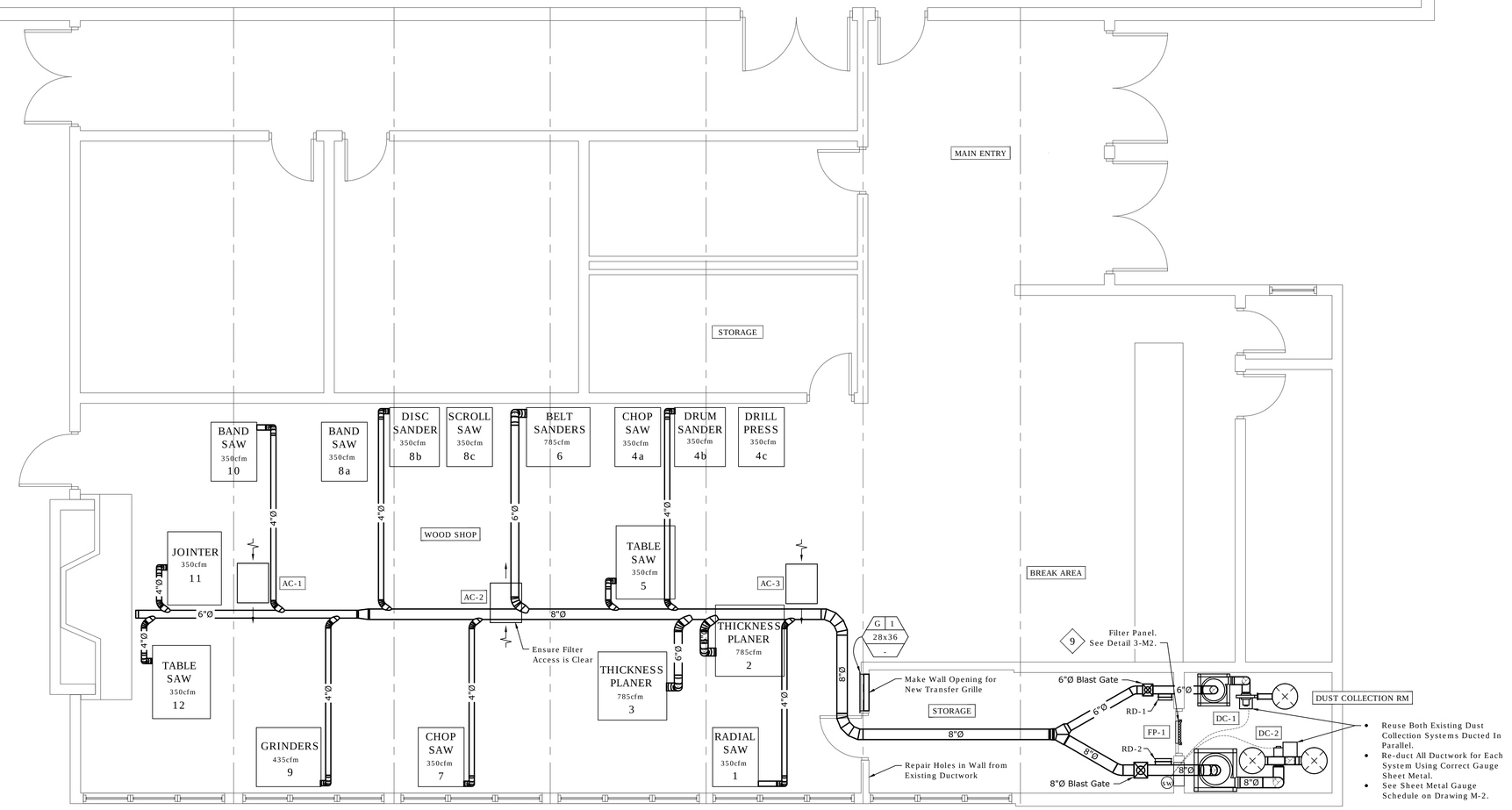

N

1 / M-1 Plan: Woodworking Shop Dust Collection
1/4" = 1'-0"

NOTE: Remove all existing ductwork, blast gates, and flex duct.

ISSUED FOR TENDER
Tuesday, April 14, 2015

NO	DATE	REVISIONS
A	07/04/15	Issued For Review
B	14/04/15	Issued For Tender

SHEET TITLE: Dust Collection System Layout

PROJECT: Woodworking Shop
Industrial Heritage Centre
9th Ave. & Dunbar St.
Port Alberni, BC

PROJECT NO.

DWG SCALE: 1/4" = 1'-0"

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DATE	Mar. 23, 2015
PAGE	1 of 2

SHEET NO. M-1

REVISION B

HVAC EQUIPMENT SCHEDULE

Equp. #	Area Serviced	Equipment Description	Model	MBH (Heating)	MBH (Cooling)	CFM (Min/ Max)	"W.G.	Wght (Lbs)	Voltage	Elec. Heat (Kw)	FLA	MCA	MOCP	HP	RPM
AC-1	Wood Shop	Recirculating Air Cleaner, 3-spd	KING: KAC-1050			1050		62	110/1/60		2.5				
AC-2	Wood Shop	Recirculating Air Cleaner, 3-spd	KING: KAC-1050			1050		62	110/1/60		2.5				
AC-3	Wood Shop	Recirculating Air Cleaner, 3-spd	KING: KAC-1050			1050		62	110/1/60		2.5				
FP-1	Dust Collection Rm	Filter Panel	Glasfloss: GDS Disposable Filter Panel 2@ 18"x24"x2"			1500 design /3000 max									
RD-1	DC-1	Exhaust Relief Damper	Maxam: SBD10 10"Wx4"H												
RD-2	DC-2	Exhaust Relief Damper	Maxam: SBD10 12"Wx6"H												

Equipment Notes:

AC-1,2,3 Complete With:
- Vibration Isolation Hangers
- Spare Set Of Inner And Outer Filters

RD-1,2 Complete With:
- Standard Mill Finish Galvanized Steel

FP-1 Complete With:
- Custom Fabricated Filter Rack
- Spare Set Of Filters

EXISTING HVAC EQUIPMENT SCHEDULE

(For Reference Only)

DC-1	Wood Shop	Dust Collection System	KING: KC-3105C, 2HP (or equal)			1200	9.5		220/1/60					2	
DC-2	Wood Shop	Dust Collection System	KING: KC-4045C, 3HP (or equal)			2280	11.8		220/1/60					3	

CONTROLS - SEQUENCE OF OPERATIONS

1. Sequence of Operation DC-1 and DC-2 (Dust Collectors)
   a) Existing dust collectors DC-1 and DC-2 are to be connected to a common main exhaust trunk duct.
   b) DC-1 and DC-2 are to be interlocked to operate in parallel to function as a single 'system'.
   c) A single manual switch located outside the dust collection room is to be used to operate the dust collection system.

2. Sequence of Operation AC-1, AC-2, and AC-3 (Recirculating Air Cleaners)
   a) Each unit comes standard with a 3-speed/timer remote control.
   b) AC-1, AC-2, and AC-3 are to be operated continuously at high speed whenever the shop is actively in use and when the dust collection system is running.
   c) Operate the air cleaners on high speed for the maximum timer duration once the shop has closed for the day.

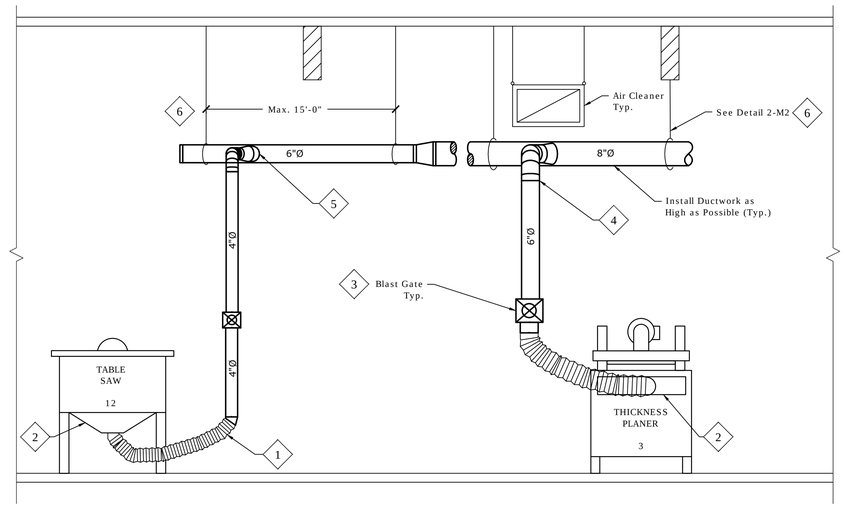
Note: All Line Voltage wiring, Low Voltage wiring, and component connectors are to be in conduit.

HVAC NOTES

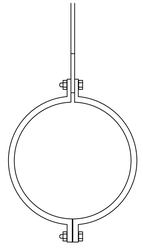
1. All ductwork shall be fabricated for G90 coated galvanized steel lock forming grade to ASTM A525 & A527. All duct construction and installation shall be to current SMACNA standards. In addition, all ductwork shall be constructed and installed to meet the seismic requirements of part 4 of the National Building Code, and the SMACNA Seismic Restraint Guide. All round ductwork shall be spiral lock seam pipe to SMACNA standards. Seal all ductwork.
2. Flexible ductwork shall be non-corrosive spiral wound reinforcing with flexible vinyl coated Fiberglas cloth membrane, rated for max 10"w.g. positive pressure and 1"w.g. negative pressure. UL or ULC labelled. Use stainless steel or plastic banded connections. Maximum 3ft Flexible ductwork per duct branch.
3. Any existing equipment, grilles, diffusers, flex duct, controls etc. that are removed from service in the alteration, and which are no longer required in the new installation, shall be turned over the building owners' representative on site.
4. All air systems shall be balanced to air quantities shown. All outlet pattern controllers shall be adjusted to obtain proper air distribution. Submit balance reports complete with diffuser locations for approval. Balancing to be carried out by a certified, independent balancing agency, following ASHRAE TAB procedures.
5. Where existing ductwork is removed, maintain fire rating of any penetration in fire rated walls.
6. Provide fire dampers where required. Supply and install access panels in the ductwork adjacent to the dampers. Fire dampers shall be 1.5 Hr rated and UL fire rated.
7. Provide neoprene flexible connections to all ducted mechanical equipment.
8. Line the first 8ft of supply and return plenums with 1" acoustic lining.
9. Constructed plenums and hoods to be fabricated from minimum 22ga. galvanized steel and reinforced for rigidity.
10. Thermally wrap all ductwork and vents in unheated spaces with min. 1" insulation. (example: Attic or crawl spaces)
11. The electrical information provided here is for coordination purposes only. Mechanical, Electrical and Controls contractors are to coordinate and review each other's drawings, specifications and addenda before submitting tender. Contractors are to coordinate and review HVAC equipment shop drawings before ordering equipment or starting the work. Co-ordinate to provide electrical connections and controls as required for a complete and operational system. No Extra costs for replacing or repairing uncoordinated electrical or controls work will be allowed.

GENERAL MECHANICAL NOTES:

1. It is the intention of the specifications and drawings to call for finished work tested and ready for operation. Unless otherwise noted or specified, provide all equipment and/or materials as shown on drawings and defined in the specifications. Any apparatus, appliances, materials, or work not shown on the specifications, or vice versa, or any incidental accessories necessary to make the work complete and perfect in all respects and ready for operation, even if not particularly specified, shall be furnished, delivered and installed under this division without additional expense to the owner.
2. Drawings are of schematic nature only. Contractor shall make due allowance in bid for relocation and/or rerouting of piping/ductwork where conflicts may occur.
3. Verify the location of all existing equipment, ductwork, piping, controls etc., by site inspection before preparing bid. No consideration or allowance will be given for failure to determine existing as-built conditions.
4. All new equipment and materials shall match existing equipment and materials and manufacturer and type unless specifically noted otherwise.
5. All work performed and materials supplied shall be in accordance with the original contract specifications.
6. Where pipes, ducts, cables etc., partially penetrate or pass through fire rated wall or floors, or smoke separation walls of floors, seal all voids between pipe or duct and wall with a U.L.C. approved caulking to the hourly rating required by the B.C. Building Code (Latest Edition) and local codes. Fire stopping shall be installed by a firm regularly engaged in this work. Submit a report confirming this work has been completed at the end of the project.
7. Shutdown of all existing systems shall be coordinated with the owner, and all authorities having jurisdiction of the time and duration of shutdown.
8. Confirm with and obtain permission from base building owner prior to cutting and/or coring of existing structure. Contract structural engineer to provide review and schedules for all wall or roof penetrations, and new equipment installation. Structural Engineer to provide details for installation and/or additional structural support if required. Contractor to make good all exposed surfaces at completion of mechanical work.
9. All new and relocated equipment including, but not limited to ductwork, diffusers, grills, VAV boxes, fans and piping, shall be executed in accordance with the SMACNA "Seismic Restraint Manual Guidelines For Mechanical Systems", and all applicable codes. All seismic restraint devices shall be equal to Mason Industries, as supplied by Vibra-Sonic Control. Certified shop drawings are required for all materials supplied. Contract seismic engineer to provide a sign-off of all equipment and/or seismic devices installed.
10. CODES & STANDARDS - All work shall comply with National and Local Building Codes. Sheet metal work shall comply with ASHRAE and SMACNA standards.
11. GUARANTEE - The completed installation shall be guaranteed for a period of 1 year from the date of substantial completion (unless noted differently).
12. SUBMISSIONS - Submit to the consultant the following documents: Operation and Maintenance manuals including Balance Reports and As-built drawings (3 sets). Equipment submittals/shop drawings. Submit AutoCAD files of the As-Built drawings. All documents & files must be approved by consultant prior to completion.
13. PERMITS - All applicable permits and associated fees are to be included in the contract.
14. ROOFING - All roof penetrations by RCABC approved contractor.



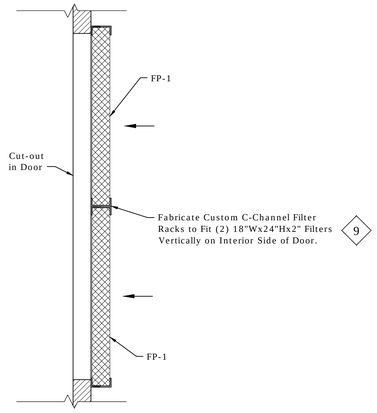
A M-1 SECTION: Typical Dust Collection Drops
1/2" = 1'-0"



2 M-2 DETAIL: Grinnell Pipe Hanger
NTS

REFERENCE NOTES

1. Provide 3' of Novaflex U-lok 200 rated for a minimum of 10"w.g. static pressure. All connections from flex duct to use double S.S. gear clamps.
2. Typical of custom fabricated collection device allow for fabrication of similar devices for all collector termination points.
3. Full collar cast aluminum adjustable blast gates complete with lockable gate position. Ecco or NEP acceptable. Sizes as per duct drop. Dust collection system size based on a maximum of (4x 4"Ø blast gates open at one time), or (2x 4"Ø blast gates and 1x 6"Ø blast gate open at one time).
4. All 90° elbows to be welded long radius min. 2.5 x diameter of duct.
5. All inlets to main trunk to be a maximum of 30° angle.
6. Grinnell 2-piece rolled steel bracket complete with 1/8"x1" flat iron hanger. Support duct work at 15' max. centres with additional support at all collector drops.
7. All round ductwork shall be spiral lock seam pipe to SMACNA standards. Seal all ductwork. See also item 1 in 'HVAC Notes' above.
8. All ductwork must be electrically grounded.
9. Cut door to create opening for filter panel. Build custom filter rack with C-channel. Ensure filter rack is gasketed at the opening to provide air seal. Install door seals.
10. Base Building Architectural plan is for reference only and to be confirmed as needed on site.



3 M-2 Detail: Filter Rack
NTS

HVAC LEGEND

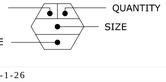
- New Ductwork or Equipment
- Acoustically Lined Ductwork
- Insulated Ductwork (min 1")
- Existing Trunk line Ductwork or Ductwork to Remain in Service
- Ductwork or Equipment to Remove
- VD Volume Damper
- Return/Exhaust Air Flow Direction
- Supply/Fresh Air Flow Direction
- Exhaust Grille
- Return Grille
- Supply Diffuser Square
- T Thermostat
- SW Manual Switch
- Control Wire

NOTE: BOLD line Indicates New
THIN line Indicates Existing

DUST COLLECTION DROP DATA

Drop	Equipment	Dia. (in.)	CFM
1	Radial Arm Saw	4	350
2	Thickness Planer	6	785
3	Thickness Planer	6	785
4 a,b,c	Drum Sander+	4	350
5	Table Saw	4	350
6	Belt Sanders	6	785
7	Chop Saw	4	350
8 a,b,c	Disc Sander+	4	350
9	Grinders	4	350
10	Band Saw	4	350
11	Jointer	4	350
12	Table Saw	4	350

DIFFUSER SCHEDULE



G Return grille: Titus 350FS-1-26

SHEET METAL SCHEDULE

Class 2 ASTM A526 or A527 Galvanized Steel

Duct Dia. (in.)	Gauge
12	18
11	18
10	18
9	20
8	20
7	20
6	22
5	22
4	22

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SHEET TITLE: Details & Specifications

PROJECT: Woodworking Shop
Industrial Heritage Centre
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PROJECT NO.

DWG SCALE: 1/4" = 1'-0"

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SHEET NO. M-2

REVISION B