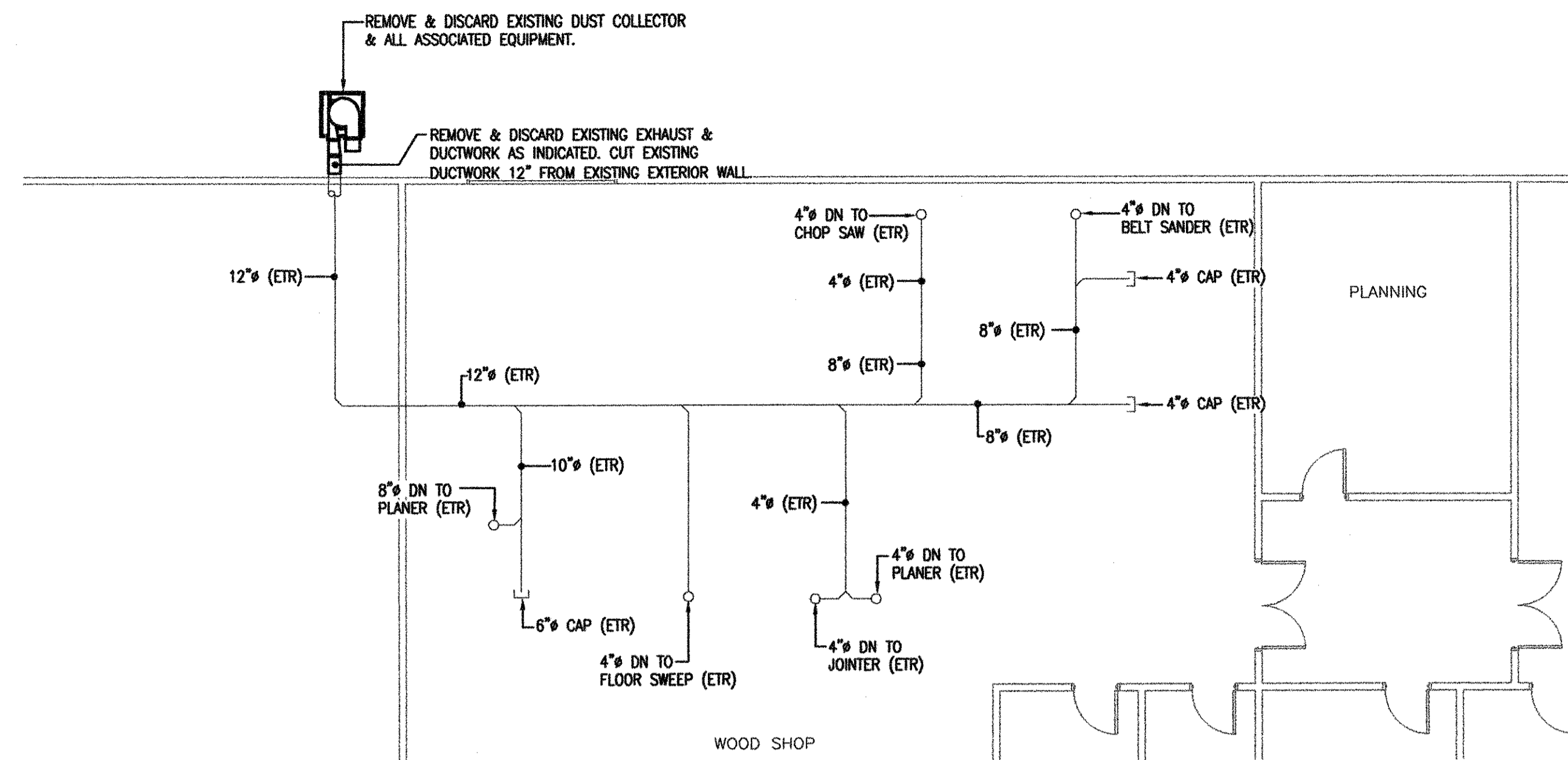
DEMOLITION NOTES

UNDER DEMOLITION, THE FOLLOWING IS, IN BRIEF, THE EXTENT OF THE WORK TO BE PERFORMED BY THE MECHANICAL CONTRACTOR UNDER THIS CONTRACT.

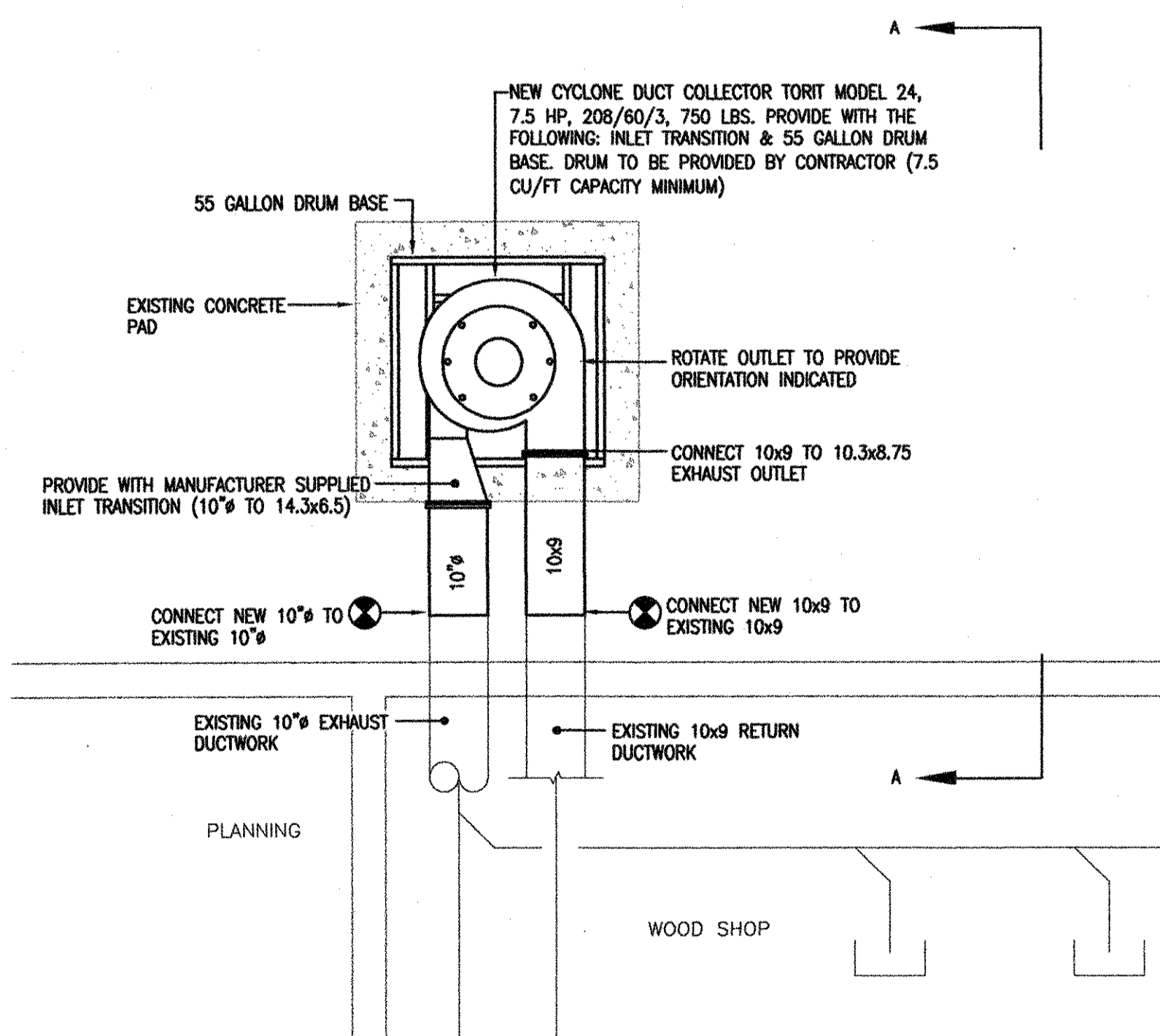
1. PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS.
2. PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
3. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF THE EXISTING MECHANICAL EQUIPMENT & DUCTWORK IN DESIGNATED AREAS. PATCH ALL ROOF AND WALL PENETRATIONS TO MATCH EXISTING.
4. THIS CONTRACTOR SHALL PROTECT WORK AGAINST INJURY OR DAMAGE; AND CAREFULLY STORE MATERIAL AND EQUIPMENT TO BE RELOCATED. OPEN ENDS OF WORK SHALL BE CLOSED WITH TEMPORARY COVERS OR PLUGS DURING STORAGE AND CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.



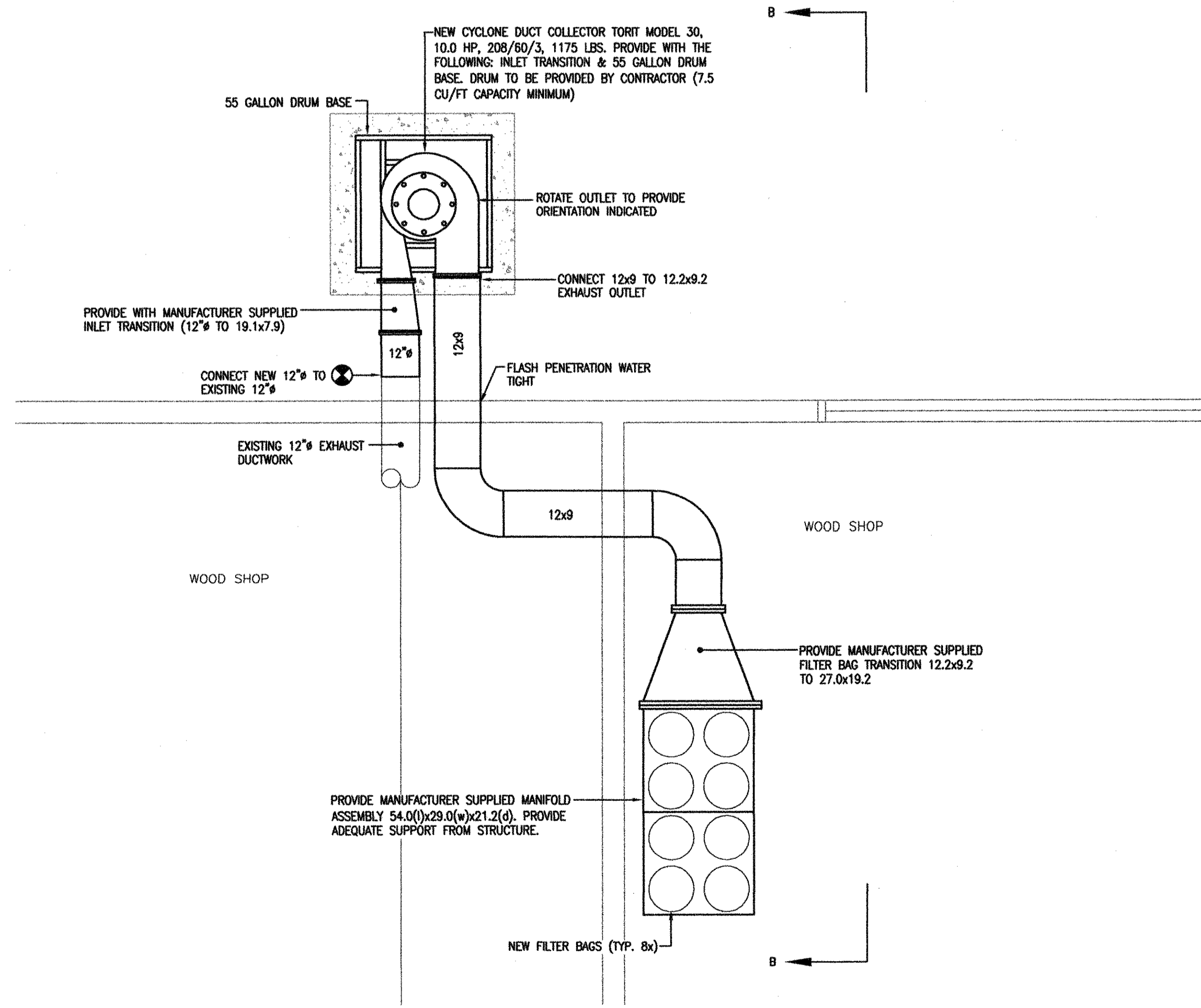
PARTIAL FLOOR PLAN WOODSHOP #1 - MECHANICAL DEMOLITION
SCALE: 1/8"=1'-0"



PARTIAL FLOOR PLAN WOODSHOP #2 - MECHANICAL DEMOLITION
SCALE: 1/8"=1'-0"



PARTIAL FLOOR PLAN WOODSHOP #1 - MECHANICAL NEW WORK
SCALE: 1/2"=1'-0"



PARTIAL FLOOR PLAN WOODSHOP #2 - MECHANICAL NEW WORK
SCALE: 1/2"=1'-0"

MECHANICAL SPECIFICATIONS

PART 1 - GENERAL REQUIREMENTS

1. SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, ETC., TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED FOR A COMPLETE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION, AS INTERPRETED BY THE ARCHITECT/ENGINEER.
2. APPLY AND PAY FOR ALL NECESSARY INSPECTION FEES, LICENSES AND PERMITS REQUIRED BY THE PROPER AUTHORITIES HAVING JURISDICTION.
3. "PROVIDE" AND "INSTALL" ALL MATERIALS, LABOR AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS OR HEREIN SPECIFIED.
4. ALL CUTTING, PATCHING & REQUIRED FLASHING WILL BE DONE BY THIS CONTRACTOR.
5. ALL MATERIALS SHALL BE NEW. ALL EQUIPMENT SHALL BEAR THE U.L. LABEL.
6. COORDINATE LOCATIONS OF ALL NEW DUCTWORK WITH EXISTING EQUIPMENT, LIGHTING, OTHER TRADES, AND THE OWNER PRIOR TO INSTALLATION OR FABRICATION OF SAME.
7. CONTRACTOR TO GUARANTEE THE QUALITY OF ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF OWNER ACCEPTANCE. ALL DEFECTIVE MATERIAL AND WORKMANSHIP SHALL BE REPLACED AT CONTRACTOR'S EXPENSE DURING THIS TIME.
8. ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR'S EMPLOYEES, MATERIALS OR EQUIPMENT.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INJURIES OR DAMAGE DONE TO BUILDING PREMISES OR ADJOINING AREAS OR WORK RESULTING FROM EXECUTION OF HIS PART OF WORK IN ANY MANNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTION OF HIS WORK AT HIS OWN EXPENSE.
10. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR ALL EQUIPMENT SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS PRIOR TO ORDERING, FABRICATING OR INSTALLING SAME.
11. THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWING AND/OR SITE CONDITIONS, THE HVAC CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED. THE CONTRACTOR SHALL CONDUCT A THOROUGH FIELD INVESTIGATION TO VERIFY WORK SHOWN ON THE DRAWINGS. THE DRAWINGS REFLECT THE BEST AVAILABLE INFORMATION FROM EXISTING PLANS AND SITE INVESTIGATIONS.

PART 2 - PRODUCTS

1. DUCTWORK

- A. ALL DUCTWORK SHALL BE OF TOP GRADE GALVANIZED STEEL, CONSTRUCTED AND SUPPORTED AS PER S.M.A.C.N.A. INDUSTRIAL DUCT CONSTRUCTION STANDARDS CLASS 2. ALL ELBOWS SHALL BE LONG RADIUS TYPE. ALL JOINTS, SEAMS, AND FITTINGS SHALL BE AIR AND WATER TIGHT USING SOLDER JOINTS AND SHALL BE FORMED TO PROVIDE A MINIMUM RESISTANCE TO THE AIR FLOW.
- B. THE FOLLOWING METAL THICKNESS SHALL BE UTILIZED:

DIAMETER OF STRAIGHT DUCTS (INCHES)	U.S. STANDARD GAUGE
DUCT SIZE	GAUGE
UP TO 8"	22-18
OVER 8" UP TO 18"	22-12

- C. ELBOWS & ANGLES SHALL BE A MINIMUM OF TWO GAUGES HEAVIER THAN STRAIGHT LENGTHS OF EQUAL DIAMETER. ROUND ELBOWS AND ANGLES SHOULD HAVE AN INSIDE OR THROAT RADIUS OF TWO PIPE DIAMETERS. CONSTRUCT ELBOWS SIX INCHES OR LESS IN DIAMETER OF AT LEAST FIVE SECTIONS, ELBOWS OVER SIX INCHES DIAMETER OF SEVEN SECTIONS. ANGLES SHALL BE PIECED PROPORTIONATELY.
- D. RECTANGULAR ELBOWS & ANGLES SHALL BE CONSTRUCTED HAVING A W/D & R/D EQUAL TO OR GREATER THAN 1.
- E. LONGITUDINAL JOINTS OF DUCTS SHALL BE LAPPED AND SEALED OR WELDED.
- F. GIRTH JOINTS OF DUCTS SHALL BE MADE WITH LAP IN DIRECTION OF AIR FLOW AND ONE INCH LAP FOR DIAMETERS THRU 19 INCHES AND 1-1/2 INCH LAP FOR DIAMETERS OVER 19 INCHES.
- G. INTERIOR OF ALL DUCTS SHALL BE SMOOTH AND FREE FROM OBSTRUCTIONS WITH JOINTS SOLDERED AIR TIGHT.
- H. SUPPORT DUCTS SUFFICIENTLY TO PLACE NO LOAD ON CONNECTING EQUIPMENT AND TO CARRY WEIGHT OF SYSTEM IF SOFT PLUGGED WITH MATERIAL. MAXIMUM SUPPORTING INTERVALS SHALL BE TWELVE FEET ON HORIZONTAL DUCTS, AT ALL CHANGES OF DIRECTION, TOP OF RISERS AND ON THREE FOOT CENTERS FOR DUCTS LOCATED ON WALLS. BOTH CROSS AND HORIZONTAL BRACING SHALL BE PROVIDED AS REQUIRED.
- I. DUCT RESTING ON SUPPORT MEMBERS WITHOUT SADDLES MUST BE REINFORCED WITH PLATES AT LEAST TWICE THE THICKNESS OF THE DUCT MATERIAL. THESE WEAR PLATES SHALL BE HALF THE DUCT CIRCUMFERENCE AND AT LEAST TWICE AS LONG AS THE WIDTH OF THE MEMBER SUPPORTING THE DUCT.
- J. PROVIDE SIX INCH MINIMUM CLEARANCE BETWEEN DUCTS AND CEILING, WALL OR FLOORS.
- K. WHERE LAWS CONFLICT WITH THE PRECEDING, THE MORE STRINGENT REQUIREMENT SHALL BE FOLLOWED. DEVIATION FROM EXISTING REGULATIONS MAY REQUIRE APPROVAL.
- L. ALL EXTERIOR DUCTWORK SHALL BE CLEANED & PAINTED WITH (2) COATS RUST INHIBITING PAINT. COLOR TO MATCH DUCT COLLECTOR.
- M. THIS ABOVE INFORMATION SHALL PROVIDE FOR COMPLETE AND OPERABLE SYSTEM TO MEET INTENT OF SPECIFICATIONS & TO THE SATISFACTION OF THE ENGINEERS.

2. CYCLONE DUST COLLECTOR

- A. FURNISH A COMPLETE CONTINUOUS-DUTY DUST COLLECTOR SYSTEM AS SHOWN ON THE PLANS AND/OR LISTED IN THE EQUIPMENT SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF PROVIDING CYCLONIC CLEANING OF INCOMING AIR.
- B. THE CONTINUOUS-DUTY COLLECTOR SHALL BE SUPPLIED IN FACTORY-ASSEMBLED UNITS OR IN MAJOR SUBASSEMBLIES SIZED TO MEET AIRFLOW CAPACITIES AND DESIGN REQUIREMENTS. INSTRUCTION MANUAL AND REPLACEMENT PARTS LIST SHALL BE INCLUDED FOR EASY INSTALLATION AND MAINTENANCE.
- C. EACH COLLECTOR SHALL BE OF BOLTED AND WELDED CONSTRUCTION USING 14 GAUGE HRS DESIGNED FOR -20" WATER GAUGE AND COMPLETE WITH A REMOVABLE BOTTOM CONE SECTION. THE MOTOR AND FAN ASSEMBLY SHALL BE SHIPPED LOOSE.
- D. DUST-LADEN AIR WILL ENTER THE COLLECTOR ON THE SIDE AND BE DIVERTED BY A HELICAL BAFFLE. THE AIR WILL THEN HAVE A "SPIN" IMPARTED TO IT. CENTRIFUGAL FORCES MOVE THE HEAVY DIRT AND DUST TO THE SIDE WALLS AND CARRY IT DOWN TO THE BASE OF THE UNIT. CLEAN AIR IS THEN EXHAUSTED FROM THE UNIT.
- E. THE COLLECTOR SHALL INCLUDE AN INLET FLANGE MOUNTED ON THE SIDE OF THE COLLECTOR AT THE DIRTY AIR INLET. AN OUTLET FLANGE WILL BE PROVIDED ON THE SIDE OF THE FAN. THE FAN OUTLET SHALL ACCEPT A TORIT-BUILT FILTER BAG ASSEMBLY INCLUDING STANDARD FILTER BAGS.
- F. FILTER BAGS SHALL BE MANUFACTURED OF POLYESTER FELT AND PROVIDE IN THE APPROPRIATE QUANTITIES FOR THE COLLECTION CAPACITY.
- G. THE COLLECTOR SHALL BE A DONALDSON TORIT CYCLONE CONTINUOUS DUTY DUST COLLECTOR AS MANUFACTURED BY DONALDSON COMPANY, INC. OR ENGINEER APPROVED EQUAL.

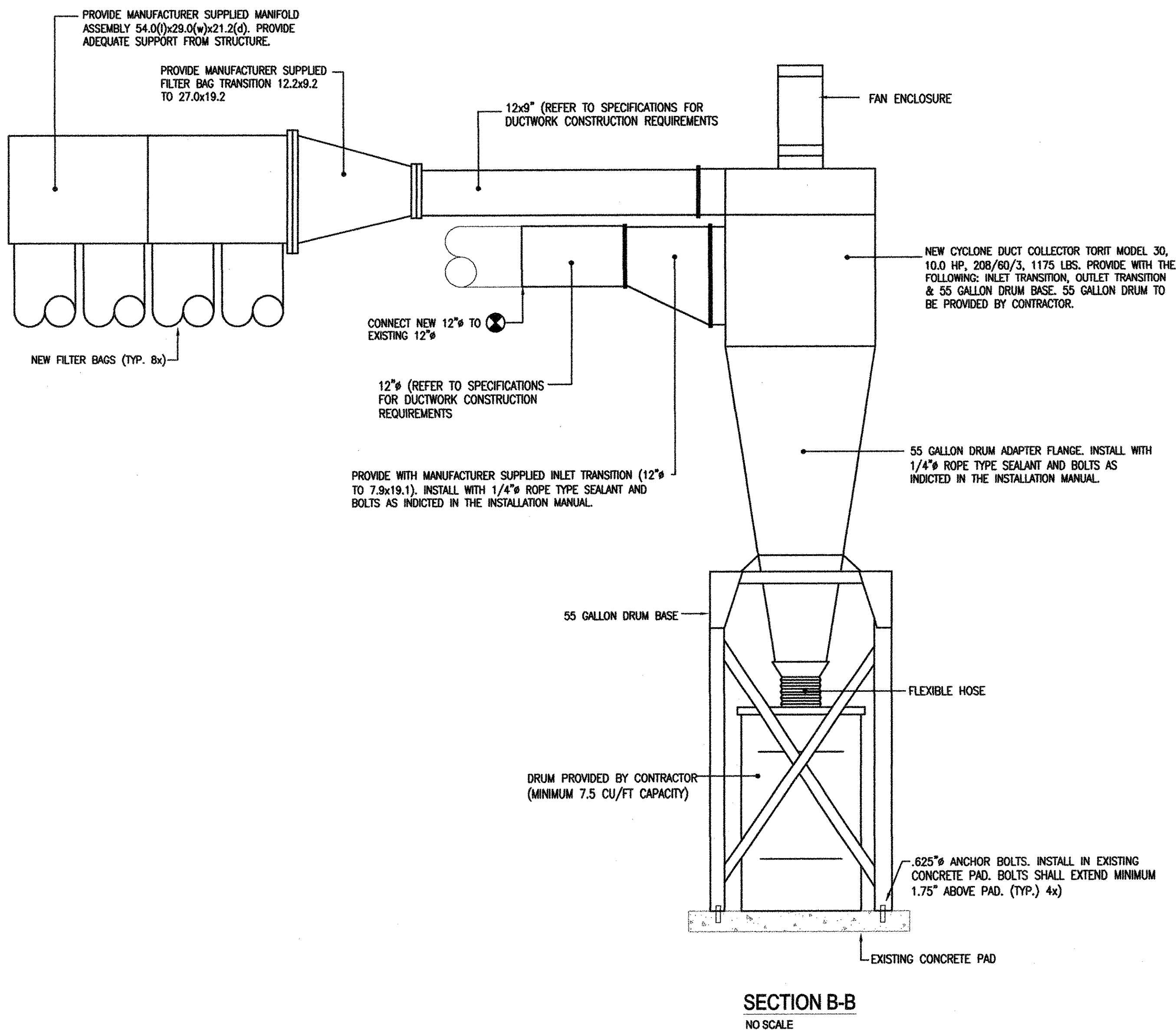
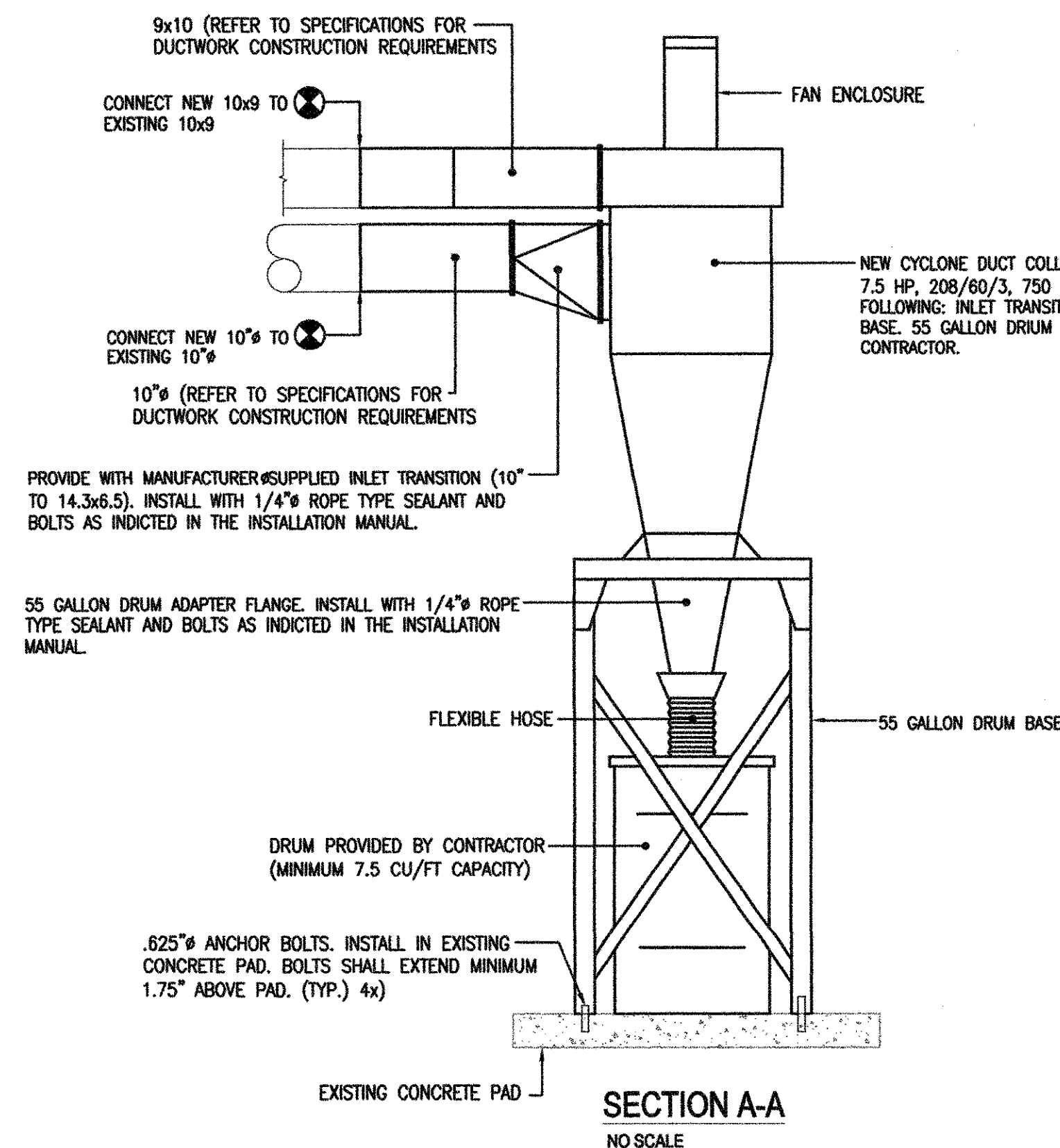
PART 3 - EXECUTION

1. IT IS THE INTENT OF THESE SPECIFICATIONS THAT THIS CONTRACTOR BE RESPONSIBLE FOR PROVIDING ALL DEVICES AND WIRING (REGARDLESS OF VOLTAGE) NECESSARY TO PROVIDE THE SEQUENCES AS SPECIFIED HEREIN.
2. ALL MECHANICAL SYSTEMS SHALL BE AUTOMATICALLY CONTROLLED. WHERE NO DESCRIPTION OF OPERATION IS INDICATED FOR A PARTICULAR SYSTEM OR DEVICE, THE CONTRACTOR SHALL SELECT APPROPRIATE CONTROL SCENARIOS AND REVIEW THEM WITH THE ENGINEER PRIOR TO PROCEEDING. ALL CONTROLS SHALL BE ARRANGED AND DESIGNED FOR MAXIMUM ENERGY CONSERVATION.
3. SEQUENCE OF OPERATION

PROVIDE NEW WALL MOUNTED SWITCH TO ENERGIZE/DE-ENERGIZE THE DUST COLLECTION SYSTEM.

4. PROJECT CLOSE-OUT

- A. RESTORE EXISTING FACILITIES USED DURING CONSTRUCTION TO ORIGINAL CONDITION. CLEAN PORTIONS OF THE SITE AFFECTED BY WORK OF THIS CONTRACT. REMOVE WASTE AND SURPLUS MATERIALS FROM THE SITE.
- B. SUBMIT TWO COPIES OF OPERATION AND MAINTENANCE DATA BOUND IN THREE-RING BINDERS. INCLUDE WARRANTIES, SUBMITTALS, BALANCING REPORT, AND PROJECT DOCUMENTS AND CERTIFICATES.
- C. CONTRACTOR SHALL DEMONSTRATE ALL SEQUENCES OF CONTROL TO THE ENGINEER. THE TEMPERATURE CONTROL AND BALANCING SUBCONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING CHECK-OUT PROCEDURE. PERSONNEL SHALL BE EQUIPPED WITH TOOLS AND SPARE PARTS TO MAKE MINOR REPAIRS AND ADJUSTMENTS.



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Project: **WARWICK SCHOOLS
WARWICK VETERANS
MEMORIAL HIGH SCHOOL
2401 WEST SHORE ROAD, WARWICK, RI 02889
DUST COLLECTION REPLACEMENT**

RICHARD C. NEWELL
No. 8486
4.10.07
REGISTERED
PROFESSIONAL ENGINEER
MECHANICAL

Status: **ISSUED FOR CONSTRUCTION**

Date	Revision/Issue
No.	

Sheet Title: **MECHANICAL
DETAILS &
SPECIFICATIONS**

Project No:	20715
Drawn By:	JAA
Checked By:	RCN/JPS
Scale:	AS SHOWN
Date:	04/10/2007

Drawing No: **M-2**
Sheet 12 of 14

ELECTRICAL SPECIFICATIONS

- FURNISH LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE PROPER AND COMPLETE INSTALLATION OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED.
- ALL ITEMS NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE SPECIFICATIONS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE ELECTRICAL INSTALLATION, SHALL BE FURNISHED AND INSTALLED AS PART OF THIS SECTION.
- ALL ELECTRICAL INSTALLATIONS AND GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE LOCAL, STATE AND NATIONAL CODES:
 - BUILDING CODE OF THE STATE OF RI (BOCA W/RI AMENDMENTS).
 - ELECTRICAL CODE OF THE STATE OF RI (NFPA 70W/RI AMENDMENTS)
 - FIRE ALARM REQUIREMENTS OF THE STATE OF RI.
- OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
- ALL EQUIPMENT AND THE INSTALLATION OF ELECTRICAL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- MATERIALS AND WORKMANSHIP SHALL BE THE BEST OF THEIR RESPECTIVE KINDS AND IN FULL ACCORD WITH THE MOST MODERN ELECTRICAL CONSTRUCTION. ALL MATERIALS SHALL BE NEW, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
- FURNISH AND INSTALL TEMPORARY POWER AS REQUIRED TO OPERATE TOOLS AND LIGHTING. PROVIDE PANELS AND LIGHTING FIXTURES FOR CONSTRUCTION, AS REQUIRED.
- THE ELECTRICAL SUB-CONTRACTOR SHALL INSPECT THE SITE PRIOR TO SUBMITTING HIS BID, AND SHALL INVESTIGATE ALL CONDITIONS UNDER WHICH THIS WORK WILL BE PERFORMED. FAILURE TO INSPECT EXISTING CONDITIONS OR TO FULLY UNDERSTAND THE WORK WHICH IS REQUIRED SHALL NOT EXCUSE THE ELECTRICAL SUB-CONTRACTOR FROM HIS OBLIGATIONS TO SUPPLY AND INSTALL THE WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND THE DRAWINGS AND UNDER ALL SITE CONDITIONS AS THEY EXIST.
- THE ELECTRICAL CONTRACTOR SHALL CLEAN, AT THE END OF EACH DAY, ALL AREAS WORKED IN. EMPTY BOXES, RUBBISH, AND OTHER MATERIALS OF NO USE SHALL BE REMOVED FROM THE SITE.
- WORK SEQUENCE SHALL BE COORDINATED WITH THE PROJECT MANAGER AND SHALL BE IN COORDINATION WITH OTHER BUILDING TRADES AND THE BUILDING SCHEDULE.
- NEW 120/208V. BRANCH CIRCUIT PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELBOARDS SHALL BE EQUAL TO GE TYPE AQ WITH BOLTED BRANCH CIRCUIT BREAKERS. BRANCH CIRCUIT BREAKERS SHALL BE RATED 10,000 A.I.C. MINIMUM. NEW 277/480V PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELS SHALL BE EQUAL TO G.E. TYPE AE WITH BOLTED BRANCH BREAKERS. BRANCH BREAKERS SHALL BE RATED 14,000 A.I.C. MINIMUM. PANELBOARD SCHEDULES SHALL BE FILLED OUT AND PLACED IN EACH PANEL BOARD; BOTH EXISTING AND NEW, ALL SCHEDULES SHALL BE TYPED.
- WIRE AND CABLE SHALL BE TYPE THWN/THHN, UL LISTED FOR BUILDING WIRE, 75 DEGREES CENTIGRADE, WET OR DRY LOCATIONS, RATED FOR 600 VOLT. WIRE SHALL BE A MINIMUM OF NO. 12 AWG SOLID. ALL CONDUCTORS SHALL BE COPPER. METAL-CLAD CABLE TYPE MC, WITH GROUND CONDUCTORS, MAY BE USED IN AREAS WHERE APPROVED BY THE LOCAL ELECTRICAL INSPECTOR. FIRE ALARM WIRING SHALL BE FIRE ALARM TYPE MC CABLE, WITH PERMISSION AND APPROVAL OF THE FIRE ALARM SUPERINTENDENT, SIZES NOTED, AND/OR REQUIRED, OR SHALL BE INDIVIDUAL CONDUCTORS RUN IN CONDUIT.
- CONDUITS SHALL BE E.M.T. WITH STEEL CONNECTORS AND COUPLINGS IN FURRED SPACES, ABOVE CEILINGS, AND IN EXPOSED INTERIOR SPACES. FLEXIBLE STEEL CONDUIT (GREENFIELD) SHALL BE USED FOR CONNECTIONS TO FIXTURES AND EQUIPMENT.
- ALL OUTLET BOXES FOR LIGHTING, SWITCHES, RECEPTACLES, TELEPHONE, TELEVISION, ETC. SHALL BE GALVANIZED STEEL, MINIMUM 1-1/2" DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE DEVICE TO BE UTILIZED THEREIN. PROVIDE PLASTER RINGS AS REQUIRED. BOXES SHALL HAVE MOUNTING LUGS OR EARS FOR COVERS AND KNOCKOUTS FOR CONDUIT TERMINATIONS. PROVIDE SEALANT AROUND OUTLET BOXES TO PREVENT SOUND TRANSMISSION TO ADJACENT ROOM.
- ALL CONDUIT/WIRING PENETRATIONS THROUGH FIRE WALLS SHALL BE FIRESTOPPED WITH MATERIAL CONFORMING TO ASTM E136 AND SHALL BE UL CLASSIFIED, FM APPROVED, AND APPROVED FOR USE IN 1-, 2-, OR 3-HOUR RATED SYSTEMS. FIRE STOP MATERIAL SHALL BE EQUAL TO DOW CORNING CAT. NO. 2000 FIRE STOP SEALANT OR 2001 FIRE STOP FOAM AS REQUIRED BY THE PARTICULAR FIRE STOPPING CONDITION.
- ALL WIRING DEVICES SHALL BE BY ONE MANUFACTURER AND SHALL BE G.E., P&S, BRYANT OR HUBBELL. THE CATALOG NUMBERS ON THE DRAWINGS ARE THOSE OF THE G.E. COMPANY, EXCEPT AS OTHERWISE INDICATED AND ARE USED TO DENOTE TYPE AND QUALITY. COLOR SHALL BE AS SELECTED BY THE ARCHITECT/CONSTRUCTION MANAGER.
- ALL DEVICE PLATES SHALL MATCH EXISTING.
- THE PLANS DEPICT THE LOCATION OF ALL FIXTURES AND EQUIPMENT AND ARE INTENDED TO INDICATE THE GENERAL INTENT OF THE WORK IN SCOPE, LAYOUT AND QUALITY OF WORKMANSHIP.
- THE CONTRACTOR SHALL CAREFULLY VERIFY ALL MEASUREMENTS AT THE SITE. DETERMINE THE EXACT LOCATION OF ALL CHASES AND OPENINGS REQUIRED BY HIS WORK AND SHALL FURNISH AND SET ALL SLEEVES, INSERTS, AND HANGERS AS REQUIRED FOR THE WORK HEREIN.
- THE CONTRACTOR SHALL COORDINATE HIS WORK SO THAT IT DOES NOT INTERFERE WITH THE WORK OF OTHER TRADES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT HIS WORK IS INSTALLED IN A TIMELY MANNER.
- ALL HVAC CONTROLS, CONTROL WIRING AND INTER-CONNECTIONS SHALL BE BY DIV. 15, EXCEPT AS OTHERWISE NOTED AND SHOWN ON ELECTRICAL DRAWINGS. ALL 120V HVAC CONTROL WIRING SHALL BE BY THIS CONTRACTOR (DIV. 16).
- THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT. THE CONTRACTOR SHALL FURNISH TO THE OWNER ALL INSTRUCTION PAMPHLETS, BOOKS AND OTHER LITERATURE FURNISHED BY THE MANUFACTURER AND EXPLAIN THE PROPER OPERATING AND MAINTENANCE PROCEDURES.
- SUBMIT TO THE OWNER FOR REVIEW AND APPROVAL SIX COMPLETE COPIES OF THE FOLLOWING SHOP DRAWINGS:
 - JUNCTION BOXES
 - WIRING DEVICES AND PLATES
 - CIRCUIT BREAKERS
 - DISCONNECT SWITCHES
 - WIRE
 - CONDUIT
- PROVIDE CONDUIT EXPANSION JOINTS AT ALL STRUCTURAL EXPANSION JOINTS.
- ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY.

SYMBOL LEGEND

USE MOUNTING HEIGHTS SPECIFIED ON ARCHITECTURAL DRAWINGS. IF NOT LISTED, USE MOUNTING HEIGHTS ON THIS DRAWING.

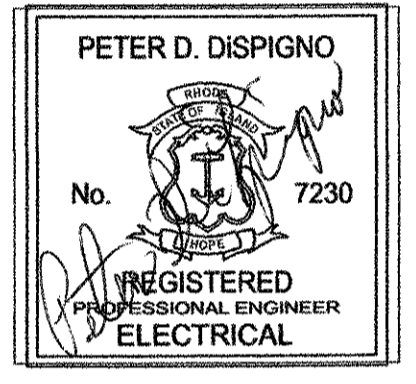
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	SINGLE POLE SWITCH - 48" A.F.F., P&S CAT. NO. CS120-1A	[Symbol]	SURFACE MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S _P	SINGLE POLE SWITCH WITH PILOT LIGHT - 48" A.F.F. P&S CAT. NO. 20A11-RPL	[Symbol]	FLUSH MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S ₃	3-WAY SWITCH - 48" A.F.F., P&S CAT. NO. CS320-1A	[Symbol]	UP TO FLOOR ABOVE
S ₄	FOUR WAY SWITCH - 48" A.F.F.; P&S CAT. NO. CS420-1A	[Symbol]	TIE INTO EQUIPMENT OR DOWN TO FLOOR BELOW
S _T	SINGLE POLE MOTOR RATED SWITCH WITH OVERLOAD HEATER SQUARE D CLASS 2510, TYPE FGJ-1	[Symbol]	WIRING CONCEALED IN WALL OR CEILING
S _M	MOTION SENSOR W/MANUAL OVERRIDE: WALL OR CEILING MOUNTED. "WA" OR "CY".	[Symbol]	WIRING CONCEALED IN FLOOR OR WALL
[Symbol]	JUNCTION BOX	[Symbol]	WIRING EXPOSED
[Symbol]	SPECIAL PURPOSE OUTLET WITH NEMA CONFIGURATION	[Symbol]	CROSSHATCHING INDICATES NUMBER OF CURRENT CARRYING CONDUCTORS IF MORE THAN TWO ARE REQUIRED. LONGER MARK INDICATES NEUTRAL. GROUNDWIRE IS ALWAYS INSTALLED AND NEVER INDICATED. NO CROSSHATCHING INDICATES 1 HOT, 1 NEUTRAL, AND 1 GROUND, ALL #12 THHN.
[Symbol]	DUPLEX RECEPTACLE - MTD. 18" A.F.F. - 20A, 125V. P&S CAT. NO. CR-20LA. "C"=MOUNT 6" ABOVE COUNTER	[Symbol]	HOME RUN TO PANELBOARD - "A" DESIGNATES PANEL, "1,3" INDICATES CIRCUIT NUMBERS
[Symbol]	ISOLATED GROUND RECEPTACLE - MTD 48" A.F.F. - 20A, 125V. ARROW-HART CAT. NO. IGS362HG	[Symbol]	MOTOR WITH RATING IN HORSEPOWER
[Symbol]	GROUND FAULT INTERRUPTING RECEPTACLE - MTD. 48" A.F.F., 20A,125V., P&S CAT. NO. 2091-1A INDICATES WEATHERPROOF	[Symbol]	COMBINATION STARTER/DISCONNECT SWITCH WITH SWITCH AND FUSE RATINGS
[Symbol]		[Symbol]	INDICATES RAIN-TIGHT
[Symbol]		[Symbol]	INDICATES DUAL ELEMENT FUSES
[Symbol]		[Symbol]	NUMBER OF POLES
[Symbol]		[Symbol]	FUSE SIZE
[Symbol]		[Symbol]	SWITCH SIZE
[Symbol]		[Symbol]	MAGNETIC MOTOR STARTER
[Symbol]		[Symbol]	DISCONNECT SWITCH

ABBREVIATIONS

A	AMPS
AG	ABOVE GRADE
AFF	ABOVE FINISHED FLOOR
BL	BLANK PLATE
BOF	BOTTOM OF FIXTURE
C	CONDUIT
CB	CIRCUIT BREAKER
CD	CANDELA
CU	COPPER
DWG	DRAWING
ECPS	EMPTY CONDUIT W/PULL STRING
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EX	EXISTING
FACP	FIRE ALARM CONTROL PANEL
G, GR	GROUND
GFI	GROUND FAULT CIRCUIT INTERRUPTER
IG	ISOLATED GROUND
N	NEW
NG	NATIONAL GRID (ELECTRICAL UTILITY)
UNO	UNLESS NOTED OTHERWISE
V	VOLT
W/	WITH
WP	WEATHERPROOF



**WARWICK SCHOOLS
WARWICK VETERANS
MEMORIAL HIGH SCHOOL
2401 WEST SHORE ROAD, WARWICK, RI 02889
DUST COLLECTION REPLACEMENT**



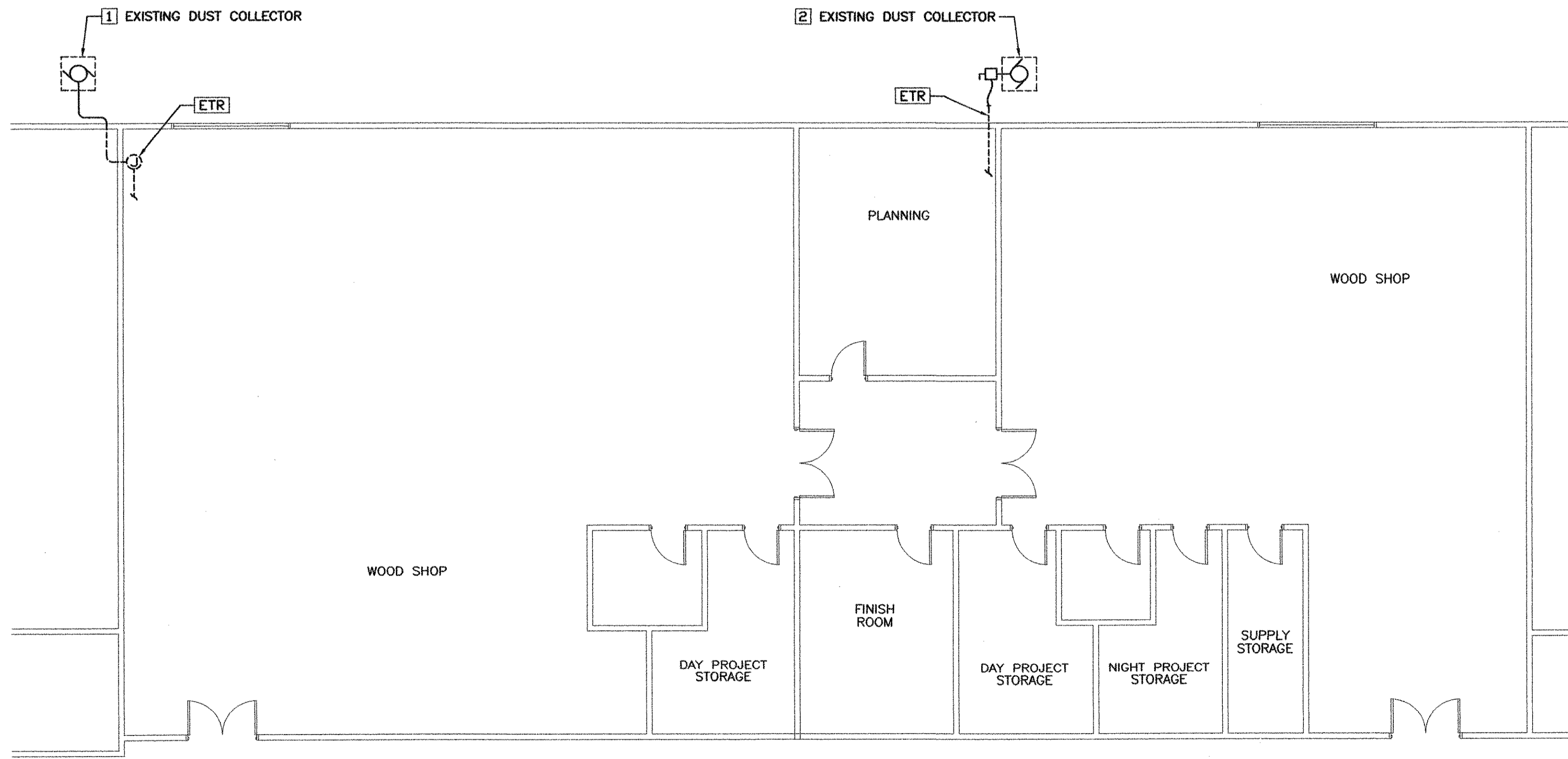
Status: **ISSUED FOR CONSTRUCTION**

Date	Revision/Issue	No.

Sheet Title:
**ELECTRICAL
LEGEND SHEET,
DEMOLITION
PLAN &
SPECIFICATIONS**

Project No:	20715
Drawn By:	MSO
Checked By:	PDS
Scale:	AS SHOWN
Date:	04/10/2007

Drawing No:
E-1
Sheet 13 of 14



PARTIAL PLAN - ELECTRICAL DEMOLITION
SCALE: 1/8"=1'-0"

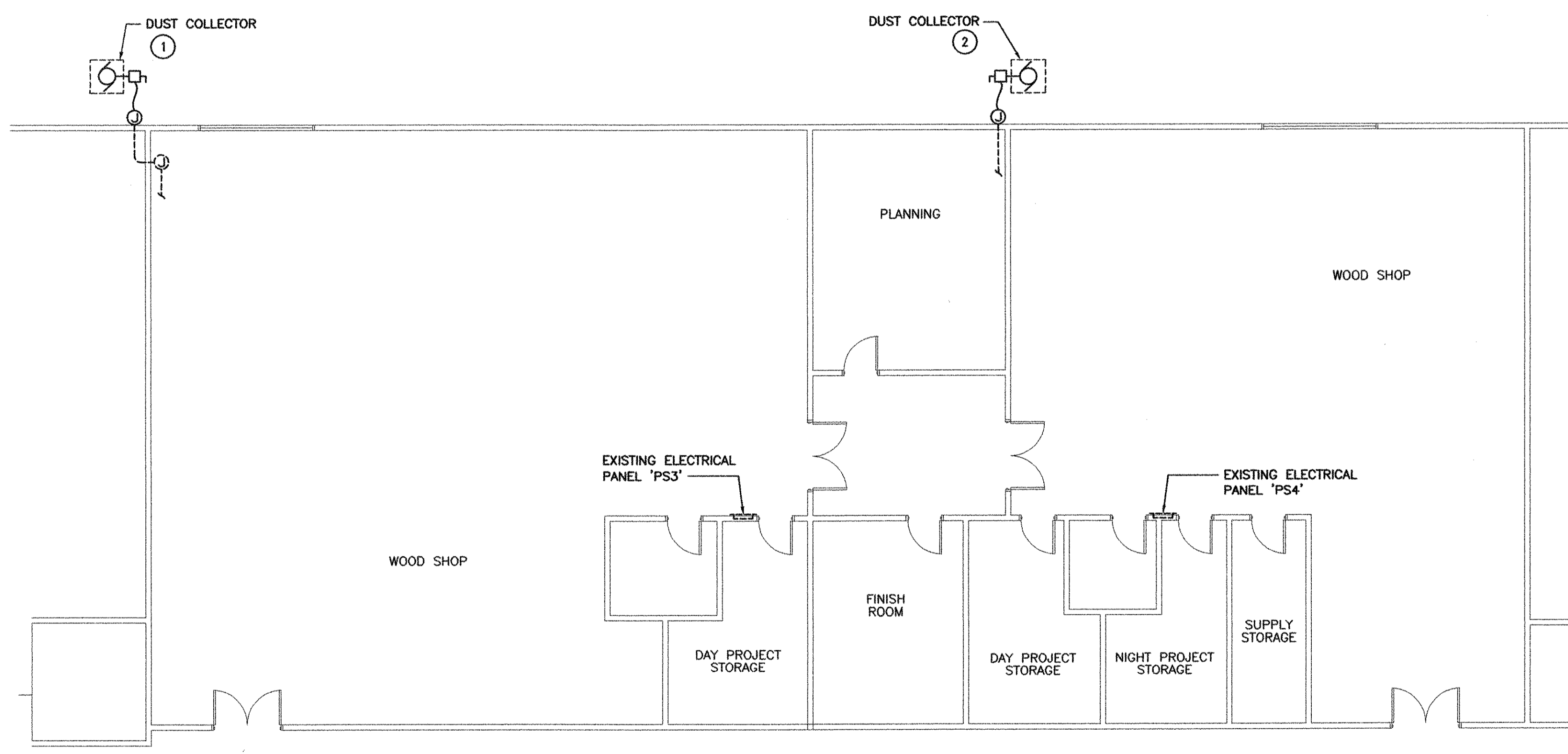
GENERAL DEMOLITION NOTES:

- CONTRACTOR SHALL VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING.
- ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. CONTRACTOR SHALL SECURE ALL REQUIRED DEMOLITION PERMITS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- IT IS NOT THE INTENT TO SHOW ALL CONDUIT AND MATERIAL, AND EXACT SIZES TO BE REMOVED IN THE DEMOLITION WORK. DRAWING INDICATES EQUIPMENT DIAGRAMMATICALLY. EXACT LOCATION AND SIZE OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO RETURN BACK TO THE ORIGINAL LOCATION ANY DEVICE OR MATERIAL THAT MUST BE TEMPORARILY REMOVED OR RELOCATED TO ALLOW DEMOLITION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVING AND DISPOSING OF ALL EXISTING ELECTRICAL EQUIPMENT AS SHOWN ON DRAWINGS, EXCEPT WHERE NOTED OTHERWISE.

DEMOLITION KEYNOTES:

- EXISTING DUST COLLECTOR TO BE REMOVED PER MECHANICAL DRAWINGS. DISCONNECT CONDUIT AND WIRING FROM DUST COLLECTOR. REMOVE EXTERIOR CONDUIT AND WIRING TO MOTOR. EXISTING FEEDER FROM EXTERIOR WALL BACK TO SOURCE TO REMAIN.
 - EXISTING DUST COLLECTOR TO BE REMOVED PER MECHANICAL DRAWINGS. DISCONNECT CONDUIT AND WIRING FROM DUST COLLECTOR. REMOVE EXTERIOR CONDUIT AND WIRING TO MOTOR. EXISTING FEEDER FROM EXTERIOR WALL BACK TO SOURCE TO REMAIN.
- ETR - EXISTING TO REMAIN
ETL - EXISTING TO BE RELOCATED

Date	Revision/Issue	No.



MECHANICAL EQUIPMENT ELECTRICAL CONNECTION SCHEDULE																				
MECH ID#	DESCRIPTION	EQUIPMENT CHARACTERISTICS								PANEL	CIRCUIT	BREAKER	FEEDER AND CONDUIT	EQUIPMENT LOCATION	DISCONNECT SWITCH				MOTOR CONTROL	REMARKS
		VOLTS	AMPS	PH	HP	WATTS	MCA	MOCPI	CFM						SIZE	FUSE	POLES	NEMA		
①	DUST COLLECTOR	208		3	10								RE-USE EXISTING	WOOD SHOP	30/NF/3/RT				1,2,3	
②	DUST COLLECTOR	208		3	7.5								RE-USE EXISTING	WOOD SHOP	30/NF/3/RT				1,2,3	

REMARKS:

1. DUST COLLECTOR TO BE POWERED BY SAME CIRCUIT THAT EXISTING DUST COLLECTOR TO BE REMOVED WAS CONNECTED.
2. RE-USE EXISTING CIRCUIT BREAKER.
3. EXISTING FEEDER TO BE RE-USED UP TO EXTERIOR WALL. NEW 3/4" LIQUID-TITE WITH 3#8 TO BE INSTALLED FROM JUNCTION BOX LOCATED AT EXTERIOR WALL TO NEW DISCONNECT, AND THEN TO MOTOR. 1#10 GROUND TO BE ADDED TO FEEDER FROM EXISTING ELECTRICAL PANEL TO THE DUST COLLECTOR MOTOR.

WARWICK PUBLIC SCHOOLS

34 WARWICK LAKE AVE.
WARWICK, RI 02889

DUST COLLECTION REPLACEMENT

APRIL 10, 2007

ALDRICH JUNIOR HIGH SCHOOL

789 POST ROAD, WARWICK, RI 02888
CEC JOB NO.: 20710

GORTON JUNIOR HIGH SCHOOL

69 DRAPER AVENUE, WARWICK, RI 02889
CEC JOB NO.: 20711

WINMAN JUNIOR HIGH SCHOOL

575 CENTERVILLE ROAD, WARWICK, RI 02886
CEC JOB NO.: 20712

TOLL GATE HIGH SCHOOL

575 CENTERVILLE ROAD, WARWICK, RI 02886
CEC JOB NO.: 20713

PILGRIM HIGH SCHOOL

111 PILGRIM PARKWAY, WARWICK, RI 02888
CEC JOB NO.: 20714

WARWICK VETERANS MEMORIAL HIGH SCHOOL

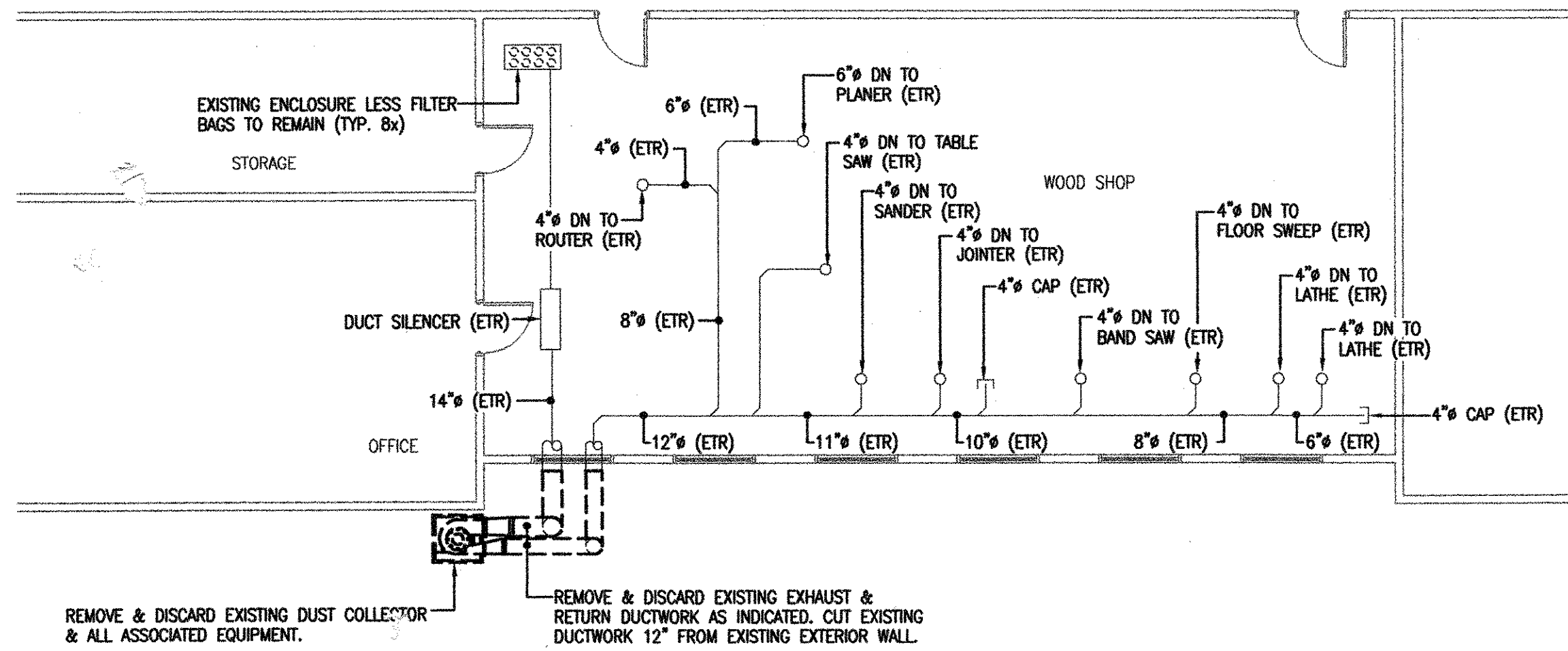
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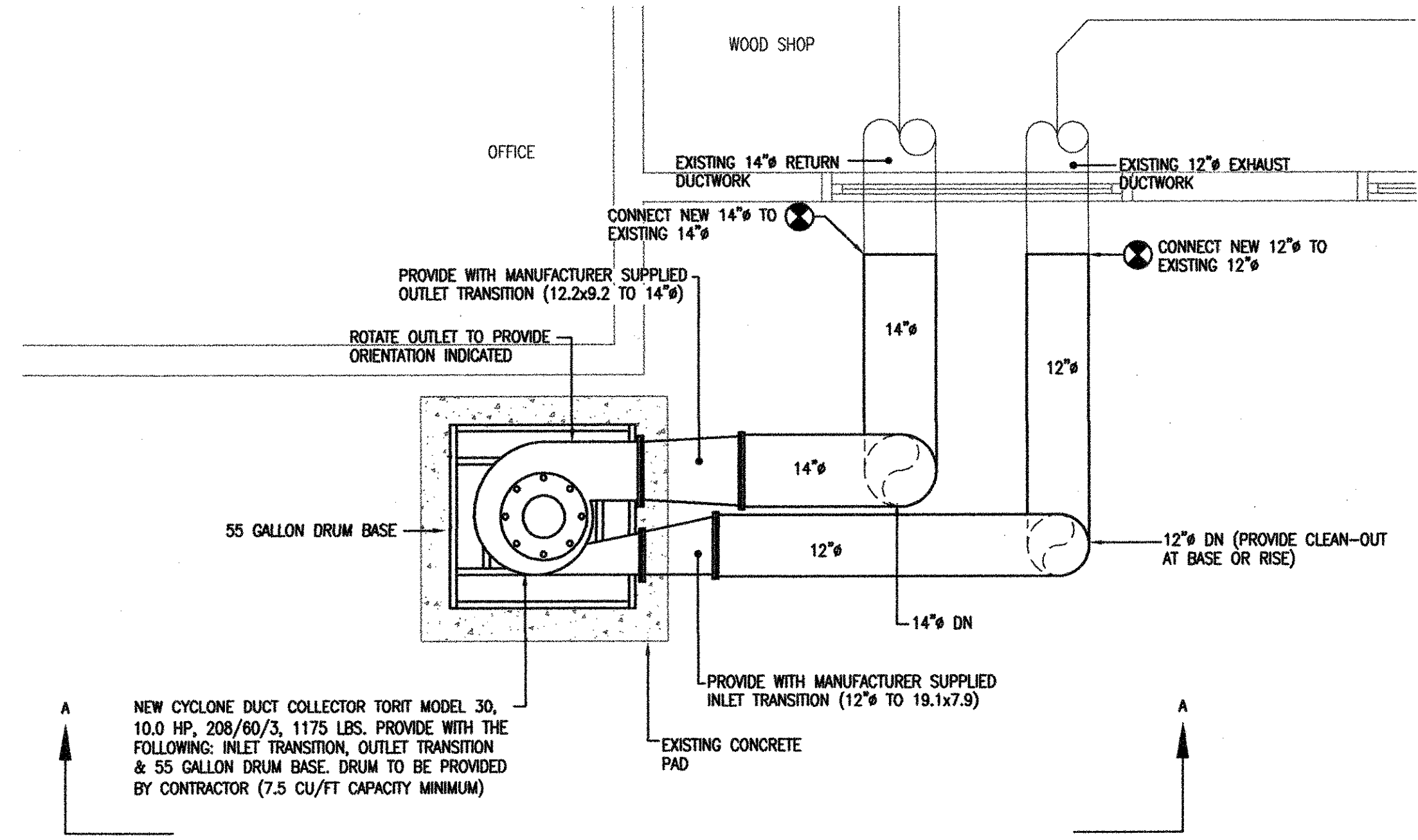
PARTIAL FLOOR PLAN - MECHANICAL DEMOLITION

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

DEMOLITION NOTES

UNDER DEMOLITION, THE FOLLOWING IS, IN BRIEF, THE EXTENT OF THE WORK TO BE PERFORMED BY THE MECHANICAL CONTRACTOR UNDER THIS CONTRACT.

1. PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS.
2. PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
3. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF THE EXISTING MECHANICAL EQUIPMENT & DUCTWORK IN DESIGNATED AREAS. PATCH ALL ROOF AND WALL PENETRATIONS TO MATCH EXISTING.
4. THIS CONTRACTOR SHALL PROTECT WORK AGAINST INJURY OR DAMAGE; AND CAREFULLY STORE MATERIAL AND EQUIPMENT TO BE RELOCATED. OPEN ENDS OF WORK SHALL BE CLOSED WITH TEMPORARY COVERS OR PLUGS DURING STORAGE AND CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.



PARTIAL FLOOR PLAN - MECHANICAL NEW WORK

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



WARWICK SCHOOLS
ALDRICH JUNIOR HIGH SCHOOL
789 POST ROAD, WARWICK, RI 02888
DUST COLLECTION REPLACEMENT

RICHARD C. NEWELL
No. 8486
4.10.07
REGISTERED PROFESSIONAL ENGINEER MECHANICAL

Status:
ISSUED FOR CONSTRUCTION

Date	
Revision/Issue	
No.	

Sheet Title:
MECHANICAL FLOOR PLANS DETAILS SCHEDULES & SPECIFICATIONS

Project No: 20710
Drawn By: JAA
Checked By: RCN/JPS
Scale: AS SHOWN
Date: 4/10/2007

Drawing No:
M-1
Sheet 1 of 14

MECHANICAL SPECIFICATIONS

PART 1 - GENERAL REQUIREMENTS

1. SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, ETC., TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED FOR A COMPLETE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION, AS INTERPRETED BY THE ARCHITECT/ENGINEER.
2. APPLY AND PAY FOR ALL NECESSARY INSPECTION FEES, LICENSES AND PERMITS REQUIRED BY THE PROPER AUTHORITIES HAVING JURISDICTION.
3. "PROVIDE" AND "INSTALL" ALL MATERIALS, LABOR AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS OR HEREIN SPECIFIED.
4. ALL CUTTING, PATCHING & REQUIRED FLASHING WILL BE DONE BY THIS CONTRACTOR.
5. ALL MATERIALS SHALL BE NEW. ALL EQUIPMENT SHALL BEAR THE U.L. LABEL.
6. COORDINATE LOCATIONS OF ALL NEW DUCTWORK WITH EXISTING EQUIPMENT, LIGHTING, OTHER TRADES, AND THE OWNER PRIOR TO INSTALLATION OR FABRICATION OF SAME.
7. CONTRACTOR TO GUARANTEE THE QUALITY OF ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF OWNER ACCEPTANCE. ALL DEFECTIVE MATERIAL AND WORKMANSHIP SHALL BE REPLACED AT CONTRACTOR'S EXPENSE DURING THIS TIME.
8. ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR'S EMPLOYEES, MATERIALS OR EQUIPMENT.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INJURIES OR DAMAGE DONE TO BUILDING PREMISES OR ADJOINING AREAS OR WORK RESULTING FROM EXECUTION OF HIS PART OF WORK IN ANY MANNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTION OF HIS WORK AT HIS OWN EXPENSE.
10. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR ALL EQUIPMENT SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS PRIOR TO ORDERING, FABRICATING OR INSTALLING SAME.
11. THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWING AND/OR SITE CONDITIONS, THE HVAC CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED. THE CONTRACTOR SHALL CONDUCT A THOROUGH FIELD INVESTIGATION TO VERIFY WORK SHOWN ON THE DRAWINGS. THE DRAWINGS REFLECT THE BEST AVAILABLE INFORMATION FROM EXISTING PLANS AND SITE INVESTIGATIONS.

PART 2 - PRODUCTS

1. DUCTWORK

- A. ALL DUCTWORK SHALL BE OF TOP GRADE GALVANIZED STEEL, CONSTRUCTED AND SUPPORTED AS PER S.M.A.C.N.A. INDUSTRIAL DUCT CONSTRUCTION STANDARDS CLASS 2. ALL ELBOWS SHALL BE LONG RADIUS TYPE. ALL JOINTS, SEAMS, AND FITTINGS SHALL BE AIR AND WATER TIGHT USING SOLDER JOINTS AND SHALL BE FORMED TO PROVIDE A MINIMUM RESISTANCE TO THE AIR FLOW.

- B. THE FOLLOWING METAL THICKNESS SHALL BE UTILIZED:

DUCT SIZE	GAUGE
UP TO 8"	22-18
OVER 8" UP TO 18"	22-12

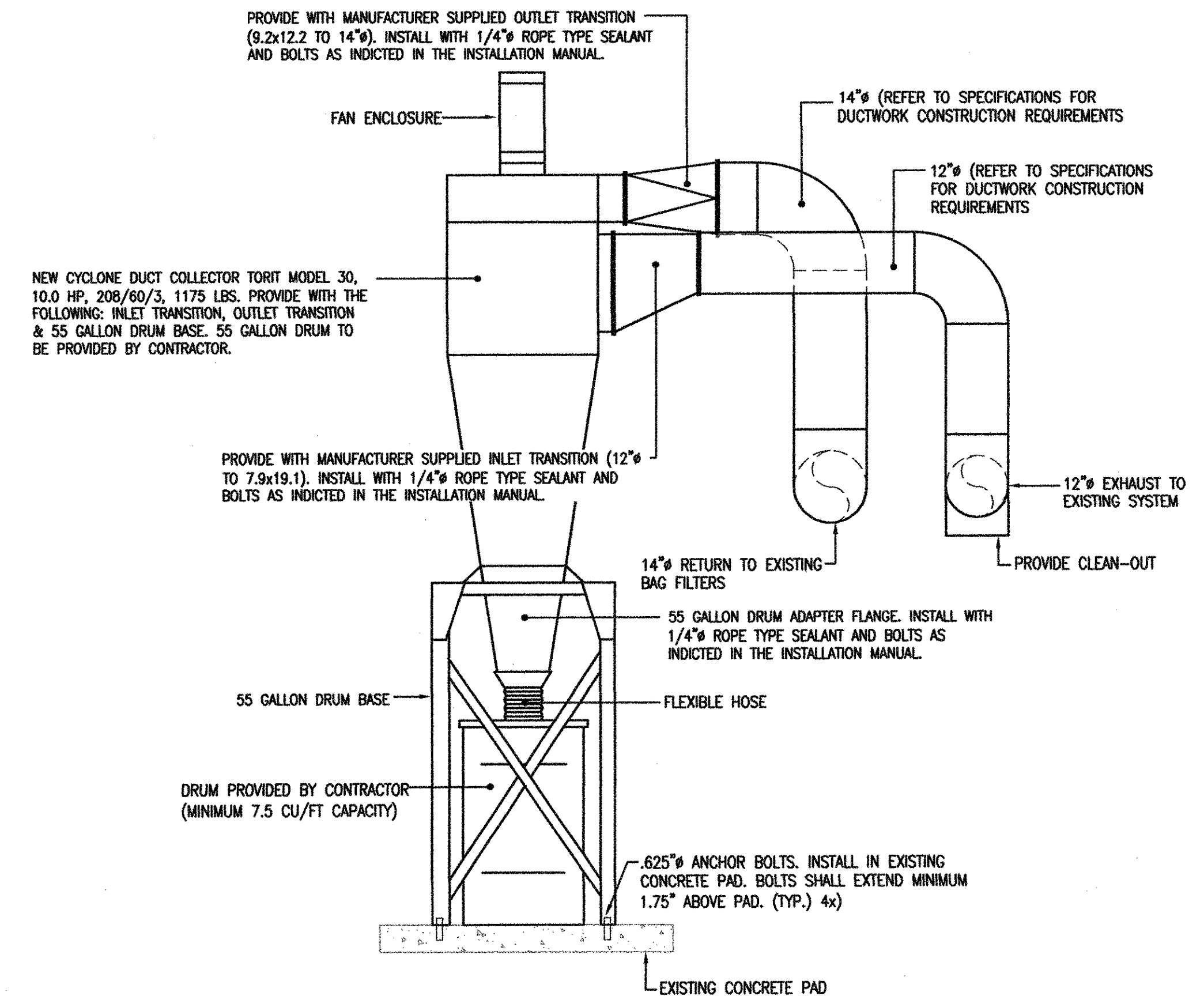
- A. ELBOWS & ANGLES SHALL BE A MINIMUM OF TWO GAUGES HEAVIER THAN STRAIGHT LENGTHS OF EQUAL DIAMETER. ROUND ELBOWS AND ANGLES SHOULD HAVE AN INSIDE OR THROAT RADIUS OF TWO PIPE DIAMETERS. CONSTRUCT ELBOWS SIX INCHES OR LESS IN DIAMETER OF AT LEAST FIVE SECTIONS. ELBOWS OVER SIX INCHES DIAMETER OF SEVEN SECTIONS. ANGLES SHALL BE PIECED PROPORTIONATELY.
- D. RECTANGULAR ELBOWS & ANGLES SHALL BE CONSTRUCTED HAVING A W/D & R/D EQUAL TO OR GREATER THAN 1.
- E. LONGITUDINAL JOINTS OF DUCTS SHALL BE LAPPED AND SEAMED OR WELDED.
- F. GIRTH JOINTS OF DUCTS SHALL BE MADE WITH LAP IN DIRECTION OF AIR FLOW AND ONE INCH LAP FOR DIAMETERS THRU 19 INCHES AND 1-1/2 INCH LAP FOR DIAMETERS OVER 19 INCHES.
- G. INTERIOR OF ALL DUCTS SHALL BE SMOOTH AND FREE FROM OBSTRUCTIONS WITH JOINTS SOLDERED AIR TIGHT.
- H. SUPPORT DUCTS SUFFICIENTLY TO PLACE NO LOAD ON CONNECTING EQUIPMENT AND TO CARRY WEIGHT OF SYSTEM IF SOX PLUGGED WITH MATERIAL. MAXIMUM SUPPORTING INTERVALS SHALL BE TWELVE FEET ON HORIZONTAL DUCTS, AT ALL CHANGES OF DIRECTION, TOP OF RISERS AND ON THREE FOOT CENTERS FOR DUCTS LOCATED ON WALLS. BOTH CROSS AND HORIZONTAL BRACING SHALL BE PROVIDED AS REQUIRED.
- I. DUCT RESTING ON SUPPORT MEMBERS WITHOUT SADDLES MUST BE REINFORCED WITH PLATES AT LEAST TWICE THE THICKNESS OF THE DUCT MATERIAL. THESE WEAR PLATES SHALL BE HALF THE CIRCUMFERENCE AND AT LEAST TWICE AS LONG AS THE WIDTH OF THE MEMBER SUPPORTING THE DUCT.
- J. PROVIDE SIX INCH MINIMUM CLEARANCE BETWEEN DUCTS AND CEILING, WALL OR FLOORS.
- K. WHERE LAWS CONFLICT WITH THE PRECEDING, THE MORE STRINGENT REQUIREMENT SHALL BE FOLLOWED. DEVIATION FROM EXISTING REGULATIONS MAY REQUIRE APPROVAL.
- L. ALL EXTERIOR DUCTWORK SHALL BE CLEANED & PAINTED WITH (2) COATS RUST INHIBITING PAINT. COLOR TO MATCH DUCT COLLECTOR.
- M. THIS ABOVE INFORMATION SHALL PROVIDE FOR COMPLETE AND OPERABLE SYSTEM TO MEET INTENT OF SPECIFICATIONS & TO THE SATISFACTION OF THE ENGINEERS.

2. CYCLONE DUST COLLECTOR

- A. FURNISH A COMPLETE CONTINUOUS-DUTY DUST COLLECTOR SYSTEM AS SHOWN ON THE PLANS AND/OR LISTED IN THE EQUIPMENT SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF PROVIDING CYCLONIC CLEANING OF INCOMING AIR.
- B. THE CONTINUOUS-DUTY COLLECTOR SHALL BE SUPPLIED IN FACTORY-ASSEMBLED UNITS OR IN MAJOR SUBASSEMBLIES SIZED TO MEET AIRFLOW CAPACITIES AND DESIGN REQUIREMENTS. INSTRUCTION MANUAL AND REPLACEMENT PARTS LIST SHALL BE INCLUDED FOR EASY INSTALLATION AND MAINTENANCE.
- C. EACH COLLECTOR SHALL BE OF BOLTED AND WELDED CONSTRUCTION USING 14 GAUGE HRS DESIGNED FOR -20" WATER GAUGE AND COMPLETE WITH A REMOVABLE BOTTOM CONE SECTION. THE MOTOR AND FAN ASSEMBLY SHALL BE SHIPPED LOOSE.
- D. DUST-LADEN AIR WILL ENTER THE COLLECTOR ON THE SIDE AND BE DIVERTED BY A HELICAL BAFFLE. THE AIR WILL THEN HAVE A "SPIN" IMPARTED TO IT. CENTRIFUGAL FORCES MOVE THE HEAVY DIRT AND DUST TO THE SIDE WALLS AND CARRY IT DOWN TO THE BASE OF THE UNIT. CLEAN AIR IS THEN EXHAUSTED FROM THE UNIT.
- E. THE COLLECTOR SHALL INCLUDE AN INLET FLANGE MOUNTED ON THE SIDE OF THE COLLECTOR AT THE DIRTY AIR INLET. AN OUTLET FLANGE WILL BE PROVIDED ON THE SIDE OF THE FAN. THE FAN OUTLET SHALL ACCEPT A TORIT-BUILT FILTER BAG ASSEMBLY INCLUDING STANDARD FILTER BAGS.
- F. FILTER BAGS SHALL BE MANUFACTURED OF POLYESTER FELT AND PROVIDE IN THE APPROPRIATE QUANTITIES FOR THE COLLECTION CAPACITY.
- G. THE COLLECTOR SHALL BE A DONALDSON TORIT CYCLONE CONTINUOUS DUTY DUST COLLECTOR AS MANUFACTURED BY DONALDSON COMPANY, INC. OR ENGINEER APPROVED EQUAL.

PART 3 - EXECUTION

1. IT IS THE INTENT OF THESE SPECIFICATIONS THAT THIS CONTRACTOR BE RESPONSIBLE FOR PROVIDING ALL DEVICES AND WIRING (REGARDLESS OF VOLTAGE) NECESSARY TO PROVIDE THE SEQUENCES AS SPECIFIED HEREIN.
2. ALL MECHANICAL SYSTEMS SHALL BE AUTOMATICALLY CONTROLLED. WHERE NO DESCRIPTION OF OPERATION IS INDICATED FOR A PARTICULAR SYSTEM OR DEVICE, THE CONTRACTOR SHALL SELECT APPROPRIATE CONTROL SCENARIOS AND REVIEW THEM WITH THE ENGINEER PRIOR TO PROCEEDING. ALL CONTROLS SHALL BE ARRANGED AND DESIGNED FOR MAXIMUM ENERGY CONSERVATION.
3. SEQUENCE OF OPERATION
PROVIDE NEW WALL MOUNTED SWITCH TO ENERGIZE/DE-ENERGIZE THE DUST COLLECTION SYSTEM.
4. PROJECT CLOSE-OUT
A. RESTORE EXISTING FACILITIES USED DURING CONSTRUCTION TO ORIGINAL CONDITION. CLEAN PORTIONS OF THE SITE AFFECTED BY WORK OF THIS CONTRACT. REMOVE WASTE AND SURPLUS MATERIALS FROM THE SITE.
B. SUBMIT TWO COPIES OF OPERATION AND MAINTENANCE DATA BOUND IN THREE-RING BINDERS. INCLUDE WARRANTIES, SUBMITTALS, BALANCING REPORT, AND PROJECT DOCUMENTS AND CERTIFICATES.
C. CONTRACTOR SHALL DEMONSTRATE ALL SEQUENCES OF CONTROL TO THE ENGINEER. THE TEMPERATURE CONTROL AND BALANCING SUBCONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING CHECK-OUT PROCEDURE. PERSONNEL SHALL BE EQUIPPED WITH TOOLS AND SPARE PARTS TO MAKE MINOR REPAIRS AND ADJUSTMENTS.



SECTION A-A
NO SCALE

SYMBOL LEGEND

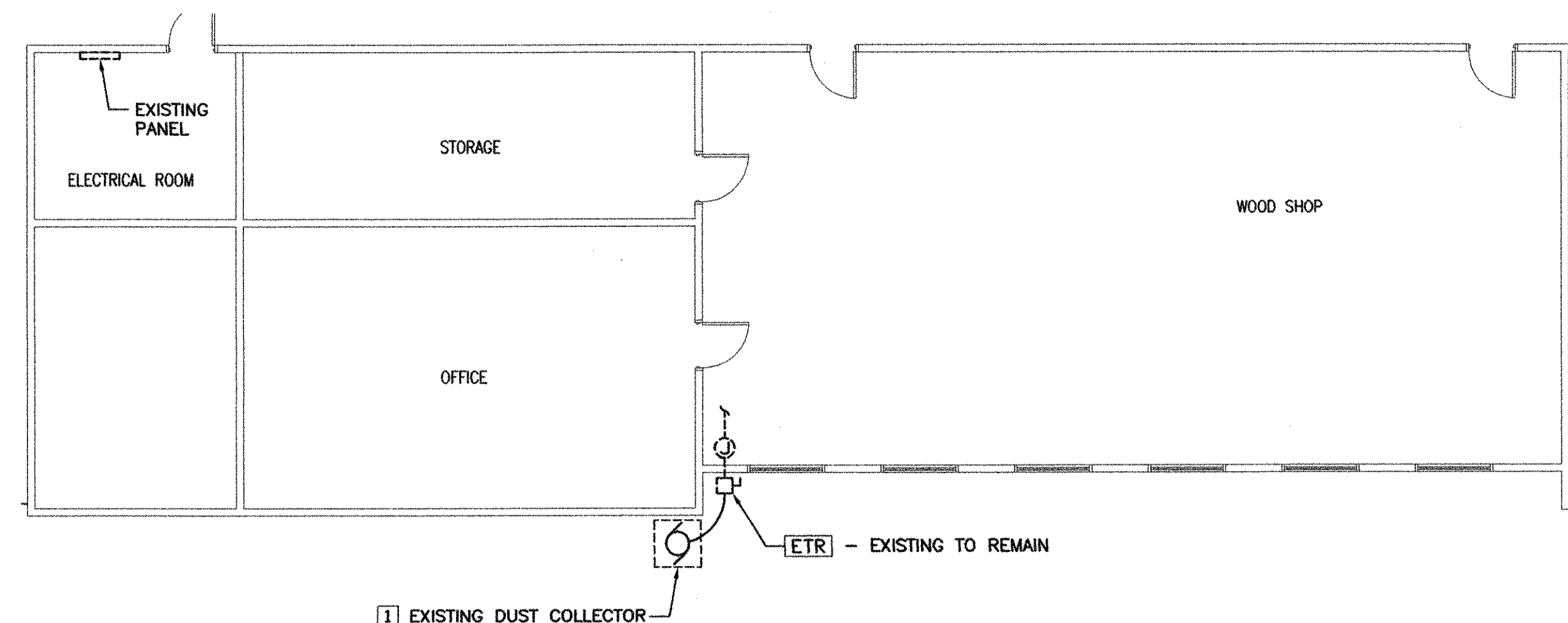
USE MOUNTING HEIGHTS SPECIFIED ON ARCHITECTURAL DRAWINGS. IF NOT LISTED, USE MOUNTING HEIGHTS ON THIS DRAWING.

- | SYMBOL | DESCRIPTION |
|----------------|---|
| S | SINGLE POLE SWITCH - 48" A.F.F., P&S CAT. NO. CS120-LA |
| S _P | SINGLE POLE SWITCH WITH PILOT LIGHT - 48" A.F.F. P&S CAT. NO. 20AC1-RPL |
| S ₃ | 3-WAY SWITCH - 48" A.F.F., P&S CAT. NO. CS320-LA |
| S ₄ | FOUR WAY SWITCH - 48" A.F.F.; P&S CAT. NO. CS420-LA |
| S _T | SINGLE POLE MOTOR RATED SWITCH WITH OVERLOAD HEATER SQUARE D CLASS 2510, TYPE FGJ-1 |
| S _M | MOTION SENSOR W/MANUAL OVERRIDE: WALL OR CEILING MOUNTED. "WA" OR "CI" |
| Ⓜ | JUNCTION BOX |
| Ⓢ | SPECIAL PURPOSE OUTLET WITH NEMA CONFIGURATION |
| Ⓞ | DUPLEX RECEPTACLE - MTD. 18" A.F.F. - 20A, 125V. P&S CAT. NO. CR-20LA. "C"=MOUNT 6" ABOVE COUNTER |
| Ⓡ | ISOLATED GROUND RECEPTACLE - MTD 48" A.F.F. - 20A, 125V. ARROW-HART CAT. NO. IGS362HG |
| Ⓢ | GROUND FAULT INTERRUPTING RECEPTACLE - MTD. 48" A.F.F., 20A, 125V., P&S CAT. NO. 2091-LA INDICATES WEATHERPROOF |

- | SYMBOL | DESCRIPTION |
|--------|--|
| — | SURFACE MOUNTED PANELBOARD - MTD TOP 6"6" A.F.F. |
| — | FLUSH MOUNTED PANELBOARD - MTD TOP 6"6" A.F.F. |
| — | UP TO FLOOR ABOVE |
| — | TIE INTO EQUIPMENT OR DOWN TO FLOOR BELOW |
| — | WIRING CONCEALED IN WALL OR CEILING |
| --- | WIRING CONCEALED IN FLOOR OR WALL |
| --- | WIRING EXPOSED |
| — — — | CROSSHATCHING INDICATES NUMBER OF CURRENT CARRYING CONDUCTORS IF MORE THAN TWO ARE REQUIRED. LONGER MARK INDICATES NEUTRAL. GROUNDWIRE IS ALWAYS INSTALLED AND NEVER INDICATED. NO CROSSHATCHING INDICATES 1 HOT, 1 NEUTRAL, AND 1 GROUND, ALL #12 THIN. |
| —A | HOME RUN TO PANELBOARD - "A" DESIGNATES PANEL, "1,3" INDICATES CIRCUIT NUMBERS |
| Ⓜ | MOTOR WITH RATING IN HORSEPOWER |
| Ⓜ | COMBINATION STARTER/DISCONNECT SWITCH WITH SWITCH AND FUSE RATINGS |
| — | INDICATES RAINTIGHT |
| — | INDICATES DUAL ELEMENT FUSES |
| — | NUMBER OF POLES |
| — | FUSE SIZE |
| — | SWITCH SIZE |
| Ⓜ | MAGNETIC MOTOR STARTER |
| Ⓜ | DISCONNECT SWITCH |

ABBREVIATIONS

- | | | | |
|------|-----------------------------|-------|------------------------------------|
| A | AMPS | EG | EQUIPMENT GROUND |
| AG | ABOVE GRADE | EX | EXISTING |
| AFF | ABOVE FINISHED FLOOR | FACP | FIRE ALARM CONTROL PANEL |
| BL | BLANK PLATE | G, GR | GROUND |
| BOF | BOTTOM OF FIXTURE | GFI | GROUND FAULT CIRCUIT INTERRUPTER |
| C | CONDUIT | IGI | ISOLATED GROUND |
| CB | CIRCUIT BREAKER | N | NEW |
| CD | CANDELA | NG | NATIONAL GRID (ELECTRICAL UTILITY) |
| CU | COPPER | UNO | UNLESS NOTED OTHERWISE |
| DWG | DRAWING | V | VOLT |
| ECPS | EMPTY CONDUIT W/PULL STRING | W/ | WITH |
| EF | EXHAUST FAN | WP | WEATHERPROOF |



PARTIAL PLAN - ELECTRICAL DEMOLITION
SCALE: 1/8"=1'-0"

GENERAL DEMOLITION NOTES:

- CONTRACTOR SHALL VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING.
- ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. CONTRACTOR SHALL SECURE ALL REQUIRED DEMOLITION PERMITS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- IT IS NOT THE INTENT TO SHOW ALL CONDUIT AND MATERIAL, AND EXACT SIZES TO BE REMOVED IN THE DEMOLITION WORK. DRAWING INDICATES EQUIPMENT DIAGRAMMATICALLY. EXACT LOCATION AND SIZE OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO RETURN BACK TO THE ORIGINAL LOCATION ANY DEVICE OR MATERIAL THAT MUST BE TEMPORARILY REMOVED OR RELOCATED TO ALLOW DEMOLITION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVING AND DISPOSING OF ALL EXISTING ELECTRICAL EQUIPMENT AS SHOWN ON DRAWINGS, EXCEPT WHERE NOTED OTHERWISE.

DEMOLITION KEYNOTES:

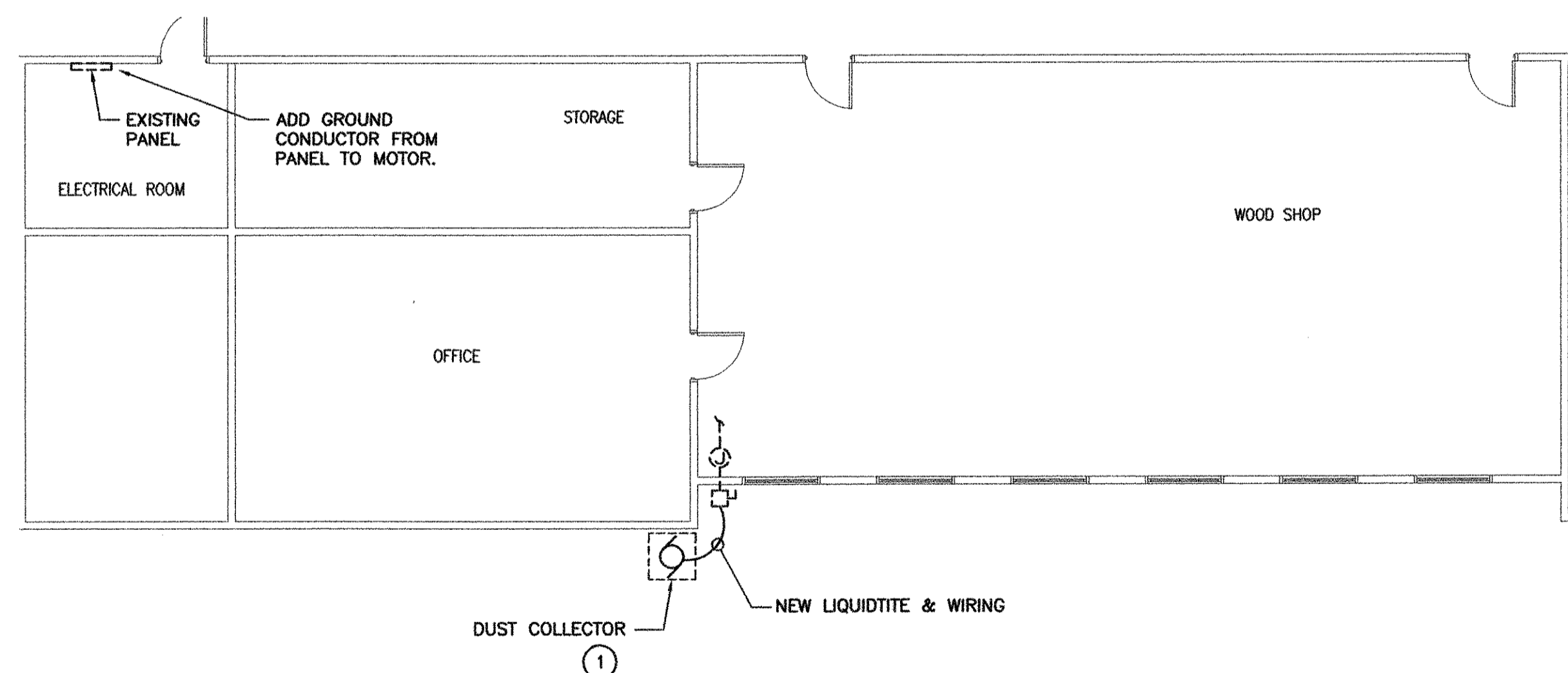
- EXISTING DUST COLLECTOR TO BE REMOVED PER MECHANICAL DRAWINGS. DISCONNECT CONDUIT AND WIRING FROM DUST COLLECTOR. REMOVE LIQUID-TITE FROM MOTOR TO DISCONNECT. ALL JUNCTION BOXES, CONDUIT, WIRING, ELECTRICAL DEVICES, ETC. ASSOCIATED WITH THE EXISTING DUST COLLECTOR FROM OUTSIDE DISCONNECT BACK TO SOURCE TO REMAIN.

ETR - EXISTING TO REMAIN

ETL - EXISTING TO BE RELOCATED

ELECTRICAL SPECIFICATIONS

- FURNISH LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE PROPER AND COMPLETE INSTALLATION OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED.
- ALL ITEMS NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE SPECIFICATIONS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE ELECTRICAL INSTALLATION, SHALL BE FURNISHED AND INSTALLED AS PART OF THIS SECTION.
- ALL ELECTRICAL INSTALLATIONS AND GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE LOCAL, STATE AND NATIONAL CODES:
 - BUILDING CODE OF THE STATE OF RI (BOCA W/RI AMENDMENTS)
 - ELECTRICAL CODE OF THE STATE OF RI (NFPA 70W/RI AMENDMENTS)
 - FIRE ALARM REQUIREMENTS OF THE STATE OF RI.
- OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
- ALL EQUIPMENT AND THE INSTALLATION OF ELECTRICAL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- MATERIALS AND WORKMANSHIP SHALL BE THE BEST OF THEIR RESPECTIVE KINDS AND IN FULL ACCORD WITH THE MOST MODERN ELECTRICAL CONSTRUCTION. ALL MATERIALS SHALL BE NEW, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
- FURNISH AND INSTALL TEMPORARY POWER AS REQUIRED TO OPERATE TOOLS AND LIGHTING. PROVIDE PANELS AND LIGHTING FIXTURES FOR CONSTRUCTION, AS REQUIRED.
- THE ELECTRICAL SUB-CONTRACTOR SHALL INSPECT THE SITE PRIOR TO SUBMITTING HIS BID, AND SHALL INVESTIGATE ALL CONDITIONS UNDER WHICH THIS WORK WILL BE PERFORMED. FAILURE TO INSPECT EXISTING CONDITIONS OR TO FULLY UNDERSTAND THE WORK WHICH IS REQUIRED SHALL NOT EXCUSE THE ELECTRICAL SUB-CONTRACTOR FROM HIS OBLIGATIONS TO SUPPLY AND INSTALL THE WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND THE DRAWINGS AND UNDER ALL SITE CONDITIONS AS THEY EXIST.
- THE ELECTRICAL CONTRACTOR SHALL CLEAN, AT THE END OF EACH DAY, ALL AREAS WORKED IN. EMPTY BOXES, RUBBISH, AND OTHER MATERIALS OF NO USE SHALL BE REMOVED FROM THE SITE.
- WORK SEQUENCE SHALL BE COORDINATED WITH THE PROJECT MANAGER AND SHALL BE IN COORDINATION WITH OTHER BUILDING TRADES AND THE BUILDING SCHEDULE.
- NEW 120/208V. BRANCH CIRCUIT PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELBOARDS SHALL BE EQUAL TO GE TYPE AQ WITH BOLTED BRANCH CIRCUIT BREAKERS. BRANCH CIRCUIT BREAKERS SHALL BE RATED 10,000 A.I.C. MINIMUM. NEW 277/480V PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELS SHALL BE EQUAL TO G.E. TYPE AE WITH BOLTED BRANCH BREAKERS. BRANCH BREAKERS SHALL BE RATED 14,000 A.I.C. MINIMUM. PANELBOARD SCHEDULES SHALL BE FILLED OUT AND PLACED IN EACH PANEL BOARD; BOTH EXISTING AND NEW, ALL SCHEDULES SHALL BE TYPED.
- WIRE AND CABLE SHALL BE TYPE THWN/THHN, UL LISTED FOR BUILDING WIRE, 75 DEGREES CENTIGRADE, WET OR DRY LOCATIONS, RATED FOR 600 VOLT. WIRE SHALL BE A MINIMUM OF NO. 12 AWG SOLID. ALL CONDUCTORS SHALL BE COPPER. METAL-CLAD CABLE TYPE MC WITH GROUND CONDUCTORS, MAY BE USED IN AREAS WHERE APPROVED BY THE LOCAL ELECTRICAL INSPECTOR. FIRE ALARM WIRING SHALL BE FIRE ALARM TYPE MC CABLE, WITH PERMISSION AND APPROVAL OF THE FIRE ALARM SUPERINTENDENT, SIZES NOTED, AND/OR REQUIRED, OR SHALL BE INDIVIDUAL CONDUCTORS RUN IN CONDUIT.
- CONDUITS SHALL BE E.M.T. WITH STEEL CONNECTORS AND COUPLINGS IN FURRED SPACES, ABOVE CEILINGS, AND IN EXPOSED INTERIOR SPACES. FLEXIBLE STEEL CONDUIT (GREENFIELD) SHALL BE USED FOR CONNECTIONS TO FIXTURES AND EQUIPMENT.
- ALL OUTLET BOXES FOR LIGHTING, SWITCHES, RECEPTACLES, TELEPHONE, TELEVISION, ETC. SHALL BE GALVANIZED STEEL, MINIMUM 1-1/2" DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE DEVICE TO BE UTILIZED THEREIN. PROVIDE PLASTER RINGS AS REQUIRED. BOXES SHALL HAVE MOUNTING LUGS OR EARS FOR COVERS AND KNOCKOUTS FOR CONDUIT TERMINATIONS. PROVIDE SEALANT AROUND OUTLET BOXES TO PREVENT SOUND TRANSMISSION TO ADJACENT ROOM.
- ALL CONDUIT/WIRING PENETRATIONS THROUGH FIRE WALLS SHALL BE FIRESTOPPED WITH MATERIAL CONFORMING TO ASTM E136 AND SHALL BE UL CLASSIFIED, FM APPROVED, AND APPROVED FOR USE IN 1-, 2-, OR 3-HOUR RATED SYSTEMS. FIRE STOP MATERIAL SHALL BE EQUAL TO DOW CORNING CAT. NO. 2000 FIRE STOP SEALANT OR 2001 FIRE STOP FOAM AS REQUIRED BY THE PARTICULAR FIRE STOPPING CONDITION.
- ALL WIRING DEVICES SHALL BE BY ONE MANUFACTURER AND SHALL BE G.E., P&S, BRYANT OR HUBBELL. THE CATALOG NUMBERS ON THE DRAWINGS ARE THOSE OF THE G.E. COMPANY, EXCEPT AS OTHERWISE INDICATED AND ARE USED TO DENOTE TYPE AND QUALITY. COLOR SHALL BE AS SELECTED BY THE ARCHITECT/CONSTRUCTION MANAGER.
- ALL DEVICE PLATES SHALL MATCH EXISTING.
- THE PLANS DEPICT THE LOCATION OF ALL FIXTURES AND EQUIPMENT AND ARE INTENDED TO INDICATE THE GENERAL INTENT OF THE WORK IN SCOPE, LAYOUT AND QUALITY OF WORKMANSHIP.
- THE CONTRACTOR SHALL CAREFULLY VERIFY ALL MEASUREMENTS AT THE SITE, DETERMINE THE EXACT LOCATION OF ALL CHASES AND OPENINGS REQUIRED BY HIS WORK AND SHALL FURNISH AND SET ALL SLEEVES, INSERTS, AND HANGERS AS REQUIRED FOR THE WORK HEREIN.
- THE CONTRACTOR SHALL COORDINATE HIS WORK SO THAT IT DOES NOT INTERFERE WITH THE WORK OF OTHER TRADES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT HIS WORK IS INSTALLED IN A TIMELY MANNER.
- ALL HVAC CONTROLS, CONTROL WIRING AND INTER-CONNECTIONS SHALL BE BY DIV. 15, EXCEPT AS OTHERWISE NOTED AND SHOWN ON ELECTRICAL DRAWINGS. ALL 120V HVAC CONTROL WIRING SHALL BE BY THIS CONTRACTOR (DIV. 16).
- THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT. THE CONTRACTOR SHALL FURNISH TO THE OWNER ALL INSTRUCTION PAMPHLETS, BOOKS AND OTHER LITERATURE FURNISHED BY THE MANUFACTURER AND EXPLAIN THE PROPER OPERATING AND MAINTENANCE PROCEDURES.
- SUBMIT TO THE OWNER FOR REVIEW AND APPROVAL SIX COMPLETE COPIES OF THE FOLLOWING SHOP DRAWINGS:
 - JUNCTION BOXES
 - WIRING DEVICES AND PLATES
 - CIRCUIT BREAKERS
 - DISCONNECT SWITCHES
 - WIRE
 - CONDUIT
- PROVIDE CONDUIT EXPANSION JOINTS AT ALL STRUCTURAL EXPANSION JOINTS.
- ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY.

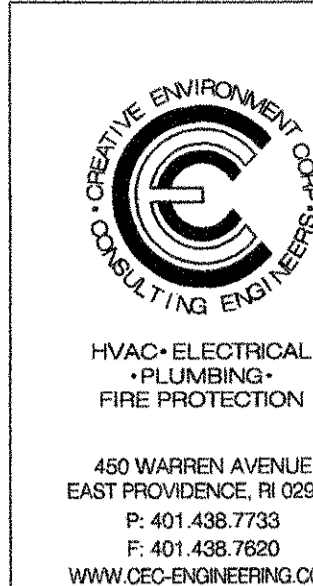


PARTIAL PLAN - MECHANICAL EQUIPMENT POWER
SCALE: 1/8"=1'-0"

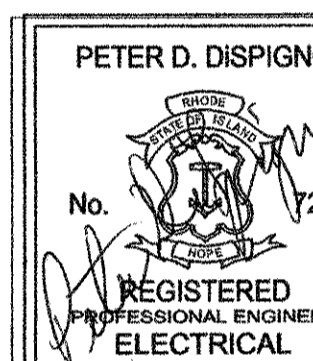
MECH ID#	DESCRIPTION	EQUIPMENT CHARACTERISTICS							PANEL	CIRCUIT	BREAKER	FEEDER AND CONDUIT	EQUIPMENT LOCATION	DISCONNECT SWITCH				MOTOR CONTROL	REMARKS
		VOLTS	AMPS	PH	HP	WATTS	MCA	MCCP						CFM	SIZE	FUSE	POLES		
1	DUST COLLECTOR	208		3	10							RE-USE EXISTING	WOOD SHOP	RE-USE EXISTING					1,2,3

REMARKS:

- DUST COLLECTOR TO BE POWERED BY SAME CIRCUIT THAT EXISTING DUST COLLECTOR TO BE REMOVED WAS CONNECTED.
- RE-USE EXISTING CIRCUIT BREAKER.
- EXISTING FEEDER TO BE RE-USED. REPLACE 3/4" LIQUID-TITE WITH NEW WITH 3/8" FROM EXISTING DISCONNECT TO MOTOR. 1#10 GROUND TO BE ADDED TO FEEDER FROM PANEL TO THE DUST COLLECTOR MOTOR.



WARWICK SCHOOLS
ALDRICH HIGH SCHOOL
789 POST ROAD, WARWICK, RI 02888
DUST COLLECTION REPLACEMENT



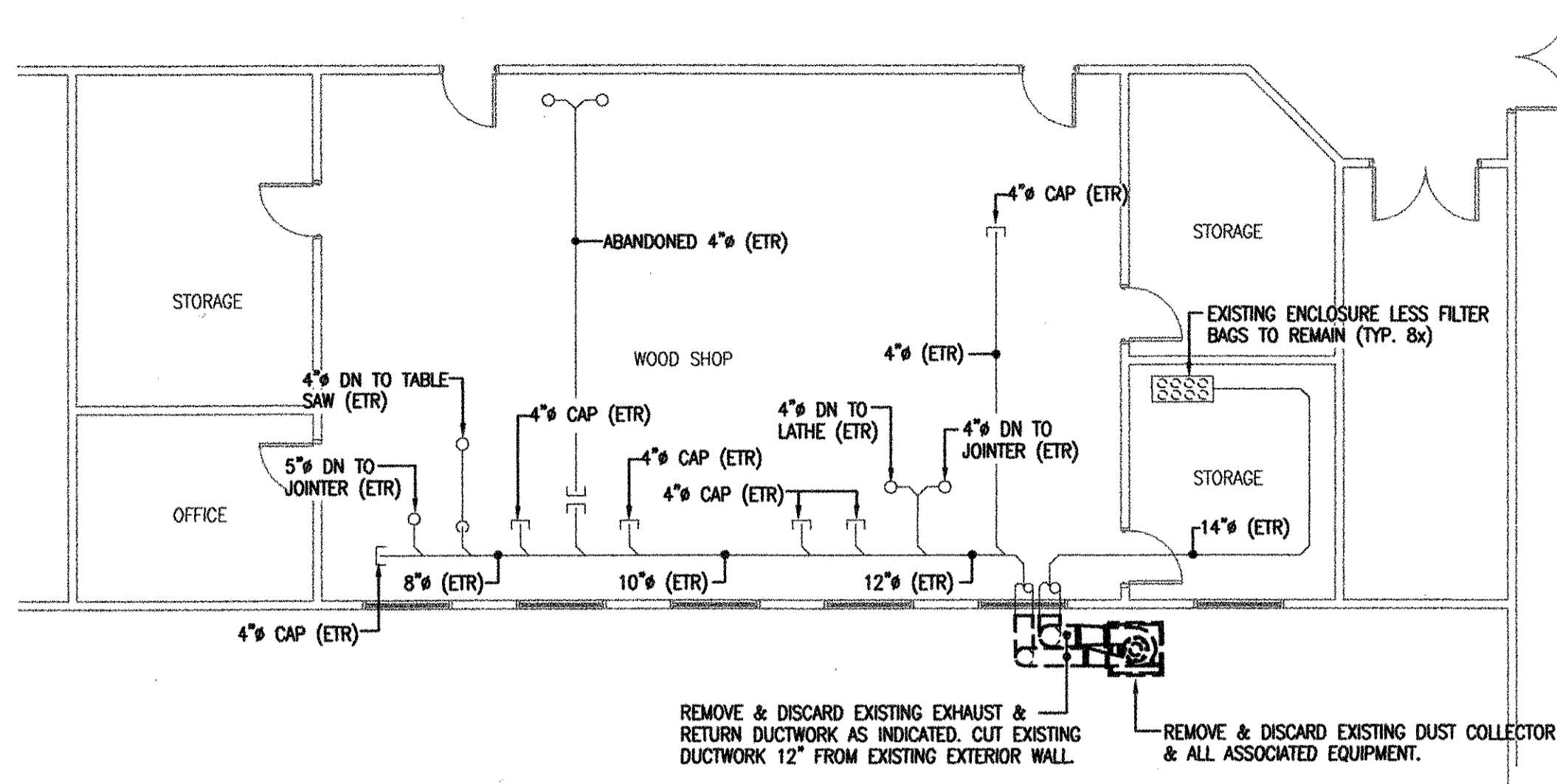
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Date	Revision/Issue	No.

Sheet Title:
ELECTRICAL FLOOR PLANS, SCHEDULES & SPECIFICATIONS

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Drawn By: MSO
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Date: 4/10/2007

Drawing No:
E-1
Sheet 2 of 14

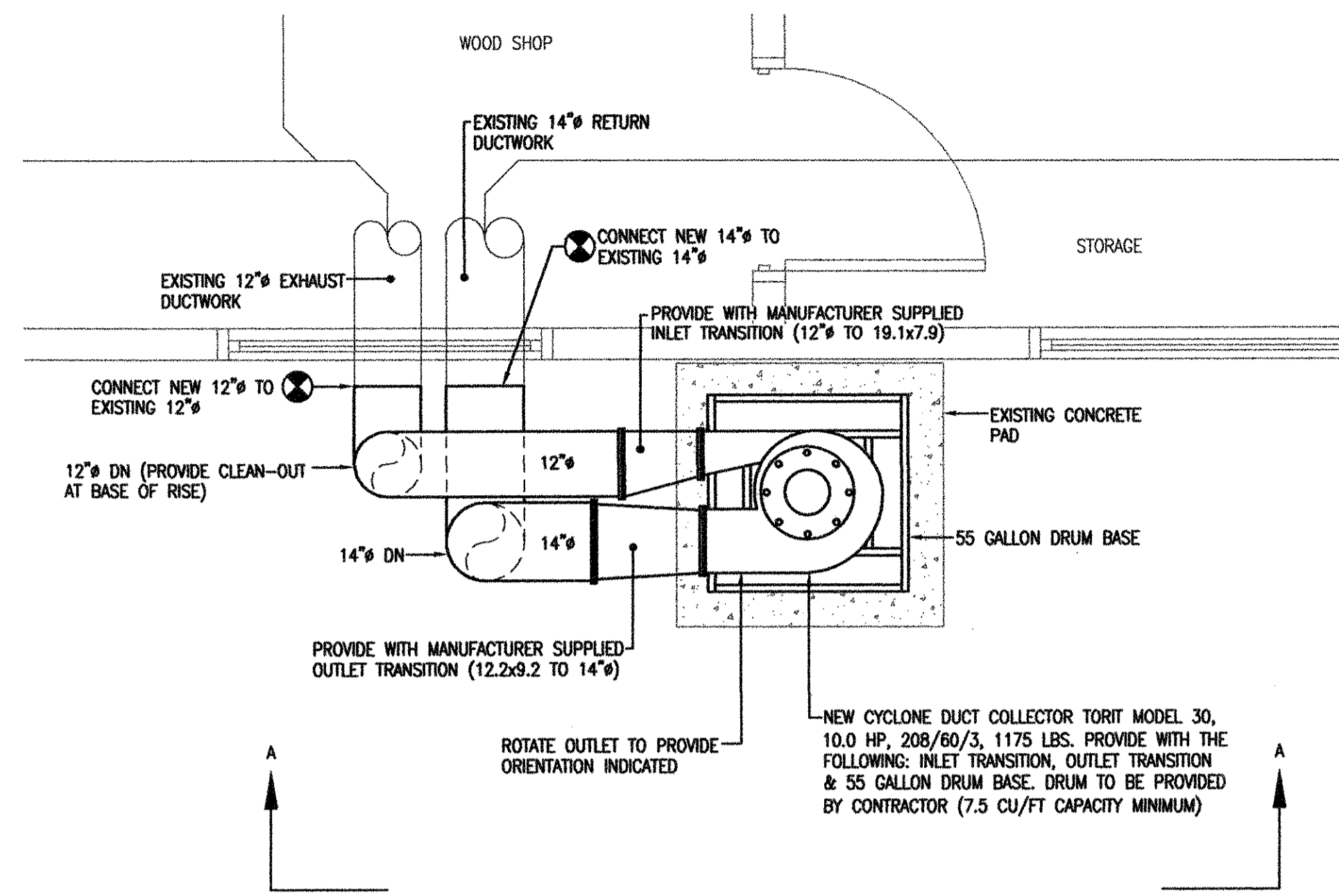


PARTIAL FLOOR PLAN - MECHANICAL DEMOLITION
SCALE: 1/8"=1'-0"

DEMOLITION NOTES

UNDER DEMOLITION, THE FOLLOWING IS, IN BRIEF, THE EXTENT OF THE WORK TO BE PERFORMED BY THE MECHANICAL CONTRACTOR UNDER THIS CONTRACT.

1. PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS.
2. PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
3. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF THE EXISTING MECHANICAL EQUIPMENT & DUCTWORK IN DESIGNATED AREAS. PATCH ALL ROOF AND WALL PENETRATIONS TO MATCH EXISTING.
4. THIS CONTRACTOR SHALL PROTECT WORK AGAINST INJURY OR DAMAGE, AND CAREFULLY STORE MATERIAL AND EQUIPMENT TO BE RELOCATED. OPEN ENDS OF WORK SHALL BE CLOSED WITH TEMPORARY COVERS OR PLUGS DURING STORAGE AND CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.



PARTIAL FLOOR PLAN - MECHANICAL NEW WORK
SCALE: 1/2"=1'-0"

MECHANICAL SPECIFICATIONS

PART 1 - GENERAL REQUIREMENTS

1. SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, ETC., TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED FOR A COMPLETE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION, AS INTERPRETED BY THE ARCHITECT/ENGINEER.
2. APPLY AND PAY FOR ALL NECESSARY INSPECTION FEES, LICENSES AND PERMITS REQUIRED BY THE PROPER AUTHORITIES HAVING JURISDICTION.
3. "PROVIDE" AND "INSTALL" ALL MATERIALS, LABOR AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS OR HEREIN SPECIFIED.
4. ALL CUTTING, PATCHING & REQUIRED FALSHING WILL BE DONE BY THIS CONTRACTOR.
5. ALL MATERIALS SHALL BE NEW. ALL EQUIPMENT SHALL BEAR THE U.L. LABEL.
6. COORDINATE LOCATIONS OF ALL NEW DUCTWORK WITH EXISTING EQUIPMENT, LIGHTING, OTHER TRADES, AND THE OWNER PRIOR TO INSTALLATION OR FABRICATION OF SAME.
7. CONTRACTOR TO GUARANTEE THE QUALITY OF ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF OWNER ACCEPTANCE. ALL DEFECTIVE MATERIAL AND WORKMANSHIP SHALL BE REPLACED AT CONTRACTOR'S EXPENSE DURING THIS TIME.
8. ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR'S EMPLOYEES, MATERIALS OR EQUIPMENT.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INJURIES OR DAMAGE DONE TO BUILDING PREMISES OR ADJOINING AREAS OR WORK RESULTING FROM EXECUTION OF HIS PART OF WORK IN ANY MANNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTION OF HIS WORK AT HIS OWN EXPENSE.
10. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR ALL EQUIPMENT SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS PRIOR TO ORDERING, FABRICATING OR INSTALLING SAME.
11. THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWING AND/OR SITE CONDITIONS, THE HVAC CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED. THE CONTRACTOR SHALL CONDUCT A THOROUGH FIELD INVESTIGATION TO VERIFY WORK SHOWN ON THE DRAWINGS. THE DRAWINGS REFLECT THE BEST AVAILABLE INFORMATION FROM EXISTING PLANS AND SITE INVESTIGATIONS.

PART 2 - PRODUCTS

1. DUCTWORK
 - A. ALL DUCTWORK SHALL BE OF TOP GRADE GALVANIZED STEEL, CONSTRUCTED AND SUPPORTED AS PER S.M.A.C.N.A. INDUSTRIAL DUCT CONSTRUCTION STANDARDS CLASS 2. ALL ELBOWS SHALL BE LONG RADIUS TYPE. ALL JOINTS, SEAMS, AND FITTINGS SHALL BE AIR AND WATER TIGHT USING SOLDER JOINTS AND SHALL BE FORMED TO PROVIDE A MINIMUM RESISTANCE TO THE AIR FLOW.
 - B. THE FOLLOWING METAL THICKNESS SHALL BE UTILIZED:

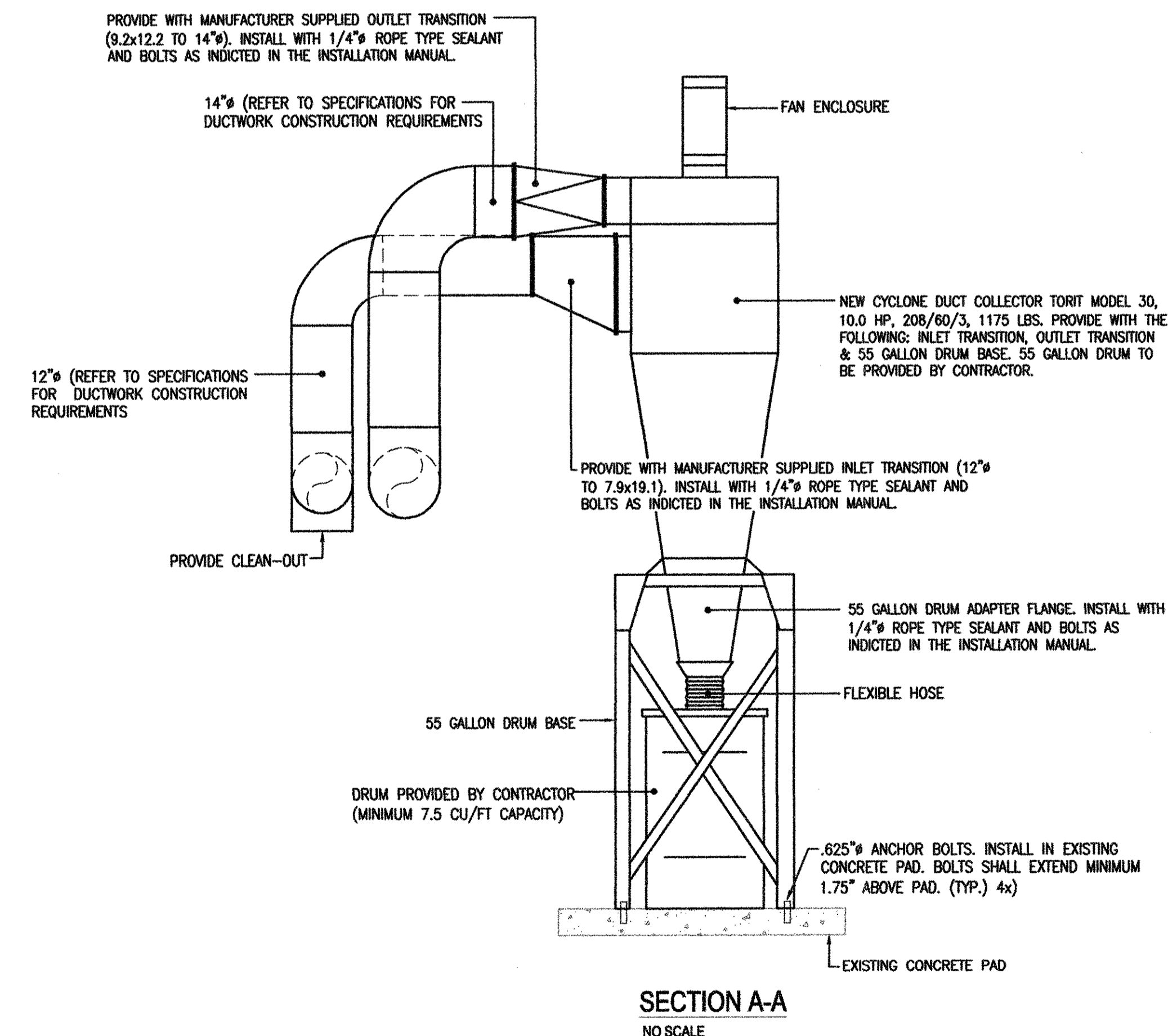
DIAMETER OF STRAIGHT DUCTS (INCHES) U.S. STANDARD GAUGE	
DUCT SIZE	GAUGE
UP TO 8"	22-18
OVER 8" UP TO 18"	22-12

- C. ELBOWS & ANGLES SHALL BE A MINIMUM OF TWO GAUGES HEAVIER THAN STRAIGHT LENGTHS OF EQUAL DIAMETER. ROUND ELBOWS AND ANGLES SHOULD HAVE AN INSIDE OR THROAT RADIUS OF TWO PIPE DIAMETERS. CONSTRUCT ELBOWS SIX INCHES OR LESS IN DIAMETER OF AT LEAST FIVE SECTIONS, ELBOWS OVER SIX INCHES DIAMETER OF SEVEN SECTIONS. ANGLES SHALL BE PIECED PROPORTIONATELY.
 - D. RECTANGULAR ELBOWS & ANGLES SHALL BE CONSTRUCTED HAVING A W/D & R/D EQUAL TO OR GREATER THAN 1.
 - E. LONGITUDINAL JOINTS OF DUCTS SHALL BE LAPPED AND SEALED OR WELDED.
 - F. GIRTH JOINTS OF DUCTS SHALL BE MADE WITH LAP IN DIRECTION OF AIR FLOW AND ONE INCH LAP FOR DIAMETERS THRU 19 INCHES AND 1-1/2 INCH LAP FOR DIAMETERS OVER 19 INCHES.
 - G. INTERIOR OF ALL DUCTS SHALL BE SMOOTH AND FREE FROM OBSTRUCTIONS WITH JOINTS SOLDERED AIR TIGHT.
 - H. SUPPORT DUCTS SUFFICIENTLY TO PLACE NO LOAD ON CONNECTING EQUIPMENT AND TO CARRY WEIGHT OF SYSTEM IF 50% PLUGGED WITH MATERIAL. MAXIMUM SUPPORTING INTERVALS SHALL BE TWELVE FEET ON HORIZONTAL DUCTS, AT ALL CHANGES OF DIRECTION, TOP OF RISERS AND ON THREE FOOT CENTERS FOR DUCTS LOCATED ON WALLS. BOTH CROSS AND HORIZONTAL BRACING SHALL BE PROVIDED AS REQUIRED.
 - I. DUCT RESTING ON SUPPORT MEMBERS WITHOUT SADDLES MUST BE REINFORCED WITH PLATES AT LEAST TWICE THE THICKNESS OF THE DUCT MATERIAL. THESE WEAR PLATES SHALL BE HALF THE DUCT CIRCUMFERENCE AND AT LEAST TWICE AS LONG AS THE WIDTH OF THE MEMBER SUPPORTING THE DUCT.
 - J. PROVIDE SIX INCH MINIMUM CLEARANCE BETWEEN DUCTS AND CEILING, WALL OR FLOORS.
 - K. WHERE LAWS CONFLICT WITH THE PRECEDING, THE MORE STRINGENT REQUIREMENT SHALL BE FOLLOWED. DEVIATION FROM EXISTING REGULATIONS MAY REQUIRE APPROVAL.
 - L. ALL EXTERIOR DUCTWORK SHALL BE CLEANED & PAINTED WITH (2) COATS RUST INHIBITING PAINT. COLOR TO MATCH DUCT COLLECTOR.
 - M. THIS ABOVE INFORMATION SHALL PROVIDE FOR COMPLETE AND OPERABLE SYSTEM TO MEET INTENT OF SPECIFICATIONS & TO THE SATISFACTION OF THE ENGINEERS.
2. CYCLONE DUST COLLECTOR
 - A. FURNISH A COMPLETE CONTINUOUS-DUTY DUST COLLECTOR SYSTEM AS SHOWN ON THE PLANS AND/OR LISTED IN THE EQUIPMENT SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF PROVIDING CYCLONIC CLEANING OF INCOMING AIR.
 - B. THE CONTINUOUS-DUTY COLLECTOR SHALL BE SUPPLIED IN FACTORY-ASSEMBLED UNITS OR IN MAJOR SUBASSEMBLIES SIZED TO MEET AIRFLOW CAPACITIES AND DESIGN REQUIREMENTS. INSTRUCTION MANUAL AND REPLACEMENT PARTS LIST SHALL BE INCLUDED FOR EASY INSTALLATION AND MAINTENANCE.
 - C. EACH COLLECTOR SHALL BE OF BOLTED AND WELDED CONSTRUCTION USING 1/4" GAUGE HRS DESIGNED FOR -20" WATER GAUGE AND COMPLETE WITH A REMOVABLE BOTTOM CONE SECTION. THE MOTOR AND FAN ASSEMBLY SHALL BE SHIPPED LOOSE.
 - D. DUST-LADEN AIR WILL ENTER THE COLLECTOR ON THE SIDE AND BE DIVERTED BY A HELICAL BAFFLE. THE AIR WILL THEN HAVE A "SPIN" IMPARTED TO IT. CENTRIFUGAL FORCES MOVE THE HEAVY DIRT AND DUST TO THE SIDE WALLS AND CARRY IT DOWN TO THE BASE OF THE UNIT. CLEAN AIR IS THEN EXHAUSTED FROM THE UNIT.
 - E. THE COLLECTOR SHALL INCLUDE AN INLET FLANGE MOUNTED ON THE SIDE OF THE COLLECTOR AT THE DIRTY AIR INLET. AN OUTLET FLANGE WILL BE PROVIDED ON THE SIDE OF THE FAN. THE FAN OUTLET SHALL ACCEPT A TORIT-BUILT FILTER BAG ASSEMBLY INCLUDING STANDARD FILTER BAGS.
 - F. FILTER BAGS SHALL BE MANUFACTURED OF POLYESTER FELT AND PROVIDE IN THE APPROPRIATE QUANTITIES FOR THE COLLECTION CAPACITY.
 - G. THE COLLECTOR SHALL BE A DONALDSON TORIT CYCLONE CONTINUOUS DUTY DUST COLLECTOR AS MANUFACTURED BY DONALDSON COMPANY, INC. OR ENGINEER APPROVED EQUAL.

PART 3 - EXECUTION

1. IT IS THE INTENT OF THESE SPECIFICATIONS THAT THIS CONTRACTOR BE RESPONSIBLE FOR PROVIDING ALL DEVICES AND WIRING (REGARDLESS OF VOLTAGE) NECESSARY TO PROVIDE THE SEQUENCES AS SPECIFIED HEREIN.
2. ALL MECHANICAL SYSTEMS SHALL BE AUTOMATICALLY CONTROLLED. WHERE NO DESCRIPTION OF OPERATION IS INDICATED FOR A PARTICULAR SYSTEM OR DEVICE, THE CONTRACTOR SHALL SELECT APPROPRIATE CONTROL SCENARIOS AND REVIEW THEM WITH THE ENGINEER PRIOR TO PROCEEDING. ALL CONTROLS SHALL BE ARRANGED AND DESIGNED FOR MAXIMUM ENERGY CONSERVATION.
3. SEQUENCE OF OPERATION

PROVIDE NEW WALL MOUNTED SWITCH TO ENERGIZE/DE-ENERGIZE THE DUST COLLECTION SYSTEM.
4. PROJECT CLOSE-OUT
 - A. RESTORE EXISTING FACILITIES USED DURING CONSTRUCTION TO ORIGINAL CONDITION. CLEAN PORTIONS OF THE SITE AFFECTED BY WORK OF THIS CONTRACT. REMOVE WASTE AND SURPLUS MATERIALS FROM THE SITE.
 - B. SUBMIT TWO COPIES OF OPERATION AND MAINTENANCE DATA BOUND IN THREE-RING BINDERS. INCLUDE WARRANTIES, SUBMITTALS, BALANCING REPORT, AND PROJECT DOCUMENTS AND CERTIFICATES.
 - C. CONTRACTOR SHALL DEMONSTRATE ALL SEQUENCES OF CONTROL TO THE ENGINEER. THE TEMPERATURE CONTROL AND BALANCING SUBCONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING CHECK-OUT PROCEDURE. PERSONNEL SHALL BE EQUIPPED WITH TOOLS AND SPARE PARTS TO MAKE MINOR REPAIRS AND ADJUSTMENTS.



CREATIVE ENVIRONMENT CORP.
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DUST COLLECTION REPLACEMENT

Project:

RICHARD C. NEWELL

REGISTERED PROFESSIONAL ENGINEER
MECHANICAL

4-10-07

Status:

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Sheet Title:

MECHANICAL FLOOR PLANS DETAILS, SCHEDULES & SPECIFICATIONS

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Sheet 3 of 14

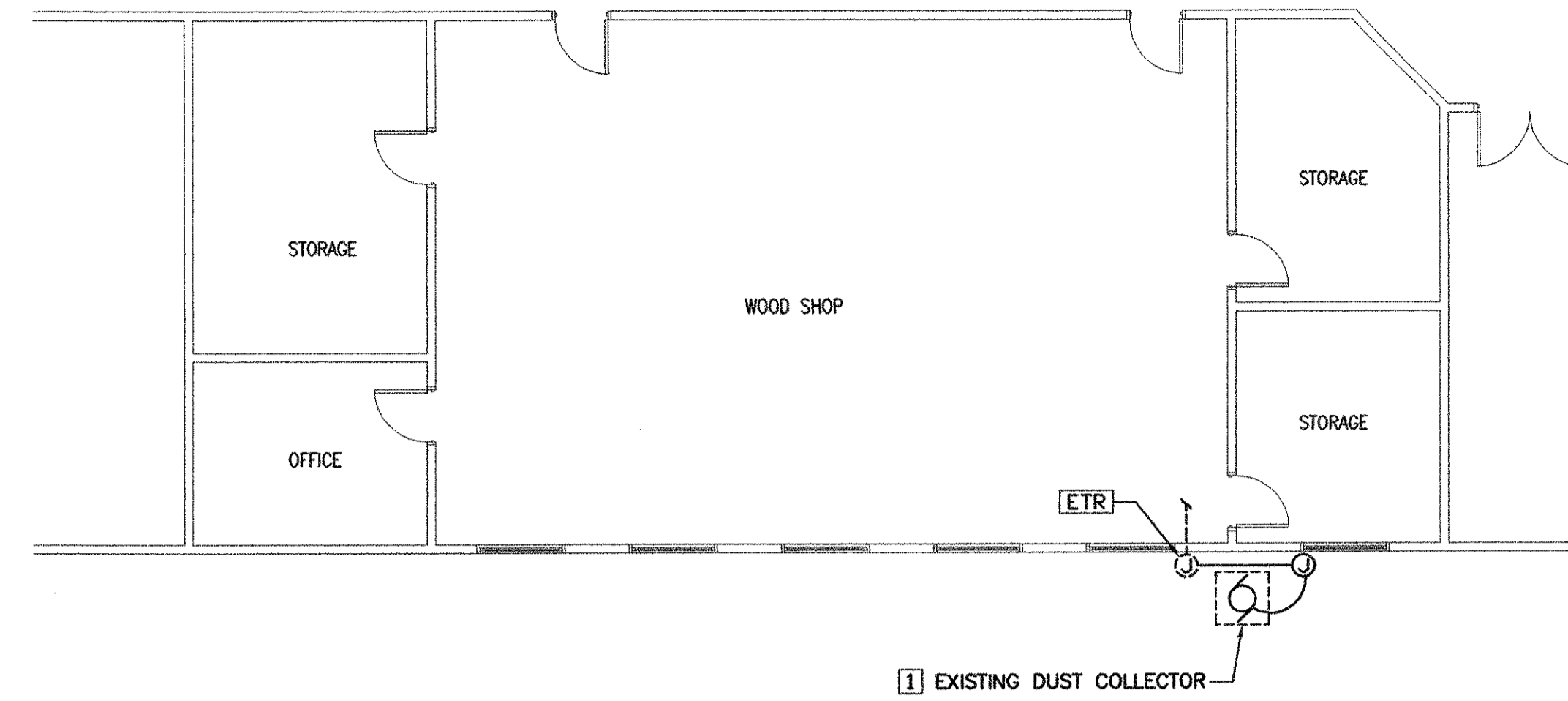
SYMBOL LEGEND

USE MOUNTING HEIGHTS SPECIFIED ON ARCHITECTURAL DRAWINGS. IF NOT LISTED, USE MOUNTING HEIGHTS ON THIS DRAWING.

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	SINGLE POLE SWITCH - 48" A.F.F., P&S CAT. NO. CS120-LA	—	SURFACE MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S _P	SINGLE POLE SWITCH WITH PILOT LIGHT - 48" A.F.F. P&S CAT. NO. 20AC1-RPL	—	FLUSH MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S ₃	3-WAY SWITCH - 48" A.F.F., P&S CAT. NO. CS320-LA	—	UP TO FLOOR ABOVE
S ₄	FOUR WAY SWITCH - 48" A.F.F.; P&S CAT. NO. CS420-LA	—	TIE INTO EQUIPMENT OR DOWN TO FLOOR BELOW
S _T	SINGLE POLE MOTOR RATED SWITCH WITH OVERLOAD HEATER SQUARE D CLASS 2510, TYPE FGJ-1	—	WIRING CONCEALED IN WALL OR CEILING
S _M	MOTION SENSOR W/MANUAL OVERRIDE: WALL OR CEILING MOUNTED. "W" OR "C".	—	WIRING CONCEALED IN FLOOR OR WALL
Ⓜ	JUNCTION BOX	—	WIRING EXPOSED
Ⓢ	SPECIAL PURPOSE OUTLET WITH NEMA CONFIGURATION 10-30T	—	CROSSHATCHING INDICATES NUMBER OF CURRENT CARRYING CONDUCTORS IF MORE THAN TWO ARE REQUIRED. LONGER MARK INDICATES NEUTRAL. GROUNDWIRE IS ALWAYS INSTALLED AND NEVER INDICATED. NO CROSSHATCHING INDICATES 1 HOT, 1 NEUTRAL AND 1 GROUND, ALL #12 THHN.
Ⓞ	DUPLEX RECEPTACLE - MTD. 18" A.F.F. - 20A, 125V. P&S CAT. NO. CR-20LA. "C"=MOUNT 6" ABOVE COUNTER	—	HOME RUN TO PANELBOARD - "A" DESIGNATES PANEL, "1,3" INDICATES CIRCUIT NUMBERS
Ⓡ	ISOLATED GROUND RECEPTACLE - MTD 48" A.F.F. - 20A, 125V. ARROW-HART CAT. NO. IG5362HG	②	MOTOR WITH RATING IN HORSEPOWER
Ⓜ	GROUND FAULT INTERRUPTING RECEPTACLE - MTD. 48" A.F.F., 20A, 125V., P&S CAT. NO. 2091-LA	Ⓜ	COMBINATION STARTER/DISCONNECT SWITCH WITH SWITCH AND FUSE RATINGS
Ⓜ	INDICATES WEATHERPROOF	—	INDICATES RAINTIGHT
		—	INDICATES DUAL ELEMENT FUSES
		—	NUMBER OF POLES
		—	FUSE SIZE
		—	SWITCH SIZE
		Ⓜ	MAGNETIC MOTOR STARTER
		Ⓜ	DISCONNECT SWITCH

ABBREVIATIONS

A	AMPS	EG	EQUIPMENT GROUND
AG	ABOVE GRADE	EX	EXISTING
AFF	ABOVE FINISHED FLOOR	FACP	FIRE ALARM CONTROL PANEL
BL	BLANK PLATE	G, GR	GROUND
BOF	BOTTOM OF FIXTURE	GFI	GROUND FAULT CIRCUIT INTERRUPTER
C	CONDUIT	IG	ISOLATED GROUND
CB	CIRCUIT BREAKER	N	NEW
CD	CANDELA	NG	NATIONAL GRID (ELECTRICAL UTILITY)
CU	COPPER	UNO	UNLESS NOTED OTHERWISE
DWG	DRAWING	V	VOLT
ECPS	EMPTY CONDUIT W/PULL STRING	W/	WITH
EF	EXHAUST FAN	WP	WEATHERPROOF



PARTIAL PLAN - ELECTRICAL DEMOLITION
SCALE: 1/8"=1'-0"

GENERAL DEMOLITION NOTES:

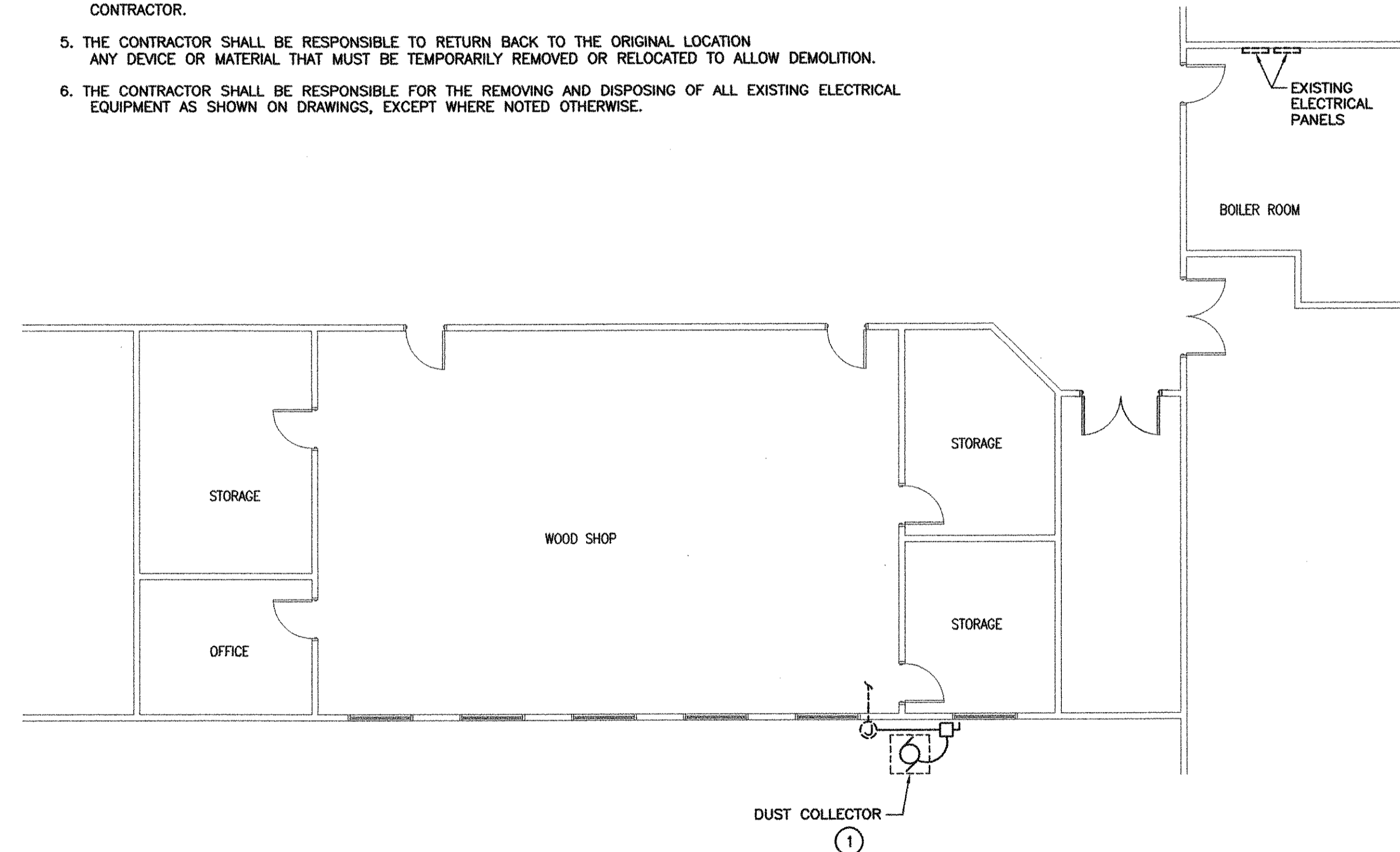
- CONTRACTOR SHALL VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING.
- ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. CONTRACTOR SHALL SECURE ALL REQUIRED DEMOLITION PERMITS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- IT IS NOT THE INTENT TO SHOW ALL CONDUIT AND MATERIAL, AND EXACT SIZES TO BE REMOVED IN THE DEMOLITION WORK. DRAWING INDICATES EQUIPMENT DIAGRAMMATICALLY. EXACT LOCATION AND SIZE OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO RETURN BACK TO THE ORIGINAL LOCATION ANY DEVICE OR MATERIAL THAT MUST BE TEMPORARILY REMOVED OR RELOCATED TO ALLOW DEMOLITION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVING AND DISPOSING OF ALL EXISTING ELECTRICAL EQUIPMENT AS SHOWN ON DRAWINGS, EXCEPT WHERE NOTED OTHERWISE.

DEMOLITION KEYNOTES:

- ① - EXISTING DUST COLLECTOR TO BE REMOVED PER MECHANICAL DRAWINGS. DISCONNECT CONDUIT AND WIRING FROM DUST COLLECTOR. REMOVE ALL CONDUIT, WIRING AND JUNCTION BOXES FROM JUNCTION BOX LOCATED OUTSIDE TO MOTOR. EXISTING FEEDER FROM JUNCTION BOX BACK TO SOURCE TO REMAIN.
- ETR - EXISTING TO REMAIN
- ETL - EXISTING TO BE RELOCATED

ELECTRICAL SPECIFICATIONS

- FURNISH LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE PROPER AND COMPLETE INSTALLATION OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED.
- ALL ITEMS NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE SPECIFICATIONS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE ELECTRICAL INSTALLATION, SHALL BE FURNISHED AND INSTALLED AS PART OF THIS SECTION.
- ALL ELECTRICAL INSTALLATIONS AND GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE LOCAL, STATE AND NATIONAL CODES:
 - A. BUILDING CODE OF THE STATE OF RI (BOCA W/RI AMENDMENTS).
 - B. ELECTRICAL CODE OF THE STATE OF RI (NFPA 70W/RI AMENDMENTS)
 - C. FIRE ALARM REQUIREMENTS OF THE STATE OF RI.
- OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
- ALL EQUIPMENT AND THE INSTALLATION OF ELECTRICAL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- MATERIALS AND WORKMANSHIP SHALL BE THE BEST OF THEIR RESPECTIVE KINDS AND IN FULL ACCORD WITH THE MOST MODERN ELECTRICAL CONSTRUCTION. ALL MATERIALS SHALL BE NEW, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
- FURNISH AND INSTALL TEMPORARY POWER AS REQUIRED TO OPERATE TOOLS AND LIGHTING. PROVIDE PANELS AND LIGHTING FIXTURES FOR CONSTRUCTION, AS REQUIRED.
- THE ELECTRICAL SUB-CONTRACTOR SHALL INSPECT THE SITE PRIOR TO SUBMITTING HIS BID, AND SHALL INVESTIGATE ALL CONDITIONS UNDER WHICH THIS WORK WILL BE PERFORMED. FAILURE TO INSPECT EXISTING CONDITIONS OR TO FULLY UNDERSTAND THE WORK WHICH IS REQUIRED SHALL NOT EXCUSE THE ELECTRICAL SUB-CONTRACTOR FROM HIS OBLIGATIONS TO SUPPLY AND INSTALL THE WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND THE DRAWINGS AND UNDER ALL SITE CONDITIONS AS THEY EXIST.
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- ALL WIRING DEVICES SHALL BE BY ONE MANUFACTURER AND SHALL BE G.E., P&S, BRYANT OR HUBBELL. THE CATALOG NUMBERS ON THE DRAWINGS ARE THOSE OF THE G.E. COMPANY, EXCEPT AS OTHERWISE INDICATED AND ARE USED TO DENOTE TYPE AND QUALITY. COLOR SHALL BE AS SELECTED BY THE ARCHITECT/CONSTRUCTION MANAGER.
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- THE CONTRACTOR SHALL CAREFULLY VERIFY ALL MEASUREMENTS AT THE SITE, DETERMINE THE EXACT LOCATION OF ALL CHASES AND OPENINGS REQUIRED BY HIS WORK AND SHALL FURNISH AND SET ALL SLEEVES, INSERTS, AND HANGERS AS REQUIRED FOR THE WORK HEREIN.
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- ALL HVAC CONTROLS, CONTROL WIRING AND INTER-CONNECTIONS SHALL BE BY DIV. 15, EXCEPT AS OTHERWISE NOTED AND SHOWN ON ELECTRICAL DRAWINGS. ALL 120V HVAC CONTROL WIRING SHALL BE BY THIS CONTRACTOR (DIV. 16).
- THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT. THE CONTRACTOR SHALL FURNISH TO THE OWNER ALL INSTRUCTION PAMPHLETS, BOOKS AND OTHER LITERATURE FURNISHED BY THE MANUFACTURER AND EXPLAIN THE PROPER OPERATING AND MAINTENANCE PROCEDURES.
- SUBMIT TO THE OWNER FOR REVIEW AND APPROVAL SIX COMPLETE COPIES OF THE FOLLOWING SHOP DRAWINGS:
 - A. JUNCTION BOXES
 - B. WIRING DEVICES AND PLATES
 - C. CIRCUIT BREAKERS
 - D. DISCONNECT SWITCHES
 - E. WIRE
 - F. CONDUIT
- PROVIDE CONDUIT EXPANSION JOINTS AT ALL STRUCTURAL EXPANSION JOINTS.
- ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY.

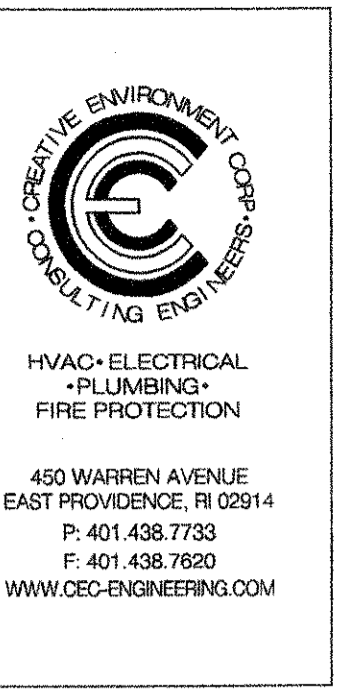


PARTIAL PLAN - MECHANICAL EQUIPMENT POWER
SCALE: 1/8"=1'-0"

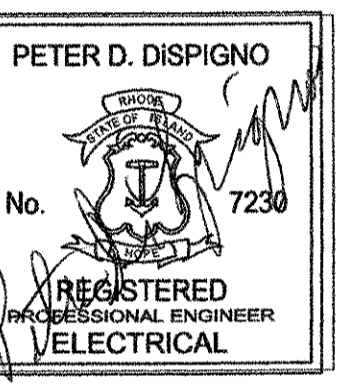
MECHANICAL EQUIPMENT ELECTRICAL CONNECTION SCHEDULE																	
MECH ID#	DESCRIPTION	EQUIPMENT CHARACTERISTICS						PANEL	CIRCUIT BREAKER	FEEDER AND CONDUIT	EQUIPMENT LOCATION	DISCONNECT SWITCH				MOTOR CONTROL	REMARKS
		VOLTS	AMPS	PH	HP	WATTS	MCA					MCCP	CFM	SIZE	FUSE		
①	DUST COLLECTOR	208		3	10					4#8 & 1#10G IN 3/4" C	WOOD SHOP	30/NF/3/RT				1,2,3	

REMARKS:

- DUST COLLECTOR (DC-2) TO BE POWERED BY SAME CIRCUIT THAT EXISTING DUST COLLECTOR TO BE REMOVED WAS CONNECTED.
- RE-USE EXISTING CIRCUIT BREAKER.
- EXISTING FEEDER TO BE RE-USED UP TO JUNCTION BOX LOCATED OUTSIDE WOOD SHOP. 3/4" LIQUID-TITE WITH 3#8 TO BE INSTALLED FROM DISCONNECT TO MOTOR. 1#10 GROUND TO BE ADDED TO FEEDER FROM PANEL TO THE DUST COLLECTOR MOTOR. REPLACE ANY MATERIAL OR DEVICE DEMOLISHED WITH NEW.



WARWICK SCHOOLS
GORTON JUNIOR HIGH SCHOOL
68 DRAPER AVENUE, WARWICK, RI 02889
DUST COLLECTION REPLACEMENT



Status:
ISSUED FOR CONSTRUCTION

Date	Revision/Issue	No.

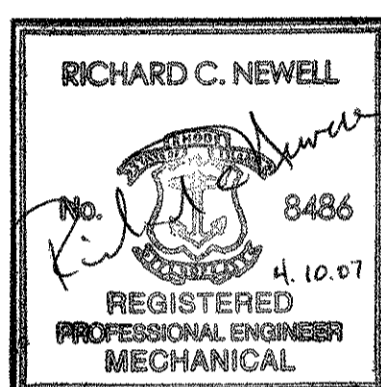
Sheet Title:
ELECTRICAL LEGEND SHEET, FLOOR PLANS, SCHEDULES & SPECIFICATIONS

Project No: 20711
Drawn By: MSO
Checked By: PDS
Scale: AS SHOWN
Date: 4/10/2007

Drawing No:
E-1
Sheet 4 of 14



WARWICK SCHOOLS
WINMAN JUNIOR HIGH SCHOOL
 575 CENTERVILLE ROAD, WARWICK, RI 02886
 DUST COLLECTION REPLACEMENT



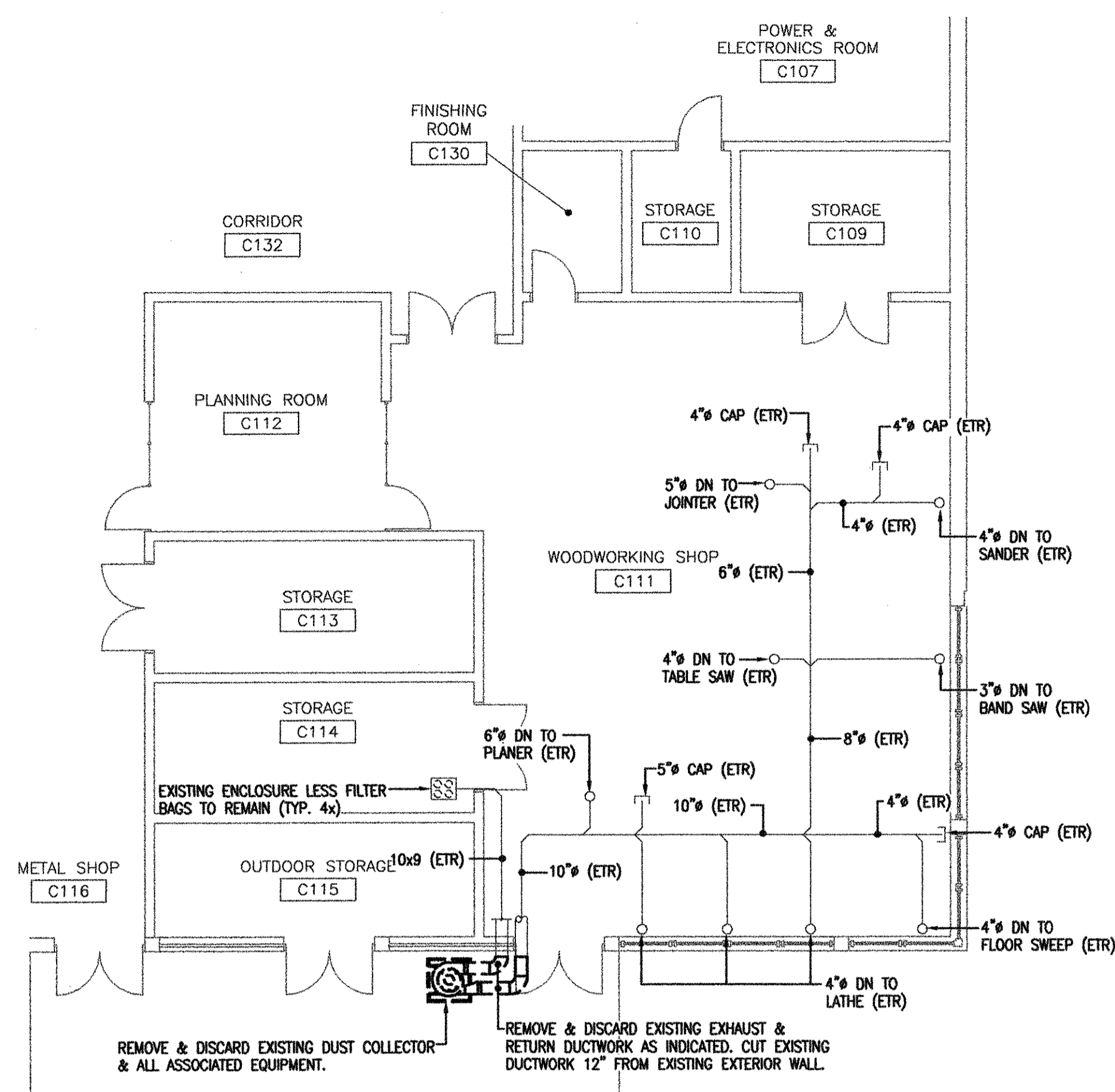
Status:
ISSUED FOR CONSTRUCTION

Date	Revision/Issue	No.

Sheet Title:
MECHANICAL FLOOR PLANS DETAILS, SCHEDULES & SPECIFICATIONS

Project No: 20712
 Drawn By: JAA
 Checked By: RCN/UPS
 Scale: AS SHOWN
 Date: 4/10/2007

Drawing No:
M-1
 Sheet 5 of 14

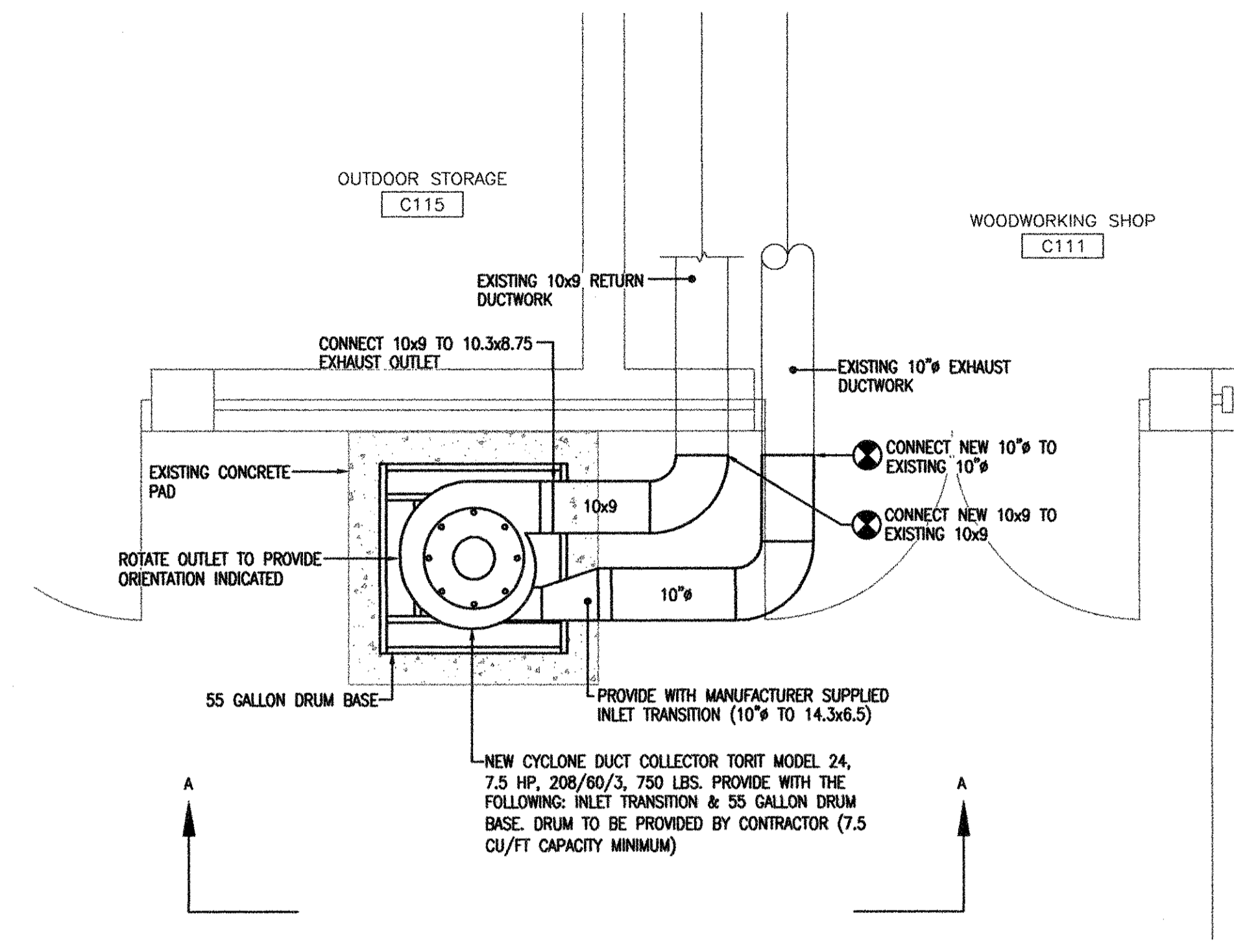


PARTIAL FLOOR PLAN - MECHANICAL DEMOLITION
 SCALE: 1/8"=1'-0"

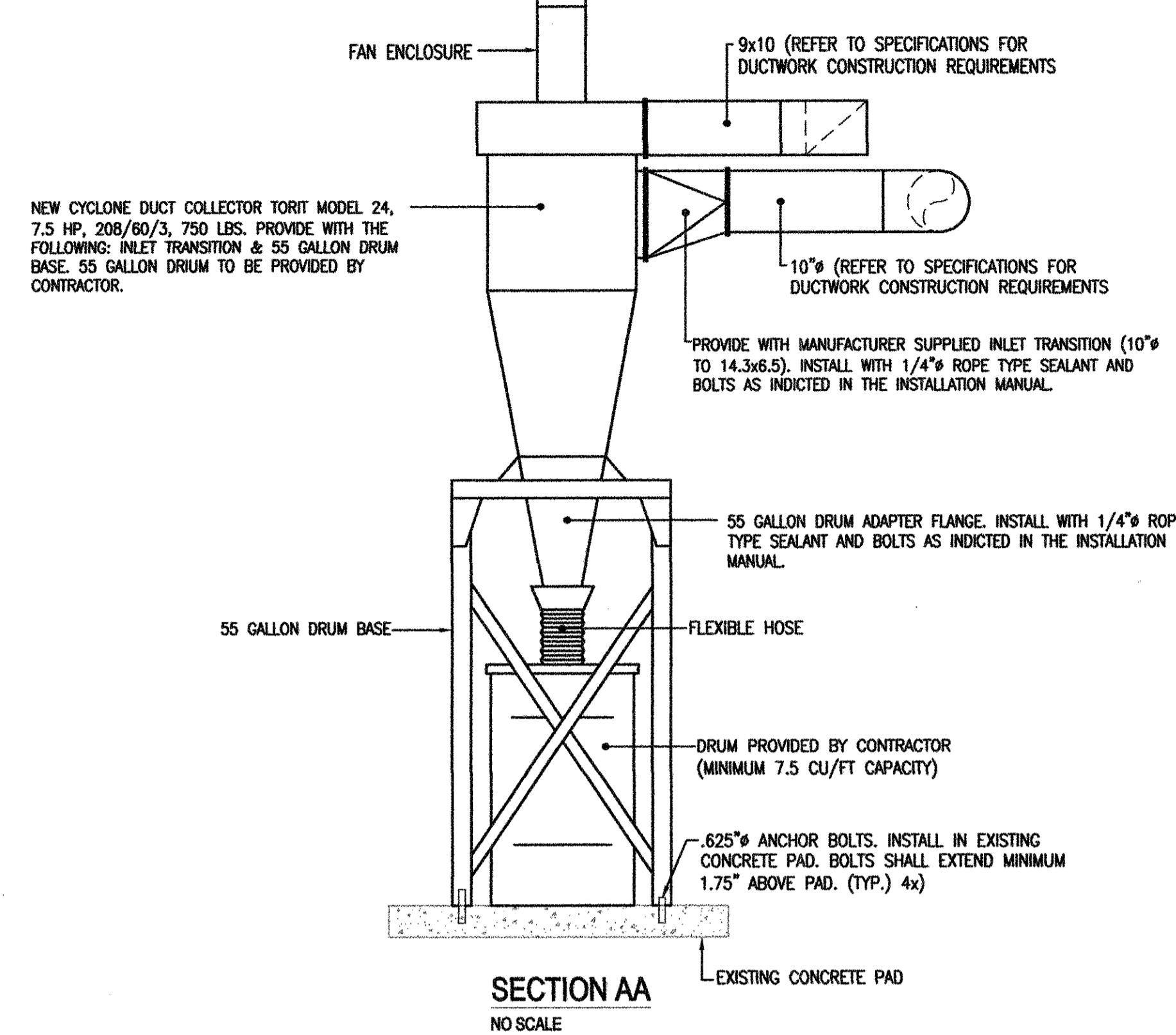
DEMOLITION NOTES

UNDER DEMOLITION, THE FOLLOWING IS, IN BRIEF, THE EXTENT OF THE WORK TO BE PERFORMED BY THE MECHANICAL CONTRACTOR UNDER THIS CONTRACT.

- PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF THE EXISTING MECHANICAL EQUIPMENT & DUCTWORK IN DESIGNATED AREAS. PATCH ALL ROOF AND WALL PENETRATIONS TO MATCH EXISTING.
- THIS CONTRACTOR SHALL PROTECT WORK AGAINST INJURY OR DAMAGE; AND CAREFULLY STORE MATERIAL AND EQUIPMENT TO BE RELOCATED. OPEN ENDS OF WORK SHALL BE CLOSED WITH TEMPORARY COVERS OR PLUGS DURING STORAGE, AND CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.



PARTIAL FLOOR PLAN - MECHANICAL NEW WORK
 SCALE: 1/2"=1'-0"



PART 1 - GENERAL REQUIREMENTS

- SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, ETC., TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED FOR A COMPLETE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION, AS INTERPRETED BY THE ARCHITECT/ENGINEER.
- APPLY AND PAY FOR ALL NECESSARY INSPECTION FEES, LICENSES AND PERMITS REQUIRED BY THE PROPER AUTHORITIES HAVING JURISDICTION.
- "PROVIDE" AND "INSTALL" ALL MATERIALS, LABOR AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS OR HEREIN SPECIFIED.
- ALL CUTTING, PATCHING & REQUIRED FLASHING WILL BE DONE BY THIS CONTRACTOR.
- ALL MATERIALS SHALL BE NEW. ALL EQUIPMENT SHALL BEAR THE U.L. LABEL.
- COORDINATE LOCATIONS OF ALL NEW DUCTWORK WITH EXISTING EQUIPMENT, LIGHTING, OTHER TRADES, AND THE OWNER PRIOR TO INSTALLATION OR FABRICATION OF SAME.
- CONTRACTOR TO GUARANTEE THE QUALITY OF ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF OWNER ACCEPTANCE. ALL DEFECTIVE MATERIAL AND WORKMANSHIP SHALL BE REPLACED AT CONTRACTOR'S EXPENSE DURING THIS TIME.
- ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR'S EMPLOYEES, MATERIALS OR EQUIPMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INJURIES OR DAMAGE DONE TO BUILDING PREMISES OR ADJOINING AREAS OR WORK RESULTING FROM EXECUTION OF HIS PART OF WORK IN ANY MANNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTION OF HIS WORK AT HIS OWN EXPENSE.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR ALL EQUIPMENT SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS PRIOR TO ORDERING, FABRICATING OR INSTALLING SAME.
- THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWING AND/OR SITE CONDITIONS, THE HVAC CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED. THE CONTRACTOR SHALL CONDUCT A THOROUGH FIELD INVESTIGATION TO VERIFY WORK SHOWN ON THE DRAWINGS. THE DRAWINGS REFLECT THE BEST AVAILABLE INFORMATION FROM EXISTING PLANS AND SITE INVESTIGATIONS.

PART 2 - PRODUCTS

- DUCTWORK
 - ALL DUCTWORK SHALL BE OF TOP GRADE GALVANIZED STEEL, CONSTRUCTED AND SUPPORTED AS PER S.M.A.C.S.A. INDUSTRIAL DUCT CONSTRUCTION STANDARDS CLASS 2. ALL ELBOWS SHALL BE LONG RADIUS TYPE. ALL JOINTS, SEAMS, AND FITTINGS SHALL BE AIR AND WATER TIGHT USING SOLDER JOINTS AND SHALL BE FORMED TO PROVIDE A MINIMUM RESISTANCE TO THE AIR FLOW.
 - THE FOLLOWING METAL THICKNESS SHALL BE UTILIZED:

DUCT SIZE	GAUGE
UP TO 8"	22-18
OVER 8" UP TO 18"	22-12

MECHANICAL SPECIFICATIONS

- ELBOWS & ANGLES SHALL BE A MINIMUM OF TWO GAUGES HEAVIER THAN STRAIGHT LENGTHS OF EQUAL DIAMETER. ROUND ELBOWS AND ANGLES SHOULD HAVE AN INSIDE OR THROAT RADIUS OF TWO PIPE DIAMETERS. CONSTRUCT ELBOWS SIX INCHES OR LESS IN DIAMETER OF AT LEAST FIVE SECTIONS, ELBOWS OVER SIX INCHES DIAMETER OF SEVEN SECTIONS. ANGLES SHALL BE PIECED PROPORTIONATELY.
 - RECTANGULAR ELBOWS & ANGLES SHALL BE CONSTRUCTED HAVING A W/D & R/D EQUAL TO OR GREATER THAN 1.
 - LONGITUDINAL JOINTS OF DUCTS SHALL BE LAPPED AND SEAMED OR WELDED.
 - GIRTH JOINTS OF DUCTS SHALL BE MADE WITH LAP IN DIRECTION OF AIR FLOW AND ONE INCH LAP FOR DIAMETERS THRU 19 INCHES AND 1-1/2 INCH LAP FOR DIAMETERS OVER 19 INCHES.
 - INTERIOR OF ALL DUCTS SHALL BE SMOOTH AND FREE FROM OBSTRUCTIONS WITH JOINTS SOLDERED AIR TIGHT.
 - SUPPORT DUCTS SUFFICIENTLY TO PLACE NO LOAD ON CONNECTING EQUIPMENT AND TO CARRY WEIGHT OF SYSTEM IF SOX PLUGGED WITH MATERIAL. MAXIMUM SUPPORTING INTERVALS SHALL BE TWELVE FEET ON HORIZONTAL DUCTS, AT ALL CHANGES OF DIRECTION, TOP OF RISERS AND ON THREE FOOT CENTERS FOR DUCTS LOCATED ON WALLS. BOTH CROSS AND HORIZONTAL BRACING SHALL BE PROVIDED AS REQUIRED.
 - DUCT RESTING ON SUPPORT MEMBERS WITHOUT SADDLES MUST BE REINFORCED WITH PLATES AT LEAST TWICE THE THICKNESS OF THE DUCT MATERIAL. THESE WEAR PLATES SHALL BE HALF THE DUCT CIRCUMFERENCE AND AT LEAST TWICE AS LONG AS THE WIDTH OF THE MEMBER SUPPORTING THE DUCT.
 - PROVIDE SIX INCH MINIMUM CLEARANCE BETWEEN DUCTS AND CEILING, WALL OR FLOORS.
 - WHERE LAWS CONFLICT WITH THE PRECEDING, THE MORE STRINGENT REQUIREMENT SHALL BE FOLLOWED. DEVIATION FROM EXISTING REGULATIONS MAY REQUIRE APPROVAL.
 - ALL EXTERIOR DUCTWORK SHALL BE CLEANED & PAINTED WITH (2) COATS RUST INHIBITING PAINT. COLOR TO MATCH DUCT COLLECTOR.
 - THIS ABOVE INFORMATION SHALL PROVIDE FOR COMPLETE AND OPERABLE SYSTEM TO MEET INTENT OF SPECIFICATIONS & TO THE SATISFACTION OF THE ENGINEERS.
- CYCLONE DUST COLLECTOR
 - FURNISH A COMPLETE CONTINUOUS-DUTY DUST COLLECTOR SYSTEM AS SHOWN ON THE PLANS AND/OR LISTED IN THE EQUIPMENT SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF PROVIDING CYCLONIC CLEANING OF INCOMING AIR.
 - THE CONTINUOUS-DUTY COLLECTOR SHALL BE SUPPLIED IN FACTORY-ASSEMBLED UNITS OR IN MAJOR SUBASSEMBLES SIZED TO MEET AIRFLOW CAPACITIES AND DESIGN REQUIREMENTS. INSTRUCTION MANUAL AND REPLACEMENT PARTS LIST SHALL BE INCLUDED FOR EASY INSTALLATION AND MAINTENANCE.
 - EACH COLLECTOR SHALL BE OF BOLTED AND WELDED CONSTRUCTION USING 14 GAUGE HRS DESIGNED FOR -20" WATER GAUGE AND COMPLETE WITH A REMOVABLE BOTTOM CONE SECTION. THE MOTOR AND FAN ASSEMBLY SHALL BE SHIPPED LOOSE.
 - DUST-LADEN AIR WILL ENTER THE COLLECTOR ON THE SIDE AND BE DIVERTED BY A HELICAL BAFFLE. THE AIR WILL THEN HAVE A "SPIN" IMPARTED TO IT. CENTRIFUGAL FORCES MOVE THE HEAVY DIRT AND DUST TO THE SIDE WALLS AND CARRY IT DOWN TO THE BASE OF THE UNIT. CLEAN AIR IS THEN EXHAUSTED FROM THE UNIT.
 - THE COLLECTOR SHALL INCLUDE AN INLET FLANGE MOUNTED ON THE SIDE OF THE COLLECTOR AT THE DIRTY AIR INLET. AN OUTLET FLANGE WILL BE PROVIDED ON THE SIDE OF THE FAN. THE FAN OUTLET SHALL ACCEPT A TORIT-BUILT FILTER BAG ASSEMBLY INCLUDING STANDARD FILTER BAGS.
 - FILTER BAGS SHALL BE MANUFACTURED OF POLYESTER FELT AND PROVIDE IN THE APPROPRIATE QUANTITIES FOR THE COLLECTION CAPACITY.
 - THE COLLECTOR SHALL BE A DONALDSON TORIT CYCLONE CONTINUOUS DUTY DUST COLLECTOR AS MANUFACTURED BY DONALDSON COMPANY, INC. OR ENGINEER APPROVED EQUAL.

PART 3 - EXECUTION

- IT IS THE INTENT OF THESE SPECIFICATIONS THAT THIS CONTRACTOR BE RESPONSIBLE FOR PROVIDING ALL DEVICES AND WIRING (REGARDLESS OF VOLTAGE) NECESSARY TO PROVIDE THE SEQUENCES AS SPECIFIED HEREIN.
- ALL MECHANICAL SYSTEMS SHALL BE AUTOMATICALLY CONTROLLED. WHERE NO DESCRIPTION OF OPERATION IS INDICATED FOR A PARTICULAR SYSTEM OR DEVICE, THE CONTRACTOR SHALL SELECT APPROPRIATE CONTROL SCENARIOS AND REVIEW THEM WITH THE ENGINEER PRIOR TO PROCEEDING. ALL CONTROLS SHALL BE ARRANGED AND DESIGNED FOR MAXIMUM ENERGY CONSERVATION.
- SEQUENCE OF OPERATION

THE EXISTING WALL MOUNTED SWITCH SHALL ENERGIZE/DE-ENERGIZE THE DUST COLLECTION SYSTEM.
- PROJECT CLOSE-OUT
 - RESTORE EXISTING FACILITIES USED DURING CONSTRUCTION TO ORIGINAL CONDITION. CLEAN PORTIONS OF THE SITE AFFECTED BY WORK OF THIS CONTRACT. REMOVE WASTE AND SURPLUS MATERIALS FROM THE SITE.
 - SUBMIT TWO COPIES OF OPERATION AND MAINTENANCE DATA BOUND IN THREE-RING BINDERS. INCLUDE WARRANTIES, SUBMITTALS, BALANCING REPORT, AND PROJECT DOCUMENTS AND CERTIFICATES.
 - CONTRACTOR SHALL DEMONSTRATE ALL SEQUENCES OF CONTROL TO THE ENGINEER. THE TEMPERATURE CONTROL AND BALANCING SUBCONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING CHECK-OUT PROCEDURE. PERSONNEL SHALL BE EQUIPPED WITH TOOLS AND SPARE PARTS TO MAKE MINOR REPAIRS AND ADJUSTMENTS.
 - CONTRACTOR SHALL DEMONSTRATE COMPLIANCE WITH BALANCING OF SYSTEMS IN THE PRESENCE OF THE ENGINEER BY ACTUAL MEASUREMENT OF WATER FLOWS. IF REQUESTED BY THE ENGINEER, RE-BALANCING SHALL BE DONE AT NO ADDITIONAL CHARGE.

ELECTRICAL SPECIFICATIONS

- FURNISH LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE PROPER AND COMPLETE INSTALLATION OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED.
- ALL ITEMS NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE SPECIFICATIONS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE ELECTRICAL INSTALLATION, SHALL BE FURNISHED AND INSTALLED AS PART OF THIS SECTION.
- ALL ELECTRICAL INSTALLATIONS AND GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE LOCAL, STATE AND NATIONAL CODES:
 - BUILDING CODE OF THE STATE OF RI (BOCA W/RI AMENDMENTS).
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- OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
- ALL EQUIPMENT AND THE INSTALLATION OF ELECTRICAL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
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- FURNISH AND INSTALL TEMPORARY POWER AS REQUIRED TO OPERATE TOOLS AND LIGHTING. PROVIDE PANELS AND LIGHTING FIXTURES FOR CONSTRUCTION, AS REQUIRED.
- THE ELECTRICAL SUB-CONTRACTOR SHALL INSPECT THE SITE PRIOR TO SUBMITTING HIS BID, AND SHALL INVESTIGATE ALL CONDITIONS UNDER WHICH THIS WORK WILL BE PERFORMED. FAILURE TO INSPECT EXISTING CONDITIONS OR TO FULLY UNDERSTAND THE WORK WHICH IS REQUIRED SHALL NOT EXCUSE THE ELECTRICAL SUB-CONTRACTOR FROM HIS OBLIGATIONS TO SUPPLY AND INSTALL THE WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND THE DRAWINGS AND UNDER ALL SITE CONDITIONS AS THEY EXIST.
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- THE CONTRACTOR SHALL COORDINATE HIS WORK SO THAT IT DOES NOT INTERFERE WITH THE WORK OF OTHER TRADES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT HIS WORK IS INSTALLED IN A TIMELY MANNER.
- ALL HVAC CONTROLS, CONTROL WIRING AND INTER-CONNECTIONS SHALL BE BY DIV. 15, EXCEPT AS OTHERWISE NOTED AND SHOWN ON ELECTRICAL DRAWINGS. ALL 120V HVAC CONTROL WIRING SHALL BE BY THIS CONTRACTOR (DIV. 16).
- THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT. THE CONTRACTOR SHALL FURNISH TO THE OWNER ALL INSTRUCTION PAMPHLETS, BOOKS AND OTHER LITERATURE FURNISHED BY THE MANUFACTURER AND EXPLAIN THE PROPER OPERATING AND MAINTENANCE PROCEDURES.
- SUBMIT TO THE OWNER FOR REVIEW AND APPROVAL SIX COMPLETE COPIES OF THE FOLLOWING SHOP DRAWINGS:
 - JUNCTION BOXES
 - WIRING DEVICES AND PLATES
 - CIRCUIT BREAKERS
 - DISCONNECT SWITCHES
 - WIRE
 - CONDUIT
- PROVIDE CONDUIT EXPANSION JOINTS AT ALL STRUCTURAL EXPANSION JOINTS.
- ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY.

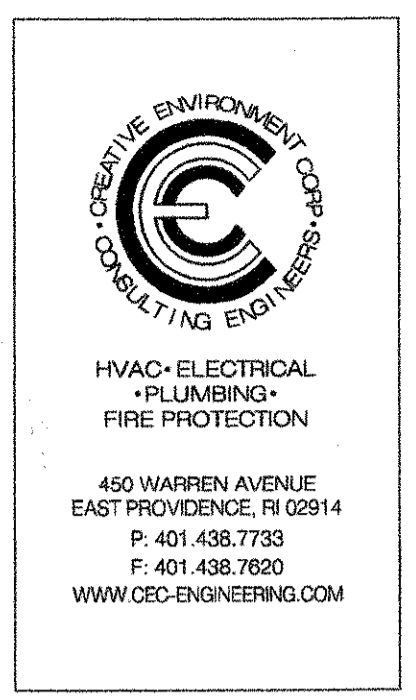
SYMBOL LEGEND

USE MOUNTING HEIGHTS SPECIFIED ON ARCHITECTURAL DRAWINGS. IF NOT LISTED, USE MOUNTING HEIGHTS ON THIS DRAWING.

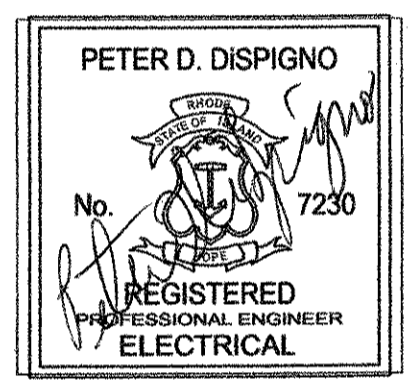
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	SINGLE POLE SWITCH - 48" A.F.F., P&S CAT. NO. CS120-LA	[Symbol]	SURFACE MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
Sp	SINGLE POLE SWITCH WITH PILOT LIGHT - 48" A.F.F. P&S CAT. NO. 20AC1-RPL	[Symbol]	FLUSH MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S3	3-WAY SWITCH - 48" A.F.F., P&S CAT. NO. CS320-LA	[Symbol]	UP TO FLOOR ABOVE
S4	FOUR WAY SWITCH - 48" A.F.F.; P&S CAT. NO. CS420-LA	[Symbol]	TO INTO EQUIPMENT OR DOWN TO FLOOR BELOW
S1	SINGLE POLE MOTOR RATED SWITCH WITH OVERLOAD HEATER SQUARE D CLASS 2510, TYPE FGJ-1	[Symbol]	WIRING CONCEALED IN WALL OR CEILING
Sm	MOTION SENSOR W/MANUAL OVERRIDE: WALL OR CEILING MOUNTED. 'WA' OR 'CI'.	[Symbol]	WIRING CONCEALED IN FLOOR OR WALL
[Symbol]	JUNCTION BOX	[Symbol]	WIRING EXPOSED
[Symbol]	SPECIAL PURPOSE OUTLET WITH NEMA CONFIGURATION	[Symbol]	CROSSHATCHING INDICATES NUMBER OF CURRENT CARRYING CONDUCTORS IF MORE THAN TWO ARE REQUIRED. LONGER MARK INDICATES NEUTRAL. GROUNDWIRE IS ALWAYS INSTALLED AND NEVER INDICATED. NO CROSSHATCHING INDICATES 1 HOT, 1 NEUTRAL, AND 1 GROUND, ALL #12 THHN.
[Symbol]	DUPLEX RECEPTACLE - MTD. 18" A.F.F. - 20A, 125V. P&S CAT. NO. CR-20LA. 'C'-MOUNT 6" ABOVE COUNTER	[Symbol]	HOME RUN TO PANELBOARD - "A" DESIGNATES PANEL, "1,3" INDICATES CIRCUIT NUMBERS
[Symbol]	ISOLATED GROUND RECEPTACLE - MTD 48" A.F.F. - 20A, 125V. ARROW-HART CAT. NO. IG5362HG	[Symbol]	MOTOR WITH RATING IN HORSEPOWER
[Symbol]	GROUND FAULT INTERRUPTING RECEPTACLE - MTD. 48" A.F.F., 20A, 125V., P&S CAT. NO. 2091-LA	[Symbol]	COMBINATION STARTER/DISCONNECT SWITCH WITH SWITCH AND FUSE RATINGS
[Symbol]	INDICATES WEATHERPROOF	[Symbol]	INDICATES RAINIGHT
		[Symbol]	INDICATES DUAL ELEMENT FUSES
		[Symbol]	NUMBER OF POLES
		[Symbol]	FUSE SIZE
		[Symbol]	SWITCH SIZE
		[Symbol]	MAGNETIC MOTOR STARTER
		[Symbol]	DISCONNECT SWITCH

ABBREVIATIONS

A	AMPS
AG	ABOVE GRADE
AFF	ABOVE FINISHED FLOOR
BL	BLANK PLATE
BOF	BOTTOM OF FIXTURE
C	CONDUIT
CB	CIRCUIT BREAKER
CD	CANDELA
CU	COPPER
DWG	DRAWING
ECPS	EMPTY CONDUIT W/PULL STRING
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EX	EXISTING
FACP	FIRE ALARM CONTROL PANEL
G, GR	GROUND
GFI	GROUND FAULT CIRCUIT INTERRUPTER
IG	ISOLATED GROUND
N	NEW
NG	NATIONAL GRID (ELECTRICAL UTILITY)
UNO	UNLESS NOTED OTHERWISE
V	VOLT
W/	WITH
WP	WEATHERPROOF



WARWICK SCHOOLS
WINMAN
 JUNIOR HIGH SCHOOL
 575 CENTERVILLE ROAD, WARWICK, RI 02886
 DUST COLLECTION REPLACEMENT



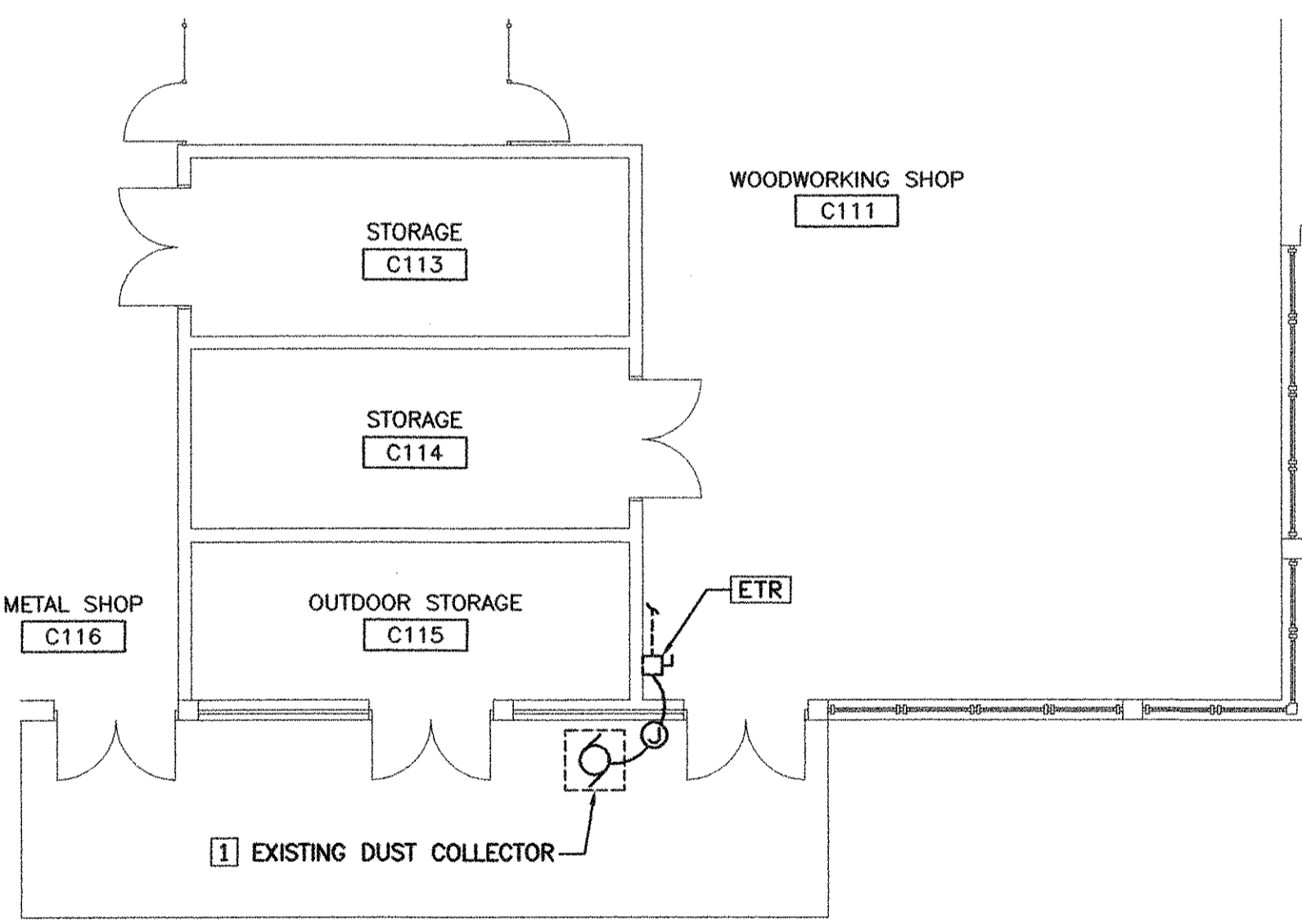
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ISSUED FOR CONSTRUCTION

Date	Revision/Issue	No.

Sheet Title:
MECHANICAL FLOOR PLANS, DETAILS, SCHEDULES & SPECIFICATIONS

Project No: 20712
 Drawn By: MSO
 Checked By: PDS
 Scale: AS SHOWN
 Date: 4/10/2007

Drawing No:
E-1
 Sheet 6 of 14



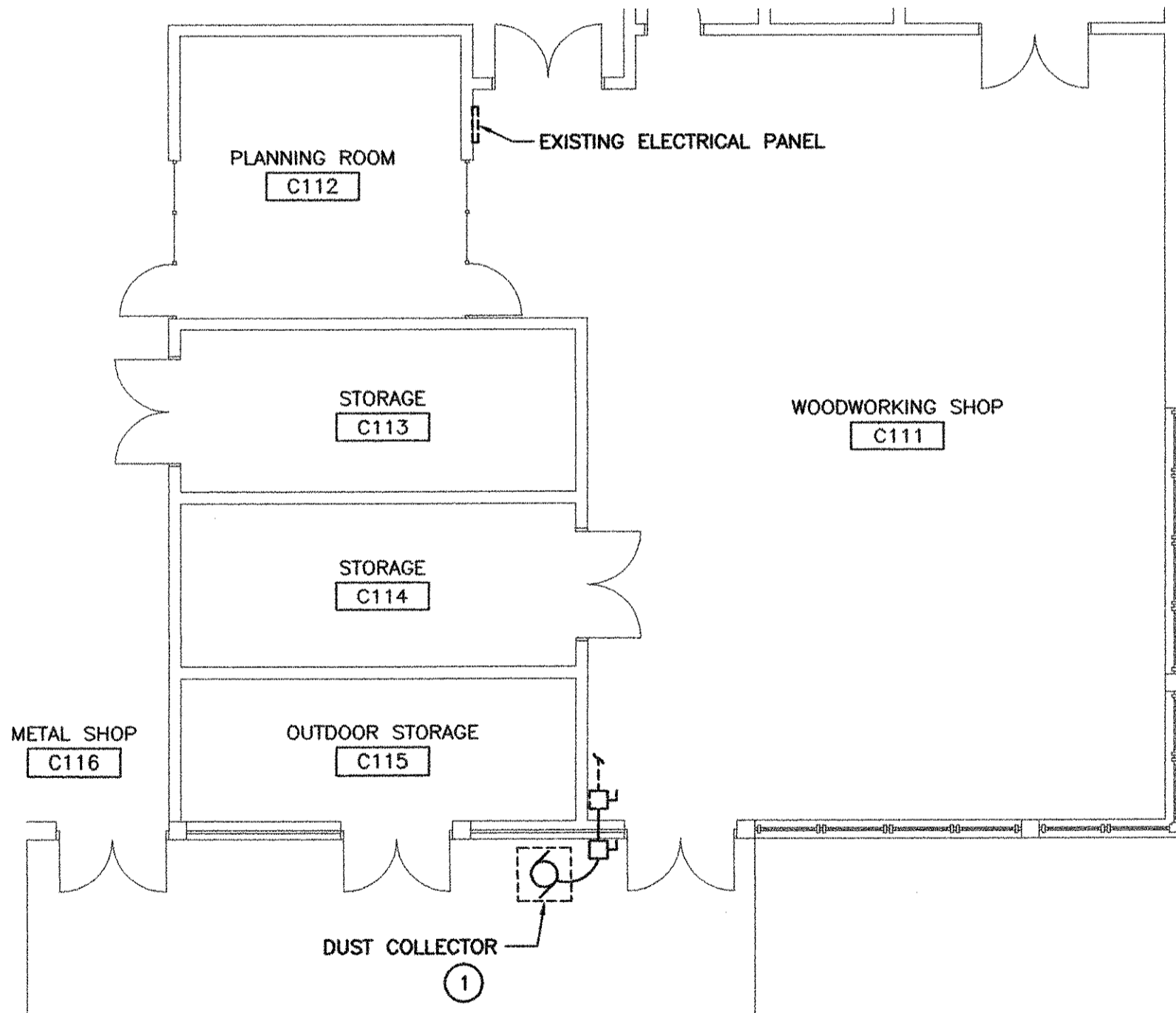
PARTIAL FLOOR PLAN - ELECTRICAL DEMOLITION
 SCALE: 1/8"=1'-0"

GENERAL DEMOLITION NOTES:

- CONTRACTOR SHALL VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING.
- ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. CONTRACTOR SHALL SECURE ALL REQUIRED DEMOLITION PERMITS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- IT IS NOT THE INTENT TO SHOW ALL CONDUIT AND MATERIAL, AND EXACT SIZES TO BE REMOVED IN THE DEMOLITION WORK. DRAWING INDICATES EQUIPMENT DIAGRAMMATICALLY. EXACT LOCATION AND SIZE OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO RETURN BACK TO THE ORIGINAL LOCATION ANY DEVICE OR MATERIAL THAT MUST BE TEMPORARILY REMOVED OR RELOCATED TO ALLOW DEMOLITION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVING AND DISPOSING OF ALL EXISTING ELECTRICAL EQUIPMENT AS SHOWN ON DRAWINGS, EXCEPT WHERE NOTED OTHERWISE.

DEMOLITION KEYNOTES:

- [1] - EXISTING DUST COLLECTOR TO BE REMOVED PER MECHANICAL DRAWINGS. DISCONNECT CONDUIT AND WIRING FROM DUST COLLECTOR. REMOVE ALL WIRING, CONDUIT AND JUNCTION BOX TO MOTOR. EXISTING FEEDER FROM DISCONNECT BACK TO SOURCE TO REMAIN.
- [ETR] - EXISTING TO REMAIN
- [ETL] - EXISTING TO BE RELOCATED

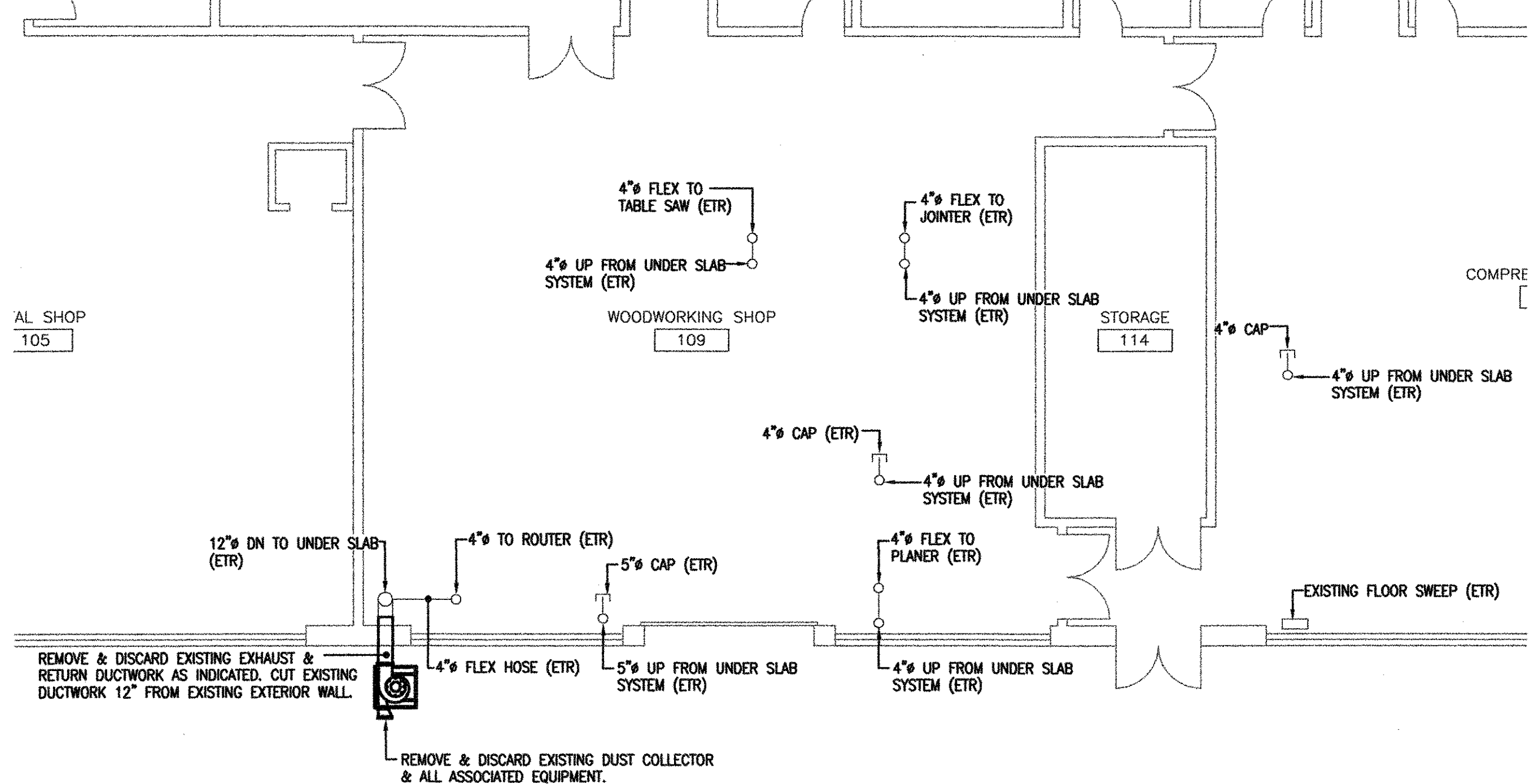


PARTIAL FLOOR PLAN - MECHANICAL EQUIPMENT POWER
 SCALE: 1/8"=1'-0"

MECH (ID#)	DESCRIPTION	EQUIPMENT CHARACTERISTICS							PANEL	CIRCUIT	BREAKER	FEEDER AND CONDUIT	EQUIPMENT LOCATION	DISCONNECT SWITCH		MOTOR CONTROL	REMARKS
		VOLTS	AMPS	PH	HP	WATTS	MCA	MOCF						CFM	SIZE		
[1]	DUST COLLECTOR	208		3	7.5							3#8 & 1#10G IN 3/4" C	WOOD SHOP	30/NF/3/RT			1,2,3

REMARKS:

- DUST COLLECTOR (DC-1) TO BE POWERED BY SAME CIRCUIT THAT EXISTING DUST COLLECTOR TO BE REMOVED WAS CONNECTED.
- RE-USE EXISTING CIRCUIT BREAKER.
- EXISTING FEEDER TO BE RE-USED UP TO JUNCTION BOX IN WOOD SHOP. NEW 3/4" CONDUIT AND WIRING TO BE INSTALLED FROM JUNCTION BOX TO DISCONNECT. NEW 3/4" LIQUID-TITE WITH 3#8 TO BE INSTALLED FROM DISCONNECT TO MOTOR. 1#10 GROUND TO BE ADDED TO FEEDER FROM PANEL TO THE DUST COLLECTOR MOTOR.

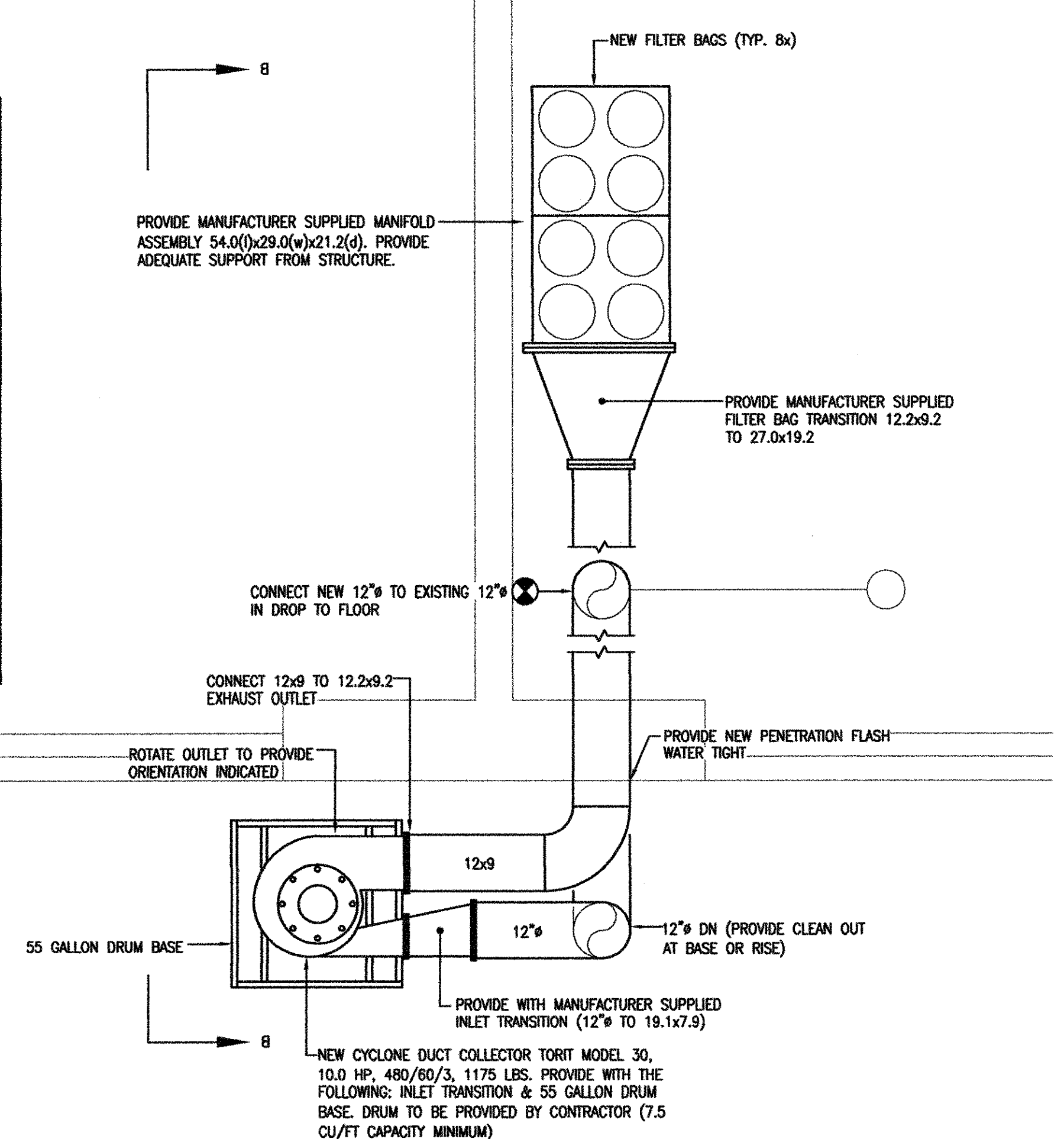


PARTIAL FLOOR PLAN - MECHANICAL DEMOLITION
SCALE: 1/8"=1'-0"

DEMOLITION NOTES

UNDER DEMOLITION, THE FOLLOWING IS, IN BRIEF, THE EXTENT OF THE WORK TO BE PERFORMED BY THE MECHANICAL CONTRACTOR UNDER THIS CONTRACT.

- PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF THE EXISTING MECHANICAL EQUIPMENT & DUCTWORK IN DESIGNATED AREAS. PATCH ALL ROOF AND WALL PENETRATIONS TO MATCH EXISTING.
- THIS CONTRACTOR SHALL PROTECT WORK AGAINST INJURY OR DAMAGE; AND CAREFULLY STORE MATERIAL AND EQUIPMENT TO BE RELOCATED. OPEN ENDS OF WORK SHALL BE CLOSED WITH TEMPORARY COVERS OR PLUGS DURING STORAGE AND CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.



PARTIAL FLOOR PLAN - MECHANICAL NEW WORK
SCALE: 1/8"=1'-0"

MECHANICAL SPECIFICATIONS

PART 1 - GENERAL REQUIREMENTS

- SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, ETC., TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED FOR A COMPLETE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION, AS INTERPRETED BY THE ARCHITECT/ENGINEER.
- APPLY AND PAY FOR ALL NECESSARY INSPECTION FEES, LICENSES AND PERMITS REQUIRED BY THE PROPER AUTHORITIES HAVING JURISDICTION.
- "PROVIDE" AND "INSTALL" ALL MATERIALS, LABOR AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS OR HEREIN SPECIFIED.
- ALL CUTTING, PATCHING & REQUIRED FLASHING WILL BE DONE BY THIS CONTRACTOR.
- ALL MATERIALS SHALL BE NEW. ALL EQUIPMENT SHALL BEAR THE U.L. LABEL.
- COORDINATE LOCATIONS OF ALL NEW DUCTWORK WITH EXISTING EQUIPMENT, LIGHTING, OTHER TRADES, AND THE OWNER PRIOR TO INSTALLATION OR FABRICATION OF SAME.
- CONTRACTOR TO GUARANTEE THE QUALITY OF ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF OWNER ACCEPTANCE. ALL DEFECTIVE MATERIAL AND WORKMANSHIP SHALL BE REPLACED AT CONTRACTOR'S EXPENSE DURING THIS TIME.
- ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR'S EMPLOYEES, MATERIALS OR EQUIPMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INJURIES OR DAMAGE DONE TO BUILDING PREMISES OR ADJOINING AREAS OR WORK RESULTING FROM EXECUTION OF HIS PART OF WORK IN ANY MANNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTION OF HIS WORK AT HIS OWN EXPENSE.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR ALL EQUIPMENT SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS PRIOR TO ORDERING, FABRICATING OR INSTALLING SAME.
- THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWING AND/OR SITE CONDITIONS, THE HVAC CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED. THE CONTRACTOR SHALL CONDUCT A THOROUGH FIELD INVESTIGATION TO VERIFY WORK SHOWN ON THE DRAWINGS. THE DRAWINGS REFLECT THE BEST AVAILABLE INFORMATION FROM EXISTING PLANS AND SITE INVESTIGATIONS.

PART 2 - PRODUCTS

- DUCTWORK
 - ALL DUCTWORK SHALL BE OF TOP GRADE GALVANIZED STEEL, CONSTRUCTED AND SUPPORTED AS PER S.M.A.C.N.A. INDUSTRIAL DUCT CONSTRUCTION STANDARDS CLASS 2. ALL ELBOWS SHALL BE LONG RADIUS TYPE. ALL JOINTS, SEAMS, AND FITTINGS SHALL BE AIR AND WATER TIGHT USING SOLDER JOINTS AND SHALL BE FORMED TO PROVIDE A MINIMUM RESISTANCE TO THE AIR FLOW.
 - THE FOLLOWING METAL THICKNESS SHALL BE UTILIZED:

DIAMETER OF STRAIGHT DUCTS (INCHES) U.S. STANDARD GAUGE	
DUCT SIZE	GAUGE
UP TO 8"	22-18
OVER 8" UP TO 18"	22-12

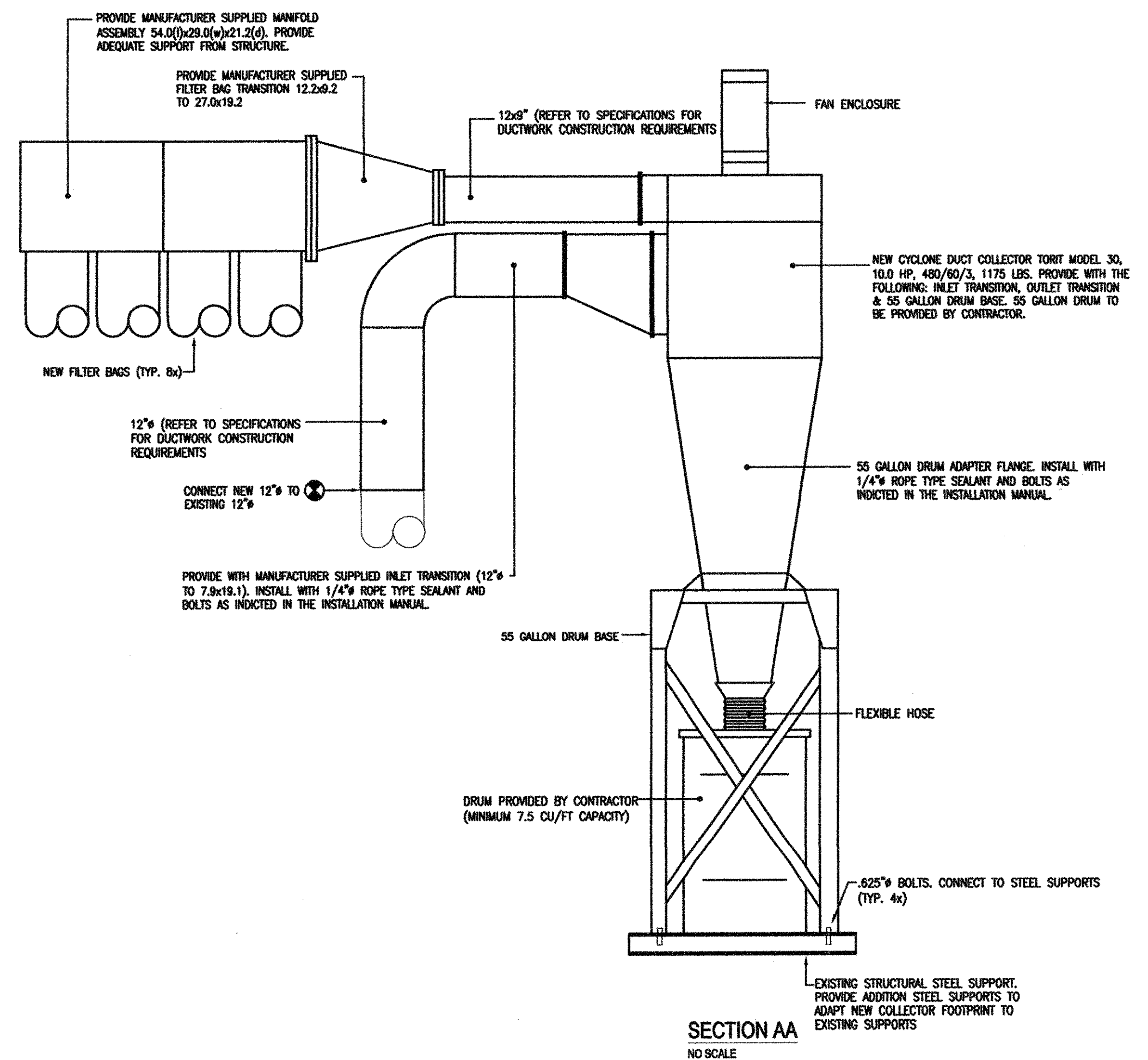
- ELBOWS & ANGLES SHALL BE A MINIMUM OF TWO GAUGES HEAVIER THAN STRAIGHT LENGTHS OF EQUAL DIAMETER. ROUND ELBOWS AND ANGLES SHOULD HAVE AN INSIDE OR THROAT RADIUS OF TWO PIPE DIAMETERS. CONSTRUCT ELBOWS SIX INCHES OR LESS IN DIAMETER OF AT LEAST FIVE SECTIONS, ELBOWS OVER SIX INCHES DIAMETER OF SEVEN SECTIONS. ANGLES SHALL BE PIECED PROPORTIONATELY.
- RECTANGULAR ELBOWS & ANGLES SHALL BE CONSTRUCTED HAVING A W/D & R/D EQUAL TO OR GREATER THAN 1.
- LONGITUDINAL JOINTS OF DUCTS SHALL BE LAPPED AND SEALED OR WELDED.
- GIRTH JOINTS OF DUCTS SHALL BE MADE WITH LAP IN DIRECTION OF AIR FLOW AND ONE INCH LAP FOR DIAMETERS THRU 19 INCHES AND 1-1/2 INCH LAP FOR DIAMETERS OVER 19 INCHES.
- INTERIOR OF ALL DUCTS SHALL BE SMOOTH AND FREE FROM OBSTRUCTIONS WITH JOINTS SOLDERED AIR TIGHT.
- SUPPORT DUCTS SUFFICIENTLY TO PLACE NO LOAD ON CONNECTING EQUIPMENT AND TO CARRY WEIGHT OF SYSTEM IF 50% FLUJGED WITH MATERIAL. MAXIMUM SUPPORTING INTERVALS SHALL BE TWELVE FEET ON HORIZONTAL DUCTS, AT ALL CHANGES OF DIRECTION, TOP OF RISERS AND ON THREE FOOT CENTERS FOR DUCTS LOCATED ON WALLS. BOTH CROSS AND HORIZONTAL BRACING SHALL BE PROVIDED AS REQUIRED.
- DUCT RESTING ON SUPPORT MEMBERS WITHOUT SADDLES MUST BE REINFORCED WITH PLATES AT LEAST TWICE THE THICKNESS OF THE DUCT MATERIAL. THESE WEAR PLATES SHALL BE HALF THE DUCT CIRCUMFERENCE AND AT LEAST TWICE AS LONG AS THE WIDTH OF THE MEMBER SUPPORTING THE DUCT.
- PROVIDE SIX INCH MINIMUM CLEARANCE BETWEEN DUCTS AND CEILING, WALL OR FLOORS.
- WHERE LAWS CONFLICT WITH THE PRECEDING, THE MORE STRINGENT REQUIREMENT SHALL BE FOLLOWED. DEVIATION FROM EXISTING REGULATIONS MAY REQUIRE APPROVAL.
- ALL EXTERIOR DUCTWORK SHALL BE CLEANED & PAINTED WITH (2) COATS RUST INHIBITING PAINT. COLOR TO MATCH DUCT COLLECTOR.
- THIS ABOVE INFORMATION SHALL PROVIDE FOR COMPLETE AND OPERABLE SYSTEM TO MEET INTENT OF SPECIFICATIONS & TO THE SATISFACTION OF THE ENGINEERS.

2. CYCLONE DUST COLLECTOR
 - FURNISH A COMPLETE CONTINUOUS-DUTY DUST COLLECTOR SYSTEM AS SHOWN ON THE PLANS AND/OR LISTED IN THE EQUIPMENT SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF PROVIDING CYCLONIC CLEANING OF INCOMING AIR.
 - THE CONTINUOUS-DUTY COLLECTOR SHALL BE SUPPLIED IN FACTORY-ASSEMBLED UNITS OR IN MAJOR SUBASSEMBLIES SIZED TO MEET AIRFLOW CAPACITIES AND DESIGN REQUIREMENTS. INSTRUCTION MANUAL AND REPLACEMENT PARTS LIST SHALL BE INCLUDED FOR EASY INSTALLATION AND MAINTENANCE.
 - EACH COLLECTOR SHALL BE OF BOLTED AND WELDED CONSTRUCTION USING 14 GAUGE HRS DESIGNER FOR -20" WATER GAUGE AND COMPLETE WITH A REMOVABLE BOTTOM CONE SECTION. THE MOTOR AND FAN ASSEMBLY SHALL BE SHIPPED LOOSE.
 - DUST-LADEN AIR WILL ENTER THE COLLECTOR ON THE SIDE AND BE DIVERTED BY A HELICAL BAFFLE. THE AIR WILL THEN HAVE A "SPIN" IMPARTED TO IT. CENTRIFUGAL FORCES MOVE THE HEAVY DIRT AND DUST TO THE SIDE WALLS AND CARRY IT DOWN TO THE BASE OF THE UNIT. CLEAN AIR IS THEN EXHAUSTED FROM THE UNIT.
 - THE COLLECTOR SHALL INCLUDE AN INLET FLANGE MOUNTED ON THE SIDE OF THE COLLECTOR AT THE DIRTY AIR INLET. AN OUTLET FLANGE WILL BE PROVIDED ON THE SIDE OF THE FAN. THE FAN OUTLET SHALL ACCEPT A TORIT-BUILT FILTER BAG ASSEMBLY INCLUDING STANDARD FILTER BAGS.
 - FILTER BAGS SHALL BE MANUFACTURED OF POLYESTER FELT AND PROVIDE IN THE APPROPRIATE QUANTITIES FOR THE COLLECTION CAPACITY.
 - THE COLLECTOR SHALL BE A DONALDSON TORIT CYCLONE CONTINUOUS DUTY DUST COLLECTOR AS MANUFACTURED BY DONALDSON COMPANY, INC. OR ENGINEER APPROVED EQUAL.

PART 3 - EXECUTION

- IT IS THE INTENT OF THESE SPECIFICATIONS THAT THIS CONTRACTOR BE RESPONSIBLE FOR PROVIDING ALL DEVICES AND WIRING (REGARDLESS OF VOLTAGE) NECESSARY TO PROVIDE THE SEQUENCES AS SPECIFIED HEREIN.
- ALL MECHANICAL SYSTEMS SHALL BE AUTOMATICALLY CONTROLLED, WHERE NO DESCRIPTION OF OPERATION IS INDICATED FOR A PARTICULAR SYSTEM OR DEVICE, THE CONTRACTOR SHALL SELECT APPROPRIATE CONTROL SCENARIOS AND REVIEW THEM WITH THE ENGINEER PRIOR TO PROCEEDING. ALL CONTROLS SHALL BE ARRANGED AND DESIGNED FOR MAXIMUM ENERGY CONSERVATION.
- SEQUENCE OF OPERATION

THE EXISTING WALL MOUNTED SWITCH SHALL ENERGE/DE-ENERGIZE THE DUST COLLECTION SYSTEM.
- PROJECT CLOSE-OUT
 - RESTORE EXISTING FACILITIES USED DURING CONSTRUCTION TO ORIGINAL CONDITION. CLEAN PORTIONS OF THE SITE AFFECTED BY WORK OF THIS CONTRACT. REMOVE WASTE AND SURPLUS MATERIALS FROM THE SITE.
 - SUBMIT TWO COPIES OF OPERATION AND MAINTENANCE DATA BOUND IN THREE-RING BINDERS. INCLUDE WARRANTIES, SUBMITTALS, BALANCING REPORT, AND PROJECT DOCUMENTS AND CERTIFICATES.
 - CONTRACTOR SHALL DEMONSTRATE ALL SEQUENCES OF CONTROL TO THE ENGINEER. THE TEMPERATURE CONTROL AND BALANCING SUBCONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING CHECK-OUT PROCEDURE. PERSONNEL SHALL BE EQUIPPED WITH TOOLS AND SPARE PARTS TO MAKE MINOR REPAIRS AND ADJUSTMENTS.
 - CONTRACTOR SHALL DEMONSTRATE COMPLIANCE WITH BALANCING OF SYSTEMS IN THE PRESENCE OF THE ENGINEER BY ACTUAL MEASUREMENT OF WATER FLOWS. IF REQUESTED BY THE ENGINEER, RE-BALANCING SHALL BE DONE AT NO ADDITIONAL CHARGE.



SECTION AA
NO SCALE

CREATIVE ENVIRONMENT CORP.
COLLECTING ENGINEERS

HVAC-ELECTRICAL
PLUMBING
FIRE PROTECTION

460 WARREN AVENUE
EAST PROVIDENCE, RI 02914
P: 401-438-7758
F: 401-438-7650
WWW.CEC-ENGINEERING.COM

WARWICK SCHOOLS
PILGRIM HIGH SCHOOL
111 PILGRIM PARKWAY, WARWICK, RI 02888
DUST COLLECTION REPLACEMENT

Project:

RICHARD C. NEWELL

No. 8486

REGISTERED
PROFESSIONAL ENGINEER
MECHANICAL

Status: **ISSUED FOR CONSTRUCTION**

Date	Revision/Issue	No.

Sheet Title:
MECHANICAL FLOOR PLANS DETAILS, SCHEDULES & SPECIFICATIONS

Project No: 20713
Drawn By: JAA
Checked By: RCN/UPS
Scale: AS SHOWN
Date: 4/10/2007

Drawing No:
M-1
Sheet 7 of 14

ELECTRICAL SPECIFICATIONS

- FURNISH LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE PROPER AND COMPLETE INSTALLATION OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED.
- ALL ITEMS NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE SPECIFICATIONS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE ELECTRICAL INSTALLATION, SHALL BE FURNISHED AND INSTALLED AS PART OF THIS SECTION.
- ALL ELECTRICAL INSTALLATIONS AND GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE LOCAL, STATE AND NATIONAL CODES:
 - BUILDING CODE OF THE STATE OF RI (BOCA W/RI AMENDMENTS).
 - ELECTRICAL CODE OF THE STATE OF RI (NFPA 70W/RI AMENDMENTS)
 - FIRE ALARM REQUIREMENTS OF THE STATE OF RI.
- OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
- ALL EQUIPMENT AND THE INSTALLATION OF ELECTRICAL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- MATERIALS AND WORKMANSHIP SHALL BE THE BEST OF THEIR RESPECTIVE KINDS AND IN FULL ACCORD WITH THE MOST MODERN ELECTRICAL CONSTRUCTION. ALL MATERIALS SHALL BE NEW, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
- FURNISH AND INSTALL TEMPORARY POWER AS REQUIRED TO OPERATE TOOLS AND LIGHTING. PROVIDE PANELS AND LIGHTING FIXTURES FOR CONSTRUCTION, AS REQUIRED.
- THE ELECTRICAL SUB-CONTRACTOR SHALL INSPECT THE SITE PRIOR TO SUBMITTING HIS BID, AND SHALL INVESTIGATE ALL CONDITIONS UNDER WHICH THIS WORK WILL BE PERFORMED. FAILURE TO INSPECT EXISTING CONDITIONS OR TO FULLY UNDERSTAND THE WORK WHICH IS REQUIRED SHALL NOT EXCUSE THE ELECTRICAL SUB-CONTRACTOR FROM HIS OBLIGATIONS TO SUPPLY AND INSTALL THE WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND THE DRAWINGS AND UNDER ALL SITE CONDITIONS AS THEY EXIST.
- THE ELECTRICAL CONTRACTOR SHALL CLEAN, AT THE END OF EACH DAY, ALL AREAS WORKED IN. EMPTY BOXES, RUBBISH, AND OTHER MATERIALS OF NO USE SHALL BE REMOVED FROM THE SITE.
- WORK SEQUENCE SHALL BE COORDINATED WITH THE PROJECT MANAGER AND SHALL BE IN COORDINATION WITH OTHER BUILDING TRADES AND THE BUILDING SCHEDULE.
- NEW 120/208V. BRANCH CIRCUIT PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELBOARDS SHALL BE EQUAL TO GE TYPE AQ WITH BOLTED BRANCH CIRCUIT BREAKERS. BRANCH CIRCUIT BREAKERS SHALL BE RATED 10,000 A.I.C. MINIMUM. NEW 277/480V PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELS SHALL BE EQUAL TO G.E. TYPE AE WITH BOLTED BRANCH BREAKERS. BRANCH BREAKERS SHALL BE RATED 14,000 A.I.C. MINIMUM. PANELBOARD SCHEDULES SHALL BE FILLED OUT AND PLACED IN EACH PANEL BOARD; BOTH EXISTING AND NEW, ALL SCHEDULES SHALL BE TYPED.
- WIRE AND CABLE SHALL BE TYPE THWN/THHN, UL LISTED FOR BUILDING WIRE, 75 DEGREES CENTIGRADE, WET OR DRY LOCATIONS, RATED FOR 600 VOLT. WIRE SHALL BE A MINIMUM OF NO. 12 AWG SOLID. ALL CONDUCTORS SHALL BE COPPER. METAL-CLAD CABLE TYPE MC, WITH GROUND CONDUCTORS, MAY BE USED IN AREAS WHERE APPROVED BY THE LOCAL ELECTRICAL INSPECTOR. FIRE ALARM WIRING SHALL BE FIRE ALARM TYPE MC CABLE, WITH PERMISSION AND APPROVAL OF THE FIRE ALARM SUPERINTENDENT, SIZES NOTED, AND/OR REQUIRED, OR SHALL BE INDIVIDUAL CONDUCTORS RUN IN CONDUIT.
- CONDUITS SHALL BE E.M.T. WITH STEEL CONNECTORS AND COUPLINGS IN FURRED SPACES, ABOVE CEILINGS, AND IN EXPOSED INTERIOR SPACES. FLEXIBLE STEEL CONDUIT (GREENFIELD) SHALL BE USED FOR CONNECTIONS TO FIXTURES AND EQUIPMENT.
- ALL OUTLET BOXES FOR LIGHTING, SWITCHES, RECEPTACLES, TELEPHONE, TELEVISION, ETC. SHALL BE GALVANIZED STEEL, MINIMUM 1-1/2" DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE DEVICE TO BE UTILIZED THEREIN. PROVIDE PLASTER RINGS AS REQUIRED. BOXES SHALL HAVE MOUNTING LUGS OR EARS FOR COVERS AND KNOCKOUTS FOR CONDUIT TERMINATIONS. PROVIDE SEALANT AROUND OUTLET BOXES TO PREVENT SOUND TRANSMISSION TO ADJACENT ROOM.
- ALL CONDUIT/WIRING PENETRATIONS THROUGH FIRE WALLS SHALL BE FIRESTOPPED WITH MATERIAL CONFORMING TO ASTM E136 AND SHALL BE UL CLASSIFIED, FM APPROVED, AND APPROVED FOR USE IN 1-, 2-, OR 3-HOUR RATED SYSTEMS. FIRE STOP MATERIAL SHALL BE EQUAL TO DOW CORNING CAT. NO. 2000 FIRE STOP SEALANT OR 2001 FIRE STOP FOAM AS REQUIRED BY THE PARTICULAR FIRE STOPPING CONDITION.
- ALL WIRING DEVICES SHALL BE BY ONE MANUFACTURER AND SHALL BE G.E., P&S, BRYANT OR HUBBELL. THE CATALOG NUMBERS ON THE DRAWINGS ARE THOSE OF THE G.E. COMPANY, EXCEPT AS OTHERWISE INDICATED AND ARE USED TO DENOTE TYPE AND QUALITY. COLOR SHALL BE AS SELECTED BY THE ARCHITECT/CONSTRUCTION MANAGER.
- ALL DEVICE PLATES SHALL MATCH EXISTING.
- THE PLANS DEPICT THE LOCATION OF ALL FIXTURES AND EQUIPMENT AND ARE INTENDED TO INDICATE THE GENERAL INTENT OF THE WORK IN SCOPE, LAYOUT AND QUALITY OF WORKMANSHIP.
- THE CONTRACTOR SHALL CAREFULLY VERIFY ALL MEASUREMENTS AT THE SITE, DETERMINE THE EXACT LOCATION OF ALL CHASES AND OPENINGS REQUIRED BY HIS WORK AND SHALL FURNISH AND SET ALL SLEEVES, INSERTS, AND HANGERS AS REQUIRED FOR THE WORK HEREIN.
- THE CONTRACTOR SHALL COORDINATE HIS WORK SO THAT IT DOES NOT INTERFERE WITH THE WORK OF OTHER TRADES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT HIS WORK IS INSTALLED IN A TIMELY MANNER.
- ALL HVAC CONTROLS, CONTROL WIRING AND INTER-CONNECTIONS SHALL BE BY DIV. 15, EXCEPT AS OTHERWISE NOTED AND SHOWN ON ELECTRICAL DRAWINGS. ALL 120V HVAC CONTROL WIRING SHALL BE BY THIS CONTRACTOR (DIV. 16).
- THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT. THE CONTRACTOR SHALL FURNISH TO THE OWNER ALL INSTRUCTION PAMPHLETS, BOOKS AND OTHER LITERATURE FURNISHED BY THE MANUFACTURER AND EXPLAIN THE PROPER OPERATING AND MAINTENANCE PROCEDURES.
- SUBMIT TO THE OWNER FOR REVIEW AND APPROVAL SIX COMPLETE COPIES OF THE FOLLOWING SHOP DRAWINGS:
 - JUNCTION BOXES
 - WIRING DEVICES AND PLATES
 - CIRCUIT BREAKERS
 - DISCONNECT SWITCHES
 - WIRE
 - CONDUIT
- PROVIDE CONDUIT EXPANSION JOINTS AT ALL STRUCTURAL EXPANSION JOINTS.
- ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY.

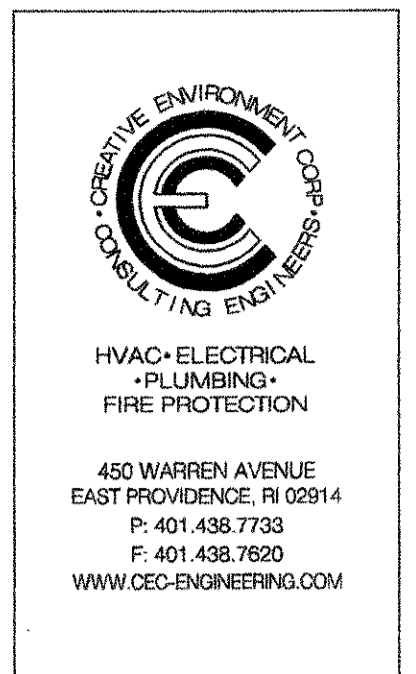
SYMBOL LEGEND

USE MOUNTING HEIGHTS SPECIFIED ON ARCHITECTURAL DRAWINGS. IF NOT LISTED, USE MOUNTING HEIGHTS ON THIS DRAWING.

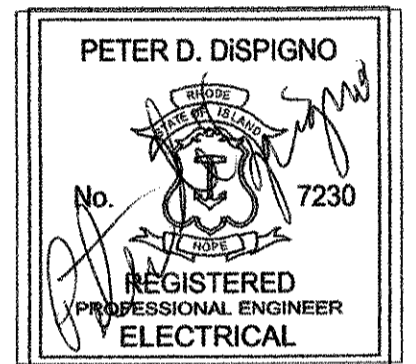
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	SINGLE POLE SWITCH - 48" A.F.F., P&S CAT. NO. CS120-LA	[Symbol]	SURFACE MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
Sp	SINGLE POLE SWITCH WITH PILOT LIGHT - 48" A.F.F. P&S CAT. NO. 204C1-RPL	[Symbol]	FLUSH MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S3	3-WAY SWITCH - 48" A.F.F., P&S CAT. NO. CS320-LA	[Symbol]	UP TO FLOOR ABOVE
S4	FOUR WAY SWITCH - 48" A.F.F., P&S CAT. NO. CS420-LA	[Symbol]	TIE INTO EQUIPMENT OR DOWN TO FLOOR BELOW
Sr	SINGLE POLE MOTOR RATED SWITCH WITH OVERLOAD HEATER SQUARE D CLASS 2510, TYPE FGJ-1	[Symbol]	WIRING CONCEALED IN WALL OR CEILING
Sm	MOTION SENSOR W/MANUAL OVERRIDE: WALL OR CEILING MOUNTED. "WA" OR "CI".	[Symbol]	WIRING CONCEALED IN FLOOR OR WALL
[Symbol]	JUNCTION BOX	[Symbol]	WIRING EXPOSED
[Symbol]	SPECIAL PURPOSE OUTLET WITH NEMA CONFIGURATION	[Symbol]	CROSSHATCHING INDICATES NUMBER OF CURRENT CARRYING CONDUCTORS IF MORE THAN TWO ARE REQUIRED. LONGER MARK INDICATES NEUTRAL. GROUNDWIRE IS ALWAYS INSTALLED AND NEVER INDICATED. NO CROSSHATCHING INDICATES 1 HOT, 1 NEUTRAL, AND 1 GROUND, ALL #12 THHN.
c	DUPLEX RECEPTACLE - MTD. 18" A.F.F. - 20A, 125V. P&S CAT. NO. CR-20LA. "C"=MOUNT 6" ABOVE COUNTER	[Symbol]	HOME RUN TO PANELBOARD - "A" DESIGNATES PANEL, "1,3" INDICATES CIRCUIT NUMBERS
is	ISOLATED GROUND RECEPTACLE - MTD 48" A.F.F. - 20A, 125V. ARROW-HART CAT. NO. IG5362HG	[Symbol]	MOTOR WITH RATING IN HORSEPOWER
is	GROUND FAULT INTERRUPTING RECEPTACLE - MTD. 48" A.F.F., 20A, 125V., P&S CAT. NO. 2091-LA	[Symbol]	COMBINATION STARTER/DISCONNECT SWITCH WITH SWITCH AND FUSE RATINGS
[Symbol]	INDICATES WEATHERPROOF	[Symbol]	INDICATES RAINIGHT
[Symbol]		[Symbol]	INDICATES DUAL ELEMENT FUSES
[Symbol]		[Symbol]	NUMBER OF POLES
[Symbol]		[Symbol]	FUSE SIZE
[Symbol]		[Symbol]	SWITCH SIZE
[Symbol]		[Symbol]	MAGNETIC MOTOR STARTER
[Symbol]		[Symbol]	DISCONNECT SWITCH

ABBREVIATIONS

A	AMPS
AG	ABOVE GRADE
AFF	ABOVE FINISHED FLOOR
BL	BLANK PLATE
BOF	BOTTOM OF FIXTURE
C	CONDUIT
CB	CIRCUIT BREAKER
CD	CANDELA
CU	COPPER
DWG	DRAWING
ECPS	EMPTY CONDUIT W/PULL STRING
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EX	EXISTING
FACP	FIRE ALARM CONTROL PANEL
G, GR	GROUND
GFI	GROUND FAULT CIRCUIT INTERRUPTER
IG	ISOLATED GROUND
N	NEW
NG	NATIONAL GRID (ELECTRICAL UTILITY)
UNO	UNLESS NOTED OTHERWISE
V	VOLT
W/	WITH
WP	WEATHERPROOF



Project:
**WARWICK SCHOOLS
 PILGRIM HIGH SCHOOL**
 111 PILGRIM PARKWAY, WARWICK, RI 02888
DUST COLLECTION REPLACEMENT



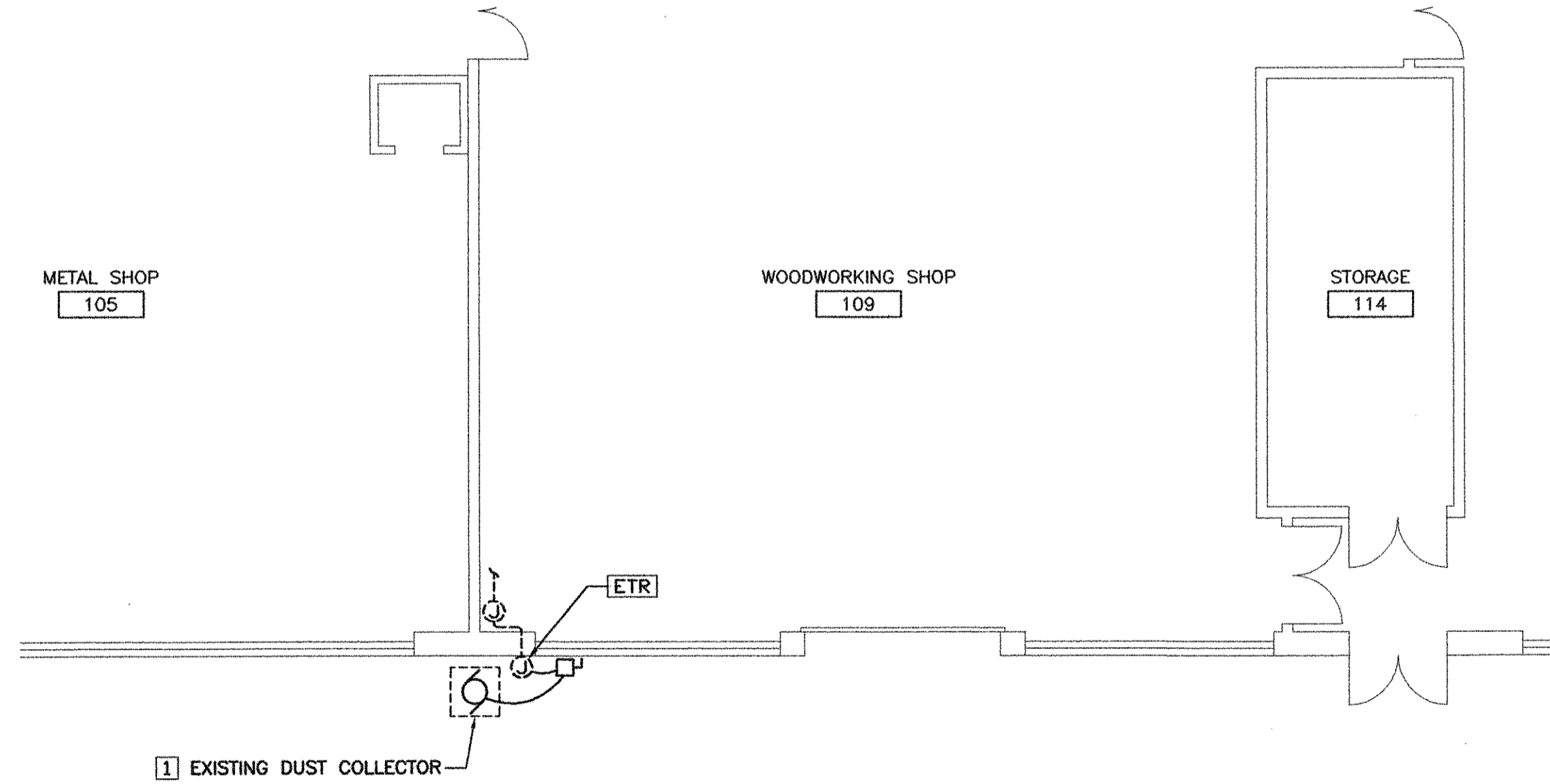
Status:
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Date	Revision/Issue	No.

Sheet Title:
ELECTRICAL LEGEND SHEET, FLOOR PLANS, SCHEDULES & SPECIFICATIONS

Project No: 20713
 Drawn By: MSO
 Checked By: PDS
 Scale: AS SHOWN
 Date: 4/10/2007

Drawing No:
E-1
 Sheet 8 of 14



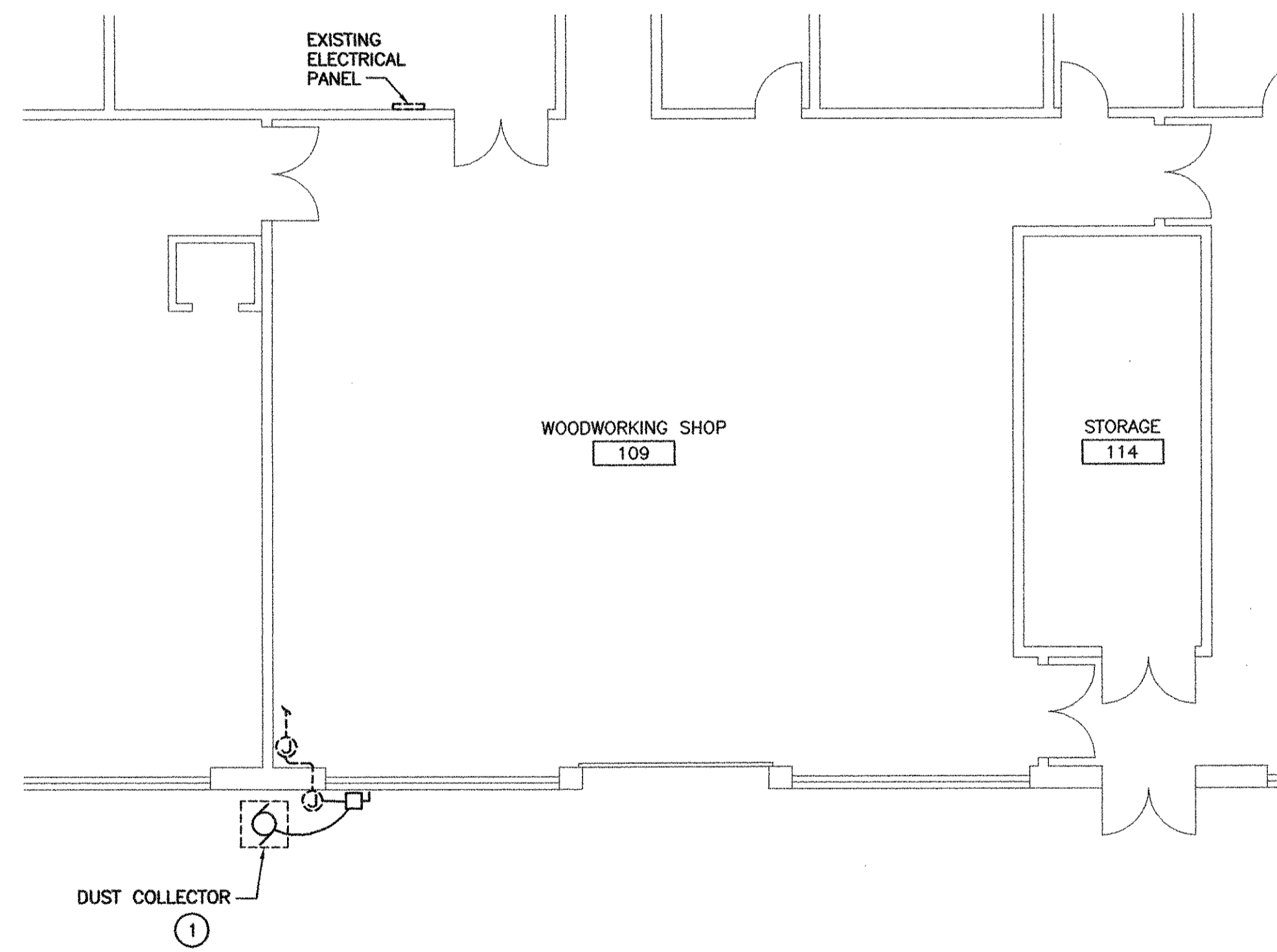
PARTIAL PLAN - ELECTRICAL DEMOLITION
 SCALE: 1/8"=1'-0"

GENERAL DEMOLITION NOTES:

- CONTRACTOR SHALL VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING.
- ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. CONTRACTOR SHALL SECURE ALL REQUIRED DEMOLITION PERMITS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- IT IS NOT THE INTENT TO SHOW ALL CONDUIT AND MATERIAL, AND EXACT SIZES TO BE REMOVED IN THE DEMOLITION WORK. DRAWING INDICATES EQUIPMENT DIAGRAMMATICALLY. EXACT LOCATION AND SIZE OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO RETURN BACK TO THE ORIGINAL LOCATION ANY DEVICE OR MATERIAL THAT MUST BE TEMPORARILY REMOVED OR RELOCATED TO ALLOW DEMOLITION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVING AND DISPOSING OF ALL EXISTING ELECTRICAL EQUIPMENT AS SHOWN ON DRAWINGS, EXCEPT WHERE NOTED OTHERWISE.

DEMOLITION KEYNOTES:

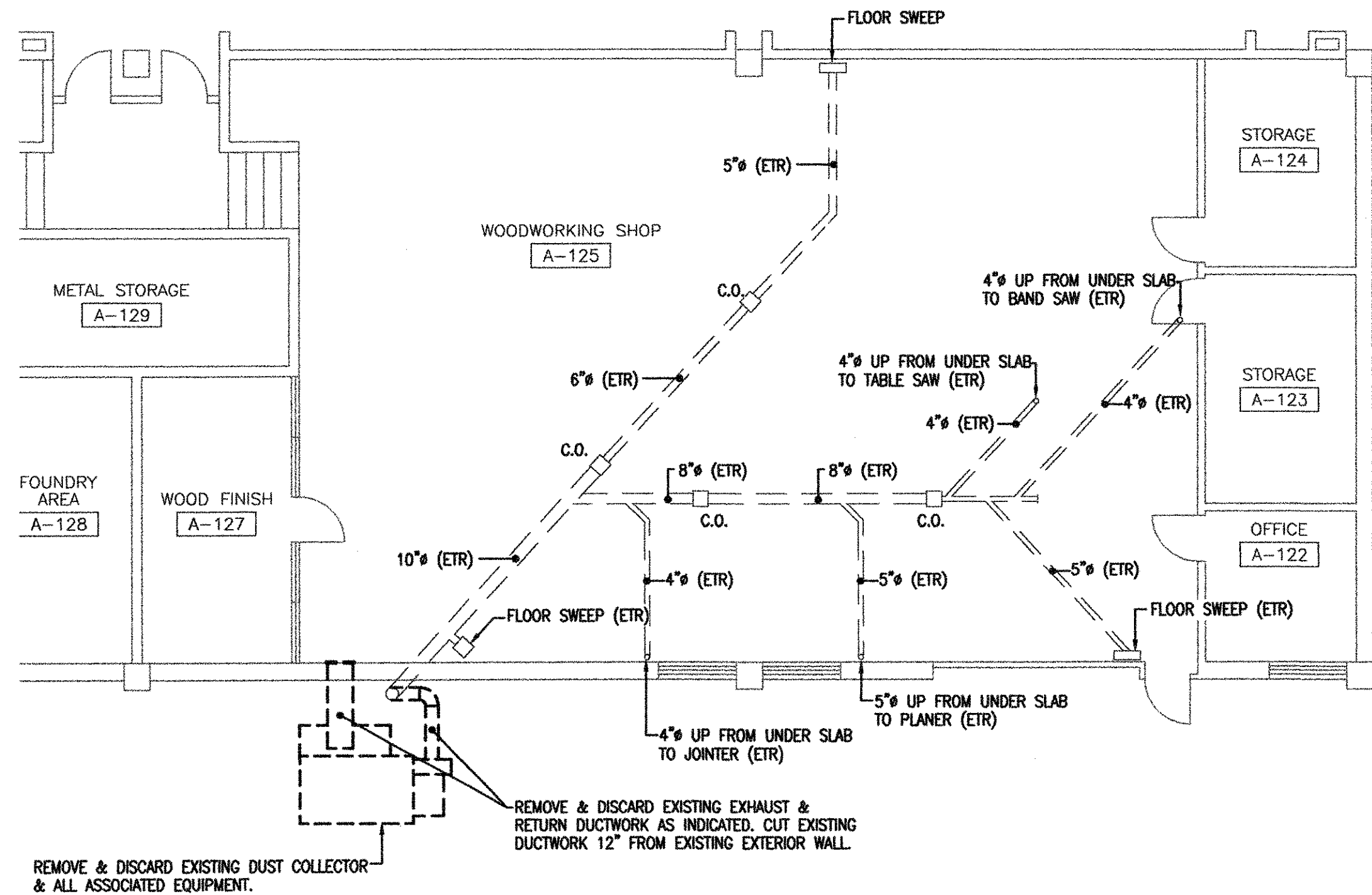
- [1] - EXISTING DUST COLLECTOR TO BE REMOVED PER MECHANICAL DRAWINGS. DISCONNECT CONDUIT AND WIRING FROM DUST COLLECTOR. REMOVE DISCONNECT, CONDUIT AND WIRING FROM JUNCTION BOX LOCATED OUTSIDE TO MOTOR. EXISTING FEEDER FROM JUNCTION BOX BACK TO SOURCE TO REMAIN.
- [ETR] - EXISTING TO REMAIN
- [ETL] - EXISTING TO BE RELOCATED



PARTIAL PLAN - MECHANICAL EQUIPMENT POWER
 SCALE: 1/8"=1'-0"

MECH (ID#)	DESCRIPTION	EQUIPMENT CHARACTERISTICS							PANEL	CIRCUIT	BREAKER	FEEDER AND CONDUIT	EQUIPMENT LOCATION	DISCONNECT SWITCH				MOTOR CONTROL	REMARKS
		VOLTS	AMPS	PH	HP	WATTS	MCA	MOCP						CFM	SIZE	FUSE	POLES		
[1]	DUST COLLECTOR	480		3	10							RE-USE EXISTING	WOOD SHOP	30/NF/3/RT					1,2,3

- REMARKS:
- DUST COLLECTOR TO BE POWERED BY SAME CIRCUIT THAT EXISTING DUST COLLECTOR TO BE REMOVED WAS CONNECTED.
 - RE-USE EXISTING CIRCUIT BREAKER.
 - EXISTING FEEDER TO BE RE-USED UP TO JUNCTION BOX LOCATED OUTSIDE WOOD SHOP. NEW 3/4" LIQUID-TITE WITH 3#8 TO BE INSTALLED FROM NEW DISCONNECT TO MOTOR. 1#10 GROUND TO BE ADDED TO FEEDER FROM EXISTING ELECTRICAL PANEL TO THE DUST COLLECTOR MOTOR. REPLACE ANY MATERIAL OR DEVICE DEMOLISHED WITH NEW.



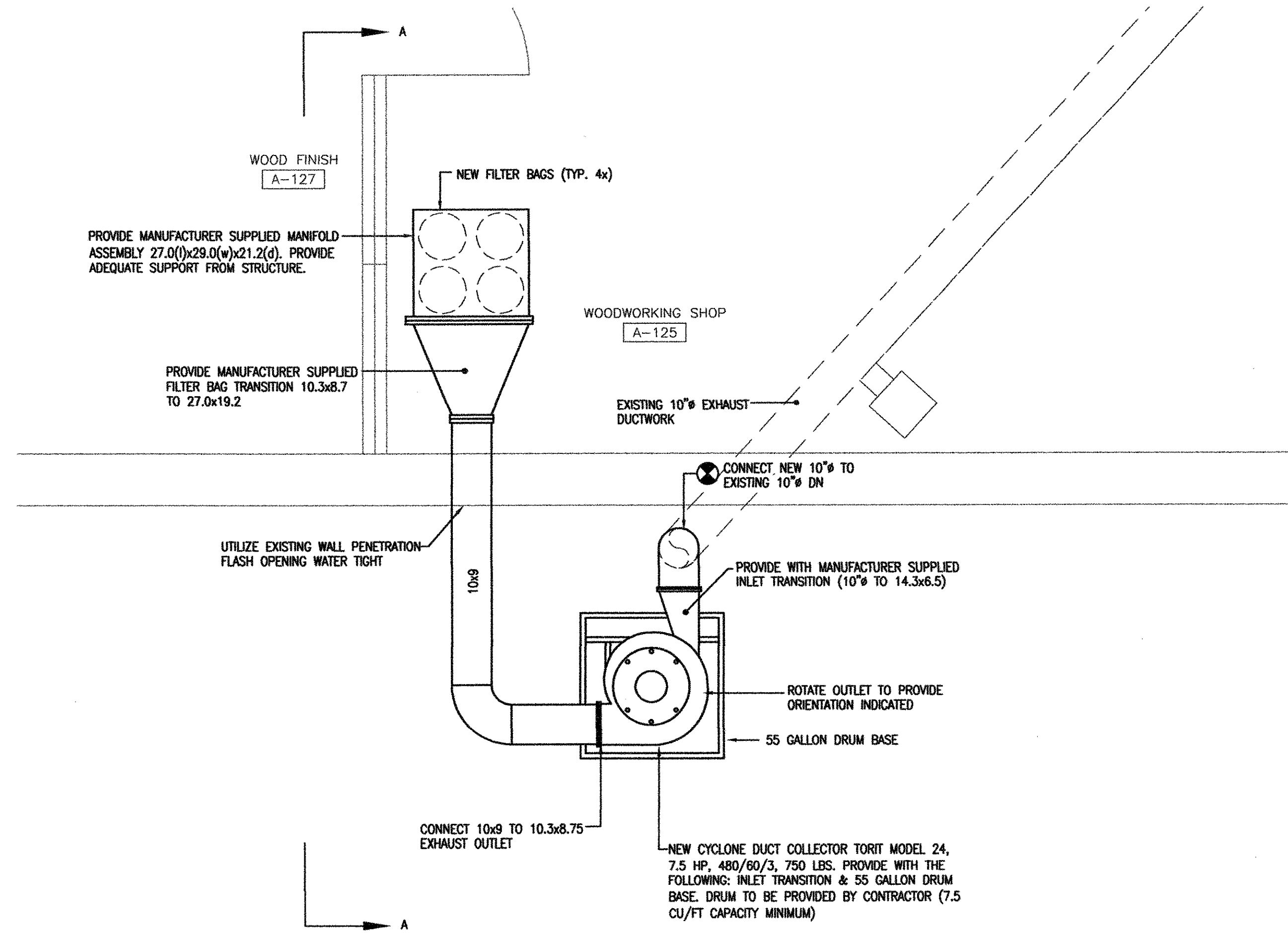
PARTIAL FLOOR PLAN - MECHANICAL DEMOLITION
SCALE: 1/8"=1'-0"

DEMOLITION NOTES

UNDER DEMOLITION, THE FOLLOWING IS, IN BRIEF, THE EXTENT OF THE WORK TO BE PERFORMED BY THE MECHANICAL CONTRACTOR UNDER THIS CONTRACT.

- PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF THE EXISTING MECHANICAL EQUIPMENT & DUCTWORK IN DESIGNATED AREAS. PATCH ALL ROOF AND WALL PENETRATIONS TO MATCH EXISTING.

THIS CONTRACTOR SHALL PROTECT WORK AGAINST INJURY OR DAMAGE, AND CAREFULLY STORE MATERIAL AND EQUIPMENT TO BE RELOCATED. OPEN ENDS OF WORK SHALL BE CLOSED WITH TEMPORARY COVERS OR PLUGS DURING STORAGE AND CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.



PARTIAL FLOOR PLAN - MECHANICAL NEW WORK
SCALE: 1/2"=1'-0"

MECHANICAL SPECIFICATIONS

PART 1 - GENERAL REQUIREMENTS

- SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, ETC., TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED FOR A COMPLETE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION, AS INTERPRETED BY THE ARCHITECT/ENGINEER.
- APPLY AND PAY FOR ALL NECESSARY INSPECTION FEES, LICENSES AND PERMITS REQUIRED BY THE PROPER AUTHORITIES HAVING JURISDICTION.
- "PROVIDE" AND "INSTALL" ALL MATERIALS, LABOR AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS OR HEREIN SPECIFIED.
- ALL CUTTING, PATCHING & REQUIRED FLASHING WILL BE DONE BY THIS CONTRACTOR.
- ALL MATERIALS SHALL BE NEW. ALL EQUIPMENT SHALL BEAR THE U.L. LABEL.
- COORDINATE LOCATIONS OF ALL NEW DUCTWORK WITH EXISTING EQUIPMENT, LIGHTING, OTHER TRADES, AND THE OWNER PRIOR TO INSTALLATION OR FABRICATION OF SAME.
- CONTRACTOR TO GUARANTEE THE QUALITY OF ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF OWNER ACCEPTANCE. ALL DEFECTIVE MATERIAL AND WORKMANSHIP SHALL BE REPLACED AT CONTRACTOR'S EXPENSE DURING THIS TIME.
- ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR'S EMPLOYEES, MATERIALS OR EQUIPMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INJURIES OR DAMAGE DONE TO BUILDING PREMISES OR ADJOINING AREAS OR WORK RESULTING FROM EXECUTION OF HIS PART OF WORK IN ANY MANNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTION OF HIS WORK AT HIS OWN EXPENSE.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR ALL EQUIPMENT SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS PRIOR TO ORDERING, FABRICATING OR INSTALLING SAME.
- THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWING AND/OR SITE CONDITIONS, THE HVAC CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED. THE CONTRACTOR SHALL CONDUCT A THOROUGH FIELD INVESTIGATION TO VERIFY WORK SHOWN ON THE DRAWINGS. THE DRAWINGS REFLECT THE BEST AVAILABLE INFORMATION FROM EXISTING PLANS AND SITE INVESTIGATIONS.

PART 2 - PRODUCTS

- DUCTWORK
 - ALL DUCTWORK SHALL BE OF TOP GRADE GALVANIZED STEEL, CONSTRUCTED AND SUPPORTED AS PER S.M.A.C.M.A. INDUSTRIAL DUCT CONSTRUCTION STANDARDS CLASS 2. ALL ELBOWS SHALL BE LONG RADIUS TYPE. ALL JOINTS, SEAMS, AND FITTINGS SHALL BE AIR AND WATER TIGHT USING SOLDER JOINTS AND SHALL BE FORMED TO PROVIDE A MINIMUM RESISTANCE TO THE AIR FLOW.
 - THE FOLLOWING METAL THICKNESS SHALL BE UTILIZED:

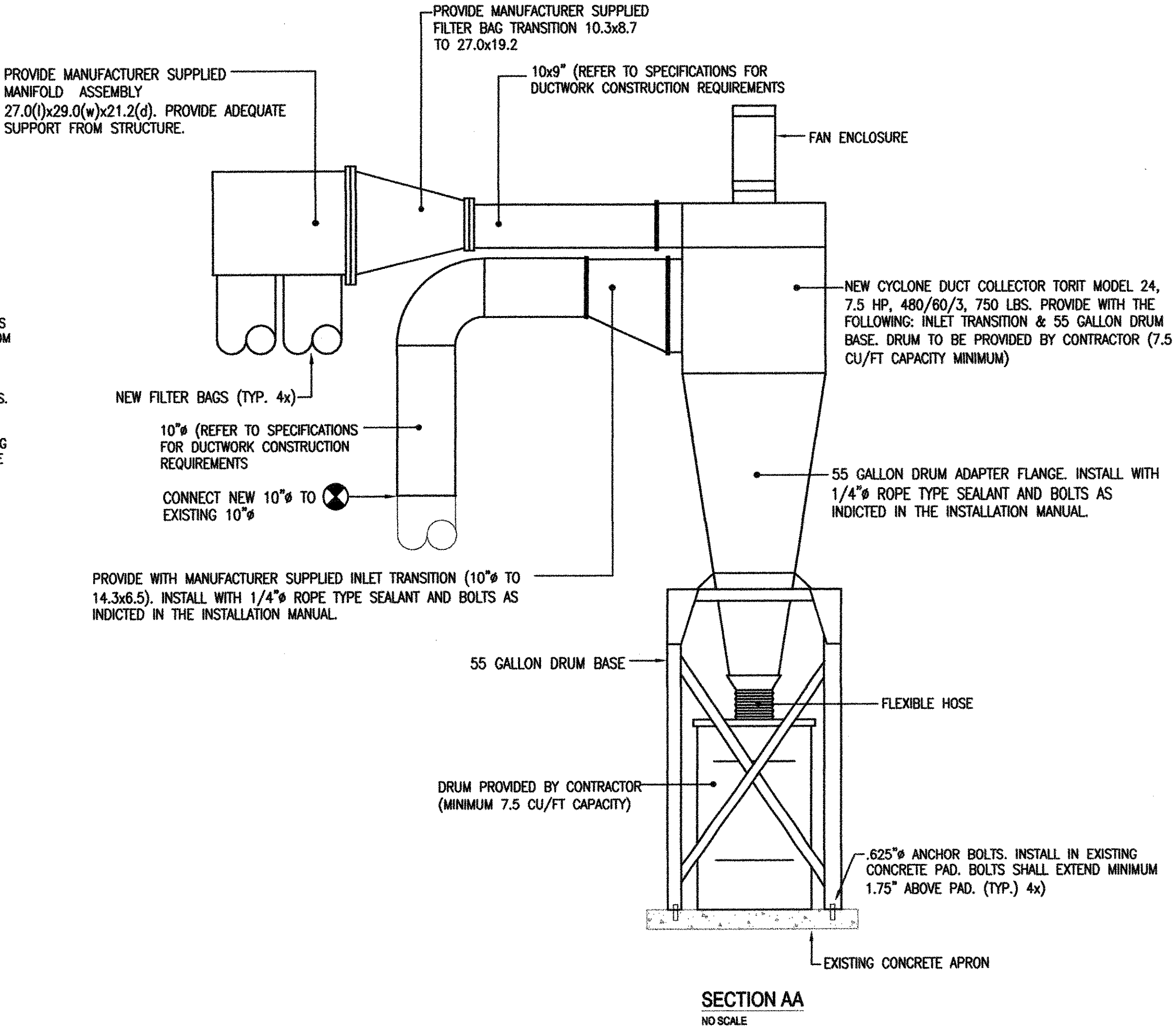
DIAMETER OF STRAIGHT DUCTS (INCHES)	U.S. STANDARD GAUGE
DUCT SIZE	GUAGE
UP TO 8"	22-18
OVER 8" UP TO 18"	22-12

- ELBOWS & ANGLES SHALL BE A MINIMUM OF TWO GAUGES HEAVIER THAN STRAIGHT LENGTHS OF EQUAL DIAMETER. ROUND ELBOWS AND ANGLES SHOULD HAVE AN INSIDE OR THROAT RADIUS OF TWO PIPE DIAMETERS. CONSTRUCT ELBOWS SIX INCHES OR LESS IN DIAMETER OF AT LEAST FIVE SECTIONS, ELBOWS OVER SIX INCHES DIAMETER OF SEVEN SECTIONS. ANGLES SHALL BE PIECED PROPORTIONATELY.
- RECTANGULAR ELBOWS & ANGLES SHALL BE CONSTRUCTED HAVING A W/D & R/D EQUAL TO OR GREATER THAN 1.
- LONGITUDINAL JOINTS OF DUCTS SHALL BE LAPPED AND SEALED OR WELDED.
- GIRTH JOINTS OF DUCTS SHALL BE MADE WITH LAP IN DIRECTION OF AIR FLOW AND ONE INCH LAP FOR DIAMETERS THRU 19 INCHES AND 1-1/2 INCH LAP FOR DIAMETERS OVER 19 INCHES.
- INTERIOR OF ALL DUCTS SHALL BE SMOOTH AND FREE FROM OBSTRUCTIONS WITH JOINTS SOLDERED AIR TIGHT.
- SUPPORT DUCTS SUFFICIENTLY TO PLACE NO LOAD ON CONNECTING EQUIPMENT AND TO CARRY WEIGHT OF SYSTEM IF 50% PLUGGED WITH MATERIAL. MAXIMUM SUPPORTING INTERVALS SHALL BE TWELVE FEET ON HORIZONTAL DUCTS, AT ALL CHANGES OF DIRECTION, TOP OF RISERS AND ON THREE FOOT CENTERS FOR DUCTS LOCATED ON WALLS. BOTH CROSS AND HORIZONTAL BRACING SHALL BE PROVIDED AS REQUIRED.
- DUCT RESTING ON SUPPORT MEMBERS WITHOUT SADDLES MUST BE REINFORCED WITH PLATES AT LEAST TWICE THE THICKNESS OF THE DUCT MATERIAL. THESE WEAR PLATES SHALL BE HALF THE DUCT CIRCUMFERENCE AND AT LEAST TWICE AS LONG AS THE WIDTH OF THE MEMBER SUPPORTING THE DUCT.
- PROVIDE SIX INCH MINIMUM CLEARANCE BETWEEN DUCTS AND CEILING, WALL OR FLOORS.
- WHERE LAWS CONFLICT WITH THE PRECEDING, THE MORE STRINGENT REQUIREMENT SHALL BE FOLLOWED. DEVIATION FROM EXISTING REGULATIONS MAY REQUIRE APPROVAL.
- ALL EXTERIOR DUCTWORK SHALL BE CLEANED & PAINTED WITH (2) COATS RUST INHIBITING PAINT. COLOR TO MATCH DUCT COLLECTOR.
- THIS ABOVE INFORMATION SHALL PROVIDE FOR COMPLETE AND OPERABLE SYSTEM TO MEET INTENT OF SPECIFICATIONS & TO THE SATISFACTION OF THE ENGINEERS.

- CYCLONE DUST COLLECTOR**
 - FURNISH A COMPLETE CONTINUOUS-DUTY DUST COLLECTOR SYSTEM AS SHOWN ON THE PLANS AND/OR LISTED IN THE EQUIPMENT SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF PROVIDING CYCLONIC CLEANING OF INCOMING AIR.
 - THE CONTINUOUS-DUTY COLLECTOR SHALL BE SUPPLIED IN FACTORY-ASSEMBLED UNITS OR IN MAJOR SUBASSEMBLIES SIZED TO MEET AIRFLOW CAPACITIES AND DESIGN REQUIREMENTS. INSTRUCTION MANUAL AND REPLACEMENT PARTS LIST SHALL BE INCLUDED FOR EASY INSTALLATION AND MAINTENANCE.
 - EACH COLLECTOR SHALL BE OF BOLTED AND WELDED CONSTRUCTION USING 14 GAUGE HRS DESIGNED FOR -20" WATER GAUGE AND COMPLETE WITH A REMOVABLE BOTTOM CONE SECTION. THE MOTOR AND FAN ASSEMBLY SHALL BE SHIPPED LOOSE.
 - DUST-LADEN AIR WILL ENTER THE COLLECTOR ON THE SIDE AND BE DIVERTED BY A HELICAL BAFFLE. THE AIR WILL THEN HAVE A "SPIN" IMPARTED TO IT. CENTRIFUGAL FORCES MOVE THE HEAVY DIRT AND DUST TO THE SIDE WALLS AND CARRY IT DOWN TO THE BASE OF THE UNIT. CLEAN AIR IS THEN EXHAUSTED FROM THE UNIT.
 - THE COLLECTOR SHALL INCLUDE AN INLET FLANGE MOUNTED ON THE SIDE OF THE COLLECTOR AT THE DIRTY AIR INLET. AN OUTLET FLANGE WILL BE PROVIDED ON THE SIDE OF THE FAN. THE FAN OUTLET SHALL ACCEPT A TORIT-BUILT FILTER BAG ASSEMBLY INCLUDING STANDARD FILTER BAGS.
 - FILTER BAGS SHALL BE MANUFACTURED OF POLYESTER FELT AND PROVIDE IN THE APPROPRIATE QUANTITIES FOR THE COLLECTION CAPACITY.
 - THE COLLECTOR SHALL BE A DONALDSON TORIT CYCLONE CONTINUOUS DUTY DUST COLLECTOR AS MANUFACTURED BY DONALDSON COMPANY, INC. OR ENGINEER APPROVED EQUAL.

PART 3 - EXECUTION

- IT IS THE INTENT OF THESE SPECIFICATIONS THAT THIS CONTRACTOR BE RESPONSIBLE FOR PROVIDING ALL DEVICES AND WIRING (REGARDLESS OF VOLTAGE) NECESSARY TO PROVIDE THE SEQUENCES AS SPECIFIED HEREIN.
- ALL MECHANICAL SYSTEMS SHALL BE AUTOMATICALLY CONTROLLED. WHERE NO DESCRIPTION OF OPERATION IS INDICATED FOR A PARTICULAR SYSTEM OR DEVICE, THE CONTRACTOR SHALL SELECT APPROPRIATE CONTROL SCENARIOS AND REVIEW THEM WITH THE ENGINEER PRIOR TO PROCEEDING. ALL CONTROLS SHALL BE ARRANGED AND DESIGNED FOR MAXIMUM ENERGY CONSERVATION.
- SEQUENCE OF OPERATION
 - THE EXISTING WALL MOUNTED SWITCH SHALL ENERGIZE/DE-ENERGIZE THE DUST COLLECTION SYSTEM.
- PROJECT CLOSE-OUT
 - RESTORE EXISTING FACILITIES USED DURING CONSTRUCTION TO ORIGINAL CONDITION. CLEAN PORTIONS OF THE SITE AFFECTED BY WORK OF THIS CONTRACT. REMOVE WASTE AND SURPLUS MATERIALS FROM THE SITE.
 - SUBMIT TWO COPIES OF OPERATION AND MAINTENANCE DATA BOUND IN THREE-RING BINDERS. INCLUDE WARRANTIES, SUBMITTALS, BALANCING REPORT, AND PROJECT DOCUMENTS AND CERTIFICATES.
 - CONTRACTOR SHALL DEMONSTRATE ALL SEQUENCES OF CONTROL TO THE ENGINEER. THE TEMPERATURE CONTROL AND BALANCING SUBCONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING CHECK-OUT PROCEDURE. PERSONNEL SHALL BE EQUIPPED WITH TOOLS AND SPARE PARTS TO MAKE MINOR REPAIRS AND ADJUSTMENTS.
 - CONTRACTOR SHALL DEMONSTRATE COMPLIANCE WITH BALANCING OF SYSTEMS IN THE PRESENCE OF THE ENGINEER BY ACTUAL MEASUREMENT OF WATER FLOWS. IF REQUESTED BY THE ENGINEER, RE-BALANCING SHALL BE DONE AT NO ADDITIONAL CHARGE.



CREATIVE ENVIRONMENT CORP.
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DUST COLLECTION REPLACEMENT

Project:

RICHARD C. NEWELL

No. 8486
4.10.07
REGISTERED
PROFESSIONAL ENGINEER
MECHANICAL

Status: **ISSUED FOR CONSTRUCTION**

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Sheet Title:
MECHANICAL FLOOR PLANS DETAILS, SCHEDULES & SPECIFICATIONS

Project No: 20714
Drawn By: JAA
Checked By: RCNUPS
Scale: AS SHOWN
Date: 4/10/2007

Drawing No:
M-1
Sheet 9 of 14

ELECTRICAL SPECIFICATIONS

- FURNISH LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE PROPER AND COMPLETE INSTALLATION OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED.
- ALL ITEMS NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE SPECIFICATIONS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE ELECTRICAL INSTALLATION, SHALL BE FURNISHED AND INSTALLED AS PART OF THIS SECTION.
- ALL ELECTRICAL INSTALLATIONS AND GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE LOCAL, STATE AND NATIONAL CODES:
 - BUILDING CODE OF THE STATE OF RI (BOCA W/RI AMENDMENTS)
 - ELECTRICAL CODE OF THE STATE OF RI (NFPA 70W/RI AMENDMENTS)
 - FIRE ALARM REQUIREMENTS OF THE STATE OF RI.
- OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
- ALL EQUIPMENT AND THE INSTALLATION OF ELECTRICAL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- MATERIALS AND WORKMANSHIP SHALL BE THE BEST OF THEIR RESPECTIVE KINDS AND IN FULL ACCORD WITH THE MOST MODERN ELECTRICAL CONSTRUCTION. ALL MATERIALS SHALL BE NEW, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
- FURNISH AND INSTALL TEMPORARY POWER AS REQUIRED TO OPERATE TOOLS AND LIGHTING. PROVIDE PANELS AND LIGHTING FIXTURES FOR CONSTRUCTION, AS REQUIRED.
- THE ELECTRICAL SUB-CONTRACTOR SHALL INSPECT THE SITE PRIOR TO SUBMITTING HIS BID, AND SHALL INVESTIGATE ALL CONDITIONS UNDER WHICH THIS WORK WILL BE PERFORMED. FAILURE TO INSPECT EXISTING CONDITIONS OR TO FULLY UNDERSTAND THE WORK WHICH IS REQUIRED SHALL NOT EXCUSE THE ELECTRICAL SUB-CONTRACTOR FROM HIS OBLIGATIONS TO SUPPLY AND INSTALL THE WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND THE DRAWINGS AND UNDER ALL SITE CONDITIONS AS THEY EXIST.
- THE ELECTRICAL CONTRACTOR SHALL CLEAN, AT THE END OF EACH DAY, ALL AREAS WORKED IN. EMPTY BOXES, RUBBISH, AND OTHER MATERIALS OF NO USE SHALL BE REMOVED FROM THE SITE.
- WORK SEQUENCE SHALL BE COORDINATED WITH THE PROJECT MANAGER AND SHALL BE IN COORDINATION WITH OTHER BUILDING TRADES AND THE BUILDING SCHEDULE.
- NEW 120/208V. BRANCH CIRCUIT PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELBOARDS SHALL BE EQUAL TO GE TYPE AO WITH BOLTED BRANCH CIRCUIT BREAKERS. BRANCH CIRCUIT BREAKERS SHALL BE RATED 10,000 A.I.C. MINIMUM. NEW 277/480V PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELS SHALL BE EQUAL TO G.E. TYPE AE WITH BOLTED BRANCH BREAKERS. BRANCH BREAKERS SHALL BE RATED 14,000 A.I.C. MINIMUM. PANELBOARD SCHEDULES SHALL BE FILLED OUT AND PLACED IN EACH PANEL BOARD; BOTH EXISTING AND NEW, ALL SCHEDULES SHALL BE TYPED.
- WIRE AND CABLE SHALL BE TYPE THWN/THHN, UL LISTED FOR BUILDING WIRE, 75 DEGREES CENTIGRADE, WET OR DRY LOCATIONS, RATED FOR 600 VOLT. WIRE SHALL BE A MINIMUM OF NO. 12 AWG SOLID. ALL CONDUCTORS SHALL BE COPPER. METAL-CLAD CABLE TYPE MC, WITH GROUND CONDUCTORS, MAY BE USED IN AREAS WHERE APPROVED BY THE LOCAL ELECTRICAL INSPECTOR. FIRE ALARM WIRING SHALL BE FIRE ALARM TYPE MC CABLE, WITH PERMISSION AND APPROVAL OF THE FIRE ALARM SUPERINTENDENT, SIZES NOTED, AND/OR REQUIRED, OR SHALL BE INDIVIDUAL CONDUCTORS RUN IN CONDUIT.
- CONDUITS SHALL BE E.M.T. WITH STEEL CONNECTORS AND COUPLINGS IN FURRED SPACES, ABOVE CEILINGS, AND IN EXPOSED INTERIOR SPACES. FLEXIBLE STEEL CONDUIT (GREENFIELD) SHALL BE USED FOR CONNECTIONS TO FIXTURES AND EQUIPMENT.
- ALL OUTLET BOXES FOR LIGHTING, SWITCHES, RECEPTACLES, TELEPHONE, TELEVISION, ETC. SHALL BE GALVANIZED STEEL, MINIMUM 1-1/2" DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE DEVICE TO BE UTILIZED THEREIN. PROVIDE PLASTER RINGS AS REQUIRED. BOXES SHALL HAVE MOUNTING LUGS OR EARS FOR COVERS AND KNOCKOUTS FOR CONDUIT TERMINATIONS. PROVIDE SEALANT AROUND OUTLET BOXES TO PREVENT SOUND TRANSMISSION TO ADJACENT ROOM.
- ALL CONDUIT/WIRING PENETRATIONS THROUGH FIRE WALLS SHALL BE FIRESTOPPED WITH MATERIAL CONFORMING TO ASTM E136 AND SHALL BE UL CLASSIFIED, FM APPROVED, AND APPROVED FOR USE IN 1-, 2-, OR 3-HOUR RATED SYSTEMS. FIRE STOP MATERIAL SHALL BE EQUAL TO DOW CORNING CAT. NO. 2000 FIRE STOP SEALANT OR 2001 FIRE STOP FOAM AS REQUIRED BY THE PARTICULAR FIRE STOPPING CONDITION.
- ALL WIRING DEVICES SHALL BE BY ONE MANUFACTURER AND SHALL BE G.E., P&S, BRYANT OR HUBBELL. THE CATALOG NUMBERS ON THE DRAWINGS ARE THOSE OF THE G.E. COMPANY, EXCEPT AS OTHERWISE INDICATED AND ARE USED TO DENOTE TYPE AND QUALITY. COLOR SHALL BE AS SELECTED BY THE ARCHITECT/CONSTRUCTION MANAGER.
- ALL DEVICE PLATES SHALL MATCH EXISTING.
- THE PLANS DEPICT THE LOCATION OF ALL FIXTURES AND EQUIPMENT AND ARE INTENDED TO INDICATE THE GENERAL INTENT OF THE WORK IN SCOPE, LAYOUT AND QUALITY OF WORKMANSHIP.
- THE CONTRACTOR SHALL CAREFULLY VERIFY ALL MEASUREMENTS AT THE SITE, DETERMINE THE EXACT LOCATION OF ALL CHASES AND OPENINGS REQUIRED BY HIS WORK AND SHALL FURNISH AND SET ALL SLEEVES, INSERTS, AND HANGERS AS REQUIRED FOR THE WORK HEREIN.
- THE CONTRACTOR SHALL COORDINATE HIS WORK SO THAT IT DOES NOT INTERFERE WITH THE WORK OF OTHER TRADES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT HIS WORK IS INSTALLED IN A TIMELY MANNER.
- ALL HVAC CONTROLS, CONTROL WIRING AND INTER-CONNECTIONS SHALL BE BY DIV. 15, EXCEPT AS OTHERWISE NOTED AND SHOWN ON ELECTRICAL DRAWINGS. ALL 120V HVAC CONTROL WIRING SHALL BE BY THIS CONTRACTOR (DIV. 16).
- THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT. THE CONTRACTOR SHALL FURNISH TO THE OWNER ALL INSTRUCTION PAMPHLETS, BOOKS AND OTHER LITERATURE FURNISHED BY THE MANUFACTURER AND EXPLAIN THE PROPER OPERATING AND MAINTENANCE PROCEDURES.
- SUBMIT TO THE OWNER FOR REVIEW AND APPROVAL SIX COMPLETE COPIES OF THE FOLLOWING SHOP DRAWINGS:
 - JUNCTION BOXES
 - WIRING DEVICES AND PLATES
 - CIRCUIT BREAKERS
 - DISCONNECT SWITCHES
 - WIRE
 - CONDUIT
- PROVIDE CONDUIT EXPANSION JOINTS AT ALL STRUCTURAL EXPANSION JOINTS.
- ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY.

SYMBOL LEGEND

USE MOUNTING HEIGHTS SPECIFIED ON ARCHITECTURAL DRAWINGS. IF NOT LISTED, USE MOUNTING HEIGHTS ON THIS DRAWING.

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	SINGLE POLE SWITCH - 48" A.F.F., P&S CAT. NO. CS120-LA	[Symbol]	SURFACE MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S _P	SINGLE POLE SWITCH WITH PILOT LIGHT - 48" A.F.F. P&S CAT. NO. 20MCI-RPL	[Symbol]	FLUSH MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S ₃	3-WAY SWITCH - 48" A.F.F., P&S CAT. NO. CS320-LA	[Symbol]	UP TO FLOOR ABOVE
S ₄	FOUR WAY SWITCH - 48" A.F.F.; P&S CAT. NO. CS420-LA	[Symbol]	TIE INTO EQUIPMENT OR DOWN TO FLOOR BELOW
S _T	SINGLE POLE MOTOR RATED SWITCH WITH OVERLOAD HEATER SQUARE D CLASS 2510, TYPE FG-1	[Symbol]	WIRING CONCEALED IN WALL OR CEILING
S _M	MOTION SENSOR W/MANUAL OVERRIDE; WALL OR CEILING MOUNTED, 'WA' OR 'CI'	[Symbol]	WIRING CONCEALED IN FLOOR OR WALL
[Symbol]	JUNCTION BOX	[Symbol]	WIRING EXPOSED
[Symbol]	SPECIAL PURPOSE OUTLET WITH NEMA CONFIGURATION	[Symbol]	CROSSHATCHING INDICATES NUMBER OF CURRENT CARRYING CONDUCTORS IF MORE THAN TWO ARE REQUIRED. LONGER MARK INDICATES NEUTRAL. GROUNDWIRE IS ALWAYS INSTALLED AND NEVER INDICATED. NO CROSSHATCHING INDICATES 1 HOT, 1 NEUTRAL, AND 1 GROUND, ALL #12 THHN.
[Symbol]	DUPLEX RECEPTACLE - MTD. 18" A.F.F. - 20A, 125V. P&S CAT. NO. CR-20LA. "C"-MOUNT 6" ABOVE COUNTER	[Symbol]	HOME RUN TO PANELBOARD - "A" DESIGNATES PANEL, "1,3" INDICATES CIRCUIT NUMBERS
[Symbol]	ISOLATED GROUND RECEPTACLE - MTD 48" A.F.F. - 20A, 125V. ARROW-HART CAT. NO. IGS362HG	[Symbol]	MOTOR WITH RATING IN HORSEPOWER
[Symbol]	GROUND FAULT INTERRUPTING RECEPTACLE - MTD. 48" A.F.F., 20A, 125V. P&S CAT. NO. 2091-LA	[Symbol]	COMBINATION STARTER/DISCONNECT SWITCH WITH SWITCH AND FUSE RATINGS
[Symbol]	INDICATES WEATHERPROOF	[Symbol]	INDICATES RAINTIGHT
		[Symbol]	INDICATES DUAL ELEMENT FUSES
		[Symbol]	NUMBER OF POLES
		[Symbol]	FUSE SIZE
		[Symbol]	SWITCH SIZE
		[Symbol]	MAGNETIC MOTOR STARTER
		[Symbol]	DISCONNECT SWITCH

ABBREVIATIONS

A	AMPS
AG	ABOVE GRADE
AFF	ABOVE FINISHED FLOOR
BL	BLANK PLATE
BOF	BOTTOM OF FIXTURE
C	CONDUIT
CB	CIRCUIT BREAKER
CD	CANDELA
CU	COPPER
DWG	DRAWING
ECPS	EMPTY CONDUIT W/PULL STRING
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EX	EXISTING
FACP	FIRE ALARM CONTROL PANEL
GR	GROUND
GI	GROUND FAULT CIRCUIT INTERRUPTER
IG	ISOLATED GROUND
N	NEW
NG	NATIONAL GRID (ELECTRICAL UTILITY)
UNO	UNLESS NOTED OTHERWISE
V	VOLT
W/	WITH
WP	WEATHERPROOF

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DUST COLLECTION REPLACEMENT

PETER D. DISPIGNO
 No. 7230
 REGISTERED PROFESSIONAL ENGINEER
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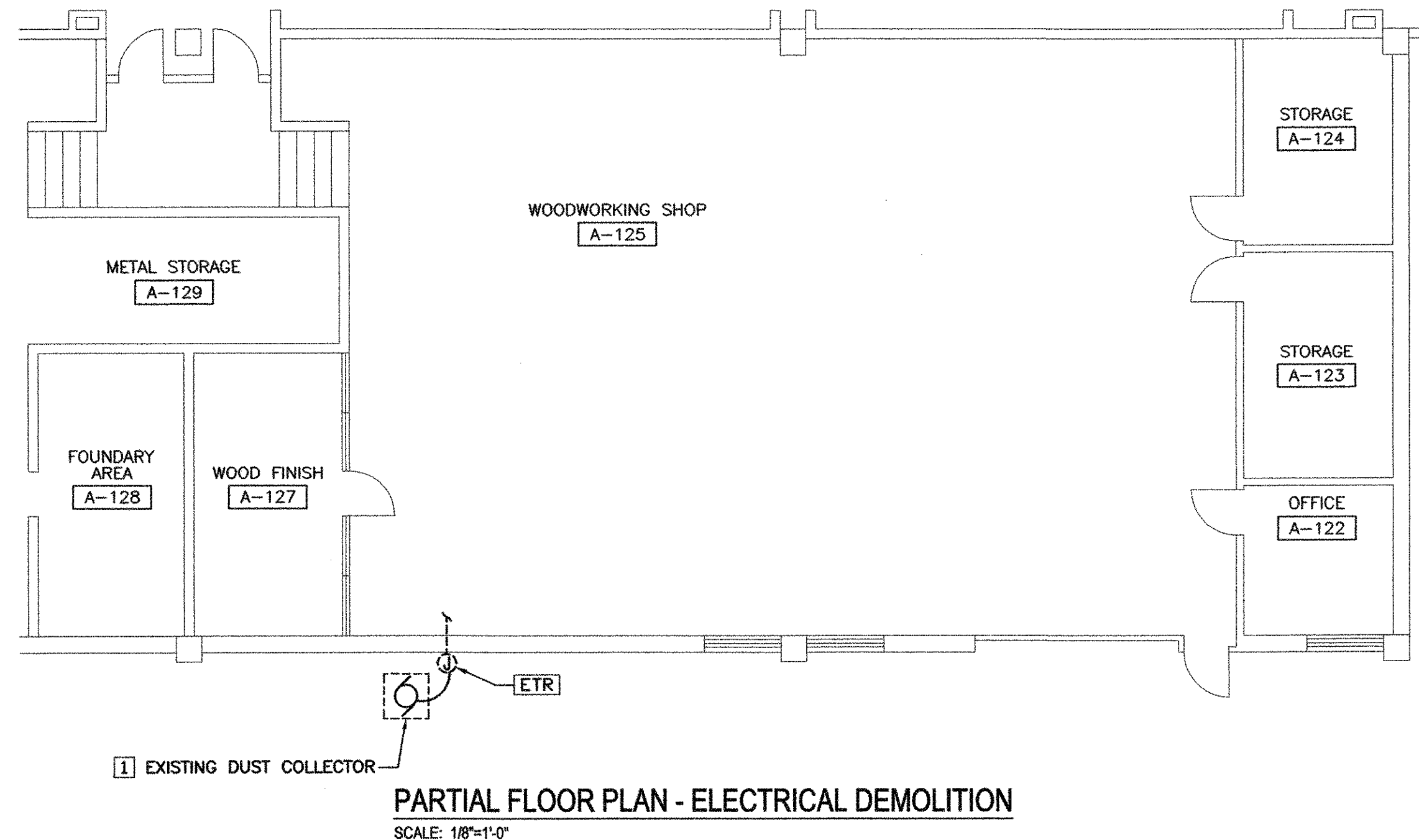
Status:
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Date	Revision/Issue	No.

Sheet Title:
ELECTRICAL LEGEND SHEET, FLOOR PLANS, SCHEDULES & SPECIFICATIONS

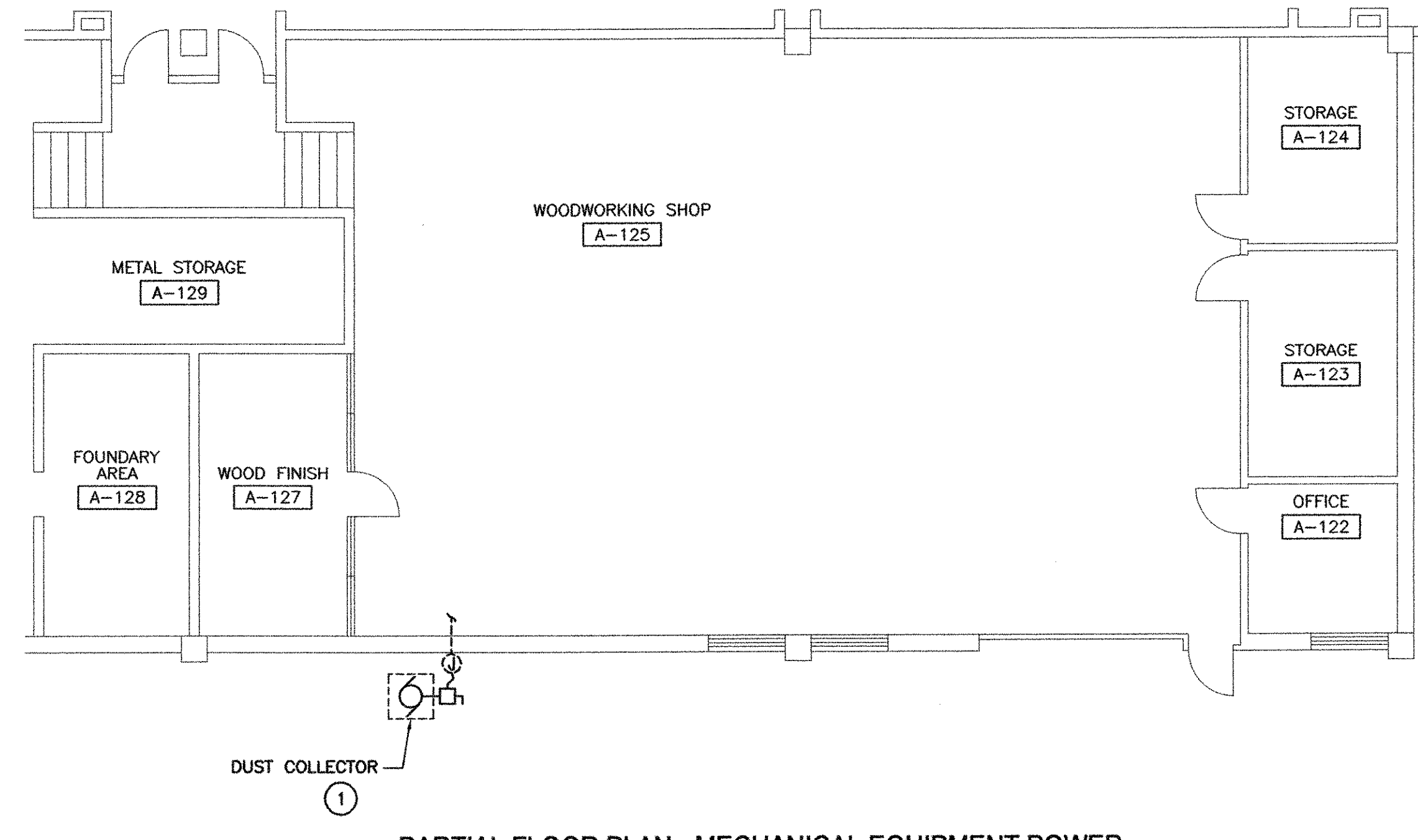
Project No: 20714
 Drawn By: MSO
 Checked By: PDS
 Scale: AS SHOWN
 Date: 4/10/2007

Drawing No:
E-1
 Sheet 10 of 14



- GENERAL DEMOLITION NOTES:**
- CONTRACTOR SHALL VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING.
 - ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. CONTRACTOR SHALL SECURE ALL REQUIRED DEMOLITION PERMITS.
 - PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
 - IT IS NOT THE INTENT TO SHOW ALL CONDUIT AND MATERIAL, AND EXACT SIZES TO BE REMOVED IN THE DEMOLITION WORK. DRAWING INDICATES EQUIPMENT DIAGRAMMATICALLY. EXACT LOCATION AND SIZE OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS BY THE CONTRACTOR.
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO RETURN BACK TO THE ORIGINAL LOCATION ANY DEVICE OR MATERIAL THAT MUST BE TEMPORARILY REMOVED OR RELOCATED TO ALLOW DEMOLITION.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVING AND DISPOSING OF ALL EXISTING ELECTRICAL EQUIPMENT AS SHOWN ON DRAWINGS, EXCEPT WHERE NOTED OTHERWISE.

- DEMOLITION KEYNOTES:**
- EXISTING DUST COLLECTOR TO BE REMOVED PER MECHANICAL DRAWINGS. DISCONNECT CONDUIT AND WIRING FROM DUST COLLECTOR. REMOVE LIQUID-TITE AND WIRING FROM EXTERIOR JUNCTION BOX TO MOTOR. EXISTING FEEDER FROM JUNCTION BOX BACK TO SOURCE TO REMAIN.
 - [ETR] - EXISTING TO REMAIN
 - [ETL] - EXISTING TO BE RELOCATED



MECHANICAL EQUIPMENT ELECTRICAL CONNECTION SCHEDULE

MECH (ID#)	DESCRIPTION	EQUIPMENT CHARACTERISTICS							PANEL	CIRCUIT	BREAKER	FEEDER AND CONDUIT	EQUIPMENT LOCATION	DISCONNECT SWITCH				MOTOR CONTROL	REMARKS
		VOLTS	AMPS	PH	HP	WATTS	MCA	MOCF						CFM	SIZE	FUSE	POLES		
1	DUST COLLECTOR	480		3	7.5							RE-USE EXISTING	WOOD SHOP	30/NF/3/RT					1,2,3

REMARKS:

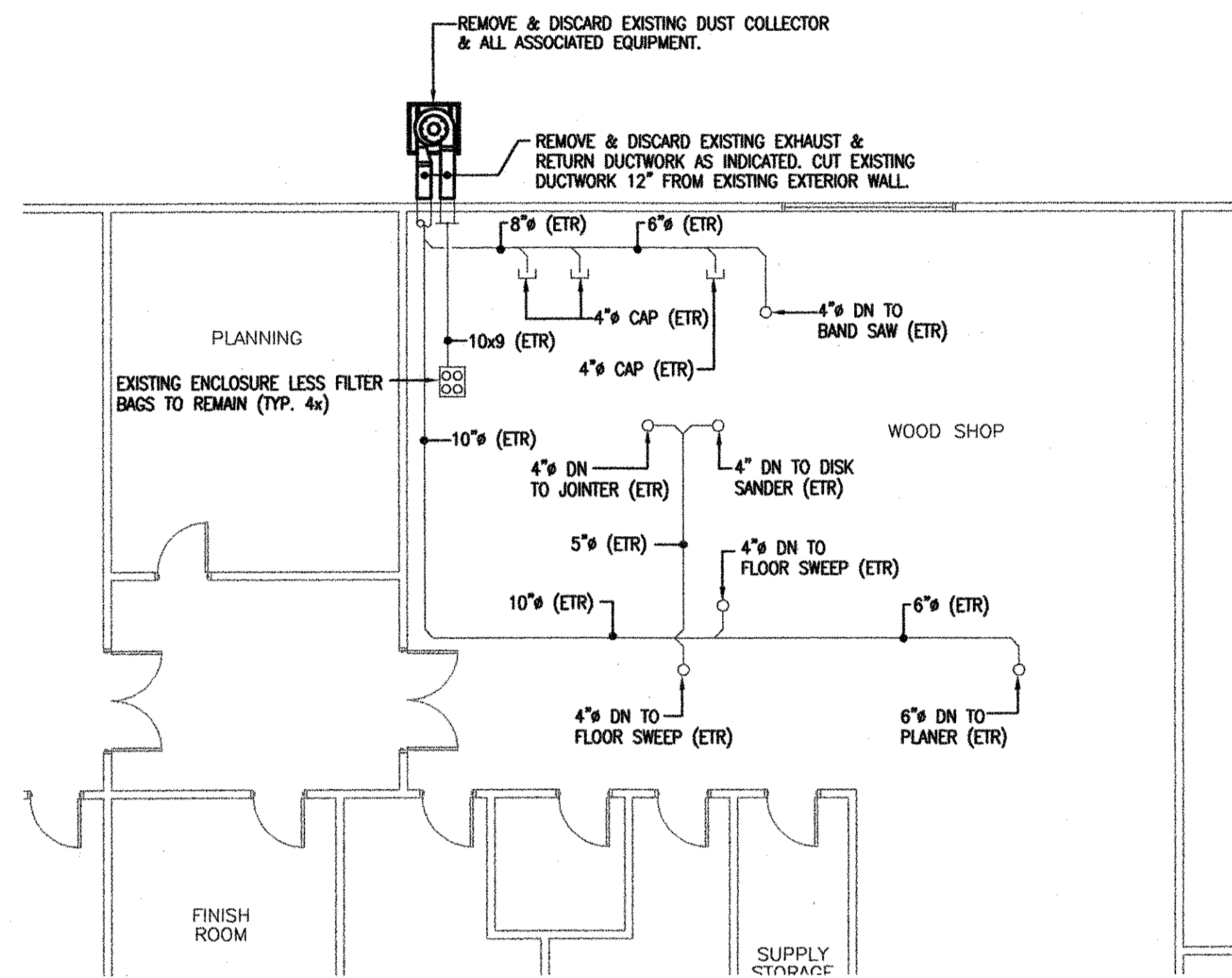
- DUST COLLECTOR TO BE POWERED BY SAME CIRCUIT THAT EXISTING DUST COLLECTOR TO BE REMOVED WAS CONNECTED.
- RE-USE EXISTING CIRCUIT BREAKER.
- EXISTING FEEDER TO BE RE-USED UP TO JUNCTION BOX LOCATED OUTSIDE WOOD SHOP. NEW 3/4" LIQUID-TITE WITH 3#8 TO BE INSTALLED FROM FROM JUNCTION BOX TO DISCONNECT TO MOTOR. #10 GROUND TO BE ADDED TO FEEDER FROM EXISTING ELECTRICAL PANEL TO THE DUST COLLECTOR MOTOR, APPROXIMATELY 200'.

Date	Revision/Issue	No.

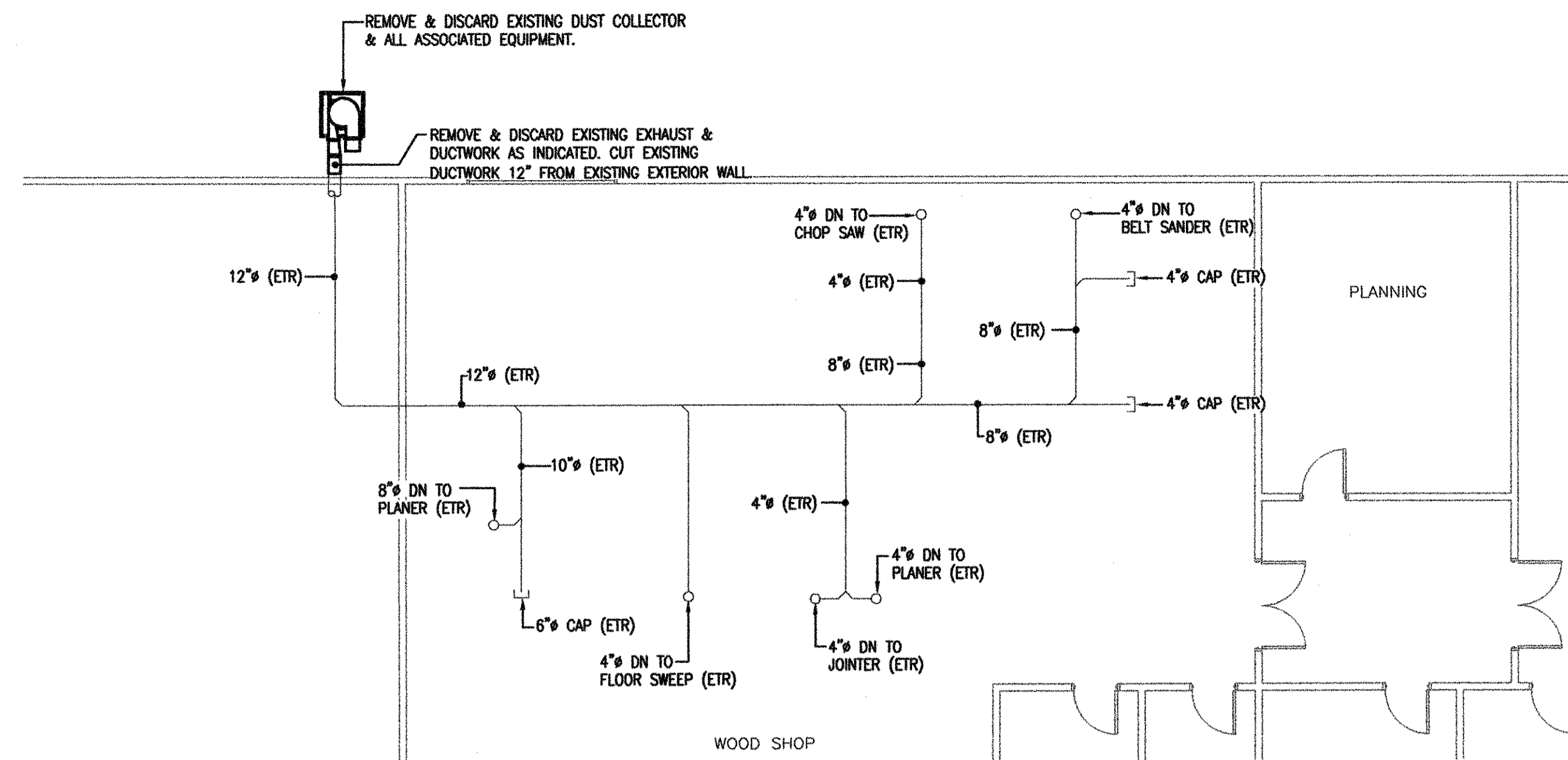
DEMOLITION NOTES

UNDER DEMOLITION, THE FOLLOWING IS, IN BRIEF, THE EXTENT OF THE WORK TO BE PERFORMED BY THE MECHANICAL CONTRACTOR UNDER THIS CONTRACT.

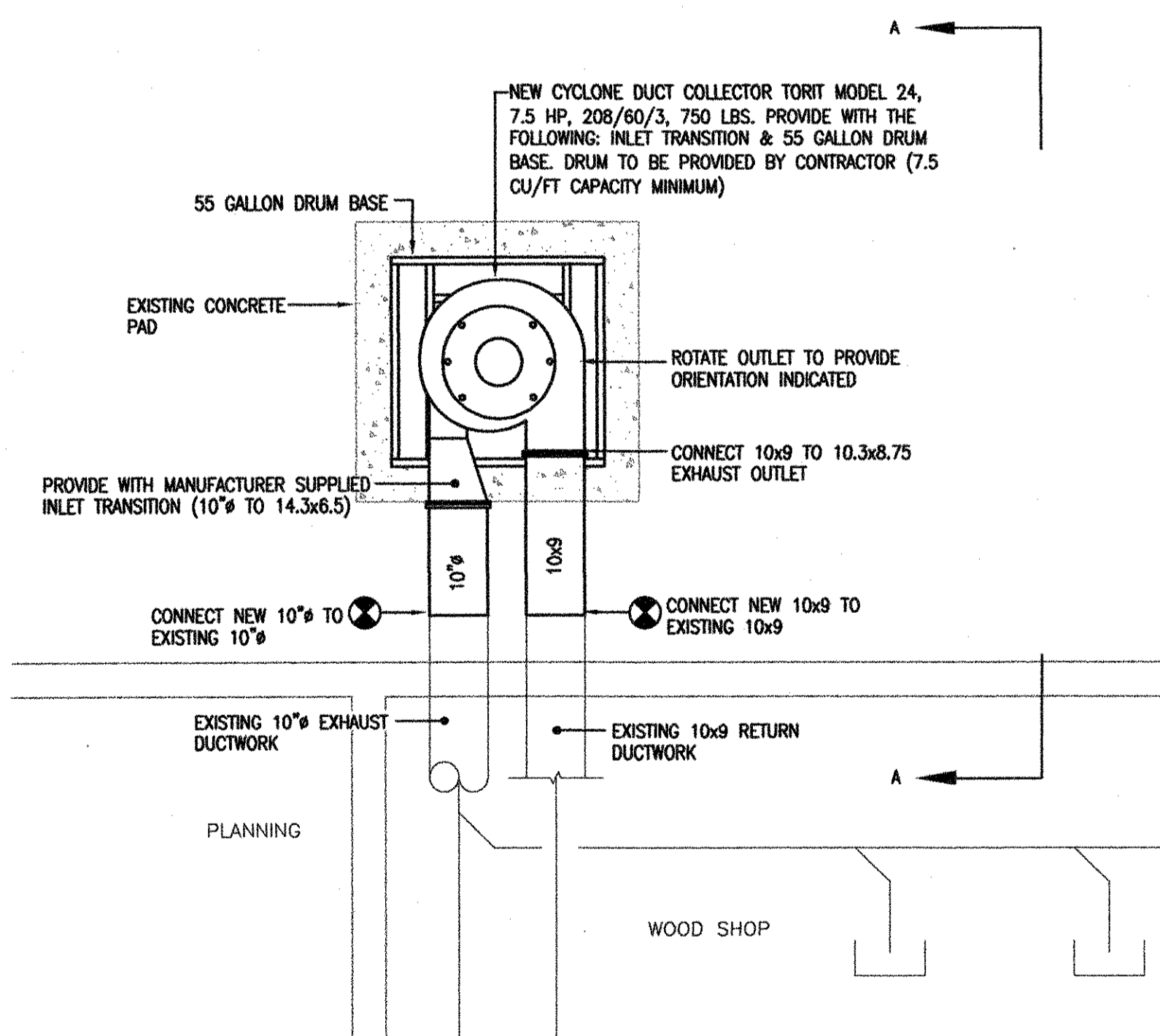
1. PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS.
2. PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
3. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF THE EXISTING MECHANICAL EQUIPMENT & DUCTWORK IN DESIGNATED AREAS. PATCH ALL ROOF AND WALL PENETRATIONS TO MATCH EXISTING.
4. THIS CONTRACTOR SHALL PROTECT WORK AGAINST INJURY OR DAMAGE, AND CAREFULLY STORE MATERIAL AND EQUIPMENT TO BE RELOCATED. OPEN ENDS OF WORK SHALL BE CLOSED WITH TEMPORARY COVERS OR PLUGS DURING STORAGE AND CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.



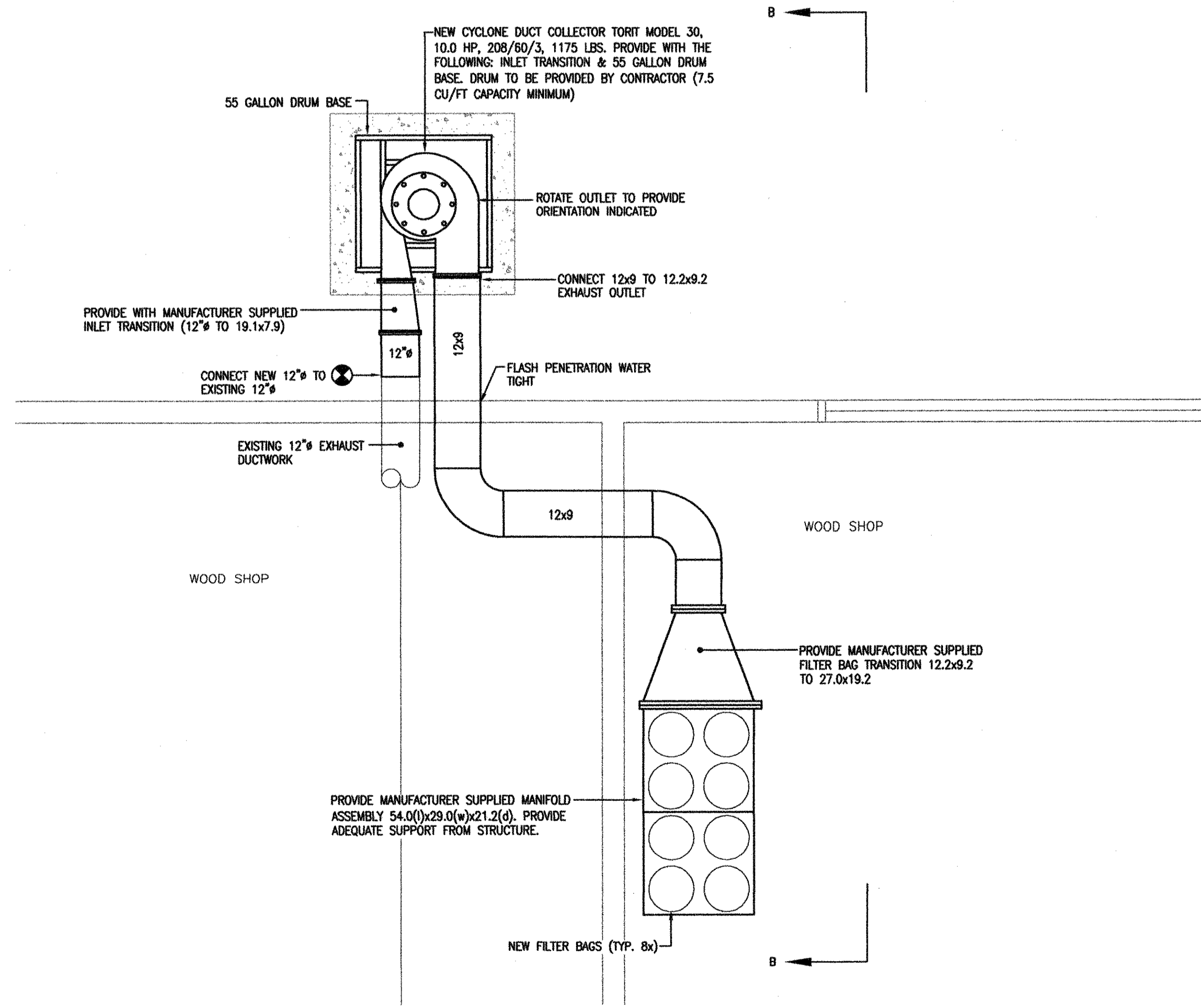
PARTIAL FLOOR PLAN WOODSHOP #1 - MECHANICAL DEMOLITION
SCALE: 1/8"=1'-0"



PARTIAL FLOOR PLAN WOODSHOP #2 - MECHANICAL DEMOLITION
SCALE: 1/8"=1'-0"



PARTIAL FLOOR PLAN WOODSHOP #1 - MECHANICAL NEW WORK
SCALE: 1/2"=1'-0"



PARTIAL FLOOR PLAN WOODSHOP #2 - MECHANICAL NEW WORK
SCALE: 1/2"=1'-0"

MECHANICAL SPECIFICATIONS

PART 1 - GENERAL REQUIREMENTS

1. SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, ETC., TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED FOR A COMPLETE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION, AS INTERPRETED BY THE ARCHITECT/ENGINEER.
2. APPLY AND PAY FOR ALL NECESSARY INSPECTION FEES, LICENSES AND PERMITS REQUIRED BY THE PROPER AUTHORITIES HAVING JURISDICTION.
3. "PROVIDE" AND "INSTALL" ALL MATERIALS, LABOR AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS OR HEREIN SPECIFIED.
4. ALL CUTTING, PATCHING & REQUIRED FLASHING WILL BE DONE BY THIS CONTRACTOR.
5. ALL MATERIALS SHALL BE NEW. ALL EQUIPMENT SHALL BEAR THE U.L. LABEL.
6. COORDINATE LOCATIONS OF ALL NEW DUCTWORK WITH EXISTING EQUIPMENT, LIGHTING, OTHER TRADES, AND THE OWNER PRIOR TO INSTALLATION OR FABRICATION OF SAME.
7. CONTRACTOR TO GUARANTEE THE QUALITY OF ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF OWNER ACCEPTANCE. ALL DEFECTIVE MATERIAL AND WORKMANSHIP SHALL BE REPLACED AT CONTRACTOR'S EXPENSE DURING THIS TIME.
8. ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR'S EMPLOYEES, MATERIALS OR EQUIPMENT.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INJURIES OR DAMAGE DONE TO BUILDING PREMISES OR ADJOINING AREAS OR WORK RESULTING FROM EXECUTION OF HIS PART OF WORK IN ANY MANNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTION OF HIS WORK AT HIS OWN EXPENSE.
10. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR ALL EQUIPMENT SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS PRIOR TO ORDERING, FABRICATING OR INSTALLING SAME.
11. THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT. IF DISCREPANCIES EXIST BETWEEN DRAWING AND/OR SITE CONDITIONS, THE HVAC CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED. THE CONTRACTOR SHALL CONDUCT A THOROUGH FIELD INVESTIGATION TO VERIFY WORK SHOWN ON THE DRAWINGS. THE DRAWINGS REFLECT THE BEST AVAILABLE INFORMATION FROM EXISTING PLANS AND SITE INVESTIGATIONS.

PART 2 - PRODUCTS

1. DUCTWORK

- A. ALL DUCTWORK SHALL BE OF TOP GRADE GALVANIZED STEEL, CONSTRUCTED AND SUPPORTED AS PER S.M.A.C.N.A. INDUSTRIAL DUCT CONSTRUCTION STANDARDS CLASS 2. ALL ELBOWS SHALL BE LONG RADIUS TYPE. ALL JOINTS, SEAMS, AND FITTINGS SHALL BE AIR AND WATER TIGHT USING SOLDER JOINTS AND SHALL BE FORMED TO PROVIDE A MINIMUM RESISTANCE TO THE AIR FLOW.
- B. THE FOLLOWING METAL THICKNESS SHALL BE UTILIZED:

DIAMETER OF STRAIGHT DUCTS (INCHES)	U.S. STANDARD GAUGE
DUCT SIZE	GAUGE
UP TO 8"	22-18
OVER 8" UP TO 18"	22-12

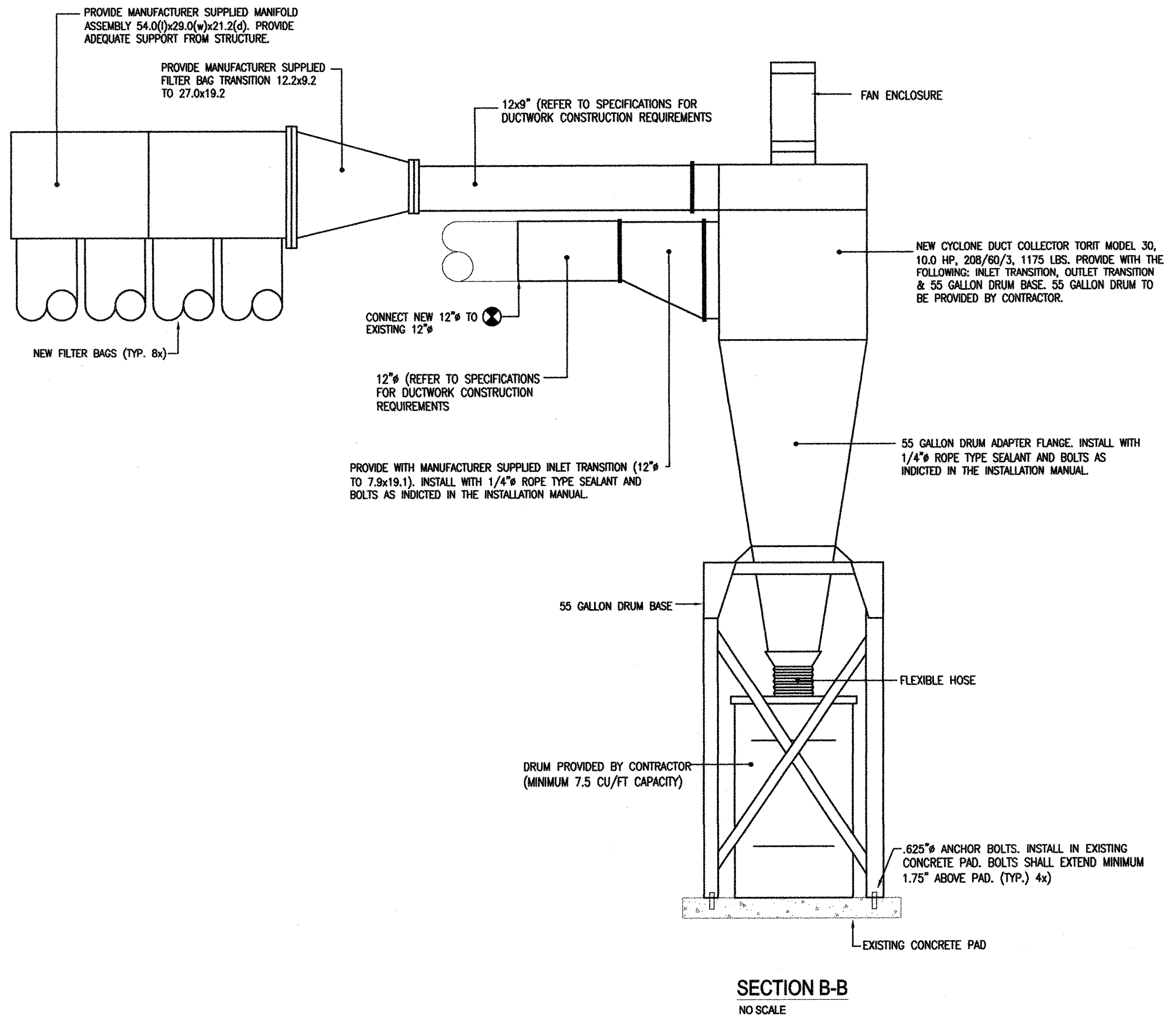
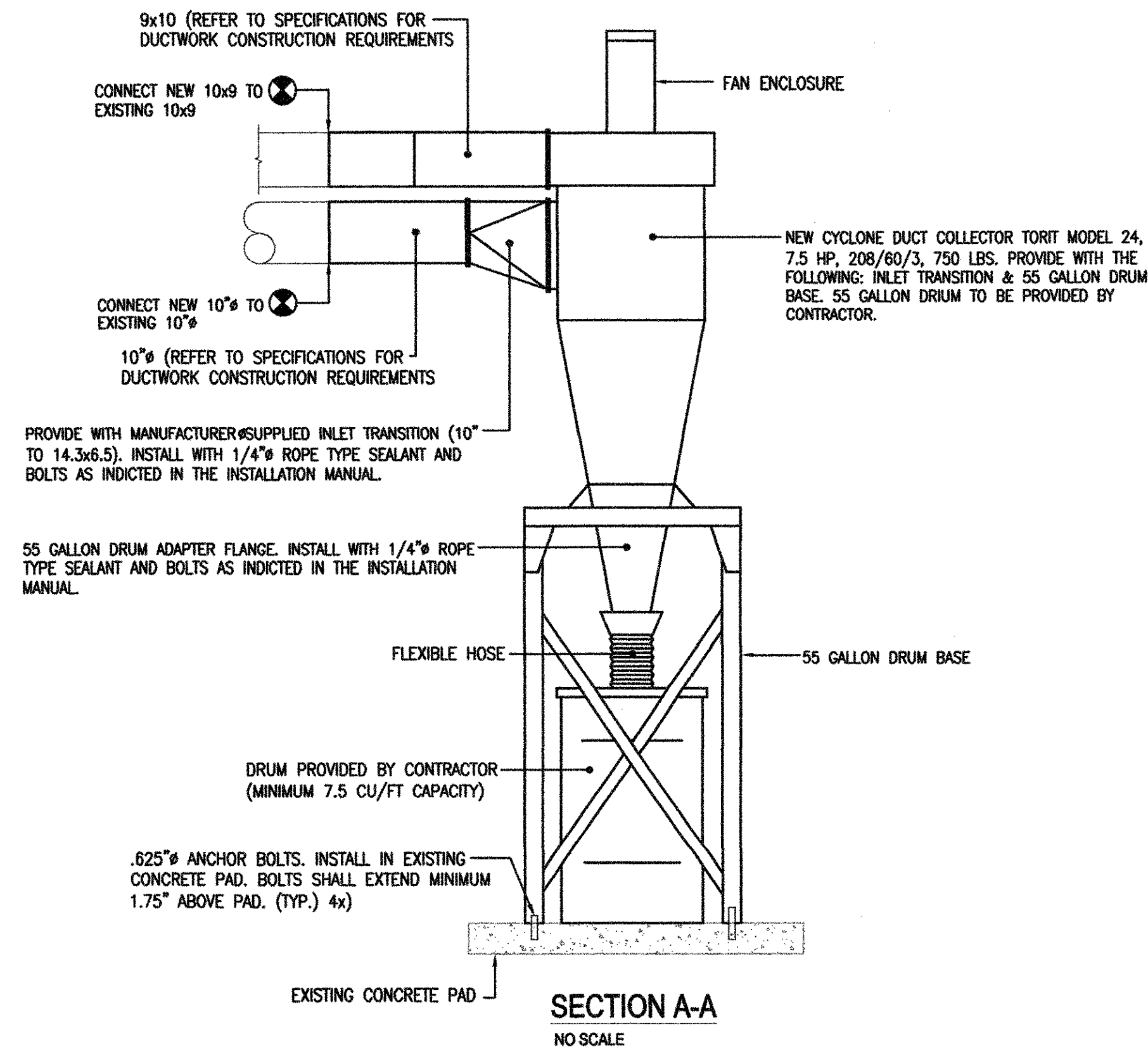
- C. ELBOWS & ANGLES SHALL BE A MINIMUM OF TWO GAUGES HEAVIER THAN STRAIGHT LENGTHS OF EQUAL DIAMETER. ROUND ELBOWS AND ANGLES SHOULD HAVE AN INSIDE OR THROAT RADIUS OF TWO PIPE DIAMETERS. CONSTRUCT ELBOWS SIX INCHES OR LESS IN DIAMETER OF AT LEAST FIVE SECTIONS, ELBOWS OVER SIX INCHES DIAMETER OF SEVEN SECTIONS. ANGLES SHALL BE PIECED PROPORTIONATELY.
- D. RECTANGULAR ELBOWS & ANGLES SHALL BE CONSTRUCTED HAVING A W/D & R/D EQUAL TO OR GREATER THAN 1.
- E. LONGITUDINAL JOINTS OF DUCTS SHALL BE LAPPED AND SEALED OR WELDED.
- F. GIRTH JOINTS OF DUCTS SHALL BE MADE WITH LAP IN DIRECTION OF AIR FLOW AND ONE INCH LAP FOR DIAMETERS THRU 19 INCHES AND 1-1/2 INCH LAP FOR DIAMETERS OVER 19 INCHES.
- G. INTERIOR OF ALL DUCTS SHALL BE SMOOTH AND FREE FROM OBSTRUCTIONS WITH JOINTS SOLDERED AIR TIGHT.
- H. SUPPORT DUCTS SUFFICIENTLY TO PLACE NO LOAD ON CONNECTING EQUIPMENT AND TO CARRY WEIGHT OF SYSTEM IF SOFT PLUGGED WITH MATERIAL. MAXIMUM SUPPORTING INTERVALS SHALL BE TWELVE FEET ON HORIZONTAL DUCTS, AT ALL CHANGES OF DIRECTION, TOP OF RISERS AND ON THREE FOOT CENTERS FOR DUCTS LOCATED ON WALLS. BOTH CROSS AND HORIZONTAL BRACING SHALL BE PROVIDED AS REQUIRED.
- I. DUCT RESTING ON SUPPORT MEMBERS WITHOUT SADDLES MUST BE REINFORCED WITH PLATES AT LEAST TWICE THE THICKNESS OF THE DUCT MATERIAL. THESE WEAR PLATES SHALL BE HALF THE DUCT CIRCUMFERENCE AND AT LEAST TWICE AS LONG AS THE WIDTH OF THE MEMBER SUPPORTING THE DUCT.
- J. PROVIDE SIX INCH MINIMUM CLEARANCE BETWEEN DUCTS AND CEILING, WALL OR FLOORS.
- K. WHERE LAWS CONFLICT WITH THE PRECEDING, THE MORE STRINGENT REQUIREMENT SHALL BE FOLLOWED. DEVIATION FROM EXISTING REGULATIONS MAY REQUIRE APPROVAL.
- L. ALL EXTERIOR DUCTWORK SHALL BE CLEANED & PAINTED WITH (2) COATS RUST INHIBITING PAINT, COLOR TO MATCH DUCT COLLECTOR.
- M. THIS ABOVE INFORMATION SHALL PROVIDE FOR COMPLETE AND OPERABLE SYSTEM TO MEET INTENT OF SPECIFICATIONS & TO THE SATISFACTION OF THE ENGINEERS.

2. CYCLONE DUST COLLECTOR

- A. FURNISH A COMPLETE CONTINUOUS-DUTY DUST COLLECTOR SYSTEM AS SHOWN ON THE PLANS AND/OR LISTED IN THE EQUIPMENT SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF PROVIDING CYCLONIC CLEANING OF INCOMING AIR.
- B. THE CONTINUOUS-DUTY COLLECTOR SHALL BE SUPPLIED IN FACTORY-ASSEMBLED UNITS OR IN MAJOR SUBASSEMBLES SIZED TO MEET AIRFLOW CAPACITIES AND DESIGN REQUIREMENTS. INSTRUCTION MANUAL AND REPLACEMENT PARTS LIST SHALL BE INCLUDED FOR EASY INSTALLATION AND MAINTENANCE.
- C. EACH COLLECTOR SHALL BE OF BOLTED AND WELDED CONSTRUCTION USING 14 GAUGE HRS DESIGNED FOR -20" WATER GAUGE AND COMPLETE WITH A REMOVABLE BOTTOM CONE SECTION. THE MOTOR AND FAN ASSEMBLY SHALL BE SHIPPED LOOSE.
- D. DUST-LADEN AIR WILL ENTER THE COLLECTOR ON THE SIDE AND BE DIVERTED BY A HELICAL BAFFLE. THE AIR WILL THEN HAVE A "SPIN" IMPARTED TO IT. CENTRIFUGAL FORCES MOVE THE HEAVY DIRT AND DUST TO THE SIDE WALLS AND CARRY IT DOWN TO THE BASE OF THE UNIT. CLEAN AIR IS THEN EXHAUSTED FROM THE UNIT.
- E. THE COLLECTOR SHALL INCLUDE AN INLET FLANGE MOUNTED ON THE SIDE OF THE COLLECTOR AT THE DIRTY AIR INLET. AN OUTLET FLANGE WILL BE PROVIDED ON THE SIDE OF THE FAN. THE FAN OUTLET SHALL ACCEPT A TORIT-BUILT FILTER BAG ASSEMBLY INCLUDING STANDARD FILTER BAGS.
- F. FILTER BAGS SHALL BE MANUFACTURED OF POLYESTER FELT AND PROVIDE IN THE APPROPRIATE QUANTITIES FOR THE COLLECTION CAPACITY.
- G. THE COLLECTOR SHALL BE A DONALDSON TORIT CYCLONE CONTINUOUS DUTY DUST COLLECTOR AS MANUFACTURED BY DONALDSON COMPANY, INC. OR ENGINEER APPROVED EQUAL.

PART 3 - EXECUTION

1. IT IS THE INTENT OF THESE SPECIFICATIONS THAT THIS CONTRACTOR BE RESPONSIBLE FOR PROVIDING ALL DEVICES AND WIRING (REGARDLESS OF VOLTAGE) NECESSARY TO PROVIDE THE SEQUENCES AS SPECIFIED HEREIN.
2. ALL MECHANICAL SYSTEMS SHALL BE AUTOMATICALLY CONTROLLED. WHERE NO DESCRIPTION OF OPERATION IS INDICATED FOR A PARTICULAR SYSTEM OR DEVICE, THE CONTRACTOR SHALL SELECT APPROPRIATE CONTROL SCENARIOS AND REVIEW THEM WITH THE ENGINEER PRIOR TO PROCEEDING. ALL CONTROLS SHALL BE ARRANGED AND DESIGNED FOR MAXIMUM ENERGY CONSERVATION.
3. SEQUENCE OF OPERATION
 PROVIDE NEW WALL MOUNTED SWITCH TO ENERGIZE/DE-ENERGIZE THE DUST COLLECTION SYSTEM.
4. PROJECT CLOSE-OUT
 A. RESTORE EXISTING FACILITIES USED DURING CONSTRUCTION TO ORIGINAL CONDITION. CLEAN PORTIONS OF THE SITE AFFECTED BY WORK OF THIS CONTRACT. REMOVE WASTE AND SURPLUS MATERIALS FROM THE SITE.
 B. SUBMIT TWO COPIES OF OPERATION AND MAINTENANCE DATA BOUND IN THREE-RING BINDERS. INCLUDE WARRANTIES, SUBMITTALS, BALANCING REPORT, AND PROJECT DOCUMENTS AND CERTIFICATES.
 C. CONTRACTOR SHALL DEMONSTRATE ALL SEQUENCES OF CONTROL TO THE ENGINEER. THE TEMPERATURE CONTROL AND BALANCING SUBCONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING CHECK-OUT PROCEDURE. PERSONNEL SHALL BE EQUIPPED WITH TOOLS AND SPARE PARTS TO MAKE MINOR REPAIRS AND ADJUSTMENTS.





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Project: **DUST COLLECTION REPLACEMENT**

RICHARD C. NEWELL

No. 8486

REGISTERED PROFESSIONAL ENGINEER MECHANICAL

Status: **ISSUED FOR CONSTRUCTION**

No.	Date	Revision/Issue

Sheet Title: **MECHANICAL DETAILS & SPECIFICATIONS**

Project No: 20715
 Drawn By: JAA
 Checked By: RCN/JPS
 Scale: AS SHOWN
 Date: 04/10/2007

Drawing No: **M-2**
 Sheet 12 of 14

ELECTRICAL SPECIFICATIONS

- FURNISH LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE PROPER AND COMPLETE INSTALLATION OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED.
- ALL ITEMS NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN THESE SPECIFICATIONS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE ELECTRICAL INSTALLATION, SHALL BE FURNISHED AND INSTALLED AS PART OF THIS SECTION.
- ALL ELECTRICAL INSTALLATIONS AND GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE LOCAL, STATE AND NATIONAL CODES:
 - BUILDING CODE OF THE STATE OF RI (BOCA W/RI AMENDMENTS).
 - ELECTRICAL CODE OF THE STATE OF RI (NFPA 70W/RI AMENDMENTS)
 - FIRE ALARM REQUIREMENTS OF THE STATE OF RI.
- OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
- ALL EQUIPMENT AND THE INSTALLATION OF ELECTRICAL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- MATERIALS AND WORKMANSHIP SHALL BE THE BEST OF THEIR RESPECTIVE KINDS AND IN FULL ACCORD WITH THE MOST MODERN ELECTRICAL CONSTRUCTION. ALL MATERIALS SHALL BE NEW, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
- FURNISH AND INSTALL TEMPORARY POWER AS REQUIRED TO OPERATE TOOLS AND LIGHTING. PROVIDE PANELS AND LIGHTING FIXTURES FOR CONSTRUCTION, AS REQUIRED.
- THE ELECTRICAL SUB-CONTRACTOR SHALL INSPECT THE SITE PRIOR TO SUBMITTING HIS BID, AND SHALL INVESTIGATE ALL CONDITIONS UNDER WHICH THIS WORK WILL BE PERFORMED. FAILURE TO INSPECT EXISTING CONDITIONS OR TO FULLY UNDERSTAND THE WORK WHICH IS REQUIRED SHALL NOT EXCUSE THE ELECTRICAL SUB-CONTRACTOR FROM HIS OBLIGATIONS TO SUPPLY AND INSTALL THE WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND THE DRAWINGS AND UNDER ALL SITE CONDITIONS AS THEY EXIST.
- THE ELECTRICAL CONTRACTOR SHALL CLEAN, AT THE END OF EACH DAY, ALL AREAS WORKED IN. EMPTY BOXES, RUBBISH, AND OTHER MATERIALS OF NO USE SHALL BE REMOVED FROM THE SITE.
- WORK SEQUENCE SHALL BE COORDINATED WITH THE PROJECT MANAGER AND SHALL BE IN COORDINATION WITH OTHER BUILDING TRADES AND THE BUILDING SCHEDULE.
- NEW 120/208V. BRANCH CIRCUIT PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELBOARDS SHALL BE EQUAL TO GE TYPE AQ WITH BOLTED BRANCH CIRCUIT BREAKERS. BRANCH CIRCUIT BREAKERS SHALL BE RATED 10,000 A.I.C. MINIMUM. NEW 277/480V PANELBOARDS SHALL BE PROVIDED AS SHOWN ON DRAWINGS. PANELS SHALL BE EQUAL TO G.E. TYPE AE WITH BOLTED BRANCH BREAKERS. BRANCH BREAKERS SHALL BE RATED 14,000 A.I.C. MINIMUM. PANELBOARD SCHEDULES SHALL BE FILLED OUT AND PLACED IN EACH PANEL BOARD; BOTH EXISTING AND NEW, ALL SCHEDULES SHALL BE TYPED.
- WIRE AND CABLE SHALL BE TYPE THWN/THHN, UL LISTED FOR BUILDING WIRE, 75 DEGREES CENTIGRADE, WET OR DRY LOCATIONS, RATED FOR 600 VOLT. WIRE SHALL BE A MINIMUM OF NO. 12 AWG SOLID. ALL CONDUCTORS SHALL BE COPPER. METAL-CLAD CABLE TYPE MC, WITH GROUND CONDUCTORS, MAY BE USED IN AREAS WHERE APPROVED BY THE LOCAL ELECTRICAL INSPECTOR. FIRE ALARM WIRING SHALL BE FIRE ALARM TYPE MC CABLE, WITH PERMISSION AND APPROVAL OF THE FIRE ALARM SUPERINTENDENT, SIZES NOTED, AND/OR REQUIRED, OR SHALL BE INDIVIDUAL CONDUCTORS RUN IN CONDUIT.
- CONDUITS SHALL BE E.M.T. WITH STEEL CONNECTORS AND COUPLINGS IN FURRED SPACES, ABOVE CEILINGS, AND IN EXPOSED INTERIOR SPACES. FLEXIBLE STEEL CONDUIT (GREENFIELD) SHALL BE USED FOR CONNECTIONS TO FIXTURES AND EQUIPMENT.
- ALL OUTLET BOXES FOR LIGHTING, SWITCHES, RECEPTACLES, TELEPHONE, TELEVISION, ETC. SHALL BE GALVANIZED STEEL, MINIMUM 1-1/2" DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE DEVICE TO BE UTILIZED THEREIN. PROVIDE PLASTER RINGS AS REQUIRED. BOXES SHALL HAVE MOUNTING LUGS OR EARS FOR COVERS AND KNOCKOUTS FOR CONDUIT TERMINATIONS. PROVIDE SEALANT AROUND OUTLET BOXES TO PREVENT SOUND TRANSMISSION TO ADJACENT ROOM.
- ALL CONDUIT/WIRING PENETRATIONS THROUGH FIRE WALLS SHALL BE FIRESTOPPED WITH MATERIAL CONFORMING TO ASTM E136 AND SHALL BE UL CLASSIFIED, FM APPROVED, AND APPROVED FOR USE IN 1-, 2-, OR 3-HOUR RATED SYSTEMS. FIRE STOP MATERIAL SHALL BE EQUAL TO DOW CORNING CAT. NO. 2000 FIRE STOP SEALANT OR 2001 FIRE STOP FOAM AS REQUIRED BY THE PARTICULAR FIRE STOPPING CONDITION.
- ALL WIRING DEVICES SHALL BE BY ONE MANUFACTURER AND SHALL BE G.E., P&S, BRYANT OR HUBBELL. THE CATALOG NUMBERS ON THE DRAWINGS ARE THOSE OF THE G.E. COMPANY, EXCEPT AS OTHERWISE INDICATED AND ARE USED TO DENOTE TYPE AND QUALITY. COLOR SHALL BE AS SELECTED BY THE ARCHITECT/CONSTRUCTION MANAGER.
- ALL DEVICE PLATES SHALL MATCH EXISTING.
- THE PLANS DEPICT THE LOCATION OF ALL FIXTURES AND EQUIPMENT AND ARE INTENDED TO INDICATE THE GENERAL INTENT OF THE WORK IN SCOPE, LAYOUT AND QUALITY OF WORKMANSHIP.
- THE CONTRACTOR SHALL CAREFULLY VERIFY ALL MEASUREMENTS AT THE SITE. DETERMINE THE EXACT LOCATION OF ALL CHASES AND OPENINGS REQUIRED BY HIS WORK AND SHALL FURNISH AND SET ALL SLEEVES, INSERTS, AND HANGERS AS REQUIRED FOR THE WORK HEREIN.
- THE CONTRACTOR SHALL COORDINATE HIS WORK SO THAT IT DOES NOT INTERFERE WITH THE WORK OF OTHER TRADES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT HIS WORK IS INSTALLED IN A TIMELY MANNER.
- ALL HVAC CONTROLS, CONTROL WIRING AND INTER-CONNECTIONS SHALL BE BY DIV. 15, EXCEPT AS OTHERWISE NOTED AND SHOWN ON ELECTRICAL DRAWINGS. ALL 120V HVAC CONTROL WIRING SHALL BE BY THIS CONTRACTOR (DIV. 16).
- THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT. THE CONTRACTOR SHALL FURNISH TO THE OWNER ALL INSTRUCTION PAMPHLETS, BOOKS AND OTHER LITERATURE FURNISHED BY THE MANUFACTURER AND EXPLAIN THE PROPER OPERATING AND MAINTENANCE PROCEDURES.
- SUBMIT TO THE OWNER FOR REVIEW AND APPROVAL SIX COMPLETE COPIES OF THE FOLLOWING SHOP DRAWINGS:
 - JUNCTION BOXES
 - WIRING DEVICES AND PLATES
 - CIRCUIT BREAKERS
 - DISCONNECT SWITCHES
 - WIRE
 - CONDUIT
- PROVIDE CONDUIT EXPANSION JOINTS AT ALL STRUCTURAL EXPANSION JOINTS.
- ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY.

SYMBOL LEGEND

USE MOUNTING HEIGHTS SPECIFIED ON ARCHITECTURAL DRAWINGS. IF NOT LISTED, USE MOUNTING HEIGHTS ON THIS DRAWING.

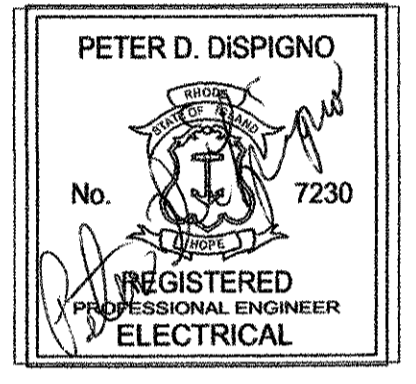
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	SINGLE POLE SWITCH - 48" A.F.F., P&S CAT. NO. CS120-1A	[Symbol]	SURFACE MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S _P	SINGLE POLE SWITCH WITH PILOT LIGHT - 48" A.F.F. P&S CAT. NO. 20A01-RPL	[Symbol]	FLUSH MOUNTED PANELBOARD - MTD TOP 6'6" A.F.F.
S ₃	3-WAY SWITCH - 48" A.F.F., P&S CAT. NO. CS320-1A	[Symbol]	UP TO FLOOR ABOVE
S ₄	FOUR WAY SWITCH - 48" A.F.F.; P&S CAT. NO. CS420-1A	[Symbol]	TIE INTO EQUIPMENT OR DOWN TO FLOOR BELOW
S _T	SINGLE POLE MOTOR RATED SWITCH WITH OVERLOAD HEATER SQUARE D CLASS 2510, TYPE FGJ-1	[Symbol]	WIRING CONCEALED IN WALL OR CEILING
S _M	MOTION SENSOR W/MANUAL OVERRIDE: WALL OR CEILING MOUNTED. "WA" OR "CY".	[Symbol]	WIRING CONCEALED IN FLOOR OR WALL
[Symbol]	JUNCTION BOX	[Symbol]	WIRING EXPOSED
[Symbol]	SPECIAL PURPOSE OUTLET WITH NEMA CONFIGURATION	[Symbol]	CROSSHATCHING INDICATES NUMBER OF CURRENT CARRYING CONDUCTORS IF MORE THAN TWO ARE REQUIRED. LONGER MARK INDICATES NEUTRAL. GROUNDWIRE IS ALWAYS INSTALLED AND NEVER INDICATED. NO CROSSHATCHING INDICATES 1 HOT, 1 NEUTRAL, AND 1 GROUND, ALL #12 THHN.
[Symbol]	DUPLEX RECEPTACLE - MTD. 18" A.F.F. - 20A, 125V. P&S CAT. NO. CR-20LA. "C"=MOUNT 6" ABOVE COUNTER	[Symbol]	HOME RUN TO PANELBOARD - "A" DESIGNATES PANEL, "1,3" INDICATES CIRCUIT NUMBERS
[Symbol]	ISOLATED GROUND RECEPTACLE - MTD 48" A.F.F. - 20A, 125V. ARROW-HART CAT. NO. IGS362HG	[Symbol]	MOTOR WITH RATING IN HORSEPOWER
[Symbol]	GROUND FAULT INTERRUPTING RECEPTACLE - MTD. 48" A.F.F., 20A,125V., P&S CAT. NO. 2091-1A INDICATES WEATHERPROOF	[Symbol]	COMBINATION STARTER/DISCONNECT SWITCH WITH SWITCH AND FUSE RATINGS
[Symbol]		[Symbol]	INDICATES RAIN-TIGHT
[Symbol]		[Symbol]	INDICATES DUAL ELEMENT FUSES
[Symbol]		[Symbol]	NUMBER OF POLES
[Symbol]		[Symbol]	FUSE SIZE
[Symbol]		[Symbol]	SWITCH SIZE
[Symbol]		[Symbol]	MAGNETIC MOTOR STARTER
[Symbol]		[Symbol]	DISCONNECT SWITCH

ABBREVIATIONS

A	AMPS
AG	ABOVE GRADE
AFF	ABOVE FINISHED FLOOR
BL	BLANK PLATE
BOF	BOTTOM OF FIXTURE
C	CONDUIT
CB	CIRCUIT BREAKER
CD	CANDELA
CU	COPPER
DWG	DRAWING
ECPS	EMPTY CONDUIT W/PULL STRING
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EX	EXISTING
FACP	FIRE ALARM CONTROL PANEL
G, GR	GROUND
GFI	GROUND FAULT CIRCUIT INTERRUPTER
IG	ISOLATED GROUND
N	NEW
NG	NATIONAL GRID (ELECTRICAL UTILITY)
UNO	UNLESS NOTED OTHERWISE
V	VOLT
W/	WITH
WP	WEATHERPROOF



**WARWICK SCHOOLS
WARWICK VETERANS
MEMORIAL HIGH SCHOOL
2401 WEST SHORE ROAD, WARWICK, RI 02889
DUST COLLECTION REPLACEMENT**



Status: **ISSUED FOR CONSTRUCTION**

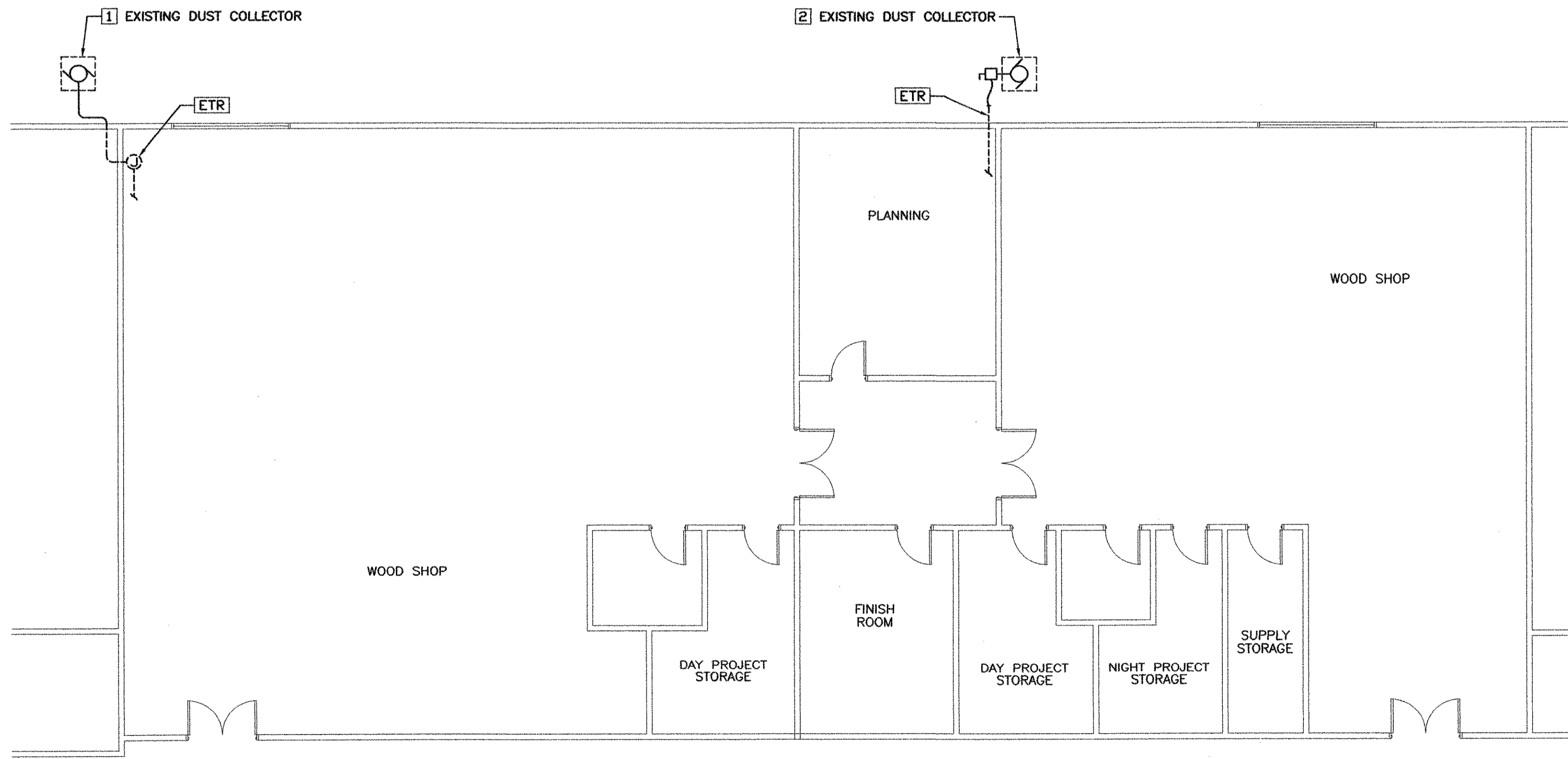
Date	Revision/Issue	No.

Sheet Title: **ELECTRICAL LEGEND SHEET, DEMOLITION PLAN & SPECIFICATIONS**

Project No:	20715
Drawn By:	MSO
Checked By:	PDS
Scale:	AS SHOWN
Date:	04/10/2007

Drawing No: **E-1**

Sheet 13 of 14



PARTIAL PLAN - ELECTRICAL DEMOLITION
SCALE: 1/8"=1'-0"

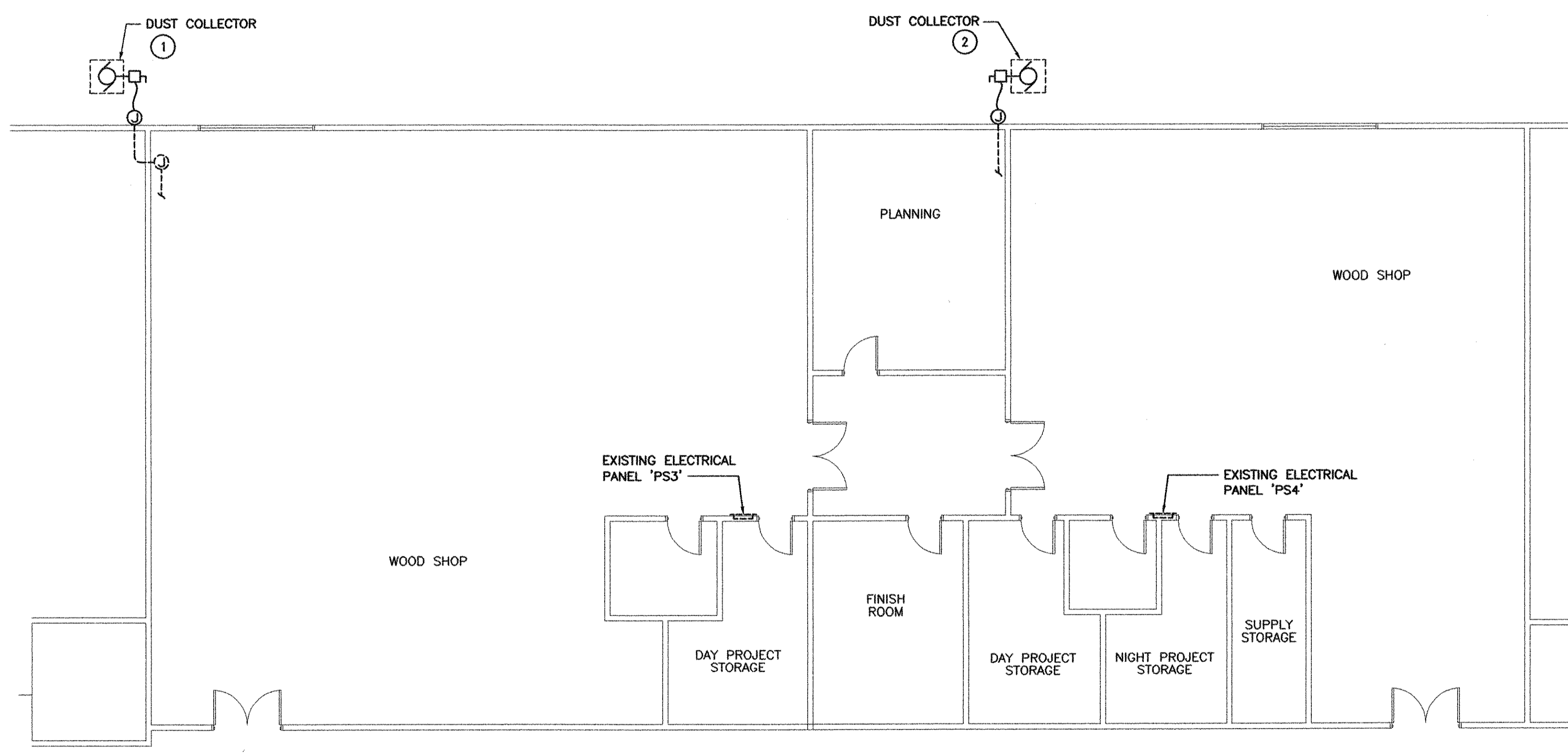
GENERAL DEMOLITION NOTES:

- CONTRACTOR SHALL VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING.
- ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. CONTRACTOR SHALL SECURE ALL REQUIRED DEMOLITION PERMITS.
- PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- IT IS NOT THE INTENT TO SHOW ALL CONDUIT AND MATERIAL, AND EXACT SIZES TO BE REMOVED IN THE DEMOLITION WORK. DRAWING INDICATES EQUIPMENT DIAGRAMMATICALLY. EXACT LOCATION AND SIZE OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO RETURN BACK TO THE ORIGINAL LOCATION ANY DEVICE OR MATERIAL THAT MUST BE TEMPORARILY REMOVED OR RELOCATED TO ALLOW DEMOLITION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVING AND DISPOSING OF ALL EXISTING ELECTRICAL EQUIPMENT AS SHOWN ON DRAWINGS, EXCEPT WHERE NOTED OTHERWISE.

DEMOLITION KEYNOTES:

- EXISTING DUST COLLECTOR TO BE REMOVED PER MECHANICAL DRAWINGS. DISCONNECT CONDUIT AND WIRING FROM DUST COLLECTOR. REMOVE EXTERIOR CONDUIT AND WIRING TO MOTOR. EXISTING FEEDER FROM EXTERIOR WALL BACK TO SOURCE TO REMAIN.
 - EXISTING DUST COLLECTOR TO BE REMOVED PER MECHANICAL DRAWINGS. DISCONNECT CONDUIT AND WIRING FROM DUST COLLECTOR. REMOVE EXTERIOR CONDUIT AND WIRING TO MOTOR. EXISTING FEEDER FROM EXTERIOR WALL BACK TO SOURCE TO REMAIN.
- [ETR] - EXISTING TO REMAIN
 [ETL] - EXISTING TO BE RELOCATED

No.	Revision/Issue	Date



MECHANICAL EQUIPMENT ELECTRICAL CONNECTION SCHEDULE																				
MECH ID#	DESCRIPTION	EQUIPMENT CHARACTERISTICS								PANEL	CIRCUIT	BREAKER	FEEDER AND CONDUIT	EQUIPMENT LOCATION	DISCONNECT SWITCH				MOTOR CONTROL	REMARKS
		VOLTS	AMPS	PH	HP	WATTS	MCA	MOCPI	CFM						SIZE	FUSE	POLES	NEMA		
①	DUST COLLECTOR	208		3	10								RE-USE EXISTING	WOOD SHOP	30/NF/3/RT				1,2,3	
②	DUST COLLECTOR	208		3	7.5								RE-USE EXISTING	WOOD SHOP	30/NF/3/RT				1,2,3	

REMARKS:

1. DUST COLLECTOR TO BE POWERED BY SAME CIRCUIT THAT EXISTING DUST COLLECTOR TO BE REMOVED WAS CONNECTED.
2. RE-USE EXISTING CIRCUIT BREAKER.
3. EXISTING FEEDER TO BE RE-USED UP TO EXTERIOR WALL. NEW 3/4" LIQUID-TITE WITH 3#8 TO BE INSTALLED FROM JUNCTION BOX LOCATED AT EXTERIOR WALL TO NEW DISCONNECT, AND THEN TO MOTOR. 1#10 GROUND TO BE ADDED TO FEEDER FROM EXISTING ELECTRICAL PANEL TO THE DUST COLLECTOR MOTOR.