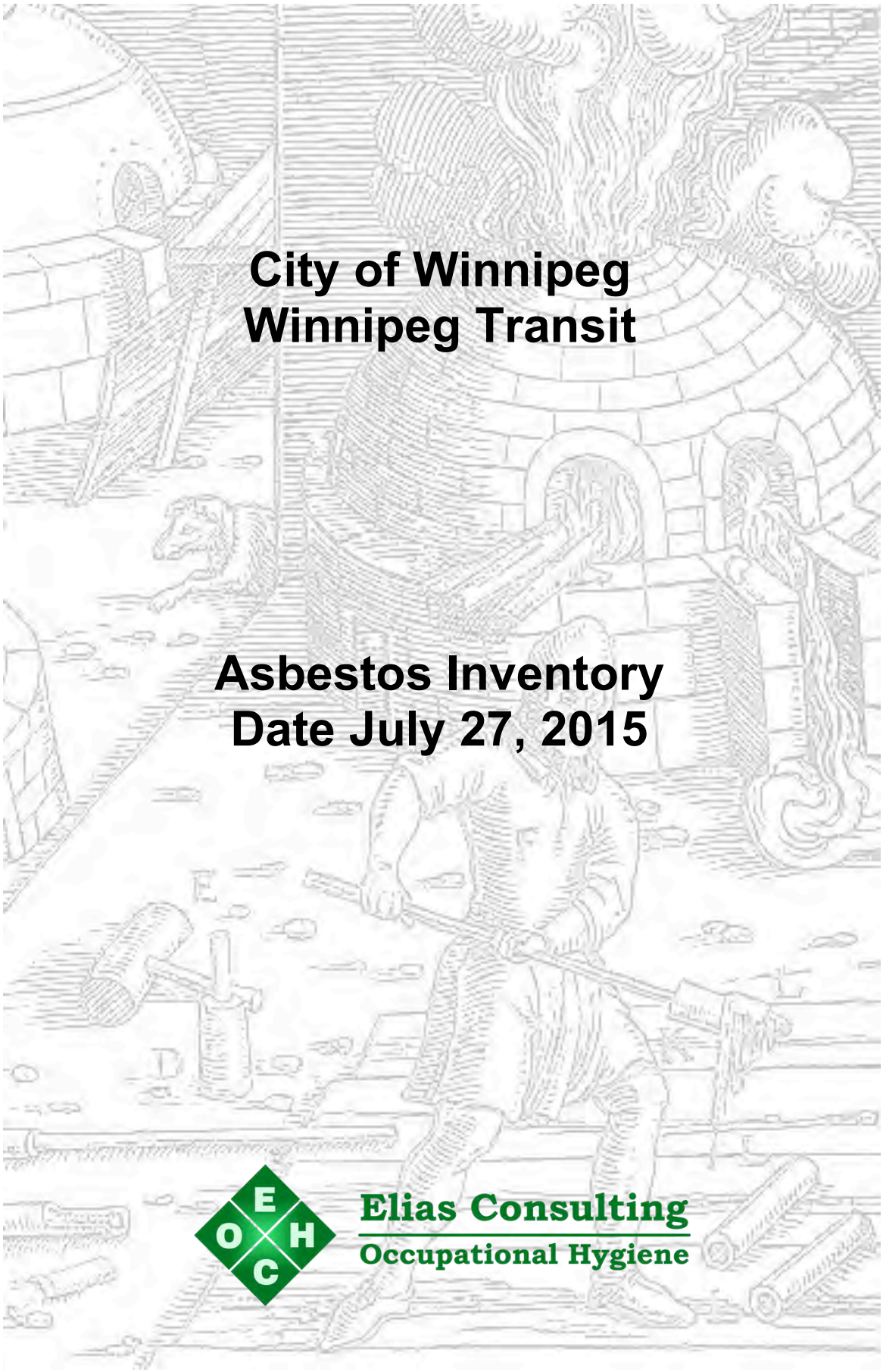
Appendix P4 R1



City of Winnipeg
Winnipeg Transit

Asbestos Inventory
Date July 27, 2015

Elias Consulting
Occupational Hygiene

Elias Consulting
Occupational Hygiene

108 Turnbull Drive Winnipeg MB R3V 1X2
T: 204-261-1770 www.eliasconsulting.ca
F: 204-275-1171 www.adjustingtlvs.com
C: 204-998-5710 alison@eliasconsulting.ca

July 27, 2015 Project: 15-A-167-2

Priya Nayar, P.Eng, BSc, MSc
Asset Management Project Engineer
Winnipeg Transit
421 Osborne Street
Winnipeg MB R3L 2A2

Re: Asbestos Inventory

Elias Occupational Hygiene Consulting Inc. is pleased to submit our Occupational Hygiene Report for the asbestos inventory at 421 Osborne and 1520 Main St.

In order to plan a maintenance program, please call at your convenience. Should you have any questions or require additional assistance please contact Alison Reineke.

For Elias Occupational Hygiene Consulting Inc.

Alison Reineke, BHEc, BSc, CIH, ROH, CRSP
Occupational Hygienist

Occupational Hygiene Report

Asbestos Inventory

City of Winnipeg
Winnipeg Transit

Project Number 15-A-167-2

Date of Survey: July 8 & 9, 2015
Date of Report: July 27, 2015

Survey Performed by:

Alison Reineke, BHEc, BSc, CIH, ROH, CRSP
Elias Occupational Hygiene Consulting Inc.
108 Turnbull Drive
Winnipeg, Manitoba
R3V 1X2

Winnipeg Transit
Asbestos Inventory

SCOPE OF PROJECT / BACKGROUND

This project was carried out in order to fulfill the Manitoba requirements to inspect asbestos containing materials on an annual basis. Asbestos containing materials were inspected at the 421 Osborne St. and 1520 Main St. facilities.

METHOD

The last inventory database (Excel spreadsheet) was used to identify the locations of asbestos containing materials at the two facilities. The asbestos containing materials were visually assessed to determine the condition of the materials. Photographs of materials in need of repair were taken, unfortunately not all the photographs turned out well.

RESULTS AND OBSERVATIONS

The following observations indicate the condition of the asbestos containing materials and the presumed asbestos containing materials as of July 8th and 9th. The results are provided in updated Excel spreadsheets.

421 Osborne St.
Building A, Maintenance

See Appendix A for approximate locations marked on a floor plan.

Pipe insulation inside the metal heaters is not readily visible. It may have been removed however without confirmation, asbestos may be present inside the heater which may only be accessible when the heater is taken apart for maintenance. Since any possible asbestos is enclosed there is no significant concern, risk of exposure would only occur during major maintenance activities.

Pipe insulation located above asbestos ceiling tiles was not assessed. Due to the nature of the ceiling tiles, they were not removed, which may disturb the asbestos.

Stairwells

Both maintenance stairwell and public stairwell, stucco need repair

North Offices (Inside Heater Cabinets)

Operations Supervisor's office, pipe elbow needs repair

South Offices

Payroll & Records office, pipe elbow needs repair above ceiling

Women's Washroom

Pipe joint above ceiling needs repair

Second Floor Offices

Manager of HR, pipe fitting inside heater needs repair

Manager of Service Development, pipe fitting inside cabinet needs repair

Stores

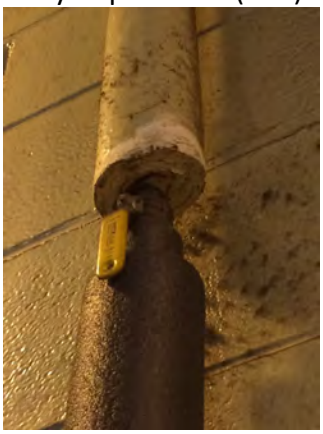
Tire Storage, plaster columns, need repair

Receiving Bay, spray on insulation, needs repair

Northwest Corner, isolation gasket of AHU needs repair

Body Repair

Body Repair Area (106) near Stores Office, Pipe insulation needs repair



Aisle way East of Paint Booth #4

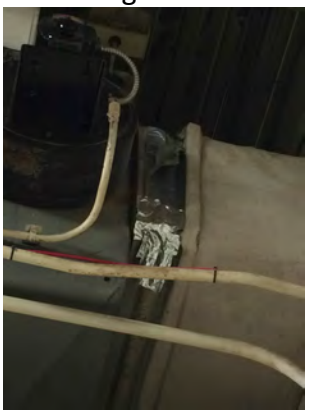
Plaster columns near washrooms need repair

Locker Area & Washroom

Ceiling tiles need repair

Carpenter Shop

Isolation gasket of AHU needs repair



Paint Booths 1, 2, & 3

Plaster Columns need repair

Booth 1 & 3 - Duct Insulation on bottom corners need repair

General Repair Area (108)

Washroom plaster walls need repair

Parking Meter Repair Room

Floor tiles need repair

421 Osborne St.
Building B, Storage Tracks

See Appendix B for approximate locations marked on a floor plan.

The Basement Track Storage Stairwell location was unable to be found. However it has not been removed from inventory on the chance that the location may be recognized at a later date.

Second Level North Lunchroom/Washroom

Wall plaster needs repair

Maintenance Bay 2

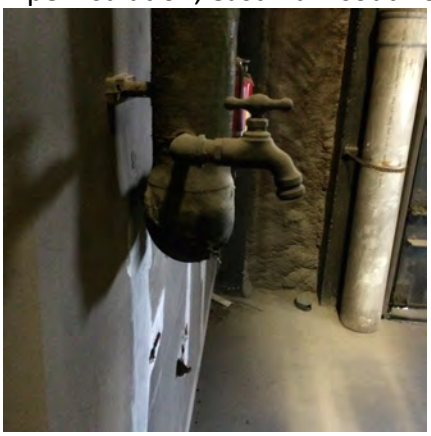
Pipe elbow insulation on west wall mid-way needs repair

Storage Track 13-24

Pipe insulation, east wall: north end & mid-way needs repair

Storage Track 25-36

Pipe insulation, east wall: south end 2 fittings & mid-way needs repair



Drywall northwest corner needs repair & near NE Sprinkler Room

Northeast Sprinkler Room

Pipe elbow insulation needs repair

1520 Main St.

See Appendix C for approximate locations marked on a floor plan.

Locker Room

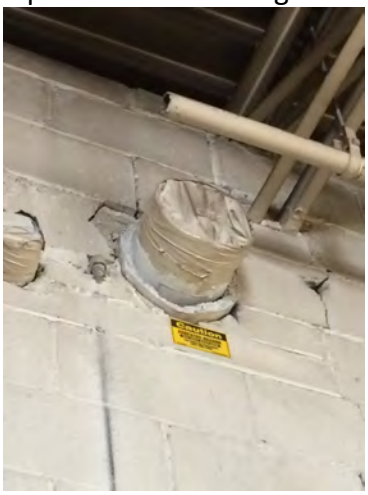
Above women's locker room, pipe insulation needs repair

Television Lounge

Pipe insulation needs repair

Area 27 (Storage)

Pipe insulation through the wall cavity, needs repair



DISCUSSION AND CONCLUSIONS

The repairs/removal mentioned above are all relatively minor. They can be repaired using Type 1 asbestos precautions or Type 2.

The priority repairs would be (in order):

421 Osborne, Building A, Maintenance

Manager of HR, pipe fitting inside heater needs repair

Manager of Service Development, pipe fitting inside cabinet needs repair

Operations Supervisor's office, pipe elbow needs repair

1520 Main St.

Television Lounge, pipe insulation needs repair

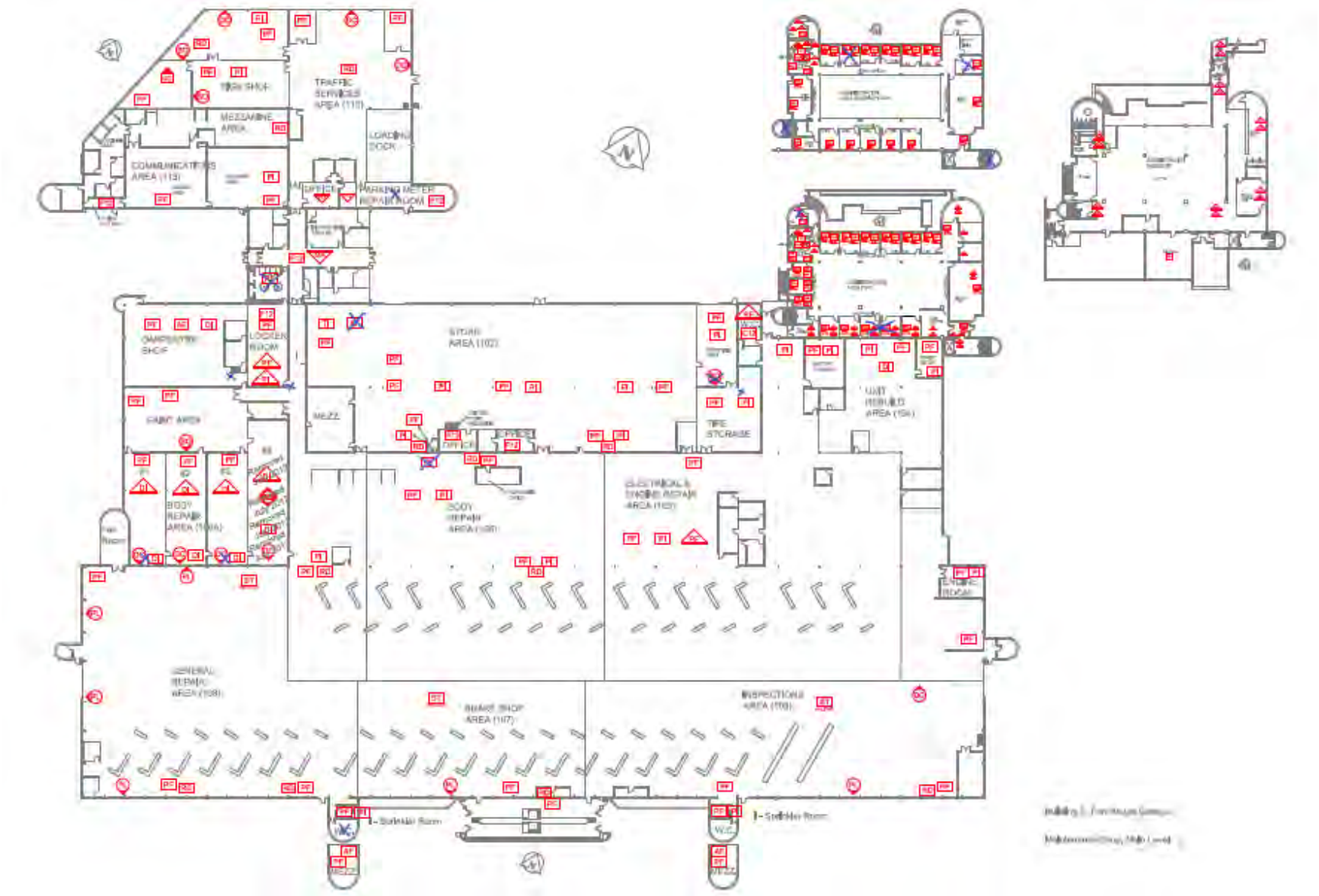
421 Osborne, Building A, Maintenance

Booth 1 & 3 - Duct Insulation on bottom corners need repair

Stairwells, both maintenance stairwell and public stairwell, stucco need repair

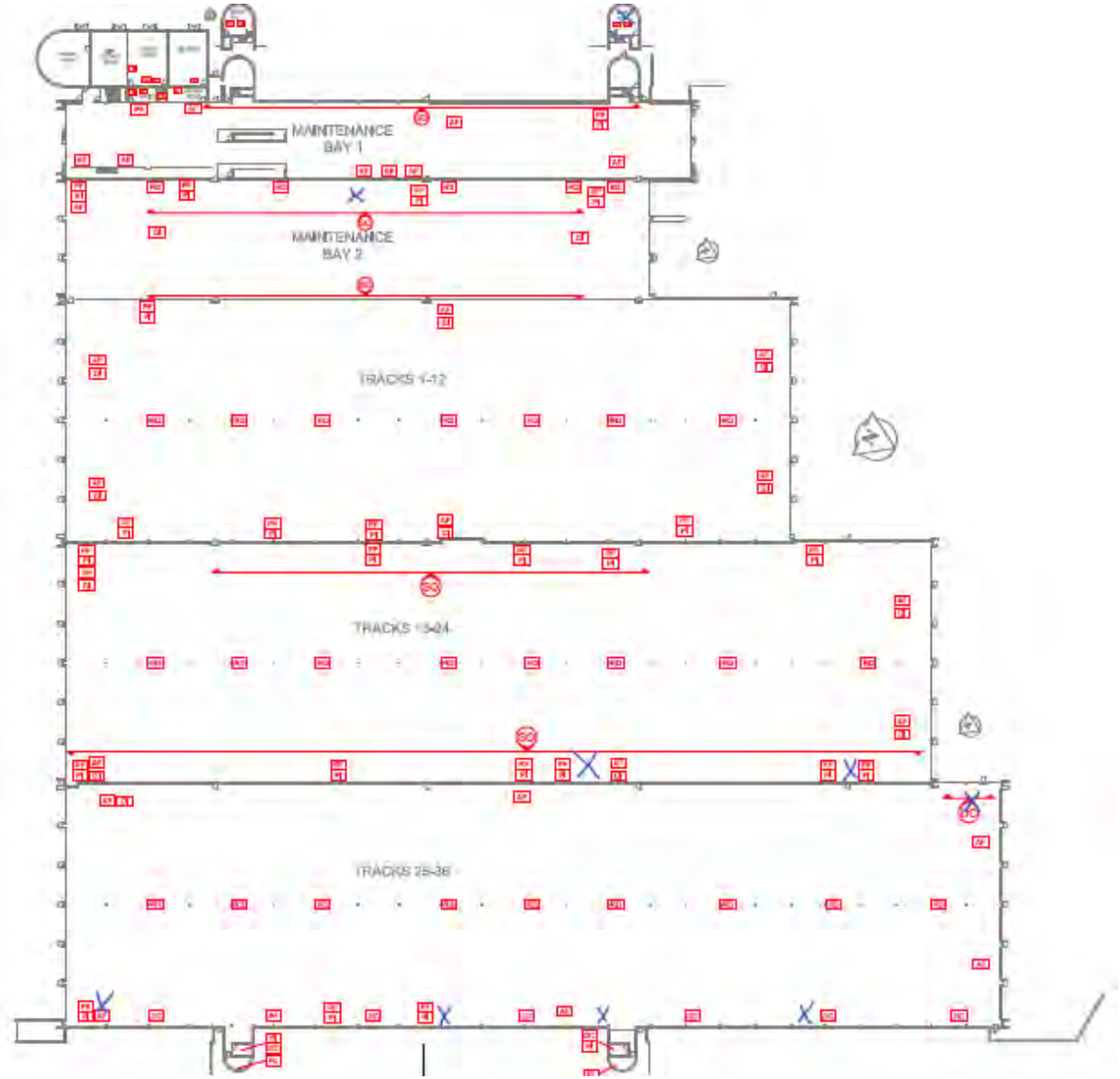
Appendix A

421 Osborne St. Building A, Maintenance



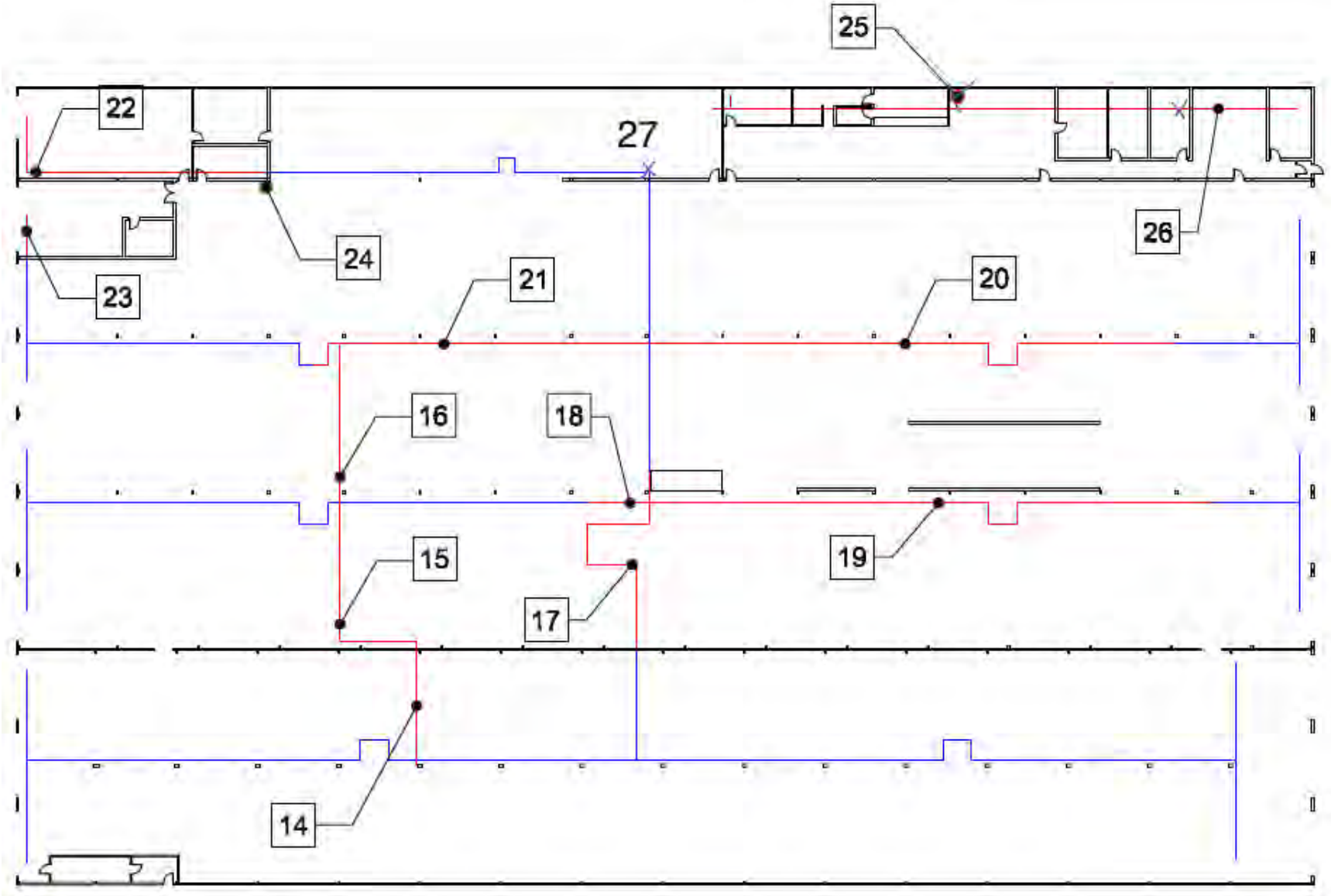
Appendix B

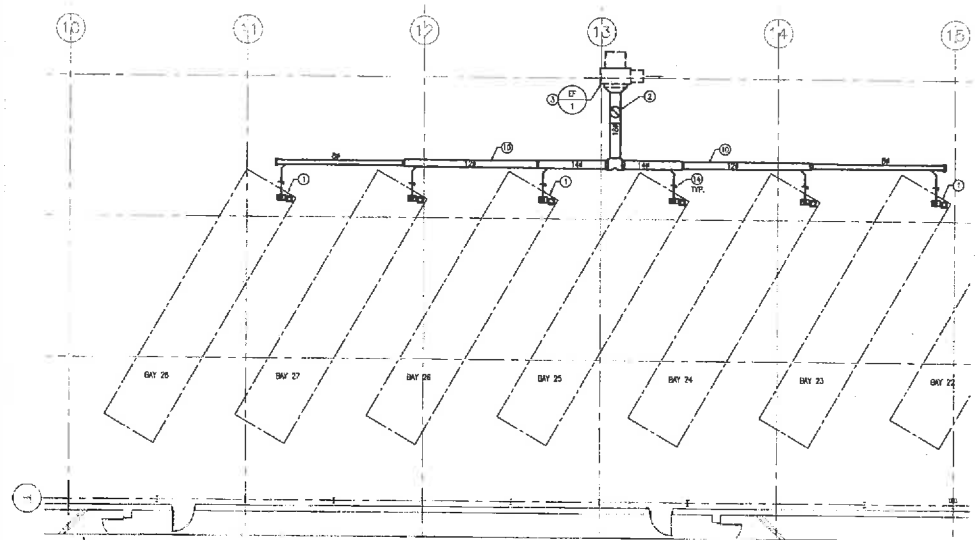
421 Osborne St. Building B, Storage Tracks



Appendix C

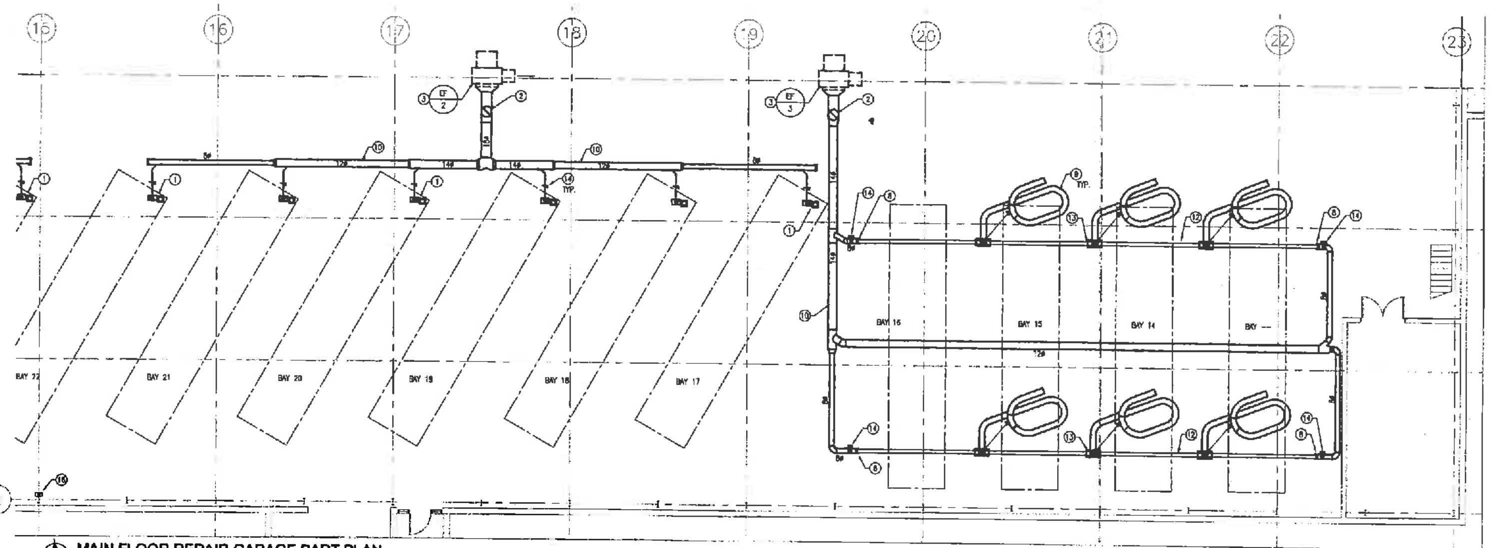
1520 Main St.





MAIN FLOOR REPAIR GARAGE PART PLAN
SCALE: 1/8"=1'-0"

EF-1/EF-2 SIZING CRITERIA:
-MAX NUMBER OF ACTIVE PICKUP POINTS: 8 PER SYSTEM AT 700 CFM PER POINT.
EF-3 SYSTEM SIZING CRITERIA:
-MAX NUMBER OF ACTIVE PICKUP POINTS: 3 TOTAL AT 700 CFM EACH.
-MAX NUMBER OF ACTIVE PICKUP POINTS PER RAIL: 2 AT 700 CFM EACH.



MAIN FLOOR REPAIR GARAGE PART PLAN
SCALE: 1/8"=1'-0"

GENERAL NOTES:

A. CONTRACTOR TO VERIFY EXACT LOCATION AND DIMENSIONS OF NEW DUCTWORK ON SITE PRIOR TO INSTALLATION AND FABRICATION. REPORT ANY DISCREPANCY TO THE CONTRACT ADMINISTRATOR.

B. DO NOT SCALE OFF THIS DRAWING. THIS DRAWING ONLY SHOWS THE GENERAL SCHEMATIC OF NEW SYSTEM.

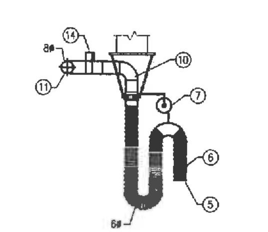
C. CONTRACTOR SHALL INCLUDE FOR AND PROVIDE ALL COORDINATION BETWEEN TRADES AND CONTRACT ADMINISTRATOR ON AND OFF SITE AS REQUIRED FOR INSTALLATION OF MECHANICAL SYSTEMS.

D. REFER TO SPECIFICATION ON THIS SHEET FOR PART NUMBERS OF NEDERMAN EXHAUST EXTRACTION SYSTEM COMPONENTS.

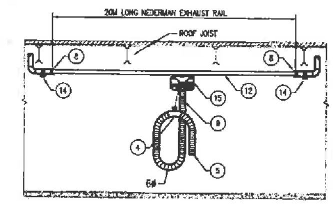
E. COORDINATE DUCT, RAIL, HOSE AND BALANCER LOCATIONS AND RANGE OF MOVEMENT WITH EXISTING SERVICES (OVERHEAD REELS FOR OILING/LUBRICATION), LIGHT FIXTURES, AND STRUCTURAL BUILDING MEMBERS.

DRAWING NOTES: (#)

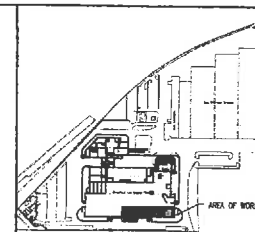
1. TAIL PIPE EXHAUST HOSE C/W BALANCER CONNECTED TO TRUNK DUCT. DUCT TO BE INSTALLED 16'-0" ABOVE FLOOR. (TYPICAL OF 12). AVERAGE EXHAUST RATE PER TAIL PIPE 700 CFM. REFER TO DETAIL 1/M1.1.
2. DUCT UP THROUGH ROOF.
3. TAIL PIPE EXHAUST FAN MOUNTED ON ROOF ABOVE. FAN SHALL OPERATE ON BMS SCHEDULE
4. METAL ELBOW SUPPORT CONNECT METAL ELBOW SUPPORT TO DAMPER AS PER MANUFACTURER'S GUIDELINES.
5. LEAVE EXTRACTION HOSE OPEN ENDED. THE CITY SHALL FABRICATE CUSTOM NOZZLE/CANOPY AND INSTALL IN FUTURE WITH OWN FORCES.
6. SINGLE HOSE EXTRACTOR, FOR BUS SERVICE STALLS. (TYPICAL OF 12).
7. HOSE BALANCER. (TYPICAL OF 12).
8. USE RAIL-END FITTING (NEDERMAN SIDE OUTLET) AND DUCT TRANSITION TO CONNECT TO 8Ø SPIRAL DUCT.
9. FLEXIBLE EXHAUST HOSE CONNECTED TO TROLLEY ASSEMBLY. (TYPICAL OF 6).
10. SHEET METAL DUCT WORK BY DIVISION 15.
11. CONNECT TO TRUNK DUCT.
12. NEDERMAN EXHAUST EXTRACTION RAIL 20 METER LONG. CROSS-BRACE RAIL TO ROOF JOISTS TO ACHIEVE RIGID INSTALLATION. FOLLOW EXISTING INSTALLATION EXAMPLE OF NEDERMAN RAILS IN WELDING SHOP AREA OF THIS BUILDING. REVIEW THE PROPOSED CROSS-BRACING WITH CONTRACT ADMINISTRATOR PRIOR TO INSTALLATION. INSTALL RAIL AT HIGH LEVEL CLOSE TO U/S ROOF JOISTS.
13. TROLLEY C/W HOSE AND ACCESSORIES BY NEDERMAN. HOSE TERMINATION TO BE FABRICATED BY THE CITY OF WINNIPEG. EXHAUST RATE AT HOSE 700 CFM. REFER TO DETAIL 2/M1.1.
14. BLAST GATE BALANCING DAMPER. BLAST GATE SHALL BE FULL COLLAR, CAST ALUMINUM WITH GALVANIZED SIDES.
15. TROLLEY ASSEMBLY C/W BALANCER AND DAMPER MOUNTED TO EXHAUST EXTRACTION RAIL. (TYPICAL OF 6).
16. EXISTING OVERRIDE PUSH BUTTON AS DESCRIBED IN SPECIFICATION SECTION 15900. TIE-IN NEW EXHAUST FANS TO EXISTING BUTTON.



1 (M1.1) HOSE AND BALANCER DETAIL
SCALE: NTS



2 (M1.1) TROLLEY AND RAIL EXHAUST DETAIL
SCALE: NTS



KEY PLAN
N.T.S

NEDERMAN EXHAUST SYSTEM - PART LIST

QTY	PART NO.	PART NO. DESCRIPTION
		CAR AND TRUCK SERVICE STALLS
6	20373798	ACCESSORY FOR EXTRACTION UNIT 920. DAMPER FOR 920/1500 Ø160.
6	20823582	EXHAUST HOSE NFC(3), FABRIC, GREEN-GRAY WITH BLUE HELIX. FOR MAX 500°F. Ø150MM, LENGTH 7.5M.
6	20373609	HOSE SUSPENSION Ø150MM.
6	20374380	ACCESSORY FOR EXTRACTION UNIT 920. TROLLEY Ø160MM FOR 920/1500 WITH BALANCER.
2	20918720	EXHAUST RAIL 920, HORIZONTAL UNIT. (COMPLETE WITH SUSPENSION PARTS). LENGTH 20M, C/W ACCESSORY FOR EXHAUST RAIL 920. SIDE OUTLET Ø160.
		BUS SERVICE STALLS
12	20813403	SINGLE EXHAUST EXTRACTOR, WITH BALANCER. HOSE Ø150MM, WITH 6M NFC(3) HOSE.

NO.	Revisions	BY	DD/MM/YY
7.			
6.			
5.			
4.			
3.			
2.			
1.	ISSUED FOR BID OPPORTUNITY	PC	19/11/09

APEGM Certificate of Authorization SMS Engineering Ltd. No. 169 Expiry April 30, 2010

PROVINCE OF MANITOBA P. W. GRYC 19 NOV 09 REGISTERED PROFESSIONAL ENGINEER

SMS ENGINEERING

Project Title
CITY OF WINNIPEG - FORT ROUGE TRANSIT GARAGE VEHICLE EXHAUST
WINNIPEG MANITOBA

Drawing Title
MAIN FLOOR PART PLAN EXHAUST SYSTEM LAYOUT

Drawn By	Checked By	Approved By
PCD/RNS	JS/RE	PWG
Scale: AS NOTED	Date: OCTOBER 2009	Project No.: 09-215-01
Revision Number: 1	Drawing Number: M1.1	Sheet Order: 1 OF 1

CompAir

100% Oil-Free - Guaranteed

Oil-Free Water-Injected Rotary Screw Compressors

OilFREE

Truly innovative oil-free compressed air technologies

D15H-D110H

Fixed Speed & Regulated Speed

Guaranteed 100% air purity, that meets stringent quality standards - always

As manufacturers and suppliers of oil-free compressors for over 90 years, CompAir are committed to quality and innovation and understanding the customers' operational and business needs. Nowhere is this more apparent than in the development of our DH range.

Our oil-free compressors are helping industries across the globe to meet and exceed quality and production objectives in food and beverage, pharmaceutical, electronic, healthcare and power generation applications to name but a few.

Today, we remain at the forefront of oil-free compressor technology by understanding the challenges our customers face and by listening to their needs.

In addition, CompAir are committed to developing environmentally friendly solutions that are helping our customers meet the demands of climate change legislation - from cutting energy bills and operating more efficiently to reducing their carbon footprint. Please visit www.compressingcarbon.com for further information.

Why Oil-Free?
Contaminant Free... Risk Free

When you choose an oil-free DH range compressor from CompAir, you get a clean, reliable and cost-efficient air supply that benefits your business and your bottom line!

Air purity is critical for many applications where even the tiniest drop of oil can cause product spoilage or damage production equipment. For this reason, the DH range from CompAir contains absolutely no oil anywhere in the compressor and has been **certified ISO 8573-1 Class Zero (2010) and silicone free**, making it better and safer with simply no risk of oil contamination.

CompAir in action

Our oil-free solutions are proven in thousands of applications across the world, providing high quality, low cost air to manufacturers, processors and operators in a diverse range of industries including:

- Food and beverage
- Pharmaceuticals
- Chemicals
- Engineering & technology
- Automotive
- Electronics

> The DH range offers market-leading energy efficiency to minimise your carbon emissions whilst using no oil anywhere in the compressor – thus helping to demonstrate your 'green' credentials and increasing your market appeal.

> Increasing pressures both commercial and legislative, demand lower environmental impact from your business – issues that our oil-free compressors meet head on.

CompAir DH - your resource for cost savings

The unique design achieves lower speeds combined with lower operating temperatures - both resulting in high efficiency and reduced component wear. Using a single-stage, direct-driven motor without gears or belts, maximises efficiency. Limiting the compressed air to the application demand with regulated speed ensures that no energy is wasted.

OilFREE

Truly innovative oil-free compressed air technologies

CompAir in action

Improved reliability & reduced costs

Rohde & Schwarz GmbH & Co. KG embarked on a programme to upgrade its compressed air supply to CompAir's oil-free DH compressors at its main production plant in Memmingen (Germany). **Improved production reliability** and **reduced compressed air costs** have already been achieved, with **fast payback** and **improved efficiency**.

"The extra investment costs pay for themselves through lower energy consumption and reduced maintenance expenditure".

Alfred Ahon,
Manufacturing Technology Projects, Rohde & Schwarz.

CompAir DH - delivering the highest quality, oil-free compressed air for all applications

DH - advanced compression technology from CompAir

The use of absolutely no oil negates the issues of contaminated air. **No oil - no risks**.

- **Single-stage, direct-driven compression element maximises efficiency and minimises maintenance**
- **High quality water injection lubricates, cools and seals the compression process, maximising efficiency**
- **No gearbox means no need for associated oil lubrication**
- **Low bearing loads and low speeds mean sealed-for-life bearings can be used, requiring no oil lubrication**
- **Regulated speed technology available to reduce energy costs**
- **Comprehensive control ensures safe and reliable operation and includes remote communication capability**
- **Fully packaged and silenced enclosure reduces noise and simplifies installation**

Benefit from high quality features

DH compressors have significantly fewer moving parts than comparable machines, meaning there is less to go wrong, while lower speeds and balanced bearing loads extend the compression element service life for low-cost operation.

With exceptionally low running temperatures of less than 60°C near isothermal compression is achieved.

This also eliminates the need of an internal aftercooler and associated power consumption reducing pressure drop to the minimum.

The largest cost component of a compressor during its lifetime is the power required to run it. CompAir incorporate energy-saving technologies at every stage of the design, delivering a compressor that works harder and smarter.

COMPAIR DH - TRADITIONAL OIL-FREE TECHNOLOGY DOESN'T GET CLOSE		
	CompAir DH	Traditional Oil-Free
Oil	No ✓	Yes
Speed	Up to 3500rpm ✓	6000 - 25000rpm
Compression Temperature	60°C ✓	Up to 200°C
Compression Elements	1✓	2
Number of Gears	0 ✓	5-7
Number of Bearings	7 ✓	More than 15
Number of Seals	2 ✓	More than 15

High efficiency water purification system

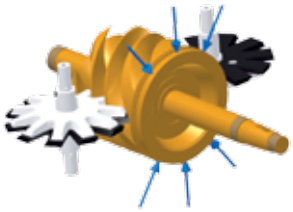
Tried and tested reverse osmosis filtration, provides high quality purified water to lubricate, seal and cool the compression process.

Using a permeate pump the water required is reduced to a minimum.

Balanced Loads = Longest Life

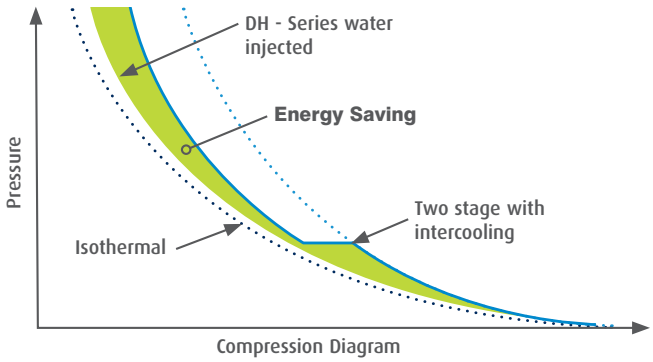
The compression loads are balanced resulting in low bearing loads and highest reliability.

Axial loads act on both sides of the main rotor.



Radial loads act on both the top and underside of the main rotor.

Energy Savings

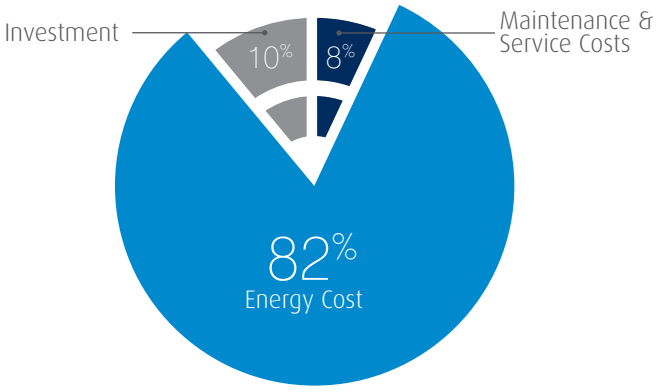


Water injection means lower temperatures, and lower temperatures mean more efficient compression

Regulated speed technology offers maximum efficiency, cuts energy AND saves money

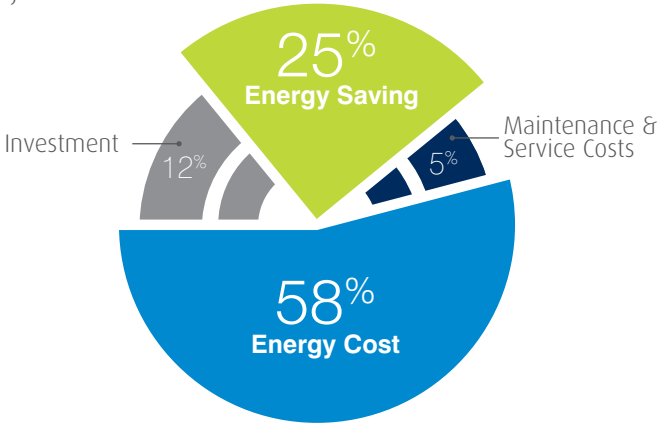
Reduce the cost of ownership and minimise your energy consumption

The largest cost component of a compressor during its lifetime is the power required to run it.



A typical fixed speed compressor operating at 70% load.

Using a regulated speed compressor can easily save 25% energy as it consumes just the energy required to do the job and no more.



A variable speed compressor at 70% load.

Perfect response to your individual air demand

Regulated speed compressors from CompAir can efficiently and reliably handle the varying air demand. The right regulated speed compressor in the right application delivers significant energy savings and a stable air supply at constant pressure.

Maximum efficiency at any level of demand cuts energy costs and saves money.

- **Excellent efficiency**
- **High reliability**
- **Low cost of ownership**

airOndemand

Delcos XL - Innovative touch screen compressor controller

The multilingual control system ensures safe and reliable operation and protects your investment by continuously monitoring the operational parameters - essential for reducing your running costs.

- **Precise monitoring for exceptional operational reliability**
- **High resolution, easy-to-use touch-screen panel**
- **User-friendly clear structure**
- **Integrated SD card for in-depth analysis**
- **Trend diagrams for**
  - **Network pressure**
  - **Motor speed (regulated speed models)**
  - **On load hours / total running hours and average volume flow**
  - **Weekly average volume flow**
- **Optional base load sequencing**

CompAir in action

Lowering energy costs for world's oldest brewery

A regulated speed, oil-free compressor from CompAir has helped the world's oldest brewery to achieve a **30% reduction** in its compressed air energy costs.

The brewery opted for a D22H RS compressor featuring PureAir Technology, generating **totally oil-free compressed air**, making it ideally suited for their stringent hygiene requirements.

Regulated speed drive technology matches compressor flow to demand with great efficiency meaning that the unit produces **ONLY the correct volume of air** required by the application at all times.

"Together with CompAir we measured the power consumption of the system and found that the combination of the new compressor and the leak repairs has reduced our electricity consumption by around a third".

Gerd Abstreiter,
Engineering Manager, Weihenstephan Brewery.

Simplified maintenance reduces life cycle costs

Reduced maintenance

Our oil-free compressors are built to last, featuring robust designs and a simple construction, making them easier to maintain. We've also made them easy to operate, featuring a variety of control options to make sure that you are always in charge of your air supply.

The DH range - for total peace of mind

- **Significantly fewer moving parts means less to go wrong**
- **Lower speeds and balanced bearing loads extend the compression element service life to 36,000 hours for low-cost operation**
- **Cooler operating temperatures reduce component wear**
- **No oil or oil laden parts to dispose of, saving time and expense**

CompAir in action

Increased efficiency & lower costs

The power and supply systems at MVV Energiedienstleistungen West GmbH, in Reken, Germany have been gradually audited over a few years with a view to reducing costs and saving resources.

Two CompAir DH compressors where chosen to replace the existing system - featuring PureAir Technology and generating totally oil-free compressed air.

"Energy efficiency and excellent life cycle costs were important when choosing the new compressors, but the emphasis was also placed on the reliable generation of clean, oil-free compressed air as it is used as plant and process air for food production. The new, incredibly efficient machines represent an investment that will pay for itself through increased efficiency, reduced primary energy consumption and low maintenance costs".

Andrew Bernemann,
Operations Manager, MVV

Compressed air purification

A modern production system and process demands increasing levels of air quality. A CompAir compressed air system utilising the latest technology provides an energy efficient solution at lowest life cycle costs.

Water Cyclone Separator X Series

Designed for efficient removal of bulk liquid contamination from compressed air.

Compressed Air Filter CF Series

Efficient design for water, dust and particle removal.

Condensate Drain Bekomat System

To drain compressed air condensate without loss of compressed air.

Compressed Air Refrigerant Dryer

CompAir offer a full range of energy efficient and environmentally friendly stand alone refrigerant dryers.

Nitrogen Generator

Designed to achieve maximum efficiency and gas quality.

Heatless Desiccant Dryers

Series A_XS and A_TX.

Heat Regenerative Desiccant Dryers

Series A_TV and A_RS.

SmartAir Lite & SmartAir Master Multi Compressor Controllers

Sequencers for up to 12 units.

Assure warranty - to ensure your peace of mind!

assure™

First Class Compressor - First Class Warranty

The CompAir Assure Warranty and Service programmes will assure you up to 44,000 hours/6 years [1] peace of mind, and is one of the most generous warranties available in the industry.

Your benefits:

- **The Assure warranty is totally free to the compressor owner [2]**
- **The CompAir authorised service provider will deliver a guaranteed quality of service**
- **An Assure service agreement underpinning the warranty will enable accurate maintenance budgeting and cost of ownership**
- **The use of genuine CompAir parts and lubricants will maximise compressor life and efficiency**

[1] whichever is the soonest

[2] subject to Terms & Conditions

> Relax - you're in good company. From innovative warranties and technical support to rapid parts supply. CompAir's comprehensive Aftermarket programmes ensure optimal performance 365 days of the year.

Genuine spare parts:

Enjoy complete peace of mind with CompAir!

Genuine CompAir spare parts and lubricants ensure that compressed air plant reliability and efficiency is maintained at the highest standards. CompAir spare parts and lubricants are distinguished by the following characteristics:

- **Long service life, even under harshest conditions**
- **Minimal losses contributing to energy savings**
- **High reliability improving plant "up time"**
- **Products manufactured within the strictest Quality Assurance Systems**

CompAir DH - Technical Data

Fixed Speed - Air And Water Cooled

Model	Cooling Method	Motor Rating (kW)	Working Pressure (bar g)		Free Air Delivered (m^3/min)		Dimensions L x W x H (mm)	Noise Level dB(A)**	Weight (kg)
					8 bar g*	10 bar g*			
D15H	Air	15	8	10	2.30	1.80	1345 x 880 x 1612	68	672
	Water							65	624
D22H	Air	22	8	10	3.50	2.89	1345 x 880 x 1612	68	691
	Water							65	643
D37H	Air	37	8	10	5.86	5.04	1722 x 920 x 1659	71	960
	Water							61	860

Regulated Speed - Air And Water Cooled

Model	Cooling Method	Motor Rating (kW)	Working Pressure (bar g)		Free Air Delivered (m^3/min)		Dimensions L x W x H (mm)	Noise Level dB(A)** (70% load)	Weight (kg)
			Min.	Max.	Min.*	Max.*			
D15H RS	Air	15	5	10	0.32	2.34	1345 x 880 x 1612	67	687
	Water							64	639
D22H RS	Air	22	5	10	0.68	3.45	1345 x 880 x 1612	67	687
	Water							64	658
D37H RS	Air	37	5	10	1.09	6.87	1722 x 920 x 1659	71	995
	Water							60	895
D50H RS	Air	45	5	10	1.17	7.64	2158 x 1412 x 1971	73	1570
	Water								1490
D75H RS	Air	75	5	10	1.72	11.39	2158 x 1412 x 1971	75	1890
	Water								1810
D110H RS	Water	110	5	10	3.04	18.55	2158 x 1412 x 1971	72	2200

* Data measured and stated in accordance with ISO 1217 Edition 4, Annex C & E at the following conditions: Air Intake Pressure 1 bar a / 14.5 psi; Air Intake Temperature 20° C / 68° F ; Humidity 0 % (dry)

** Measured in free field conditions in accordance with ISO 2151, tolerance ± 3 dB (A)

CE

TÜV CERT DIN ISO 9001/ EN 29001 Certificate: 5168

CompAir in action

Premium air quality eliminates contamination

German bitter and liqueur producer Mast-Jägermeister installed a new bottling line at its Linden facility capable of producing 20,000 bottles per hour.

After assessing several manufacturers' systems, Jägermeister chose two CompAir D75H SR machines offering completely oil-free operation and high energy efficiency.

"Our developers in Simmern combined their expertise in control and drive technology with water injected screw compression, developing an extremely cost effective operation with minimal service costs".

Werner Struck,
Mechanical Engineer, CompAir

CompAir

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Trust CompAir to supply intelligent compressed air solutions

With over 200 years of engineering excellence, the CompAir brand offers an extensive range of highly reliable, energy efficient compressors and accessories to suit all applications.

An extensive network of dedicated CompAir sales companies and distributors across all continents provide global expertise with a truly local service, ensuring our advanced technology is backed up with the right support.

As part of the worldwide Gardner Denver operation, CompAir has consistently been at the forefront of compressed air systems development, culminating in some of the most energy efficient and low environmental impact compressors on the market today, helping customers achieve or surpass their sustainability targets.

CompAir compressed air product range

Advanced Compressor Technology

Lubricated

- Rotary Screw
  - > Fixed and Regulated Speed
- Piston
- Portable

Oil-Free

- Water Injected Screw
  - > Fixed and Regulated Speed
- Two Stage Screw
  - > Fixed and Regulated Speed
- Piston
- High Speed Centrifugal - Quantima®

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- Filter
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- Condensate Management
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91005-533GB 03/13 CI

AC-03 (LOW PRESSURE COMPRESSOR)

Ingersoll Rand
Industrial Technologies

R45n
60Hz

ENGINEERING DATA SHEET

CCN: 24192569
Rev.: B
ECN: 82093
Sheet: 1 of 1
Date: 20-Aug-2013

Model Name		R45N-X100	R45N-X110	R45N-X115	R45N-X125	R45N-X135	R45N-X145
GENERAL PERFORMANCE DATA							
Rated Discharge Pressure	barg (psig)	7 (100)	7.5 (110)	8 (115)	8.5 (125)	9.5 (135)	10 (145)
Minimum Operation Pressure	barg (psig)	4.5 (65)	4.5 (65)	4.5 (65)	4.5 (65)	4.5 (65)	4.5 (65)
Capacity FAD @ Max Speed (1)	m³/min (CFM)	7.42 (262)	7.39 (261)	7.28 (257)	7.02 (248)	6.74 (238)	6.46 (228)
Capacity FAD @ Min Speed (1)	m³/min (CFM)	1.64 (58)	1.67 (59)	1.67 (59)	1.70 (60)	1.76 (62)	1.78 (63)
Turndown Percentage	Percent	78%	77%	77%	76%	74%	72%
Maximum Target Operating Pressure (2)	barg (psig)	10 (145)					
Maximum Operating Ambient Temperature	°C (°F)	46 (115)					
Minimum Operating Ambient Temperature	°C (°F)	2 (35)					
Maximum System Temperature Setting	°C (°F)	109 (228)					
Nominal Power - Main Motor	kW (HP)	45.00 (60)					
Main Drive Efficiency (3)	Percent	97.00%					
Main Motor Efficiency (3)	Percent	93.70%					
Package Input Power w/Fan - Air Cooled (4)	kW	55.1	56.6	56.6	56.7	56.0	55.2
Specific Power - Air Cooled (4)(5)	kW/m3/min (kW/100cfm)	7.43 (21.0)	7.66 (21.7)	7.78 (22.0)	8.07 (22.9)	8.31 (23.5)	8.55 (24.2)
SOUND LEVEL (6)							
Standard Package - Air Cooled	dB(A)	69					
COOLING DATA (@ Maximum Ambient Temperature & Maximum Discharge Pressure)							
Heat Removal Oil Cooler	kW (1000 Btu/hr)	41 (140)	43 (146)	43 (147)	43 (148)	43 (147)	42 (144)
Heat Removal Oil and Aftercooler	kW (1000 Btu/hr)	54 (183)	55 (189)	55 (189)	56 (190)	55 (188)	55 (186)
Additional Static Pressure (13)	Pa (in H2O)	See document 23883374					
Fan Air Flow	m³/min (cfm)	Nom: 84 (2984)			Max: 108 (3825)		
Fan Motor Nominal Power	kW	1.5					
Cooling Air Temperature Rise	°C (°F)	29 (52)	28 (51)	28 (51)	28 (50)	28 (50)	28 (51)
Aftercooler CTD, 60 Hz (7)	°C (°F)	8 (15)	8 (15)	8 (15)	8 (15)	8 (15)	8 (15)
AIR END DATA							
Male Rotor Speed	rpm	5400	5377	5287	5106	4925	4744
Tip Speed Rotor	m/sec	36.2	36.1	35.5	34.3	33.1	31.8
Full Load Shaft Power	kW	48.9	50.3	50.3	50.4	49.7	49.0
COOLANT LUBRICATION DATA							
Total Coolant Capacity - Air Cooled	litres (US gal)	26 (6.9)					
PIPING CONNECTIONS							
Air Discharge	Inches BSPT/NPT (9)	1.50					
Package Automatic Condensate Drain	Inches BSPT/NPT (9)	0.38					
Coolant Drain - Hose Size	Inches	0.88					
Diameter of Power Inlet	mm / inch	Up to 4.0" (removable plate)					
DIMENSIONS & WEIGHT		**Base Mounted**					
Length, Width, Height	mm (inches)	1947(77)/1114(44)/ 1607(63)					
Net Weight - Air Cooled	kg (lb.)	776(1711)					
GA Drawing Number - Air Cooled		24068652					

ELECTRICAL DATA		**380V. 3Φ**	**460V. 3Φ**	**575V. 3Φ**	**440V. 3Φ**
Motor Protection		IP23 (ODP)			
Full Load Package Current - Air Cooled (10)	Amps	102.7	85.3	68.7	88.6
Package Power Factor		0.92	0.91	0.91	0.92
Electrical Installation					
Recommended Supply Cable Size (11)	mm²/Cu (AWG or kcmil))	50(1/0)	35(1/0)	35(1/0)	35(1/0)
Maximum Recommended Fuse Rating (11)(12)	Amps	150	150	150	150

Notes :
(1) FAD (Free Air Delivery) is full package performance including all losses. Tested per ISO 1217 : 2009 Annex C
(2) Maximum pressure at package discharge, value at which compressor will stop when unit operating at maximum target pressure
(3) At maximum speed and flow for the given package discharge pressure
(4) Measured at rated capacity and rated pressure
(5) Specific power guaranteed in accordance with ISO 1217 : 2009 Annex C
(6) Measured in free field conditions per ISO 2151 using Hemispherical Method, with + 3 dB(A) tolerance.
(7) 40% Relative Humidity Inlet Air and maximum speed (For alternate conditions contact IR)
(9) BSPT or NPT, depending on regional standard
(10) Maximum current includes 10% additional current due to fouled filters and elements
(11) 90° C copper cables. Always apply local electrical codes for sizing cables and fusing.
(12) Fast Acting Class-J, T or Semiconductor type fuse required. Apply local electrical codes for fuse sizing

REVISIONS						
ZONE	REV	ECN	DESCRIPTION	DATE	DRAWN	APP'D
	A	80669	ORIGINAL RELEASE	2012JUN05	C. LEAMON	Z. WHITLEY
SHT3 3-C3 3-D5	B	81684	UPDATED THE DRAWING TO LATEST FORMAT ADDED DOOR OPERATING RADIUS 701 [27.6] AT 2 PLACES ADDED DOOR OPERATING RADIUS 990 [39.0] AND 551 [21.7]	2013JUN24	P.SADASHIV	T.VINCENT
	C	82201	ADDED SHEET 10	2013NOV29	P.SADASHIV	Z.WHITLEY

NOTES:

1. WEIGHT (APPROXIMATE): R37I (NO DRYER) - 1004 KG (2213 LBS)
   R45I (NO DRYER) - 1039 KG (2291 LBS)
   R37N (NO DRYER) - 776 KG (1711 LBS)
   R45N (NO DRYER) - 776 KG (1711 LBS)
   R37I (DRYER) - 1094 KG (2411 LBS)
   R45I (DRYER) - 1129 KG (2490 LBS)
   R37N (DRYER) - 926 KG (2041 LBS)
   R45N (DRYER) - 926 KG (2041 LBS)
2. COOLING AIR FLOW: 6500 M^3/HOUR (3825 CFM)
3. PIPE CONDENSATE DRAIN LINES SEPARATELY TO AN OPEN DRAIN DUE TO DIFFERENCES IN DRAIN PRESSURES. READ OPERATIONS MANUAL AND CHECK LOCAL REGULATIONS.
4. LUBRICANT FILL QUANTITY: 26 LITRES (7 US GALLONS)
5. RECOMMENDED CLEARANCE ON THREE SIDES 915 MM (36 INCHES) SIDE WITH ELECTRICAL BOX 1067 MM (42 INCHES) OR MINIMUM AS REQUIRED BY LATEST NATIONAL ELECTRICAL CODE OR APPLICABLE LOCAL CODES.
6. EXTERNAL PIPING SHOULD NOT EXERT ANY UNRESOLVED MOMENTS OR FORCES ON UNIT. USE PIPE OF EQUAL OR GREATER SIZE AT DISCHARGE LOCATION OF UNIT.
7. THERE SHOULD BE NO PLASTIC OR PVC PIPING ATTACHED TO THIS UNIT OR USED FOR ANY LINES DOWNSTREAM.
8. REMOVE THE ISOLATION MOUNT RESTRAINTS BEFORE THE INITIAL START. THE RESTRAINTS CAN BE DISCARDED.
9. FIELD INSTALLED DUCTING TO AND FROM COMPRESSOR CANNOT ADD MORE THAN 6MM (.25 INCH) OF WATER TOTAL AIR RESISTANCE.
10. UNIT HAS AN INTERNAL DISCHARGE CHECK VALVE, EXTERNAL CHECK VALVE NOT REQUIRED. ISOLATION VALVE REQUIRED WITHIN 915 MM (36 INCHES) OF THE COMPRESSOR DISCHARGE.
11. COMPRESSOR SHOULD BE BOLTED TO THE FLOOR WITH FOUR M20 (3/4 INCH) BOLTS USING HOLES SHOWN ON SHEET 4. SEAL BASE TO FLOOR WITH CORK OR RUBBER.
12. DO NOT PIPE INTO A COMMON HEADER WITH A RECIPROCATING COMPRESSOR. UNLESS RECIP COMPRESSOR UTILIZES A DISHCHARGE PULSATION DAMPENER.
13. ⊕ DENOTES CENTER OF GRAVITY.
14. SIZING OF ELECTRICAL COMPONENTS NOT SUPPLIED BY INGERSOLL-RAND IS THE RESPONSIBILITY OF THE CUSTOMER AND SHOULD BE DONE IN ACCORDANCE WITH THE INFORMATION ON THE COMPRESSOR DATA PLATE, NATIONAL AND LOCAL ELECTRIC CODES.
15. A BLANK GLAND PLATE IS PROVIDED FOR ELECTRICAL POWER INLET AS INDICATED.
16. WHEN INSTALLED INDOORS IN A CONFINED SPACE, THE COOLING AIR INLET OR EXHAUST MUST BE DUCTED AWAY FROM UNIT TO PREVENT RECIRCULATION OF HOT EXHAUST AIR.

CONNECTION LEGEND

- ALL 60 Hz CONNECTIONS ARE NPT (UNLESS SPECIFIED OTHERWISE)
- ALL 50 Hz CONNECTIONS ARE BSPT (UNLESS SPECIFIED OTHERWISE)

A. DISCHARGE AIR: 1.5 INCH (FEMALE)

B. ELECTRICAL INLET: BLANK PLATE SUPPLIED

C. PACKAGE AIR INLET (COMPRESSOR)

D. PACKAGE AIR EXHAUST (COMPRESSOR)

E. PACKAGE AIR INLET (DRYER)

F. PACKAGE AIR EXHAUST (DRYER)

G. CONDENSATE DRAIN (MOISTURE SEPARATOR): .375 INCH (FEMALE)
THIS CONNECTION IS NOT USED ON NO MOISTURE SEPARATOR UNITS.

H. CONDENSATE DRAIN (FILTER): .375 INCH (FEMALE)

J. CONDENSATE DRAIN (DRYER): .375 INCH (FEMALE)

K. WATER OUTLET: 1.0 INCH (FEMALE - ERS OPTION ONLY)

L. WATER INLET: 1.0 INCH (FEMALE - ERS OPTION ONLY)

GENERAL ARRANGEMENT TOLERANCES

ALL DIMENSIONS ARE IN MILLIMETERS [INCHES (IF SHOWN)]

UNSPECIFIED TOLERANCES:

WHOLE : ±13.0[.50]
.X : ± 6.0[.25]
ANGLES : ± 1°

Ingersoll-Rand Industrial Technologies

DO NOT SCALE DRAWING

DRAWING CONFORMS TO ASME Y14.5M - 1994

CAD GENERATED DRAWING, NO MANUAL REVISIONS ALLOWED

UNLESS OTHERWISE SPECIFIED:
- REMOVE ALL BURRS AND SHARP CORNERS
- WELD SYMBOLS TO BE IN ACCORDANCE WITH ANSI/AWS A2.4

THIRD ANGLE PROJECTION

DRAWN	C. LEAMON	DATE 2012JUN05
CHECKED	Z. WHITLEY	DATE 2012JUN05
APPROVED	S. KUMAR	DATE 2012JUN05

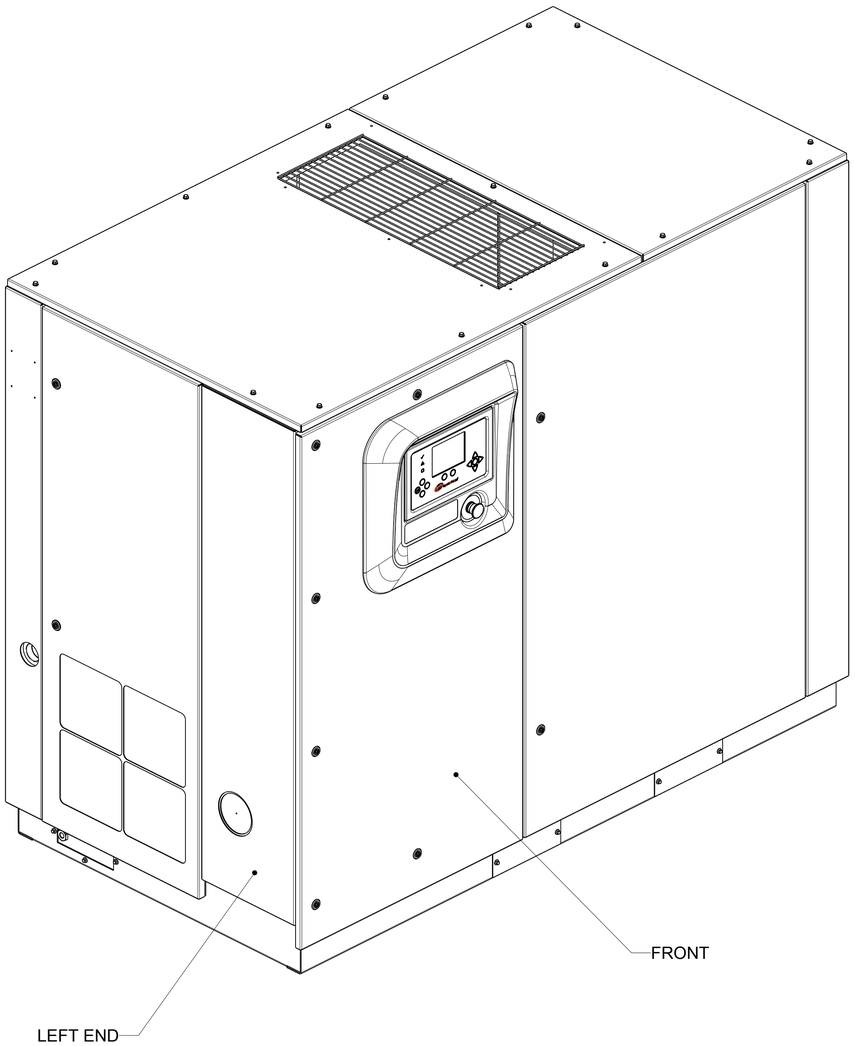
DRAWING TYPE: General Arrangement Drawing
NOMENCLATURE

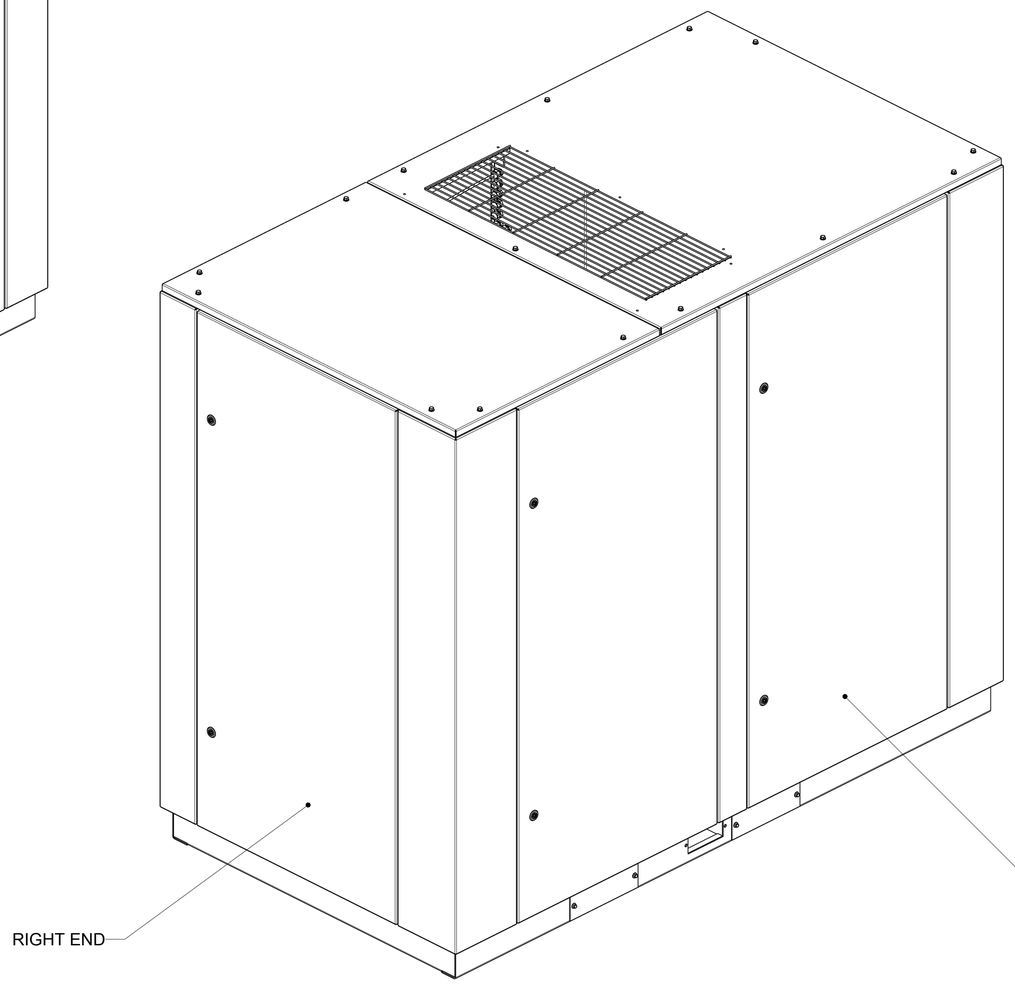
Ingersoll Rand

TITLE: **GENERAL ARRANGEMENT, R37-45**

SIZE	ESTIMATED WEIGHT (KG UNLESS OTHERWISE SPECIFIED)	DWG NO.	REV
A1	0.0 kilogram	24068652	C

SCALE: 0.10 UNIT: SHEET 1 OF 10





PROPRIETARY NOTICE	TITLE	
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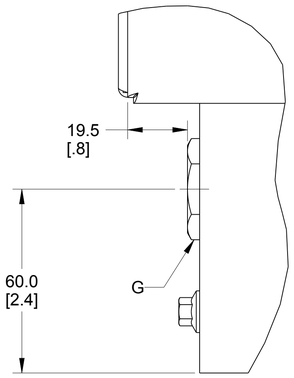
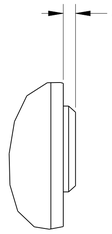
	SIZE: A1	DWG NO. 24068652
	SCALE: 0.13	SHEET 2 OF 10

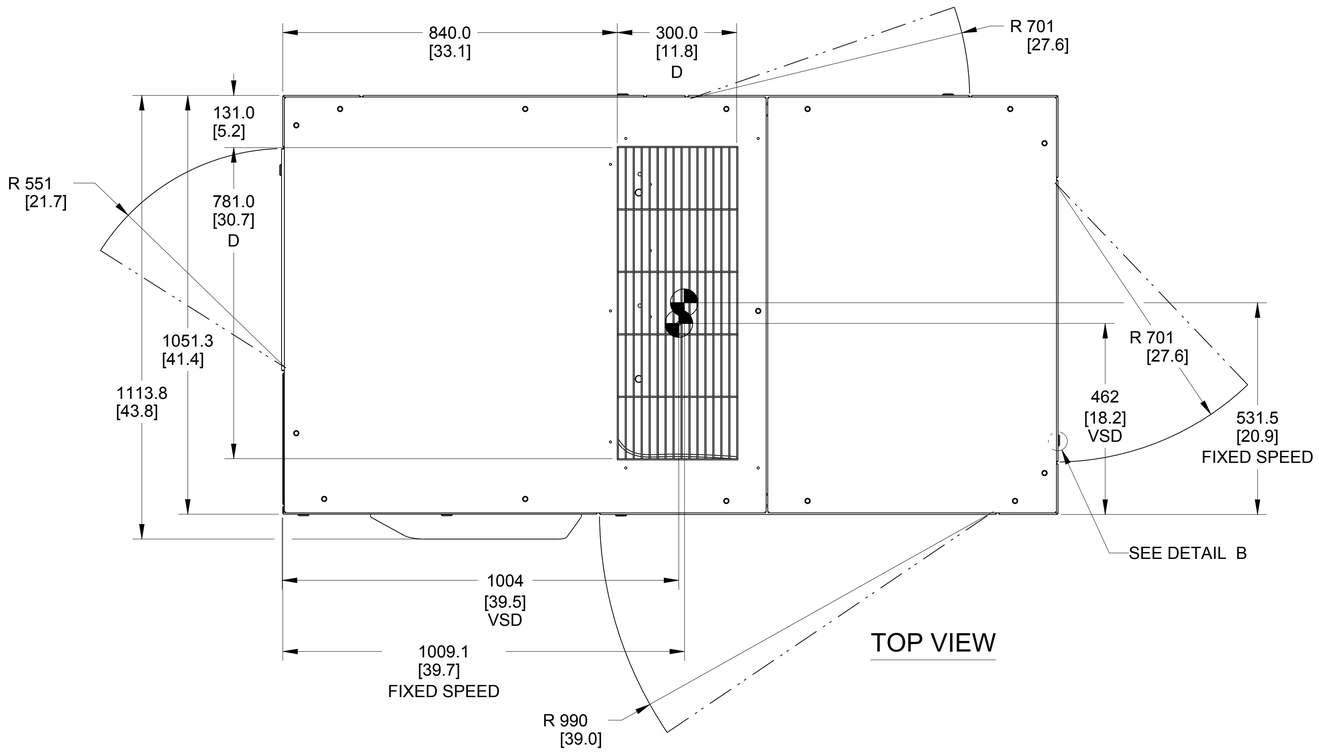
OPTION: NON-TAS



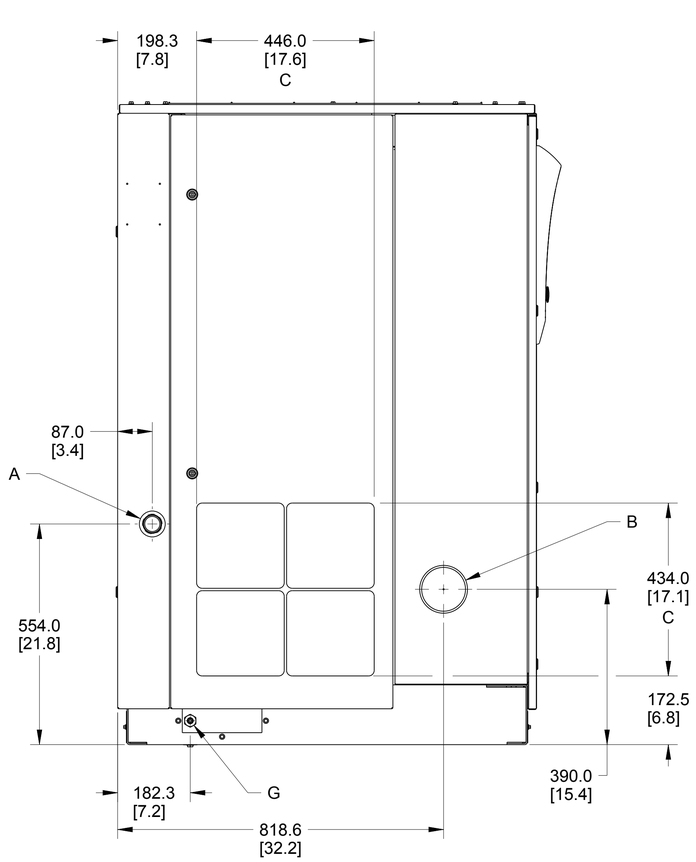
DETAIL A
SCALE 1.000



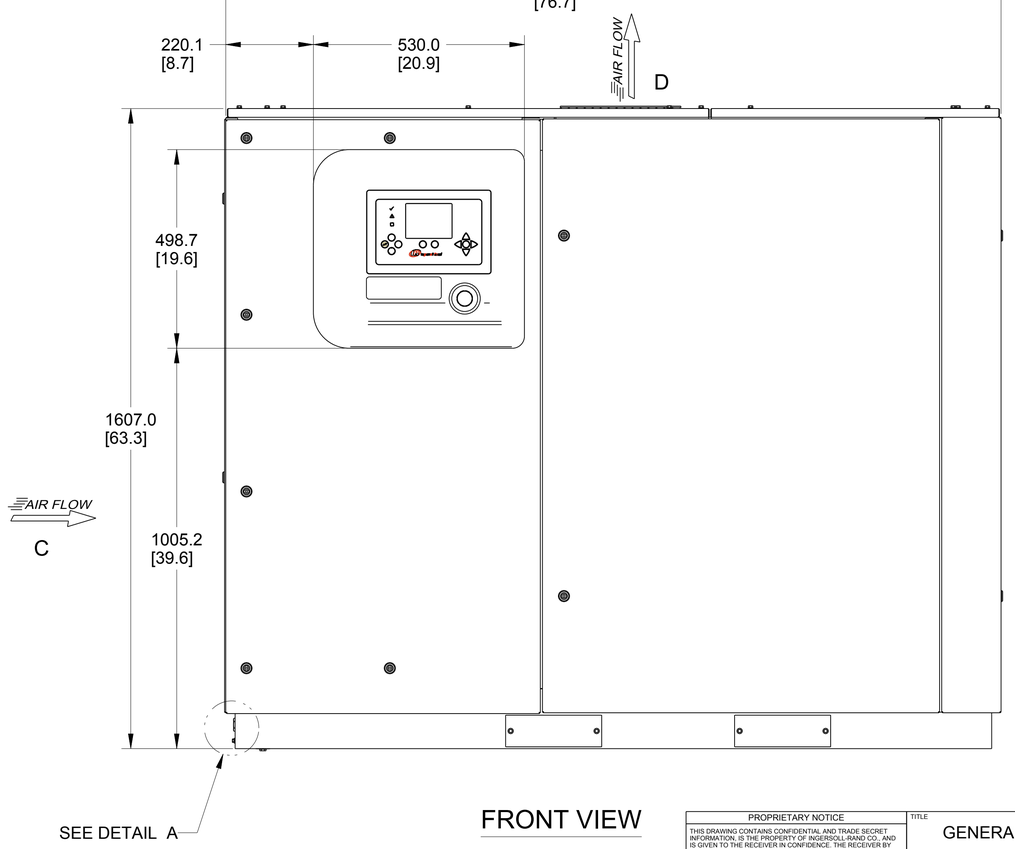
DETAIL B
SCALE 1.000



TOP VIEW



LEFT END VIEW



FRONT VIEW

TITLE: GENERAL ARRANGEMENT, R37-45

SIZE	DWG NO.	REV
A1	24068652	C
SCALE: 0.13	SHEET	3 OF 10

AIR UNLIMITED INC.
COMPRESSED AIR SOLUTIONS

543 Garwood Ave. Winnipeg, MB R3L 2R2 Ph: (204) 958-6800 Fax: (204) 958-6807
#1 – 3247 Millar Avenue, Saskatoon, SK S7K 5Y3 Ph: (306) 249-9620 Fax: (306) 249-9625

Reciprocating Air Compressor
7100E-V Type 30

Image for reference only

Technical Information:

Capacity: 50 cfm @ 175 psig

Maximum Operating Pressure: 175 psig

Receiver Tank: 120 Gallon Horizontal

Weight: 1035 lbs.

Connection Size: 1" NPT

Dimensions (L x W x H): 71"x 28"x 56"

Additional Engineering Data available upon request

Product Description:

The Type-30 Reciprocating Compressors utilize cast iron pump housings and one-piece connecting rods to provide ruggedness and durability. By combining this ruggedness with matched motors/ starters or gasoline engines, and vertical or horizontal receiver tanks, the Type-30 offers an extended selection of compressor alternatives.

When professional performance is required, Ingersoll Rand Type-30 Air Compressors provide maximum operating pressure, increased air flow and extended duty. For over 75 years, the legendary Type-30 has provided demanding customers with a dependable air supply to meet a variety of applications. The Type-30 models are flexible enough to satisfy a small repair shop's needs or to support heavy-duty, industrial and automotive applications.

Key Features & Benefits:

- 100% Cast Iron Frame and Cylinders
- 360° Cylinder Cooling
- Low Oil Level Switch
- One Piece Connecting Rods
- Splash Lubrication

TOTAL CARE

EN INEERIN DATA S EET

100

Ref: 9820.00
Page: 1 of 2
Date: 23 Jan.2009
Cancels: All Previous

Point of Manufacture Campbells ille

Bare Details:

Specifications:

Bore:	5.5" & 3"	
Stroke:	4"	
Maximum pressure :	250(17.24)	psig(bar)
Sheave OD:	18"	
Sheave PD:	17.5"	
Inlet size:	1.5" NPT	
Discharge size:	1" NPT	
Belt Type / Quantity:	B/2	
Min/Max RPM:	750/1100	

Lubrication:

Type:	XL300*, All-Season T30 Select**, XL740Ht***	
Sump capacity:	2.3(2.2)	qt(l)

* Adjust viscosity to suit ambient conditions, XL300 should not be used in ambients below 40^{0}F. Use premium quality, non-detergent, single-viscosity petroleum oils with R & O additives.
** Required for duty cycles above 70% load. Check lubricant compatibility sheet before using.
*** Required for ambients in excess of 100^{0}F. Check lubricant compatibility sheet before using.

Tank Details:

Tank size / Configuration:	120 Gal/Horizontal	
Pressure rating:	200(13.8);	psig(bar)
Codes:	Assume ASME Sec VIII & CRN	

Motor Details:

AMP draw:

	200 60	**2 0 60**	**60 60**	**5 5 60**
15HP	48.3	42	21	17

Note: Nominal Amps are based on NEC full load amperage rating for this size motor. Actual nameplate amps may vary according to motor design and/or motor manufacturer.

	15 P
Efficiency	*
Motor RPM	1775

* Motors comply with EPACT standards.

100

Point of Manufacture Campbells ille

Performance Data:

Bare	Power (P)	Pressure (psig)	Pump Speed (rpm)	Flow (acfm)	B P
7100	15	75	1100	51.6	13.5
7100	15	125	1100	50.5	15.1
7100	15	175	1100	50.0	16.3

Note: 1) Duplex units multiply capacity by two

Operating En ironment:

Minimum operating temperature:	32(0)	deg.F(deg.C)
Maximum operating temperature:	100(37.78)	deg.F(deg.C)

Electricals:

Magnetic starter:	E-Series standard; Deluxe optional
Pressure switch:	Non-adjustable standard; Adjustable optional
Alternator:	E-Series standard; Deluxe optional

Dimensions Shipping weight:

	15 P ori ontal Tank
x W x (in):	83 x 36 x 65
Weight (lbs):	1297

Note: For model specific dimensions and weight contact your channel marketing manager.

Notes:
1) For specific code requirements like CSA, CRN, ASME contact your channel marketing manager.
2) For model specific GA, electrical schematic and fluid flow schematic or any specific information contact your channel marketing manager.

Chubb Edwards
82 Terracon Place
Winnipeg, MB
R2J 4G7
Tel (204) 633-5248 Fax (204) 632-5341

Chubb EDWARDS

November 28, 2014

Troy Life & Fire Safety
Unit 7 – 1333 Niakwa Road East
Winnipeg, Manitoba
R2J 3T5

Subject: November 2014-ANNUAL TEST AND MAINTENANCE INSPECTION AGREEMENT
Location: Winnipeg Transit, 421 Osborne, Winnipeg, Manitoba

Per the terms of the Preventative Maintenance Agreement with Chubb Edwards, we have completed the test and inspection of the building systems listed below following the requirements of the current Provincial Fire Code.

The tested systems are indicated with **[√]** for satisfactory operation, **[X]** for unsatisfactory operation, and **[Inc]** for incomplete work.

[X] Fire Alarm System
[X] Emergency Lighting

We enclose our completed test and inspection report for your review. A Certificate of Inspection will only be included for satisfactory operation.

We welcome the opportunity to assist you, should you require additional information and/or service regarding this inspection.

Regards,

Dianna Grosshans
Fire Service Billing & Inquiries

Enc.

Chubb Edwards
82 Terracon Place
Winnipeg, MB
R2J 4G7
Ph: 204 633 5248

Fire Alarm System Annual Inspection Report

Chubb EDWARDS

BUILDING NAME: **Winnipeg Transit - Fort Rouge Facility**			
ADDRESS: **421 Osborne Street**	CITY: **Winnipeg**	PROVINCE: **Manitoba**	
DATE: **November 13, 2014**	SINGLE STAGE: X	ADDRESSABLE: X	
MANUFACTURER: **Notifier**	TWO STAGE:	CONVENTIONAL:	
MODEL NUMBER: **NFS-3030**	PROP #: **40-212-4980**		

	YES	NO	N/A
A. The entire Fire Alarm system has been inspected and tested in accordance with CAN/ULC-S536, Inspection and Testing of Fire Alarm Systems	X		
B The Fire Alarm system documentation is on-site and includes a description of the system	X		
C. The Fire Alarm System is FULLY Functional with NO Deficiencies		X	
D. The Fire Alarm System is NOT FULLY Functional and has deficiencies		X	
E. The Fire Alarm System is Functional WITH Deficiencies noted in this report	X		
F. A copy of this report will be provided to the Building Owner or Representative	X		

G. Other safety equipment testing included in this report:

Emergency Lighting

This is to certify that the information contained in this Fire Alarm System Annual Test and Inspection Report is correct and complete.
This record is to be maintained by the building owner.

Andrew Fenstad	**Chubb Edwards**	**204-633-5248**
Printed name of primary or supervising technician conducting the inspection	Company	Telephone
40-212-4980 NOV. 2014 DEFICIENCIES	**13-994100**	**01823S**
Signature of primary or supervising technician conducting the inspection	Identification # of primary or supervising technician conducting the inspection	"M" License ID # of primary or supervising technician conducting the inspection
Printed name of the assisting technician conducting the inspection	Company	Telephone
Signature of the assisting technician conducting the inspection	Identification # of the assisting technician conducting the inspection	"M" License ID # of the assisting technician conducting the inspection

Chubb Edwards
82 Terracon Place
Winnipeg, MB
R2J 4G7
Ph: 204 633 5248

Fire Alarm System
Annual Inspection Report

Chubb EDWARDS

INSPECTION PRE-CHECK LIST

	YES	NO
1. Is this system monitored by a Central Monitoring Station or Fire Department?	X	
2. Does this site have Central Station ULC certificate posted at the transmitter.		X

Monitoring Company: Protelec Alarms
Phone #: 204-949-1415

*Be sure to confirm restoration of any bypassed connection to the CMS prior to leaving the site.

Date: 11/10/2014 Time Offline: 8:00AM
Time Online: 4:00PM

Date: 11/13/2014 Time Offline: 8:00
Time Online: 16:00

Date: _____ Time Offline: _____
Time Online: _____

Date: _____ Time Offline: _____
Time Online: _____

Date: _____ Time Offline: _____
Time Online: _____

	YES	NO
2. Do you have auxiliary functions that can impair the building operations, such as elevator homing, fan shutdown, door holders etc...?	X	
Can these functions be disabled and tested by groups?	X	
3. Have building occupants been made aware of fire alarm testing?	X	
4. Has a pre-determined time been established for testing signaling devices?	X	
5. Have provisions been made for acquiring access to the secured areas of the building?	X	
6. Has an alternative plan been established to alert building occupants and the local fire department should an actual fire condition occur during testing?	X	

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CONTROL UNIT TEST

Control Unit or Transponder Location: ADMIN BUILDING AT RECEPTION

Control Unit or Transponder Identification: NODE #1

	YES	NO	N/A
A. Power On visual indicator operates.	X		
B. Common visual trouble signal operates.	X		
C. Common audible trouble signal operates.	X		
D. Trouble signal silence switch operates.	X		
E. Fire alarm system reset operates.	X		
F. Ground fault tested on both positive and negative initiates trouble signal.	X		
G. Alert signal operates.			X
H. Alarm signal operates.	X		
I. Automatic transfer from alert signal to alarm signal operates. (Auto Evac)			X
J. Manual transfer from alert signal to alarm signal operates. (Total Evac)			X
K. Automatic transfer from alert signal to alarm signal cancel switch operates. (AEC)			X
L. Alarm signal silence inhibit function operates. Time: _____sec.			X
M. Alarm signal manual silence operates.	X		
N. Alarm signal silence visual indication operates.	X		
O. Alarm signals, when silenced, automatically reinitiates upon subsequent alarm.	X		
P. Alarm signal silence automatic cut-out timer. Time: _____min.			X
Q. Input to Output circuit operation, including ancillary device circuits have been checked for correct program operation, as per the design and specifications or documented as detailed in Appendix C of CAN/ULC-S536. Sequence of Operation.			X
R. Input circuit, alarm and supervisory operation, including audible and visual indication operates as intended.	X		
S. Input circuit supervision fault causes a trouble indication.	X		
T. Output circuit supervision fault causes a trouble condition..	X		

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CONTROL UNIT TEST

	YES	NO	N/A
U. Output circuit alarm indicators operate			X
V. Lamp Test operates.	X		
W. Coded signal sequences operate not less than the required number of times and the correct alarm signal operates thereafter.			X
X. Coded signal sequences are not interrupted by subsequent alarms.			X
Y. Auxiliary device bypass will result in a trouble indication.	X		
Z. Main power supply failure initiates trouble signal.	X		
AA. Main power supply to emergency power supply transfer operates.	X		
BB. Alarm verification confirmation for smoke detectors only has been verified.			X
CC. Receipt of the system Alarm transmission to the fire signal receiving center.	X		
DD. Receipt of the system Supervisory transmission to the fire signal receiving center.	X		
EE. Receipt of the system Trouble transmission to the fire signal receiving center.	X		
FF. Name of the fire signal receiving center recorded on page 2 of this report.	X		
GG. Operation of the fire signal receiving center disconnect (FDR) results in a specific trouble indication at the control unit/transponder, and transmits a trouble signal to the alarm receiving center.			X

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CONTROL UNIT TEST

	YES	NO	N/A
A. Input circuit designations correctly identified in relation to connected field devices.	X		
B. Output circuit designations correctly identified in relation to connected field devices.	X		
C. Correct designations for common control functions and indicators.	X		
D. Plug-in components, modules and cables securely in place.	X		
E. Date, revision and version of firmware/software program installed on system. Date: January 26, 2010 Rev.: Ver.: A003.012.004			
F. Clean and free of dust and dirt.	X		
G. Fuses in accordance with manufacturers specifications.	X		
H. Control unit/transponder lock functional.	X		
I. Termination points for wiring to field devices secure.	X		

PRINTER TEST

Printer Location: _____

A. Operates per design and specification, or documentation as detailed in Appendix C, Description of Fire Alarm System for Inspection and Test procedures.			X
B. Zone of each alarm initiating device is correctly printed.			X
C. Rated voltage is present at printer.			X

POWER SUPPLY INSPECTION

A. Fused in accordance with the manufacture's marked rating of the system	X		
B. Adequate to meet the requirements of the system.	X		
C. Control unit power disconnects in accordance with the Canadian Electrical Code.	X		
D. Main power supply feed wiring in accordance with manufacturer's specifications.	X		
E. Power for ancillary devices is taken from a source separate from the fire alarm power supply	X		
F. Control Unit provides power for ancillary devices and is designed to supply such power. (This includes fire alarm annunciators)	X		

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STANDBY POWER SUPPLY TEST AND INSPECTION

Control Unit or Transponder Location: **ADMIN BUILDING AT RECEPTION**

Control Unit or Transponder Identification: **NODE #1**

A. Duration of Full Load Test as determined by occupancy per Canadian Building Code (0.08, 0.5, 1, 2 hrs) **0.5** Hours

B. Record battery type as recommended by the manufacturer. Type: **SLA** Volt: **24** Capacity: **18**

C. Battery Voltage & Current - Power Off - Supervisory Condition **25.12** **0.93** Amps

D. Battery Voltage & Current - Power Off - Full Load Alarm Condition **24.88** Vdc **1.67** Amps

E. Battery Voltage - Power Off - After Full Load Alarm Test **24.65** Vdc

F. Battery Voltage & Current - Power On - After Full Load Alarm Test **25.20** Vdc **0.38** Amps

G. Recorded calculated Amphour capacity (Per ULC-S536 Appendix F4.1-C) **23.16** Amphr

H. Correct battery rating as determined by battery calculations based on full system load. **NO**

I. Battery rating is greater than 85% of its rated specifications after the test and has passed. **YES**

	YES	NO	N/A
J. Terminals clamped tightly, cleaned, and lubricated.	X		
K. Inspected for physical damage/electrolyte leakage.	X		
L. Wet type batteries have correct electrolyte levels.			X
M. Wet type battery specific gravity is within manufacturer's specification.			X
N. Battery has adequate ventilation in an approved cabinet.	X		
O. Battery in-service date recorded or manufacturer's date code	Date:	MAY 2013	
P. Disconnection causes a trouble indication	X		

Q. Indicate type of battery test performed.

i) Required supervisory load for 24 hr - followed by the required full load operation		
ii) A silent test by using the load resistor method (Per ULC-S536 Appendix F1)		
iii) Silent accelerated test (Per ULC-S536 Appendix F2)		
iv) A battery capacity meter test (Per ULC-S-536 Appendix F3)	X	17
v) Battery replaced annually having current date code and Amphour capacity as recommended by the Manufacturer		

R. Generator provides power to the AC circuit serving the fire alarm system.			X
S. Trouble condition at the emergency generator shall result in an audible trouble signal.			X

VOICE COMMUNICATION TEST

Indicate with 'X' if there is NO voice communication system included within this node [X]

	YES	NO	N/A
A. Power On indicator operates.			X
B. Common visual trouble indicator operates.			X
C. Common audible trouble signal operates.			X
D. Trouble signal silence switch operates.			X
E. All-Call voice paging , including visual indicator, operates.			X
F. Output circuits for selective voice paging, including visual indicator, operates.			X
G. Output circuits for selective voice paging trouble operation, including visual indicator, operates.			X
H. Microphone, including push to talk switch, operates.			X
I. Operation of the voice paging system does not interfere with initial inhibit time of the fire alarm signal.			X
J. All-Call voice paging operates on emergency power supply. (batteries)			X
K. Upon failure of one amplifier, system automatically transfers to back-up amplifier.			X
L. Circuits for emergency telephone call-in, including audible and visual indicators, operate.			X
M. Circuits for emergency telephone - two way voice communication operates.			X
N. Circuits for emergency telephone trouble operation, including visual indication, operates.			X
O. Emergency telephone operable (dial tone) or in use (busy tone) operate.			X

REMOTE TROUBLE SIGNAL UNIT TEST AND INSPECTION

Remote Trouble Unit Location: _____

A. Input wiring from the control unit or transponder is supervised.			X
B. Visual trouble signal operates.			X
C. Audible trouble signal operates.			X
D. Audible trouble signal silence operates.			X

ANNUNCIATOR OR SEQUENTIAL DISPLAY - TEST & INSPECTION

Annunciator or Sequential Display Location: _____

Annunciator or Sequential Display Identification: _____

	YES	NO	N/A
A. Power On indicator operates.			X
B. Individual Alarm and Supervisory input zones are clearly indicated, separately designated and are properly identified.			X
C. Each individual Alarm and Supervisory zone indicator operates - (if N/A see exception)			X
Exception: Operation of each individual alarm and supervisory zone indication gives the identical indication, or lights the identical indicators at other annunciator(s), and sequential display(s).			
A minimum of one alarm zone and one supervisory zone tested at each annunciator & sequential display to confirm operation.			
Specific method of confirmation: _____			
D. Common trouble signal operates.			X
E. Visual indicator test (lamp test) operates.			X
F. Input wiring from control unit or transponder is supervised.			X
G. Alarm signal silence visual indicator operates.			X
H. Switches for ancillary functions operate as per design and specification, or documented as detailed in Appendix C, Description of Fire Alarm System for Inspection and Test Procedures.			X
I. Other ancillary functions visual indicators operate.			X
J. Manual activation of alarm signal and indication operates. (Total Evac Switch)			X
K. Displays are visible in installed location.			X
L. Operates on emergency power.			X

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DATA COMMUNICATION LINK TEST

Communication Link Transponder to Transponder:	DCLA		DCLB	X	DCLR	
Communication Link Transponder to Device:	DCLA		DCLB	X		

	YES	NO	N/A
A. Confirm that a trouble signal is received at the control unit or transponder under open loop fault for each communication link.	X		
B. Where fault isolation modules are installed in data communication links serving field devices, wiring shall be shorted on the isolated side, annunciation of the fault confirmed, and then a field device on the source side shall be operated, and activation confirmed at the control unit or transponder.			X
C. Where fault isolation in data communication links is provided between control units and/or transponders, introduce a short circuit fault and confirm annunciation of the fault and operation outside the shorted section between each pair of:			
a) Control Unit to Control Unit	X		
b) Control Unit to Annunciator			X
c) Control Unit to Remote Transponder			X

ANCILLARY DEVICE LISTINGS

Summary of Ancillary Equipment Installed on this System:

No ancillary devices installed.....	
AHU Shutdown.....	X
Pressurization Fans.....	
Exhaust Fan Shutdown.....	
Exhaust Fan Startup.....	
Fire Damper.....	
Fire Drop Shutter.....	X
Magnetic Door Holder.....	X
Magnetic Lock Release.....	X
Elevator Recall.....	
Elevator Alternate Recall.....	
Kitchen Hood Shutdown.....	
Other.....	

_____

_____

_____

_____

_____

***NOTE: The equipment reported on this form does not include the actual operational test of the ancillary device**

FIELD DEVICE TESTING - LEGEND & NOTES

DEVICE	DESCRIPTION	TYPE	MODEL NO.
M	Manual Station	SPO	8P05
M1	Manual Station		
RHT	Rate of Rise Heat Detector	135	FSP-851A
RHT1	Rate of Rise Heat Detector		
RHT2	Rate of Rise Heat Detector		
HT	Fixed Temperature Heat Detector		
HT1	Fixed Temperature Heat Detector		
HT2	Fixed Temperature Heat Detector		
S	For Smoke Detector sensitivity test see chart on next page	PHOTO	FSP-851A
S1	For Smoke Detector sensitivity test tool see chart on next page		
S2			
S3	For Manufacturer's Sensitivity Range see chart on next page		
RI	Remote Indicator		
DS	Duct Smoke Detector		
DS1	Duct Smoke Detector		
SFD	Supporting Field Device		L81860
SFD1	Supporting Field Device		
SFD2	Supporting Field Device		
FS	Sprinkler Flow Switch		
FS1	Sprinkler Flow Switch		
TS	Sprinkler Supervisory Device		
TS1	Sprinkler Supervisory Device		
TS2	Sprinkler Supervisory Device		
PS	Sprinkler Pressure Device		
FP	Sprinkler Water Fire Pump		
GEN	Emergency Generator		
IM	Isolation Module		
B	Bell		
B1	Bell		
H	Horn or Horn/Strobe Combo		
H1	Horn or Horn/Strobe Combo		
V	Visual Signal Device		
SP	Cone Type Speaker		
HSP	Horn Type Speaker		
GEN	Emergency Power Generator		
FACP	Fire Alarm Control Panel		
ANN	Fire Alarm Remote Annunciator		
BPS	Booster Power Supply		
AD	Ancillary Device		
AD1	Ancillary Device		
ET	Emergency Telephone		
EOL	End of Line Device		

It is recommended that smoke detectors in service for over 15 years be replaced.

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The following notes apply to Appendix E3.2 of CAN/ULC-S536-M04, Individual device records

Note 1: Smoke detector sensitivity confirmation or sensitivity should be recorded with the individual device.
Note 2: Smoke detector cleaning or replacement date should be recorded in the remarks column.
Note 3: Status change - including time delays should be recorded with the individual device.
Note 4: Duct smoke detector pressure differential or positive air flow readings should be recorded with the device.
Note 5: Time delay settings of the sprinkler flow switch should be recorded with the device.
Note 6: Sprinkler supervisory devices cause supervisory condition to be annunciated - but not an alarm condition.
Note 7: Upper & lower pressure settings of sprinkler pressure switches should be recorded with the device
Note 8: Low temperature settings of temperature devices should be recorded with the device.
Note 9: Identify the specific ancillary device in the remark column.
Note 10: Identify the date of replacement of any field device in the remark column.
Note 11: Identify the correct field device operation (e.g. Alarm, trouble, supervision, annunciation) as required.
Note 12: Identify zone number, circuit number and/or address as required.
Note 13: Identify conventional field device locations.
Note 14: Identify active field device and supporting field device locations.
Note 15: Test and confirm conventional field circuit wiring supervision.
Note 16: Confirm field device free of damage.
Note 17: Confirm field device free of foreign substance - e.g. Paint
Note 18: Confirm field device mechanically supported - independent of the wiring.
Note 19: Confirm the field device protective dust shields or covers are removed.

Smoke Detector Sensitivity Ranges

Conventional Devices

Model	Type	Range	Tool	Low	High
EC10U-3	Ionization	0.69-1.18%	C-PST	140-180mV	500-560mV
EC30U-3	Optical	1.38-3.08%	C-PST	570-630mV	1450-1550mV
EC30DU-3	Optical	1.38-3.08%	N/A		
C2M-PD1	Photoelect	1.90-3.8%	Magnet	7 Flashes	4 flashes
EDW1151A	Ionization	0.8%	MOD400R	Measure & compare to label	
EWD2151A	Photoelect	1.8%	MOD400R	Measure & compare to label	
EDW1400A	Ionization	1.5%	MOD400R	Measure & compare to label	
EDW1451A	Ionization	1.5%	MOD400R	Measure & compare to label	
EDW2400A	Photoelect	1.4%	MOD400R	Measure & compare to label	
SD-2W	Photoelect	0.79-2.46%	N/A	Test meter not required	
ESD-4WSJ	Photoelect	0.67-2.46%	N/A	Test meter not required	
ESD-SJ	Photoelect	0.67-2.46%	N/A	Test meter not required	
6249C	Ionization	0.5%-1.0%	N/A	Test Meter is Obsolete	
6250C	Ionization	0.5%-1.0%	N/A	Test Meter is Obsolete	
6264C-001	Ionization	0.58%-1.0%	N/A	Test Meter is Obsolete	
6264C-005	Ionization	0.71%-2.08%	N/A	Test Meter is Obsolete	
6269C	Photoelect	0.65%-2.0%	N/A	Test Meter is Obsolete	
6270C	Photoelect	0.65%-2.0%	N/A	Test Meter is Obsolete	

Intelligent Devices

Model	Type	Range	Tool
SIGA-IS	Ionization	0.7-1.6%	On-screen
SIGA-IPHS	Multisensor	1.0-3.5%	On-screen
SIGA-PS	Photoelect	1.0-3.5%	On-screen
SIGA-PHS	Multisensor	1.0-3.4%	On-screen
SIGA-SD	Photoelect	0.79-2.46%	On-screen
1251A	Ionization		On-screen
1551A	Ionization		On-screen
2251A	Photoelect		On-screen
2551A	Photoelect		On-screen

For devices not listed consult the device Manufacturer for Specifications or CFAA NEWS and TIPS at www.cfaa.ca

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Fire Alarm System
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ADDITIONAL NODE OR TRANSPONDER TEST

Remote Node or Transponder Location: **BUILDING B SOUTHWEST ENTRANCE**

Remote Node or Transponder Identification: **NODE #2**

	YES	NO	N/A
Control Unit has Control/Display functions	X		
A. Power On visual indicator operates.	X		
B. Common visual trouble signal operates.	X		
C. Common audible trouble signal operates.	X		
D. Trouble signal silence switch operates.	X		
E. Main power supply failure initiates trouble signal.	X		
F. Ground fault tested on both positive and negative initiates trouble signal.	X		
G. Alert signal operates.			X
H. Alarm signal operates.	X		
I. Automatic transfer from alert signal to alarm signal operates. (Auto Evac)			X
J. Manual transfer from alert signal to alarm signal operates. (Total Evac)			X
K. Automatic transfer from alert signal to alarm signal cancel switch operates. (AEC)			X
L. Alarm signal manual silence operates.	X		
M. Alarm signal silence visual indication operates.	X		
N. Alarm signals, when silenced, automatically reinitiates upon subsequent alarm.	X		
O. Input circuit to output circuit operation, including ancillary device circuits, for correct program operation, as per design and specification, or documentation as detailed in Appendix C of CAN/ULC-S536.	X		
P. Input circuit, alarm and supervisory operation, including audible and visual indication operates as intended.	X		
S. Input circuit supervision fault causes a trouble indication.	X		
T. Output circuit alarm indicators operate.			X
U. Output circuit supervision fault causes a trouble condition.	X		

ADDITIONAL NODE OR TRANSPONDER TEST - cont...

	YES	NO	N/A
V. Coded signal sequences operate not less than the required number of times and the correct alarm signal operates thereafter.			X
W. Coded signal sequences are not interrupted by subsequent alarms.			X
X. Fire alarm system reset operates.	X		
Y. Main power supply to emergency power supply transfer operates.	X		
Z. Input circuit designations correctly identified in relation to connected field devices.	X		
AA. Output circuit designations correctly identified in relation to connected field devices.	X		
BB. Correct designations for common control functions and indicators.			X
CC. Plug-in components, modules and cables securely in place.	X		
DD. Record the Date, revision and version of firmware/software program. Date: _____ Rev.: _____ Ver.: _____			
EE. Clean and free of dust and dirt.	X		
FF. Fuses in accordance with manufacturers specifications.	X		
GG. Control unit/transponder lock functional.	X		
HH. Termination points for wiring to field devices secure.	X		

PRINTER TEST

Printer Location: _____

	YES	NO	N/A
A. Operates per design and specification, or documentation as detailed in Appendix C, Description of Fire Alarm System for Inspection and Test procedures.			X
B. Zone of each alarm initiating device is correctly printed.			X
C. Rated voltage is present at printer.			X

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REMOTE TROUBLE SIGNAL UNIT TEST AND INSPECTION

Remote Trouble Unit Location: _____

A. Input wiring from the control unit or transponder is supervised.			X
B. Visual trouble signal operates.			X
C. Audible trouble signal operates.			X
D. Audible trouble signal silence operates.			X

POWER SUPPLY INSPECTION

A. Fused in accordance with the manufacture's marked rating of the system	X		
B. Adequate to meet the requirements of the system.	X		
C. Control unit power disconnects in accordance with the Canadian Electrical Code.	X		
D. Main power supply feed wiring in accordance with manufacturer's specifications.	X		
E. Power for ancillary devices is taken from a source separate from the fire alarm power supply			X
F. Control Unit provides power for ancillary devices and is designed to supply such power.	X		

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STANDBY POWER SUPPLY TEST AND INSPECTION

Control Unit or Transponder Location: **BUILDING B SOUTHWEST ENTRANCE**

Control Unit or Transponder Identification: **NODE #2**

A. Duration of Full Load Test as determined by occupancy per Cdn Bldg Code (0.08, 0.5, 1, 2 hrs) **0.5** **Hours**

B. Record battery type as recommended by the manufacturer. Type: **SLA** Volt: **24** Capacity: **18**

C. Battery Voltage & Current - Power Off - Supervisory Condition **25.43** Vdc **0.68** Amps

D. Battery Voltage & Current - Power Off - Full Load Alarm Condition **24.99** Vdc **1.40** Amps

E. Battery Voltage - Power Off - After Full Load Alarm Test **24.86** Vdc

F. Battery Voltage & Current - Power On - After Full Load Alarm Test **25.31** Vdc **0.28** Amps

G. Recorded calculated Amphour capacity (Per ULC-S536 Appendix F4.1-C) **17.07** Amphr

H. Correct battery rating as determined by battery calculations based on full system load. **YES**

I. Battery voltage is not less than 85% of its rated specification after this test. **YES**

	YES	NO	N/A
J. Terminals clamped tightly, cleaned, and lubricated.	X		
K. Inspected for physical damage/electrolyte leakage.	X		
L. Wet type batteries have correct electrolyte levels.			X
M. Wet type battery specific gravity is within manufacturer's specification.			X
N. Battery has adequate ventilation in an approved cabinet	X		
O. Battery in-service date recorded or manufacturer's date code	Date:	2011	
P. Disconnection causes a trouble indication	X		

Q. Indicate type of battery test performed.

i) Required supervisory load for 24 hr - followed by the required full load operation		
ii) A silent test by using the load resistor method (Per ULC-S536 Appendix F1)		
iii) Silent accelerated test (Per ULC-S536 Appendix F2)		
iv) A battery capacity meter test (Per ULC-S-536 Appendix F3)	X	12
v) Battery replaced annually having current date code and Amphour capacity as recommended by the Manufacturer		

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VOICE COMMUNICATION TEST

Indicate with 'X' if there is no voice communication system included within this node [X]

	YES	NO	N/A
A. Power On indicator operates.			X
B. Common visual trouble indicator operates.			X
C. Common audible trouble signal operates.			X
D. Trouble signal silence switch operates.			X
E. All-Call voice paging , including visual indicator, operates.			X
F. Output circuits for selective voice paging, including visual indicator, operates.			X
G. Output circuits for selective voice paging trouble operation, including visual indicator, operates.			X
H. Microphone, including push to talk switch, operates.			X
I. Operation of the voice paging system does not interfere with initial inhibit time of the fire alarm signal.			X
J. All-Call voice paging operates on emergency power supply. (batteries)			X
K. Upon failure of one amplifier, system automatically transfers to back-up amplifier.			X
L. Circuits for emergency telephone call-in, including audible and visual indicators, operate.			X
M. Circuits for emergency telephone - two way voice communication operates.			X
N. Circuits for emergency telephone trouble operation, including visual indication, operates.			X
O. Emergency telephone operable (dial tone) or in use (busy tone) operate.			X

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Fire Alarm Annual Inspection
Device Listings

Chubb EDWARDS

BUILDING NAME: Winnipeg Transit - Fort Rouge Facility
BUILDING ADDRESS: 421 Osborne Street

INSPECTION DATE: November 13, 2014
INSPECTED BY: Andrew Fenstad

Location	Device		Address	Circuit Number	Sprinkler Waterflow Delay	Smoke Detector Sensitivity	Correctly Installed	Missing	Requires Service or Repairs	Active Operation Confirmed	Annunciation Confirmed	Ground Fault Confirmed	Supervision Confirmed	Decibel Level	Notes (See Summary Page)
BLDG A															
Sprinkler															
Io Bay East Iso Valve	TS	Z012	01M047				X			X	X				
Io Bay Center Iso Valve	TS	Z012	01M017				X			X	X				
LO BAY CENTER FLOW	FS	Z012	01M016		37		X			X	X				
LO BAY EAST FLOW	FS	Z012	01M015		34		X			X	X				
HI BAY EAST FLOW	FS	Z012	01M033		74		X			X	X				
DUST COL. GLYCOL SYS ISO VALVE	TS	Z020	01M054				X			X	X				
LO BAY WEST FLOW	FS	Z012	01M019		39		X			X	X				
LO BAY WEST ISO VLV	TS	Z012	01M020				X			X	X				
TRAFFIC SRVS/COMM VLV BLDG A	TS	Z012	01M024				X			X	X				
TRAFFIC SRVS/COMM FLOW BLDG A	FS	Z012	01M025		40		X			X	X				
DUST COL. GLYCOL SYS ISO VALVE	TS	Z020	01M055				X			X	X				
HI BAY CENTRE ISO VALVE	TS	Z012	1M036				X			X	X				
HI BAY EAST ISO VALVE	TS	Z012	01M032				X			X	X				
HI BAY WEST ISO VALVE	TS	Z012	1M039				X			X	X				
HI BAY CENTER FLOW	FS	Z012	1M035		49		X			X	X				
HI BAY WEST FLOW	FS	Z012	1M040		53		X			X	X				
HI BAY ISO VALVE	TS	Z012	01M043				X			X	X				
LOW W./TRFC SRCS VLV	TS	Z012	01M046				X			X	X				
BRANDON MAIN FLOW	FS	Z021	01M042		36		X			X	X				
BLDG B															

Location	Device		Address	Circuit Number	Sprinkler Waterflow Delay	Smoke Detector Sensitivity	Correctly Installed	Missing	Requires Service or Repairs	Active Operation Confirmed	Annunciation Confirmed	Ground Fault Confirmed	Supervision Confirmed	Decibel Level	Notes (See Summary Page)
OSBOURNE S. MAIN FLW	FS	Z013	02L01M039		21		X			X	X				
OSBOURNE N MAIN FLOW	FS	Z013	02L01M038		48		X			X	X				
BLDG B ISO VALVE	TS	Z012	02L01M048				X			X	X				
S.E. ISO VALVES BLDG B	TS	Z013	02L01M031				X			X	X				
TRACKS 25-36 S ISO VLV	TS	Z013	02L01M044				X			X	X				
TRACKS 13-24 S ISO VLV	TS	Z013	02L01M043				X			X	X				
TRACKS 25-36 N ISO VLV	TS	Z013	02L01M035				X			X	X				
TRACKS 13-24 N ISO VLV	TS	Z013	02L01M046				X			X	X				
OSBORNE N MAIN ISO VLV	TS	Z013	02L01M050				X			X	X				
SERVICE BAY ISO VALVE	TS	Z013	02L01M005				X			X	X				
TRACKS 1-12 N ISO VALVE	TS	Z013	02L01M008				X			X	X				
TRACKS 1-12 S ISO VALVE	TS	Z013	02L01M047				X			X	X				
N/E HYDRANT ISO VALVE	TS	Z013	02L01M036												TOO COLD TO TEST
EAST RISER ISO VLV	TS	Z013	02L01M045				X			X	X				
EAST/WEST ISO VLV	TS	Z013	02L01M049				X			X	X				
WEST RISER ISO VLV	TS	Z013	02L01M048				X			X	X				
TRACKS 1-12 S. FLOW	FS	Z013	02L01M004		121		X			X	X				
TRACKS 1-12 N. FLOW	FS	Z013	02L01M007		54		X			X	X				
SERVC BAY/B-SECT FLOW	FS	Z013	02L01M003		84		X			X	X				
TRACKS 13-24 NORTH FLOW	FS	Z013	02L01M034		76		X			X	X				
TRACKS 13-24 SOUTH FLOW	FS	Z013	02L01M029		93		X			X	X				
TRACKS 25-36 NORTH FLOW	FS	Z013	02L01M033		30		X			X	X				
TRACKS 25-36 SOUTH FLOW	FS	Z013	02L01M030		56		X			X	X				
OFFICE SECOND FLOOR															
TOP OF S/E STAIR	S	Z017	01D021				X			X	X				
S/E STAIR EXIT	M	Z003	01M002				X			X	X				
S.E OFFICE AREA	S	Z003	01D011				X			X	X				
S. CENTRE OFFICE AREA	S	Z003	01D009				X			X	X				
S.W OFFICE AREA	S	Z003	01D007				X			X	X				

Location	Device		Address	Circuit Number	Sprinkler Waterflow Delay	Smoke Detector Sensitivity	Correctly Installed	Missing	Requires Service or Repairs	Active Operation Confirmed	Annunciation Confirmed	Ground Fault Confirmed	Supervision Confirmed	Decibel Level	Notes (See Summary Page)
S.W STAIR EXIT	M	Z003	01M003				X			X	X				
N.W. OFFICE AREA	S	Z003	01D008				X			X	X				
N CENTER OFFICE AREA	S	Z003	01D010				X			X	X				
N.E. OFFICE AREA	S	Z003	01D012				X			X	X				
PHOTOCOPY ROOM SECOND FLOOR	RHT	Z003	01D027				X			X	X				
ELEVATOR SHAFT	S														D4
JANITOR CLOSET SECOND FLOOR	RHT	Z003	01D028				X			X	X				
OFFICE MAIN FLOOR															
MAIN ENTRANCE	M	Z002	01M001				X			X	X				
S.E. OFFICE AREA	S	Z002	01D001				X			X	X				
S CENTER OFFICE AREA	S	Z002	01D002				X			X	X				
S.W. OFFICE AREA	S	Z002	01D003				X			X	X				
WEST VESTEBULE EXIT	M	Z002	01M012				X			X	X				
N.W. OFFICE AREA	S	Z002	01D004				X			X	X				
N. CENTER OFFICE AREA	S	Z002	01D005				X			X	X				
N.E. OFFICE AREA	S	Z002	01D006				X			X	X				
EAST OFFICE AREA	S	Z002	01D035				X			X	X				
PHOTOCOPY ROOM MAIN FLR	RHT	Z002	01D025				X			X	X				
JANITOR CLOSET MAIN FLR	RHT	Z002	01D026				X			X	X				
OFFICE BASEMENT															
SOUTHEAST STAIR EXIT	M	Z001	01M004				X			X	X				
TIMEKEEPERS ROOM	S	Z001	01D013				X			X	X				
ADMIN TUNNEL	S	Z001	01D033				X			X	X				
ADMIN TUNNEL	S	Z001	01D015				X			X	X				
ADMIN TUNNEL	S	Z001	01D034				X			X	X				
TUNNEL NORTH EXIT	M	Z001	01M011				X			X	X				
CAFETERIA N.E EXIT	M	Z001	01M010				X			X	X				
CAFETERIA N.W. EXIT	M	Z001	01M009				X			X	X				
KITCHEN BACKROOM EXIT	M	Z001	01M008				X			X	X				

Location	Device		Address	Circuit Number	Sprinkler Waterflow Delay	Smoke Detector Sensitivity	Correctly Installed	Missing	Requires Service or Repairs	Active Operation Confirmed	Annunciation Confirmed	Ground Fault Confirmed	Supervision Confirmed	Decibel Level	Notes (See Summary Page)
SOUTHWEST STAIR EXIT	M	Z001	01M007				X			X	X				
DISPATCH	RHT	Z001	01D014				X			X	X				
SF2 MECHANICAL RM	RHT	Z001	01D022				X			X	X				
KITCHEN STORAGE	RHT	Z001	01D032				X			X	X				
KITCHEN FRONT AREA	RHT	Z001	01D019				X			X	X				
KITCHEN BACKROOM	RHT	Z001	01D018				X			X	X				
SF1 MECHANICAL ROOM	RHT	Z001	01D030				X			X	X				
ELEVATOR MACHINE ROOM	RHT	Z001	01D024				X			X	X				
TELE/COMPUTER ROOM	RHT	Z001	01D023				X			X	X				
SIGN UP ROOM EAST	RHT	Z001	01D016				X			X	X				
SIGN UP ROOM WEST	RHT	Z001	01D017				X			X	X				
SF-1 SUPPLY FAN DUCT SMOKE	DS	Z014	01D031				X			X	X				
TIMEKEEPER'S STORAGE ROOM	S	Z001	01D036				X			X	X				
CHIEF TIMEKEEPER'S OFFICE	S	Z001	01D037				X			X	X				
BUILDING A															
NORTH EXIT LOW BAY EAST	M	Z004	01M013				X			X	X				
STORES REVEIVING BAY LO BAY EAST	M	Z004	01M014				X			X	X				
NORTH STORES EXIT LO BAY CENTR	M	Z004	01M018				X			X	X				
EAST VESTIBULE EXIT	M	Z015	01M028				X			X	X				
WEST VESTIBULE EXIT	M	Z015	01M021				X			X	X				
CARPENTER SHOP EXIT LO BAY W	M	Z004	01M045				X			X	X				
WEST BLISTER EXIT HI BAY WEST	M	Z004	01M038				X			X	X				
S.W. BLISTER EXIT HI BAY W	M	Z004	01M037				X			X	X				
CHASS/DYNO WEST EXIT HI BAY CNT	M	Z004	01M041				X			X	X				
CHASS/DYNO EAST EXIT HI BAY CNT	M	Z004	01M034				X			X	X				
S.E. BLISTER HI BAY EAST	M	Z004	01M030				X			X	X				
EAST BLISTER HI BAY EAST	M	Z004	01M031				X			X	X				
COLUMN AT HOIST 4 HI BAY EAST	M	Z004	01M029				X			X	X				
EXIT TO NEW ADDITION SW	M	Z004	01M088				X			X	X				

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MAINTENANCE ADDITON WEST EXIT	M	Z004	01M080				X			X	X				
MAINTENANCE ADDITION EAST EXIT	M	Z004	01M087				X			X	X				
NORTHEAST EXIT LOW BAY EAST	M	Z004	01M006				X			X	X				
TRAFFIC SERVICES															
LOADING DOCK EXIT	M	Z006	01M027				X			X	X				
LOOPS AND STOPS EXIT	M	Z005	01M023				X			X	X				
SOUTH OFFICE EXIT	M	Z005	01M026				X			X	X				
SOUTH EXIT	M	Z006	01M022				X			X	X				
METER REPAIR ROOM	M	Z006	01M044				X			X	X				
BUILDING B															
S.W VESTIBULE EXIT	M	Z007	02L01M053				X			X	X				
SOUTHWEST EXIT	M	Z007	02L01M001				X			X	X				
WEST EXIT BY MECH RM	M	Z007	02L01M002				X			X	X				
W. EXIT BY MECH ROOM	M	Z007	02L01M052				X			X	X				
WEST CENTRE EXIT	M	Z007	02L01M006				X			X	X				
NORTH WEST EXIT	M	Z007	02L01M009				X			X	X				
NORTHWEST DOOR	M	Z008	02L01M013				X			X	X				
NORTH EXIT	M	Z008	02L01M051				X			X	X				
WEST CENTRE DOOR	M	Z008	02L01M012				X			X	X				
SOUTH EAST DOOR	M	Z008	02L01M014				X			X	X				
TRACK 1 SOUTH DOOR	M	Z009	02L01M015				X			X	X				
TRACK 1 S. CNTRE DOOR TRACKS 1-12	M	Z009	02L01M041				X			X	X				
TRACK 1 N. CNTR DOOR TRACKS 1-12	M	Z009	02L01M016				X			X	X				
TRACK 1 NORTH EXIT TRACKS 1-12	M	Z009	02L01M017				X			X	X				
TRACK 12 SOUTH DOOR TRACKS 1-12	M	Z009	02L01M018				X			X	X				
TRACK 13 SOUTH DOOR TRACKS 13-24	M	Z010	02L01M019				X			X	X				
TRACK 13 CENTRE DOOR TRACKS 13-24	M	Z010	02L01M20				X			X	X				
TRACK 13 NORTH EXIT	M	Z010	02L01M21						X						D3
TRACK 24 NORTH DOOR	M	Z010	02L01M026				X			X	X				

Location	Device		Address	Circuit Number	Sprinkler Waterflow Delay	Smoke Detector Sensitivity	Correctly Installed	Missing	Requires Service or Repairs	Active Operation Confirmed	Annunciation Confirmed	Ground Fault Confirmed	Supervision Confirmed	Decibel Level	Notes (See Summary Page)
TRACK 24 N.CENTRE DOOR	M	Z010	02L01M025				X			X	X				
TRACK 24 CENTRE DOOR	M	Z010	02L01M024				X			X	X				
TRACK 24 S.CNTR DOOR	M	Z010	02L01M023						X						D3
TRACK 24 SOUTH DOOR	M	Z010	02L01M022						X						D3
TRACK 25 SOUTH DOOR	M	Z011	02L01M040						X						D3
TRACK 25 NORTH EXIT	M	Z011	02L01M027				X			X	X				
TRACK 36 NORTH EXIT	M	Z011	02L01M037				X			X	X				
TRACK 36 SOUTH EXIT	M	Z011	02L0M028				X			X	X				
TRACK 36 CENTER N.E.	M	Z011	02L0M032					X							D2
TREASURY ROOM	M	Z007	02L0M010				X			X	X				
ELECTRICAL ROOM	RHT	Z007	02L0D003				X			X	X				
ELECTRICAL VAULT															D4
GAS UTILITY ROOM	RHT	Z007	02L01D007				X			X	X				
MECHANICAL ROOM	RHT	Z007	02L01D004				X			X	X				
TOP OF S/W STAIRS	S	Z019	02L01D005				X			X	X				
TUNNEL WEST END	S	Z007	02L01D001				X			X	X				
TUNNEL EAST END	S	Z007	02L01D002				X			X	X				
NORTHWEST SERVICE BAY	M	Z007	02L01M009				X			X	X				
HORNS/STROBES															
OFFICE HORNS 2ND FLR															
SECOND FLOOR EAST	H			2			X			X					
SECOND FLOOR WEST	H			2			X			X					
OFFICE HORNS MAIN FLOOR															
MAIN FLOOR EAST	H			2			X			X					
MAIN FLOOR WEST	H			2			X			X					
OFFICE BASEMENT HORNS															
OUTSIDE MENS WASHROOM	H			2			X			X					
KITCHEN FRONT AREA	H			2			X			X					
TRAINING ROOM	H			2			X			X					

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BOILER ROOM	H			2			X			X					
COMP/TELEPHONE ROOM	H			2			X			X					
CAFFETERIA EAST	H			2			X			X					
TUNNEL CENTER WEST WALL	H			2			X			X					
TRAFFIC SERVICES BLDG															
STORAGE AND HANDLING EAST	H			7			X		X	X					D6
METER DEPT	H			7			X		X	X					D6
SIGH STORES SOUTH WALL	H			7			X		X	X					D6
LOOPS AND ELECTRICAL CAGES W	H			7			X		X	X					D6
TECH SHOP	H			7			X		X	X					D6
GARAGE	H			7			X		X	X					D6
RADIO SHOP OFFICES	H			7			X		X	X					D6
RADIO SHOP OFFICES	EOL			7			X								
PAINT SHOP	H			5			X			X					
BUILDING A HORNS/STROBES															
HI BAY SOUTH WEST CORNER	H			4			X			X					
HI BAY SOUTH WEST CENTER	H			4			X			X					
HI BAY SOUTH EAST CENTER	H			4			X			X					
HI BAY SOUTH EAST CORNER	H			4			X			X					
CHASIS DYNO ROOM	V			V1			X			X					
HI BAY NORTH WEST CORNER	H			4			X			X					
HI BAY NORTH WEST CORNER	EOL			4			X								
HI BAY NORTH WEST CENTER	H			4			X			X					
HI BAY NORTH EAST CENTER	H			4			X			X					
HI BAY NORTH EAST CORNER	H			4			X			X					
PAINT SHOP MECH ROOM	H			4			X			X					
PAINT BOOTH 1	H			5			X			X					
PAINT BOOTH 2	H			5			X			X					
PAINT BOOTH 3	H			6			X			X					

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PAINT BOOTH 4	H			6			X			X					
OUTSIDE PAINT BOOTH 6	EOL			6			X								
PAINT SHOP	H			3			X			X					
PAINT SHOP	EOL			5			X								
PAINT SHOP	EOL			3			X								
CARPENTER SHOP SOUTH	H			3			X			X					
CARPENTER SHOP EAST	H			3			X			X					
LOCKER ROOM	H			7			X		X	X					D6
HALL TO TRAFFIC SERVICES	H			7			X		X	X					D6
LO BAY NORTH WEST	H			4			X			X					
LO BAY NORTH CENTER	H			4			X			X					
LO BAY NORTH EAST	H			4			X			X					
DIESEL FUEL SHOP	V			V1			X			X					
ELECTRICAL TESTING SHOP WEST	H			4			X			X					
ELECTRICAL TESTING SHOP EXIT	H			1			X			X					
NEAR ADMIN EXIT	H			1			X			X					
TIRE STORES NORTH	H			3			X			X					
PARTS STORE EAST	H			3			X			X					
PARTS STORE WEST	H			3			X			X					
BUILDING B HORN/STROBES															
2ND FLR STAIRWELL	H			2			X			X					
SERVICE BAY NORTH EAST	H			2			X			X					
SERVICE BAY SOUTH EAST	H			2			X			X					
SOUTH WEST MECH ROOM	H			2			X			X					
SOUTH WEST ELECTRICAL ROOM	EOL			2			X								
SOUTH WEST ELECTRICAL ROOM	H			2			X			X					
HALL OUTSIDE GAS UTILITY ROOM	H			2			X			X					
SERVICE BAY SOUTH	H			2			X			X					
B SECTION NORTH	H			2			X			X					

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B SECTION CENTER	H			2			X			X					
B SECTION SOUTH	H			2			X			X					
TRACKS 1-12 EAST WALL NORTH	H			3			X			X					
TRACKS 1-12 EAST WALL NORTH	EOL			3			X								
TRACKS 1-12 WEST WALL NORTH	H			2			X			X					
TRACKS 1-12 EAST WALL CNTR NRTH	H			3			X			X					
TRACKS 1-12 WEST WALL CENTER	H			2			X			X					
TRACKS 1-12 EAST WALL SOUTH CNT	H			3			X			X					
TRACKS 1-12 WEST WALL SOUTH	H			2			X			X					
TRACKS 1-12 EAST WALL SOUTH	H			3			X			X					
TRACKS 13-24 WEST WALL NORTH	H			1			X			X					
TRACKS 13-24 WEST WALL NTH CNT	H			1			X			X					
TRACKS 13-24 WEST WALL STH CNT	H			1			X			X					
TRACKS 13-24 WEST WALL SOUTH	H			1			X			X					
TRACKS 13-24 EAST WALL NORTH	H			1			X			X					
TRACKS 13-24 EAST WALL NTH CNTR	H			1			X			X					
TRACKS 13-24 EAST WALL STH CNTR	H			1			X			X					
TRACKS 13-24 EAST WALL SOUTH	H			1			X			X					
TRACKS 25-36 WEST WALL NORTH	H			1			X			X					
TRACKS 25-36 WEST WALL NTH CNR	H			1			X			X					
TRACKS 25-36 WEST WALL STH CNT	H			1			X			X					
TRACKS 25-36 WEST WALL SOUTH	H			1			X			X					
TRACKS 25-36 NORTH EAST CORNER	H			1			X			X					
TRACKS 25-26 NORTH EAST	H			1			X			X					
TRACKS 25-36 NORTH EAST	EOL			1											
TRACKS 25-36 CENTER	H			1			X			X					
TRACKS 25-36 SOUTH EAST	H			1			X			X					
TRACKS 25-36 SOUTH EAST CORNER	H			1			X			X					

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Emergency Lighting Annual Inspection Report

Chubb EDWARDS

BUILDING NAME: Winnipeg Transit - Fort Rouge Facility
BUILDING ADDRESS: 421 Osborne Street

INSPECTION DATE: November 13, 2014
INSPECTED BY: Andrew Fenstad

Unit Location	Model #	Loading (Amps)	Battery Size	# of Bulbs	Remote Lamp Locations	Exit Sign Locations	AC Power (Y/N)	Load Test (Mins)	Charger Functional (Y/N)	Pass	Fail	Notes
ADMIN OFFICE AREA												
#45 - BOTTOM OF EAST STAIR	LITHONIA M618 120CS CSA	3.2	6V7.2AH	2			Y	30	Y	PASS		
#46 - BSMT COMPUTER ROOM	RG36	2.7	6V7.2AH	2			Y	30	Y	PASS		
#47 - BSMT BOILER ROOM	RG36		6V7.2AH	2			Y	30	Y		FAIL	D1
#114 - BSMT TRAINING RM	RG36		6V7.2AH	2			Y	30	Y		FAIL	D1
#48 - BOTTOM OF WEST STAIR	LITHONIA M618 120CS CSA	2.7	6V7.2AH	2			Y	30	Y	PASS		
#049 - IN FRONT OF CANTEEN	LITHONIA M618 120CS CSA	2.7	6V7.2AH	2			Y	30	Y	PASS		
#50 - CAFE EXIT	RG36 W/EXIT SIGN	3.2	6V7.2AH	2		CAFÉ EXIT	Y	30	Y		FAIL	D1
#51 - DISPATCH OFFICE	EMERGILITE 6JML36R8	2.9	6V7.2AH	2			Y	30	Y	PASS		
#52 - TUNNEL TO STORAGE	LUMACELL RG36A	2.36	6V4.4AH	2			Y	30	Y	PASS		
#44 - MAIN FLR EAST STAIR	LUMACELL RG36A	2.36	6V4.4AH	2			Y	30	Y	PASS		
#115 - RECEPTION	LITHONIA M618 120CS CSA	3.2	6V7.2AH	2			Y	30	Y	PASS		
#42 - WEST STAIR MAIN FLR	LUMACELL RG36A	2.1	6V7AH	2			Y	30	Y	PASS		
#43 MISSING												N1
#128 MISSING												N1
#126 MISSING												N1
#119 - WEST STAIR 2ND FLR	LUMACELL RG36A	2.36	6V4.4AH	2			Y	30	Y	PASS		
#120 - EAST STAIR 2ND FLR	LUMACELL RG36A	2.36	6V4.4AH	2			Y	30	Y	PASS		
BUILDING B												
#106 - TRACK 36 SOUTH CORNER	M618	3	6V7AH	2			Y	30	Y	PASS		
#107 - TRACK 36 SOUTH	M618	3	6V7AH	2			Y	30	Y		FAIL	D1
#108 - TRACK 36 SOUTH	M618	3	6V7AH	2			Y	30	Y	PASS		
#109 - TRACK 36 SOUTH	M618	3	6V7AH	2			Y	30	Y	PASS		

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Emergency Lighting Annual Inspection Report

Chubb EDWARDS

BUILDING NAME: Winnipeg Transit - Fort Rouge Facility
BUILDING ADDRESS: 421 Osborne Street

INSPECTION DATE: November 13, 2014
INSPECTED BY: Andrew Fenstad

Unit Location	Model #	Loading (Amps)	Battery Size	# of Bulbs	Remote Lamp Locations	Exit Sign Locations	AC Power (Y/N)	Load Test (Mins)	Charger Functional (Y/N)	Pass	Fail	Notes
#110 - TRACK 36 NORTH	M618	3	6V7AH	2			Y	30	Y	PASS		
#111 - TRACK 36 NORTH	M618	3	6V7AH	2			Y	30	Y	PASS		
#112 - TRACK 36 NORTH	M618	3	6V7AH	2			Y	30	Y	Pass		
#113 - TRACK 36 NORTH CORNER	M618	3	6V7AH	2			Y	30	Y		Fail	D1
#105 - TRACK 25 NORTH CORNER	M618	3	6V7AH	2			Y	30	Y		Fail	D1
#104 - TRACK 25 NORTH	M618	3	6V7AH	2			Y	30	Y		Fail	
#103 - TRACK 25 NORTH	M618	3	6V7AH	2			Y	30	Y	Pass		
#102 - TRACK 25 NORTH CENTRE												NOT TESTED
#101 - TRACK 25 SOUTH CENTRE	M618	3	6V7AH	2			Y	30	Y		Fail	
#100 - TRACK 25 SOUTH	M618	3	6V7AH	2			Y	30	Y	Pass		
#99 - TRACK 25 SOUTH	M618	3	6V7AH	2			Y	30	Y		Fail	D1
#98 - TRACK 25 SOUTH CORNER												NOT TESTED
#97 - TRACK 24 NORTH CORNER	M618	3	6V7AH	2			Y	30	Y	Pass		
#96 - TRACK 24 NORTH	M618	3	6V7AH	2			Y	30	Y	Pass		
#95 - TRACK 24 NORTH CENTER	M618	3	6V7AH	2			Y	30	Y	Pass		
#94 - TRACK 24 CENTER	M618	3	6V7AH	2			Y	30	Y	Pass		
#93 - TRACK 24 SOUTH CENTER	M618	3	6V7AH	2			Y	30	Y	Pass		
#92 - TRACK 24 SOUTH	M618	3	6V7AH	2			Y	30	Y	Pass		
#91 - TRACK 24 SOUTH CORNER	M618	3	6V7AH	2			Y	30	Y	Pass		
#90 - TRACK 13 NORTH CORNER	M618	3	6V7AH	2			Y	30	Y		Fail	D1
#89 - TRACK 13 NORTH	M618	3	6V7AH	2			Y	30	Y	Pass		
#88 - TRACK 13 NORTH CENTER	M618	3	6V7AH	2			Y	30	Y	Pass		
#87 - TRACK 13 SOUTH CENTER	M618	3	6V7AH	2			Y	30	Y	Pass		

Chubb Edwards
82 Terracon Place
Winnipeg, MB
R2J 4G7
Ph: 204 633 5248

Emergency Lighting Annual Inspection Report

Chubb EDWARDS

BUILDING NAME: Winnipeg Transit - Fort Rouge Facility
BUILDING ADDRESS: 421 Osborne Street

INSPECTION DATE: November 13, 2014
INSPECTED BY: Andrew Fenstad

Unit Location	Model #	Loading (Amps)	Battery Size	# of Bulbs	Remote Lamp Locations	Exit Sign Locations	AC Power (Y/N)	Load Test (Mins)	Charger Functional (Y/N)	Pass	Fail	Notes
#63 - B SECTION SOUTH CORNER	M618	3	6V7AH	2			Y	30	Y		FAIL	D1
#62 - SERVICE BAY NORTH	M618	3	6V7AH	2			Y	30	Y	PASS		
#61 - SERVICE BAY NORTH CENTER	M618	3	6V7AH	2			Y	30	Y		FAIL	D1
#60 - SERVICE BAY CENTER	M618	3	6V7AH	2			Y	30	Y	PASS		
#59 - SERVICE BAY SOUTH CENTER	M618	3	6V7AH	2			Y	30	Y	PASS		
#58 - SERVICE BAY SOUTH	M618	3	6V7AH	2			Y	30	Y	PASS		
#57 - TREASURY												NOT TESTED
#56 - MECHANICAL ROOM												NOT TESTED
#55 - GAS UTILITY ROOM	M618	3	6V7AH	2			Y	30	Y		FAIL	D1
#54 - ELECTRICAL ROOM												NOT TESTED
#53 - TUNNEL												NOT TESTED
#127 - STAIRWELL NEAR ELECTRICAL ROOM												NOT TESTED
BUILDING A												
TRAFFIC SERVICES												
#20 - SIGN STORES												NOT TESTED
#21 - SIGN FAB												NOT TESTED
#22 - STORAGE AND HANDLING EAST												NOT TESTED
#23 - STORAGE AND HANDLING WEST												NOT TESTED
#24 - METER REPAIR												NOT TESTED
#25 - CLASSROOM												NOT TESTED
#017 - HALL TO TRAFFIC SERVICES	RG36	3	6V7.2AH	2			Y	30	Y		FAIL	D1
#116 - MENS WASHROOM BY TRAFFIC SERVICES	RG36	2.9	6V7.2AH	2			Y	30	Y	PASS		
#118 - HALL TO RADIO SHOP	RG36 W/EXIT SIGN	3.4	6V7.2AH	2		WITH UNIT	Y	30	Y		FAIL	D1

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Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: Nov 17 2015 Inspector: Bart Dlugosz Inspector SP/WFD #: 223/792
Property Name: Winnipeg Transit Fort Rouge
Tenant Name: Building "B"
Address: 421 Osborne Street
City: Winnipeg Province: MB Postal Code:
Contact: Alex Vecherya Phone :

General

Building	Building "B" Track 25-36 North
System Designation	Track 25-36 North
Location of sprinkler valve	North East Valve Room

Type of sprinkler system [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

	Yes	No	N/A
Is the building occupied?	X		
Is the system in service?	X		
The valve header room(s) appears to be adequately heated?	X		
The valve header room(s) have a low-temperature alarm?			X
Is it known that the system(s) is hydraulically calculated?		X	
If yes, is hydraulic information sign provided at valve(s)?			X
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	X		
Do all exterior openings appear to be protected from freezing?	X		
If a hand hose is part of the sprinkler system does it appear to be in good condition?	X		
Confirm that the building has not undergone any alterations/additions since the last inspection?	X		

Explain No Answers / Comments: System appears to be pipe schedule system.

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None

When was pump last inspected?

Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" Track 25-36 North**

Fire Department Connections (Section 13.7) **This section is Not Applicable:** [ ]

FDC Location: **S.E corner of building "B"**

Are identification signs provided and in place?	[ ]	Yes	[X]	No	[ ]	N/A
The connections are visible and accessible?	[X]	Yes	[ ]	No	[ ]	N/A
Couplings or swivels are not damaged and rotate smoothly?	[X]	Yes	[ ]	No	[ ]	N/A
Plugs or caps are in place and undamaged?	[X]	Yes	[ ]	No	[ ]	N/A
Gaskets are in place and in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
The check valve is not leaking?	[ ]	Yes	[ ]	No	[X]	N/A
The automatic drain valve is in place and appears to be working and in good condition?	[ ]	Yes	[ ]	No	[X]	N/A
The connection clapper(s) is in place and appears to be operating properly?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments: **Located on the street. There is a valve pit near FDC and was not inspected during this inspection. Fire department connection feeds building "B" eastside.**

General Condition, Inspected From Floor Level (Section 5.2) **This section is Not Applicable:** [ ]

Sprinkler heads appear to be in good condition? *(Not corroded, loaded, painted, damaged)*	[X]	Yes	[ ]	No	[ ]	N/A
Piping appears to be in good condition? *(Not damaged, leaking, corroded, bent)*	[X]	Yes	[ ]	No	[ ]	N/A
Hangers or Braces appear to be in good condition? *(Not damaged, loose, rusted, missing)*	[X]	Yes	[ ]	No	[ ]	N/A
Devices, valves and gauges appear to be in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
Is stock of spare sprinklers available along with appropriate sprinkler wrench(s)?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments:

Sprinkler Testing (Section 5.3) **This section is Not Applicable:** [ ]

All sprinklers installed have been manufactured after 1920?	[X]	Yes	[ ]	No	[ ]	N/A
Standard response sprinklers are less than fity (50) years old?	[X]	Yes	[ ]	No	[ ]	N/A
Fast response sprinklers are less than twenty (20) years old?	[ ]	Yes	[ ]	No	[X]	N/A
Extra high (325 °F or higher) sprinklers have been tested at five (5) year intervals?	[ ]	Yes	[ ]	No	[X]	N/A
Dry sprinklers are less than ten (10) years old?	[ ]	Yes	[ ]	No	[X]	N/A

(Sprinklers that do not meet the above criteria are required to be replaced or representative samples from one or more sample areas shall be tested. Test procedures shall be repeated at various intervals as stated in NFPA 25)

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 25-36 North

Gauges (Section 5.3.2) This section is Not Applicable: [ ]

Gauges shall be replaced every five (5) years or tested every five (5) years by comparison with a calibrated gauge.
Gauges not accurate to within three (3) percent of the full scale shall be recalibrated or replaced.

Gauges are less than five (5) years old?	[ ] Yes	[X] No	[ ] N/A
Gauges have been compared against a calibrated gauge and are within three (3) percent?	[ ] Yes	[ ] No	[X] N/A
Gauges have been replaced during this annual inspection?	[ ] Yes	[X] No	[ ] N/A

Explain No Answers / Comments: **Gauges dated 2009 (x2) Should be replaced.**

Main Drain Test (Section 13.2.5) This section is Not Applicable: [ ]

(All readings should be from the supply pressure lower gauge)

	This Year	Last
Static PSI Before	70	
Residual PSI	65	
Static PSI After	70	
Size of the Main Drain?	2"	

Record the static water supply pressure with no flow.
Open the main drain and allow water flow to stabilize. Record the pressure.
Close the main drain slowly. Record the pressure after gauge has stabilized.
What date was the last main drain test done? 2014

Explain No Answers / Comments: **Drain does not handle test.**

Wet System (Section 13.4) This section is Not Applicable: [ ]

The gauges indicate normal water pressure is being maintained?	[X] Yes	[ ] No	[ ] N/A
Does alarm valve appear to be free of physical damage?	[X] Yes	[ ] No	[ ] N/A
All trim valves are in the appropriate open or closed position?	[X] Yes	[ ] No	[ ] N/A
The alarm drains are not leaking?	[X] Yes	[ ] No	[ ] N/A
Wet system is equipped with a tail-end anti-freeze system(s)?	[ ] Yes	[X] No	[ ] N/A
Anti-freeze solution reading is at what freezing point?			
Anti-freeze solution freezing point appears to be satisfactory?	[ ] Yes	[ ] No	[X] N/A

Explain No Answers / Comments:

Wet System Test Table for Wet Alarm Valve This section is Not Applicable: [ ]

Size	Make	Model	Serial #	Location of Inspectors Test
6"	Reliable	E	7851	North OHD 26

(Ensure alarm company is notified to avoid false alarms.)
Test alarm valve water flow alarm switch by opening inspector's test valve.

Static PSI	Alarm Time	Residual PSI
120 psi	34 sec	70 psi

Wet System Low-Water-Pressure Switch

Is the wet system equipped with a low-water-pressure switch? [ ] Yes [X] No [ ] N/A

If Yes, open drain test valve to reduce water pressure slowly. Confirm operation of low pressure switch, record water pressure at which low pressure switch activated. Close drain test and pump system up to normal pressure and restore to service. Record pressure. PSI

Explain No Answers / Comments: **System Does not have a Low Pressure switch. One should be installed.**

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Date: Nov 17 2015 Location: Building "B" Track 25-36 North

Wet System Inspection (Section 13.4.1.2) This section is Not Applicable: ☐

Alarm valves and their associated strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☒ No ☐ N/A

If Yes, what year was the inspection completed? Unknown

If No, was the internal inspection done during this annual inspection? ☐ Yes ☒ No ☐ N/A

Explain No Answers / Comments: Unknown when last wet system inspection was and should be done.

Wet System Vane Type Flow Alarms This section is Not Applicable: ☒

Test water-flow alarm by opening inspector's test and record time that alarm registers.

Flow Switch Zone Designation	Location of Inspectors Test	Static PSI	Alarm Time	Residual PSI
Osborne North Main Incomng	At header / Various		32s	

Dry Pipe System (Section 13.4.4) This section is Not Applicable: ☒

Does valve appear to be free of physical damage? ☐ Yes ☐ No ☐ N/A

All trim valves are in the appropriate open or closed position? ☐ Yes ☐ No ☐ N/A

The intermediate chamber is not leaking? ☐ Yes ☐ No ☐ N/A

A tag or card with the last trip date and who conducted the test is attached to the valve? ☐ Yes ☐ No ☐ N/A

Size	Make	Model	Serial #	Location of Inspectors Test

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 25-36 North

Dry System Low-Air-Pressure Switch

Is the dry system equipped with a low-air-pressure switch? [ ] Yes [ ] No [X] N/A

If Yes, close the water supply valve isolate quick opening device if one is present and carefully open drain test valve to reduce air pressure slowly. *(Do not reduce air pressure sufficiently to trip the dry pipe valve.)* Confirm operation of low pressure switch, record air pressure at which low pressure switch activated. Close drain test valve, allow air pressure to rise to normal, then slowly open quick opening device and water supply valve. Record pressure. [ ] PSI

Explain No Answers / Comments: _____

Dry Pipe System Trip Test Table **This section is Not Applicable:** [X]

Every three (3) years and whenever the system is altered, the dry pipe valve shall be trip tested with the control valve fully open and the quick-opening device, if provided in service. During the years when full flow testing is not required, the dry pipe valve shall be trip tested with the control valve partially open.

Has the dry pipe valve been tripped with the control valve fully open in the last two (2) years. If yes, what year was the fully open trip test conducted? _____ [ ] Yes [ ] No [ ] N/A

If No, is the fully open trip test being conducted during this annual inspection? [ ] Yes [ ] No [ ] N/A

Normal air pressure as per the Manufacturers recommendation [ ] PSI

Trip test the dry pipe valve. Record the time from opening the inspectors test valve until the dry pipe valve trips.

Water PSI	Air PSI	Time to Trip	Trip Point Air PSI	Time Water To Inspectors Test

Did the valve and alarm operate properly? [ ] Yes [ ] No [ ] N/A

Dry pipe valve interior appears clean and satisfactory? [ ] Yes [ ] No [ ] N/A

Quick-opening device operated properly? [ ] Yes [ ] No [ ] N/A

Is a sign provided at the dry pipe valve indicating the number of auxiliary drains and location of each auxiliary drain? [ ] No [ ] N/A

Were all identified auxiliary drains drained during this inspection? [ ] Yes [ ] No [ ] N/A

Air supply appears to be adequate? [ ] Yes [ ] No [ ] N/A

Automatic air pressure maintenance device appears to operate properly? [ ] Yes [ ] No [ ] N/A

Was the dry pipe valve filled with priming water after it was trip tested and reset? [ ] Yes [ ] No [ ] N/A

Explain No Answers / Comments: _____

Dry Pipe System Inspection (Section 13.4.4.1.6) **This section is Not Applicable:** [X]

Dry pipe valve strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? [ ] Yes [ ] No [ ] N/A

If Yes, what year was the inspection completed? _____

If No, was the internal inspection done during this annual inspection? [ ] Yes [ ] No [ ] N/A

Explain No Answers / Comments: _____

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 25-36 North

Preaction / Deluge System This section is Not Applicable: [X]

Does valve appear to be free of physical damage?	[ ] Yes	[ ] No	[ ] N/A
All trim valves are in the appropriate open or closed position?	[ ] Yes	[ ] No	[ ] N/A
The valve seat is not leaking?	[ ] Yes	[ ] No	[ ] N/A
The electrical components are in service?	[ ] Yes	[ ] No	[ ] N/A

Size	Make	Model	Serial #	Strike Through What Does Not Apply			
				Deluge	Preaction	Closed Nozzles	Open Nozzles

Supervised Preaction Low-Air-Pressure Alarm

Is the preaction system equipped with a low-air-pressure alarm? [ ] Yes [ ] No [ ] N/A

If Yes, close the water supply valve and carefully open drain test valve to reduce air pressure slowly. Confirm operation of low pressure alarm, record air pressure of low pressure alarm activation. Close drain test valve, allow air pressure to rise to normal, then open water supply valve. [ ] PSI

Preaction / Deluge System Trip Test Table (13.4.3.2.2.2) This section is Not Applicable: [X]

The preaction / deluge valve shall be trip tested annually as per the manufacturer's instructions. Where the nature is such that water discharge cannot occur unless protected equipment is shutdown, a full flow test shall be conducted at the next scheduled shutdown. In all cases the test frequency shall not exceed 3 years. Preaction or deluge valves protecting freezers shall be trip tested in a manner that does not introduce moisture into the piping in the freezer. [ ] PSI

Water PSI	Air PSI	Trip Point Air PSI	Number of detectors required to trip Preaction system	Brief description of valve operation

Did the valve and alarm operate properly?	[ ] Yes	[ ] No	[ ] N/A
Were all manual actuation devices operated?	[ ] Yes	[ ] No	[ ] N/A
For deluge systems did the water discharge pattern appear to be satisfactory?	[ ] Yes	[ ] No	[ ] N/A
Air supply appears to be adequate?	[ ] Yes	[ ] No	[ ] N/A
Automatic air pressure maintenance device appears to operate properly?	[ ] Yes	[ ] No	[ ] N/A
Was the preaction valve filled with priming water after it was trip tested and reset?	[ ] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: _____

Preaction / Deluge System Maintenance (Section 13.4.3.1.7.1) This section is Not Applicable: [X]

Interior cleaning and parts replacement or repair shall be permitted every five (5) years for valves that can be reset without removal of the faceplate. If the valve cannot be reset externally the cleaning, replacement or repair shall be completed annually.

The valve requires internal resetting, thus the inspection is done during this inspection?	[ ] Yes	[ ] No	[ ] N/A
The valve can be reset externally thus has the inspection been done within the last four (4) years? If Yes, what year was the inspection completed? _____	[ ] Yes	[ ] No	[ ] N/A
If No, was the internal inspection done during this annual inspection?	[ ] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: _____

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 25-36 North

Control Valves

Are all control valves identified?		Yes	X	No		N/A
Are all control valves locked, sealed or equipped with a supervisory switch?	X	Yes		No		N/A
Are all control valves in the normal open or closed postion?	X	Yes		No		N/A
Are all control valves free from external leaks?	X	Yes		No		N/A
During this inspection was each control valve operated through its full range?	X	Yes		No		N/A
If applicable post indicator valves were opened until spring tension was felt?		Yes		No	X	N/A
If applicable post indicator & OS&Y valves were backed 1/4 turn from fully open position?	X	Yes		No		N/A

Control Valve Table

Control Valve Function	# of Valves	Size	Type of Valve	Open				Secured				Signs			
System control valve	1	6"	G.O.B	X	Y		N	X	Y		N	X	Y		N
Main Incoming North	1	8"	G.O.B	X	Y		N	X	Y		N		Y	X	N
Hydrant Iso	1	6"	G.O.B	X	Y		N	X	Y		N		Y	X	N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N

Backflow Prevention Assemblies (Section 13.6)

This section is Not Applicable: X

All backflow preventers installed in fire protection system piping shall be tested annually in accordance with the following:

(1) A forward flow test shall be conducted at the system demand, including hose stream demand, where hydrants or inside hose stations are located downstream of the backflow preventer.

(2) A backflow performance test, as required by the authority having jurisdiction, shall be conducted at the completion of the forward flow test.

For backflow preventers sized 2" and under a forward flow test is acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.

Where connections do not permit a full flow test, test shall be completed at the maximum flow rate possible.

Connections do exist to permit a full forward flow test?		Yes		No		N/A
A forward flow test was conducted at the system demand, including hose stream?		Yes		No		N/A
The forward flow test results met the system demand, including hose stream?		Yes		No		N/A
If no connections are available was a flow test conducted at maximum flow rate possible?		Yes		No		N/A
Was there a way of measuring the maximum flow rate?		Yes		No		N/A
What flow rate was measured during the maximum flow rate?						
Was the backflow preventer tested with a separate report to check for no backflow?				No		N/A

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 25-36 North

Obstruction Investigation (Section 14.2.1)

An inspection of piping and branch line conditions shall be conducted every five (5) years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Has visual obstruction investigation of piping been conducted within the last four (4) years?	[ ] Yes	[X] No	[ ] N/A
If Yes, what year was the investigation completed? Unknown			
If No, was the visual obstruction investigation conducted during this annual inspection?	[ ] Yes	[ ] No	[X] N/A
This visual obstruction investigation results appears that piping is not obstructed?	[ ] Yes	[ ] No	[X] N/A
Based on this years results a further flushing investigation or procedure is recommended?	[ ] Yes	[ ] No	[X] N/A

Explain No Answers / Comments: **Unknown when last Obstruction invesitgation was done and should be done .**

Deficiencies (As per NFPA 25 - 2008)

The system has the following deficiencies that should be reviewed with the authority having jurisdiction to determine if corrections should be made.

D1. **Obstruction investigation of piping should be done every 5 years.**
D2 **Internal Inspection of alarm valve and components should be done every 5 years.**
D3 **Gauges are older then 5 years and should be replaced.**
D4 **All system control valves should be identified and "keep open" signs should be installed.**
D5 **Fire department connection should have a identification sign.**
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23

(Use back of page if further room is needed)

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" Track 25-36 North**

Recommendations

We recommend the following based on this annual inspection and test. These recommendations are not deficiencies and are provided for information only. Corrections of these recommendations are dependent on the owner or authority having jurisdiction.

R1.
R2. **Low pressure switch should be installed to prevent false alarms.**
R3. **Drains should be cleaned out to better handle drain test.**
R4.
R5.
R6.
R7.
R8.
R9.

(Use back of page if further room is needed)

General Notes

Record any pertinent information here with respect to the building *(monitoring company, special codes, keys access, confined space, etc.)*

System monitored by Protelec 204-949-1415.

Unable to confirm a lot of the Deficiencies previously written up due to low lighting.

Important Note:

This is an operational test inspection. It does not include a review or analysis of the system design to determine whether or not the system meets current code or standards. BDR Services Ltd. is not responsible for any equipment failure, and any subsequent damage or loss consequential or direct. BDR Services Ltd. is merely verifying operation and condition of equipment at actual time of testing. Owner is responsible for system installation, maintenance and confirmation that system installation requirements are met any time there are alterations, additions, renovations and change of occupancy.

Inspector: **Bart Dlugosz** Inspection Date: **Nov 17 2015**

Licence SP/WFD #: **223/792** Owner Representative:

Signature: Signature:

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Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: **Nov 17 2015** Inspector: **Bart Dlugosz** Inspector SP/WFD #: **223/792**

Property Name: **Winnipeg Transit Fort Rouge**

Tenant Name: **Building "B"**

Address: **421 Osborne Street**

City: **Winnipeg** Province: **MB** Postal Code:

Contact: **Alex Vecherya** Phone :

General

Building	**Building "B" Service Bay**
System Designation	**Service Bay**
Location of sprinkler valve	**South West corner of building in Maintenance Bay**

Type of sprinkler system [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

Is the building occupied?	[X] Yes	[ ] No	[ ] N/A
Is the system in service?	[X] Yes	[ ] No	[ ] N/A
The valve header room(s) appears to be adequately heated?	[X] Yes	[ ] No	[ ] N/A
The valve header room(s) have a low-temperature alarm?	[ ] Yes	[ ] No	[X] N/A
Is it known that the system(s) is hydraulically calculated?	[ ] Yes	[X] No	[ ] N/A
If yes, is hydraulic information sign provided at valve(s)?	[ ] Yes	[ ] No	[X] N/A
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	[X] Yes	[ ] No	[ ] N/A
Do all exterior openings appear to be protected from freezing?	[X] Yes	[ ] No	[ ] N/A
If a hand hose is part of the sprinkler system does it appear to be in good condition?	[X] Yes	[ ] No	[ ] N/A
Confirm that the building has not undergone any alterations/additions since the last inspection?	[X] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: **System appears to be pipe schedule system.**

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None

When was pump last inspected?

Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" Service Bay**

Fire Department Connections (Section 13.7) **This section is Not Applicable:** [ ]

FDC Location: **Across the street of 520 Brandon street**

Are identification signs provided and in place?	[ ]	Yes	[X]	No	[ ]	N/A
The connections are visible and accessible?	[X]	Yes	[ ]	No	[ ]	N/A
Couplings or swivels are not damaged and rotate smoothly?	[X]	Yes	[ ]	No	[ ]	N/A
Plugs or caps are in place and undamaged?	[ ]	Yes	[X]	No	[ ]	N/A
Gaskets are in place and in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
The check valve is not leaking?	[ ]	Yes	[ ]	No	[X]	N/A
The automatic drain valve is in place and appears to be working and in good condition?	[ ]	Yes	[ ]	No	[X]	N/A
The connection clapper(s) is in place and appears to be operating properly?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments: **Located on the street. There is a valve pit near FDC and was not inspected during this inspection. Fire department connection feeds building "A" and westside of building "B". FDC is missing ONE 2.5" cap.**

General Condition, Inspected From Floor Level (Section 5.2) **This section is Not Applicable:** [ ]

Sprinkler heads appear to be in good condition? *(Not corroded, loaded, painted, damaged)*	[X]	Yes	[ ]	No	[ ]	N/A
Piping appears to be in good condition? *(Not damaged, leaking, corroded, bent)*	[X]	Yes	[ ]	No	[ ]	N/A
Hangers or Braces appear to be in good condition? *(Not damaged, loose, rusted, missing)*	[X]	Yes	[ ]	No	[ ]	N/A
Devices, valves and gauges appear to be in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
Is stock of spare sprinklers available along with appropriate sprinkler wrench(s)?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments:

Sprinkler Testing (Section 5.3) **This section is Not Applicable:** [ ]

All sprinklers installed have been manufactured after 1920?	[X]	Yes	[ ]	No	[ ]	N/A
Standard response sprinklers are less than fity (50) years old?	[X]	Yes	[ ]	No	[ ]	N/A
Fast response sprinklers are less than twenty (20) years old?	[ ]	Yes	[ ]	No	[X]	N/A
Extra high (325 °F or higher) sprinklers have been tested at five (5) year intervals?	[ ]	Yes	[ ]	No	[X]	N/A
Dry sprinklers are less than ten (10) years old?	[ ]	Yes	[ ]	No	[X]	N/A

(Sprinklers that do not meet the above criteria are required to be replaced or representative samples from one or more sample areas shall be tested. Test procedures shall be repeated at various intervals as stated in NFPA 25)

Explain No Answers / Comments:

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" Service Bay**

Gauges (Section 5.3.2) **This section is Not Applicable:** [ ]

Gauges shall be replaced every five (5) years or tested every five (5) years by comparison with a calibrated gauge.
Gauges not accurate to within three (3) percent of the full scale shall be recalibrated or replaced.

Gauges are less than five (5) years old?	[ ]	Yes	[X]	No	[ ]	N/A
Gauges have been compared against a calibrated gauge and are within three (3) percent?	[ ]	Yes	[ ]	No	[X]	N/A
Gauges have been replaced during this annual inspection?	[ ]	Yes	[X]	No	[ ]	N/A

Explain No Answers / Comments: **Gauges dated 2009 (x2) Should be replaced.**

Main Drain Test (Section 13.2.5) **This section is Not Applicable:** [ ]

(All readings should be from the supply pressure lower gauge)
Record the static water supply pressure with no flow.
Open the main drain and allow water flow to stabilize. Record the pressure.
Close the main drain slowly. Record the pressure after gauge has stabilized.

	This Year	Last
Static PSI Before	70	
Residual PSI	69	
Static PSI After	70	
Size of the Main Drain?	2"	

What date was the last main drain test done? **2014**

Explain No Answers / Comments: **Drain does not handle test.**

Wet System (Section 13.4) **This section is Not Applicable:** [ ]

The gauges indicate normal water pressure is being maintained?	[X]	Yes	[ ]	No	[ ]	N/A
Does alarm valve appear to be free of physical damage?	[X]	Yes	[ ]	No	[ ]	N/A
All trim valves are in the appropriate open or closed position?	[X]	Yes	[ ]	No	[ ]	N/A
The alarm drains are not leaking?	[X]	Yes	[ ]	No	[ ]	N/A
Wet system is equipped with a tail-end anti-freeze system(s)?	[X]	Yes	[ ]	No	[ ]	N/A
Anti-freeze solution reading is at what freezing point? **-27 C**						
Anti-freeze solution freezing point appears to be satisfactory?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments:

Wet System Test Table for Wet Alarm Valve **This section is Not Applicable:** [ ]

Size	Make	Model	Serial #	Location of Inspectors Test
8"	Grinnell	A	N/A	N.E corner of service bay

(Ensure alarm company is notified to avoid false alarms.)
Test alarm valve water flow alarm switch by opening inspector's test valve.

Static PSI	Alarm Time	Residual PSI
120 psi	36 sec	70 psi

Wet System Low-Water-Pressure Switch

Is the wet system equipped with a low-water-pressure switch? [ ] Yes [X] No [ ] N/A

If Yes, open drain test valve to reduce water pressure slowly. Confirm operation of low pressure switch, record water pressure at which low pressure switch activated. Close drain test and pump system up to normal pressure and restore to service. Record pressure. [ ] PSI

Explain No Answers / Comments: **System Does not have a Low Pressure switch. One should be installed.**

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" Service Bay**

Wet System Inspection (Section 13.4.1.2) **This section is Not Applicable:** [ ]

Alarm valves and their associated strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years?	[ ] Yes	[X] No	[ ] N/A
If Yes, what year was the inspection completed? **Unknown**			
If No, was the internal inspection done during this annual inspection?	[ ] Yes	[X] No	[ ] N/A

Explain No Answers / Comments: **Unknown when last wet system inspection was and should be done.**

Wet System Vane Type Flow Alarms **This section is Not Applicable:** [X]

Test water-flow alarm by opening inspector's test and record time that alarm registers.

Flow Switch Zone Designation	Location of Inspectors Test	Static PSI	Alarm Time	Residual PSI

Dry Pipe System (Section 13.4.4) **This section is Not Applicable:** [X]

Does valve appear to be free of physical damage?	[ ] Yes	[ ] No	[ ] N/A
All trim valves are in the appropriate open or closed position?	[ ] Yes	[ ] No	[ ] N/A
The intermediate chamber is not leaking?	[ ] Yes	[ ] No	[ ] N/A
A tag or card with the last trip date and who conducted the test is attached to the valve?	[ ] Yes	[ ] No	[ ] N/A

Size	Make	Model	Serial #	Location of Inspectors Test

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Service Bay

Dry System Low-Air-Pressure Switch

Is the dry system equipped with a low-air-pressure switch? ☐ Yes ☐ No ☒ N/A

If Yes, close the water supply valve isolate quick opening device if one is present and carefully open drain test valve to reduce air pressure slowly. *(Do not reduce air pressure sufficiently to trip the dry pipe valve.)* Confirm operation of low pressure switch, record air pressure at which low pressure switch activated. Close drain test valve, allow air pressure to rise to normal, then slowly open quick opening device and water supply valve. Record pressure. ☐ PSI.

Explain No Answers / Comments: _____

Dry Pipe System Trip Test Table **This section is Not Applicable:** ☒

Every three (3) years and whenever the system is altered, the dry pipe valve shall be trip tested with the control valve fully open and the quick-opening device, if provided in service. During the years when full flow testing is not required, the dry pipe valve shall be trip tested with the control valve partially open.

Has the dry pipe valve been tripped with the control valve fully open in the last two (2) years. If yes, what year was the fully open trip test conducted? _____ ☐ Yes ☐ No ☐ N/A

If No, is the fully open trip test being conducted during this annual inspection? ☐ Yes ☐ No ☐ N/A

Normal air pressure as per the Manufacturers recommendation ☐ PSI

Trip test the dry pipe valve. Record the time from opening the inspectors test valve until the dry pipe valve trips.

Water PSI	Air PSI	Time to Trip	Trip Point Air PSI	Time Water To Inspectors Test

Did the valve and alarm operate properly? ☐ Yes ☐ No ☐ N/A

Dry pipe valve interior appears clean and satisfactory? ☐ Yes ☐ No ☐ N/A

Quick-opening device operated properly? ☐ Yes ☐ No ☐ N/A

Is a sign provided at the dry pipe valve indicating the number of auxiliary drains and location of each auxiliary drain? ☐ No ☐ N/A

Were all identified auxiliary drains drained during this inspection? ☐ Yes ☐ No ☐ N/A

Air supply appears to be adequate? ☐ Yes ☐ No ☐ N/A

Automatic air pressure maintenance device appears to operate properly? ☐ Yes ☐ No ☐ N/A

Was the dry pipe valve filled with priming water after it was trip tested and reset? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

Dry Pipe System Inspection (Section 13.4.4.1.6) **This section is Not Applicable:** ☒

Dry pipe valve strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☐ No ☐ N/A

If Yes, what year was the inspection completed? _____

If No, was the internal inspection done during this annual inspection? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Service Bay

Preaction / Deluge System This section is Not Applicable: X

Does valve appear to be free of physical damage?	Yes	No	N/A
All trim valves are in the appropriate open or closed position?	Yes	No	N/A
The valve seat is not leaking?	Yes	No	N/A
The electrical components are in service?	Yes	No	N/A

Size	Make	Model	Serial #	Strike Through What Does Not Apply			
				Deluge	Preaction	Closed Nozzles	Open Nozzles

Supervised Preaction Low-Air-Pressure Alarm

Is the preaction system equipped with a low-air-pressure alarm? Yes No N/A

If Yes, close the water supply valve and carefully open drain test valve to reduce air pressure slowly. Confirm operation of low pressure alarm, record air pressure of low pressure alarm activation. Close drain test valve, allow air pressure to rise to normal, then open water supply valve. PSI

Preaction / Deluge System Trip Test Table (13.4.3.2.2.2) This section is Not Applicable: X

The preaction / deluge valve shall be trip tested annually as per the manufacturer's instructions. Where the nature is such that water discharge cannot occur unless protected equipment is shutdown, a full flow test shall be conducted at the next scheduled shutdown. In all cases the test frequency shall not exceed 3 years. Preaction or deluge valves protecting freezers shall be trip tested in a manner that does not introduce moisture into the piping in the freezer. PSI

Water PSI	Air PSI	Trip Point Air PSI	Number of detectors required to trip Preaction system	Brief description of valve operation

Did the valve and alarm operate properly?	Yes	No	N/A
Were all manual actuation devices operated?	Yes	No	N/A
For deluge systems did the water discharge pattern appear to be satisfactory?	Yes	No	N/A
Air supply appears to be adequate?	Yes	No	N/A
Automatic air pressure maintenance device appears to operate properly?	Yes	No	N/A
Was the preaction valve filled with priming water after it was trip tested and reset?	Yes	No	N/A

Explain No Answers / Comments:

Preaction / Deluge System Maintenance (Section 13.4.3.1.7.1) This section is Not Applicable: X

Interior cleaning and parts replacement or repair shall be permitted every five (5) years for valves that can be reset without removal of the faceplate. If the valve cannot be reset externally the cleaning, replacement or repair shall be completed annually.

The valve requires internal resetting, thus the inspection is done during this inspection?	Yes	No	N/A
The valve can be reset externally thus has the inspection been done within the last four (4) years? If Yes, what year was the inspection completed?	Yes	No	N/A
If No, was the internal inspection done during this annual inspection?	Yes	No	N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Service Bay

Control Valves

Are all control valves identified?		Yes	X	No		N/A
Are all control valves locked, sealed or equipped with a supervisory switch?		Yes	X	No		N/A
Are all control valves in the normal open or closed postion?	X	Yes		No		N/A
Are all control valves free from external leaks?	X	Yes		No		N/A
During this inspection was each control valve operated through its full range?	X	Yes		No		N/A
If applicable post indicator valves were opened until spring tension was felt?		Yes		No	X	N/A
If applicable post indicator & OS&Y valves were backed 1/4 turn from fully open position?	X	Yes		No		N/A

Control Valve Table

Control Valve Function	# of Valves	Size	Type of Valve	Open				Secured				Signs			
System control valve	1	8"	OS+Y	X	Y		N	X	Y		N	X	Y		N
Glycol System ISO	2	2"	Ball Valve	X	Y		N		Y	X	N		Y	X	N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N

Backflow Prevention Assemblies (Section 13.6) **This section is Not Applicable:** ☐

All backflow preventers installed in fire protection system piping shall be tested annually in accordance with the following:

(1) A forward flow test shall be conducted at the system demand, including hose stream demand, where hydrants or inside hose stations are located downstream of the backflow preventer.

(2) A backflow performance test, as required by the authority having jurisdiction, shall be conducted at the completion of the forward flow test.

For backflow preventers sized 2" and under a forward flow test is acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.

Where connections do not permit a full flow test, test shall be completed at the maximum flow rate possible.

Connections do exist to permit a full forward flow test?		Yes	X	No		N/A
A forward flow test was conducted at the system demand, including hose stream?		Yes	X	No		N/A
The forward flow test results met the system demand, including hose stream?		Yes		No	X	N/A
If no connections are available was a flow test conducted at maximum flow rate possible?		Yes	X	No		N/A
Was there a way of measuring the maximum flow rate?		Yes		No	X	N/A
What flow rate was measured during the maximum flow rate?						
Was the backflow preventer tested with a separate report to check for no backflow?	X			No		N/A

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Service Bay

Obstruction Investigation (Section 14.2.1)

An inspection of piping and branch line conditions shall be conducted every five (5) years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Has visual obstruction investigation of piping been conducted within the last four (4) years?	☐ Yes	☒ No	☐ N/A
If Yes, what year was the investigation completed?	Unknown		
If No, was the visual obstruction investigation conducted during this annual inspection?	☐ Yes	☐ No	☒ N/A
This visual obstruction investigation results appears that piping is not obstructed?	☐ Yes	☐ No	☒ N/A
Based on this years results a further flushing investigation or procedure is recommended?	☐ Yes	☐ No	☒ N/A

Explain No Answers / Comments: **Unknown when last Obstruction invesitgation was done and should be done .**

Deficiencies (As per NFPA 25 - 2008)

The system has the following deficiencies that should be reviewed with the authority having jurisdiction to determine if corrections should be made.

D1. **Obstruction investigation of piping should be done every 5 years.**
D2 **Internal Inspection of alarm valve and components should be done every 5 years.**
D3 **Gauges are older then 5 years and should be replaced.**
D4 **All system control valves should be identified and "keep open" signs should be installed.**
D5 **Fire department connection should have a identification sign.**
D6 **Fire department connection is missing one 2.5" cap and should be replaced.**
D7 **All valves should be equiped with supervisory tamper switch to monitor valve in open position.**
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23

(Use back of page if further room is needed)

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" Service Bay**

Recommendations

We recommend the following based on this annual inspection and test. These recommendations are not deficiencies and are provided for information only. Corrections of these recommendations are dependent on the owner or authority having jurisdiction.

R1.
R2. **Low pressure switch should be installed to prevent false alarms.**
R3. **Drains should be cleaned out to better handle drain test.**
R4.
R5.
R6.
R7.
R8.
R9.

(Use back of page if further room is needed)

General Notes

Record any pertinent information here with respect to the building *(monitoring company, special codes, keys access, confined space, etc.)*

System monitored by Protelec 204-949-1415.

Important Note:

This is an operational test inspection. It does not include a review or analysis of the system design to determine whether or not the system meets current code or standards. BDR Services Ltd. is not responsible for any equipment failure, and any subsequent damage or loss consequential or direct. BDR Services Ltd. is merely verifying operation and condition of equipment at actual time of testing. Owner is responsible for system installation, maintenance and confirmation that system installation requirements are met any time there are alterations, additions, renovations and change of occupancy.

Inspector: **Bart Dlugosz** Inspection Date: **Nov 17 2015**

Licence SP/WFD #: **223/792** Owner Representative:

Signature: Signature:

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Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: Nov 17 2015 Inspector: Bart Dlugosz Inspector SP/WFD #: 223/792
Property Name: Winnipeg Transit Fort Rouge
Tenant Name: Building "B"
Address: 421 Osborne Street
City: Winnipeg Province: MB Postal Code:
Contact: Alex Vecherya Phone :

General

Building	Building "B" Track 13-24 South
System Designation	Track 13-24 south
Location of sprinkler valve	South East Valve Room

Type of sprinkler system [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

	Yes	No	N/A
Is the building occupied?	X		
Is the system in service?	X		
The valve header room(s) appears to be adequately heated?	X		
The valve header room(s) have a low-temperature alarm?			X
Is it known that the system(s) is hydraulically calculated?		X	
If yes, is hydraulic information sign provided at valve(s)?			X
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	X		
Do all exterior openings appear to be protected from freezing?	X		
If a hand hose is part of the sprinkler system does it appear to be in good condition?	X		
Confirm that the building has not undergone any alterations/additions since the last inspection?	X		

Explain No Answers / Comments: System appears to be pipe schedule system.

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None

When was pump last inspected?

Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 13-24 South

Fire Department Connections (Section 13.7) This section is Not Applicable: [ ]

FDC Location: S.E corner of building "B"

Are identification signs provided and in place?	[ ] Yes	[X] No	[ ] N/A
The connections are visible and accessible?	[X] Yes	[ ] No	[ ] N/A
Couplings or swivels are not damaged and rotate smoothly?	[X] Yes	[ ] No	[ ] N/A
Plugs or caps are in place and undamaged?	[X] Yes	[ ] No	[ ] N/A
Gaskets are in place and in good condition?	[X] Yes	[ ] No	[ ] N/A
The check valve is not leaking?	[ ] Yes	[ ] No	[X] N/A
The automatic drain valve is in place and appears to be working and in good condition?	[ ] Yes	[ ] No	[X] N/A
The connection clapper(s) is in place and appears to be operating properly?	[X] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: **Located on the street. There is a valve pit near FDC and was not inspected during this inspection. Fire department connection feeds building "B" eastside.**

General Condition, Inspected From Floor Level (Section 5.2) This section is Not Applicable: [ ]

Sprinkler heads appear to be in good condition? *(Not corroded, loaded, painted, damaged)*	[X] Yes	[ ] No	[ ] N/A
Piping appears to be in good condition? *(Not damaged, leaking, corroded, bent)*	[X] Yes	[ ] No	[ ] N/A
Hangers or Braces appear to be in good condition? *(Not damaged, loose, rusted, missing)*	[X] Yes	[ ] No	[ ] N/A
Devices, valves and gauges appear to be in good condition?	[X] Yes	[ ] No	[ ] N/A
Is stock of spare sprinklers available along with appropriate sprinkler wrench(s)?	[X] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments:

Sprinkler Testing (Section 5.3) This section is Not Applicable: [ ]

All sprinklers installed have been manufactured after 1920?	[X] Yes	[ ] No	[ ] N/A
Standard response sprinklers are less than fity (50) years old?	[X] Yes	[ ] No	[ ] N/A
Fast response sprinklers are less than twenty (20) years old?	[ ] Yes	[ ] No	[X] N/A
Extra high (325 °F or higher) sprinklers have been tested at five (5) year intervals?	[ ] Yes	[ ] No	[X] N/A
Dry sprinklers are less than ten (10) years old?	[ ] Yes	[ ] No	[X] N/A

(Sprinklers that do not meet the above criteria are required to be replaced or representative samples from one or more sample areas shall be tested. Test procedures shall be repeated at various intervals as stated in NFPA 25)

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 13-24 South

Gauges (Section 5.3.2) This section is Not Applicable: [ ]

Gauges shall be replaced every five (5) years or tested every five (5) years by comparison with a calibrated gauge.
Gauges not accurate to within three (3) percent of the full scale shall be recalibrated or replaced.

Gauges are less than five (5) years old?	[ ]	Yes	[X]	No	[ ]	N/A
Gauges have been compared against a calibrated gauge and are within three (3) percent?	[ ]	Yes	[ ]	No	[X]	N/A
Gauges have been replaced during this annual inspection?	[ ]	Yes	[X]	No	[ ]	N/A

Explain No Answers / Comments: **Gauges dated 2009 (x2) Should be replaced.**

Main Drain Test (Section 13.2.5) This section is Not Applicable: [ ]

(All readings should be from the supply pressure lower gauge)

	This Year	Last
Static PSI Before	70	
Residual PSI	69	
Static PSI After	70	

Record the static water supply pressure with no flow.
Open the main drain and allow water flow to stabilize. Record the pressure.
Close the main drain slowly. Record the pressure after gauge has stabilized.

What date was the last main drain test done? 2014 Size of the Main Drain? 2"

Explain No Answers / Comments: **Drain does not handle test. Should be cleaned.**

Wet System (Section 13.4) This section is Not Applicable: [ ]

The gauges indicate normal water pressure is being maintained?	[X]	Yes	[ ]	No	[ ]	N/A
Does alarm valve appear to be free of physical damage?	[X]	Yes	[ ]	No	[ ]	N/A
All trim valves are in the appropriate open or closed position?	[X]	Yes	[ ]	No	[ ]	N/A
The alarm drains are not leaking?	[X]	Yes	[ ]	No	[ ]	N/A
Wet system is equipped with a tail-end anti-freeze system(s)?	[ ]	Yes	[X]	No	[ ]	N/A
Anti-freeze solution reading is at what freezing point?						
Anti-freeze solution freezing point appears to be satisfactory?	[ ]	Yes	[ ]	No	[X]	N/A

Explain No Answers / Comments:

Wet System Test Table for Wet Alarm Valve This section is Not Applicable: [ ]

Size	Make	Model	Serial #	Location of Inspectors Test
8"	Grinnell	A	N/A	Center South wall Track 13-24

(Ensure alarm company is notified to avoid false alarms.)
Test alarm valve water flow alarm switch by opening inspector's test valve.

Static PSI	Alarm Time	Residual PSI
120 psi	1m14s	70 psi

Wet System Low-Water-Pressure Switch

Is the wet system equipped with a low-water-pressure switch? [ ] Yes [X] No [ ] N/A

If Yes, open drain test valve to reduce water pressure slowly. Confirm operation of low pressure switch, record water pressure at which low pressure switch activated. Close drain test and pump system up to normal pressure and restore to service. Record pressure. [ ] PSI

Explain No Answers / Comments: **System Does not have a Low Pressure switch. One should be installed.**

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 13-24 South

Wet System Inspection (Section 13.4.1.2) This section is Not Applicable: ☐

Alarm valves and their associated strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☒ No ☐ N/A

If Yes, what year was the inspection completed? Unknown

If No, was the internal inspection done during this annual inspection? ☐ Yes ☒ No ☐ N/A

Explain No Answers / Comments: Unknown when last wet system inspection was and should be done.

Wet System Vane Type Flow Alarms This section is Not Applicable: ☒

Test water-flow alarm by opening inspector's test and record time that alarm registers.

Flow Switch Zone Designation	Location of Inspectors Test	Static PSI	Alarm Time	Residual PSI

Dry Pipe System (Section 13.4.4) This section is Not Applicable: ☒

Does valve appear to be free of physical damage? ☐ Yes ☐ No ☐ N/A

All trim valves are in the appropriate open or closed position? ☐ Yes ☐ No ☐ N/A

The intermediate chamber is not leaking? ☐ Yes ☐ No ☐ N/A

A tag or card with the last trip date and who conducted the test is attached to the valve? ☐ Yes ☐ No ☐ N/A

Size	Make	Model	Serial #	Location of Inspectors Test

Explain No Answers / Comments:

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Dry System Low-Air-Pressure Switch

Is the dry system equipped with a low-air-pressure switch? ☐ Yes ☐ No ☒ N/A

If Yes, close the water supply valve isolate quick opening device if one is present and carefully open drain test valve to reduce air pressure slowly. *(Do not reduce air pressure sufficiently to trip the dry pipe valve.)* Confirm operation of low pressure switch, record air pressure at which low pressure switch activated. Close drain test valve, allow air pressure to rise to normal, then slowly open quick opening device and water supply valve. Record pressure. ☐ PSI

Explain No Answers / Comments: _____

Dry Pipe System Trip Test Table **This section is Not Applicable:** ☒

Every three (3) years and whenever the system is altered, the dry pipe valve shall be trip tested with the control valve fully open and the quick-opening device, if provided in service. During the years when full flow testing is not required, the dry pipe valve shall be trip tested with the control valve partially open.

Has the dry pipe valve been tripped with the control valve fully open in the last two (2) years. If yes, what year was the fully open trip test conducted? _____ ☐ Yes ☐ No ☐ N/A

If No, is the fully open trip test being conducted during this annual inspection? ☐ Yes ☐ No ☐ N/A

Normal air pressure as per the Manufacturers recommendation ☐ PSI

Trip test the dry pipe valve. Record the time from opening the inspectors test valve until the dry pipe valve trips.

Water PSI	Air PSI	Time to Trip	Trip Point Air PSI	Time Water To Inspectors Test

Did the valve and alarm operate properly? ☐ Yes ☐ No ☐ N/A

Dry pipe valve interior appears clean and satisfactory? ☐ Yes ☐ No ☐ N/A

Quick-opening device operated properly? ☐ Yes ☐ No ☐ N/A

Is a sign provided at the dry pipe valve indicating the number of auxiliary drains and location of each auxiliary drain? ☐ No ☐ N/A

Were all identified auxiliary drains drained during this inspection? ☐ Yes ☐ No ☐ N/A

Air supply appears to be adequate? ☐ Yes ☐ No ☐ N/A

Automatic air pressure maintenance device appears to operate properly? ☐ Yes ☐ No ☐ N/A

Was the dry pipe valve filled with priming water after it was trip tested and reset? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

Dry Pipe System Inspection (Section 13.4.4.1.6) **This section is Not Applicable:** ☒

Dry pipe valve strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☐ No ☐ N/A

If Yes, what year was the inspection completed? _____

If No, was the internal inspection done during this annual inspection? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 13-24 South

Preaction / Deluge System This section is Not Applicable: X

Does valve appear to be free of physical damage?	Yes	No	N/A
All trim valves are in the appropriate open or closed position?	Yes	No	N/A
The valve seat is not leaking?	Yes	No	N/A
The electrical components are in service?	Yes	No	N/A

Size	Make	Model	Serial #	Strike Through What Does Not Apply			
				Deluge	Preaction	Closed Nozzles	Open Nozzles

Supervised Preaction Low-Air-Pressure Alarm

Is the preaction system equipped with a low-air-pressure alarm? Yes No N/A

If Yes, close the water supply valve and carefully open drain test valve to reduce air pressure slowly. Confirm operation of low pressure alarm, record air pressure of low pressure alarm activation. Close drain test valve, allow air pressure to rise to normal, then open water supply valve. PSI

Preaction / Deluge System Trip Test Table (13.4.3.2.2.2) This section is Not Applicable: X

The preaction / deluge valve shall be trip tested annually as per the manufacturer's instructions. Where the nature is such that water discharge cannot occur unless protected equipment is shutdown, a full flow test shall be conducted at the next scheduled shutdown. In all cases the test frequency shall not exceed 3 years. Preaction or deluge valves protecting freezers shall be trip tested in a manner that does not introduce moisture into the piping in the freezer. PSI

Water PSI	Air PSI	Trip Point Air PSI	Number of detectors required to trip Preaction system	Brief description of valve operation

Did the valve and alarm operate properly?	Yes	No	N/A
Were all manual actuation devices operated?	Yes	No	N/A
For deluge systems did the water discharge pattern appear to be satisfactory?	Yes	No	N/A
Air supply appears to be adequate?	Yes	No	N/A
Automatic air pressure maintenance device appears to operate properly?	Yes	No	N/A
Was the preaction valve filled with priming water after it was trip tested and reset?	Yes	No	N/A

Explain No Answers / Comments:

Preaction / Deluge System Maintenance (Section 13.4.3.1.7.1) This section is Not Applicable: X

Interior cleaning and parts replacement or repair shall be permitted every five (5) years for valves that can be reset without removal of the faceplate. If the valve cannot be reset externally the cleaning, replacement or repair shall be completed annually.

The valve requires internal resetting, thus the inspection is done during this inspection?	Yes	No	N/A
The valve can be reset externally thus has the inspection been done within the last four (4) years? If Yes, what year was the inspection completed?	Yes	No	N/A
If No, was the internal inspection done during this annual inspection?	Yes	No	N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 13-24 South

Control Valves

Are all control valves identified?	Yes	X No	N/A
Are all control valves locked, sealed or equipped with a supervisory switch?	X Yes	No	N/A
Are all control valves in the normal open or closed postion?	X Yes	No	N/A
Are all control valves free from external leaks?	X Yes	No	N/A
During this inspection was each control valve operated through its full range?	X Yes	No	N/A
If applicable post indicator valves were opened until spring tension was felt?	Yes	No	X N/A
If applicable post indicator & OS&Y valves were backed 1/4 turn from fully open position?	X Yes	No	N/A

Control Valve Table

Control Valve Function	# of Valves	Size	Type of Valve	Open				Secured				Signs			
System control valve	1	8"	OS+Y	X	Y		N	X	Y		N	X	Y		N
Main Incoming	1	8"	G.O.B	X	Y		N	X	Y		N	X	Y		N
South Valve room Iso	1	8"	G.O.B	X	Y		N	X	Y		N		Y	X	N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N

Backflow Prevention Assemblies (Section 13.6)

This section is Not Applicable: X

All backflow preventers installed in fire protection system piping shall be tested annually in accordance with the following:

(1) A forward flow test shall be conducted at the system demand, including hose stream demand, where hydrants or inside hose stations are located downstream of the backflow preventer.

(2) A backflow performance test, as required by the authority having jurisdiction, shall be conducted at the completion of the forward flow test.

For backflow preventers sized 2" and under a forward flow test is acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.

Where connections do not permit a full flow test, test shall be completed at the maximum flow rate possible.

Connections do exist to permit a full forward flow test?	Yes	No	N/A
A forward flow test was conducted at the system demand, including hose stream?	Yes	No	N/A
The forward flow test results met the system demand, including hose stream?	Yes	No	N/A
If no connections are available was a flow test conducted at maximum flow rate possible?	Yes	No	N/A
Was there a way of measuring the maximum flow rate?	Yes	No	N/A
What flow rate was measured during the maximum flow rate?			
Was the backflow preventer tested with a separate report to check for no backflow?		No	N/A

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Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" Track 13-24 South**

Obstruction Investigation (Section 14.2.1)

An inspection of piping and branch line conditions shall be conducted every five (5) years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Has visual obstruction investigation of piping been conducted within the last four (4) years?	[ ] Yes	[X] No	[ ] N/A
If Yes, what year was the investigation completed? **Unknown**			
If No, was the visual obstruction investigation conducted during this annual inspection?	[ ] Yes	[ ] No	[X] N/A
This visual obstruction investigation results appears that piping is not obstructed?	[ ] Yes	[ ] No	[X] N/A
Based on this years results a further flushing investigation or procedure is recommended?	[ ] Yes	[ ] No	[X] N/A

Explain No Answers / Comments: **Unknown when last Obstruction invesitgation was done and should be done .**

Deficiencies (As per NFPA 25 - 2008)

The system has the following deficiencies that should be reviewed with the authority having jurisdiction to determine if corrections should be made.

D1. **Obstruction investigation of piping should be done every 5 years.**
D2 **Internal Inspection of alarm valve and components should be done every 5 years.**
D3 **Gauges are older then 5 years and should be replaced.**
D4 **All system control valves should be identified and "keep open" signs should be installed.**
D5 **Fire department connection should have a identification sign.**
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23

(Use back of page if further room is needed)

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" Track 13-24 South**

Recommendations

We recommend the following based on this annual inspection and test. These recommendations are not deficiencies and are provided for information only. Corrections of these recommendations are dependent on the owner or authority having jurisdiction.

R1.
R2. **Low pressure switch should be installed to prevent false alarms.**
R3. **Drains should be cleaned out to better handle drain test.**
R4.
R5.
R6.
R7.
R8.
R9.

(Use back of page if further room is needed)

General Notes

Record any pertinent information here with respect to the building *(monitoring company, special codes, keys access, confined space, etc.)*

System monitored by Protelec 204-949-1415.

Important Note:

This is an operational test inspection. It does not include a review or analysis of the system design to determine whether or not the system meets current code or standards. BDR Services Ltd. is not responsible for any equipment failure, and any subsequent damage or loss consequential or direct. BDR Services Ltd. is merely verifying operation and condition of equipment at actual time of testing. Owner is responsible for system installation, maintenance and confirmation that system installation requirements are met any time there are alterations, additions, renovations and change of occupancy.

Inspector: **Bart Dlugosz** Inspection Date: **Nov 17 2015**

Licence SP/WFD #: **223/792** Owner Representative:

Signature: Signature:

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Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: Nov 17 2015 Inspector: Bart Dlugosz Inspector SP/WFD #: 223/792
Property Name: Winnipeg Transit Fort Rouge
Tenant Name: Building "B"
Address: 421 Osborne Street
City: Winnipeg Province: MB Postal Code:
Contact: Alex Vecherya Phone :

General

Building	Building "B" Track 25-36 South
System Designation	Track 25-36 South
Location of sprinkler valve	South East Valve Room

Type of sprinkler system [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

	Yes	No	N/A
Is the building occupied?	X		
Is the system in service?	X		
The valve header room(s) appears to be adequately heated?	X		
The valve header room(s) have a low-temperature alarm?			X
Is it known that the system(s) is hydraulically calculated?		X	
If yes, is hydraulic information sign provided at valve(s)?			X
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	X		
Do all exterior openings appear to be protected from freezing?	X		
If a hand hose is part of the sprinkler system does it appear to be in good condition?	X		
Confirm that the building has not undergone any alterations/additions since the last inspection?	X		

Explain No Answers / Comments: System appears to be pipe schedule system.

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None
When was pump last inspected?
Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A
Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 25-36 South

Fire Department Connections (Section 13.7) This section is Not Applicable: [ ]

FDC Location: S.E corner of building "B"

	Yes	No	N/A
Are identification signs provided and in place?	[ ]	[X]	[ ]
The connections are visible and accessible?	[X]	[ ]	[ ]
Couplings or swivels are not damaged and rotate smoothly?	[X]	[ ]	[ ]
Plugs or caps are in place and undamaged?	[X]	[ ]	[ ]
Gaskets are in place and in good condition?	[X]	[ ]	[ ]
The check valve is not leaking?	[ ]	[ ]	[X]
The automatic drain valve is in place and appears to be working and in good condition?	[ ]	[ ]	[X]
The connection clapper(s) is in place and appears to be operating properly?	[X]	[ ]	[ ]

Explain No Answers / Comments: **Located on the street. There is a valve pit near FDC and was not inspected during this inspection. Fire department connection feeds building "B" eastside.**

General Condition, Inspected From Floor Level (Section 5.2) This section is Not Applicable: [ ]

	Yes	No	N/A
Sprinkler heads appear to be in good condition? *(Not corroded, loaded, painted, damaged)*	[X]	[ ]	[ ]
Piping appears to be in good condition? *(Not damaged, leaking, corroded, bent)*	[X]	[ ]	[ ]
Hangers or Braces appear to be in good condition? *(Not damaged, loose, rusted, missing)*	[X]	[ ]	[ ]
Devices, valves and gauges appear to be in good condition?	[X]	[ ]	[ ]
Is stock of spare sprinklers available along with appropriate sprinkler wrench(s)?	[X]	[ ]	[ ]

Explain No Answers / Comments:

Sprinkler Testing (Section 5.3) This section is Not Applicable: [ ]

	Yes	No	N/A
All sprinklers installed have been manufactured after 1920?	[X]	[ ]	[ ]
Standard response sprinklers are less than fity (50) years old?	[X]	[ ]	[ ]
Fast response sprinklers are less than twenty (20) years old?	[ ]	[ ]	[X]
Extra high (325 °F or higher) sprinklers have been tested at five (5) year intervals?	[ ]	[ ]	[X]
Dry sprinklers are less than ten (10) years old?	[ ]	[ ]	[X]

(Sprinklers that do not meet the above criteria are required to be replaced or representative samples from one or more sample areas shall be tested. Test procedures shall be repeated at various intervals as stated in NFPA 25)

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 25-36 South

Gauges (Section 5.3.2) This section is Not Applicable: [ ]

Gauges shall be replaced every five (5) years or tested every five (5) years by comparison with a calibrated gauge.
Gauges not accurate to within three (3) percent of the full scale shall be recalibrated or replaced.

Gauges are less than five (5) years old?	[ ]	Yes	[X]	No	[ ]	N/A
Gauges have been compared against a calibrated gauge and are within three (3) percent?	[ ]	Yes	[ ]	No	[X]	N/A
Gauges have been replaced during this annual inspection?	[ ]	Yes	[X]	No	[ ]	N/A

Explain No Answers / Comments: **Gauges dated 2009 (x2) Should be replaced.**

Main Drain Test (Section 13.2.5) This section is Not Applicable: [ ]

(All readings should be from the supply pressure lower gauge)

	This Year	Last
Static PSI Before	70	
Residual PSI	65	
Static PSI After	70	

Record the static water supply pressure with no flow.
Open the main drain and allow water flow to stabilize. Record the pressure.
Close the main drain slowly. Record the pressure after gauge has stabilized.
What date was the last main drain test done? 2014 Size of the Main Drain? 2"
Explain No Answers / Comments: **Drain does not handle test.**

Wet System (Section 13.4) This section is Not Applicable: [ ]

The gauges indicate normal water pressure is being maintained?	[X]	Yes	[ ]	No	[ ]	N/A
Does alarm valve appear to be free of physical damage?	[X]	Yes	[ ]	No	[ ]	N/A
All trim valves are in the appropriate open or closed position?	[X]	Yes	[ ]	No	[ ]	N/A
The alarm drains are not leaking?	[X]	Yes	[ ]	No	[ ]	N/A
Wet system is equipped with a tail-end anti-freeze system(s)?	[ ]	Yes	[X]	No	[ ]	N/A
Anti-freeze solution reading is at what freezing point?	[ ]					
Anti-freeze solution freezing point appears to be satisfactory?	[ ]	Yes	[ ]	No	[X]	N/A

Explain No Answers / Comments: **There is no tail end anti freeze on system.**

Wet System Test Table for Wet Alarm Valve This section is Not Applicable: [ ]

Size	Make	Model	Serial #	Location of Inspectors Test
6"	Grinnell	A	N/A	North OHD 25

(Ensure alarm company is notified to avoid false alarms.)
Test alarm valve water flow alarm switch by opening inspector's test valve.

Static PSI	Alarm Time	Residual PSI
125 psi	34 sec	70 psi

Wet System Low-Water-Pressure Switch

Is the wet system equipped with a low-water-pressure switch? [ ] Yes [X] No [ ] N/A
If Yes, open drain test valve to reduce water pressure slowly. Confirm operation of low pressure switch, record water pressure at which low pressure switch activated. Close drain test and pump system up to normal pressure and restore to service. Record pressure. [ ] PSI
Explain No Answers / Comments: **System Does not have a Low Pressure switch. One should be installed.**

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 25-36 South

Wet System Inspection (Section 13.4.1.2) This section is Not Applicable: ☐

Alarm valves and their associated strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☒ No ☐ N/A

If Yes, what year was the inspection completed? Unknown

If No, was the internal inspection done during this annual inspection? ☐ Yes ☒ No ☐ N/A

Explain No Answers / Comments: Unknown when last wet system inspection was and should be done.

Wet System Vane Type Flow Alarms This section is Not Applicable: ☒

Test water-flow alarm by opening inspector's test and record time that alarm registers.

Flow Switch Zone Designation	Location of Inspectors Test	Static PSI	Alarm Time	Residual PSI

Dry Pipe System (Section 13.4.4) This section is Not Applicable: ☒

Does valve appear to be free of physical damage? ☐ Yes ☐ No ☐ N/A

All trim valves are in the appropriate open or closed position? ☐ Yes ☐ No ☐ N/A

The intermediate chamber is not leaking? ☐ Yes ☐ No ☐ N/A

A tag or card with the last trip date and who conducted the test is attached to the valve? ☐ Yes ☐ No ☐ N/A

Size	Make	Model	Serial #	Location of Inspectors Test

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 25-36 South

Dry System Low-Air-Pressure Switch

Is the dry system equipped with a low-air-pressure switch? ☐ Yes ☐ No ☒ N/A

If Yes, close the water supply valve isolate quick opening device if one is present and carefully open drain test valve to reduce air pressure slowly. *(Do not reduce air pressure sufficiently to trip the dry pipe valve.)* Confirm operation of low pressure switch, record air pressure at which low pressure switch activated. Close drain test valve, allow air pressure to rise to normal, then slowly open quick opening device and water supply valve. Record pressure. ☐ PSI

Explain No Answers / Comments: _____

Dry Pipe System Trip Test Table **This section is Not Applicable:** ☒

Every three (3) years and whenever the system is altered, the dry pipe valve shall be trip tested with the control valve fully open and the quick-opening device, if provided in service. During the years when full flow testing is not required, the dry pipe valve shall be trip tested with the control valve partially open.

Has the dry pipe valve been tripped with the control valve fully open in the last two (2) years. If yes, what year was the fully open trip test conducted? _____ ☐ Yes ☐ No ☐ N/A

If No, is the fully open trip test being conducted during this annual inspection? ☐ Yes ☐ No ☐ N/A

Normal air pressure as per the Manufacturers recommendation ☐ PSI

Trip test the dry pipe valve. Record the time from opening the inspectors test valve until the dry pipe valve trips.

Water PSI	Air PSI	Time to Trip	Trip Point Air PSI	Time Water To Inspectors Test

Did the valve and alarm operate properly? ☐ Yes ☐ No ☐ N/A

Dry pipe valve interior appears clean and satisfactory? ☐ Yes ☐ No ☐ N/A

Quick-opening device operated properly? ☐ Yes ☐ No ☐ N/A

Is a sign provided at the dry pipe valve indicating the number of auxiliary drains and location of each auxiliary drain? ☐ No ☐ N/A

Were all identified auxiliary drains drained during this inspection? ☐ Yes ☐ No ☐ N/A

Air supply appears to be adequate? ☐ Yes ☐ No ☐ N/A

Automatic air pressure maintenance device appears to operate properly? ☐ Yes ☐ No ☐ N/A

Was the dry pipe valve filled with priming water after it was trip tested and reset? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

Dry Pipe System Inspection (Section 13.4.4.1.6) **This section is Not Applicable:** ☒

Dry pipe valve strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☐ No ☐ N/A

If Yes, what year was the inspection completed? _____

If No, was the internal inspection done during this annual inspection? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 25-36 South

Preaction / Deluge System This section is Not Applicable: [X]

Does valve appear to be free of physical damage?	[ ] Yes	[ ] No	[ ] N/A
All trim valves are in the appropriate open or closed position?	[ ] Yes	[ ] No	[ ] N/A
The valve seat is not leaking?	[ ] Yes	[ ] No	[ ] N/A
The electrical components are in service?	[ ] Yes	[ ] No	[ ] N/A

Size	Make	Model	Serial #	Strike Through What Does Not Apply			
				Deluge	Preaction	Closed Nozzles	Open Nozzles

Supervised Preaction Low-Air-Pressure Alarm

Is the preaction system equipped with a low-air-pressure alarm? [ ] Yes [ ] No [ ] N/A

If Yes, close the water supply valve and carefully open drain test valve to reduce air pressure slowly. Confirm operation of low pressure alarm, record air pressure of low pressure alarm activation. Close drain test valve, allow air pressure to rise to normal, then open water supply valve. [ ] PSI

Preaction / Deluge System Trip Test Table (13.4.3.2.2.2) This section is Not Applicable: [X]

The preaction / deluge valve shall be trip tested annually as per the manufacturer's instructions. Where the nature is such that water discharge cannot occur unless protected equipment is shutdown, a full flow test shall be conducted at the next scheduled shutdown. In all cases the test frequency shall not exceed 3 years. Preaction or deluge valves protecting freezers shall be trip tested in a manner that does not introduce moisture into the piping in the freezer. [ ] PSI

Water PSI	Air PSI	Trip Point Air PSI	Number of detectors required to trip Preaction system	Brief description of valve operation

Did the valve and alarm operate properly?	[ ] Yes	[ ] No	[ ] N/A
Were all manual actuation devices operated?	[ ] Yes	[ ] No	[ ] N/A
For deluge systems did the water discharge pattern appear to be satisfactory?	[ ] Yes	[ ] No	[ ] N/A
Air supply appears to be adequate?	[ ] Yes	[ ] No	[ ] N/A
Automatic air pressure maintenance device appears to operate properly?	[ ] Yes	[ ] No	[ ] N/A
Was the preaction valve filled with priming water after it was trip tested and reset?	[ ] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: _____

Preaction / Deluge System Maintenance (Section 13.4.3.1.7.1) This section is Not Applicable: [X]

Interior cleaning and parts replacement or repair shall be permitted every five (5) years for valves that can be reset without removal of the faceplate. If the valve cannot be reset externally the cleaning, replacement or repair shall be completed annually.

The valve requires internal resetting, thus the inspection is done during this inspection?	[ ] Yes	[ ] No	[ ] N/A
The valve can be reset externally thus has the inspection been done within the last four (4) years? If Yes, what year was the inspection completed? _____	[ ] Yes	[ ] No	[ ] N/A
If No, was the internal inspection done during this annual inspection?	[ ] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: _____

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 25-36 South

Control Valves

Are all control valves identified?		Yes	X	No		N/A
Are all control valves locked, sealed or equipped with a supervisory switch?	X	Yes		No		N/A
Are all control valves in the normal open or closed postion?	X	Yes		No		N/A
Are all control valves free from external leaks?	X	Yes		No		N/A
During this inspection was each control valve operated through its full range?	X	Yes		No		N/A
If applicable post indicator valves were opened until spring tension was felt?		Yes		No	X	N/A
If applicable post indicator & OS&Y valves were backed 1/4 turn from fully open position?	X	Yes		No		N/A

Control Valve Table

Control Valve Function	# of Valves	Size	Type of Valve	Open				Secured				Signs			
System control valve	1	6"	G.O.B	X	Y		N	X	Y		N	X	Y		N
Main Incoming	1	8"	G.O.B	X	Y		N	X	Y		N	X	Y		N
South Valve room Iso	1	8"	G.O.B	X	Y		N	X	Y		N		Y	X	N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N

Backflow Prevention Assemblies (Section 13.6) **This section is Not Applicable:** X

All backflow preventers installed in fire protection system piping shall be tested annually in accordance with the following:

(1) A forward flow test shall be conducted at the system demand, including hose stream demand, where hydrants or inside hose stations are located downstream of the backflow preventer.

(2) A backflow performance test, as required by the authority having jurisdiction, shall be conducted at the completion of the forward flow test.

For backflow preventers sized 2" and under a forward flow test is acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.

Where connections do not permit a full flow test, test shall be completed at the maximum flow rate possible.

Connections do exist to permit a full forward flow test?		Yes		No		N/A
A forward flow test was conducted at the system demand, including hose stream?		Yes		No		N/A
The forward flow test results met the system demand, including hose stream?		Yes		No		N/A
If no connections are available was a flow test conducted at maximum flow rate possible?		Yes		No		N/A
Was there a way of measuring the maximum flow rate?		Yes		No		N/A
What flow rate was measured during the maximum flow rate?						
Was the backflow preventer tested with a separate report to check for no backflow?				No		N/A

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Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" Track 25-36 South**

Obstruction Investigation (Section 14.2.1)

An inspection of piping and branch line conditions shall be conducted every five (5) years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Has visual obstruction investigation of piping been conducted within the last four (4) years?	☐ Yes	☒ No	☐ N/A
If Yes, what year was the investigation completed? **Unknown**			
If No, was the visual obstruction investigation conducted during this annual inspection?	☐ Yes	☐ No	☒ N/A
This visual obstruction investigation results appears that piping is not obstructed?	☐ Yes	☐ No	☒ N/A
Based on this years results a further flushing investigation or procedure is recommended?	☐ Yes	☐ No	☒ N/A

Explain No Answers / Comments: **Unknown when last Obstruction invesitgation was done and should be done .**

Deficiencies (As per NFPA 25 - 2008)

The system has the following deficiencies that should be reviewed with the authority having jurisdiction to determine if corrections should be made.

D1. **Obstruction investigation of piping should be done every 5 years.**
D2 **Internal Inspection of alarm valve and components should be done every 5 years.**
D3 **Gauges are older then 5 years and should be replaced.**
D4 **All system control valves should be identified and "keep open" signs should be installed.**
D5 **Fire department connection should have a identification sign.**
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23

(Use back of page if further room is needed)

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" Track 25-36 South**

Recommendations

We recommend the following based on this annual inspection and test. These recommendations are not deficiencies and are provided for information only. Corrections of these recommendations are dependent on the owner or authority having jurisdiction.

R1.
R2. **Low pressure switch should be installed to prevent false alarms.**
R3. **Drains should be cleaned out to better handle drain test.**
R4.
R5.
R6.
R7.
R8.
R9.

(Use back of page if further room is needed)

General Notes

Record any pertinent information here with respect to the building *(monitoring company, special codes, keys access, confined space, etc.)*

System monitored by Protelec 204-949-1415.

Important Note:

This is an operational test inspection. It does not include a review or analysis of the system design to determine whether or not the system meets current code or standards. BDR Services Ltd. is not responsible for any equipment failure, and any subsequent damage or loss consequential or direct. BDR Services Ltd. is merely verifying operation and condition of equipment at actual time of testing. Owner is responsible for system installation, maintenance and confirmation that system installation requirements are met any time there are alterations, additions, renovations and change of occupancy.

Inspector: **Bart Dlugosz** Inspection Date: **Nov 17 2015**

Licence SP/WFD #: **223/792** Owner Representative:

Signature: Signature:

Chubb Edwards
82 Terracon Place
Winnipeg, MB
R2J 4G7
Tel (204) 633-5248 Fax (204) 632-5341

Chubb EDWARDS

January 6, 2016

Planning, Property and Development
Municipal Accommodations Division
Basement, 510 Main Street
Winnipeg, Manitoba
R3B 1M9
Attn: Ken Pietracci

Subject: November 2015 - Annual Test and Maintenance Inspection Agreement
Location: Winnipeg Transit, 421 Osborne Street, Winnipeg, MB

Per the terms of the Preventative Maintenance Agreement with Chubb Edwards, we have completed the test and inspection of the building systems listed below following the requirements of the current Provincial Fire Code.

The tested systems are indicated with **[√]** for satisfactory operation, **[X]** for unsatisfactory operation, and **[Inc]** for incomplete work.

[X] Sprinkler System

[√] Backflow Preventer

We enclose our completed test and inspection report for your review. A certificate of inspection is attached for the backflow preventer.

We welcome the opportunity to assist you, should you require additional information and/or service regarding this inspection.

Regards,

Dianna Grosshans
Fire Billing & Enquiries

Enc.

Chubb EDWARDS

Inspection Certificate

This is to certify the system referred to below was inspected in accordance with the Provincial Fire Code and the requirements of the authority having jurisdiction and was found to be in proper working order when the inspection was completed.

THIS CERTIFIES that the Backflow Preventer equipment

installed at 421 Osborne Street, Winnipeg, MB

was checked and inspected, and is serviced by a trained technician

Issued: November 17, 2015

Next Inspection: November, 2016

Operations Manager

UTC Fire & Security Canada

Managing Director
Chubb Edwards

C4396

Winnipeg

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BACKFLOW DEVICE TEST REPORT

Site Information

Contact	Alex
Company	Winnipeg Bus depot
Address (Street, City, Prov, Postal Code)	421 Osborne Winnipeg MB Building A
Phone / Fax #	
Email	

Owner Information

Contact	
Company	
Address (Street, City, Prov, Postal Code)	
Phone / Fax #	
Email	

Device Information

	Existing	Replaced	New
Serial #	01836		
Manufacturer	Ames		
Model #	4000B		
Type of Assembly (RP, DCVA, PVB)	RP		
Size (inches)	1.25		
Location of Assembly	Carpentry shop		
Type of Equip. Protected	Fire Protection		

Permit #:

Water Meter #:

Meter Reading:

Pass ☑ Fail ☐

Test Information

RP Device	1st Check (A)	2nd Check	Relief Valve (B)	Buffer (A-B=C)
Initial Test Date (mm-dd-yy): 11-17-15 Line Press. 110 psi	Press. Drop 9.2 psi Closed ☑ Leaked ☐	Closed ☑ Leaked ☐	Opened at 2.8 psi	6.4 psi
Test After Repair Date (mm-dd-yy): Line Press. _____ psi	Press. Drop _____ psi Closed ☐ Leaked ☐	Closed ☐ Leaked ☐	Opened at _____ psi	_____ psi

DCVA Device	1st Check	2nd Check
Initial Test Date (mm-dd-yy): Line Press. _____ psi	Closed ☐ Leaked ☐	Closed ☐ Leaked ☐
Test After Repair Date (mm-dd-yy): Line Press. _____ psi	Closed ☐ Leaked ☐	Closed ☐ Leaked ☐

PVB Device	Air Inlet	Check Valve
Initial Test Date (mm-dd-yy): Line Press. _____ psi	Opened at _____ psi Did not open ☐	Closed ☐ Leaked ☐
Test After Repair Date (mm-dd-yy): Line Press. _____ psi	Opened at _____ psi	Closed ☐

Licensed Tester

Licence #	889
Tester Name	Bart Dlugosz
Test Kit Serial #	05050352
Company	BDR
Phone #	204-586-8227

Comments / Maintenance / Repairs

I certify all information on this report is true and accurate, acknowledging that incomplete reports will not be accepted. This information meets the requirements under By-Law 504/73.

☑ I accept Date: 11/18/2015

Email this form

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Winnipeg

Water and Waste Department • Service des eaux et des déchets

BACKFLOW DEVICE TEST REPORT

Site Information

Contact	Alex
Company	Winnipeg Bus depot
Address (Street, City, Prov, Postal Code)	421 Osborne Winnipeg MB Building A
Phone / Fax #	
Email	

Owner Information

Contact	
Company	
Address (Street, City, Prov, Postal Code)	
Phone / Fax #	
Email	

Device Information

	Existing	Replaced	New
Serial #	10264		
Manufacturer	Ames		
Model #	4000B		
Type of Assembly (RP, DCVA, PVB)	RP		
Size (inches)	2		
Location of Assembly	Paint shop		
Type of Equip. Protected	Fire Protection		

Permit #:

Water Meter #:

Meter Reading:

Pass ☑ Fail ☐

Test Information

RP Device	1st Check (A)	2nd Check	Relief Valve (B)	Buffer (A-B=C)
Initial Test Date (mm-dd-yy): 11-17-15 Line Press. 110 psi	Press. Drop 9.4 psi Closed ☑ Leaked ☐	Closed ☑ Leaked ☐	Opened at 2.6 psi	6.8 psi
Test After Repair Date (mm-dd-yy): _____ Line Press. _____ psi	Press. Drop _____ psi Closed ☐ Leaked ☐	Closed ☐ Leaked ☐	Opened at _____ psi	_____ psi

DCVA Device	1st Check	2nd Check
Initial Test Date (mm-dd-yy): _____ Line Press. _____ psi	Closed ☐ Leaked ☐	Closed ☐ Leaked ☐
Test After Repair Date (mm-dd-yy): _____ Line Press. _____ psi	Closed ☐ Leaked ☐	Closed ☐ Leaked ☐

PVB Device	Air Inlet	Check Valve
Initial Test Date (mm-dd-yy): _____ Line Press. _____ psi	Opened at _____ psi Did not open ☐	Closed ☐ Leaked ☐
Test After Repair Date (mm-dd-yy): _____ Line Press. _____ psi	Opened at _____ psi	Closed ☐

Licensed Tester

Licence #	889
Tester Name	Bart Dlugosz
Test Kit Serial #	05050352
Company	BDR
Phone #	204-586-8227

Comments / Maintenance / Repairs

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BACKFLOW DEVICE TEST REPORT

Site Information

Contact	Alex
Company	Winnipeg Bus depot
Address (Street, City, Prov, Postal Code)	421 Osborne Winnipeg MB Building B
Phone / Fax #	
Email	

Owner Information

Contact	
Company	
Address (Street, City, Prov, Postal Code)	
Phone / Fax #	
Email	

Device Information

	Existing	Replaced	New
Serial #	A02235		
Manufacturer	Ames		
Model #	4000B		
Type of Assembly (RP, DCVA, PVB)	RP		
Size (inches)	2		
Location of Assembly	Glycol		
Type of Equip. Protected	Fire Protection		

Permit #:

Water Meter #:

Meter Reading:

Pass ☑ Fail ☐

Test Information

RP Device	1st Check (A)	2nd Check	Relief Valve (B)	Buffer (A-B=C)
Initial Test Date (mm-dd-yy): 11-18-15 Line Press. 120 psi	Press. Drop 10.8 psi Closed ☑ Leaked ☐	Closed ☑ Leaked ☐	Opened at 3.5 psi	7.3 psi
Test After Repair Date (mm-dd-yy): _____ Line Press. _____ psi	Press. Drop _____ psi Closed ☐ Leaked ☐	Closed ☐ Leaked ☐	Opened at _____ psi	_____ psi

DCVA Device	1st Check	2nd Check
Initial Test Date (mm-dd-yy): _____ Line Press. _____ psi	Closed ☐ Leaked ☐	Closed ☐ Leaked ☐
Test After Repair Date (mm-dd-yy): _____ Line Press. _____ psi	Closed ☐ Leaked ☐	Closed ☐ Leaked ☐

PVB Device	Air Inlet	Check Valve
Initial Test Date (mm-dd-yy): _____ Line Press. _____ psi	Opened at _____ psi Did not open ☐	Closed ☐ Leaked ☐
Test After Repair Date (mm-dd-yy): _____ Line Press. _____ psi	Opened at _____ psi	Closed ☐

Licensed Tester

Licence #	889
Tester Name	Bart Dlugosz
Test Kit Serial #	05050352
Company	BDR
Phone #	204-586-8227

Comments / Maintenance / Repairs

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Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: Nov 17 2015 Inspector: Bart Dlugosz Inspector SP/WFD #: 223/792
Property Name: Winnipeg Transit Fort Rouge
Tenant Name: Building B
Address: 421 Osborne Street
City: Winnipeg Province: MB Postal Code:
Contact: Alex Vecherya Phone :

General

Building	Building "B" South Track 1-12
System Designation	South Track 1-12
Location of sprinkler valve	South West corner of building in Maintenance Bay

Type of sprinkler system [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

Is the building occupied?	[X] Yes	[ ] No	[ ] N/A
Is the system in service?	[X] Yes	[ ] No	[ ] N/A
The valve header room(s) appears to be adequately heated?	[X] Yes	[ ] No	[ ] N/A
The valve header room(s) have a low-temperature alarm?	[ ] Yes	[ ] No	[X] N/A
Is it known that the system(s) is hydraulically calculated?	[ ] Yes	[X] No	[ ] N/A
If yes, is hydraulic information sign provided at valve(s)?	[ ] Yes	[ ] No	[X] N/A
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	[X] Yes	[ ] No	[ ] N/A
Do all exterior openings appear to be protected from freezing?	[X] Yes	[ ] No	[ ] N/A
If a hand hose is part of the sprinkler system does it appear to be in good condition?	[X] Yes	[ ] No	[ ] N/A
Confirm that the building has not undergone any alterations/additions since the last inspection?	[X] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: System appears to be pipe schedule system.

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None
When was pump last inspected?
Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A
Explain No Answers / Comments:

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Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" South Track 1-12**

Fire Department Connections (Section 13.7) **This section is Not Applicable:** [ ]

FDC Location: **Across the street of 520 Brandon street**

Are identification signs provided and in place?	[ ]	Yes	[X]	No	[ ]	N/A
The connections are visible and accessible?	[X]	Yes	[ ]	No	[ ]	N/A
Couplings or swivels are not damaged and rotate smoothly?	[X]	Yes	[ ]	No	[ ]	N/A
Plugs or caps are in place and undamaged?	[ ]	Yes	[X]	No	[ ]	N/A
Gaskets are in place and in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
The check valve is not leaking?	[ ]	Yes	[ ]	No	[X]	N/A
The automatic drain valve is in place and appears to be working and in good condition?	[ ]	Yes	[ ]	No	[X]	N/A
The connection clapper(s) is in place and appears to be operating properly?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments: **Located on the street. There is a valve pit near FDC and was not inspected during this inspection. Fire department connection feeds building "A" and westside of building "B". FDC is missing ONE 2.5" cap.**

General Condition, Inspected From Floor Level (Section 5.2) **This section is Not Applicable:** [ ]

Sprinkler heads appear to be in good condition? *(Not corroded, loaded, painted, damaged)*	[X]	Yes	[ ]	No	[ ]	N/A
Piping appears to be in good condition? *(Not damaged, leaking, corroded, bent)*	[X]	Yes	[ ]	No	[ ]	N/A
Hangers or Braces appear to be in good condition? *(Not damaged, loose, rusted, missing)*	[X]	Yes	[ ]	No	[ ]	N/A
Devices, valves and gauges appear to be in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
Is stock of spare sprinklers available along with appropriate sprinkler wrench(s)?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments:

Sprinkler Testing (Section 5.3) **This section is Not Applicable:** [ ]

All sprinklers installed have been manufactured after 1920?	[X]	Yes	[ ]	No	[ ]	N/A
Standard response sprinklers are less than fity (50) years old?	[X]	Yes	[ ]	No	[ ]	N/A
Fast response sprinklers are less than twenty (20) years old?	[ ]	Yes	[ ]	No	[X]	N/A
Extra high (325 °F or higher) sprinklers have been tested at five (5) year intervals?	[ ]	Yes	[ ]	No	[X]	N/A
Dry sprinklers are less than ten (10) years old?	[ ]	Yes	[ ]	No	[X]	N/A

(Sprinklers that do not meet the above criteria are required to be replaced or representative samples from one or more sample areas shall be tested. Test procedures shall be repeated at various intervals as stated in NFPA 25)

Explain No Answers / Comments:

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" South Track 1-12**

Gauges (Section 5.3.2) **This section is Not Applicable:** [ ]

Gauges shall be replaced every five (5) years or tested every five (5) years by comparison with a calibrated gauge.
Gauges not accurate to within three (3) percent of the full scale shall be recalibrated or replaced.

Gauges are less than five (5) years old?	[ ] Yes	[X] No	[ ] N/A
Gauges have been compared against a calibrated gauge and are within three (3) percent?	[ ] Yes	[ ] No	[X] N/A
Gauges have been replaced during this annual inspection?	[ ] Yes	[X] No	[ ] N/A

Explain No Answers / Comments: **Gauges dated 2009 (x2) Should be replaced.**

Main Drain Test (Section 13.2.5) **This section is Not Applicable:** [ ]

(All readings should be from the supply pressure lower gauge)

	This Year	Last
Static PSI Before	70	
Residual PSI	69	
Static PSI After	70	
Size of the Main Drain?	2"	

Record the static water supply pressure with no flow.
Open the main drain and allow water flow to stabilize. Record the pressure.
Close the main drain slowly. Record the pressure after gauge has stabilized.
What date was the last main drain test done? **2014**

Explain No Answers / Comments: **Drain does not handle test.**

Wet System (Section 13.4) **This section is Not Applicable:** [ ]

The gauges indicate normal water pressure is being maintained?	[X] Yes	[ ] No	[ ] N/A
Does alarm valve appear to be free of physical damage?	[X] Yes	[ ] No	[ ] N/A
All trim valves are in the appropriate open or closed position?	[X] Yes	[ ] No	[ ] N/A
The alarm drains are not leaking?	[X] Yes	[ ] No	[ ] N/A
Wet system is equipped with a tail-end anti-freeze system(s)?	[ ] Yes	[X] No	[ ] N/A
Anti-freeze solution reading is at what freezing point?			
Anti-freeze solution freezing point appears to be satisfactory?	[ ] Yes	[ ] No	[X] N/A

Explain No Answers / Comments:

Wet System Test Table for Wet Alarm Valve **This section is Not Applicable:** [ ]

Size	Make	Model	Serial #	Location of Inspectors Test
8"	Grinnell	A	N/A	Inside south door 12

(Ensure alarm company is notified to avoid false alarms.)
Test alarm valve water flow alarm switch by opening inspector's test valve.

Static PSI	Alarm Time	Residual PSI
125 psi	1m20s	70 psi

Wet System Low-Water-Pressure Switch

Is the wet system equipped with a low-water-pressure switch? [ ] Yes [X] No [ ] N/A

If Yes, open drain test valve to reduce water pressure slowly. Confirm operation of low pressure switch, record water pressure at which low pressure switch activated. Close drain test and pump system up to normal pressure and restore to service. Record pressure. [ ] PSI

Explain No Answers / Comments: **System Does not have a Low Pressure switch. One should be installed.**

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" South Track 1-12

Wet System Inspection (Section 13.4.1.2) This section is Not Applicable: ☐

Alarm valves and their associated strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years?	☐ Yes	☒ No	☐ N/A
If Yes, what year was the inspection completed? Unknown			
If No, was the internal inspection done during this annual inspection?	☐ Yes	☒ No	☐ N/A

Explain No Answers / Comments: Unknown when last wet system inspection was and should be done.

Wet System Vane Type Flow Alarms This section is Not Applicable: ☒

Test water-flow alarm by opening inspector's test and record time that alarm registers.

Flow Switch Zone Designation	Location of Inspectors Test	Static PSI	Alarm Time	Residual PSI

Dry Pipe System (Section 13.4.4) This section is Not Applicable: ☒

Does valve appear to be free of physical damage?	☐ Yes	☐ No	☐ N/A
All trim valves are in the appropriate open or closed position?	☐ Yes	☐ No	☐ N/A
The intermediate chamber is not leaking?	☐ Yes	☐ No	☐ N/A
A tag or card with the last trip date and who conducted the test is attached to the valve?	☐ Yes	☐ No	☐ N/A

Size	Make	Model	Serial #	Location of Inspectors Test

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" South Track 1-12

Dry System Low-Air-Pressure Switch

Is the dry system equipped with a low-air-pressure switch? ☐ Yes ☐ No ☒ N/A

If Yes, close the water supply valve isolate quick opening device if one is present and carefully open drain test valve to reduce air pressure slowly. *(Do not reduce air pressure sufficiently to trip the dry pipe valve.)* Confirm operation of low pressure switch, record air pressure at which low pressure switch activated. Close drain test valve, allow air pressure to rise to normal, then slowly open quick opening device and water supply valve. Record pressure. ☐ PSI

Explain No Answers / Comments: _____

Dry Pipe System Trip Test Table **This section is Not Applicable:** ☒

Every three (3) years and whenever the system is altered, the dry pipe valve shall be trip tested with the control valve fully open and the quick-opening device, if provided in service. During the years when full flow testing is not required, the dry pipe valve shall be trip tested with the control valve partially open.

Has the dry pipe valve been tripped with the control valve fully open in the last two (2) years. If yes, what year was the fully open trip test conducted? _____ ☐ Yes ☐ No ☐ N/A

If No, is the fully open trip test being conducted during this annual inspection? ☐ Yes ☐ No ☐ N/A

Normal air pressure as per the Manufacturers recommendation ☐ PSI

Trip test the dry pipe valve. Record the time from opening the inspectors test valve until the dry pipe valve trips.

Water PSI	Air PSI	Time to Trip	Trip Point Air PSI	Time Water To Inspectors Test

Did the valve and alarm operate properly? ☐ Yes ☐ No ☐ N/A

Dry pipe valve interior appears clean and satisfactory? ☐ Yes ☐ No ☐ N/A

Quick-opening device operated properly? ☐ Yes ☐ No ☐ N/A

Is a sign provided at the dry pipe valve indicating the number of auxiliary drains and location of each auxiliary drain? ☐ No ☐ N/A

Were all identified auxiliary drains drained during this inspection? ☐ Yes ☐ No ☐ N/A

Air supply appears to be adequate? ☐ Yes ☐ No ☐ N/A

Automatic air pressure maintenance device appears to operate properly? ☐ Yes ☐ No ☐ N/A

Was the dry pipe valve filled with priming water after it was trip tested and reset? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

Dry Pipe System Inspection (Section 13.4.4.1.6) **This section is Not Applicable:** ☒

Dry pipe valve strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☐ No ☐ N/A

If Yes, what year was the inspection completed? _____

If No, was the internal inspection done during this annual inspection? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" South Track 1-12

Preaction / Deluge System This section is Not Applicable: X

Does valve appear to be free of physical damage?	Yes	No	N/A
All trim valves are in the appropriate open or closed position?	Yes	No	N/A
The valve seat is not leaking?	Yes	No	N/A
The electrical components are in service?	Yes	No	N/A

Size	Make	Model	Serial #	Strike Through What Does Not Apply			
				Deluge	Preaction	Closed Nozzles	Open Nozzles

Supervised Preaction Low-Air-Pressure Alarm

Is the preaction system equipped with a low-air-pressure alarm? Yes No N/A

If Yes, close the water supply valve and carefully open drain test valve to reduce air pressure slowly. Confirm operation of low pressure alarm, record air pressure of low pressure alarm activation. Close drain test valve, allow air pressure to rise to normal, then open water supply valve. PSI

Preaction / Deluge System Trip Test Table (13.4.3.2.2.2) This section is Not Applicable: X

The preaction / deluge valve shall be trip tested annually as per the manufacturer's instructions. Where the nature is such that water discharge cannot occur unless protected equipment is shutdown, a full flow test shall be conducted at the next scheduled shutdown. In all cases the test frequency shall not exceed 3 years. Preaction or deluge valves protecting freezers shall be trip tested in a manner that does not introduce moisture into the piping in the freezer. PSI

Water PSI	Air PSI	Trip Point Air PSI	Number of detectors required to trip Preaction system	Brief description of valve operation

Did the valve and alarm operate properly?	Yes	No	N/A
Were all manual actuation devices operated?	Yes	No	N/A
For deluge systems did the water discharge pattern appear to be satisfactory?	Yes	No	N/A
Air supply appears to be adequate?	Yes	No	N/A
Automatic air pressure maintenance device appears to operate properly?	Yes	No	N/A
Was the preaction valve filled with priming water after it was trip tested and reset?	Yes	No	N/A

Explain No Answers / Comments:

Preaction / Deluge System Maintenance (Section 13.4.3.1.7.1) This section is Not Applicable: X

Interior cleaning and parts replacement or repair shall be permitted every five (5) years for valves that can be reset without removal of the faceplate. If the valve cannot be reset externally the cleaning, replacement or repair shall be completed annually.

The valve requires internal resetting, thus the inspection is done during this inspection?	Yes	No	N/A
The valve can be reset externally thus has the inspection been done within the last four (4) years? If Yes, what year was the inspection completed? _____	Yes	No	N/A
If No, was the internal inspection done during this annual inspection?	Yes	No	N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" South Track 1-12

Control Valves

Are all control valves identified?	X Yes	No	N/A
Are all control valves locked, sealed or equipped with a supervisory switch?	X Yes	No	N/A
Are all control valves in the normal open or closed postion?	X Yes	No	N/A
Are all control valves free from external leaks?	X Yes	No	N/A
During this inspection was each control valve operated through its full range?	X Yes	No	N/A
If applicable post indicator valves were opened until spring tension was felt?	Yes	No	X N/A
If applicable post indicator & OS&Y valves were backed 1/4 turn from fully open position?	X Yes	No	N/A

Control Valve Table

Control Valve Function	# of Valves	Size	Type of Valve	Open				Secured				Signs			
System control valve	1	6"	OS+Y	X	Y		N	X	Y		N	X	Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N

Backflow Prevention Assemblies (Section 13.6) This section is Not Applicable: X

All backflow preventers installed in fire protection system piping shall be tested annually in accordance with the following:

(1) A forward flow test shall be conducted at the system demand, including hose stream demand, where hydrants or inside hose stations are located downstream of the backflow preventer.

(2) A backflow performance test, as required by the authority having jurisdiction, shall be conducted at the completion of the forward flow test.

For backflow preventers sized 2" and under a forward flow test is acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.

Where connections do not permit a full flow test, test shall be completed at the maximum flow rate possible.

Connections do exist to permit a full forward flow test?	Yes	No	N/A
A forward flow test was conducted at the system demand, including hose stream?	Yes	No	N/A
The forward flow test results met the system demand, including hose stream?	Yes	No	N/A
If no connections are available was a flow test conducted at maximum flow rate possible?	Yes	No	N/A
Was there a way of measuring the maximum flow rate?	Yes	No	N/A
What flow rate was measured during the maximum flow rate?			
Was the backflow preventer tested with a separate report to check for no backflow?		No	N/A

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Date: Nov 17 2015 Location: Building "B" South Track 1-12

Obstruction Investigation (Section 14.2.1)

An inspection of piping and branch line conditions shall be conducted every five (5) years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Has visual obstruction investigation of piping been conducted within the last four (4) years?	☐ Yes	☒ No	☐ N/A
If Yes, what year was the investigation completed? Unknown			
If No, was the visual obstruction investigation conducted during this annual inspection?	☐ Yes	☐ No	☒ N/A
This visual obstruction investigation results appears that piping is not obstructed?	☐ Yes	☐ No	☒ N/A
Based on this years results a further flushing investigation or procedure is recommended?	☐ Yes	☐ No	☒ N/A

Explain No Answers / Comments: **Unknown when last Obstruction invesitgation was done and should be done .**

Deficiencies (As per NFPA 25 - 2008)

The system has the following deficiencies that should be reviewed with the authority having jurisdiction to determine if corrections should be made.

D1. **Obstruction investigation of piping should be done every 5 years.**
D2 **Internal Inspection of alarm valve and components should be done every 5 years.**
D3 **Gauges are older then 5 years and should be replaced.**
D4 **All system control valves should be identified and "keep open" signs should be installed.**
D5 **Fire department connection should have a identification sign.**
D6 **Fire department connection is missing one 2.5" cap and should be replaced.**
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23

(Use back of page if further room is needed)

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" South Track 1-12

Recommendations

We recommend the following based on this annual inspection and test. These recommendations are not deficiencies and are provided for information only. Corrections of these recommendations are dependent on the owner or authority having jurisdiction.

R1.
R2. **Low pressure switch should be installed to prevent false alarms.**
R3. **Drains should be cleaned out to better handle drain test.**
R4.
R5.
R6.
R7.
R8.
R9.

(Use back of page if further room is needed)

General Notes

Record any pertinent information here with respect to the building *(monitoring company, special codes, keys access, confined space, etc.)*

System monitored by Protelec 204-949-1415.

Important Note:

This is an operational test inspection. It does not include a review or analysis of the system design to determine whether or not the system meets current code or standards. BDR Services Ltd. is not responsible for any equipment failure, and any subsequent damage or loss consequential or direct. BDR Services Ltd. is merely verifying operation and condition of equipment at actual time of testing. Owner is responsible for system installation, maintenance and confirmation that system installation requirements are met any time there are alterations, additions, renovations and change of occupancy.

Inspector: Bart Dlugosz Inspection Date: Nov 17 2015

Licence SP/WFD #: 223/792 Owner Representative:

Signature: Signature:

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Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: Nov 17 2015 Inspector: Bart Dlugosz Inspector SP/WFD #: 223/792
Property Name: Winnipeg Transit Fort Rouge
Tenant Name: Building "A"
Address: 421 Osborne Street
City: Winnipeg Province: MB Postal Code:
Contact: Alex Vecherya Phone :

General

Building	Building "A" High Bay Center
System Designation	Center High Bay
Location of sprinkler valve	Infront of Bus Bay 25

Type of sprinkler system [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

	Yes	No	N/A
Is the building occupied?	X		
Is the system in service?	X		
The valve header room(s) appears to be adequately heated?	X		
The valve header room(s) have a low-temperature alarm?			X
Is it known that the system(s) is hydraulically calculated?		X	
If yes, is hydraulic information sign provided at valve(s)?			X
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	X		
Do all exterior openings appear to be protected from freezing?	X		
If a hand hose is part of the sprinkler system does it appear to be in good condition?			X
Confirm that the building has not undergone any alterations/additions since the last inspection?	X		

Explain No Answers / Comments: System appears to be pipe Schedule system.

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None

When was pump last inspected?

Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" High Bay Center**

Fire Department Connections (Section 13.7) **This section is Not Applicable:** [ ]

FDC Location: **Across the street of 520 Brandon street**

Are identification signs provided and in place?	[ ]	Yes	[X]	No	[ ]	N/A
The connections are visible and accessible?	[X]	Yes	[ ]	No	[ ]	N/A
Couplings or swivels are not damaged and rotate smoothly?	[X]	Yes	[ ]	No	[ ]	N/A
Plugs or caps are in place and undamaged?	[ ]	Yes	[X]	No	[ ]	N/A
Gaskets are in place and in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
The check valve is not leaking?	[ ]	Yes	[ ]	No	[X]	N/A
The automatic drain valve is in place and appears to be working and in good condition?	[ ]	Yes	[ ]	No	[X]	N/A
The connection clapper(s) is in place and appears to be operating properly?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments: **Located on the street. There is a valve pit near FDC and was not inspected during this inspection. Fire department connection feeds building "A" and westside of building "B". FDC is missing ONE 2.5" cap.**

General Condition, Inspected From Floor Level (Section 5.2) **This section is Not Applicable:** [ ]

Sprinkler heads appear to be in good condition? *(Not corroded, loaded, painted, damaged)*	[X]	Yes	[ ]	No	[ ]	N/A
Piping appears to be in good condition? *(Not damaged, leaking, corroded, bent)*	[X]	Yes	[ ]	No	[ ]	N/A
Hangers or Braces appear to be in good condition? *(Not damaged, loose, rusted, missing)*	[X]	Yes	[ ]	No	[ ]	N/A
Devices, valves and gauges appear to be in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
Is stock of spare sprinklers available along with appropriate sprinkler wrench(s)?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments:

Sprinkler Testing (Section 5.3) **This section is Not Applicable:** [ ]

All sprinklers installed have been manufactured after 1920?	[X]	Yes	[ ]	No	[ ]	N/A
Standard response sprinklers are less than fity (50) years old?	[X]	Yes	[ ]	No	[ ]	N/A
Fast response sprinklers are less than twenty (20) years old?	[ ]	Yes	[ ]	No	[X]	N/A
Extra high (325 °F or higher) sprinklers have been tested at five (5) year intervals?	[ ]	Yes	[ ]	No	[X]	N/A
Dry sprinklers are less than ten (10) years old?	[ ]	Yes	[ ]	No	[X]	N/A

(Sprinklers that do not meet the above criteria are required to be replaced or representative samples from one or more sample areas shall be tested. Test procedures shall be repeated at various intervals as stated in NFPA 25)

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay Center

Gauges (Section 5.3.2) This section is Not Applicable: [ ]

Gauges shall be replaced every five (5) years or tested every five (5) years by comparison with a calibrated gauge.
Gauges not accurate to within three (3) percent of the full scale shall be recalibrated or replaced.

Gauges are less than five (5) years old?	[ ]	Yes	[X]	No	[ ]	N/A
Gauges have been compared against a calibrated gauge and are within three (3) percent?	[ ]	Yes	[ ]	No	[X]	N/A
Gauges have been replaced during this annual inspection?	[ ]	Yes	[X]	No	[ ]	N/A

Explain No Answers / Comments: **Gauges dated 2009 (x2) Should be replaced.**

Main Drain Test (Section 13.2.5) This section is Not Applicable: [ ]

(All readings should be from the supply pressure lower gauge)

	This Year	Last
Static PSI Before	75	
Residual PSI	65	
Static PSI After	75	
Size of the Main Drain?	2"	

Record the static water supply pressure with no flow.
Open the main drain and allow water flow to stabilize. Record the pressure.
Close the main drain slowly. Record the pressure after gauge has stabilized.
What date was the last main drain test done? 2014
Explain No Answers / Comments:

Wet System (Section 13.4) This section is Not Applicable: [ ]

The gauges indicate normal water pressure is being maintained?	[X]	Yes	[ ]	No	[ ]	N/A
Does alarm valve appear to be free of physical damage?	[X]	Yes	[ ]	No	[ ]	N/A
All trim valves are in the appropriate open or closed position?	[X]	Yes	[ ]	No	[ ]	N/A
The alarm drains are not leaking?	[X]	Yes	[ ]	No	[ ]	N/A
Wet system is equipped with a tail-end anti-freeze system(s)?	[ ]	Yes	[X]	No	[ ]	N/A
Anti-freeze solution reading is at what freezing point?	[ ]					
Anti-freeze solution freezing point appears to be satisfactory?	[ ]	Yes	[ ]	No	[X]	N/A

Explain No Answers / Comments: **No tail end Anti-freeze system.**

Wet System Test Table for Wet Alarm Valve This section is Not Applicable: [ ]

Size	Make	Model	Serial #	Location of Inspectors Test
6"	Grinnell	A	F4858	Bus Bay 8 on Column.

(Ensure alarm company is notified to avoid false alarms.)
Test alarm valve water flow alarm switch by opening inspector's test valve.

Static PSI	Alarm Time	Residual PSI
125 psi	39 sec	70 psi

Wet System Low-Water-Pressure Switch

Is the wet system equipped with a low-water-pressure switch? [ ] Yes [X] No [ ] N/A

If Yes, open drain test valve to reduce water pressure slowly. Confirm operation of low pressure switch, record water pressure at which low pressure switch activated. Close drain test and pump system up to normal pressure and restore to service. Record pressure. [ ] PSI

Explain No Answers / Comments:

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Date: Nov 17 2015 Location: Building "A" High Bay Center

Wet System Inspection (Section 13.4.1.2) **This section is Not Applicable:** [ ]

Alarm valves and their associated strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? [ ] Yes [X] No [ ] N/A

If Yes, what year was the inspection completed? **Unknown**

If No, was the internal inspection done during this annual inspection? [ ] Yes [X] No [ ] N/A

Explain No Answers / Comments: **Unknown when last wet system inspection was and should be done.**

Wet System Vane Type Flow Alarms **This section is Not Applicable:** [X]

Test water-flow alarm by opening inspector's test and record time that alarm registers.

Flow Switch Zone Designation	Location of Inspectors Test	Static PSI	Alarm Time	Residual PSI

Dry Pipe System (Section 13.4.4) **This section is Not Applicable:** [X]

Does valve appear to be free of physical damage? [ ] Yes [ ] No [ ] N/A

All trim valves are in the appropriate open or closed position? [ ] Yes [ ] No [ ] N/A

The intermediate chamber is not leaking? [ ] Yes [ ] No [ ] N/A

A tag or card with the last trip date and who conducted the test is attached to the valve? [ ] Yes [ ] No [ ] N/A

Size	Make	Model	Serial #	Location of Inspectors Test

Explain No Answers / Comments:

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Date: Nov 17 2015 Location: Building "A" High Bay Center

Dry System Low-Air-Pressure Switch

Is the dry system equipped with a low-air-pressure switch? ☐ Yes ☐ No ☒ N/A

If Yes, close the water supply valve isolate quick opening device if one is present and carefully open drain test valve to reduce air pressure slowly. *(Do not reduce air pressure sufficiently to trip the dry pipe valve.)* Confirm operation of low pressure switch, record air pressure at which low pressure switch activated. Close drain test valve, allow air pressure to rise to normal, then slowly open quick opening device and water supply valve. Record pressure. ☐ PSI

Explain No Answers / Comments:

Dry Pipe System Trip Test Table **This section is Not Applicable:** ☒

Every three (3) years and whenever the system is altered, the dry pipe valve shall be trip tested with the control valve fully open and the quick-opening device, if provided in service. During the years when full flow testing is not required, the dry pipe valve shall be trip tested with the control valve partially open.

Has the dry pipe valve been tripped with the control valve fully open in the last two (2) years. If yes, what year was the fully open trip test conducted? ☐ Yes ☐ No ☐ N/A

If No, is the fully open trip test being conducted during this annual inspection? ☐ Yes ☐ No ☐ N/A

Normal air pressure as per the Manufacturers recommendation ☐ PSI

Trip test the dry pipe valve. Record the time from opening the inspectors test valve until the dry pipe valve trips.

Water PSI	Air PSI	Time to Trip	Trip Point Air PSI	Time Water To Inspectors Test

Did the valve and alarm operate properly?	☐ Yes	☐ No	☐ N/A
Dry pipe valve interior appears clean and satisfactory?	☐ Yes	☐ No	☐ N/A
Quick-opening device operated properly?	☐ Yes	☐ No	☐ N/A
Is a sign provided at the dry pipe valve indicating the number of auxiliary drains and location of each auxiliary drain?		☐ No	☐ N/A
Were all identified auxiliary drains drained during this inspection?	☐ Yes	☐ No	☐ N/A
Air supply appears to be adequate?	☐ Yes	☐ No	☐ N/A
Automatic air pressure maintenance device appears to operate properly?	☐ Yes	☐ No	☐ N/A
Was the dry pipe valve filled with priming water after it was trip tested and reset?	☐ Yes	☐ No	☐ N/A

Explain No Answers / Comments:

Dry Pipe System Inspection (Section 13.4.4.1.6) **This section is Not Applicable:** ☒

Dry pipe valve strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☐ No ☐ N/A

If Yes, what year was the inspection completed?

If No, was the internal inspection done during this annual inspection? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay Center

Preaction / Deluge System This section is Not Applicable: X

Does valve appear to be free of physical damage?	Yes	No	N/A
All trim valves are in the appropriate open or closed position?	Yes	No	N/A
The valve seat is not leaking?	Yes	No	N/A
The electrical components are in service?	Yes	No	N/A

Size	Make	Model	Serial #	Strike Through What Does Not Apply			
				Deluge	Preaction	Closed Nozzles	Open Nozzles

Supervised Preaction Low-Air-Pressure Alarm

Is the preaction system equipped with a low-air-pressure alarm? Yes No N/A

If Yes, close the water supply valve and carefully open drain test valve to reduce air pressure slowly. Confirm operation of low pressure alarm, record air pressure of low pressure alarm activation. Close drain test valve, allow air pressure to rise to normal, then open water supply valve. PSI

Preaction / Deluge System Trip Test Table (13.4.3.2.2.2) This section is Not Applicable: X

The preaction / deluge valve shall be trip tested annually as per the manufacturer's instructions. Where the nature is such that water discharge cannot occur unless protected equipment is shutdown, a full flow test shall be conducted at the next scheduled shutdown. In all cases the test frequency shall not exceed 3 years. Preaction or deluge valves protecting freezers shall be trip tested in a manner that does not introduce moisture into the piping in the freezer. PSI

Water PSI	Air PSI	Trip Point Air PSI	Number of detectors required to trip Preaction system	Brief description of valve operation

Did the valve and alarm operate properly?	Yes	No	N/A
Were all manual actuation devices operated?	Yes	No	N/A
For deluge systems did the water discharge pattern appear to be satisfactory?	Yes	No	N/A
Air supply appears to be adequate?	Yes	No	N/A
Automatic air pressure maintenance device appears to operate properly?	Yes	No	N/A
Was the preaction valve filled with priming water after it was trip tested and reset?	Yes	No	N/A

Explain No Answers / Comments:

Preaction / Deluge System Maintenance (Section 13.4.3.1.7.1) This section is Not Applicable: X

Interior cleaning and parts replacement or repair shall be permitted every five (5) years for valves that can be reset without removal of the faceplate. If the valve cannot be reset externally the cleaning, replacement or repair shall be completed annually.

The valve requires internal resetting, thus the inspection is done during this inspection?	Yes	No	N/A
The valve can be reset externally thus has the inspection been done within the last four (4) years? If Yes, what year was the inspection completed?	Yes	No	N/A
If No, was the internal inspection done during this annual inspection?	Yes	No	N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay Center

Control Valves

Are all control valves identified?	X	Yes		No		N/A
Are all control valves locked, sealed or equipped with a supervisory switch?	X	Yes		No		N/A
Are all control valves in the normal open or closed postion?	X	Yes		No		N/A
Are all control valves free from external leaks?	X	Yes		No		N/A
During this inspection was each control valve operated through its full range?	X	Yes		No		N/A
If applicable post indicator valves were opened until spring tension was felt?		Yes		No	X	N/A
If applicable post indicator & OS&Y valves were backed 1/4 turn from fully open position?	X	Yes		No		N/A

Control Valve Table

Control Valve Function	# of Valves	Size	Type of Valve	Open				Secured				Signs			
System control valve	1	6"	OS+Y	X	Y		N	X	Y		N	X	Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N

Backflow Prevention Assemblies (Section 13.6) This section is Not Applicable: X

All backflow preventers installed in fire protection system piping shall be tested annually in accordance with the following:

(1) A forward flow test shall be conducted at the system demand, including hose stream demand, where hydrants or inside hose stations are located downstream of the backflow preventer.

(2) A backflow performance test, as required by the authority having jurisdiction, shall be conducted at the completion of the forward flow test.

For backflow preventers sized 2" and under a forward flow test is acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.

Where connections do not permit a full flow test, test shall be completed at the maximum flow rate possible.

Connections do exist to permit a full forward flow test?		Yes		No		N/A
A forward flow test was conducted at the system demand, including hose stream?		Yes		No		N/A
The forward flow test results met the system demand, including hose stream?		Yes		No		N/A
If no connections are available was a flow test conducted at maximum flow rate possible?		Yes		No		N/A
Was there a way of measuring the maximum flow rate?		Yes		No		N/A
What flow rate was measured during the maximum flow rate?						
Was the backflow preventer tested with a separate report to check for no backflow?		Yes		No		N/A

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay Center

Obstruction Investigation (Section 14.2.1)

An inspection of piping and branch line conditions shall be conducted every five (5) years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Has visual obstruction investigation of piping been conducted within the last four (4) years?	[ ] Yes	[X] No	[ ] N/A
If Yes, what year was the investigation completed? Unknown			
If No, was the visual obstruction investigation conducted during this annual inspection?	[ ] Yes	[ ] No	[X] N/A
This visual obstruction investigation results appears that piping is not obstructed?	[ ] Yes	[ ] No	[X] N/A
Based on this years results a further flushing investigation or procedure is recommended?	[ ] Yes	[ ] No	[X] N/A

Explain No Answers / Comments: **Unknown when last Obstruction invesitgation was done and should be done .**

Deficiencies (As per NFPA 25 - 2008)

The system has the following deficiencies that should be reviewed with the authority having jurisdiction to determine if corrections should be made.

D1. **Obstruction investigation of piping should be done every 5 years.**
D2 **Internal Inspection of alarm valve and components should be done every 5 years.**
D3 **Gauges are older then 5 years and should be replaced.**
D4 **Fire department connection is missing one 2.5" cap and should be replaced.**
D5 **Fire department connection should have a identification sign.**
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23

(Use back of page if further room is needed)

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Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" High Bay Center**

Recommendations

We recommend the following based on this annual inspection and test. These recommendations are not deficiencies and are provided for information only. Corrections of these recommendations are dependent on the owner or authority having jurisdiction.

R1. **Inspectors test should be remounted onto column.**

R2. **Low pressure switch should be installed to prevent false alarms.**

R3. **Drains should be cleaned out to better handle drain test.**

R4.

R5.

R6.

R7.

R8.

R9.

(Use back of page if further room is needed)

General Notes

Record any pertinent information here with respect to the building *(monitoring company, special codes, keys access, confined space, etc.)*

System monitored by Protelec 204-949-1415.

Important Note:

This is an operational test inspection. It does not include a review or analysis of the system design to determine whether or not the system meets current code or standards. BDR Services Ltd. is not responsible for any equipment failure, and any subsequent damage or loss consequential or direct. BDR Services Ltd. is merely verifying operation and condition of equipment at actual time of testing. Owner is responsible for system installation, maintenance and confirmation that system installation requirements are met any time there are alterations, additions, renovations and change of occupancy.

Inspector: **Bart Dlugosz** Inspection Date: **Nov 17 2015**

Licence SP/WFD #: **223/792** Owner Representative:

Signature: Signature:

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Automatic Sprinkler Systems

Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: **Nov 17 2015** Inspector: **Bart Dlugosz** Inspector SP/WFD #: **223/792**

Property Name: **Winnipeg Transit Fort Rouge**

Tenant Name: **Building "A"**

Address: **421 Osborne Street**

City: **Winnipeg** Province: **MB** Postal Code:

Contact: **Alex Vecherya** Phone :

General

Building	**Building "A" C.T.S - Communication & Traffic Services**
System Designation	**Communication / Traffic Services**
Location of sprinkler valve	**Main Entrance Radio Shop**

Type of sprinkler system [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

Is the building occupied?	[X] Yes	[ ] No	[ ] N/A
Is the system in service?	[X] Yes	[ ] No	[ ] N/A
The valve header room(s) appears to be adequately heated?	[X] Yes	[ ] No	[ ] N/A
The valve header room(s) have a low-temperature alarm?	[ ] Yes	[ ] No	[X] N/A
Is it known that the system(s) is hydraulically calculated?	[ ] Yes	[X] No	[ ] N/A
If yes, is hydraulic information sign provided at valve(s)?	[ ] Yes	[ ] No	[X] N/A
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	[X] Yes	[ ] No	[ ] N/A
Do all exterior openings appear to be protected from freezing?	[X] Yes	[ ] No	[ ] N/A
If a hand hose is part of the sprinkler system does it appear to be in good condition?	[X] Yes	[ ] No	[ ] N/A
Confirm that the building has not undergone any alterations/additions since the last inspection?	[X] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: **System appears to be pipe schedule system.**

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None

When was pump last inspected?

Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: **Nov 17 2015** Inspector: **Bart Dlugosz** Inspector SP/WFD #: **223/792**

Property Name: **Winnipeg Transit Fort Rouge**

Tenant Name: **Building "A"**

Address: **421 Osborne Street**

City: **Winnipeg** Province: **MB** Postal Code:

Contact: **Alex Vecherya** Phone :

General

Building	**Building "A" C.T.S - Communication & Traffic Services**
System Designation	**Communication / Traffic Services**
Location of sprinkler valve	**Main Entrance Radio Shop**

Type of sprinkler system: [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

	Yes	No	N/A
Is the building occupied?	X		
Is the system in service?	X		
The valve header room(s) appears to be adequately heated?	X		
The valve header room(s) have a low-temperature alarm?			X
Is it known that the system(s) is hydraulically calculated?		X	
If yes, is hydraulic information sign provided at valve(s)?			X
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	X		
Do all exterior openings appear to be protected from freezing?	X		
If a hand hose is part of the sprinkler system does it appear to be in good condition?	X		
Confirm that the building has not undergone any alterations/additions since the last inspection?	X		

Explain No Answers / Comments: **System appears to be pipe schedule system.**

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None

When was pump last inspected?

Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" C.T.S - Communication & Traffic Services

Fire Department Connections (Section 13.7) This section is Not Applicable: [ ]

FDC Location: Across the street of 520 Brandon street

Are identification signs provided and in place?	[ ]	Yes	[X]	No	[ ]	N/A
The connections are visible and accessible?	[X]	Yes	[ ]	No	[ ]	N/A
Couplings or swivels are not damaged and rotate smoothly?	[X]	Yes	[ ]	No	[ ]	N/A
Plugs or caps are in place and undamaged?	[ ]	Yes	[X]	No	[ ]	N/A
Gaskets are in place and in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
The check valve is not leaking?	[ ]	Yes	[ ]	No	[X]	N/A
The automatic drain valve is in place and appears to be working and in good condition?	[ ]	Yes	[ ]	No	[X]	N/A
The connection clapper(s) is in place and appears to be operating properly?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments: **Located on the street. There is a valve pit near FDC and was not inspected during this inspection. Fire department connection feeds building "A" and westside of building "B". FDC is missing ONE 2.5" cap.**

General Condition, Inspected From Floor Level (Section 5.2) This section is Not Applicable: [ ]

Sprinkler heads appear to be in good condition? *(Not corroded, loaded, painted, damaged)*	[ ]	Yes	[X]	No	[ ]	N/A
Piping appears to be in good condition? *(Not damaged, leaking, corroded, bent)*	[X]	Yes	[ ]	No	[ ]	N/A
Hangers or Braces appear to be in good condition? *(Not damaged, loose, rusted, missing)*	[X]	Yes	[ ]	No	[ ]	N/A
Devices, valves and gauges appear to be in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
Is stock of spare sprinklers available along with appropriate sprinkler wrench(s)?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments: **Refer to page 8 deficiencies.**

Sprinkler Testing (Section 5.3) This section is Not Applicable: [ ]

All sprinklers installed have been manufactured after 1920?	[X]	Yes	[ ]	No	[ ]	N/A
Standard response sprinklers are less than fity (50) years old?	[X]	Yes	[ ]	No	[ ]	N/A
Fast response sprinklers are less than twenty (20) years old?	[ ]	Yes	[ ]	No	[X]	N/A
Extra high (325 °F or higher) sprinklers have been tested at five (5) year intervals?	[ ]	Yes	[ ]	No	[X]	N/A
Dry sprinklers are less than ten (10) years old?	[ ]	Yes	[ ]	No	[X]	N/A

(Sprinklers that do not meet the above criteria are required to be replaced or representative samples from one or more sample areas shall be tested. Test procedures shall be repeated at various intervals as stated in NFPA 25)

Explain No Answers / Comments:

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" C.T.S - Communication & Traffic Services**

Gauges (Section 5.3.2) **This section is Not Applicable:** [ ]

Gauges shall be replaced every five (5) years or tested every five (5) years by comparison with a calibrated gauge.
Gauges not accurate to within three (3) percent of the full scale shall be recalibrated or replaced.

Gauges are less than five (5) years old?	[ ]	Yes	[X]	No	[ ]	N/A
Gauges have been compared against a calibrated gauge and are within three (3) percent?	[ ]	Yes	[ ]	No	[X]	N/A
Gauges have been replaced during this annual inspection?	[ ]	Yes	[X]	No	[ ]	N/A

Explain No Answers / Comments: **Gauges dated 2009 (x2) Should be replaced.**

Main Drain Test (Section 13.2.5) **This section is Not Applicable:** [ ]

(All readings should be from the supply pressure lower gauge)

	This Year	Last
Static PSI Before	75	
Residual PSI	73	
Static PSI After	75	
Size of the Main Drain?	2"	

Record the static water supply pressure with no flow.
Open the main drain and allow water flow to stabilize. Record the pressure.
Close the main drain slowly. Record the pressure after gauge has stabilized.
What date was the last main drain test done? **2014**

Explain No Answers / Comments: **Drain does not handle test.**

Wet System (Section 13.4) **This section is Not Applicable:** [ ]

The gauges indicate normal water pressure is being maintained?	[X]	Yes	[ ]	No	[ ]	N/A
Does alarm valve appear to be free of physical damage?	[X]	Yes	[ ]	No	[ ]	N/A
All trim valves are in the appropriate open or closed position?	[X]	Yes	[ ]	No	[ ]	N/A
The alarm drains are not leaking?	[X]	Yes	[ ]	No	[ ]	N/A
Wet system is equipped with a tail-end anti-freeze system(s)?	[X]	Yes	[ ]	No	[ ]	N/A
Anti-freeze solution reading is at what freezing point?	[ ]					
Anti-freeze solution freezing point appears to be satisfactory?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments:

Wet System Test Table for Wet Alarm Valve **This section is Not Applicable:** [ ]

Size	Make	Model	Serial #	Location of Inspectors Test
6"	Grinnell	A	F1837	Sign storage area

(Ensure alarm company is notified to avoid false alarms.)
Test alarm valve water flow alarm switch by opening inspector's test valve.

Static PSI	Alarm Time	Residual PSI
120 psi	32 sec	70 psi

Wet System Low-Water-Pressure Switch

Is the wet system equipped with a low-water-pressure switch? [ ] Yes [X] No [ ] N/A

If Yes, open drain test valve to reduce water pressure slowly. Confirm operation of low pressure switch, record water pressure at which low pressure switch activated. Close drain test and pump system up to normal pressure and restore to service. Record pressure. [ ] PSI

Explain No Answers / Comments: **System Does not have a Low Pressure switch. One should be installed.**

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Date: Nov 17 2015 Location: Building "A" C.T.S - Communication & Traffic Services

Wet System Inspection (Section 13.4.1.2) This section is Not Applicable: ☐

Alarm valves and their associated strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☒ No ☐ N/A

If Yes, what year was the inspection completed? Unknown

If No, was the internal inspection done during this annual inspection? ☐ Yes ☒ No ☐ N/A

Explain No Answers / Comments: Unknown when last wet system inspection was and should be done.

Wet System Vane Type Flow Alarms This section is Not Applicable: ☒

Test water-flow alarm by opening inspector's test and record time that alarm registers.

Flow Switch Zone Designation	Location of Inspectors Test	Static PSI	Alarm Time	Residual PSI

Dry Pipe System (Section 13.4.4) This section is Not Applicable: ☒

Does valve appear to be free of physical damage?	☐ Yes	☐ No	☐ N/A
All trim valves are in the appropriate open or closed position?	☐ Yes	☐ No	☐ N/A
The intermediate chamber is not leaking?	☐ Yes	☐ No	☐ N/A
A tag or card with the last trip date and who conducted the test is attached to the valve?	☐ Yes	☐ No	☐ N/A

Size	Make	Model	Serial #	Location of Inspectors Test

Explain No Answers / Comments:

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Date: Nov 17 2015 Location: Building "A" C.T.S - Communication & Traffic Services

Dry System Low-Air-Pressure Switch

Is the dry system equipped with a low-air-pressure switch? ☐ Yes ☐ No ☒ N/A

If Yes, close the water supply valve isolate quick opening device if one is present and carefully open drain test valve to reduce air pressure slowly. *(Do not reduce air pressure sufficiently to trip the dry pipe valve.)* Confirm operation of low pressure switch, record air pressure at which low pressure switch activated. Close drain test valve, allow air pressure to rise to normal, then slowly open quick opening device and water supply valve. Record pressure. ☐ PSI

Explain No Answers / Comments: _____

Dry Pipe System Trip Test Table **This section is Not Applicable:** ☒

Every three (3) years and whenever the system is altered, the dry pipe valve shall be trip tested with the control valve fully open and the quick-opening device, if provided in service. During the years when full flow testing is not required, the dry pipe valve shall be trip tested with the control valve partially open.

Has the dry pipe valve been tripped with the control valve fully open in the last two (2) years. If yes, what year was the fully open trip test conducted? _____ ☐ Yes ☐ No ☐ N/A

If No, is the fully open trip test being conducted during this annual inspection? ☐ Yes ☐ No ☐ N/A

Normal air pressure as per the Manufacturers recommendation ☐ PSI

Trip test the dry pipe valve. Record the time from opening the inspectors test valve until the dry pipe valve trips.

Water PSI	Air PSI	Time to Trip	Trip Point Air PSI	Time Water To Inspectors Test

Did the valve and alarm operate properly? ☐ Yes ☐ No ☐ N/A

Dry pipe valve interior appears clean and satisfactory? ☐ Yes ☐ No ☐ N/A

Quick-opening device operated properly? ☐ Yes ☐ No ☐ N/A

Is a sign provided at the dry pipe valve indicating the number of auxiliary drains and location of each auxiliary drain? ☐ No ☐ N/A

Were all identified auxiliary drains drained during this inspection? ☐ Yes ☐ No ☐ N/A

Air supply appears to be adequate? ☐ Yes ☐ No ☐ N/A

Automatic air pressure maintenance device appears to operate properly? ☐ Yes ☐ No ☐ N/A

Was the dry pipe valve filled with priming water after it was trip tested and reset? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

Dry Pipe System Inspection (Section 13.4.4.1.6) **This section is Not Applicable:** ☒

Dry pipe valve strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☐ No ☐ N/A

If Yes, what year was the inspection completed? _____

If No, was the internal inspection done during this annual inspection? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" C.T.S - Communication & Traffic Services

Preaction / Deluge System This section is Not Applicable: [X]

Does valve appear to be free of physical damage?	[ ] Yes	[ ] No	[ ] N/A
All trim valves are in the appropriate open or closed position?	[ ] Yes	[ ] No	[ ] N/A
The valve seat is not leaking?	[ ] Yes	[ ] No	[ ] N/A
The electrical components are in service?	[ ] Yes	[ ] No	[ ] N/A

Size	Make	Model	Serial #	Strike Through What Does Not Apply			
				Deluge	Preaction	Closed Nozzles	Open Nozzles

Supervised Preaction Low-Air-Pressure Alarm

Is the preaction system equipped with a low-air-pressure alarm? [ ] Yes [ ] No [ ] N/A

If Yes, close the water supply valve and carefully open drain test valve to reduce air pressure slowly. Confirm operation of low pressure alarm, record air pressure of low pressure alarm activation. Close drain test valve, allow air pressure to rise to normal, then open water supply valve. [ ] PSI

Preaction / Deluge System Trip Test Table (13.4.3.2.2.2) This section is Not Applicable: [X]

The preaction / deluge valve shall be trip tested annually as per the manufacturer's instructions. Where the nature is such that water discharge cannot occur unless protected equipment is shutdown, a full flow test shall be conducted at the next scheduled shutdown. In all cases the test frequency shall not exceed 3 years. Preaction or deluge valves protecting freezers shall be trip tested in a manner that does not introduce moisture into the piping in the freezer. [ ] PSI

Water PSI	Air PSI	Trip Point Air PSI	Number of detectors required to trip Preaction system	Brief description of valve operation

Did the valve and alarm operate properly?	[ ] Yes	[ ] No	[ ] N/A
Were all manual actuation devices operated?	[ ] Yes	[ ] No	[ ] N/A
For deluge systems did the water discharge pattern appear to be satisfactory?	[ ] Yes	[ ] No	[ ] N/A
Air supply appears to be adequate?	[ ] Yes	[ ] No	[ ] N/A
Automatic air pressure maintenance device appears to operate properly?	[ ] Yes	[ ] No	[ ] N/A
Was the preaction valve filled with priming water after it was trip tested and reset?	[ ] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: _____

Preaction / Deluge System Maintenance (Section 13.4.3.1.7.1) This section is Not Applicable: [X]

Interior cleaning and parts replacement or repair shall be permitted every five (5) years for valves that can be reset without removal of the faceplate. If the valve cannot be reset externally the cleaning, replacement or repair shall be completed annually.

The valve requires internal resetting, thus the inspection is done during this inspection?	[ ] Yes	[ ] No	[ ] N/A
The valve can be reset externally thus has the inspection been done within the last four (4) years? If Yes, what year was the inspection completed? _____	[ ] Yes	[ ] No	[ ] N/A
If No, was the internal inspection done during this annual inspection?	[ ] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: _____

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" C.T.S - Communication & Traffic Services**

Control Valves

Are all control valves identified?		Yes	X	No		N/A
Are all control valves locked, sealed or equipped with a supervisory switch?	X	Yes		No		N/A
Are all control valves in the normal open or closed postion?	X	Yes		No		N/A
Are all control valves free from external leaks?	X	Yes		No		N/A
During this inspection was each control valve operated through its full range?	X	Yes		No		N/A
If applicable post indicator valves were opened until spring tension was felt?		Yes		No	X	N/A
If applicable post indicator & OS&Y valves were backed 1/4 turn from fully open position?	X	Yes		No		N/A

Control Valve Table

Control Valve Function	# of Valves	Size	Type of Valve	Open				Secured				Signs			
System control valve	1	6"	OS+Y	X	Y		N	X	Y		N	X	Y		N
Low bay west traffic	1	6"	G.O.B	X	Y		N	X	Y		N		Y	X	N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N

Backflow Prevention Assemblies (Section 13.6)

This section is Not Applicable: ☐

All backflow preventers installed in fire protection system piping shall be tested annually in accordance with the following:

(1) A forward flow test shall be conducted at the system demand, including hose stream demand, where hydrants or inside hose stations are located downstream of the backflow preventer.

(2) A backflow performance test, as required by the authority having jurisdiction, shall be conducted at the completion of the forward flow test.

For backflow preventers sized 2" and under a forward flow test is acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.

Where connections do not permit a full flow test, test shall be completed at the maximum flow rate possible.

Connections do exist to permit a full forward flow test?		Yes		No		N/A
A forward flow test was conducted at the system demand, including hose stream?		Yes		No		N/A
The forward flow test results met the system demand, including hose stream?		Yes		No		N/A
If no connections are available was a flow test conducted at maximum flow rate possible?		Yes		No		N/A
Was there a way of measuring the maximum flow rate?		Yes		No		N/A
What flow rate was measured during the maximum flow rate?						
Was the backflow preventer tested with a separate report to check for no backflow?				No		N/A

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" C.T.S - Communication & Traffic Services

Obstruction Investigation (Section 14.2.1)

An inspection of piping and branch line conditions shall be conducted every five (5) years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Has visual obstruction investigation of piping been conducted within the last four (4) years?	[ ] Yes	[X] No	[ ] N/A
If Yes, what year was the investigation completed? Unknown			
If No, was the visual obstruction investigation conducted during this annual inspection?	[ ] Yes	[ ] No	[X] N/A
This visual obstruction investigation results appears that piping is not obstructed?	[ ] Yes	[ ] No	[X] N/A
Based on this years results a further flushing investigation or procedure is recommended?	[ ] Yes	[ ] No	[X] N/A

Explain No Answers / Comments: Unknown when last Obstruction invesitgation was done and should be done .

Deficiencies (As per NFPA 25 - 2008)

The system has the following deficiencies that should be reviewed with the authority having jurisdiction to determine if corrections should be made.

D1. Obstruction investigation of piping should be done every 5 years.
D2 Internal Inspection of alarm valve and components should be done every 5 years.
D3 Gauges are older then 5 years and should be replaced.
D4 All system control valves should be identified and "keep open" signs should be installed.
D5 Fire department connection should have a identification sign.
D6 Fire department connection is missing one 2.5" cap and should be replaced.
D7 There are approx. EIGHT loaded heads in Radio shop and should be cleaned.
D8
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(Use back of page if further room is needed)

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" C.T.S - Communication & Traffic Services**

Recommendations

We recommend the following based on this annual inspection and test. These recommendations are not deficiencies and are provided for information only. Corrections of these recommendations are dependent on the owner or authority having jurisdiction.

R1.
R2. **Low pressure switch should be installed to prevent false alarms.**
R3. **Drains should be cleaned out to better handle drain test.**
R4.
R5.
R6.
R7.
R8.
R9.

(Use back of page if further room is needed)

General Notes

Record any pertinent information here with respect to the building *(monitoring company, special codes, keys access, confined space, etc.)*

System monitored by Protelec 204-949-1415.

Important Note:

This is an operational test inspection. It does not include a review or analysis of the system design to determine whether or not the system meets current code or standards. BDR Services Ltd. is not responsible for any equipment failure, and any subsequent damage or loss consequential or direct. BDR Services Ltd. is merely verifying operation and condition of equipment at actual time of testing. Owner is responsible for system installation, maintenance and confirmation that system installation requirements are met any time there are alterations, additions, renovations and change of occupancy.

Inspector: **Bart Dlugosz** Inspection Date: **Nov 17 2015**

Licence SP/WFD #: **223/792** Owner Representative:

Signature: Signature:

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Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: Nov 17 2015 Inspector: Bart Dlugosz Inspector SP/WFD #: 223/792

Property Name: Winnipeg Transit Fort Rouge

Tenant Name: Building "A"

Address: 421 Osborne Street

City: Winnipeg Province: MB Postal Code:

Contact: Alex Vecherya Phone :

General

Building	Building "A" High Bay East
System Designation	East High Bay
Location of sprinkler valve	In front of Bus Bay 19 Valve room

Type of sprinkler system [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

	Yes	No	N/A
Is the building occupied?	X		
Is the system in service?	X		
The valve header room(s) appears to be adequately heated?	X		
The valve header room(s) have a low-temperature alarm?			X
Is it known that the system(s) is hydraulically calculated?		X	
If yes, is hydraulic information sign provided at valve(s)?			X
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	X		
Do all exterior openings appear to be protected from freezing?	X		
If a hand hose is part of the sprinkler system does it appear to be in good condition?			X
Confirm that the building has not undergone any alterations/additions since the last inspection?	X		

Explain No Answers / Comments: System appears to be pipe Schedule system.

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None

When was pump last inspected?

Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A

Explain No Answers / Comments:

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" High Bay East**

Fire Department Connections (Section 13.7) **This section is Not Applicable:** [ ]

FDC Location: **Across the street of 520 Brandon street**

Are identification signs provided and in place?	[ ] Yes	[X] No	[ ] N/A
The connections are visible and accessible?	[X] Yes	[ ] No	[ ] N/A
Couplings or swivels are not damaged and rotate smoothly?	[X] Yes	[ ] No	[ ] N/A
Plugs or caps are in place and undamaged?	[ ] Yes	[X] No	[ ] N/A
Gaskets are in place and in good condition?	[X] Yes	[ ] No	[ ] N/A
The check valve is not leaking?	[ ] Yes	[ ] No	[X] N/A
The automatic drain valve is in place and appears to be working and in good condition?	[ ] Yes	[ ] No	[X] N/A
The connection clapper(s) is in place and appears to be operating properly?	[X] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: **Located on the street. There is a valve pit near FDC and was not inspected during this inspection. Fire department connection feeds building "A" and westside of building "B". FDC is missing ONE 2.5" cap.**

General Condition, Inspected From Floor Level (Section 5.2) **This section is Not Applicable:** [ ]

Sprinkler heads appear to be in good condition? *(Not corroded, loaded, painted, damaged)*	[X] Yes	[ ] No	[ ] N/A
Piping appears to be in good condition? *(Not damaged, leaking, corroded, bent)*	[X] Yes	[ ] No	[ ] N/A
Hangers or Braces appear to be in good condition? *(Not damaged, loose, rusted, missing)*	[X] Yes	[ ] No	[ ] N/A
Devices, valves and gauges appear to be in good condition?	[X] Yes	[ ] No	[ ] N/A
Is stock of spare sprinklers available along with appropriate sprinkler wrench(s)?	[X] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments:

Sprinkler Testing (Section 5.3) **This section is Not Applicable:** [ ]

All sprinklers installed have been manufactured after 1920?	[X] Yes	[ ] No	[ ] N/A
Standard response sprinklers are less than fity (50) years old?	[X] Yes	[ ] No	[ ] N/A
Fast response sprinklers are less than twenty (20) years old?	[ ] Yes	[ ] No	[X] N/A
Extra high (325 °F or higher) sprinklers have been tested at five (5) year intervals?	[ ] Yes	[ ] No	[X] N/A
Dry sprinklers are less than ten (10) years old?	[ ] Yes	[ ] No	[X] N/A

(Sprinklers that do not meet the above criteria are required to be replaced or representative samples from one or more sample areas shall be tested. Test procedures shall be repeated at various intervals as stated in NFPA 25)

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay East

Gauges (Section 5.3.2) This section is Not Applicable: [ ]

Gauges shall be replaced every five (5) years or tested every five (5) years by comparison with a calibrated gauge.
Gauges not accurate to within three (3) percent of the full scale shall be recalibrated or replaced.

Gauges are less than five (5) years old?	[ ] Yes	[X] No	[ ] N/A
Gauges have been compared against a calibrated gauge and are within three (3) percent?	[ ] Yes	[ ] No	[X] N/A
Gauges have been replaced during this annual inspection?	[ ] Yes	[X] No	[ ] N/A

Explain No Answers / Comments: Gauges dated 2009 (x2) Should be replaced.

Main Drain Test (Section 13.2.5) This section is Not Applicable: [ ]

(All readings should be from the supply pressure lower gauge)

	This Year	Last
Static PSI Before		
Residual PSI		
Static PSI After		
Size of the Main Drain?	2"	

Record the static water supply pressure with no flow.
Open the main drain and allow water flow to stabilize. Record the pressure.
Close the main drain slowly. Record the pressure after gauge has stabilized.
What date was the last main drain test done? 2014

Explain No Answers / Comments: Drain does not handle test. Should be cleaned out.

Wet System (Section 13.4) This section is Not Applicable: [ ]

The gauges indicate normal water pressure is being maintained?	[X] Yes	[ ] No	[ ] N/A
Does alarm valve appear to be free of physical damage?	[X] Yes	[ ] No	[ ] N/A
All trim valves are in the appropriate open or closed position?	[X] Yes	[ ] No	[ ] N/A
The alarm drains are not leaking?	[X] Yes	[ ] No	[ ] N/A
Wet system is equipped with a tail-end anti-freeze system(s)?	[ ] Yes	[X] No	[ ] N/A
Anti-freeze solution reading is at what freezing point?			
Anti-freeze solution freezing point appears to be satisfactory?	[ ] Yes	[ ] No	[X] N/A

Explain No Answers / Comments: No tail end Anti-freeze system.

Wet System Test Table for Wet Alarm Valve This section is Not Applicable: [ ]

Size	Make	Model	Serial #	Location of Inspectors Test
6"	Grinnell	A	4681	Engine Run shop / Test shop

(Ensure alarm company is notified to avoid false alarms.)
Test alarm valve water flow alarm switch by opening inspector's test valve.

Static PSI	Alarm Time	Residual PSI
125 psi	52 sec	70 psi

Wet System Low-Water-Pressure Switch

Is the wet system equipped with a low-water-pressure switch? [ ] Yes [X] No [ ] N/A

If Yes, open drain test valve to reduce water pressure slowly. Confirm operation of low pressure switch, record water pressure at which low pressure switch activated. Close drain test and pump system up to normal pressure and restore to service. Record pressure. [ ] PSI

Explain No Answers / Comments: No low pressure switch, One should be installed to prevent false alarms.

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay East

Wet System Inspection (Section 13.4.1.2) This section is Not Applicable: ☐

Alarm valves and their associated strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☒ No ☐ N/A

If Yes, what year was the inspection completed? Unknown

If No, was the internal inspection done during this annual inspection? ☐ Yes ☒ No ☐ N/A

Explain No Answers / Comments: Unknown when last wet system inspection was and should be done.

Wet System Vane Type Flow Alarms This section is Not Applicable: ☐

Test water-flow alarm by opening inspector's test and record time that alarm registers.

Flow Switch Zone Designation	Location of Inspectors Test	Static PSI	Alarm Time	Residual PSI
Building B Main flow	In sprinkler room		19 sec	

Dry Pipe System (Section 13.4.4) This section is Not Applicable: ☒

Does valve appear to be free of physical damage? ☐ Yes ☐ No ☐ N/A

All trim valves are in the appropriate open or closed position? ☐ Yes ☐ No ☐ N/A

The intermediate chamber is not leaking? ☐ Yes ☐ No ☐ N/A

A tag or card with the last trip date and who conducted the test is attached to the valve? ☐ Yes ☐ No ☐ N/A

Size	Make	Model	Serial #	Location of Inspectors Test

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay East

Dry System Low-Air-Pressure Switch

Is the dry system equipped with a low-air-pressure switch? [ ] Yes [ ] No [X] N/A

If Yes, close the water supply valve isolate quick opening device if one is present and carefully open drain test valve to reduce air pressure slowly. *(Do not reduce air pressure sufficiently to trip the dry pipe valve.)* Confirm operation of low pressure switch, record air pressure at which low pressure switch activated. Close drain test valve, allow air pressure to rise to normal, then slowly open quick opening device and water supply valve. Record pressure. [ ] PSI

Explain No Answers / Comments: _____

Dry Pipe System Trip Test Table **This section is Not Applicable:** [X]

Every three (3) years and whenever the system is altered, the dry pipe valve shall be trip tested with the control valve fully open and the quick-opening device, if provided in service. During the years when full flow testing is not required, the dry pipe valve shall be trip tested with the control valve partially open.

Has the dry pipe valve been tripped with the control valve fully open in the last two (2) years. If yes, what year was the fully open trip test conducted? _____ [ ] Yes [ ] No [ ] N/A

If No, is the fully open trip test being conducted during this annual inspection? [ ] Yes [ ] No [ ] N/A

Normal air pressure as per the Manufacturers recommendation [ ] PSI

Trip test the dry pipe valve. Record the time from opening the inspectors test valve until the dry pipe valve trips.

Water PSI	Air PSI	Time to Trip	Trip Point Air PSI	Time Water To Inspectors Test

Did the valve and alarm operate properly? [ ] Yes [ ] No [ ] N/A

Dry pipe valve interior appears clean and satisfactory? [ ] Yes [ ] No [ ] N/A

Quick-opening device operated properly? [ ] Yes [ ] No [ ] N/A

Is a sign provided at the dry pipe valve indicating the number of auxiliary drains and location of each auxiliary drain? [ ] No [ ] N/A

Were all identified auxiliary drains drained during this inspection? [ ] Yes [ ] No [ ] N/A

Air supply appears to be adequate? [ ] Yes [ ] No [ ] N/A

Automatic air pressure maintenance device appears to operate properly? [ ] Yes [ ] No [ ] N/A

Was the dry pipe valve filled with priming water after it was trip tested and reset? [ ] Yes [ ] No [ ] N/A

Explain No Answers / Comments: _____

Dry Pipe System Inspection (Section 13.4.4.1.6) **This section is Not Applicable:** [X]

Dry pipe valve strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? [ ] Yes [ ] No [ ] N/A

If Yes, what year was the inspection completed? _____

If No, was the internal inspection done during this annual inspection? [ ] Yes [ ] No [ ] N/A

Explain No Answers / Comments: _____

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" High Bay East**

Preaction / Deluge System **This section is Not Applicable:** [X]

Does valve appear to be free of physical damage?	[ ] Yes	[ ] No	[ ] N/A
All trim valves are in the appropriate open or closed position?	[ ] Yes	[ ] No	[ ] N/A
The valve seat is not leaking?	[ ] Yes	[ ] No	[ ] N/A
The electrical components are in service?	[ ] Yes	[ ] No	[ ] N/A

Size	Make	Model	Serial #	Strike Through What Does Not Apply			
				Deluge	Preaction	Closed Nozzles	Open Nozzles

Supervised Preaction Low-Air-Pressure Alarm

Is the preaction system equipped with a low-air-pressure alarm? [ ] Yes [ ] No [ ] N/A

If Yes, close the water supply valve and carefully open drain test valve to reduce air pressure slowly. Confirm operation of low pressure alarm, record air pressure of low pressure alarm activation. Close drain test valve, allow air pressure to rise to normal, then open water supply valve. [ ] PSI

Preaction / Deluge System Trip Test Table (13.4.3.2.2.2) **This section is Not Applicable:** [X]

The preaction / deluge valve shall be trip tested annually as per the manufacturer's instructions. Where the nature is such that water discharge cannot occur unless protected equipment is shutdown, a full flow test shall be conducted at the next scheduled shutdown. In all cases the test frequency shall not exceed 3 years. Preaction or deluge valves protecting freezers shall be trip tested in a manner that does not introduce moisture into the piping in the freezer. [ ] PSI

Water PSI	Air PSI	Trip Point Air PSI	Number of detectors required to trip Preaction system	Brief description of valve operation

Did the valve and alarm operate properly?	[ ] Yes	[ ] No	[ ] N/A
Were all manual actuation devices operated?	[ ] Yes	[ ] No	[ ] N/A
For deluge systems did the water discharge pattern appear to be satisfactory?	[ ] Yes	[ ] No	[ ] N/A
Air supply appears to be adequate?	[ ] Yes	[ ] No	[ ] N/A
Automatic air pressure maintenance device appears to operate properly?	[ ] Yes	[ ] No	[ ] N/A
Was the preaction valve filled with priming water after it was trip tested and reset?	[ ] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: _____

Preaction / Deluge System Maintenance (Section 13.4.3.1.7.1) **This section is Not Applicable:** [X]

Interior cleaning and parts replacement or repair shall be permitted every five (5) years for valves that can be reset without removal of the faceplate. If the valve cannot be reset externally the cleaning, replacement or repair shall be completed annually.

The valve requires internal resetting, thus the inspection is done during this inspection?	[ ] Yes	[ ] No	[ ] N/A
The valve can be reset externally thus has the inspection been done within the last four (4) years? If Yes, what year was the inspection completed? _____	[ ] Yes	[ ] No	[ ] N/A
If No, was the internal inspection done during this annual inspection?	[ ] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: _____

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay East

Control Valves

Are all control valves identified?		Yes	X	No		N/A
Are all control valves locked, sealed or equipped with a supervisory switch?	X	Yes		No		N/A
Are all control valves in the normal open or closed postion?	X	Yes		No		N/A
Are all control valves free from external leaks?	X	Yes		No		N/A
During this inspection was each control valve operated through its full range?	X	Yes		No		N/A
If applicable post indicator valves were opened until spring tension was felt?		Yes		No	X	N/A
If applicable post indicator & OS&Y valves were backed 1/4 turn from fully open position?	X	Yes		No		N/A

Control Valve Table

Control Valve Function	# of Valves	Size	Type of Valve	Open				Secured				Signs			
System control valve	1	6"	OS+Y	X	Y		N	X	Y		N		Y	X	N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N

Backflow Prevention Assemblies (Section 13.6)

This section is Not Applicable: X

All backflow preventers installed in fire protection system piping shall be tested annually in accordance with the following:

(1) A forward flow test shall be conducted at the system demand, including hose stream demand, where hydrants or inside hose stations are located downstream of the backflow preventer.

(2) A backflow performance test, as required by the authority having jurisdiction, shall be conducted at the completion of the forward flow test.

For backflow preventers sized 2" and under a forward flow test is acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.

Where connections do not permit a full flow test, test shall be completed at the maximum flow rate possible.

Connections do exist to permit a full forward flow test?		Yes		No		N/A
A forward flow test was conducted at the system demand, including hose stream?		Yes		No		N/A
The forward flow test results met the system demand, including hose stream?		Yes		No		N/A
If no connections are available was a flow test conducted at maximum flow rate possible?		Yes		No		N/A
Was there a way of measuring the maximum flow rate?		Yes		No		N/A
What flow rate was measured during the maximum flow rate?						
Was the backflow preventer tested with a separate report to check for no backflow?		Yes		No		N/A

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay East

Obstruction Investigation (Section 14.2.1)

An inspection of piping and branch line conditions shall be conducted every five (5) years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Has visual obstruction investigation of piping been conducted within the last four (4) years?	[ ] Yes	[X] No	[ ] N/A
If Yes, what year was the investigation completed? Unknown			
If No, was the visual obstruction investigation conducted during this annual inspection?	[ ] Yes	[ ] No	[X] N/A
This visual obstruction investigation results appears that piping is not obstructed?	[ ] Yes	[ ] No	[X] N/A
Based on this years results a further flushing investigation or procedure is recommended?	[ ] Yes	[ ] No	[X] N/A

Explain No Answers / Comments: Unknown when last Obstruction invesitgation was done and should be done .

Deficiencies (As per NFPA 25 - 2008)

The system has the following deficiencies that should be reviewed with the authority having jurisdiction to determine if corrections should be made.

D1. Obstruction investigation of piping should be done every 5 years.
D2 Internal Inspection of alarm valve and components should be done every 5 years.
D3 Gauges are older then 5 years and should be replaced.
D4 Fire department connection is missing one 2.5" cap and should be replaced.
D5 Fire department connection should have a identification sign.
D6 All system control valves should be identified and "keep open" signs should be installed.
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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" High Bay East**

Recommendations

We recommend the following based on this annual inspection and test. These recommendations are not deficiencies and are provided for information only. Corrections of these recommendations are dependent on the owner or authority having jurisdiction.

R1.
R2. **Low pressure switch should be installed to prevent false alarms.**
R3. **Drains should be cleaned out to better handle drain test.**
R4.
R5.
R6.
R7.
R8.
R9.

(Use back of page if further room is needed)

General Notes

Record any pertinent information here with respect to the building *(monitoring company, special codes, keys access, confined space, etc.)*

System monitored by Protelec 204-949-1415.

Important Note:

This is an operational test inspection. It does not include a review or analysis of the system design to determine whether or not the system meets current code or standards. BDR Services Ltd. is not responsible for any equipment failure, and any subsequent damage or loss consequential or direct. BDR Services Ltd. is merely verifying operation and condition of equipment at actual time of testing. Owner is responsible for system installation, maintenance and confirmation that system installation requirements are met any time there are alterations, additions, renovations and change of occupancy.

Inspector: **Bart Dlugosz** Inspection Date: **Nov 17 2015**

Licence SP/WFD #: **223/792** Owner Representative:

Signature: Signature:

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Automatic Sprinkler Systems

Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: **Nov 17 2015** Inspector: **Bart Dlugosz** Inspector SP/WFD #: **223/792**

Property Name: **Winnipeg Transit Fort Rouge**

Tenant Name: **Building "A"**

Address: **421 Osborne Street**

City: **Winnipeg** Province: **MB** Postal Code:

Contact: **Alex Vecherya** Phone :

General

Building	**Building "A" Stores Center**
System Designation	**Center Stores / Low Bay Center**
Location of sprinkler valve	**East Stores valve header**

Type of sprinkler system [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

Is the building occupied?	[X] Yes	[ ] No	[ ] N/A
Is the system in service?	[X] Yes	[ ] No	[ ] N/A
The valve header room(s) appears to be adequately heated?	[X] Yes	[ ] No	[ ] N/A
The valve header room(s) have a low-temperature alarm?	[ ] Yes	[ ] No	[X] N/A
Is it known that the system(s) is hydraulically calculated?	[ ] Yes	[X] No	[ ] N/A
If yes, is hydraulic information sign provided at valve(s)?	[ ] Yes	[ ] No	[X] N/A
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	[X] Yes	[ ] No	[ ] N/A
Do all exterior openings appear to be protected from freezing?	[X] Yes	[ ] No	[ ] N/A
If a hand hose is part of the sprinkler system does it appear to be in good condition?	[X] Yes	[ ] No	[ ] N/A
Confirm that the building has not undergone any alterations/additions since the last inspection?	[X] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: **System appears to be pipe schedule system.**

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None

When was pump last inspected?

Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores Center

Fire Department Connections (Section 13.7) This section is Not Applicable: [ ]

FDC Location: Across the street of 520 Brandon street

	Yes	No	N/A
Are identification signs provided and in place?	[ ]	[X]	[ ]
The connections are visible and accessible?	[X]	[ ]	[ ]
Couplings or swivels are not damaged and rotate smoothly?	[X]	[ ]	[ ]
Plugs or caps are in place and undamaged?	[ ]	[X]	[ ]
Gaskets are in place and in good condition?	[X]	[ ]	[ ]
The check valve is not leaking?	[ ]	[ ]	[X]
The automatic drain valve is in place and appears to be working and in good condition?	[ ]	[ ]	[X]
The connection clapper(s) is in place and appears to be operating properly?	[X]	[ ]	[ ]

Explain No Answers / Comments: Located on the street. There is a valve pit near FDC and was not inspected during this inspection. Fire department connection feeds building "A" and westside of building "B". FDC is missing ONE 2.5" cap.

General Condition, Inspected From Floor Level (Section 5.2) This section is Not Applicable: [ ]

	Yes	No	N/A
Sprinkler heads appear to be in good condition? *(Not corroded, loaded, painted, damaged)*	[X]	[ ]	[ ]
Piping appears to be in good condition? *(Not damaged, leaking, corroded, bent)*	[X]	[ ]	[ ]
Hangers or Braces appear to be in good condition? *(Not damaged, loose, rusted, missing)*	[X]	[ ]	[ ]
Devices, valves and gauges appear to be in good condition?	[X]	[ ]	[ ]
Is stock of spare sprinklers available along with appropriate sprinkler wrench(s)?	[X]	[ ]	[ ]

Explain No Answers / Comments:

Sprinkler Testing (Section 5.3) This section is Not Applicable: [ ]

	Yes	No	N/A
All sprinklers installed have been manufactured after 1920?	[X]	[ ]	[ ]
Standard response sprinklers are less than fity (50) years old?	[X]	[ ]	[ ]
Fast response sprinklers are less than twenty (20) years old?	[ ]	[ ]	[X]
Extra high (325 °F or higher) sprinklers have been tested at five (5) year intervals?	[ ]	[ ]	[X]
Dry sprinklers are less than ten (10) years old?	[ ]	[ ]	[X]

(Sprinklers that do not meet the above criteria are required to be replaced or representative samples from one or more sample areas shall be tested. Test procedures shall be repeated at various intervals as stated in NFPA 25)

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores Center

Gauges (Section 5.3.2) This section is Not Applicable: [ ]

Gauges shall be replaced every five (5) years or tested every five (5) years by comparison with a calibrated gauge.
Gauges not accurate to within three (3) percent of the full scale shall be recalibrated or replaced.

Gauges are less than five (5) years old?	[ ] Yes	[X] No	[ ] N/A
Gauges have been compared against a calibrated gauge and are within three (3) percent?	[ ] Yes	[ ] No	[X] N/A
Gauges have been replaced during this annual inspection?	[ ] Yes	[X] No	[ ] N/A

Explain No Answers / Comments: **Gauges dated 2009 (x2) Should be replaced.**

Main Drain Test (Section 13.2.5) This section is Not Applicable: [ ]

(All readings should be from the supply pressure lower gauge)

	This Year	Last
Static PSI Before	70	
Residual PSI	69	
Static PSI After	70	
Size of the Main Drain?	2"	

Record the static water supply pressure with no flow.
Open the main drain and allow water flow to stabilize. Record the pressure.
Close the main drain slowly. Record the pressure after gauge has stabilized.
What date was the last main drain test done? 2014

Explain No Answers / Comments: **Drain does not handle test. Check valve on drain cup does not hold.**

Wet System (Section 13.4) This section is Not Applicable: [ ]

The gauges indicate normal water pressure is being maintained?	[X] Yes	[ ] No	[ ] N/A
Does alarm valve appear to be free of physical damage?	[X] Yes	[ ] No	[ ] N/A
All trim valves are in the appropriate open or closed position?	[X] Yes	[ ] No	[ ] N/A
The alarm drains are not leaking?	[X] Yes	[ ] No	[ ] N/A
Wet system is equipped with a tail-end anti-freeze system(s)?	[ ] Yes	[X] No	[ ] N/A
Anti-freeze solution reading is at what freezing point?	[ ]		
Anti-freeze solution freezing point appears to be satisfactory?	[ ] Yes	[ ] No	[X] N/A

Explain No Answers / Comments: **There is no tail end anti freeze on system.**

Wet System Test Table for Wet Alarm Valve This section is Not Applicable: [ ]

Size	Make	Model	Serial #	Location of Inspectors Test
6"	Grinnell	A	82097	

(Ensure alarm company is notified to avoid false alarms.)
Test alarm valve water flow alarm switch by opening inspector's test valve.

Static PSI	Alarm Time	Residual PSI
120 psi	32 sec	70 psi

Wet System Low-Water-Pressure Switch

Is the wet system equipped with a low-water-pressure switch? [ ] Yes [X] No [ ] N/A

If Yes, open drain test valve to reduce water pressure slowly. Confirm operation of low pressure switch, record water pressure at which low pressure switch activated. Close drain test and pump system up to normal pressure and restore to service. Record pressure. [ ] PSI

Explain No Answers / Comments: **System Does not have a Low Pressure switch. One should be installed.**

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Wet System Inspection (Section 13.4.1.2) This section is Not Applicable: [ ]

Alarm valves and their associated strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? [ ] Yes [X] No [ ] N/A

If Yes, what year was the inspection completed? Unknown

If No, was the internal inspection done during this annual inspection? [ ] Yes [X] No [ ] N/A

Explain No Answers / Comments: Unknown when last wet system inspection was and should be done.

Wet System Vane Type Flow Alarms This section is Not Applicable: [X]

Test water-flow alarm by opening inspector's test and record time that alarm registers.

Flow Switch Zone Designation	Location of Inspectors Test	Static PSI	Alarm Time	Residual PSI

Dry Pipe System (Section 13.4.4) This section is Not Applicable: [X]

Does valve appear to be free of physical damage? [ ] Yes [ ] No [ ] N/A

All trim valves are in the appropriate open or closed position? [ ] Yes [ ] No [ ] N/A

The intermediate chamber is not leaking? [ ] Yes [ ] No [ ] N/A

A tag or card with the last trip date and who conducted the test is attached to the valve? [ ] Yes [ ] No [ ] N/A

Size	Make	Model	Serial #	Location of Inspectors Test

Explain No Answers / Comments:

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Date: Nov 17 2015 Location: Building "A" Stores Center

Dry System Low-Air-Pressure Switch

Is the dry system equipped with a low-air-pressure switch? ☐ Yes ☐ No ☒ N/A

If Yes, close the water supply valve isolate quick opening device if one is present and carefully open drain test valve to reduce air pressure slowly. *(Do not reduce air pressure sufficiently to trip the dry pipe valve.)* Confirm operation of low pressure switch, record air pressure at which low pressure switch activated. Close drain test valve, allow air pressure to rise to normal, then slowly open quick opening device and water supply valve. Record pressure. ☐ PSI

Explain No Answers / Comments: _____

Dry Pipe System Trip Test Table **This section is Not Applicable:** ☒

Every three (3) years and whenever the system is altered, the dry pipe valve shall be trip tested with the control valve fully open and the quick-opening device, if provided in service. During the years when full flow testing is not required, the dry pipe valve shall be trip tested with the control valve partially open.

Has the dry pipe valve been tripped with the control valve fully open in the last two (2) years. If yes, what year was the fully open trip test conducted? _____ ☐ Yes ☐ No ☐ N/A

If No, is the fully open trip test being conducted during this annual inspection? ☐ Yes ☐ No ☐ N/A

Normal air pressure as per the Manufacturers recommendation ☐ PSI

Trip test the dry pipe valve. Record the time from opening the inspectors test valve until the dry pipe valve trips.

Water PSI	Air PSI	Time to Trip	Trip Point Air PSI	Time Water To Inspectors Test

Did the valve and alarm operate properly? ☐ Yes ☐ No ☐ N/A

Dry pipe valve interior appears clean and satisfactory? ☐ Yes ☐ No ☐ N/A

Quick-opening device operated properly? ☐ Yes ☐ No ☐ N/A

Is a sign provided at the dry pipe valve indicating the number of auxiliary drains and location of each auxiliary drain? ☐ No ☐ N/A

Were all identified auxiliary drains drained during this inspection? ☐ Yes ☐ No ☐ N/A

Air supply appears to be adequate? ☐ Yes ☐ No ☐ N/A

Automatic air pressure maintenance device appears to operate properly? ☐ Yes ☐ No ☐ N/A

Was the dry pipe valve filled with priming water after it was trip tested and reset? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

Dry Pipe System Inspection (Section 13.4.4.1.6) **This section is Not Applicable:** ☒

Dry pipe valve strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☐ No ☐ N/A

If Yes, what year was the inspection completed? _____

If No, was the internal inspection done during this annual inspection? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores Center

Preaction / Deluge System This section is Not Applicable: [X]

Does valve appear to be free of physical damage?	[ ] Yes	[ ] No	[ ] N/A
All trim valves are in the appropriate open or closed position?	[ ] Yes	[ ] No	[ ] N/A
The valve seat is not leaking?	[ ] Yes	[ ] No	[ ] N/A
The electrical components are in service?	[ ] Yes	[ ] No	[ ] N/A

Size	Make	Model	Serial #	Strike Through What Does Not Apply			
				Deluge	Preaction	Closed Nozzles	Open Nozzles

Supervised Preaction Low-Air-Pressure Alarm

Is the preaction system equipped with a low-air-pressure alarm? [ ] Yes [ ] No [ ] N/A

If Yes, close the water supply valve and carefully open drain test valve to reduce air pressure slowly. Confirm operation of low pressure alarm, record air pressure of low pressure alarm activation. Close drain test valve, allow air pressure to rise to normal, then open water supply valve. [ ] PSI

Preaction / Deluge System Trip Test Table (13.4.3.2.2.2) This section is Not Applicable: [X]

The preaction / deluge valve shall be trip tested annually as per the manufacturer's instructions. Where the nature is such that water discharge cannot occur unless protected equipment is shutdown, a full flow test shall be conducted at the next scheduled shutdown. In all cases the test frequency shall not exceed 3 years. Preaction or deluge valves protecting freezers shall be trip tested in a manner that does not introduce moisture into the piping in the freezer. [ ] PSI

Water PSI	Air PSI	Trip Point Air PSI	Number of detectors required to trip Preaction system	Brief description of valve operation

Did the valve and alarm operate properly?	[ ] Yes	[ ] No	[ ] N/A
Were all manual actuation devices operated?	[ ] Yes	[ ] No	[ ] N/A
For deluge systems did the water discharge pattern appear to be satisfactory?	[ ] Yes	[ ] No	[ ] N/A
Air supply appears to be adequate?	[ ] Yes	[ ] No	[ ] N/A
Automatic air pressure maintenance device appears to operate properly?	[ ] Yes	[ ] No	[ ] N/A
Was the preaction valve filled with priming water after it was trip tested and reset?	[ ] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: _____

Preaction / Deluge System Maintenance (Section 13.4.3.1.7.1) This section is Not Applicable: [X]

Interior cleaning and parts replacement or repair shall be permitted every five (5) years for valves that can be reset without removal of the faceplate. If the valve cannot be reset externally the cleaning, replacement or repair shall be completed annually.

The valve requires internal resetting, thus the inspection is done during this inspection?	[ ] Yes	[ ] No	[ ] N/A
The valve can be reset externally thus has the inspection been done within the last four (4) years? If Yes, what year was the inspection completed? _____	[ ] Yes	[ ] No	[ ] N/A
If No, was the internal inspection done during this annual inspection?	[ ] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: _____

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores Center

Control Valves

Are all control valves identified?	X Yes	No	N/A
Are all control valves locked, sealed or equipped with a supervisory switch?	X Yes	No	N/A
Are all control valves in the normal open or closed postion?	X Yes	No	N/A
Are all control valves free from external leaks?	X Yes	No	N/A
During this inspection was each control valve operated through its full range?	X Yes	No	N/A
If applicable post indicator valves were opened until spring tension was felt?	Yes	No	X N/A
If applicable post indicator & OS&Y valves were backed 1/4 turn from fully open position?	X Yes	No	N/A

Control Valve Table

Control Valve Function	# of Valves	Size	Type of Valve	Open		Secured		Signs	
System control valve	1	6"	OS+Y	X	N	X	N	X	N
					N		N		N
					N		N		N
					N		N		N
					N		N		N
					N		N		N
					N		N		N
					N		N		N
					N		N		N
					N		N		N

Backflow Prevention Assemblies (Section 13.6)

This section is Not Applicable: X

All backflow preventers installed in fire protection system piping shall be tested annually in accordance with the following:

(1) A forward flow test shall be conducted at the system demand, including hose stream demand, where hydrants or inside hose stations are located downstream of the backflow preventer.

(2) A backflow performance test, as required by the authority having jurisdiction, shall be conducted at the completion of the forward flow test.

For backflow preventers sized 2" and under a forward flow test is acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.

Where connections do not permit a full flow test, test shall be completed at the maximum flow rate possible.

Connections do exist to permit a full forward flow test?	Yes	No	N/A
A forward flow test was conducted at the system demand, including hose stream?	Yes	No	N/A
The forward flow test results met the system demand, including hose stream?	Yes	No	N/A
If no connections are available was a flow test conducted at maximum flow rate possible?	Yes	No	N/A
Was there a way of measuring the maximum flow rate?	Yes	No	N/A
What flow rate was measured during the maximum flow rate?			
Was the backflow preventer tested with a separate report to check for no backflow?		No	N/A

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores Center

Obstruction Investigation (Section 14.2.1)

An inspection of piping and branch line conditions shall be conducted every five (5) years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Has visual obstruction investigation of piping been conducted within the last four (4) years?	[ ] Yes	[X] No	[ ] N/A
If Yes, what year was the investigation completed? Unknown			
If No, was the visual obstruction investigation conducted during this annual inspection?	[ ] Yes	[ ] No	[X] N/A
This visual obstruction investigation results appears that piping is not obstructed?	[ ] Yes	[ ] No	[X] N/A
Based on this years results a further flushing investigation or procedure is recommended?	[ ] Yes	[ ] No	[X] N/A

Explain No Answers / Comments: **Unknown when last Obstruction invesitgation was done and should be done .**

Deficiencies (As per NFPA 25 - 2008)

The system has the following deficiencies that should be reviewed with the authority having jurisdiction to determine if corrections should be made.

D1. **Obstruction investigation of piping should be done every 5 years.**
D2 **Internal Inspection of alarm valve and components should be done every 5 years.**
D3 **Gauges are older then 5 years and should be replaced.**
D4 **All system control valves should be identified and "keep open" signs should be installed.**
D5 **Fire department connection should have a identification sign.**
D6 **Fire department connection is missing one 2.5" cap and should be replaced.**
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23

(Use back of page if further room is needed)

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" Stores Center**

Recommendations

We recommend the following based on this annual inspection and test. These recommendations are not deficiencies and are provided for information only. Corrections of these recommendations are dependent on the owner or authority having jurisdiction.

R1.
R2. **Low pressure switch should be installed to prevent false alarms.**
R3. **Drains should be cleaned out to better handle drain test.**
R4.
R5.
R6.
R7.
R8.
R9.

(Use back of page if further room is needed)

General Notes

Record any pertinent information here with respect to the building *(monitoring company, special codes, keys access, confined space, etc.)*

System monitored by Protelec 204-949-1415.

Important Note:

This is an operational test inspection. It does not include a review or analysis of the system design to determine whether or not the system meets current code or standards. BDR Services Ltd. is not responsible for any equipment failure, and any subsequent damage or loss consequential or direct. BDR Services Ltd. is merely verifying operation and condition of equipment at actual time of testing. Owner is responsible for system installation, maintenance and confirmation that system installation requirements are met any time there are alterations, additions, renovations and change of occupancy.

Inspector: **Bart Dlugosz** Inspection Date: **Nov 17 2015**

Licence SP/WFD #: **223/792** Owner Representative:

Signature: Signature:

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Automatic Sprinkler Systems

Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: **Nov 17 2015** Inspector: **Bart Dlugosz** Inspector SP/WFD #: **223/792**

Property Name: **Winnipeg Transit Fort Rouge**

Tenant Name: **Building "A"**

Address: **421 Osborne Street**

City: **Winnipeg** Province: **MB** Postal Code:

Contact: **Alex Vecherya** Phone :

General

Building	**Building "A" Stores East**
System Designation	**East Stores / Tire shop / East low bay/ Machine shop area**
Location of sprinkler valve	**South West corner of Stores**

Type of sprinkler system [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

	Yes	No	N/A
Is the building occupied?	X		
Is the system in service?	X		
The valve header room(s) appears to be adequately heated?	X		
The valve header room(s) have a low-temperature alarm?			X
Is it known that the system(s) is hydraulically calculated?		X	
If yes, is hydraulic information sign provided at valve(s)?			X
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	X		
Do all exterior openings appear to be protected from freezing?	X		
If a hand hose is part of the sprinkler system does it appear to be in good condition?	X		
Confirm that the building has not undergone any alterations/additions since the last inspection?	X		

Explain No Answers / Comments: **System appears to be pipe schedule system.**

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None

When was pump last inspected?

Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores East

Fire Department Connections (Section 13.7) This section is Not Applicable: [ ]

FDC Location: Across the street of 520 Brandon street

Are identification signs provided and in place?	[ ]	Yes	[X]	No	[ ]	N/A
The connections are visible and accessible?	[X]	Yes	[ ]	No	[ ]	N/A
Couplings or swivels are not damaged and rotate smoothly?	[X]	Yes	[ ]	No	[ ]	N/A
Plugs or caps are in place and undamaged?	[ ]	Yes	[X]	No	[ ]	N/A
Gaskets are in place and in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
The check valve is not leaking?	[ ]	Yes	[ ]	No	[X]	N/A
The automatic drain valve is in place and appears to be working and in good condition?	[ ]	Yes	[ ]	No	[X]	N/A
The connection clapper(s) is in place and appears to be operating properly?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments: Located on the street. There is a valve pit near FDC and was not inspected during this inspection. Fire department connection feeds building "A" and westside of building "B". FDC is missing ONE 2.5" cap.

General Condition, Inspected From Floor Level (Section 5.2) This section is Not Applicable: [ ]

Sprinkler heads appear to be in good condition? *(Not corroded, loaded, painted, damaged)*	[X]	Yes	[ ]	No	[ ]	N/A
Piping appears to be in good condition? *(Not damaged, leaking, corroded, bent)*	[X]	Yes	[ ]	No	[ ]	N/A
Hangers or Braces appear to be in good condition? *(Not damaged, loose, rusted, missing)*	[X]	Yes	[ ]	No	[ ]	N/A
Devices, valves and gauges appear to be in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
Is stock of spare sprinklers available along with appropriate sprinkler wrench(s)?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments:

Sprinkler Testing (Section 5.3) This section is Not Applicable: [ ]

All sprinklers installed have been manufactured after 1920?	[X]	Yes	[ ]	No	[ ]	N/A
Standard response sprinklers are less than fity (50) years old?	[X]	Yes	[ ]	No	[ ]	N/A
Fast response sprinklers are less than twenty (20) years old?	[ ]	Yes	[ ]	No	[X]	N/A
Extra high (325 °F or higher) sprinklers have been tested at five (5) year intervals?	[ ]	Yes	[ ]	No	[X]	N/A
Dry sprinklers are less than ten (10) years old?	[ ]	Yes	[ ]	No	[X]	N/A

(Sprinklers that do not meet the above criteria are required to be replaced or representative samples from one or more sample areas shall be tested. Test procedures shall be repeated at various intervals as stated in NFPA 25)

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores East

Gauges (Section 5.3.2) This section is Not Applicable: ☐

Gauges shall be replaced every five (5) years or tested every five (5) years by comparison with a calibrated gauge.
Gauges not accurate to within three (3) percent of the full scale shall be recalibrated or replaced.

	Yes	No	N/A
Gauges are less than five (5) years old?	☐	X	☐
Gauges have been compared against a calibrated gauge and are within three (3) percent?	☐	☐	X
Gauges have been replaced during this annual inspection?	☐	X	☐

Explain No Answers / Comments: **Gauges dated 2009 (x2) Should be replaced.**

Main Drain Test (Section 13.2.5) This section is Not Applicable: ☐

(All readings should be from the supply pressure lower gauge)

	This Year	Last
Static PSI Before	70	
Residual PSI	69	
Static PSI After	70	

Record the static water supply pressure with no flow.
Open the main drain and allow water flow to stabilize. Record the pressure.
Close the main drain slowly. Record the pressure after gauge has stabilized.
What date was the last main drain test done? 2014 Size of the Main Drain? 2"

Explain No Answers / Comments: **Drain did not handle drain test. Drain shold be cleaned out.**

Wet System (Section 13.4) This section is Not Applicable: ☐

	Yes	No	N/A
The gauges indicate normal water pressure is being maintained?	X	☐	☐
Does alarm valve appear to be free of physical damage?	X	☐	☐
All trim valves are in the appropriate open or closed position?	X	☐	☐
The alarm drains are not leaking?	X	☐	☐
Wet system is equipped with a tail-end anti-freeze system(s)?	☐	X	☐
Anti-freeze solution freezing point appears to be satisfactory?	☐	☐	X

Anti-freeze solution reading is at what freezing point? ☐

Explain No Answers / Comments: **System does not have a tail anti-freeze zone.**

Wet System Test Table for Wet Alarm Valve This section is Not Applicable: ☐

Size	Make	Model	Serial #	Location of Inspectors Test
6"	Grinnell	A	F5174	Machine shop outside steam bay

(Ensure alarm company is notified to avoid false alarms.)
Test alarm valve water flow alarm switch by opening inspector's test valve.

Static PSI	Alarm Time	Residual PSI
120 psi	1m5s	70 psi

Wet System Low-Water-Pressure Switch

Is the wet system equipped with a low-water-pressure switch? ☐ Yes X No ☐ N/A

If Yes, open drain test valve to reduce water pressure slowly. Confirm operation of low pressure switch, record water pressure at which low pressure switch activated. Close drain test and pump system up to normal pressure and restore to service. Record pressure. ☐ PSI

Explain No Answers / Comments: **System Does not have a Low Pressure switch. One should be installed.**

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" Stores East**

Wet System Inspection (Section 13.4.1.2) **This section is Not Applicable:** ☐

Alarm valves and their associated strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years?	☐ Yes	☒ No	☐ N/A
If Yes, what year was the inspection completed? **Unknown**			
If No, was the internal inspection done during this annual inspection?	☐ Yes	☒ No	☐ N/A

Explain No Answers / Comments: **Unknown when last wet system inspection was and should be done.**

Wet System Vane Type Flow Alarms **This section is Not Applicable:** ☒

Test water-flow alarm by opening inspector's test and record time that alarm registers.

Flow Switch Zone Designation	Location of Inspectors Test	Static PSI	Alarm Time	Residual PSI

Dry Pipe System (Section 13.4.4) **This section is Not Applicable:** ☒

Does valve appear to be free of physical damage?	☐ Yes	☐ No	☐ N/A
All trim valves are in the appropriate open or closed position?	☐ Yes	☐ No	☐ N/A
The intermediate chamber is not leaking?	☐ Yes	☐ No	☐ N/A
A tag or card with the last trip date and who conducted the test is attached to the valve?	☐ Yes	☐ No	☐ N/A

Size	Make	Model	Serial #	Location of Inspectors Test

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores East

Dry System Low-Air-Pressure Switch

Is the dry system equipped with a low-air-pressure switch? ☐ Yes ☐ No ☒ N/A

If Yes, close the water supply valve isolate quick opening device if one is present and carefully open drain test valve to reduce air pressure slowly. *(Do not reduce air pressure sufficiently to trip the dry pipe valve.)* Confirm operation of low pressure switch, record air pressure at which low pressure switch activated. Close drain test valve, allow air pressure to rise to normal, then slowly open quick opening device and water supply valve. Record pressure. ☐ PSI

Explain No Answers / Comments:

Dry Pipe System Trip Test Table **This section is Not Applicable:** ☒

Every three (3) years and whenever the system is altered, the dry pipe valve shall be trip tested with the control valve fully open and the quick-opening device, if provided in service. During the years when full flow testing is not required, the dry pipe valve shall be trip tested with the control valve partially open.

Has the dry pipe valve been tripped with the control valve fully open in the last two (2) years. If yes, what year was the fully open trip test conducted? _____ ☐ Yes ☐ No ☐ N/A

If No, is the fully open trip test being conducted during this annual inspection? ☐ Yes ☐ No ☐ N/A

Normal air pressure as per the Manufacturers recommendation ☐ PSI

Trip test the dry pipe valve. Record the time from opening the inspectors test valve until the dry pipe valve trips.

Water PSI	Air PSI	Time to Trip	Trip Point Air PSI	Time Water To Inspectors Test

Did the valve and alarm operate properly? ☐ Yes ☐ No ☐ N/A

Dry pipe valve interior appears clean and satisfactory? ☐ Yes ☐ No ☐ N/A

Quick-opening device operated properly? ☐ Yes ☐ No ☐ N/A

Is a sign provided at the dry pipe valve indicating the number of auxiliary drains and location of each auxiliary drain? ☐ No ☐ N/A

Were all identified auxiliary drains drained during this inspection? ☐ Yes ☐ No ☐ N/A

Air supply appears to be adequate? ☐ Yes ☐ No ☐ N/A

Automatic air pressure maintenance device appears to operate properly? ☐ Yes ☐ No ☐ N/A

Was the dry pipe valve filled with priming water after it was trip tested and reset? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments:

Dry Pipe System Inspection (Section 13.4.4.1.6) **This section is Not Applicable:** ☒

Dry pipe valve strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☐ No ☐ N/A

If Yes, what year was the inspection completed? _____

If No, was the internal inspection done during this annual inspection? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores East

Preaction / Deluge System This section is Not Applicable: [X]

Does valve appear to be free of physical damage?	[ ] Yes	[ ] No	[ ] N/A
All trim valves are in the appropriate open or closed position?	[ ] Yes	[ ] No	[ ] N/A
The valve seat is not leaking?	[ ] Yes	[ ] No	[ ] N/A
The electrical components are in service?	[ ] Yes	[ ] No	[ ] N/A

Size	Make	Model	Serial #	Strike Through What Does Not Apply			
				Deluge	Preaction	Closed Nozzles	Open Nozzles

Supervised Preaction Low-Air-Pressure Alarm

Is the preaction system equipped with a low-air-pressure alarm? [ ] Yes [ ] No [ ] N/A

If Yes, close the water supply valve and carefully open drain test valve to reduce air pressure slowly. Confirm operation of low pressure alarm, record air pressure of low pressure alarm activation. Close drain test valve, allow air pressure to rise to normal, then open water supply valve. [ ] PSI

Preaction / Deluge System Trip Test Table (13.4.3.2.2.2) This section is Not Applicable: [X]

The preaction / deluge valve shall be trip tested annually as per the manufacturer's instructions. Where the nature is such that water discharge cannot occur unless protected equipment is shutdown, a full flow test shall be conducted at the next scheduled shutdown. In all cases the test frequency shall not exceed 3 years. Preaction or deluge valves protecting freezers shall be trip tested in a manner that does not introduce moisture into the piping in the freezer. [ ] PSI

Water PSI	Air PSI	Trip Point Air PSI	Number of detectors required to trip Preaction system	Brief description of valve operation

Did the valve and alarm operate properly?	[ ] Yes	[ ] No	[ ] N/A
Were all manual actuation devices operated?	[ ] Yes	[ ] No	[ ] N/A
For deluge systems did the water discharge pattern appear to be satisfactory?	[ ] Yes	[ ] No	[ ] N/A
Air supply appears to be adequate?	[ ] Yes	[ ] No	[ ] N/A
Automatic air pressure maintenance device appears to operate properly?	[ ] Yes	[ ] No	[ ] N/A
Was the preaction valve filled with priming water after it was trip tested and reset?	[ ] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: _____

Preaction / Deluge System Maintenance (Section 13.4.3.1.7.1) This section is Not Applicable: [X]

Interior cleaning and parts replacement or repair shall be permitted every five (5) years for valves that can be reset without removal of the faceplate. If the valve cannot be reset externally the cleaning, replacement or repair shall be completed annually.

The valve requires internal resetting, thus the inspection is done during this inspection?	[ ] Yes	[ ] No	[ ] N/A
The valve can be reset externally thus has the inspection been done within the last four (4) years? If Yes, what year was the inspection completed? _____	[ ] Yes	[ ] No	[ ] N/A
If No, was the internal inspection done during this annual inspection?	[ ] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: _____

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores East

Control Valves

Are all control valves identified?	X	Yes		No		N/A
Are all control valves locked, sealed or equipped with a supervisory switch?	X	Yes		No		N/A
Are all control valves in the normal open or closed postion?	X	Yes		No		N/A
Are all control valves free from external leaks?	X	Yes		No		N/A
During this inspection was each control valve operated through its full range?	X	Yes		No		N/A
If applicable post indicator valves were opened until spring tension was felt?		Yes		No	X	N/A
If applicable post indicator & OS&Y valves were backed 1/4 turn from fully open position?	X	Yes		No		N/A

Control Valve Table

Control Valve Function	# of Valves	Size	Type of Valve	Open				Secured				Signs			
System control valve	1	6"	OS+Y	X	Y		N	X	Y		N	X	Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N

Backflow Prevention Assemblies (Section 13.6)

This section is Not Applicable: X

All backflow preventers installed in fire protection system piping shall be tested annually in accordance with the following:

(1) A forward flow test shall be conducted at the system demand, including hose stream demand, where hydrants or inside hose stations are located downstream of the backflow preventer.

(2) A backflow performance test, as required by the authority having jurisdiction, shall be conducted at the completion of the forward flow test.

For backflow preventers sized 2" and under a forward flow test is acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.

Where connections do not permit a full flow test, test shall be completed at the maximum flow rate possible.

Connections do exist to permit a full forward flow test?		Yes		No		N/A
A forward flow test was conducted at the system demand, including hose stream?		Yes		No		N/A
The forward flow test results met the system demand, including hose stream?		Yes		No		N/A
If no connections are available was a flow test conducted at maximum flow rate possible?		Yes		No		N/A
Was there a way of measuring the maximum flow rate?		Yes		No		N/A
What flow rate was measured during the maximum flow rate?						
Was the backflow preventer tested with a separate report to check for no backflow?		Yes		No		N/A

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores East

Obstruction Investigation (Section 14.2.1)

An inspection of piping and branch line conditions shall be conducted every five (5) years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Has visual obstruction investigation of piping been conducted within the last four (4) years?	[ ] Yes	[X] No	[ ] N/A
If Yes, what year was the investigation completed? Unknown			
If No, was the visual obstruction investigation conducted during this annual inspection?	[ ] Yes	[ ] No	[X] N/A
This visual obstruction investigation results appears that piping is not obstructed?	[ ] Yes	[ ] No	[X] N/A
Based on this years results a further flushing investigation or procedure is recommended?	[ ] Yes	[ ] No	[X] N/A

Explain No Answers / Comments: **Unknown when last Obstruction invesitgation was done and should be done .**

Deficiencies (As per NFPA 25 - 2008)

The system has the following deficiencies that should be reviewed with the authority having jurisdiction to determine if corrections should be made.

D1. **Obstruction investigation of piping should be done every 5 years.**
D2 **Internal Inspection of alarm valve and components should be done every 5 years.**
D3 **Gauges are older then 5 years and should be replaced.**
D4 **All system control valves should be identified and "keep open" signs should be installed.**
D5 **Fire department connection should have a identification sign.**
D6 **Fire department connection is missing one 2.5" cap and should be replaced.**
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23

(Use back of page if further room is needed)

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" Stores East**

Recommendations

We recommend the following based on this annual inspection and test. These recommendations are not deficiencies and are provided for information only. Corrections of these recommendations are dependent on the owner or authority having jurisdiction.

R1.
R2. **Low pressure switch should be installed to prevent false alarms.**
R3. **Drains should be cleaned out to better handle drain test.**
R4.
R5.
R6.
R7.
R8.
R9.

(Use back of page if further room is needed)

General Notes

Record any pertinent information here with respect to the building *(monitoring company, special codes, keys access, confined space, etc.)*

System monitored by Protelec 204-949-1415.

Important Note:

This is an operational test inspection. It does not include a review or analysis of the system design to determine whether or not the system meets current code or standards. BDR Services Ltd. is not responsible for any equipment failure, and any subsequent damage or loss consequential or direct. BDR Services Ltd. is merely verifying operation and condition of equipment at actual time of testing. Owner is responsible for system installation, maintenance and confirmation that system installation requirements are met any time there are alterations, additions, renovations and change of occupancy.

Inspector: **Bart Dlugosz** Inspection Date: **Nov 17 2015**

Licence SP/WFD #: **223/792** Owner Representative:

Signature: Signature:

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Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: **Nov 17 2015** Inspector: **Bart Dlugosz** Inspector SP/WFD #: **223/792**

Property Name: **Winnipeg Transit Fort Rouge**

Tenant Name: **Building "A"**

Address: **421 Osborne Street**

City: **Winnipeg** Province: **MB** Postal Code:

Contact: **Alex Vecherya** Phone :

General

Building	**Building "A" Stores West**
System Designation	**West stores / uniform stores / Carpentry Shop / Paint shop**
Location of sprinkler valve	**South West corner of Stores**

Type of sprinkler system: [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

	Yes	No	N/A
Is the building occupied?	X		
Is the system in service?	X		
The valve header room(s) appears to be adequately heated?	X		
The valve header room(s) have a low-temperature alarm?			X
Is it known that the system(s) is hydraulically calculated?		X	
If yes, is hydraulic information sign provided at valve(s)?			X
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	X		
Do all exterior openings appear to be protected from freezing?	X		
If a hand hose is part of the sprinkler system does it appear to be in good condition?	X		
Confirm that the building has not undergone any alterations/additions since the last inspection?	X		

Explain No Answers / Comments: **System appears to be pipe schedule system.**

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None

When was pump last inspected?

Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" Stores West**

Fire Department Connections (Section 13.7) **This section is Not Applicable:** [ ]

FDC Location: **Across the street of 520 Brandon street**

Are identification signs provided and in place?	[ ] Yes	[X] No	[ ] N/A
The connections are visible and accessible?	[X] Yes	[ ] No	[ ] N/A
Couplings or swivels are not damaged and rotate smoothly?	[X] Yes	[ ] No	[ ] N/A
Plugs or caps are in place and undamaged?	[ ] Yes	[X] No	[ ] N/A
Gaskets are in place and in good condition?	[X] Yes	[ ] No	[ ] N/A
The check valve is not leaking?	[ ] Yes	[ ] No	[X] N/A
The automatic drain valve is in place and appears to be working and in good condition?	[ ] Yes	[ ] No	[X] N/A
The connection clapper(s) is in place and appears to be operating properly?	[X] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: **Located on the street. There is a valve pit near FDC and was not inspected during this inspection. Fire department connection feeds building "A" and westside of building "B". FDC is missing ONE 2.5" cap.**

General Condition, Inspected From Floor Level (Section 5.2) **This section is Not Applicable:** [ ]

Sprinkler heads appear to be in good condition? *(Not corroded, loaded, painted, damaged)*	[X] Yes	[ ] No	[ ] N/A
Piping appears to be in good condition? *(Not damaged, leaking, corroded, bent)*	[X] Yes	[ ] No	[ ] N/A
Hangers or Braces appear to be in good condition? *(Not damaged, loose, rusted, missing)*	[X] Yes	[ ] No	[ ] N/A
Devices, valves and gauges appear to be in good condition?	[X] Yes	[ ] No	[ ] N/A
Is stock of spare sprinklers available along with appropriate sprinkler wrench(s)?	[X] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments:

Sprinkler Testing (Section 5.3) **This section is Not Applicable:** [ ]

All sprinklers installed have been manufactured after 1920?	[X] Yes	[ ] No	[ ] N/A
Standard response sprinklers are less than fity (50) years old?	[X] Yes	[ ] No	[ ] N/A
Fast response sprinklers are less than twenty (20) years old?	[ ] Yes	[ ] No	[X] N/A
Extra high (325 °F or higher) sprinklers have been tested at five (5) year intervals?	[ ] Yes	[ ] No	[X] N/A
Dry sprinklers are less than ten (10) years old?	[ ] Yes	[ ] No	[X] N/A

(Sprinklers that do not meet the above criteria are required to be replaced or representative samples from one or more sample areas shall be tested. Test procedures shall be repeated at various intervals as stated in NFPA 25)

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores West

Gauges (Section 5.3.2) This section is Not Applicable: [ ]

Gauges shall be replaced every five (5) years or tested every five (5) years by comparison with a calibrated gauge.
Gauges not accurate to within three (3) percent of the full scale shall be recalibrated or replaced.

Gauges are less than five (5) years old?	[ ] Yes	[X] No	[ ] N/A
Gauges have been compared against a calibrated gauge and are within three (3) percent?	[ ] Yes	[ ] No	[X] N/A
Gauges have been replaced during this annual inspection?	[ ] Yes	[X] No	[ ] N/A

Explain No Answers / Comments: Gauges dated 2009 (x2) Should be replaced.

Main Drain Test (Section 13.2.5) This section is Not Applicable: [ ]

(All readings should be from the supply pressure lower gauge)

Record the static water supply pressure with no flow.
Open the main drain and allow water flow to stabilize. Record the pressure.
Close the main drain slowly. Record the pressure after gauge has stabilized.

	This Year	Last
Static PSI Before	75	
Residual PSI	65	
Static PSI After	75	
Size of the Main Drain?	2"	

What date was the last main drain test done? 2014

Explain No Answers / Comments:

Wet System (Section 13.4) This section is Not Applicable: [ ]

The gauges indicate normal water pressure is being maintained?	[X] Yes	[ ] No	[ ] N/A
Does alarm valve appear to be free of physical damage?	[X] Yes	[ ] No	[ ] N/A
All trim valves are in the appropriate open or closed position?	[X] Yes	[ ] No	[ ] N/A
The alarm drains are not leaking?	[X] Yes	[ ] No	[ ] N/A
Wet system is equipped with a tail-end anti-freeze system(s)?	[X] Yes	[ ] No	[ ] N/A
Anti-freeze solution reading is at what freezing point?	[ ]		
Anti-freeze solution freezing point appears to be satisfactory?	[X] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: Refer to notes.

Wet System Test Table for Wet Alarm Valve This section is Not Applicable: [ ]

Size	Make	Model	Serial #	Location of Inspectors Test
6"	Grinnell	A	N/A	Paint shop by Paint room 1

(Ensure alarm company is notified to avoid false alarms.)
Test alarm valve water flow alarm switch by opening inspector's test valve.

Static PSI	Alarm Time	Residual PSI
125 psi	34 sec	70 psi

Wet System Low-Water-Pressure Switch

Is the wet system equipped with a low-water-pressure switch? [ ] Yes [X] No [ ] N/A

If Yes, open drain test valve to reduce water pressure slowly. Confirm operation of low pressure switch, record water pressure at which low pressure switch activated. Close drain test and pump system up to normal pressure and restore to service. Record pressure. [ ] PSI

Explain No Answers / Comments: System Does not have a Low Pressure switch. One should be installed.

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores West

Wet System Inspection (Section 13.4.1.2) This section is Not Applicable: ☐

Alarm valves and their associated strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☒ No ☐ N/A

If Yes, what year was the inspection completed? Unknown

If No, was the internal inspection done during this annual inspection? ☐ Yes ☒ No ☐ N/A

Explain No Answers / Comments: Unknown when last wet system inspection was and should be done.

Wet System Vane Type Flow Alarms This section is Not Applicable: ☒

Test water-flow alarm by opening inspector's test and record time that alarm registers.

Flow Switch Zone Designation	Location of Inspectors Test	Static PSI	Alarm Time	Residual PSI

Dry Pipe System (Section 13.4.4) This section is Not Applicable: ☒

Does valve appear to be free of physical damage?	☐ Yes	☐ No	☐ N/A
All trim valves are in the appropriate open or closed position?	☐ Yes	☐ No	☐ N/A
The intermediate chamber is not leaking?	☐ Yes	☐ No	☐ N/A
A tag or card with the last trip date and who conducted the test is attached to the valve?	☐ Yes	☐ No	☐ N/A

Size	Make	Model	Serial #	Location of Inspectors Test

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores West

Dry System Low-Air-Pressure Switch

Is the dry system equipped with a low-air-pressure switch? ☐ Yes ☐ No ☒ N/A

If Yes, close the water supply valve isolate quick opening device if one is present and carefully open drain test valve to reduce air pressure slowly. *(Do not reduce air pressure sufficiently to trip the dry pipe valve.)* Confirm operation of low pressure switch, record air pressure at which low pressure switch activated. Close drain test valve, allow air pressure to rise to normal, then slowly open quick opening device and water supply valve. Record pressure. ☐ PSI

Explain No Answers / Comments:

Dry Pipe System Trip Test Table **This section is Not Applicable:** ☒

Every three (3) years and whenever the system is altered, the dry pipe valve shall be trip tested with the control valve fully open and the quick-opening device, if provided in service. During the years when full flow testing is not required, the dry pipe valve shall be trip tested with the control valve partially open.

Has the dry pipe valve been tripped with the control valve fully open in the last two (2) years. If yes, what year was the fully open trip test conducted? _____ ☐ Yes ☐ No ☐ N/A

If No, is the fully open trip test being conducted during this annual inspection? ☐ Yes ☐ No ☐ N/A

Normal air pressure as per the Manufacturers recommendation ☐ PSI

Trip test the dry pipe valve. Record the time from opening the inspectors test valve until the dry pipe valve trips.

Water PSI	Air PSI	Time to Trip	Trip Point Air PSI	Time Water To Inspectors Test

Did the valve and alarm operate properly? ☐ Yes ☐ No ☐ N/A

Dry pipe valve interior appears clean and satisfactory? ☐ Yes ☐ No ☐ N/A

Quick-opening device operated properly? ☐ Yes ☐ No ☐ N/A

Is a sign provided at the dry pipe valve indicating the number of auxiliary drains and location of each auxiliary drain? ☐ No ☐ N/A

Were all identified auxiliary drains drained during this inspection? ☐ Yes ☐ No ☐ N/A

Air supply appears to be adequate? ☐ Yes ☐ No ☐ N/A

Automatic air pressure maintenance device appears to operate properly? ☐ Yes ☐ No ☐ N/A

Was the dry pipe valve filled with priming water after it was trip tested and reset? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments:

Dry Pipe System Inspection (Section 13.4.4.1.6) **This section is Not Applicable:** ☒

Dry pipe valve strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☐ No ☐ N/A

If Yes, what year was the inspection completed? _____

If No, was the internal inspection done during this annual inspection? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments:

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" Stores West**

Preaction / Deluge System **This section is Not Applicable: X**

Does valve appear to be free of physical damage?	Yes	No	N/A
All trim valves are in the appropriate open or closed position?	Yes	No	N/A
The valve seat is not leaking?	Yes	No	N/A
The electrical components are in service?	Yes	No	N/A

Size	Make	Model	Serial #	Strike Through What Does Not Apply			
				Deluge	Preaction	Closed Nozzles	Open Nozzles

Supervised Preaction Low-Air-Pressure Alarm

Is the preaction system equipped with a low-air-pressure alarm? Yes No N/A

If Yes, close the water supply valve and carefully open drain test valve to reduce air pressure slowly. Confirm operation of low pressure alarm, record air pressure of low pressure alarm activation. Close drain test valve, allow air pressure to rise to normal, then open water supply valve. PSI

Preaction / Deluge System Trip Test Table (13.4.3.2.2.2) **This section is Not Applicable: X**

The preaction / deluge valve shall be trip tested annually as per the manufacturer's instructions. Where the nature is such that water discharge cannot occur unless protected equipment is shutdown, a full flow test shall be conducted at the next scheduled shutdown. In all cases the test frequency shall not exceed 3 years. Preaction or deluge valves protecting freezers shall be trip tested in a manner that does not introduce moisture into the piping in the freezer. PSI

Water PSI	Air PSI	Trip Point Air PSI	Number of detectors required to trip Preaction system	Brief description of valve operation

Did the valve and alarm operate properly?	Yes	No	N/A
Were all manual actuation devices operated?	Yes	No	N/A
For deluge systems did the water discharge pattern appear to be satisfactory?	Yes	No	N/A
Air supply appears to be adequate?	Yes	No	N/A
Automatic air pressure maintenance device appears to operate properly?	Yes	No	N/A
Was the preaction valve filled with priming water after it was trip tested and reset?	Yes	No	N/A

Explain No Answers / Comments:

Preaction / Deluge System Maintenance (Section 13.4.3.1.7.1) **This section is Not Applicable: X**

Interior cleaning and parts replacement or repair shall be permitted every five (5) years for valves that can be reset without removal of the faceplate. If the valve cannot be reset externally the cleaning, replacement or repair shall be completed annually.

The valve requires internal resetting, thus the inspection is done during this inspection?	Yes	No	N/A
The valve can be reset externally thus has the inspection been done within the last four (4) years? If Yes, what year was the inspection completed?	Yes	No	N/A
If No, was the internal inspection done during this annual inspection?	Yes	No	N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores West

Control Valves

Are all control valves identified?		Yes	X	No		N/A
Are all control valves locked, sealed or equipped with a supervisory switch?		Yes	X	No		N/A
Are all control valves in the normal open or closed postion?	X	Yes		No		N/A
Are all control valves free from external leaks?	X	Yes		No		N/A
During this inspection was each control valve operated through its full range?	X	Yes		No		N/A
If applicable post indicator valves were opened until spring tension was felt?		Yes		No	X	N/A
If applicable post indicator & OS&Y valves were backed 1/4 turn from fully open position?	X	Yes		No		N/A

Control Valve Table

Control Valve Function	# of Valves	Size	Type of Valve	Open				Secured				Signs			
System control valve	1	6"	OS+Y	X	Y		N	X	Y		N	X	Y		N
Paint shop Glycol	2	2"	G.O.B	X	Y		N		Y	X	N		Y	X	N
Carpenter shop Glycol	2	1.25"	G.O.B	X	Y		N	X	Y		N		Y	X	N
Paint shop Booths	4	3"	Gate	X	Y		N		Y	X	N		Y	X	N
Paint booth 4 Iso	1	2"	Gate	X	Y		N		Y	X	N		Y	X	N
Paint shop Glycol Iso	1	2"	Gate	X	Y		N		Y	X	N		Y	X	N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N

Backflow Prevention Assemblies (Section 13.6)

This section is Not Applicable: ☐

All backflow preventers installed in fire protection system piping shall be tested annually in accordance with the following:

(1) A forward flow test shall be conducted at the system demand, including hose stream demand, where hydrants or inside hose stations are located downstream of the backflow preventer.

(2) A backflow performance test, as required by the authority having jurisdiction, shall be conducted at the completion of the forward flow test.

For backflow preventers sized 2" and under a forward flow test is acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.

Where connections do not permit a full flow test, test shall be completed at the maximum flow rate possible.

Connections do exist to permit a full forward flow test?		Yes	X	No		N/A
A forward flow test was conducted at the system demand, including hose stream?		Yes		No	X	N/A
The forward flow test results met the system demand, including hose stream?		Yes		No	X	N/A
If no connections are available was a flow test conducted at maximum flow rate possible?		Yes	X	No		N/A
Was there a way of measuring the maximum flow rate?		Yes	X	No		N/A
What flow rate was measured during the maximum flow rate?						
Was the backflow preventer tested with a separate report to check for no backflow?	X	Yes		No		N/A

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores West

Obstruction Investigation (Section 14.2.1)

An inspection of piping and branch line conditions shall be conducted every five (5) years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Has visual obstruction investigation of piping been conducted within the last four (4) years?	☐ Yes	☒ No	☐ N/A
If Yes, what year was the investigation completed? Unknown			
If No, was the visual obstruction investigation conducted during this annual inspection?	☐ Yes	☐ No	☒ N/A
This visual obstruction investigation results appears that piping is not obstructed?	☐ Yes	☐ No	☒ N/A
Based on this years results a further flushing investigation or procedure is recommended?	☐ Yes	☐ No	☒ N/A

Explain No Answers / Comments: **Unknown when last Obstruction invesitgation was done and should be done .**

Deficiencies (As per NFPA 25 - 2008)

The system has the following deficiencies that should be reviewed with the authority having jurisdiction to determine if corrections should be made.

D1. **Obstruction investigation of piping should be done every 5 years.**
D2 **Internal Inspection of alarm valve and components should be done every 5 years.**
D3 **Gauges are older then 5 years and should be replaced.**
D4 **All system control valves should be identified and "keep open" signs should be installed.**
D5 **Fire department connection should have a identification sign.**
D6 **Fire department connection is missing one 2.5" cap and should be replaced.**
D7 **All Controls valves should be locked or secured open by electronic device.**
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23

(Use back of page if further room is needed)

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" Stores West

Recommendations

We recommend the following based on this annual inspection and test. These recommendations are not deficiencies and are provided for information only. Corrections of these recommendations are dependent on the owner or authority having jurisdiction.

R1.
R2. **Low pressure switch should be installed to prevent false alarms.**
R3. **Drains should be cleaned out to better handle drain test.**
R4.
R5.
R6.
R7.
R8.
R9.

(Use back of page if further room is needed)

General Notes

Record any pertinent information here with respect to the building *(monitoring company, special codes, keys access, confined space, etc.)*

System monitored by Protelec 204-949-1415.

There are TWO Anti-freeze zones on this system. The Paint shop loop measures -28 C if propelyne glycol, and carpenter shop measured at -27 C if propelyne glycol.

Important Note:

This is an operational test inspection. It does not include a review or analysis of the system design to determine whether or not the system meets current code or standards. BDR Services Ltd. is not responsible for any equipment failure, and any subsequent damage or loss consequential or direct. BDR Services Ltd. is merely verifying operation and condition of equipment at actual time of testing. Owner is responsible for system installation, maintenance and confirmation that system installation requirements are met any time there are alterations, additions, renovations and change of occupancy.

Inspector: **Bart Dlugosz** Inspection Date: **Nov 17 2015**

Licence SP/WFD #: **223/792** Owner Representative:

Signature: Signature:

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Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: **Nov 17 2015** Inspector: **Bart Dlugosz** Inspector SP/WFD #: **223/792**
Property Name: **Winnipeg Transit Fort Rouge**
Tenant Name: **Building "A"**
Address: **421 Osborne Street**
City: **Winnipeg** Province: **MB** Postal Code:
Contact: **Alex Vecherya** Phone :

General

Building	**Building "A" High Bay West/Low Bay West Traffic**
System Designation	**West High Bay/West Low Bay Traffic**
Location of sprinkler valve	**In front of Bus Bay 32 Valve room**

Type of sprinkler system [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

	Yes	No	N/A
Is the building occupied?	X		
Is the system in service?	X		
The valve header room(s) appears to be adequately heated?	X		
The valve header room(s) have a low-temperature alarm?			X
Is it known that the system(s) is hydraulically calculated?		X	
If yes, is hydraulic information sign provided at valve(s)?			X
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	X		
Do all exterior openings appear to be protected from freezing?	X		
If a hand hose is part of the sprinkler system does it appear to be in good condition?			X
Confirm that the building has not undergone any alterations/additions since the last inspection?	X		

Explain No Answers / Comments: **System appears to be pipe schedule system, not hydraulically calculated.**

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None

When was pump last inspected?

Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay West/Low Bay West Traffic

Fire Department Connections (Section 13.7) This section is Not Applicable: [ ]

FDC Location: Across the street of 520 Brandon street

Are identification signs provided and in place?	[ ]	Yes	[X]	No	[ ]	N/A
The connections are visible and accessible?	[X]	Yes	[ ]	No	[ ]	N/A
Couplings or swivels are not damaged and rotate smoothly?	[X]	Yes	[ ]	No	[ ]	N/A
Plugs or caps are in place and undamaged?	[ ]	Yes	[X]	No	[ ]	N/A
Gaskets are in place and in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
The check valve is not leaking?	[ ]	Yes	[ ]	No	[X]	N/A
The automatic drain valve is in place and appears to be working and in good condition?	[ ]	Yes	[ ]	No	[X]	N/A
The connection clapper(s) is in place and appears to be operating properly?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments: **Located on the street. There is a valve pit near FDC and was not inspected during this inspection. Fire department connection feeds building "A" and westside of building "B". FDC is missing ONE 2.5" cap.**

General Condition, Inspected From Floor Level (Section 5.2) This section is Not Applicable: [ ]

Sprinkler heads appear to be in good condition? *(Not corroded, loaded, painted, damaged)*	[X]	Yes	[ ]	No	[ ]	N/A
Piping appears to be in good condition? *(Not damaged, leaking, corroded, bent)*	[X]	Yes	[ ]	No	[ ]	N/A
Hangers or Braces appear to be in good condition? *(Not damaged, loose, rusted, missing)*	[X]	Yes	[ ]	No	[ ]	N/A
Devices, valves and gauges appear to be in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
Is stock of spare sprinklers available along with appropriate sprinkler wrench(s)?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments:

Sprinkler Testing (Section 5.3) This section is Not Applicable: [ ]

All sprinklers installed have been manufactured after 1920?	[X]	Yes	[ ]	No	[ ]	N/A
Standard response sprinklers are less than fity (50) years old?	[X]	Yes	[ ]	No	[ ]	N/A
Fast response sprinklers are less than twenty (20) years old?	[ ]	Yes	[ ]	No	[X]	N/A
Extra high (325 °F or higher) sprinklers have been tested at five (5) year intervals?	[ ]	Yes	[ ]	No	[X]	N/A
Dry sprinklers are less than ten (10) years old?	[ ]	Yes	[ ]	No	[X]	N/A

(Sprinklers that do not meet the above criteria are required to be replaced or representative samples from one or more sample areas shall be tested. Test procedures shall be repeated at various intervals as stated in NFPA 25)

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" High Bay West/Low Bay West Traffic**

Gauges (Section 5.3.2) **This section is Not Applicable:** [ ]

Gauges shall be replaced every five (5) years or tested every five (5) years by comparison with a calibrated gauge.
Gauges not accurate to within three (3) percent of the full scale shall be recalibrated or replaced.

Gauges are less than five (5) years old?	[ ]	Yes	[X]	No	[ ]	N/A
Gauges have been compared against a calibrated gauge and are within three (3) percent?	[ ]	Yes	[ ]	No	[X]	N/A
Gauges have been replaced during this annual inspection?	[ ]	Yes	[X]	No	[ ]	N/A

Explain No Answers / Comments: **Gauges dated 2009 (x2) Should be replaced.**

Main Drain Test (Section 13.2.5) **This section is Not Applicable:** [ ]

(All readings should be from the supply pressure lower gauge)

Record the static water supply pressure with no flow.
Open the main drain and allow water flow to stabilize. Record the pressure.
Close the main drain slowly. Record the pressure after gauge has stabilized.

	This Year	Last
Static PSI Before		
Residual PSI		
Static PSI After		
Size of the Main Drain?		

What date was the last main drain test done? **2014**

Explain No Answers / Comments: **Drain did not handle test. Drain backs up when other drains are flowed.**

Wet System (Section 13.4) **This section is Not Applicable:** [ ]

The gauges indicate normal water pressure is being maintained?	[X]	Yes	[ ]	No	[ ]	N/A
Does alarm valve appear to be free of physical damage?	[X]	Yes	[ ]	No	[ ]	N/A
All trim valves are in the appropriate open or closed position?	[X]	Yes	[ ]	No	[ ]	N/A
The alarm drains are not leaking?	[X]	Yes	[ ]	No	[ ]	N/A
Wet system is equipped with a tail-end anti-freeze system(s)?	[ ]	Yes	[X]	No	[ ]	N/A
Anti-freeze solution reading is at what freezing point?	[ ]					
Anti-freeze solution freezing point appears to be satisfactory?	[ ]	Yes	[ ]	No	[X]	N/A

Explain No Answers / Comments: **No tail end anti-freeze system.**

Wet System Test Table for Wet Alarm Valve **This section is Not Applicable:** [ ]

Size	Make	Model	Serial #	Location of Inspectors Test
6"	Grinnell	A	F4841	Behind air compressor S.W corner

(Ensure alarm company is notified to avoid false alarms.)
Test alarm valve water flow alarm switch by opening inspector's test valve.

Static PSI	Alarm Time	Residual PSI
125 psi	22 sec	70 psi

Wet System Low-Water-Pressure Switch

Is the wet system equipped with a low-water-pressure switch? [ ] Yes [X] No [ ] N/A

If Yes, open drain test valve to reduce water pressure slowly. Confirm operation of low pressure switch, record water pressure at which low pressure switch activated. Close drain test and pump system up to normal pressure and restore to service. Record pressure. [ ] PSI

Explain No Answers / Comments: **System Does not have a Low Pressure switch. One should be installed.**

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay West/Low Bay West Traffic

Wet System Inspection (Section 13.4.1.2) This section is Not Applicable: ☐

Alarm valves and their associated strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☒ No ☐ N/A

If Yes, what year was the inspection completed? Unknown

If No, was the internal inspection done during this annual inspection? ☐ Yes ☒ No ☐ N/A

Explain No Answers / Comments: Unknown when last wet system inspection was and should be done.

Wet System Vane Type Flow Alarms This section is Not Applicable: ☒

Test water-flow alarm by opening inspector's test and record time that alarm registers.

Flow Switch Zone Designation	Location of Inspectors Test	Static PSI	Alarm Time	Residual PSI

Dry Pipe System (Section 13.4.4) This section is Not Applicable: ☒

Does valve appear to be free of physical damage? ☐ Yes ☐ No ☐ N/A

All trim valves are in the appropriate open or closed position? ☐ Yes ☐ No ☐ N/A

The intermediate chamber is not leaking? ☐ Yes ☐ No ☐ N/A

A tag or card with the last trip date and who conducted the test is attached to the valve? ☐ Yes ☐ No ☐ N/A

Size	Make	Model	Serial #	Location of Inspectors Test

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "A" High Bay West/Low Bay West Traffic**

Dry System Low-Air-Pressure Switch

Is the dry system equipped with a low-air-pressure switch? ☐ Yes ☐ No ☒ N/A

If Yes, close the water supply valve isolate quick opening device if one is present and carefully open drain test valve to reduce air pressure slowly. *(Do not reduce air pressure sufficiently to trip the dry pipe valve.)* Confirm operation of low pressure switch, record air pressure at which low pressure switch activated. Close drain test valve, allow air pressure to rise to normal, then slowly open quick opening device and water supply valve. Record pressure. ☐ PSI

Explain No Answers / Comments: _____

Dry Pipe System Trip Test Table **This section is Not Applicable:** ☒

Every three (3) years and whenever the system is altered, the dry pipe valve shall be trip tested with the control valve fully open and the quick-opening device, if provided in service. During the years when full flow testing is not required, the dry pipe valve shall be trip tested with the control valve partially open.

Has the dry pipe valve been tripped with the control valve fully open in the last two (2) years. If yes, what year was the fully open trip test conducted? _____ ☐ Yes ☐ No ☐ N/A

If No, is the fully open trip test being conducted during this annual inspection? ☐ Yes ☐ No ☐ N/A

Normal air pressure as per the Manufacturers recommendation ☐ PSI

Trip test the dry pipe valve. Record the time from opening the inspectors test valve until the dry pipe valve trips.

Water PSI	Air PSI	Time to Trip	Trip Point Air PSI	Time Water To Inspectors Test

Did the valve and alarm operate properly? ☐ Yes ☐ No ☐ N/A

Dry pipe valve interior appears clean and satisfactory? ☐ Yes ☐ No ☐ N/A

Quick-opening device operated properly? ☐ Yes ☐ No ☐ N/A

Is a sign provided at the dry pipe valve indicating the number of auxiliary drains and location of each auxiliary drain? ☐ No ☐ N/A

Were all identified auxiliary drains drained during this inspection? ☐ Yes ☐ No ☐ N/A

Air supply appears to be adequate? ☐ Yes ☐ No ☐ N/A

Automatic air pressure maintenance device appears to operate properly? ☐ Yes ☐ No ☐ N/A

Was the dry pipe valve filled with priming water after it was trip tested and reset? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

Dry Pipe System Inspection (Section 13.4.4.1.6) **This section is Not Applicable:** ☒

Dry pipe valve strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☐ No ☐ N/A

If Yes, what year was the inspection completed? _____

If No, was the internal inspection done during this annual inspection? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay West/Low Bay West Traffic

Preaction / Deluge System This section is Not Applicable: X

Does valve appear to be free of physical damage?	Yes	No	N/A
All trim valves are in the appropriate open or closed position?	Yes	No	N/A
The valve seat is not leaking?	Yes	No	N/A
The electrical components are in service?	Yes	No	N/A

Size	Make	Model	Serial #	Strike Through What Does Not Apply			
				Deluge	Preaction	Closed Nozzles	Open Nozzles

Supervised Preaction Low-Air-Pressure Alarm

Is the preaction system equipped with a low-air-pressure alarm? Yes No N/A

If Yes, close the water supply valve and carefully open drain test valve to reduce air pressure slowly. Confirm operation of low pressure alarm, record air pressure of low pressure alarm activation. Close drain test valve, allow air pressure to rise to normal, then open water supply valve. PSI

Preaction / Deluge System Trip Test Table (13.4.3.2.2.2) This section is Not Applicable: X

The preaction / deluge valve shall be trip tested annually as per the manufacturer's instructions. Where the nature is such that water discharge cannot occur unless protected equipment is shutdown, a full flow test shall be conducted at the next scheduled shutdown. In all cases the test frequency shall not exceed 3 years. Preaction or deluge valves protecting freezers shall be trip tested in a manner that does not introduce moisture into the piping in the freezer. PSI

Water PSI	Air PSI	Trip Point Air PSI	Number of detectors required to trip Preaction system	Brief description of valve operation

Did the valve and alarm operate properly?	Yes	No	N/A
Were all manual actuation devices operated?	Yes	No	N/A
For deluge systems did the water discharge pattern appear to be satisfactory?	Yes	No	N/A
Air supply appears to be adequate?	Yes	No	N/A
Automatic air pressure maintenance device appears to operate properly?	Yes	No	N/A
Was the preaction valve filled with priming water after it was trip tested and reset?	Yes	No	N/A

Explain No Answers / Comments:

Preaction / Deluge System Maintenance (Section 13.4.3.1.7.1) This section is Not Applicable: X

Interior cleaning and parts replacement or repair shall be permitted every five (5) years for valves that can be reset without removal of the faceplate. If the valve cannot be reset externally the cleaning, replacement or repair shall be completed annually.

The valve requires internal resetting, thus the inspection is done during this inspection?	Yes	No	N/A
The valve can be reset externally thus has the inspection been done within the last four (4) years? If Yes, what year was the inspection completed?	Yes	No	N/A
If No, was the internal inspection done during this annual inspection?	Yes	No	N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay West/Low Bay West Traffic

Control Valves

Are all control valves identified?	Yes	X No	N/A
Are all control valves locked, sealed or equipped with a supervisory switch?	X Yes	No	N/A
Are all control valves in the normal open or closed postion?	X Yes	No	N/A
Are all control valves free from external leaks?	X Yes	No	N/A
During this inspection was each control valve operated through its full range?	X Yes	No	N/A
If applicable post indicator valves were opened until spring tension was felt?	Yes	No	X N/A
If applicable post indicator & OS&Y valves were backed 1/4 turn from fully open position?	X Yes	No	N/A

Control Valve Table

Control Valve Function	# of Valves	Size	Type of Valve	Open				Secured				Signs			
System control valve	1	6"	OS+Y	X	Y		N	X	Y		N	X	Y		N
Building B Isolation	1	8"	Wafer G.O.B	X	Y		N	X	Y		N		Y	X	N
West Low Bay / CTS ISO	1	6"	Wafer G.O.B	X	Y		N	X	Y		N		Y	X	N
(In store above East header)					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N

Backflow Prevention Assemblies (Section 13.6)

This section is Not Applicable: X

All backflow preventers installed in fire protection system piping shall be tested annually in accordance with the following:

(1) A forward flow test shall be conducted at the system demand, including hose stream demand, where hydrants or inside hose stations are located downstream of the backflow preventer.

(2) A backflow performance test, as required by the authority having jurisdiction, shall be conducted at the completion of the forward flow test.

For backflow preventers sized 2" and under a forward flow test is acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.

Where connections do not permit a full flow test, test shall be completed at the maximum flow rate possible.

Connections do exist to permit a full forward flow test?	Yes	No	N/A
A forward flow test was conducted at the system demand, including hose stream?	Yes	No	N/A
The forward flow test results met the system demand, including hose stream?	Yes	No	N/A
If no connections are available was a flow test conducted at maximum flow rate possible?	Yes	No	N/A
Was there a way of measuring the maximum flow rate?	Yes	No	N/A
What flow rate was measured during the maximum flow rate?			
Was the backflow preventer tested with a separate report to check for no backflow?	Yes	No	N/A

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay West/Low Bay West Traffic

Obstruction Investigation (Section 14.2.1)

An inspection of piping and branch line conditions shall be conducted every five (5) years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Has visual obstruction investigation of piping been conducted within the last four (4) years?	[ ] Yes	[X] No	[ ] N/A
If Yes, what year was the investigation completed? Unknown			
If No, was the visual obstruction investigation conducted during this annual inspection?	[ ] Yes	[ ] No	[X] N/A
This visual obstruction investigation results appears that piping is not obstructed?	[ ] Yes	[ ] No	[X] N/A
Based on this years results a further flushing investigation or procedure is recommended?	[ ] Yes	[ ] No	[X] N/A

Explain No Answers / Comments: Unknown when last Obstruction invesitgation was done and should be done .

Deficiencies (As per NFPA 25 - 2008)

The system has the following deficiencies that should be reviewed with the authority having jurisdiction to determine if corrections should be made.

D1. Obstruction investigation of piping should be done every 5 years.
D2 Internal Inspection of alarm valve and components should be done every 5 years.
D3 Gauges are older then 5 years and should be replaced.
D4 Two sprinkler heads are covered with tape at high roof new bay addition.
D5 Fire department connection should have a identification sign.
D6 Fire department connection is missing one 2.5" cap and should be replaced.
D7 All system control valves should be identified and "keep open" signs should be installed.
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(Use back of page if further room is needed)

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "A" High Bay West/Low Bay West Traffic

Recommendations

We recommend the following based on this annual inspection and test. These recommendations are not deficiencies and are provided for information only. Corrections of these recommendations are dependent on the owner or authority having jurisdiction.

R1. **Heads obstructed by duct in new addition bay should also check for 18" of clearance for spary pattern to develop properly.**

R2. **Low pressure switch should be installed to prevent false alarms.**

R3. **Drains should be cleaned out to better handle drain test.**

R4.

R5.

R6.

R7.

R8.

R9.

(Use back of page if further room is needed)

General Notes

Record any pertinent information here with respect to the building *(monitoring company, special codes, keys access, confined space, etc.)*

System monitored by Protelec 204-949-1415.

Important Note:

This is an operational test inspection. It does not include a review or analysis of the system design to determine whether or not the system meets current code or standards. BDR Services Ltd. is not responsible for any equipment failure, and any subsequent damage or loss consequential or direct. BDR Services Ltd. is merely verifying operation and condition of equipment at actual time of testing. Owner is responsible for system installation, maintenance and confirmation that system installation requirements are met any time there are alterations, additions, renovations and change of occupancy.

Inspector: Bart Dlugosz Inspection Date: Nov 17 2015

Licence SP/WFD #: 223/792 Owner Representative:

Signature: Signature:

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Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: **Nov 17 2015** Inspector: **Bart Dlugosz** Inspector SP/WFD #: **223/792**
Property Name: **Winnipeg Transit Fort Rouge**
Tenant Name: **Building B**
Address: **421 Osborne Street**
City: **Winnipeg** Province: **MB** Postal Code:
Contact: **Alex Vecherya** Phone :

General

Building	**Building "B" North Track 1-12**
System Designation	**North Track 1-12**
Location of sprinkler valve	**North West corner of building in Maintenance Bay**

Type of sprinkler system: [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

	Yes	No	N/A
Is the building occupied?	X		
Is the system in service?	X		
The valve header room(s) appears to be adequately heated?	X		
The valve header room(s) have a low-temperature alarm?			X
Is it known that the system(s) is hydraulically calculated?		X	
If yes, is hydraulic information sign provided at valve(s)?			X
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	X		
Do all exterior openings appear to be protected from freezing?	X		
If a hand hose is part of the sprinkler system does it appear to be in good condition?	X		
Confirm that the building has not undergone any alterations/additions since the last inspection?	X		

Explain No Answers / Comments: **System appears to be pipe schedule system.**

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None

When was pump last inspected?

Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" North Track 1-12**

Fire Department Connections (Section 13.7) This section is Not Applicable: ☐

FDC Location: **Across the street of 520 Brandon street**

	Yes	No	N/A
Are identification signs provided and in place?	☐	X	☐
The connections are visible and accessible?	X	☐	☐
Couplings or swivels are not damaged and rotate smoothly?	X	☐	☐
Plugs or caps are in place and undamaged?	☐	X	☐
Gaskets are in place and in good condition?	X	☐	☐
The check valve is not leaking?	☐	☐	X
The automatic drain valve is in place and appears to be working and in good condition?	☐	☐	X
The connection clapper(s) is in place and appears to be operating properly?	X	☐	☐

Explain No Answers / Comments: **Located on the street. There is a valve pit near FDC and was not inspected during this inspection. Fire department connection feeds building "A" and westside of building "B". FDC is missing ONE 2.5" cap.**

General Condition, Inspected From Floor Level (Section 5.2) This section is Not Applicable: ☐

	Yes	No	N/A
Sprinkler heads appear to be in good condition? *(Not corroded, loaded, painted, damaged)*	X	☐	☐
Piping appears to be in good condition? *(Not damaged, leaking, corroded, bent)*	X	☐	☐
Hangers or Braces appear to be in good condition? *(Not damaged, loose, rusted, missing)*	X	☐	☐
Devices, valves and gauges appear to be in good condition?	X	☐	☐
Is stock of spare sprinklers available along with appropriate sprinkler wrench(s)?	X	☐	☐

Explain No Answers / Comments:

Sprinkler Testing (Section 5.3) This section is Not Applicable: ☐

	Yes	No	N/A
All sprinklers installed have been manufactured after 1920?	X	☐	☐
Standard response sprinklers are less than fity (50) years old?	X	☐	☐
Fast response sprinklers are less than twenty (20) years old?	☐	☐	X
Extra high (325 °F or higher) sprinklers have been tested at five (5) year intervals?	☐	☐	X
Dry sprinklers are less than ten (10) years old?	☐	☐	X

(Sprinklers that do not meet the above criteria are required to be replaced or representative samples from one or more sample areas shall be tested. Test procedures shall be repeated at various intervals as stated in NFPA 25)

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" North Track 1-12**

Gauges (Section 5.3.2) **This section is Not Applicable:** [ ]

Gauges shall be replaced every five (5) years or tested every five (5) years by comparison with a calibrated gauge.
Gauges not accurate to within three (3) percent of the full scale shall be recalibrated or replaced.

Gauges are less than five (5) years old?	[ ] Yes	[X] No	[ ] N/A
Gauges have been compared against a calibrated gauge and are within three (3) percent?	[ ] Yes	[ ] No	[X] N/A
Gauges have been replaced during this annual inspection?	[ ] Yes	[X] No	[ ] N/A

Explain No Answers / Comments: **Gauges dated 2009 (x2) Should be replaced.**

Main Drain Test (Section 13.2.5) **This section is Not Applicable:** [ ]

(All readings should be from the supply pressure lower gauge)

	This Year	Last
Static PSI Before	70	
Residual PSI	69	
Static PSI After	70	

Record the static water supply pressure with no flow.
Open the main drain and allow water flow to stabilize. Record the pressure.
Close the main drain slowly. Record the pressure after gauge has stabilized.

What date was the last main drain test done? **2014** Size of the Main Drain? **2"**

Explain No Answers / Comments: **Drain does not handle test. Check valve on drain cup does not hold.**

Wet System (Section 13.4) **This section is Not Applicable:** [ ]

The gauges indicate normal water pressure is being maintained?	[X] Yes	[ ] No	[ ] N/A
Does alarm valve appear to be free of physical damage?	[X] Yes	[ ] No	[ ] N/A
All trim valves are in the appropriate open or closed position?	[X] Yes	[ ] No	[ ] N/A
The alarm drains are not leaking?	[X] Yes	[ ] No	[ ] N/A
Wet system is equipped with a tail-end anti-freeze system(s)?	[ ] Yes	[X] No	[ ] N/A
Anti-freeze solution reading is at what freezing point?	[ ]		
Anti-freeze solution freezing point appears to be satisfactory?	[ ] Yes	[ ] No	[X] N/A

Explain No Answers / Comments:

Wet System Test Table for Wet Alarm Valve **This section is Not Applicable:** [ ]

Size	Make	Model	Serial #	Location of Inspectors Test
6"	Grinnell	A	N/A	S.W. corner of Track 1-12

(Ensure alarm company is notified to avoid false alarms.)
Test alarm valve water flow alarm switch by opening inspector's test valve.

Static PSI	Alarm Time	Residual PSI
130 psi	44 sec	70 psi

Wet System Low-Water-Pressure Switch

Is the wet system equipped with a low-water-pressure switch? [ ] Yes [X] No [ ] N/A

If Yes, open drain test valve to reduce water pressure slowly. Confirm operation of low pressure switch, record water pressure at which low pressure switch activated. Close drain test and pump system up to normal pressure and restore to service. Record pressure. [ ] PSI

Explain No Answers / Comments: **System Does not have a Low Pressure switch. One should be installed.**

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" North Track 1-12

Wet System Inspection (Section 13.4.1.2) This section is Not Applicable: ☐

Alarm valves and their associated strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☒ No ☐ N/A

If Yes, what year was the inspection completed? Unknown

If No, was the internal inspection done during this annual inspection? ☐ Yes ☒ No ☐ N/A

Explain No Answers / Comments: Unknown when last wet system inspection was and should be done.

Wet System Vane Type Flow Alarms This section is Not Applicable: ☒

Test water-flow alarm by opening inspector's test and record time that alarm registers.

Flow Switch Zone Designation	Location of Inspectors Test	Static PSI	Alarm Time	Residual PSI

Dry Pipe System (Section 13.4.4) This section is Not Applicable: ☒

Does valve appear to be free of physical damage? ☐ Yes ☐ No ☐ N/A

All trim valves are in the appropriate open or closed position? ☐ Yes ☐ No ☐ N/A

The intermediate chamber is not leaking? ☐ Yes ☐ No ☐ N/A

A tag or card with the last trip date and who conducted the test is attached to the valve? ☐ Yes ☐ No ☐ N/A

Size	Make	Model	Serial #	Location of Inspectors Test

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" North Track 1-12

Dry System Low-Air-Pressure Switch

Is the dry system equipped with a low-air-pressure switch? ☐ Yes ☐ No ☒ N/A

If Yes, close the water supply valve isolate quick opening device if one is present and carefully open drain test valve to reduce air pressure slowly. *(Do not reduce air pressure sufficiently to trip the dry pipe valve.)* Confirm operation of low pressure switch, record air pressure at which low pressure switch activated. Close drain test valve, allow air pressure to rise to normal, then slowly open quick opening device and water supply valve. Record pressure. ☐ PSI

Explain No Answers / Comments:

Dry Pipe System Trip Test Table **This section is Not Applicable:** ☒

Every three (3) years and whenever the system is altered, the dry pipe valve shall be trip tested with the control valve fully open and the quick-opening device, if provided in service. During the years when full flow testing is not required, the dry pipe valve shall be trip tested with the control valve partially open.

Has the dry pipe valve been tripped with the control valve fully open in the last two (2) years. If yes, what year was the fully open trip test conducted? ☐ Yes ☐ No ☐ N/A

If No, is the fully open trip test being conducted during this annual inspection? ☐ Yes ☐ No ☐ N/A

Normal air pressure as per the Manufacturers recommendation ☐ PSI

Trip test the dry pipe valve. Record the time from opening the inspectors test valve until the dry pipe valve trips.

Water PSI	Air PSI	Time to Trip	Trip Point Air PSI	Time Water To Inspectors Test

Did the valve and alarm operate properly? ☐ Yes ☐ No ☐ N/A

Dry pipe valve interior appears clean and satisfactory? ☐ Yes ☐ No ☐ N/A

Quick-opening device operated properly? ☐ Yes ☐ No ☐ N/A

Is a sign provided at the dry pipe valve indicating the number of auxiliary drains and location of each auxiliary drain? ☐ No ☐ N/A

Were all identified auxiliary drains drained during this inspection? ☐ Yes ☐ No ☐ N/A

Air supply appears to be adequate? ☐ Yes ☐ No ☐ N/A

Automatic air pressure maintenance device appears to operate properly? ☐ Yes ☐ No ☐ N/A

Was the dry pipe valve filled with priming water after it was trip tested and reset? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments:

Dry Pipe System Inspection (Section 13.4.4.1.6) **This section is Not Applicable:** ☒

Dry pipe valve strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☐ No ☐ N/A

If Yes, what year was the inspection completed?

If No, was the internal inspection done during this annual inspection? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" North Track 1-12

Preaction / Deluge System This section is Not Applicable: [X]

Does valve appear to be free of physical damage?	[ ] Yes	[ ] No	[ ] N/A
All trim valves are in the appropriate open or closed position?	[ ] Yes	[ ] No	[ ] N/A
The valve seat is not leaking?	[ ] Yes	[ ] No	[ ] N/A
The electrical components are in service?	[ ] Yes	[ ] No	[ ] N/A

Size	Make	Model	Serial #	Strike Through What Does Not Apply			
				Deluge	Preaction	Closed Nozzles	Open Nozzles

Supervised Preaction Low-Air-Pressure Alarm

Is the preaction system equipped with a low-air-pressure alarm? [ ] Yes [ ] No [ ] N/A

If Yes, close the water supply valve and carefully open drain test valve to reduce air pressure slowly. Confirm operation of low pressure alarm, record air pressure of low pressure alarm activation. Close drain test valve, allow air pressure to rise to normal, then open water supply valve. [ ] PSI

Preaction / Deluge System Trip Test Table (13.4.3.2.2.2) This section is Not Applicable: [X]

The preaction / deluge valve shall be trip tested annually as per the manufacturer's instructions. Where the nature is such that water discharge cannot occur unless protected equipment is shutdown, a full flow test shall be conducted at the next scheduled shutdown. In all cases the test frequency shall not exceed 3 years. Preaction or deluge valves protecting freezers shall be trip tested in a manner that does not introduce moisture into the piping in the freezer. [ ] PSI

Water PSI	Air PSI	Trip Point Air PSI	Number of detectors required to trip Preaction system	Brief description of valve operation

Did the valve and alarm operate properly?	[ ] Yes	[ ] No	[ ] N/A
Were all manual actuation devices operated?	[ ] Yes	[ ] No	[ ] N/A
For deluge systems did the water discharge pattern appear to be satisfactory?	[ ] Yes	[ ] No	[ ] N/A
Air supply appears to be adequate?	[ ] Yes	[ ] No	[ ] N/A
Automatic air pressure maintenance device appears to operate properly?	[ ] Yes	[ ] No	[ ] N/A
Was the preaction valve filled with priming water after it was trip tested and reset?	[ ] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: _____

Preaction / Deluge System Maintenance (Section 13.4.3.1.7.1) This section is Not Applicable: [X]

Interior cleaning and parts replacement or repair shall be permitted every five (5) years for valves that can be reset without removal of the faceplate. If the valve cannot be reset externally the cleaning, replacement or repair shall be completed annually.

The valve requires internal resetting, thus the inspection is done during this inspection?	[ ] Yes	[ ] No	[ ] N/A
The valve can be reset externally thus has the inspection been done within the last four (4) years? If Yes, what year was the inspection completed? _____	[ ] Yes	[ ] No	[ ] N/A
If No, was the internal inspection done during this annual inspection?	[ ] Yes	[ ] No	[ ] N/A

Explain No Answers / Comments: _____

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" North Track 1-12

Control Valves

Are all control valves identified?	X Yes	No	N/A
Are all control valves locked, sealed or equipped with a supervisory switch?	X Yes	No	N/A
Are all control valves in the normal open or closed postion?	X Yes	No	N/A
Are all control valves free from external leaks?	X Yes	No	N/A
During this inspection was each control valve operated through its full range?	X Yes	No	N/A
If applicable post indicator valves were opened until spring tension was felt?	Yes	No	X N/A
If applicable post indicator & OS&Y valves were backed 1/4 turn from fully open position?	X Yes	No	N/A

Control Valve Table

Control Valve Function	# of Valves	Size	Type of Valve	Open		Secured		Signs	
System control valve	1	6"	OS+Y	X Y	N	X Y	N	X Y	N
				Y	N	Y	N	Y	N
				Y	N	Y	N	Y	N
				Y	N	Y	N	Y	N
				Y	N	Y	N	Y	N
				Y	N	Y	N	Y	N
				Y	N	Y	N	Y	N
				Y	N	Y	N	Y	N
				Y	N	Y	N	Y	N
				Y	N	Y	N	Y	N

Backflow Prevention Assemblies (Section 13.6) **This section is Not Applicable:** X

All backflow preventers installed in fire protection system piping shall be tested annually in accordance with the following:

(1) A forward flow test shall be conducted at the system demand, including hose stream demand, where hydrants or inside hose stations are located downstream of the backflow preventer.

(2) A backflow performance test, as required by the authority having jurisdiction, shall be conducted at the completion of the forward flow test.

For backflow preventers sized 2" and under a forward flow test is acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.

Where connections do not permit a full flow test, test shall be completed at the maximum flow rate possible.

Connections do exist to permit a full forward flow test?	Yes	No	N/A
A forward flow test was conducted at the system demand, including hose stream?	Yes	No	N/A
The forward flow test results met the system demand, including hose stream?	Yes	No	N/A
If no connections are available was a flow test conducted at maximum flow rate possible?	Yes	No	N/A
Was there a way of measuring the maximum flow rate?	Yes	No	N/A
What flow rate was measured during the maximum flow rate?			
Was the backflow preventer tested with a separate report to check for no backflow?		No	N/A

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" North Track 1-12

Obstruction Investigation (Section 14.2.1)

An inspection of piping and branch line conditions shall be conducted every five (5) years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Has visual obstruction investigation of piping been conducted within the last four (4) years?	☐ Yes	☒ No	☐ N/A
If Yes, what year was the investigation completed?	Unknown		
If No, was the visual obstruction investigation conducted during this annual inspection?	☐ Yes	☐ No	☒ N/A
This visual obstruction investigation results appears that piping is not obstructed?	☐ Yes	☐ No	☒ N/A
Based on this years results a further flushing investigation or procedure is recommended?	☐ Yes	☐ No	☒ N/A

Explain No Answers / Comments: **Unknown when last Obstruction invesitgation was done and should be done .**

Deficiencies (As per NFPA 25 - 2008)

The system has the following deficiencies that should be reviewed with the authority having jurisdiction to determine if corrections should be made.

D1. **Obstruction investigation of piping should be done every 5 years.**
D2 **Internal Inspection of alarm valve and components should be done every 5 years.**
D3 **Gauges are older then 5 years and should be replaced.**
D4 **All system control valves should be identified and "keep open" signs should be installed.**
D5 **Fire department connection should have a identification sign.**
D6 **Fire department connection is missing one 2.5" cap and should be replaced.**
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Automatic Sprinkler Systems

Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" North Track 1-12**

Recommendations

We recommend the following based on this annual inspection and test. These recommendations are not deficiencies and are provided for information only. Corrections of these recommendations are dependent on the owner or authority having jurisdiction.

R1.
R2. **Low pressure switch should be installed to prevent false alarms.**
R3. **Drains should be cleaned out to better handle drain test.**
R4.
R5.
R6.
R7.
R8.
R9.

(Use back of page if further room is needed)

General Notes

Record any pertinent information here with respect to the building *(monitoring company, special codes, keys access, confined space, etc.)*

System monitored by Protelec 204-949-1415.

Important Note:

This is an operational test inspection. It does not include a review or analysis of the system design to determine whether or not the system meets current code or standards. BDR Services Ltd. is not responsible for any equipment failure, and any subsequent damage or loss consequential or direct. BDR Services Ltd. is merely verifying operation and condition of equipment at actual time of testing. Owner is responsible for system installation, maintenance and confirmation that system installation requirements are met any time there are alterations, additions, renovations and change of occupancy.

Inspector: **Bart Dlugosz** Inspection Date: **Nov 17 2015**

Licence SP/WFD #: **223/792** Owner Representative:

Signature: Signature:

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Annual Inspection & Tests

As per NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2008 Edition

Date: Nov 17 2015 Inspector: Bart Dlugosz Inspector SP/WFD #: 223/792
Property Name: Winnipeg Transit Fort Rouge
Tenant Name: Building "B"
Address: 421 Osborne Street
City: Winnipeg Province: MB Postal Code:
Contact: Alex Vecherya Phone :

General

Building	Building "B" Track 13-24 North
System Designation	Track 13-24 North
Location of sprinkler valve	East Center Sprinkler room

Type of sprinkler system [X] Wet [ ] Dry [ ] Deluge [ ] Preaction

	Yes	No	N/A
Is the building occupied?	X		
Is the system in service?	X		
The valve header room(s) appears to be adequately heated?	X		
The valve header room(s) have a low-temperature alarm?			X
Is it known that the system(s) is hydraulically calculated?		X	
If yes, is hydraulic information sign provided at valve(s)?			X
Is there a minimum of 18"clearance between storage/obstructions and the sprinkler deflector?	X		
Do all exterior openings appear to be protected from freezing?	X		
If a hand hose is part of the sprinkler system does it appear to be in good condition?	X		
Confirm that the building has not undergone any alterations/additions since the last inspection?	X		

Explain No Answers / Comments: System appears to be pipe schedule system.

Water Supply

Do reservoirs, tanks, or pressure tanks appear to be in good condition? [ ] Yes [ ] No [X] N/A

(Water storage tanks, private fire service mains, etc. are not covered under this inspection.)

Pumps *(Fire Pump(s) are not covered under this inspection.)*

Is fire pump [ ] Diesel [ ] Electric [ ] Gasoline [X] None

When was pump last inspected?

Does pump appear to be in good condition? [ ] Yes [ ] No [X] N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 13-24 North

Fire Department Connections (Section 13.7) This section is Not Applicable: [ ]

FDC Location: S.E corner of building "B"

Are identification signs provided and in place?	[ ]	Yes	[X]	No	[ ]	N/A
The connections are visible and accessible?	[X]	Yes	[ ]	No	[ ]	N/A
Couplings or swivels are not damaged and rotate smoothly?	[X]	Yes	[ ]	No	[ ]	N/A
Plugs or caps are in place and undamaged?	[X]	Yes	[ ]	No	[ ]	N/A
Gaskets are in place and in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
The check valve is not leaking?	[ ]	Yes	[ ]	No	[X]	N/A
The automatic drain valve is in place and appears to be working and in good condition?	[ ]	Yes	[ ]	No	[X]	N/A
The connection clapper(s) is in place and appears to be operating properly?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments: Located on the street. There is a valve pit near FDC and was not inspected during this inspection. Fire department connection feeds building "B" eastside.

General Condition, Inspected From Floor Level (Section 5.2) This section is Not Applicable: [ ]

Sprinkler heads appear to be in good condition? *(Not corroded, loaded, painted, damaged)*	[X]	Yes	[ ]	No	[ ]	N/A
Piping appears to be in good condition? *(Not damaged, leaking, corroded, bent)*	[X]	Yes	[ ]	No	[ ]	N/A
Hangers or Braces appear to be in good condition? *(Not damaged, loose, rusted, missing)*	[X]	Yes	[ ]	No	[ ]	N/A
Devices, valves and gauges appear to be in good condition?	[X]	Yes	[ ]	No	[ ]	N/A
Is stock of spare sprinklers available along with appropriate sprinkler wrench(s)?	[X]	Yes	[ ]	No	[ ]	N/A

Explain No Answers / Comments:

Sprinkler Testing (Section 5.3) This section is Not Applicable: [ ]

All sprinklers installed have been manufactured after 1920?	[X]	Yes	[ ]	No	[ ]	N/A
Standard response sprinklers are less than fity (50) years old?	[X]	Yes	[ ]	No	[ ]	N/A
Fast response sprinklers are less than twenty (20) years old?	[ ]	Yes	[ ]	No	[X]	N/A
Extra high (325 °F or higher) sprinklers have been tested at five (5) year intervals?	[ ]	Yes	[ ]	No	[X]	N/A
Dry sprinklers are less than ten (10) years old?	[ ]	Yes	[ ]	No	[X]	N/A

(Sprinklers that do not meet the above criteria are required to be replaced or representative samples from one or more sample areas shall be tested. Test procedures shall be repeated at various intervals as stated in NFPA 25)

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 13-24 North

Gauges (Section 5.3.2) This section is Not Applicable: [ ]

Gauges shall be replaced every five (5) years or tested every five (5) years by comparison with a calibrated gauge.
Gauges not accurate to within three (3) percent of the full scale shall be recalibrated or replaced.

Gauges are less than five (5) years old?	[ ]	Yes	[X]	No	[ ]	N/A
Gauges have been compared against a calibrated gauge and are within three (3) percent?	[ ]	Yes	[ ]	No	[X]	N/A
Gauges have been replaced during this annual inspection?	[ ]	Yes	[X]	No	[ ]	N/A

Explain No Answers / Comments: **Gauges dated 2009 (x2) Should be replaced.**

Main Drain Test (Section 13.2.5) This section is Not Applicable: [ ]

(All readings should be from the supply pressure lower gauge)

	This Year	Last
Static PSI Before	70	
Residual PSI	69	
Static PSI After	70	
Size of the Main Drain?	2"	

Record the static water supply pressure with no flow.
Open the main drain and allow water flow to stabilize. Record the pressure.
Close the main drain slowly. Record the pressure after gauge has stabilized.
What date was the last main drain test done? 2014

Explain No Answers / Comments: **Drain does not handle test. Check valve on drain cup does not hold.**

Wet System (Section 13.4) This section is Not Applicable: [ ]

The gauges indicate normal water pressure is being maintained?	[X]	Yes	[ ]	No	[ ]	N/A
Does alarm valve appear to be free of physical damage?	[X]	Yes	[ ]	No	[ ]	N/A
All trim valves are in the appropriate open or closed position?	[X]	Yes	[ ]	No	[ ]	N/A
The alarm drains are not leaking?	[X]	Yes	[ ]	No	[ ]	N/A
Wet system is equipped with a tail-end anti-freeze system(s)?	[ ]	Yes	[X]	No	[ ]	N/A
Anti-freeze solution reading is at what freezing point?						
Anti-freeze solution freezing point appears to be satisfactory?	[ ]	Yes	[ ]	No	[X]	N/A

Explain No Answers / Comments:

Wet System Test Table for Wet Alarm Valve This section is Not Applicable: [ ]

Size	Make	Model	Serial #	Location of Inspectors Test
6"	Grinnell	A	N/A	Bay 24 North

(Ensure alarm company is notified to avoid false alarms.)
Test alarm valve water flow alarm switch by opening inspector's test valve.

Static PSI	Alarm Time	Residual PSI
120 psi	1m17s	70 psi

Wet System Low-Water-Pressure Switch

Is the wet system equipped with a low-water-pressure switch? [ ] Yes [X] No [ ] N/A

If Yes, open drain test valve to reduce water pressure slowly. Confirm operation of low pressure switch, record water pressure at which low pressure switch activated. Close drain test and pump system up to normal pressure and restore to service. Record pressure. [ ] PSI

Explain No Answers / Comments: **System Does not have a Low Pressure switch. One should be installed.**

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 13-24 North

Wet System Inspection (Section 13.4.1.2) This section is Not Applicable: ☐

Alarm valves and their associated strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☒ No ☐ N/A

If Yes, what year was the inspection completed? Unknown

If No, was the internal inspection done during this annual inspection? ☐ Yes ☒ No ☐ N/A

Explain No Answers / Comments: Unknown when last wet system inspection was and should be done.

Wet System Vane Type Flow Alarms This section is Not Applicable: ☒

Test water-flow alarm by opening inspector's test and record time that alarm registers.

Flow Switch Zone Designation	Location of Inspectors Test	Static PSI	Alarm Time	Residual PSI
North Main Incoming			32s	

Dry Pipe System (Section 13.4.4) This section is Not Applicable: ☒

Does valve appear to be free of physical damage? ☐ Yes ☐ No ☐ N/A

All trim valves are in the appropriate open or closed position? ☐ Yes ☐ No ☐ N/A

The intermediate chamber is not leaking? ☐ Yes ☐ No ☐ N/A

A tag or card with the last trip date and who conducted the test is attached to the valve? ☐ Yes ☐ No ☐ N/A

Size	Make	Model	Serial #	Location of Inspectors Test

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 13-24 North

Dry System Low-Air-Pressure Switch

Is the dry system equipped with a low-air-pressure switch? ☐ Yes ☐ No ☒ N/A

If Yes, close the water supply valve isolate quick opening device if one is present and carefully open drain test valve to reduce air pressure slowly. *(Do not reduce air pressure sufficiently to trip the dry pipe valve.)* Confirm operation of low pressure switch, record air pressure at which low pressure switch activated. Close drain test valve, allow air pressure to rise to normal, then slowly open quick opening device and water supply valve. Record pressure. ☐ PSI

Explain No Answers / Comments: _____

Dry Pipe System Trip Test Table **This section is Not Applicable:** ☒

Every three (3) years and whenever the system is altered, the dry pipe valve shall be trip tested with the control valve fully open and the quick-opening device, if provided in service. During the years when full flow testing is not required, the dry pipe valve shall be trip tested with the control valve partially open.

Has the dry pipe valve been tripped with the control valve fully open in the last two (2) years. If yes, what year was the fully open trip test conducted? _____ ☐ Yes ☐ No ☐ N/A

If No, is the fully open trip test being conducted during this annual inspection? ☐ Yes ☐ No ☐ N/A

Normal air pressure as per the Manufacturers recommendation ☐ PSI

Trip test the dry pipe valve. Record the time from opening the inspectors test valve until the dry pipe valve trips.

Water PSI	Air PSI	Time to Trip	Trip Point Air PSI	Time Water To Inspectors Test

Did the valve and alarm operate properly? ☐ Yes ☐ No ☐ N/A

Dry pipe valve interior appears clean and satisfactory? ☐ Yes ☐ No ☐ N/A

Quick-opening device operated properly? ☐ Yes ☐ No ☐ N/A

Is a sign provided at the dry pipe valve indicating the number of auxiliary drains and location of each auxiliary drain? ☐ No ☐ N/A

Were all identified auxiliary drains drained during this inspection? ☐ Yes ☐ No ☐ N/A

Air supply appears to be adequate? ☐ Yes ☐ No ☐ N/A

Automatic air pressure maintenance device appears to operate properly? ☐ Yes ☐ No ☐ N/A

Was the dry pipe valve filled with priming water after it was trip tested and reset? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

Dry Pipe System Inspection (Section 13.4.4.1.6) **This section is Not Applicable:** ☒

Dry pipe valve strainers, filters, and restriction orfices shall be inspected internally every five (5) years unless tests indicate a greater frequency is necessary.

Has the internal inspection been completed within the last four (4) years? ☐ Yes ☐ No ☐ N/A

If Yes, what year was the inspection completed? _____

If No, was the internal inspection done during this annual inspection? ☐ Yes ☐ No ☐ N/A

Explain No Answers / Comments: _____

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 13-24 North

Preaction / Deluge System This section is Not Applicable: X

Does valve appear to be free of physical damage?	Yes	No	N/A
All trim valves are in the appropriate open or closed position?	Yes	No	N/A
The valve seat is not leaking?	Yes	No	N/A
The electrical components are in service?	Yes	No	N/A

Size	Make	Model	Serial #	Strike Through What Does Not Apply			
				Deluge	Preaction	Closed Nozzles	Open Nozzles

Supervised Preaction Low-Air-Pressure Alarm

Is the preaction system equipped with a low-air-pressure alarm? Yes No N/A

If Yes, close the water supply valve and carefully open drain test valve to reduce air pressure slowly. Confirm operation of low pressure alarm, record air pressure of low pressure alarm activation. Close drain test valve, allow air pressure to rise to normal, then open water supply valve. PSI

Preaction / Deluge System Trip Test Table (13.4.3.2.2.2) This section is Not Applicable: X

The preaction / deluge valve shall be trip tested annually as per the manufacturer's instructions. Where the nature is such that water discharge cannot occur unless protected equipment is shutdown, a full flow test shall be conducted at the next scheduled shutdown. In all cases the test frequency shall not exceed 3 years. Preaction or deluge valves protecting freezers shall be trip tested in a manner that does not introduce moisture into the piping in the freezer. PSI

Water PSI	Air PSI	Trip Point Air PSI	Number of detectors required to trip Preaction system	Brief description of valve operation

Did the valve and alarm operate properly?	Yes	No	N/A
Were all manual actuation devices operated?	Yes	No	N/A
For deluge systems did the water discharge pattern appear to be satisfactory?	Yes	No	N/A
Air supply appears to be adequate?	Yes	No	N/A
Automatic air pressure maintenance device appears to operate properly?	Yes	No	N/A
Was the preaction valve filled with priming water after it was trip tested and reset?	Yes	No	N/A

Explain No Answers / Comments:

Preaction / Deluge System Maintenance (Section 13.4.3.1.7.1) This section is Not Applicable: X

Interior cleaning and parts replacement or repair shall be permitted every five (5) years for valves that can be reset without removal of the faceplate. If the valve cannot be reset externally the cleaning, replacement or repair shall be completed annually.

The valve requires internal resetting, thus the inspection is done during this inspection?	Yes	No	N/A
The valve can be reset externally thus has the inspection been done within the last four (4) years? If Yes, what year was the inspection completed?	Yes	No	N/A
If No, was the internal inspection done during this annual inspection?	Yes	No	N/A

Explain No Answers / Comments:

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 13-24 North

Control Valves

Are all control valves identified?	Yes	X No	N/A
Are all control valves locked, sealed or equipped with a supervisory switch?	X Yes	No	N/A
Are all control valves in the normal open or closed postion?	X Yes	No	N/A
Are all control valves free from external leaks?	X Yes	No	N/A
During this inspection was each control valve operated through its full range?	X Yes	No	N/A
If applicable post indicator valves were opened until spring tension was felt?	Yes	No	X N/A
If applicable post indicator & OS&Y valves were backed 1/4 turn from fully open position?	X Yes	No	N/A

Control Valve Table

Control Valve Function	# of Valves	Size	Type of Valve	Open				Secured				Signs			
System control valve	1	6"	OS+Y	X	Y		N	X	Y		N	X	Y		N
Main Incoming North	1	8"	G.O.B	X	Y		N	X	Y		N		Y	X	N
Hydrant Iso	1	6"	G.O.B	X	Y		N	X	Y		N		Y	X	N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N
					Y		N		Y		N		Y		N

Backflow Prevention Assemblies (Section 13.6) This section is Not Applicable: X

All backflow preventers installed in fire protection system piping shall be tested annually in accordance with the following:

(1) A forward flow test shall be conducted at the system demand, including hose stream demand, where hydrants or inside hose stations are located downstream of the backflow preventer.

(2) A backflow performance test, as required by the authority having jurisdiction, shall be conducted at the completion of the forward flow test.

For backflow preventers sized 2" and under a forward flow test is acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.

Where connections do not permit a full flow test, test shall be completed at the maximum flow rate possible.

Connections do exist to permit a full forward flow test?	Yes	No	N/A
A forward flow test was conducted at the system demand, including hose stream?	Yes	No	N/A
The forward flow test results met the system demand, including hose stream?	Yes	No	N/A
If no connections are available was a flow test conducted at maximum flow rate possible?	Yes	No	N/A
Was there a way of measuring the maximum flow rate?	Yes	No	N/A
What flow rate was measured during the maximum flow rate?			
Was the backflow preventer tested with a separate report to check for no backflow?		No	N/A

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Annual Inspection & Tests

Date: Nov 17 2015 Location: Building "B" Track 13-24 North

Obstruction Investigation (Section 14.2.1)

An inspection of piping and branch line conditions shall be conducted every five (5) years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Has visual obstruction investigation of piping been conducted within the last four (4) years?	[ ] Yes	[X] No	[ ] N/A
If Yes, what year was the investigation completed? Unknown			
If No, was the visual obstruction investigation conducted during this annual inspection?	[ ] Yes	[ ] No	[X] N/A
This visual obstruction investigation results appears that piping is not obstructed?	[ ] Yes	[ ] No	[X] N/A
Based on this years results a further flushing investigation or procedure is recommended?	[ ] Yes	[ ] No	[X] N/A

Explain No Answers / Comments: **Unknown when last Obstruction invesitgation was done and should be done .**

Deficiencies (As per NFPA 25 - 2008)

The system has the following deficiencies that should be reviewed with the authority having jurisdiction to determine if corrections should be made.

D1. **Obstruction investigation of piping should be done every 5 years.**
D2 **Internal Inspection of alarm valve and components should be done every 5 years.**
D3 **Gauges are older then 5 years and should be replaced.**
D4 **All system control valves should be identified and "keep open" signs should be installed.**
D5 **Fire department connection should have a identification sign.**
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23

(Use back of page if further room is needed)

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Annual Inspection & Tests

Date: **Nov 17 2015** Location: **Building "B" Track 13-24 North**

Recommendations

We recommend the following based on this annual inspection and test. These recommendations are not deficiencies and are provided for information only. Corrections of these recommendations are dependent on the owner or authority having jurisdiction.

R1.
R2. **Low pressure switch should be installed to prevent false alarms.**
R3. **Drains should be cleaned out to better handle drain test.**
R4.
R5.
R6.
R7.
R8.
R9.

(Use back of page if further room is needed)

General Notes

Record any pertinent information here with respect to the building *(monitoring company, special codes, keys access, confined space, etc.)*

System monitored by Protelec 204-949-1415.

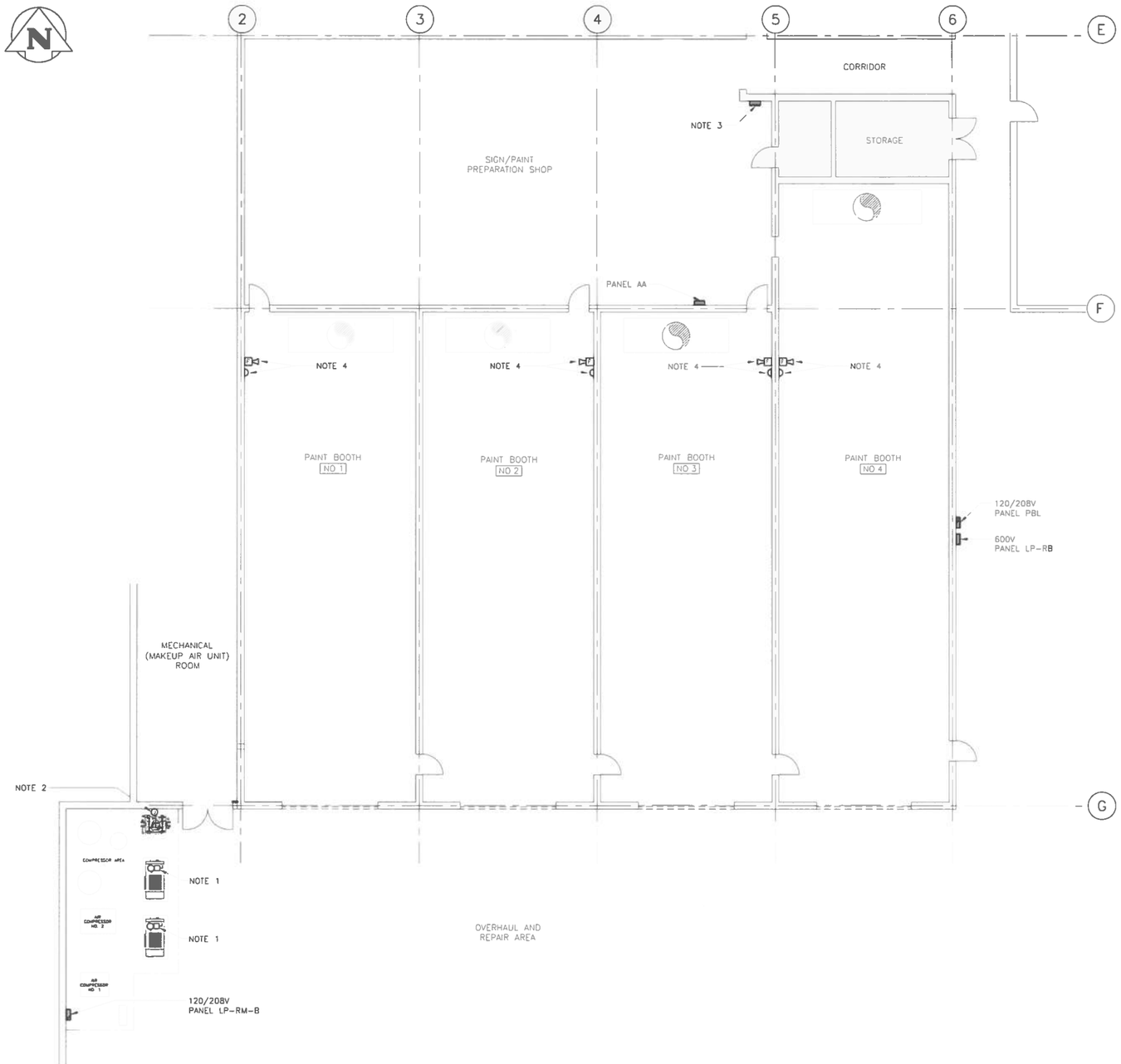
Important Note:

This is an operational test inspection. It does not include a review or analysis of the system design to determine whether or not the system meets current code or standards. BDR Services Ltd. is not responsible for any equipment failure, and any subsequent damage or loss consequential or direct. BDR Services Ltd. is merely verifying operation and condition of equipment at actual time of testing. Owner is responsible for system installation, maintenance and confirmation that system installation requirements are met any time there are alterations, additions, renovations and change of occupancy.

Inspector: **Bart Dlugosz** Inspection Date: **Nov 17 2015**

Licence SP/WFD #: **223/792** Owner Representative:

Signature: Signature:



1 / - | - PARTIAL MAIN FLOOR PLAN – ELECTRICAL LAYOUT
1/8" = 1'-0"

NOTES:

1. 30HP COMPRESSOR PACKAGES AC-1 AND AC-2, 460V-3PH. EACH COMPRESSOR FED FROM A 50A-3P CIRCUIT BREAKER IN PANEL LP-RB WITH 3#8 TECK.
2. DRYER/BREATHING AIR PACKAGE FED FROM A 15A-1P CIRCUIT BREAKER IN PANEL LP-RM-B.
3. BREATHING AIR SYSTEM REMOTE ALARM PANEL FED FROM A 15A-1P CIRCUIT BREAKER IN PANEL AA.
4. VISUAL AND AUDIBLE ALARMS TIED INTO BREATHING AIR CONTROL PANEL. ALL WIRING WITHIN PAINT BOOTHS TO BE SUITABLE FOR CLASS 1 ZONE 1 INSTALLATION.

SYMBOL LEGEND

- ELECTRIC MOTOR. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION.
- DISCONNECT SWITCH BY ELECTRICAL CONTRACTOR.
- PANELBOARD.
- JUNCTION BOX.
- ALARM HORN.
- ALARM STROBE LIGHT.

AS-BUILT
DATE 09.12.11 BY CPG
CHECKED BY DD

APEGM
Certificate of Authorization
Wardrop Engineering Inc.
No. 195 Date: April 30, 2009

1/8"=1'-0" 5 0 5 10ft.

NO.	DESCRIPTION	DATE	ISSUED BY
03	ISSUED AS BUILT	09.12.11	CPG
02	ISSUED FOR ADDENDUM #2	08.10.27	T.S.
01	ISSUED FOR ADDENDUM #1	08.10.22	T.S.
00	ISSUED FOR TENDER	08.10.09	L.K.

REVISIONS/ISSUE

CLIENT
CITY OF WINNIPEG
TRANSIT DEPARTMENT

WARDROP | Engineering Inc.

PROJECT NAME
WINNIPEG TRANSIT – OSBORNE STREET GARAGE
PAINT BOOTH BREATHING AIR SYSTEM UPGRADE

DRAWING DESCRIPTION
PARTIAL MAIN FLOOR PLAN
ELECTRICAL LAYOUT

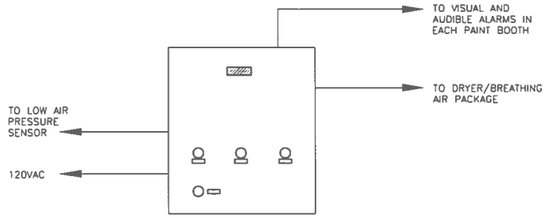
DESIGNED BY:	DRAWN BY:	CHECKED BY:
L.K.	T.S.	L.K.

APPROVED BY: AR

SCALE: AS NOTED | DATE: 08.04.08

DRAWING NO. 0829720102-DWG-E0001 | REV. 03

DM (24" x 36")

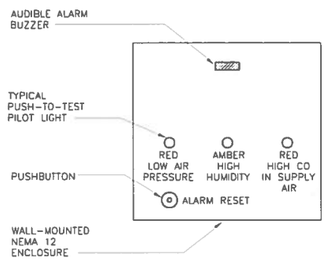


1 — BREATHING AIR ALARM SYSTEM RISER DIAGRAM

N.T.S

NOTES:

1. PILOT LIGHTS ON THE ALARM PANEL INDICATE LOW AIR PRESSURE, HIGH HUMIDITY, AND HIGH CO IN SUPPLY AIR.
2. THE FOLLOWING CONDITIONS INITIATE AUDIBLE ALARM ON THE PANEL AND AUDIBLE/VISUAL ALARMS IN PAINT BOOTHS:
   - HIGH HUMIDITY
   - LOW AIR PRESSURE
   - HIGH CO IN SUPPLY AIR
3. ALARM RESET BUTTON IS TO SILENCE AUDIBLE ALARM ONLY.



2 — BREATHING AIR ALARM PANEL ELEVATION

N.T.S

NO.	DESCRIPTION	DATE	ISSUED BY
02	ISSUED AS BUILT	09.12.11	CPG
01	ISSUED FOR ADDENDUM #1	08.10.22	T.S
00	ISSUED FOR TENDER	08.10.09	L.K.

REVISIONS/ISSUE

CLIENT
CITY OF WINNIPEG
TRANSIT DEPARTMENT

WARDROP | Engineering Inc.

PROJECT NAME
WINNIPEG TRANSIT - OSBORNE STREET GARAGE
PAINT BOOTH BREATHING AIR SYSTEM UPGRADE

DRAWING DESCRIPTION
ELECTRICAL SPECIFICATION

AS-BUILT
DATE 09.12.11 BY CPG
CHECKED BY OD

APEGM
Certificate of Authorization
Wardrop Engineering Inc.
No. 195 Date: April 30, 2009

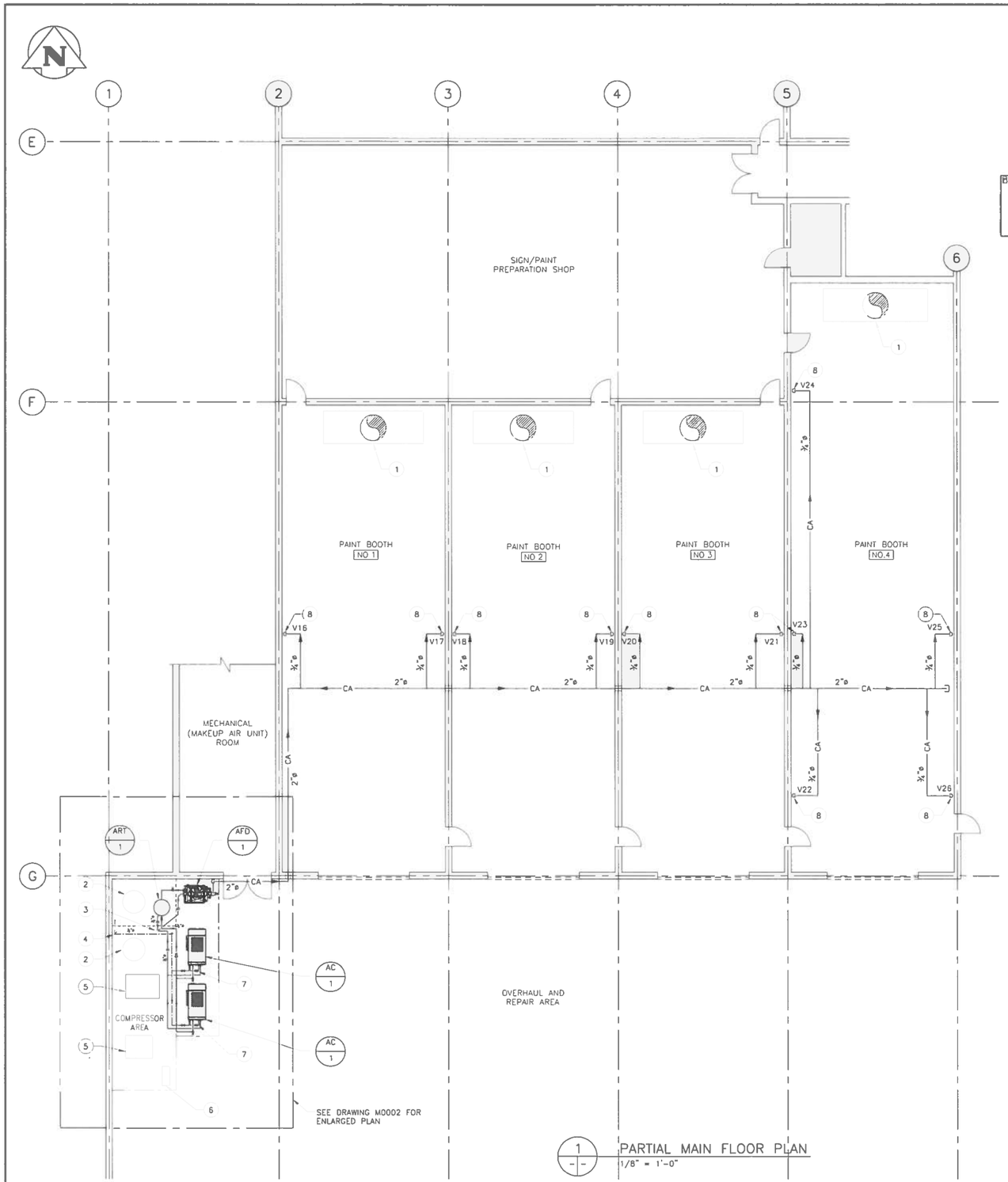
DESIGNED BY:	DRAWN BY:	CHECKED BY:
L.K.	T.S	L.K.

APPROVED BY:

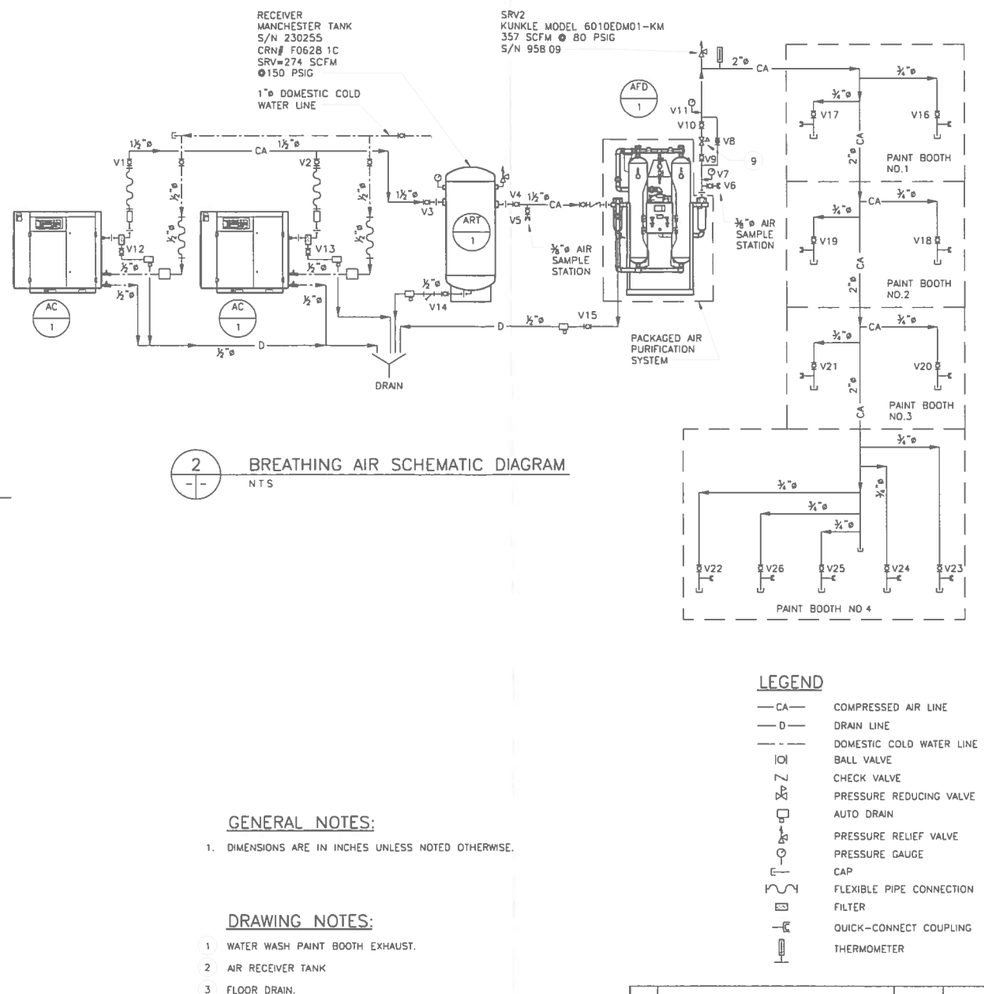
SCALE:	DATE:
AS NOTED	08.04.08

DRAWING NO: 0829720102-DWG-E0002 REV: 02

DM (24" x 36")



1 PARTIAL MAIN FLOOR PLAN
1/8" = 1'-0"



2 BREATHING AIR SCHEMATIC DIAGRAM
N.T.S

LEGEND

- —CA— COMPRESSED AIR LINE
- —D— DRAIN LINE
- – – – DOMESTIC COLD WATER LINE
- BALL VALVE
- CHECK VALVE
- PRESSURE REDUCING VALVE
- AUTO DRAIN
- PRESSURE RELIEF VALVE
- PRESSURE GAUGE
- CAP
- FLEXIBLE PIPE CONNECTION
- FILTER
- QUICK-CONNECT COUPLING
- THERMOMETER

GENERAL NOTES:

1. DIMENSIONS ARE IN INCHES UNLESS NOTED OTHERWISE.

DRAWING NOTES:

1. WATER WASH PAINT BOOTH EXHAUST.
2. AIR RECEIVER TANK
3. FLOOR DRAIN.
4. ½"ø DOMESTIC COLD WATER LINE CONNECTED IN APPROXIMATELY THIS LOCATION FROM THE 1"ø DCW LINE.
5. PLANT AIR COMPRESSOR
6. REFRIGERATED AIR DRYER
7. ½"ø DOMESTIC COLD WATER LINE SERVING WATER-INJECTED AIR COMPRESSOR UNITS
8. BREATHING AIR HOSE CONNECTING STATION C/W BALL VALVE AND QUICK-CONNECT COUPLING
9. FISHER MODEL 95H-209 PRESSURE REDUCING VALVE 125 PSI NOMINAL INLET PRESSURE AND 5-80 PSIG ADJUSTABLE OUTLET PRESSURE.

AS-BUILT
DATE 09.12.11 BY CPG
CHECKED BY DD

APEGM
Certificate of Authorization
Wardrop Engineering Inc.
No. 195 Date: April 30, 2009

1/8"=1'-0" 5 0 5 10ft.

NO	DESCRIPTION	DATE	ISSUED BY
02	ISSUED AS BUILT	09.12.11	CPG
01	ISSUED FOR ADDENDUM #1	08.10.23	LS
00	ISSUED FOR TENDER	08.10.09	LS

REVISIONS/ISSUE

CLIENT
CITY OF WINNIPEG
TRANSIT DEPARTMENT

WARDROP | Engineering Inc.

PROJECT NAME
WINNIPEG TRANSIT - OSBORNE STREET GARAGE
PAINT BOOTH BREATHING AIR SYSTEM UPGRADE

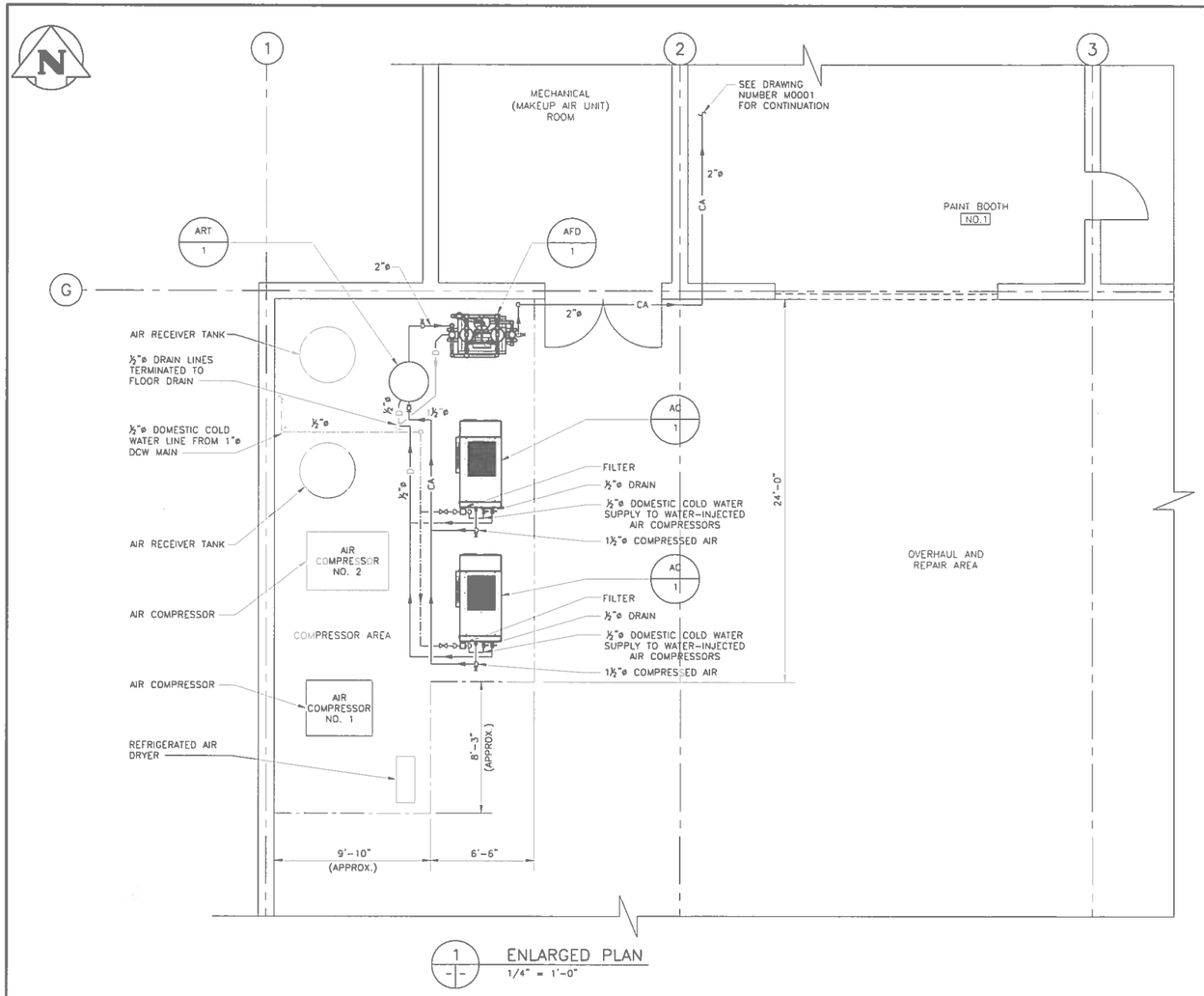
DRAWING DESCRIPTION
PARTIAL MAIN FLOOR PLAN
AND SCHEMATIC
COMPRESSED BREATHING AIR

ORIGINAL DRAWING REVISION "00" SEALED BY A.B.RINGOR 08.10.09

DESIGNED BY	DRAWN BY	CHECKED BY
WGN/LS	WGN	LS

APPROVED BY: AR
SCALE: AS NOTED
DATE: 08.03.20
DRAWING NO: 0829720102-DWG-M0001
REV: 02

DM (24" x 36")



1 / - / - ENLARGED PLAN
1/4" = 1'-0"

GENERAL NOTES:

1. DIMENSIONS ARE IN INCHES UNLESS NOTED OTHERWISE.
2. SEE DRAWING M-0001 FOR SCHEMATIC DIAGRAM AND LEGEND.

BREATHING AIR FILTRATION/PURIFICATION UNIT SCHEDULE

TAG NO.	SERVICE	LOCATION	FREE AIR DELIVERY L/s (CFM)	WORKING PRESSURE kPa (PSI)	MODEL	REMARKS
AFD-1	AC-1	OVERHAUL AND REPAIR AREA	70 (150)	690 (100)	APPL AP-150-BA	TWINTOWER AIR DRYER C/W 250 CFM APFO-250-X1 AFTERFILTER

AIR RECEIVER TANK SCHEDULE

TAG NO.	SERVICE	LOCATION	CAPACITY LITERS (US GAL.)	WORKING PRESSURE kPa (PSI)	APPROXIMATE DIMENSION DIAMETER mm (in.)	HEIGHT mm (in.)	REMARKS
ART-1	AC-1	OVERHAUL AND REPAIR AREA	910 (240)	1380 (200)	760 (30)	2130 (84)	VERTICAL TANK TO CSA B51 AND ASME SECTION VIII

AIR COMPRESSOR SCHEDULE

TAG NO.	SERVICE	LOCATION	FREE AIR DELIVERED @ 100 PSIG L/s (CFM)	MAXIMUM WORKING PRESSURE kPa (PSI)	MOTOR kW (HP)	MODEL	TYPE	REMARKS
AC-1	PAINT SHOPS BREATHING AIR	OVERHAUL AND REPAIR AREA	60 (127)	1000 (145)	22.3 (30)	COMPAIR D22H RS	AIR COOLED ROTARY SCREW	OIL-LESS AIR COMPRESSOR PACKAGE WITH VARIABLE SPEED INVERTER MOTOR

NO.	DESCRIPTION	DATE	ISSUED BY
02	ISSUED AS BUILT	09.12.11	CPG
01	ISSUED FOR ADDENDUM #1	08.10.23	LS
00	ISSUED FOR TENDER	08.10.09	LS

REVISIONS/ISSUE

CLIENT
CITY OF WINNIPEG
TRANSIT DEPARTMENT

WARDROP | Engineering Inc.

PROJECT NAME
WINNIPEG TRANSIT - OSBORNE STREET GARAGE
PAINT BOOTH BREATHING AIR SYSTEM UPGRADE

DRAWING DESCRIPTION
ENLARGED COMPRESSOR AREA PLAN
EQUIPMENT LAYOUT AND
SCHEDULES

AS-BUILT
DATE 09.12.11 BY CPG
CHECKED BY DD

APEGM
Certificate of Authorization
Wardrop Engineering Inc.
No. 195 Date: April 30, 2009

1/4"=1'-0" 2 0 2 4 6ft.

ORIGINAL DRAWING REVISION "00" SEALED BY A.B RINGOR 08.10.09

DESIGNED BY:	DRAWN BY:	CHECKED BY:
WGN/LS	WGN	LS

APPROVED BY: AR

SCALE: AS NOTED

DATE: 08.03.20

DRAWING NO. 0829720102-DWG-M0002

REV. 02

DM (24" x 36")

ENGINEERING MANUAL

SSR

Small UP - Total Air System

CCN: 23753759
Rev.: D ECO 81751
Ref.: 9902
Page: 606
Date: 30th April 2013
Cancels: 01st January 2011

Point of Manufacture - Campbellsville, USA

60 HERTZ ENGINEERING DATA

Model		UP6-15cTAS-125	UP6-15cTAS-150	UP6-15cTAS-210
GENERAL COMPRESSOR DATA				
Capacity (Ref. Intake Condition.) FAD (1)	m³/min (cfm)	1.47 (52)	1.33 (47.3)	1.01 (35.9)
Maximum & Rated Operating Pressure	barg (psig)	8.6 (125)	10.3 (150)	14.5 (210)
Rated package discharge Pressure (13)	barg (psig)	8.0 (116)	9.9 (143)	14.1 (205)
Minimum Operating Pressure	barg (psig)	4.5 (65)	4.5 (65)	4.5 (65)
Maximum Operating Temperature	ºC (ºF)	40 (105)	40 (105)	40 (105)
Minimum Operating Temperature	ºC (ºF)	2 (36)	2 (36)	2 (36)
SOUND LEVEL (2)				
Base mounted Enclosed	dB(A)	69	69	69
COOLING DATA				
Air-cooled (Ambient Temperature 40°C/104°F)				
Coolant Discharge temperature	°C(°F)	100 (212)	99 (210)	98 (208)
A/E Injection Temperature	°C(°F)	82 (180)	81 (178)	80 (176)
(3) Aftercooler - Inlet	°C(°F)	90 (194)	89 (192)	89 (192)
Aftercooler - Outlet	°C(°F)	51 (124)	51 (124)	51 (124)
Heat Removal Oil Cooler	kW (1000 Btu/hr)	10.3 (35.1)	10.3 (35.1)	10.3 (35.1)
Heat Removal Oil and Aftercooler	kW (1000 Btu/hr)	12.3 (42.0)	12.3 (42.0)	12.3 (42.0)
Heat Removal Dryer Condenser (Max)	kW (1000 Btu/hr)	1.4 (4.8)	1.4 (4.8)	1.4 (4.8)
Coolant Flow	lpm (UK gpm)	17.0 (3.7)	21.0 (4.6)	32.0 (7.0)
Cooling Air				
Main Cooling Air Flow	m³/min (cfm)	30.0 (1060)	30.0 (1060)	30.0 (1060)
Dryer Cooling Airflow	m³/min (cfm)	Included	Included	
Cooling Air CTD	ºC (ºF)	40 (72)	40 (72)	40 (72)
Aftercooler CTD (3)	ºC (ºF)	11 (20)	11 (20)	11 (20)
CONSTRUCTION FOUNDATION AND				
PIPING CONNECTIONS				
Air Discharge Base Mount	Inches BSPT (9)	0.75		
Air Discharge from ASME Receiver	Inches NPT	0.75		
Package Automatic Condensate Drain	Inches NPT	0.25		
Coolant Drain	Drain Plug	9/16"-SAE		
Power Inlet (Main)	Inch	1"		
Power Inlet (Dryer)	Inch	1/2"		
COOLANT LUBRICATION DATA				
Coolant Sump Capacity	litres (US gal)	3 (.8)		
Total coolant fill capacity	litres (US gal)	4.5 (1.2)		
DIMENSIONS		**Basemount**	**80 gal**	**120 gal**
length, width, height	mm	1042/734/914	1362/734/1541	1897/734/1541
	Inches	41/28.9/36	53.6/28.9/60.7	74.7/28.9/60.7
GA Drawing Numbers		22431811	22431829	22469191
SHIPPING DATA - NET WEIGHTS		**Basemount**	**80 gal**	**120 gal**
Total **A**ir **S**ystem package	kg (lb.)	330 (725)	455 (1000)	470 (1035)

ENGINEERING MANUAL

SSR

Small UP - Total Air System

CCN: 23753759
Rev.: D ECO 81751
Ref.: 9902
Page: 607
Date: 30th April 2013
Cancels: 01st January 2011

Point of Manufacture - Campbellsville, USA

60 HERTZ ENGINEERING DATA

Model		**UP6-15cTAS-125**	**UP6-15cTAS-150**	**UP6-15cTAS-210**
Compressor Module Data				
Rotor Diameter (male)	mm	74.25	74.25	74.25
Male Rotor Speed	rpm	6250	5700	4675
Tip Speed	m/sec	24.30	22.16	18.17
Power Data				
Applied main motor power (8)	HP	16.5	16.5	16.5
Applied Power - Fan	HP	Included	Included	Included
Applied Power - Dryer compressor	HP	0.6	0.6	0.6
Applied Power - Dryer Fan	HP	Included	Included	Included
Applied Power - Full Package (8)	HP	17.1	17.1	17.1

ELECTRICAL DATA - ALL UNITS SSR UP6-15c		**115-1-60**	**200v**	**230v**	**380v**	**460v**	**575v**
***** NOTE BLUE SHADE DENOTES SINGLE PHASE *****							
Nominal Current - Main Drive Motor (8) ODP/TEFC	Amps		39.3/39	34.2/33.9	20.7/20.5	17.1/16.9	13.7/13.5
Maximum Applied Power - TAS Package (10) ODP/TEFC	Amps		43.2/42.9	37.6/37.3	22.8/22.6	18.8/18.6	15.1/14.9
Starting current -- Direct on Line	Amps		244.0	212.0	128.0	106.0	85.0
Starting current -- Star Delta Start	Amps		N/A	N/A	79.0	N/A	N/A
Main Motor Data							
Nominal Power - Main Driver	HP		15.0	15.0	15.0	15.0	15.0
Drive Motor enclosure Protection			ODP / TEFC	ODP/TEFC	ODP/TEFC	ODP/TEFC	ODP/TEFC
Drive Motor RPM			3500	3500	3500	3500	3500
Drive Motor Frame			215TZ	215TZ	215TZ	215TZ	215TZ
Drive Motor Locked Rotor DOL/(S/D) (5)	Amps		244.0	212.0	128(79)	106.0	85.0
Drive Motor Efficiency (8)			89.5/90.2	89.5/90.2	89.5/90.2	89.5/90.2	89.5/90.2
Drive Motor Power Factor (8)			0.9	0.9	0.9	0.9	0.9
Test Certificate Number (4)						AT43068 BK75308	
Dryer Electrical Data							
Full Load Current	Amps	5					
Starting Current	Amps	30					
Electrical Installation -- Total Air System							
Recommended wire size - Main motor - (6)	Awg		4	6	8	10	10
Suggested Fuse Rating (7)	Amps		75	65	35	30	25
Recommended wire size - Dryer - (6)	Awg	18					

Refrigerated Dryer Data		**ISO Class**	
Pressure Dew Point ISO Class (11)	°C (°F)	5	lower than 7°C (44°F)
Refrigerant weight of R-134a	Grams / (Oz)		350/(12.7)

Filter Data	**CCN**	**Particulate**		**Liquid**	
		ISO Class	**Filtration**	**ISO Class**	**Filtration**
Primary filter detail - at 21°C (70°F)	85567162	3	1 micron	3	0.6 mg/m^3 (0.5 ppm)
Final filter detail - at 21°C (70°F)	85567170	2	0.01 micron	1	0,01 mg/m^3 (0.01 ppm)

		barG	psig	barG	psig	barG	psig
Pressure Drop data by operating pressure	barG / (psig)	**8.6**	**125**	**10.3**	**150**	**14.5**	**210**
Dryer Pressure Drop	barG / (psig)	0.28	4	0.21	3	0.14	2
Primary filter wet pressure drop	barG / (psig)	0.14	2	0.10	1.5	0.07	1
Final filter wet pressure drop	barG / (psig)	0.21	3	0.14	2	0.10	1.5
Total Pressure Drop (10) For ISO Class 2.5.1 air	barG / (psig)	0.62	9	0.45	6.5	0.31	4.5

Notes :

(1) FAD (Free Air Delivery) is full package performance including all losses. Tested in accordance with ISO 1217 : 1996 Annex C.
(2) Measured in free field conditions in accordance with PNEUROP/CAGI test codes PN8NTC2.3, with +/- 3 dB(A) tolerance.
(3) 40% Relative Humidity Inlet Air (For alternate conditions refer to SSR toolbox or contact IR)
(4) Motor test certificate
(5) Inrush amps
(6) This is a minimum requirement based on 90°C wire - It may be necessary to use larger cables to comply with local regulations or if the voltage drop exceeds 5% of the nominal voltage.
(7) Recommended Time delay Fuse. Refer to local code for proper fuse sizing
(8) Measured at rated compressor duty
(9) Installation kit will provide flexible connection to NPT or BSPT
(10) Total Air System package including compressor, integral dryer with pre and final compressed air filters
(11) Dew point measured In accordance with ISO 8573-1:2001. With inlet air to package of 25°C (77 °F) and RH at 60%
(13) Discharge pressure when operating at compressor rated pressure, with clean wetted filters

Ingersoll Rand
Industrial Technologies

R45n
60Hz

ENGINEERING DATA SHEET

CCN: 24192569
Rev.: B
ECN: 82093
Sheet: 1 of 1
Date: 20-Aug-2013

Model Name		R45N-X100	R45N-X110	R45N-X115	R45N-X125	R45N-X135	R45N-X145
GENERAL PERFORMANCE DATA							
Rated Discharge Pressure	barg (psig)	7 (100)	7.5 (110)	8 (115)	8.5 (125)	9.5 (135)	10 (145)
Minimum Operation Pressure	barg (psig)	4.5 (65)	4.5 (65)	4.5 (65)	4.5 (65)	4.5 (65)	4.5 (65)
Capacity FAD @ Max Speed (1)	m³/min (CFM)	7.42 (262)	7.39 (261)	7.28 (257)	7.02 (248)	6.74 (238)	6.46 (228)
Capacity FAD @ Min Speed (1)	m³/min (CFM)	1.64 (58)	1.67 (59)	1.67 (59)	1.70 (60)	1.76 (62)	1.78 (63)
Turndown Percentage	Percent	78%	77%	77%	76%	74%	72%
Maximum Target Operating Pressure (2)	barg (psig)	10 (145)					
Maximum Operating Ambient Temperature	°C (°F)	46 (115)					
Minimum Operating Ambient Temperature	°C (°F)	2 (35)					
Maximum System Temperature Setting	°C (°F)	109 (228)					
Nominal Power - Main Motor	kW (HP)	45.00 (60)					
Main Drive Efficiency (3)	Percent	97.00%					
Main Motor Efficiency (3)	Percent	93.70%					
Package Input Power w/Fan - Air Cooled (4)	kW	55.1	56.6	56.6	56.7	56.0	55.2
Specific Power - Air Cooled (4)(5)	kW/m3/min (kW/100cfm)	7.43 (21.0)	7.66 (21.7)	7.78 (22.0)	8.07 (22.9)	8.31 (23.5)	8.55 (24.2)
SOUND LEVEL (6)							
Standard Package - Air Cooled	dB(A)	69					
COOLING DATA (@ Maximum Ambient Temperature & Maximum Discharge Pressure)							
Heat Removal Oil Cooler	kW (1000 Btu/hr)	41 (140)	43 (146)	43 (147)	43 (148)	43 (147)	42 (144)
Heat Removal Oil and Aftercooler	kW (1000 Btu/hr)	54 (183)	55 (189)	55 (189)	56 (190)	55 (188)	55 (186)
Additional Static Pressure (13)	Pa (in H2O)	See document 23883374					
Fan Air Flow	m³/min (cfm)	Nom: 84 (2984)			Max: 108 (3825)		
Fan Motor Nominal Power	kW	1.5					
Cooling Air Temperature Rise	°C (°F)	29 (52)	28 (51)	28 (51)	28 (50)	28 (50)	28 (51)
Aftercooler CTD, 60 Hz (7)	°C (°F)	8 (15)	8 (15)	8 (15)	8 (15)	8 (15)	8 (15)
AIR END DATA							
Male Rotor Speed	rpm	5400	5377	5287	5106	4925	4744
Tip Speed Rotor	m/sec	36.2	36.1	35.5	34.3	33.1	31.8
Full Load Shaft Power	kW	48.9	50.3	50.3	50.4	49.7	49.0
COOLANT LUBRICATION DATA							
Total Coolant Capacity - Air Cooled	litres (US gal)	26 (6.9)					
PIPING CONNECTIONS							
Air Discharge	Inches BSPT/NPT (9)	1.50					
Package Automatic Condensate Drain	Inches BSPT/NPT (9)	0.38					
Coolant Drain - Hose Size	Inches	0.88					
Diameter of Power Inlet	mm / inch	Up to 4.0" (removable plate)					
DIMENSIONS & WEIGHT		**Base Mounted**					
Length, Width, Height	mm (inches)	1947(77)/1114(44)/ 1607(63)					
Net Weight - Air Cooled	kg (lb.)	776(1711)					
GA Drawing Number - Air Cooled		24068652					

ELECTRICAL DATA		**380V. 3Φ**	**460V. 3Φ**	**575V. 3Φ**	**440V. 3Φ**
Motor Protection		IP23 (ODP)			
Full Load Package Current - Air Cooled (10)	Amps	102.7	85.3	68.7	88.6
Package Power Factor		0.92	0.91	0.91	0.92
Electrical Installation					
Recommended Supply Cable Size (11)	mm²/Cu (AWG or kcmil))	50(1/0)	35(1/0)	35(1/0)	35(1/0)
Maximum Recommended Fuse Rating (11)(12)	Amps	150	150	150	150

Notes :
(1) FAD (Free Air Delivery) is full package performance including all losses. Tested per ISO 1217 : 2009 Annex C
(2) Maximum pressure at package discharge, value at which compressor will stop when unit operating at maximum target pressure
(3) At maximum speed and flow for the given package discharge pressure
(4) Measured at rated capacity and rated pressure
(5) Specific power guaranteed in accordance with ISO 1217 : 2009 Annex C
(6) Measured in free field conditions per ISO 2151 using Hemispherical Method, with + 3 dB(A) tolerance.
(7) 40% Relative Humidity Inlet Air and maximum speed (For alternate conditions contact IR)
(9) BSPT or NPT, depending on regional standard
(10) Maximum current includes 10% additional current due to fouled filters and elements
(11) 90° C copper cables. Always apply local electrical codes for sizing cables and fusing.
(12) Fast Acting Class-J, T or Semiconductor type fuse required. Apply local electrical codes for fuse sizing

TWINTOWER, HEATLESS, REGENERATIVE COMPRESSED AIR DRYERS

Model AP-630-FP-AN c/w "Purge Economizer Control$" and mounted filters

- **Minus 40°C & Lower Pressure Dew Points**
- **ASME Compliant & Provincially Registered**
- **3 Year Switching Valve Warranty on Poppet-Style Valves (up to 2-1/2")**
- **Standard Models rated to 150 PSIG Higher Pressure Models Available**
- **Designed and Manufactured in Canada Under APPL's Registered ISO-9001-2008 Quality Assurance Program**

Model AP-280-FP

APPL
AIR POWER PRODUCTS LIMITED

3 - Year Switching Valve Warranty

Switching valves are a main wear and tear component on twintower regenerative air dryers. *APPL* dryers employ poppet-style pneumatically actuated switching valves for the tower inlet and purge exhaust functions on dryers up to model AP-850, and in exhaust and blow-down applications on larger models. The valves have brass bodies, stainless steel shafts and springs, and PTFE sealing discs. Pop-up position indicators mounted on top of the actuators provide a quick visual indication of whether the valve is currently in the open or closed position. Maintenance is very rare, but when required, the valve body can remain on the dryer piping, and the operator and main wear components may be removed from the body as a complete assembly for servicing. There are no rubber diaphragms to break down due to water and oil contamination which can occur in systems which are serviced on an infrequent basis. The standard APPL warranty for all other components is 12 months from date of start up or 15 months from date of shipment, whichever comes first. Warranty for these time-proven rugged switching valves is confidently extended to 3 year from date of shipment. See our warranty text.

Additional Quality Construction Features

- 200 PSIG Tower Design Pressure, ASME compliant and TSSA registered
- Removable Stainless Steel wedge wire style desiccant retainers
- Stainless Steel control solenoid valves
- 5 Micron Control air filter
- Liquid filled tower pressure gauges
- Repressurization valve to allow full repressurization prior to tower switching
- Up-flow drying and down-flow depressurization and purging ensures desiccant stability
- NEMA-12 Control panel enclosure
- Micro processor programmed for 10 minute time cycle and convertible to 4 minute cycle for lower dew points

Two Models to Choose From

APPL dryers are available in two versions for models AP-100 to AP-850. Each version offers advantages to users having specific operating requirements. The economical "Fixed Purge" version is designed for applications having constant pressure and flow conditions. These models have a fixed purge orifice which is tamper-proof and provides for a pre-determined purge volume during dryer operation. This version also eliminates the requirement for purge check valves, which will reduce maintenance requirements in future years. If the operating pressure or system demand changes significantly, the purge orifice may be replaced to accommodate the new conditions.

The "Adjustable Purge" models are designed for those applications which may see varying pressure or flow conditions, requiring the purge flow to be adjusted frequently. These dryers are provided with a purge flow adjusting valve, and a pressure/flow indicating gauge which allows the user to determine the purge flow level.

Both models are provided with a standard 10 minute time cycle to yield a 40/C or lower pressure dew point at maximum rated conditions. The configuration also allows the user to remove a jumper which will result in operation on a 4 minute time cycle, yielding lower dew point to approximately minus 60/C.

Optional *Purge Economizer Control$*

The standard controls for heatless twintower regenerative air dryers feature a fixed 10 minute time cycle which provides for 5 minutes drying on each tower, during which time, the other tower is regenerated through the purging of the desiccant using dry, expanded air from the outlet of the on-line tower. This method of drying/regeneration is referred to as the "pressure swing adsorption" principle. Operation at 100 PSIG will require approximately 15% purge air flow (of the estimated maximum inlet volume to the dryer) through the regenerating tower at all times (with exception to the 45 second tower repressurization period), regardless of your system's actual demand for production air. In most applications, systems will see reduced air demand at times such as second and third shift operations, employee breaks, or for processes and work routines which consume air at irregular intervals. The result is usually over-purging which will yield dew points which are lower than those required to satisfy the application. This over-purging results in higher operating costs due to the additional energy costs required to compress the excess purge air, and also higher wear and tear on the air compressor resulting in higher maintenance costs. The optional *APPL* "Purge Economizer Control$" system eliminates this excess purge air by maintaining a close outlet dew point tolerance, and halting purge air flow when dew point levels are within an acceptance range. It does this at the end of each repressurization period just prior to normal tower switching. If the on-line tower is yielding a dew point at this time which is below a pre-determined set level, the dryer enters a "Purgeless" condition. The condition is maintained until the dew point yielded by the on-line tower deteriorates to the set level of a precision hygrometer. At that time, tower switching resumes, and the freshly regenerated standby tower is placed on line in the drying position. This system has been time-proven for well over a decade, and not only provides the user with a digital display of the actual outlet dew point, but also logs the hours during which the dryer has been in the "Purgeless" condition. The PLC-based controls additionally calculate the total number of cubic feet of purge air saved since the dryer was commissioned, which may be displayed on the control panel text display window. Based on knowing the cost to compress air, an actual dollar savings can be calculated through the use of "Purge Economizer Controls" versus standard fixed time cycle operation. The text display window provides a continuous display of all dryer operating functions. Unlike many competitive hygrometer-based control systems which do not provide a dew point display, *APPL*'s highly informative system will pay for itself in short order while measuring and logging cost savings information for your routine evaluation. *APPL* highly recommends *Purge Economizer Control$* for maximum efficiency, especially on larger dryer models where a quick payback will be realized, after which savings can be deducted straight off the bottom line of your compressed air system's annual operating costs.

Capacity - SCFM @ Operating Pressure

From the table below, read across the top to the pressure at which the dryer will operate. From this pressure, follow the vertical column downward until the first SCFM figure exceeding your capacity requirement is found. From this figure, follow the horizontal row to the far left, where the APPL model number suitable for your requirements will be shown.

Model	Operating Pressure - PSIG							Overall Dimensions (Inches)			Inlet & Outlet Size	Weight (LBS)
	80	80	100	110	120	130	140	Height	Width	Depth		
AP-100	83	91	100	109	117	126	135	71	32	28	1" NPT	250
AP-150	124	137	150	163	176	189	202	74	37	31	1.5" NPT	375
AP-200	165	183	200	217	235	252	270	80	36	31	1.5" NPT	450
AP-280	231	256	280	304	329	353	378	86	41	33	2" NPT	650
AP-380	314	347	380	413	446	479	513	85	45	42	2" NPT	900
AP-630	520	575	630	685	740	795	850	85	57	46	2" NPT	1300
AP-850	702	776	850	924	998	1072	1146	87	60	49	2.5" NPT	1800
AP-1200	991	1095	1200	1305	1409	1514	1618	99	69	60	3" FL.	3500
AP-1600	1321	1461	1600	1739	1879	2018	2158	101	88	62	3" FL.	4200
AP-2000	1651	1826	2000	2174	2349	2523	2697	120	82	62	4" FL.	5000
AP-2800	2312	2556	2800	3044	3288	3532	3776	118	104	48	4" FL.	6500
AP-3800	3137	3469	3800	4131	4463	4794	5125	120	141	62	6" FL.	9000
PURGE AIR CONSUMPTION	18.8%	16.7%	15%	13.8%	12.8%	11.9%	11.1%	DIMENSIONS ARE WEIGHTS ARE SUBJECT TO CHANGE WITHOUT NOTICE. CONTACT APPL FOR DIMENSIONAL DRAWING.				
	FIGURE SHOWN REPRESENTS THE PORTION OF THE DRYER INLET VOLUME CONSUMED											

Note: Select Model and use suffix "-FP" for Fixed Purge models, and suffix "-AP" for Adjustable Purge models.

Optional Equipment and Features

OPTION	FUNCTION AND BENEFITS
PURGE ECONOMIZER CONTROL$	Reduce operating costs by reducing purge flow, wear and tear on air compressor and dryer switching valves. Provides user with actual operating performance of dryer and saving statistics.
Oil Coalescing Prefilter with Auto Drain	Mandatory with all systems to removal oil aerosols and contaminants before air dryer.
Particulate AfterFilter	Required to remove desiccant fines and other contaminants at dryer outlet.
Mounting and Pre-Piping of Filters	Reduces installation requirements and ensures proper piping of filters.
3-Valve Bypass	Allows bypass of dryer or filters. Optionally tandem filters with isolation valves allow maintenance during on-line service.
"Tower Switching Failure" Alarm	Alerts the user to malfunctions of switching valves, exhaust restrictions (mufflers) or switching control failure.
"High Humidity" Alarm	Alerts user to improper performance. This option is most economical if packaged with "Purge Economizer Control$".
"Low Inlet or Outlet" Pressure Alarm	Available to indicate low air supply due to excess system demand, or possible high pressure drop across dryer/filters.
Copper-free Construction	Sour gas applications to prevent corrosion of yellow metals.
Explosion-proof Controls	Suitable for hazardous locations. Contact APPL with specific conditions.
High Pressure Models	For pressures to 1500 PSIG, special construction is offered.
Colour Change Moisture Indicator	Provides visual indication of high humidity condition.
Other customized features are available to suit specific applications upon request.	

ISO9001-2008 REGISTERED BSI REGISTERED Number Fm64620

E-mail: info@airpowerproducts.com Tel: 519-622-2034 fax: 519-622-1949

APPL AIR POWER PRODUCTS LIMITED

191 Shearson Crescent, Cambridge, Ontario N1T 1J5

Certificate of Authorization Number QA02948 TSSA TwinTower RegenerativeDryer Registration Number OH11526.5

CompAir

DH Series

15 kW–110 kW

Oil-Less Rotary Screw Compressors

OilFREE

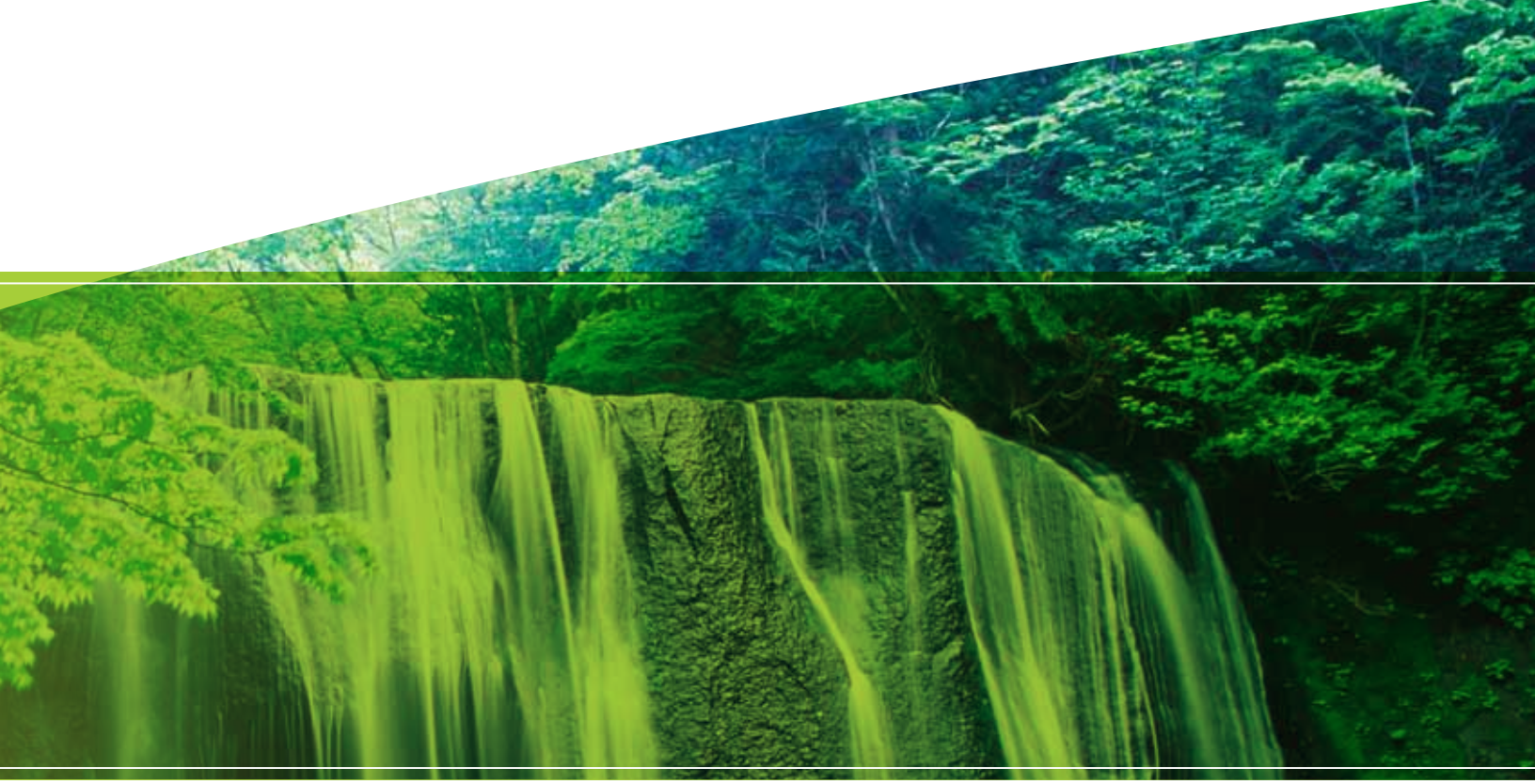
Truly innovative oil-free compressed air technologies

CompAir

CompAir DH—Guaranteed 100% air purity.

With over 90 years of experience, CompAir's oil free compressors have helped industries across the globe to meet and exceed quality and production objectives in food and beverage, pharmaceutical, electronic, healthcare and power generation applications.

The DH from CompAir sets the standards for air purity. These water-injected screw compressors are available in water-cooled and air-cooled versions and are certified ISO 8573-1 Class Zero (2010) and silicone free, making them the **ultimate choice** with simply no risk of oil contamination. Offering not only 100% pure oil-free air but also improved energy efficiency, these compressors are made to meet the precise needs of a diverse range of industries.



Why Oil-Less?

When you choose an oil-less DH series compressor from CompAir, you get a clean, reliable and efficient air supply that benefits both your business and your bottom line!

The ISO 8573-1 compressed air standard was revised in 2001 to address the requirements of these critical applications where air purity is vital. Along with a comprehensive methodology for measurement, a new stringent quality standard was born in ISO 8573-1 CLASS 0 — adding further weight to the five existing purity classes.

The ISO 8573-1 Class 0 and Silicone Free Certified DH Compressors Offer The Following Benefits:

- 100% silicone-free, guaranteed
- Specifically designed for use in pure-air critical applications such as the automotive industry
- Avoids contaminations and provides the highest air quality standards
- Independently tested and certified

Why Silicone-Free?

Silicone contamination in compressed air systems will cause problems across a wide range of industries, not least of all the automotive industry where a high quality finish is essential.

Blisters, cracking, craters and a loss of adhesion are all symptoms of silicone contamination and will result in costly product spoilage and re-working in addition to production downtime.

Class	Concentration total oil (aerosol, liquid, vapour) mg/m3
0	As specified by the equipment user or supplier and more stringent than class 1
1	≤ 0.01
2	≤ 0.1
3	≤ 1
4	≤ 5

CompAir DH—Guaranteed 100% air purity.

> The DH series offers market-leading energy efficiency while using no oil anywhere in the compressor—thus helping to demonstrate your 'green' initiatives and increasing your market appeal.

CompAir DH Series: Your Resource for Cost Savings

The DH's unique water-injected, variable speed design achieves lower speeds combined with lower operating temperatures—resulting in high efficiency and reduced component wear.

- Water injected into the compression element provides lubrication, sealing and cooling.
- The superior cooling properties of water allow the compressor to operate at a low temperature providing near isothermal compression, low power consumption and class leading efficiency levels.
- A reverse osmosis membrane cartridge filters the injection water entering the compressor; as a result the water is always maintained at a high purity level.

OilFREE

Truly innovative oil-free compressed air technologies

Our oil-free solutions are proven in thousands of applications across the world, providing high quality, low cost air to manufacturers, processors and operators in a diverse range of industries including:

- Food and Beverage
- Pharmaceuticals
- Chemicals
- Automotive
- Electronics
- Engineering & Technology

Single-stage, water-injected, direct-driven compression element that's built to last.

CompAir's DH Series Compressors feature durable, twin gate rotors

Designed for Water Injection

- Bronze single 6 flute main rotor
- Carbon fiber composite 11-tooth gate rotors deliver 12 pulses of air per revolution compared with 6 pulses for a convention screw
- No metal to metal mating parts and low pulsation levels ensure low vibration and noise levels
- Sealed grease-lubricated main rotor bearings and water-lubricated gate rotor bearings extend rotor and bearing life
- Low temperature rise eliminates the need for a final air cooler, which reduces pressure losses

Axial loads act on both sides of the main rotor.

Radial loads act on both the top and underside of the main rotor.

Balanced Bearing Loads

Compression Loads are Balanced Resulting in Low Bearing Loads and High Reliability

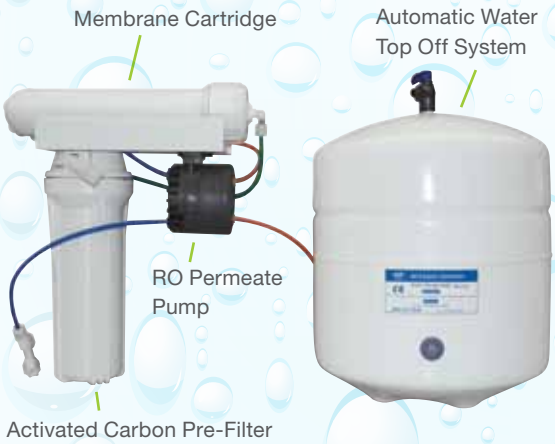
- Low bearing loads and low speeds mean sealed-for-life bearings can be used, requiring no oil lubrication

Robust Design and Oil-Free Construction

- High efficiency IP55 TEFC motor ensures superior performance in the most rugged conditions
- Fully packaged and silenced enclosure reduces noise and simplifies installation
- Proven variable speed technology reduces energy costs and saves you money
- Comprehensive controller ensures safe and reliable operation
- Stainless steel separator vessel effectively separates air/water mixture from the compression element
- Design eliminates the need for a gearbox. No gearbox means no need for oil lubrication and zero chance of contamination

High Efficiency Water Purification System

Reverse Osmosis (RO) membrane filtration system provides high quality water and reduces water requirements and operation costs



- Ensures reliable and trouble free operation
- Connects to potable water supply with pressure between 32 & 87 psig
- Injection water is drained to low level point by opening water drain valve and refilled with purified water from the tank
- Water consumption is 4–10 gallons per day from potable water inlet supply

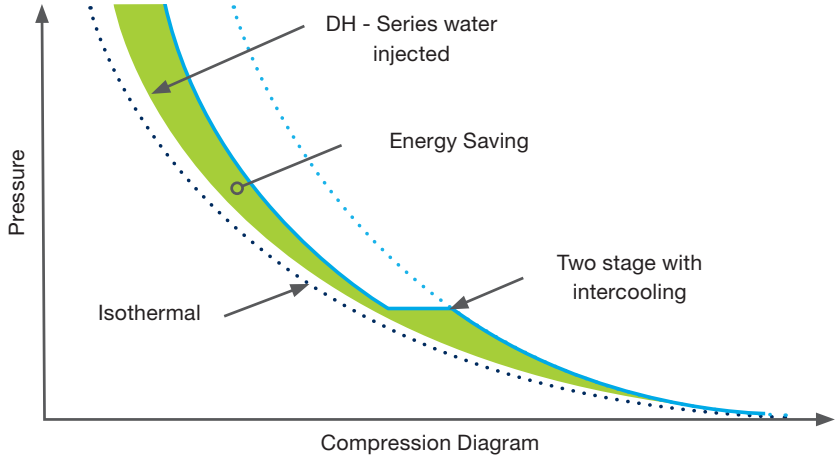
Maximum efficiency at any level of demand cuts energy costs and saves money.

- **Excellent efficiency**
- **High reliability**
- **Low cost of ownership**

Perfect Response to Your Individual Air Demand

Variable speed compressors from CompAir can efficiently and reliably handle the varying air demand. The right variable speed compressor in the right application delivers significant energy savings and a stable air supply at constant pressure.

Energy Savings . . .



Water injection means lower temperatures, and lower temperatures mean more efficient compression

Variable speed technology offers maximum efficiency, cuts energy and saves money.

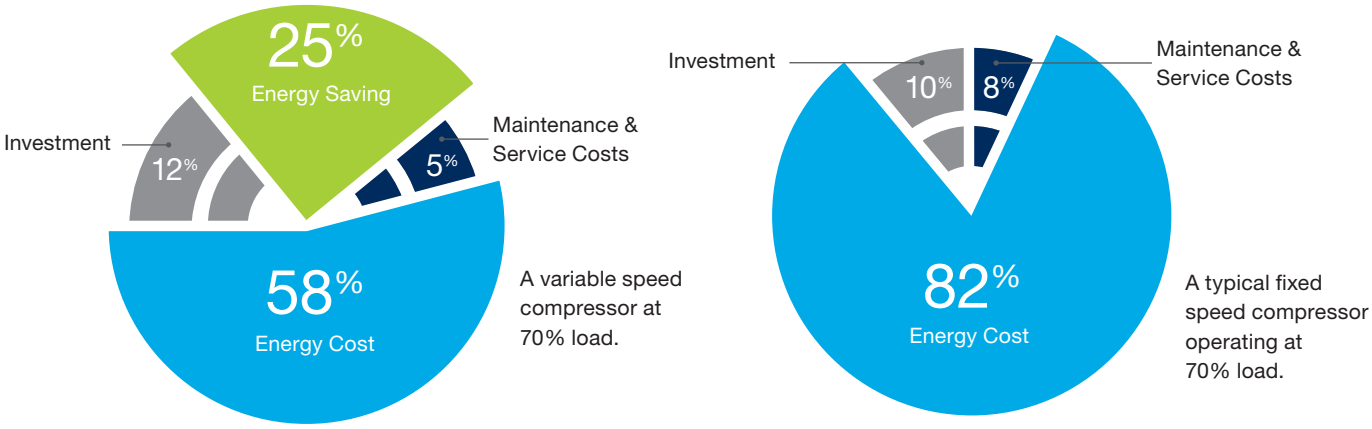
Reduce the Cost of Ownership and Minimize Your Energy Consumption

The largest cost component of a compressor during its lifetime is the power required to operate it.

OilFREE

Truly innovative oil-free compressed air technologies

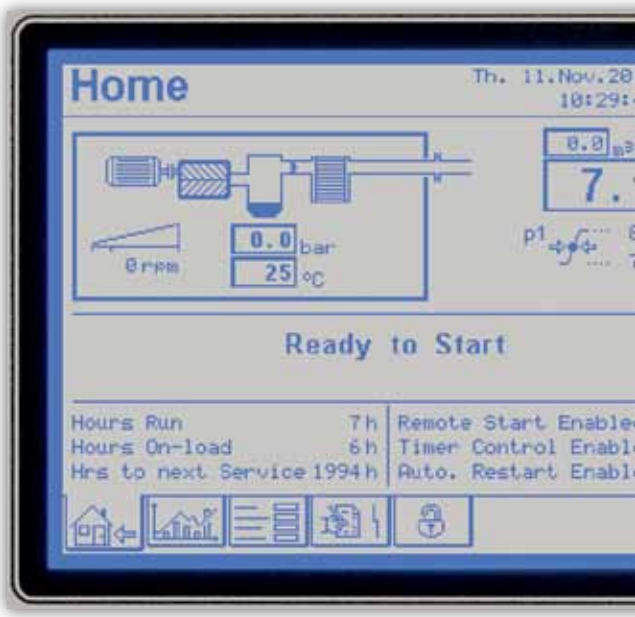
Variable Speed vs. Fixed Speed



Using a variable speed compressor can easily **save 25% energy** by using just the right amount of energy required to do the job and no more.

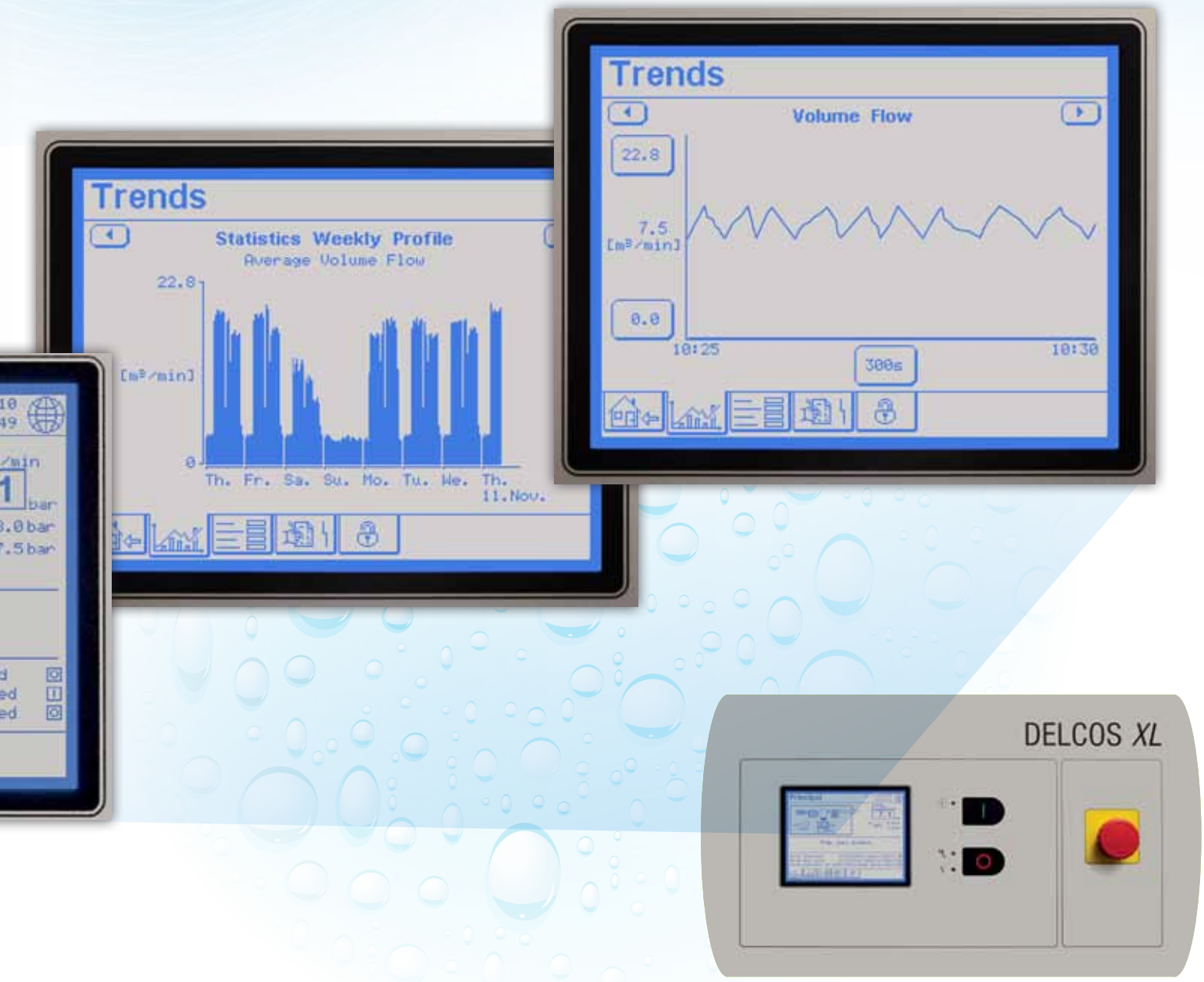
Comprehensive Compressor Controller

The multilingual Delcos XL touch screen control system ensures safe and reliable operation and protects your investment by continuously monitoring the operational parameters–essential for reducing your operating costs.



Features & Functions

- Compressor Status
- Line/Network Pressure
- Motor Speed
- On Load Hours/Total Hours Run
- Real Time Clock — Allows Pre-Setting of Compressor Starting/Stopping
- Second Pressure Setting
- Integrated Cooling and Dryer Control
- Fault History Log — for In-Depth Analysis
- Remote Control via Programmable Inputs
- Auto Restart After Power Failure
- Optional Base Load Sequencing



CompAir Compressors Control Themselves

Service

Regular maintenance and service of CompAir products is critical to the performance and longevity of the equipment. Only CompAir can provide:

- The assurance that the investment will provide a lifetime of productivity.
- Aftermarket parts and services that are engineered for use in CompAir products.
- Peace of mind by turning to one supplier and one source for all aftermarket needs.

CompAir's extensive network of authorized independent distributors is your source for all your aftermarket and service needs. Our distributors have the capability to handle all customer service, service and technical support needs.

Warranty

CompAir's unique engineering philosophy ensures long-lasting, reliable equipment. Our standard warranty ensures that you've got peace of mind when it comes to your system's operation. For added protection, CompAir's purchased extended warranty delivers one of the most comprehensive plans in the industry with 5-year programs available simply by registering the machine at startup and use of CompAir warranty kits.

PERFORMANCE
ASSURANCE

If any DH unit doesn't perform as stated, we will buy the unit back within the first 12 months after purchase.

Lean on a **trusted source** – CompAir.

A better approach

CompAir DH Series vs. Traditional Oil-Free Technology		
	CompAir DH	Traditional Oil-Free
Oil	No ✓	Yes
Speed	Up to 3500 rpm ✓	6000–25000 rpm
Compression Temperature	140° F ✓	Up to 392° F
Compression Elements	1 ✓	2
Number of Gears	0 ✓	5–7
Number of Bearings	7 ✓	More than 15
Number of Seals	2 ✓	More than 15

The DH Series—for Total Peace of Mind

- Established and proven single-stage compression element
- Significantly fewer moving parts means fewer wear items
- Simplified construction with no interstage or final air coolers
- Lower speeds and balanced bearing loads extend the compression element service life
- Dependable direct-drive system
- Cooler operating temperatures reduce component wear
- No oil or oil laden parts to dispose of, saving time and expense

CompAir DH – Technical Data

Variable Speed, Air And Water Cooled

Model	Cooling Method	Motor Rating (kW)	Working Pressure (psig)		Free Air Delivered (CFM)		Dimensions L x W x H (Inches)	Noise Level (70% load) dB(A)**	Weight (lbs)
			Min.	Max.	Min.*	Max.*			
D15H RS	Air	15	73	145	11.3	82.64	53 x 35 x 63	67	1515
	Water							66	1409
D22H RS	Air	22	73	145	24	121.84	53 x 35 x 63	67	1556
	Water							66	1451
D37H RS	Air	37	73	145	38.5	242.61	68 x 36 x 65	71	2194
	Water							60	1973
D50H RS	Air	50	73	145	43.44	266.27	85 x 56 x 78	75	3461
	Water								3285
D75H RS	Air	75	73	145	65.69	400.47	85 x 56 x 78	77	4167
	Water					419.1			3990
D110H RS	Water	110	73	145	111.95	651.91	85 x 56 x 78	72	4850

* Data measured and stated in accordance with ISO 1217 Edition 4, Annex C & E at the following conditions:
Air Intake Pressure 1 bar a/14.5 psi; Air Intake Temperature 20° C/68° F; Humidity 0 % (dry)
** Measured in free field conditions in accordance with ISO 2151, tolerance ± 3 dB (A)

Innovative Products & Services

Trust CompAir to Supply Intelligent Compressed Air Solutions

Genuine Spare Parts

Enjoy complete peace of mind with CompAir. Genuine CompAir spare parts and lubricants ensure that compressed air plant reliability and efficiency is maintained at the highest standards. CompAir spare parts and lubricants are distinguished by the following characteristics:

- Long service life, even under harshest conditions
- Minimal losses contributing to energy savings
- High reliability improves plant “up time”
- Products manufactured within the strictest Quality Assurance Systems

CompAir®

www.CompAir.com

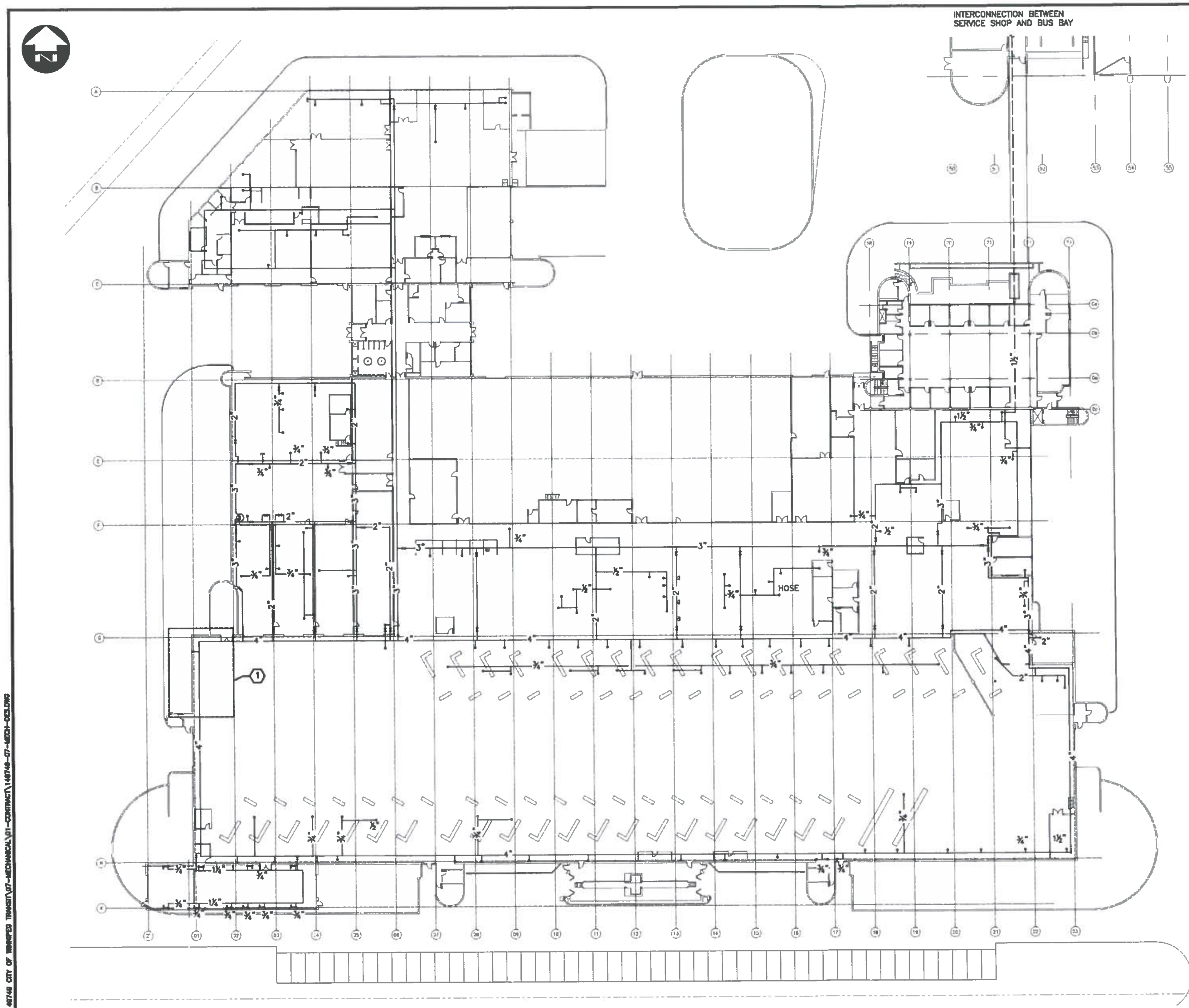
www.CompAir.com/contact.asp
866-606-6131

CompAir USA
1301 North Euclid Avenue
Princeton, IL 61356
United States of America

CompAir Canada
2390 South Service Road West
Oakville, Ontario L6L 5M9
Canada

Please recycle after use.

Printed in U.S.A.
CU-DH-OF 4th 3/13

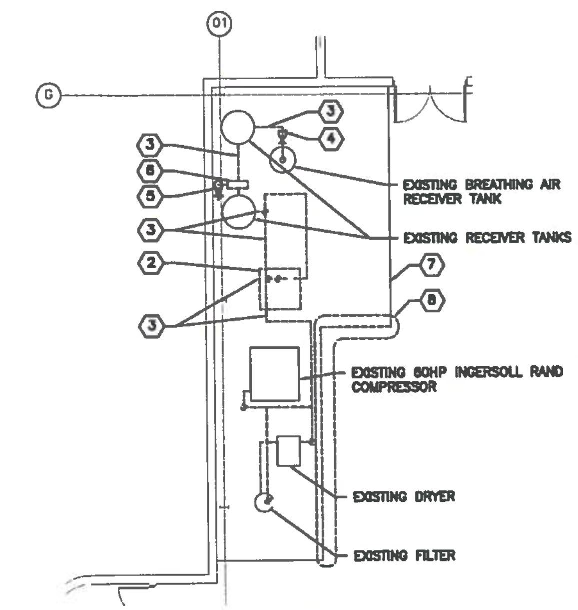


COMPRESSED AIR DEMOLITION PLAN
1:400

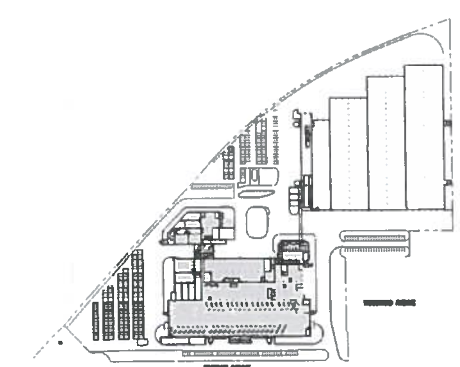
PHOTO 'A'
NTS

⬡ DEMOLITION NOTES

1. REFER TO PARTIAL LOWER LEVEL DEMOLITION DETAIL ON THIS SHEET.
2. DISCONNECT AND REMOVE EXISTING 40HP GARDNER DENVER COMPRESSOR, AND RETURN TO OWNER.
3. DEMOLISH EXISTING CA PIPING.
4. CAP EXISTING CA PIPE AT APPROXIMATELY THIS POINT.
5. EXISTING 100mm RISER TO REMAIN. REPLACE EXISTING 100mm GATE VALVE ON EXISTING 100mm RISER WITH NEW 100mm BALL VALVE. REFER TO PHOTO 'A'.
6. REMOVE EXISTING INGERSOLL RAND PRESSURE REGULATOR C/W ASSOCIATED PIPING.
7. EXISTING FENCE.
8. DEMOLISH THIS SECTION OF FENCING.



PARTIAL LOWER LEVEL DEMOLITION DETAIL
1:100



KEY PLAN
NTS

AS - BUILT
ABCO Supply & Service Ltd.
Dated: December 2, 2015
Signed:

APEGM
Certificate of Authorization
Dillon Consulting Limited (MB)
No. 1789 Date:

LOCATION UNDERGROUND APPROVED STRUCTURES
SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE: LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. ELEV.

NO.	REVISIONS	DATE	BY
3	ISSUED FOR CONSTRUCTION	APR.10/15	PDT
2	CLIENT REVIEW 100%	MAR.20/15	PDT
1	CLIENT REVIEW 99%	MAR.9/15	PDT
0	CLIENT REVIEW 66%	FEB.24/15	PDT

DESIGNED BY	EP
DRAWN BY	TKD
CHECKED BY	JVH
APPROVED BY	PDT
HOR. SCALE	NOTED
VERTICAL	NOTED
DATE	2015-02-20

DILLON CONSULTING
RELEASED FOR CONSTRUCTION
DATE

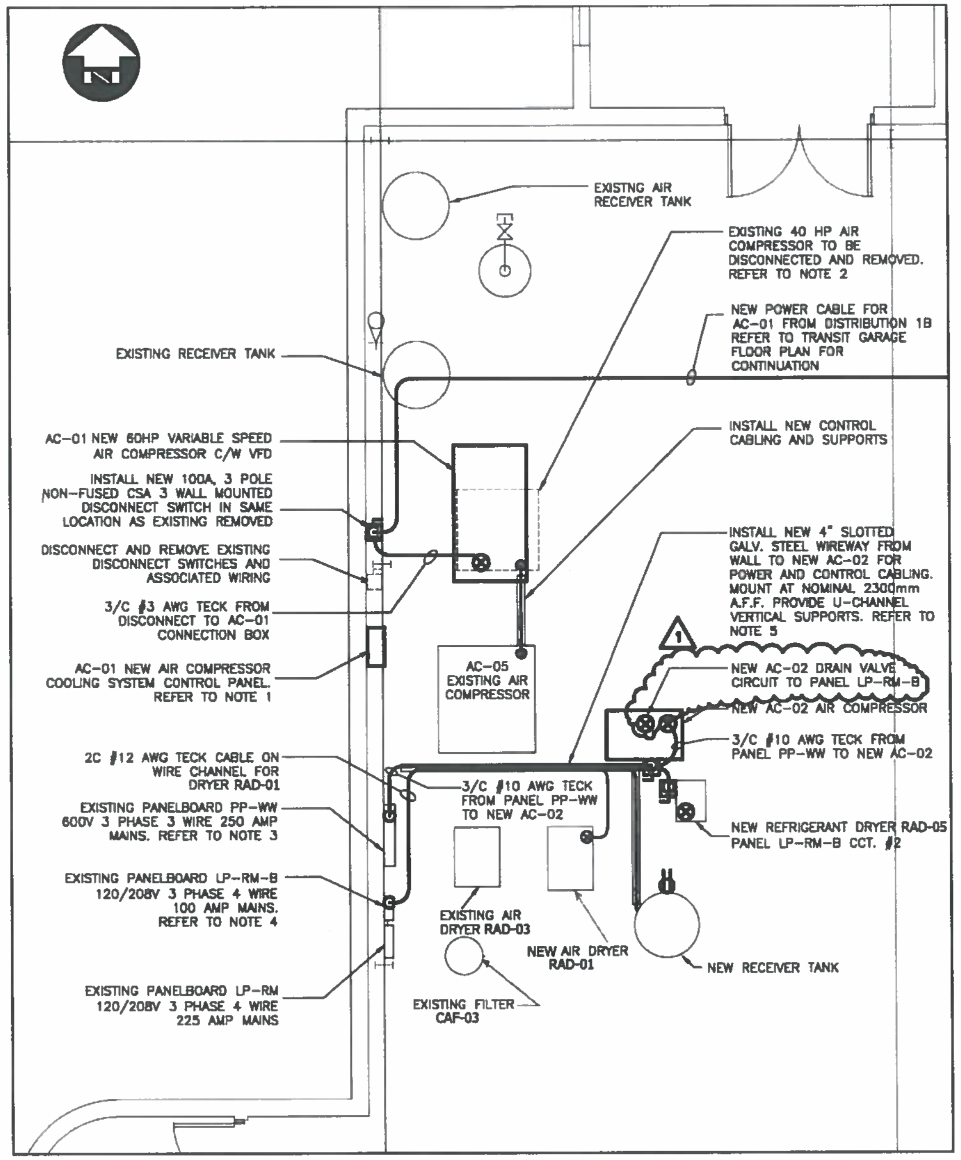
ENGINEER'S SEAL
P. D. TATARYN — PROVINCE OF MANITOBA — REGISTERED PROFESSIONAL ENGINEER
CONSULTANT PROJECT NO. 149749

Winnipeg
THE CITY OF WINNIPEG
TRANSIT DEPARTMENT

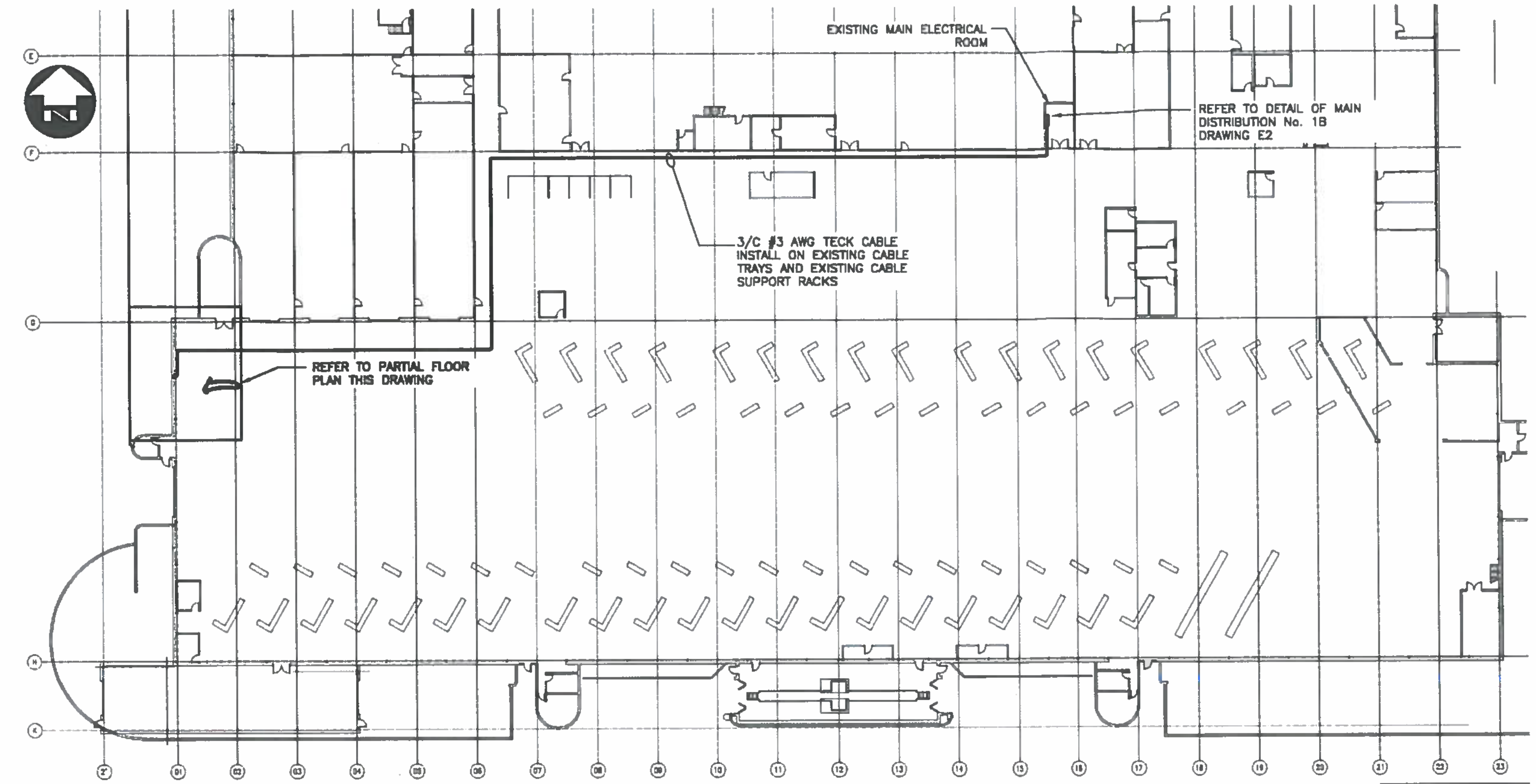
FORT ROUGE GARAGE COMPRESSED AIR SYSTEM UPGRADE

COMPRESSED AIR DEMOLITION PLAN

CITY DRAWING NUMBER: P-XXXX- ——
SHEET 1 OF 4
CONSULTANT DRAWING NUMBER: D1



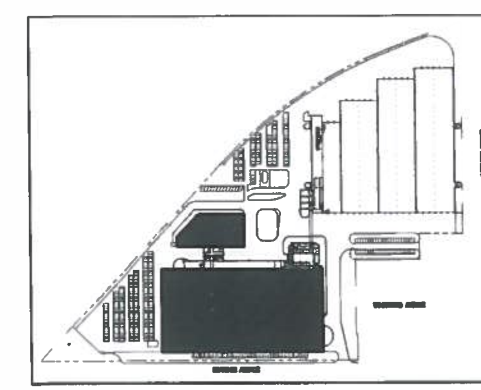
PARTIAL FLOOR PLAN
1:50



TRANSIT GARAGE FLOOR PLAN
1:400

NOTES

1. PROVIDE 120V 1ø POWER FROM NEW TANDEM (DUPLEX) 15A CIRCUIT BREAKER IN PANEL LP-RM.
2. EXISTING 40 HP AIR COMPRESSOR ELECTRICAL POWER TO BE DISCONNECT AND REMOVED, ASSOCIATED DISCONNECT SWITCH AND DEVICES TO BE DISCONNECTED AND REMOVE. CABLING FROM MAIN DISTRIBUTION PANEL #1B TO EXISTING 40 HP COMPRESSOR LOCATION TO BE REMOVED FROM CABLE TRAY AND TURNED OVER TO OWNER.
3. PROVIDE AND INSTALL NEW 30 AMP 3 POLE 600 VOLT 14kA CIRCUIT BREAKER IN PANEL PP-WW FOR NEW AIR COMPRESSOR AC-02
   PROVIDE AND INSTALL NEW 15 AMP 3 POLE 600 VOLT 14kA CIRCUIT BREAKER IN PANEL PP-WW FOR NEW DRYER D-1.
4. PROVIDE AND INSTALL NEW 15 AMP TANDEM (DUPLEX) 240 VOLT RATED CIRCUIT BREAKERS IN PANEL LP-RM-B FOR DRYER D-5 AND AC-02 DRAIN VALVE.
5. COORDINATE CABLE SUPPORT STRUCTURES WITH MECHANICAL EQUIPMENT AND PIPING TRADES.



KEY PLAN
NTS

AS - BUILT
ABCO Supply & Service Ltd.
Dated: December 2, 2015
Signed:

APEGM
Certificate of Authorization
Dillon Consulting Limited (MB)
No. 1789 Date: APR. 10/15

LOCATION UNDERGROUND APPROVED STRUCTURES
SUPV. U/G STRUCTURES COMMITTEE — DATE
NOTE:

NO.	REVISIONS	DATE	BY
1	ISSUED FOR ADDENDUM No.1	APR.24/15	SCK
0	ISSUED FOR CONSTRUCTION	APR.10/15	SCK
B	CLIENT REVIEW 100%	MAR.20/15	SCK
A	CLIENT REVIEW 99%	MAR.9/15	SCK

DESIGNED BY: SCK
DRAWN BY: SCK
CHECKED BY: BLM
APPROVED BY: BLM
HOR. SCALE: NOTED
VERTICAL:
DATE: 2015-02-20

DILLON CONSULTING
RELEASED FOR CONSTRUCTION
DATE

ENGINEER'S SEAL
DRAWING ORIGINALLY SIGNED BY B.L. MOORE DATED APR. 10, 2015
CONSULTANT PROJECT NO. 149749

THE CITY OF WINNIPEG
TRANSIT DEPARTMENT

FORT ROUGE GARAGE COMPRESSED AIR SYSTEM UPGRADE

ELECTRICAL - FLOOR PLANS

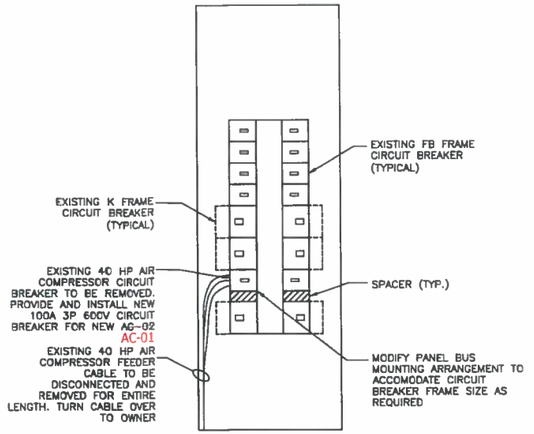
CITY DRAWING NUMBER: P-XXXX- —
SHEET 1 OF 2
CONSULTANT DRAWING NUMBER: E1

MOTOR - EQUIPMENT SCHEDULE

MOTOR / EQUIPMENT				STARTER								POWER		POWER			DETAIL DWG. WIRE DIAGRAM	REMARKS
EQUIP. NO.	DESCRIPTION	EQUIP. LOAD	VOLT/Ø	SIZE	TYPE	MAN.	MAG.	S/S	PL	HOA	OVERCURRENT DEVICE	LOCATION	PANEL	CCT	FEEDER	CAPACITOR SIZE	DISCONNECT TYPE	
AC-01 02	AIR COMPRESSOR	15 HP	600/3								30A-3P	G-02	PP-WW	8,10,12	3C #10 TECK		30A-3P CSA 3		PACKAGE UNIT
AC-02 01	AIR COMPRESSOR	60 HP	600/3	–	–	–	–				100A-3P	G-02	1B	10	3C #3 TECK		100A-3P CSA 3		DIRECT CONNECTION TO UNIT C/W PACKAGE VFD
D-1	DRYER	2.54 kW	600/3								15A-3P	G-02	PP-WW		3C #12 TECK		INTERNAL		DIRECT CONNECTION TO UNIT
D-2 5	DRYER	1/2 HP	120/1								15A-1P	G-20	LP-RM-B	CCT 2	2#12 AWG 21C		INTERNAL		DIRECT CONNECTION TO UNIT

DEVICE LOCATED IN STARTER

DEVICE LOCATED IN FIELD ADJACENT TO EQUIPMENT.



DISTRIBUTION 1B MODIFICATIONS
N.T.S.

AS-BUILT
ABCO Supply & Service Ltd.
Dated .....December 2, 2015
Signed .....

APEGM Certificate of Authorization
Dillon Consulting Limited (MB)
No. 1789 Date: APR. 10/15

LOCATION UNDERGROUND APPROVED STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE DATE

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE APPROXIMATE ONLY AND ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND STRUCTURES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UNDERGROUND STRUCTURES CAUSED BY HIS OPERATIONS. NOTIFICATION OF THE LOCATIONS SHALL BE OBTAINED FROM THE MANITOBA ONE-CALL SYSTEM BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. ELEV.

NO.	REVISIONS	DATE	BY
0	ISSUED FOR CONSTRUCTION	APR.10/15	SCK
B	CLIENT REVIEW 100%	MAR.30/15	SCK
A	CLIENT REVIEW 95%	MAR.9/15	SCK

DESIGNED BY SCK
DRAWN BY SCK
CHECKED BY BLM
APPROVED BY BLM
HOR. SCALE NOTED
VERTICAL
DATE 2015-02-20

DILLON CONSULTING
RELEASED FOR CONSTRUCTION
DATE

ENGINEER'S SEAL
PROVINCE OF MANITOBA
B.L. MOORE
Apr.1 10/15
REGISTERED PROFESSIONAL ENGINEER
CONSULTANT PROJECT NO.
149749

Winnipeg
THE CITY OF WINNIPEG
TRANSIT DEPARTMENT

FORT ROUGE GARAGE COMPRESSED AIR SYSTEM UPGRADE

CITY DRAWING NUMBER P-XXXX- ----
SHEET 2 OF 2

ELECTRICAL - SCHEDULES AND DETAILS

CONSULTANT DRAWING NUMBER E2

Q:\CAD\149749 CITY OF WINNIPEG TRANSIT\04-ELECTRICAL\149749-07-ELEC-SCHS.DWG

THE CITY OF WINNIPEG
TRANSIT DEPARTMENT

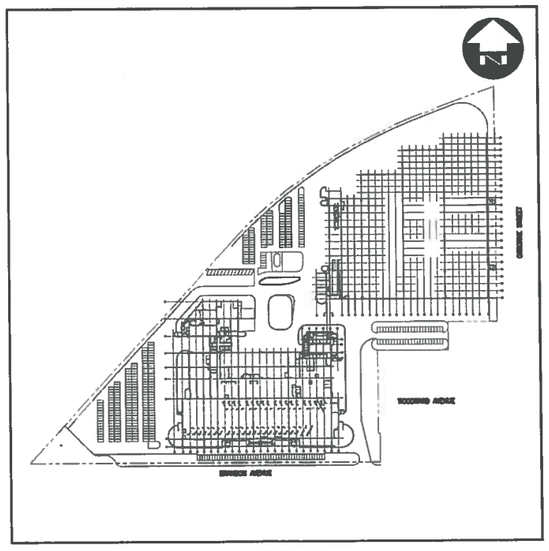
FORT ROUGE GARAGE COMPRESSED AIR SYSTEM UPGRADE

MECHANICAL LEGEND

- EXISTING VALVE
- CHECK VALVE
- N.O. BALL VALVE
- N.C. BALL VALVE
- REDUCER
- CAP
- PIPE ELBOW DOWN
- PIPE ELBOW UP
- N.O. NORMALLY OPENED
- N.C. NORMALLY CLOSED
- PRESSURE RELIEF VALVE
- PRESSURE GAUGE
- AIR INTAKE DUCT UP
- AIR EXHAUST DUCT UP
- EQ-XX EQUIPMENT TAG
- AIR FLOW DIRECTION
- T TEMPERATURE SENSOR
- CONTROL DAMPER

ELECTRICAL LEGEND

- NEW CABLE OR CONDUIT & WIRE AS SPECIFIED ON FLOOR PLAN
- DIRECT ELECTRICAL CONNECTION
- DISCONNECT SWITCH
- SURFACE MOUNTED DUPLEX RECEPTACLE



SITE PLAN

DILLON PROJECT: 149749
DATE: APRIL 10, 2015

DRAWING INDEX

DWG.	DESCRIPTION
	MECHANICAL
D1	COMPRESSED AIR DEMOLITION PLAN
M1	COMPRESSED AIR LAYOUT PLAN, SERVICE SHOP
M2	COMPRESSED AIR LAYOUT PLAN, BUS BAY
M3	COMPRESSED AIR PIPING SCHEMATIC, DETAILS, EQUIPMENT SCHEDULE & SEQUENCE OF OPERATION
	ELECTRICAL
E1	FLOOR PLANS
E2	SCHEDULES AND DETAILS

AS - BUILT
ABCO Supply & Service Ltd.
Dated: December 2, 2015
Signed: .....

DILLON CONSULTING

Ingersoll Rand

NL Module

Less Energy Use, Longer Life

Ingersoll Rand's NL Module coalescing filters provide true oil-free compressed air with minimal pressure drop of 0.5 psid for long-term cost savings. Superior air quality is achieved by effectively removing damaging oil and water aerosols before they flow through air system piping, process equipment and pneumatic valves and tools.

Conventional filters used to achieve similar air quality typically operate at a pressure drop 6 psid higher than the NL Module, and have a far shorter service life.

These maintenance-free filters feature a high-quality design that extends element life to 10 to 15 years and helps eliminate system downtime by reducing the effects of a catastrophic failure of the compressor's air/oil separator.

Once the pressure differential reaches 3 psid or greater, it is time to change the element. This requires depressurization of the vessel as well as lid and element removal.

Benefits

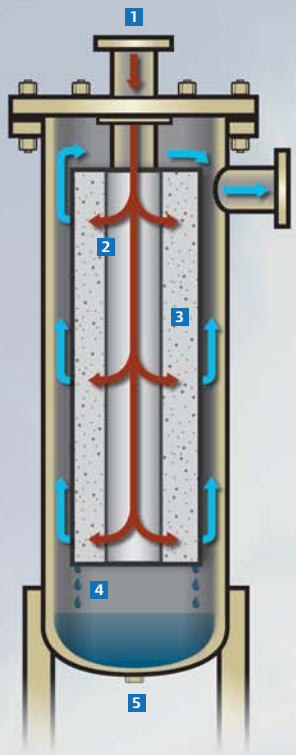
- High-efficiency particulate filtration to 0.5 ppm
  - > 3 microns at 100%
  - 0.1 to 3 microns at 99.98%
- Effective oil removal
  - 2 ppm in = 0.01 ppm out
  - 10 ppm in = 0.05 ppm out
- Low pressure drop resulting in low energy costs
- Extended element life — 10 -15 years
- Effective on all common mineral and synthetic lubricants
- Standard differential pressure gauge indicates element condition
- Virtually maintenance-free

Ingersoll Rand
Industrial Technologies

NL Modules

How Coalescing Filters Work

Air contaminated with mineral or synthetic oil and water aerosols enters the NL Module housing (1) and flows horizontally through a deep filter bed (2). Sub-micron particles collect on individual bed fibers and coalesce to form droplets (3). As the droplets move through the filter bed, they become larger and their resulting weight forces them to drop to the bottom of the housing (4). Low internal velocity prevents oil re-entrainment, while the large surface area keeps the pressure drop very low over the life of the element.
The long residence time through the deep filter bed ensures the highest coalescing efficiency. Automatic or manual drains can be used to discharge lubricant and water that accumulate in the bottom of the housing (5). Compressed air and drain hookups are all that's required to integrate an NL Module into your compressed air system — no electricity is used.



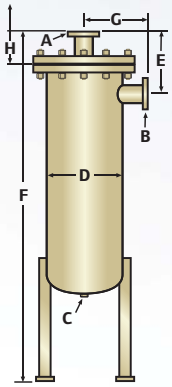
Depth of Bed Filtration
Deep-bed filtration provides more surface area for the highest coalescing efficiency

Typical cross-section of an NL Module

Typical cross-section of a standard filter

Technical Performance

Name	Model Number	scfm Flow@100 psig	Connection Size (A) (B)	Drain Port (C)	Shipping Weight lb Housing & Element	Shipping Weight lb Replacement Element	Dimensions in (D)	(E)	(F)	(G)	(H)
NLM125	F210NG	125	2" MPT	1" FPT	455	20	14	14.5	42.3	13	21
NLM250	F430NG	250	2" MPT	1" FPT	455	25	14	14.4	42.3	13	25
NLM500	F850NG	500	3" MPT	1" FPT	520	35	14	14.4	68.3	13	37
NLM800	F1360NG	800	3" MPT	1" FPT	530	60	14	14.5	68.3	13	51
NLM1100	F1870NG	1,100	3" MPT	1" FPT	660	70	16	15.5	72.3	14	57
NLM1500	F2550NG	1,500	4" FLG	1" FPT	775	100	18	15.6	72.4	15	57
NLM1900	F3220NG	1,900	4" FLG	1" FPT	1,225	120	24	16.9	75.8	18	59
NLM2400	F4070NG	2,400	4" FLG	1" FPT	1,245	140	24	16.9	75.8	18	59
NLM3000	F5100NG	3,000	4" FLG	1" FPT	1,385	160	24	16.9	88.8	18	69
NLM4500	F7600NG	4,500	6" FLG	1.5" FLG	1,770	250	24	18	153	18	118
NLM6000	F10200NG	6,000	8" FLG	2" FLG	2,460	350	30	18	155	21	118
NLM8000	F13600NG	8,000	8" FLG	2" FLG	2,850	375	30	19	181	21	142
NLM10000	F17000NG	10,000	10" FLG	2" FLG	4,500	475	30	21	211	25.75	173



NL Module Dimensions
Please refer to the table above to find dimensions for each NL model.

Annual Savings From 6 psig Reduction

kW Cost	Air Compressor Horse Power 50	100	200
$0.06	$274	$548	$1,096
0.08	365	730	1,460
0.10	457	913	1,826

Savings calculations based on (2) 8-hour shifts/day, 5 days/week, 51 weeks/year = 4,080 hours

Progress is greener with Ingersoll Rand

Ingersoll Rand
Industrial Technologies

Industrial Technologies
P.O. Box 1840
800-D Beaty Street
Davidson, NC 28036
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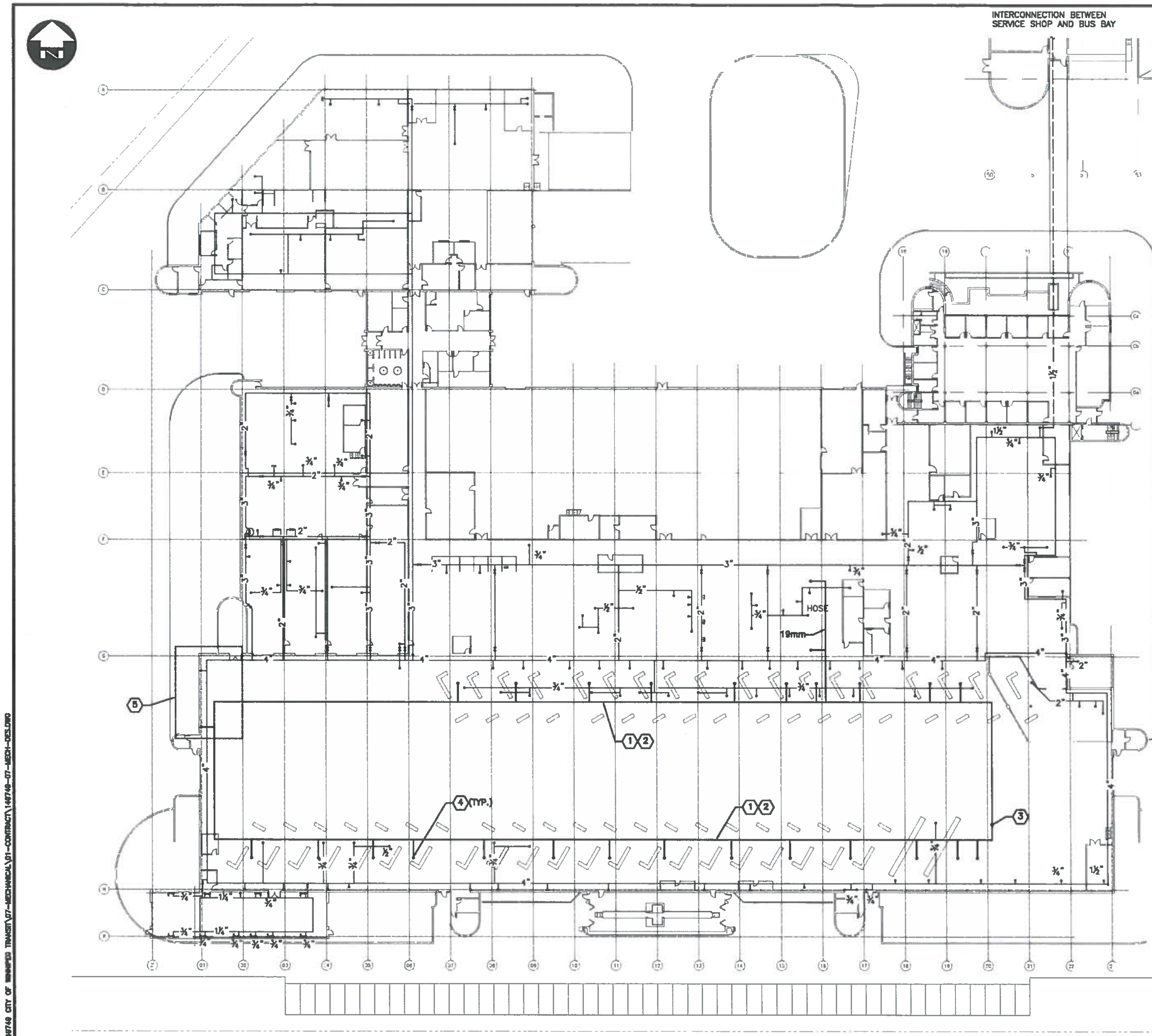
(704) 655-4039 Fax



COMPRESSED AIR LAYOUT PLAN

1:400

PHOTO 'B'

NTS

GENERAL NOTES

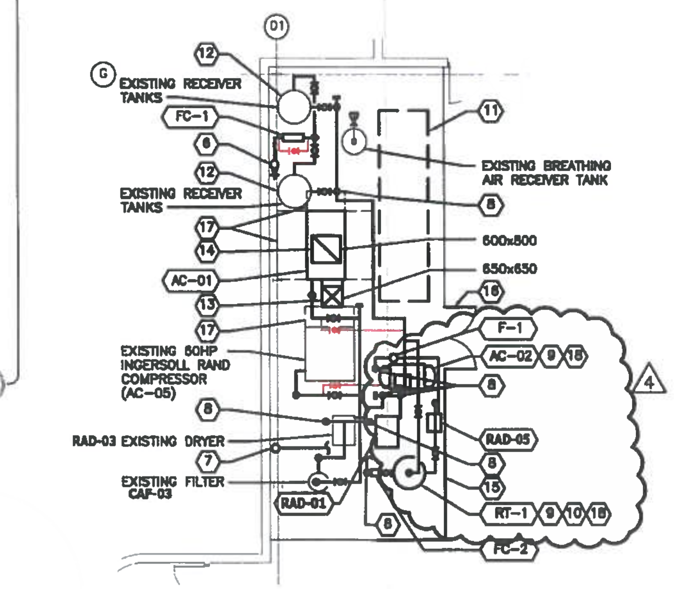
1. PROVIDE PIPE SUPPORT DESIGNED FOR COMPRESSED AIR PIPES AS REQUIRED FOR PROPER SUPPORT OF PIPING.

[redacted]

3. REFER TO COMPRESSED AIR PIPING SCHEMATIC FOR LOWER LEVEL DETAIL PIPE SIZES. ALL NEW PIPING AT LOWER LEVEL TO BE SCHEDULE 80 STEEL PIPE. REFER TO SPECIFICATION.
4. MAINTAIN SERVICE CLEARANCE AROUND EQUIPMENT AS RECOMMENDED BY EQUIPMENT MANUFACTURER.
5. NEW HIGH PRESSURE LOOP PIPING & DROPS TO BE EXTRUDED ALUMINUM PIPE SUITABLE FOR COMPRESSED AIR. REFER TO SPECIFICATIONS. CONFIRM COLOR OF PIPE WITH TRANSIT PRIOR TO ORDERING.
6. CONTRACTOR SHALL RETAIN THE SERVICES OF A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED WITH APEGM TO REVIEW THE IMPACT OF ALL ROOF OPENINGS FOR DUCTWORK. CONTRACTOR SHALL PROVIDE SHOP DRAWING TO THE CONSULTANT DETAILING OPENING CONSTRUCTION PRIOR TO PROCEEDING WITH INSTALLATION OF ROOF CURBS.
7. PROVIDE CONDENSATE PIPING FOR NEW COMPRESSORS, DRYERS, FILTER & AC-02 HORIZONAL RECEIVER TANK, AND DISCHARGE CONDENSATE TO THE NEAREST DRAIN. (4)
8. CONFIRM PIPE IDENTIFICATION LABEL & EQUIPMENT TAGGING PROCEDURE WITH TRANSIT.

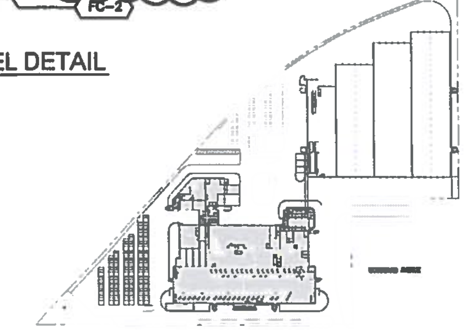
SHEET KEYNOTES

1. NEW 38mm HIGH PRESSURE COMPRESSED AIR PIPE LOOP. INSTALL BELOW EXISTING 100mm COMPRESSED AIR PIPE LOOP. MOUNT PIPING FROM U/S OF CEILING JOIST.
2. SLOPE HIGH PRESSURE COMPRESSED AIR PIPE MAIN 25mm FOR EVERY 3m TOWARDS CONDENSATE EVACUATION POINT DRIP LEG.
3. APPROXIMATE LOCATION OF NEW 19mm CONDENSATE EVACUATION POINT DRIP LEG c/w BALL VALVE.
4. 19mm PIPE DROPS FOR TIRE INFLATION c/w BALL VALVE AND QUICK CONNECT FITTING (TYP.). MOUNT PIPE DROP 6m FROM FINISHED FLOOR TO RACK. RACK PROVIDED BY TRANSIT. PROVIDE PLACARD INDICATING "HIGH PRESSURE PIPE FOR TIRE INFLATION ONLY". COORDINATE FINAL LOCATION WITH TRANSIT.
5. REFER TO PARTIAL LOWER LEVEL DETAIL ON THIS SHEET.
6. CONNECT NEW PIPE TO EXISTING 100mm PIPE RISER AT APPROXIMATELY THIS POINT.
7. MOUNT NEW HIGH PRESSURE PIPE RISER FROM EXTERIOR WALL.
8. INSTALL BALL VALVE IN PIPE RISER.
9. ATTACH EQUIPMENT TO FLOOR AS PER MANUFACTURER'S INSTRUCTIONS.
10. PROVIDE A PRESSURE RELIEF VALVE FOR NEW RECEIVER TANK (RT-1).
11. APPROXIMATE LOCATION OF BREATHING AIR EQUIPMENT. REFER TO PHOTO 'B'.
12. MOVE EXISTING RECEIVER TANKS AS REQUIRED TO ACCOMMODATE NEW PIPING AND EQUIPMENT.
13. AC-01 OUTSIDE AIR INTAKE DUCT. REFER TO AC-01 COOLING SYSTEM DETAIL, REFER TO DWG. M3.
14. AC-01 EXHAUST AIR DUCT. REFER TO AC-01 COOLING SYSTEM DETAIL, REFER TO DWG. M3.
15. OUTLINE OF NEW SECTION OF FENCE. NEW SECTION OF FENCE TO BE CONSTRUCTED TO THE SAME AS EXISTING.
16. PROVIDE GATE SIZED TO ACCOMMODATE ENTRY OF EQUIPMENT INTO THE FENCED AREA.
17. MAINTAIN A MINIMUM SERVICE CLEARANCE OF 900mm AT THE FRONT & REAR, AND 600mm AT THE SIDES.
18. PROVIDE AUTOMATIC DRAIN VALVE AT TANK. (4)



PARTIAL LOWER LEVEL DETAIL

1:100



KEY PLAN

NTS

AS - BUILT
ABCO Supply & Service Ltd.
Dated: December 2, 2015
Signed: ....

APEGM
Certificate of Authorization
Dillon Consulting Limited (MB)
No. 1789 Date: ______

LOCATION UNDERGROUND / APPROVED STRUCTURES
SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. ELEV.

NO.	REVISIONS	DATE	BY
4	ISSUED FOR ADDENDUM # 1	APR.24/15	PDT
3	ISSUED FOR CONSTRUCTION	APR.10/15	PDT
2	CLIENT REVIEW 100%	MAR.20/15	PDT
1	CLIENT REVIEW 99%	MAR.9/15	PDT
0	CLIENT REVIEW 66%	FEB.24/15	PDT

DESIGNED BY	EP
DRAWN BY	TKD
CHECKED BY	JVH
APPROVED BY	PDT
HOR. SCALE	NOTED
VERTICAL	NOTED
DATE	2015-02-20

DILLON CONSULTING

RELEASED FOR CONSTRUCTION
DATE

ENGINEER'S SEAL
DRAWING ORIGINALLY SIGNED BY P.D. TATARYN DATED APR. 10, 2015

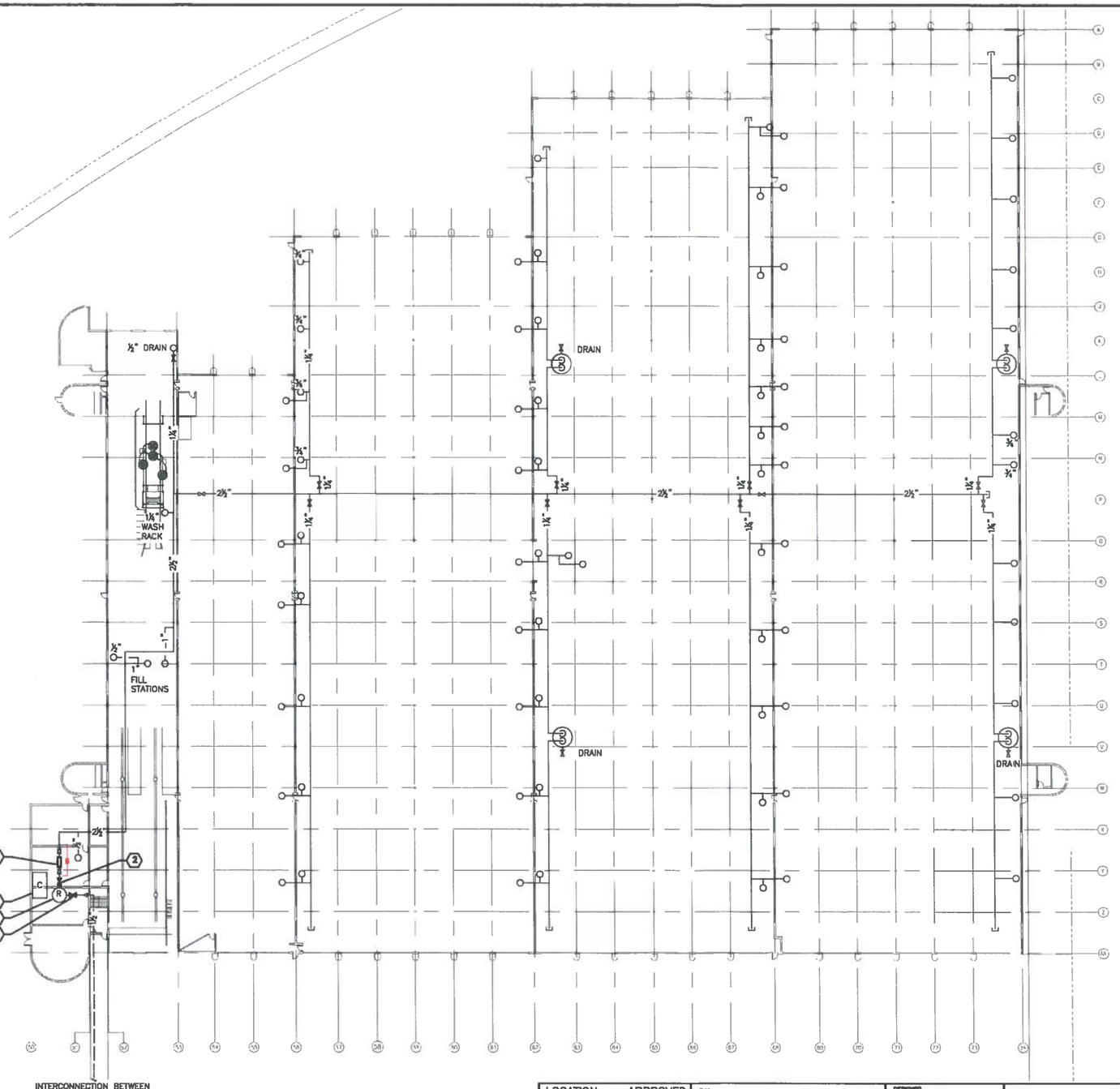
CONSULTANT PROJECT NO. 149749

THE CITY OF WINNIPEG
TRANSIT DEPARTMENT

FORT ROUGE GARAGE COMPRESSED AIR SYSTEM UPGRADE

COMPRESSED AIR LAYOUT PLAN, SERVICE SHOP

CITY DRAWING NUMBER P-XXXX- ---
SHEET 2 OF 4
CONSULTANT DRAWING NUMBER M1



COMPRESSED AIR LAYOUT PLAN
1:400

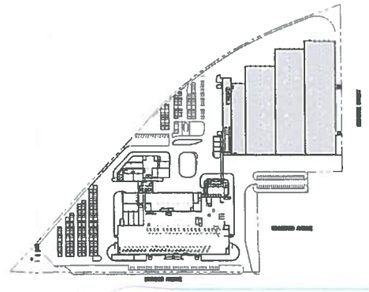
PHOTO 'C'
NTS

DRAWING NOTES

1. REPLACE EXISTING 38mm GATE VALVE WITH A NEW 38mm BALL VALVE.
2. REPLACE EXISTING 64mm GATE VALVE WITH A NEW 64mm BALL VALVE. REFER TO EXISTING COMPRESSED AIR PIPING SCHEMATIC FOR AC-04 & RECEIVER TANK.
3. LOCATION OF EXISTING RECEIVER TANK.
4. LOCATION OF EXISTING COMPRESSOR AC-04.
5. REMOVE EXISTING PRESSURE REGULATOR CONNECTED TO 38mm CA PIPE FEEDING EXISTING RECEIVER TANK & PROVIDE NEW PIPE FOR EXISTING PIPE RECONNECTION. REFER TO PHOTO 'C'.
6. REPLACE EXISTING 38mm GATE VALVE CONNECTED TO EXISTING COMPRESSOR PIPING WITH A NEW 38mm BALL VALVE. REFER TO PHOTO 'C'.
7. INSTALL FLOW CONTROLLER FC-3 ON EXISTING PIPE AT APPROXIMATELY THIS POINT.

GENERAL NOTES

[redacted]



KEY PLAN
NTS

AS - BUILT
ABCO Supply & Service Ltd.
Dated: December 2, 2015
Signed: .....

APEGM
Certificate of Authorization
Dillon Consulting Limited (MB)
No. 1789 Date: .....

LOCATION UNDERGROUND — APPROVED STRUCTURES
SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE ONLY OF A GENERAL NATURE AND ARE NOT GUARANTEED TO BE EXACT OR TO BE THAT ONLY SHOWN. IT SHALL BE THE RESPONSIBILITY OF CONTRACTOR AND EQUIPMENT OPERATORS TO ASCERTAIN THE EXACT LOCATION OF ALL STRUCTURAL UTILITIES OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

NO.	REVISIONS	DATE	BY
3	ISSUED FOR CONSTRUCTION	APR.10/15	PDT
2	CLIENT REVIEW 100%	MAR.25/15	PDT
1	CLIENT REVIEW 95%	MAR.9/15	PDT
0	CLIENT REVIEW 66%	FEB.24/15	PDT

B.M. ELEV.

DESIGNED BY: EP
DRAWN BY: TKD
CHECKED BY: JVH
APPROVED BY: PDT
HOR. SCALE: NOTED
VERTICAL: NOTED
DATE: 2015-02-20

DILLON CONSULTING

RELEASED FOR CONSTRUCTION
DATE

ENGINEER'S SEAL
PROVINCE OF MANITOBA — TATARYN — ENGINEER

CONSULTANT PROJECT NO.
149749

Winnipeg

THE CITY OF WINNIPEG
TRANSIT DEPARTMENT

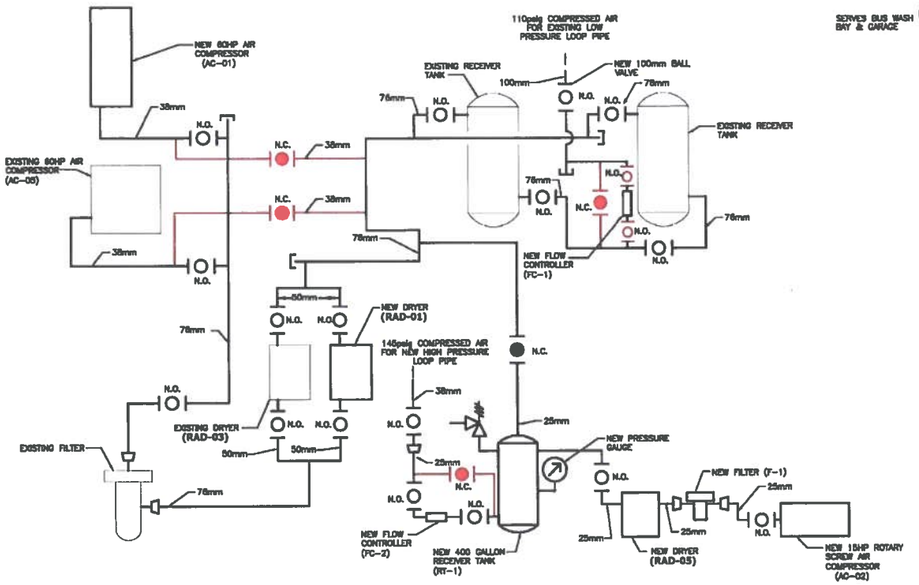
FORT ROUGE GARAGE COMPRESSED AIR SYSTEM UPGRADE

CITY DRAWING NUMBER: P-XXXX-----
SHEET 3 OF 4

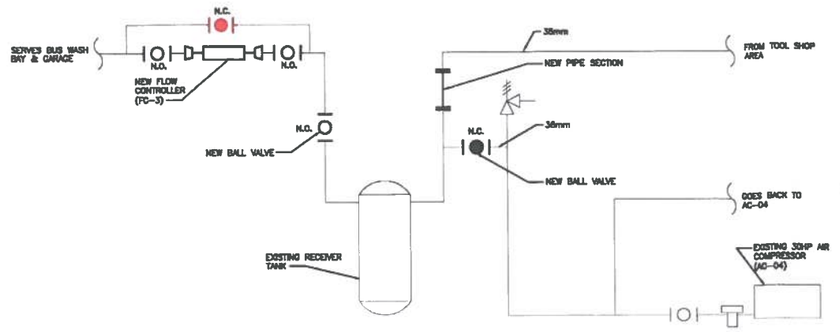
COMPRESSED AIR LAYOUT PLAN, BUS BAY

CONSULTANT DRAWING NUMBER: M2

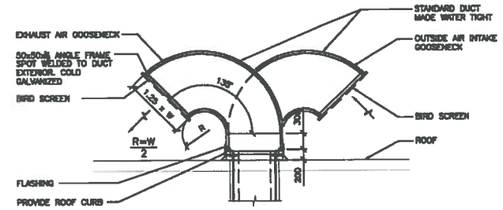
\\DILLONCAN\UTIL_DFS\WINNIPEG\WINNIPEG CAD\CAD\149749 CITY OF WINNIPEG TRANSIT\07-MECHANICAL\01-CONTRACT\149749-07-MECH-003.DWG



COMPRESSED AIR PIPING SCHEMATIC
NTS



EXISTING COMPRESSED AIR PIPING SCHEMATIC FOR AC-04 & RECEIVER TANK
NTS



DETAIL - GOOSENECK ON ROOF
NTS

RECTANGULAR SHEET METAL FITTING
NTS

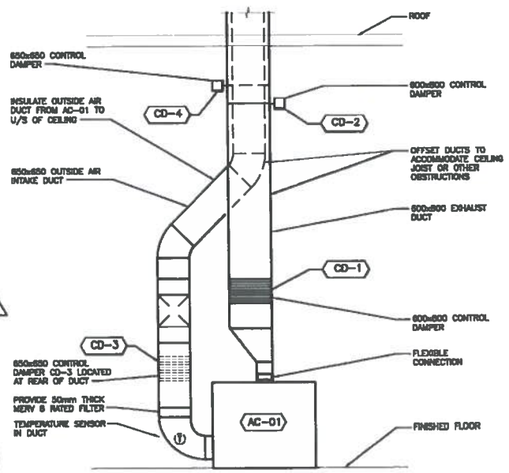
AC-01

AC-02

AC-02 SEQUENCE OF OPERATION (4)

1. AC-02 SHALL OPERATE ON A START/STOP BASIS.
2. PRESSURE SETTINGS:
   - DISCHARGE PRESSURE TARGET @ FLOW CONTROL: 140 psi (ADJUSTABLE)
   - UNLOAD PRESSURE: 175 psi (ADJUSTABLE)
   - LOAD PRESSURE: 145 PSI (ADJUSTABLE)
3. UNLOAD TIME SET AT 2 MINUTES TO MAXIMIZE ENERGY SAVINGS.

CONTROLS CONTRACTOR SHALL BE RESPONSIBLE FOR SPECIFYING ALL CONTROL WIRING AND CONTROLS TO MEET THE SEQUENCE OF OPERATION.



AC-02 COOLING SYSTEM DETAIL
1:50

EQUIPMENT SCHEDULE

AC-02

4 INGERSOLL RAND MODEL UP6-15C-210 (120 GALLON TANK MOUNT) @ 210 PSIG RATED DISCHARGE PRESSURE, 15HP ROTARY SCREW AIR COMPRESSOR, 575V/3ø. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.

AC-01

INGERSOLL RAND MODEL R45N, 281 CFM (MAX. SPEED) @ 110 PSIG RATED DISCHARGE PRESSURE 60HP VARIABLE SPEED ROTARY SCREW AIR COMPRESSOR, 575V/3ø, C/W XC-145N CONTROLLER. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.

RAD-01

INGERSOLL RAND MODEL HVC300 CYCLING AIR DRYER, 300 CFM CAPACITY, R-404A REFRIGERANT, 575V/3ø, 230 PSIG MAX. OPERATING PRESSURE. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.

5 APPROVED SUBSTITUTE: KAESER MODEL TD76 AND GARDNER DENVER MODEL RES360.

RAD-03

4 INGERSOLL RAND MODEL D85EEA CYCLING AIR DRYER, 80 CFM CAPACITY, R-134A REFRIGERANT, 115V/1ø. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.

F-1

INGERSOLL RAND MODEL F108G GENERAL PURPOSE LINE FILTER, 84 CFM CAPACITY, 250 PSIG MAX. OPERATING PRESSURE. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.

5 APPROVED SUBSTITUTE: KAESER MODEL KF5100.

FC-1

PNEUMATECH CONSERVAIR MODEL S-150 INTERMEDIATE CONTROL, MAX. FLOW: 750 CFM, MAX. INLET PRESSURE: 200 PSIG, MAX. OUTLET PRESSURE: 185 PSIG. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.

FC-2

PNEUMATECH CONSERVAIR MODEL S-30 INTERMEDIATE CONTROL, MAX. FLOW: 150 CFM, MAX. INLET PRESSURE: 200 PSIG, MAX. OUTLET PRESSURE: 185 PSIG. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.

FC-3

PNEUMATECH CONSERVAIR MODEL S-60 INTERMEDIATE CONTROL, MAX. FLOW: 250 CFM, MAX. INLET PRESSURE: 200 PSIG, MAX. OUTLET PRESSURE: 185 PSIG. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.

RT-1

PROVIDE A 400 GALLON COMPRESSED AIR RECEIVER TANK C/W PRESSURE RELIEF VALVE & PRESSURE GAUGE. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.

AUTOMATIC DRAIN VALVE

MONROE MD-2S ELECTRONIC DRAIN VALVE, ADJUSTABLE 'ON' TIME 0.5-10 SECONDS, ADJUSTABLE 'OFF' TIME 0.5-45 MINUTES, MAXIMUM WORKING PRESSURE 230PSI, SUPPLY VOLTAGE: 120VAC

AC-01 COOLING SYSTEM SEQUENCE OF OPERATION

1. WHEN AC-01 IS OFF, CONTROL DAMPER CD-1 & CD-3 ARE FULLY OPENED, AND CONTROL DAMPERS CD-2 & CD-4 ARE FULLY CLOSED. ALL FOUR CONTROL DAMPERS SHALL OPERATE IN UNISON.
2. WHEN AC-01 IS ENABLED, CONFIRM CONTROL DAMPERS CD-1 & CD-3 ARE FULLY OPENED, AND CONTROL DAMPERS CD-2 & CD-4 ARE FULLY CLOSED VIA END SWITCH.
3. MODULATE CONTROL DAMPERS CD-1, CD-2, CD-3 & CD-4 TO MAINTAIN MIXED AIR TEMPERATURE SET POINT ABOVE 20°C (ADJUSTABLE) AND BELOW 25°C (ADJUSTABLE) AS FOLLOWS:
   1. WHEN MIXED AIR TEMPERATURE IS ABOVE 25°C, MODULATE CONTROL DAMPERS CD-1 & CD-3 TOWARDS THE CLOSED POSITION, AND MODULATE CONTROL DAMPERS CD-2 & CD-4 TOWARDS THE OPEN POSITION.
   2. WHEN MIXED AIR TEMPERATURE IS BELOW 20°C, MODULATE CONTROL DAMPERS CD-1 & CD-3 TOWARDS THE OPEN POSITION, AND MODULATE CONTROL DAMPERS CD-2 & CD-4 TOWARDS THE CLOSE POSITION.
4. PROVIDE MIXED AIR TEMPERATURE LOW TEMPERATURE ALARM SET AT 2°C. ALARM & DISABLE AC-01.
5. PROVIDE MIXED AIR TEMPERATURE HIGH TEMPERATURE ALARM SET AT 30°C (ADJUSTABLE) ALARM & DISABLE AC-01.

CONTROLS CONTRACTOR SHALL BE RESPONSIBLE FOR SPECIFYING ALL CONTROL WIRING AND CONTROLS TO MEET THE SEQUENCE OF OPERATION.

AC-01 & AC-05 SEQUENCE OF OPERATION

1. AC-01 & AC-05 SHALL OPERATE ON A LEAD/LAG BASIS. OPERATE LEAD/LAG ON A WEEKLY BASIS (ADJUSTABLE).
2. WHEN THE LEAD COMPRESSOR CAN NOT KEEP UP WITH COMPRESSED AIR DEMAND, THEN ENERGIZE SECOND COMPRESSOR.
3. IF LEAD COMPRESSOR DOES NOT START, ALARM AND ENERGIZE SECOND COMPRESSOR. IF SECOND COMPRESSOR DOES NOT START, ALARM.
4. PRESSURE SETTINGS:
   - DISCHARGE PRESSURE TARGET: 110 PSI (ADJUSTABLE)
   - UNLOAD PRESSURE: 115 PSI (ADJUSTABLE)
   - LOAD PRESSURE: 95 PSI (ADJUSTABLE)
5. WHEN DISCHARGE PRESSURE EXCEEDS 120 PSI, STOP LEAD COMPRESSOR AND ALARM.

CONTROLS CONTRACTOR SHALL BE RESPONSIBLE FOR SPECIFYING ALL CONTROL WIRING AND CONTROLS TO MEET THE SEQUENCE OF OPERATION.

AS - BUILT
ABCO Supply & Service Ltd.
Dated: December 2, 2015
Signed:

APEGM
Certificate of Authorization
Dillon Consulting Limited (MB)
No. 1789 Date:

LOCATION APPROVED UNDERGROUND STRUCTURES
SUPV. U/G STRUCTURES COMMITTEE DATE

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE NEARLY AS THE MOST INFORMATION AVAILABLE. IT MAY BE ASSUMED THAT ALL EXISTING UTILITIES ARE SHOWN AND THAT NO OTHERS EXIST. THE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL UTILITIES AND ADVISE THE ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. ELEV.

NO.	REVISIONS	DATE	BY
5	ISSUED FOR ADDENDUM # 2	MAY. 5/15	EP
4	ISSUED FOR ADDENDUM #1	APR.24/15	PDT
3	ISSUED FOR CONSTRUCTION	APR.10/15	PDT
2	CLIENT REVIEW 100%	MAR.30/15	PDT
1	CLIENT REVIEW 95%	MAR.9/15	PDT
0	CLIENT REVIEW 66%	FEB.24/15	PDT

DESIGNED BY EP
DRAWN BY TKD
CHECKED BY JVH
APPROVED BY PDT
HOR. SCALE NOTED
VERTICAL NOTED
DATE 2015-02-20

DILLON CONSULTING
RELEASED FOR CONSTRUCTION
DATE

ENGINEER'S SEAL
DRAWING ORIGINALLY SIGNED BY P.D. TATARYN DATED APR. 10, 2015

CONSULTANT PROJECT NO. 149749

THE CITY OF WINNIPEG
TRANSIT DEPARTMENT

FORT ROUGE GARAGE COMPRESSED AIR SYSTEM UPGRADE

CITY DRAWING NUMBER P-XXXX-—

SHEET 4 OF 4

COMPRESSED AIR PIPING SCHEMATIC, DETAILS, EQUIPMENT SCHEDULE & SEQUENCE OF OPERATION

CONSULTANT DRAWING NUMBER M3

G:\JOB\149749 CITY OF WINNIPEG TRANSIT\07-MECHANICAL\01-CONTRACT\149749-07-M003-005.DWG

Nirvana

Cycling Refrigerated Dryers

Ingersoll Rand
Industrial Technologies

Nirvana Cycling Refrigerated Dryers

Ingersoll Rand's Nirvana Cycling Refrigerated Dryer provides reliability like no other dryer in its class: reliability that you can count on to protect your air system day in and day out; reliability built in by design.

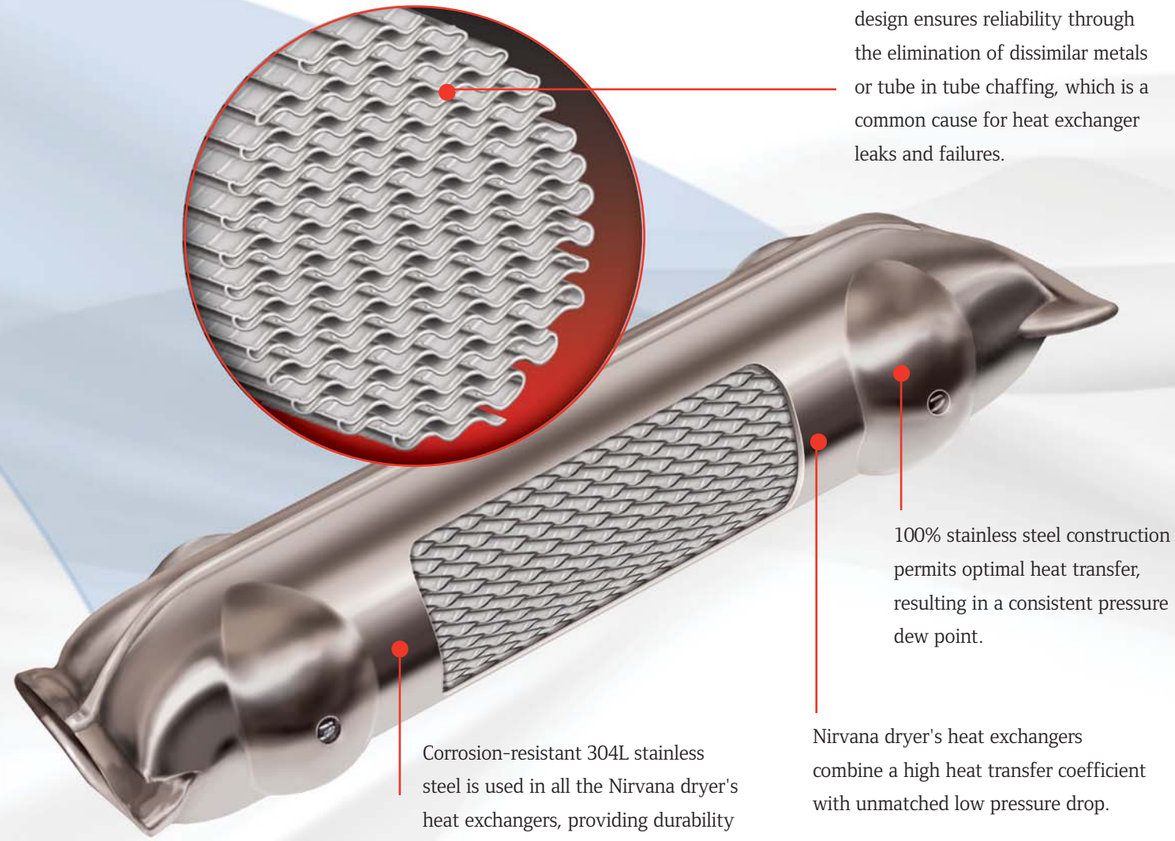
The Nirvana is a genuine cycling dryer, incorporating innovative features that make it not only the most reliable, but the most energy efficient, dryer in its class.

The key element central to the Nirvana's reliability and energy efficiency is its distinct, patented heat exchanger design. Providing high heat transfer with low pressure drop because of uniquely short flow length, the Nirvana heat exchanger presents a flow area three to five times that of an equivalent copper tubing exchanger, and it is self-cleaning, which greatly reduces the potential for fouling.

Reliability Is Our Design

High Heat Transfer at Work

The superior performance of the Nirvana dryer can be attributed to the effective heat transfer capabilities of the exchanger design, utilized throughout the package for each stage of heat removal. The dryer design includes a pre-cooling system with stainless steel heat exchangers to properly condition the air for drying. A re-heater section of the dryer's air side also uses these high performance heat exchangers to prepare the dried compressed air for re-entry into the air system. This prevents pipe sweating and readies the compressed air for use in process applications.



An innovative corrugated and folded stainless steel panel is stacked inside two stainless steel shells, then welded together to form a unitized heat exchanger. This design ensures reliability through the elimination of dissimilar metals or tube in tube chaffing, which is a common cause for heat exchanger leaks and failures.

100% stainless steel construction permits optimal heat transfer, resulting in a consistent pressure dew point.

Nirvana dryer's heat exchangers combine a high heat transfer coefficient with unmatched low pressure drop.

Corrosion-resistant 304L stainless steel is used in all the Nirvana dryer's heat exchangers, providing durability in environments unsuitable for copper or other metals.

Energy-Efficient Design

An advanced cycling dryer, the Nirvana provides significant savings because it does not waste energy costs through continuous operation of its refrigeration system, as do traditional non-cycling dryers. Each component of the Nirvana has been designed to provide not only durability, but maximum energy efficiency. This combination of system design and individual component design adds up to the most energy efficient cycling refrigerated dryer available.

Factors contributing to the Nirvana's energy efficiency:

- Design includes a refrigeration system combined with a thermal mass that efficiently stores cold energy.
- Refrigeration compressor cycles off during periods of reduced load, while dryer continues to remove moisture and contaminants from the compressed air.
- Unique centrifugal separator design provides effective moisture separation maintaining consistent dew point, regardless of partial load operation.

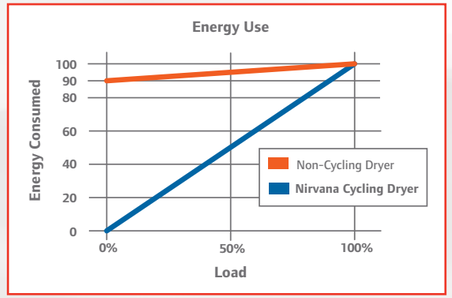
Electronic No Air Loss (ENL) Drain

Nirvana cycling dryers up to 2,400 SCFM are equipped with ENL condensate drains, which eliminate venting of compressed air to the atmosphere and are more reliable than traditional float- or solenoid-type drains.

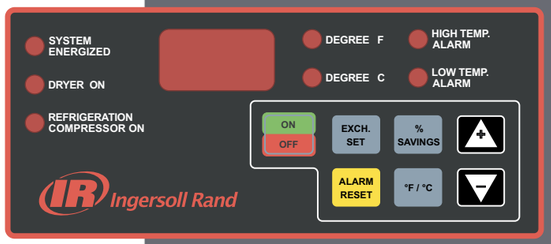
ENL Drain

Best in Class Design

The Nirvana cycling dryer uses centrifugal separation to remove moisture from the chilled air. Separation occurs at the coldest point in the system by means of centrifugal acceleration, then expands into an area of low velocity containing a sump, and change of air flow direction. The result is highly-efficient moisture removal, providing exceptionally dry, clean air under all operating conditions.



Nirvana cycling dryers are highly efficient, providing dry, clean air under any operating conditions.



Microprocessor LED Controller up to NVC800 features a NEMA 1 package protection standard with an optional NEMA 4 rating.

Microprocessor Controller

The easy-to-use controller automatically manages dryer operation for optimum air treatment and for maximum energy efficiency.

- **Simple and easily read interface with LED indication**
- **Digital display of chiller temperature available at a glance to ensure optimal dryer performance**
- **Percent of energy savings available at the touch of a button**
- **Automatic dryer restart in the event of a sudden loss of power**
- **Adjustable chiller temperature set point to further reduce energy expense**
- **Microprocessor control constantly monitors dryer functions including thermal mass temperature and provide alarms to minimize dryer downtime**

Large Capacity
from 3,200 to 8,000 SCFM

Modular design for exceptional reliability and energy efficiency

Nirvana large capacity cycling refrigerated compressed air dryers consist of multiple, independent air treatment modules, each with its own controls and refrigeration system, sharing a central thermal mass cold storage medium. Compressed air is cooled as it passes through the large capacity Nirvana dryer, causing moisture and contaminants to condense so they can be removed from the air in multiple high-efficiency centrifugal separators.

The moisture and contaminants are then automatically discharged from the system through pneumatic no air loss condensate drains to eliminate wasting valuable compressed air.

Clean, dry compressed air is warmed as it exits the dryer to prevent pipe sweating and to condition it for application. The refrigeration system in each module automatically cycles as needed to maintain cold stored energy, while active circulation of the thermal mass cold storage media contributes to the dryer's overall efficiency.

Water-cooled Large Capacity Dryer

Expandable Large Capacity Dryers feature a modular design and individual controllers that provide redundancy for models starting at 3,250 SCFM.

Redundant Design for Reliability

The multiple air treatment modules of each Nirvana large capacity dryer are integrated to make a single dryer with air treatment capacities from 3,250 to 8,000 SCFM. (Larger dryer sizes upon request.) Modules share a single inlet header and a single outlet header, each with dual connection capability for installation versatility. Each module includes 304L stainless steel heat exchangers and a high-efficiency centrifugal separator.

Because Nirvana large capacity dryers employ a shared, continuously-circulating thermal mass cold storage medium and integrated drying modules with individual electrical disconnects, the dryer can continue to operate and provide compressed air treatment even if a module must be isolated for maintenance or repair.

Dryer operation is coordinated through digital controls, fully adjustable to meet application requirements. The operation of individual modules can also be adjusted to make optimum use of the benefits associated with cycling refrigeration systems.

Large Capacity Nirvana Cycling Refrigerated Dryers are also available in an air-cooled design.

Controller for NVC1000 and larger

Microprocessor Controller

- **Backlit LCD with integrated keypad allows viewing of dryer parameters regardless of environmental lighting**
- **MODBUS compatible via RS232/485-remote communication - ready connection port**
- **Remote alarm contact available and remote start/stop ready**
- **Advanced diagnostic memory with failure code storage**
- **Percentage of energy savings available at the touch of a button**

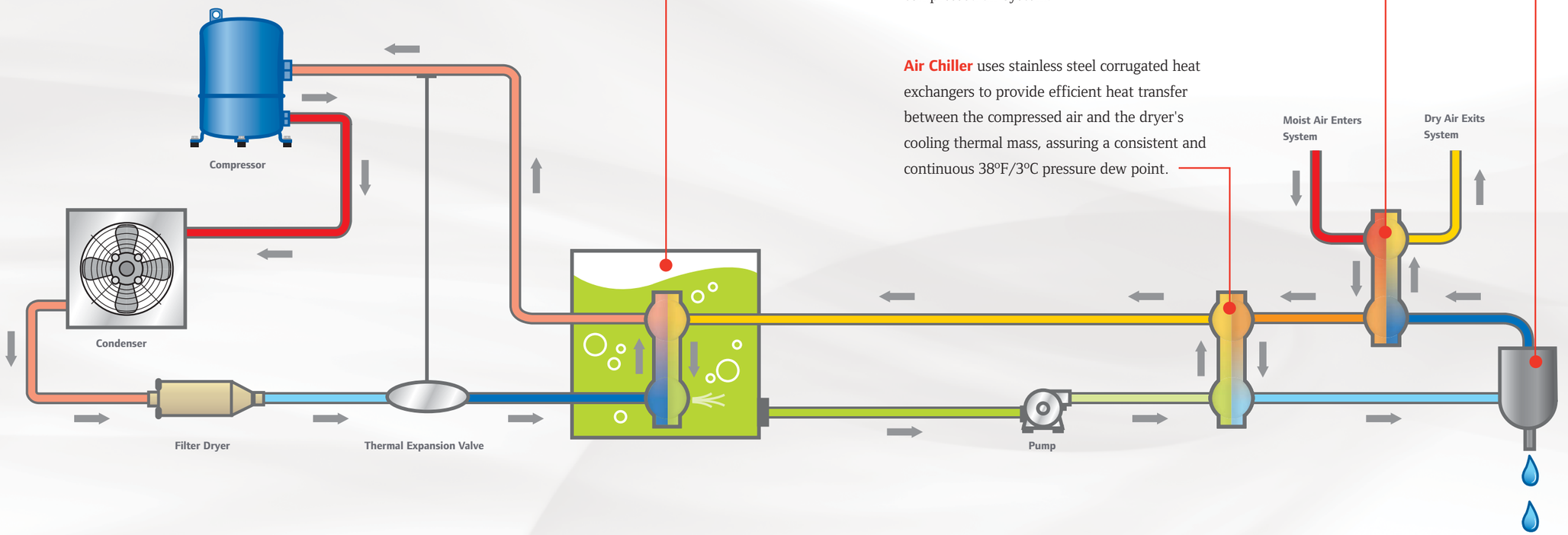
How They Work

Submerged Evaporator Thermal Mass Storage Tank is fully insulated to maintain a consistently cold propylene glycol-water mixture for continuous pressure dew point control. The thermal tank temperature is monitored by the controller permitting the refrigerant compressor to cycle off during low heat loads resulting in energy savings.

Stainless Steel Pre-cooler/Re-heater assures that compressed air is properly conditioned for cooling while simultaneously reducing the energy costs of removing the initial heat load. Clean, dry air leaving the dryer is reheated to maintain low relative humidity in the process air, further protecting the compressed air system.

Air Chiller uses stainless steel corrugated heat exchangers to provide efficient heat transfer between the compressed air and the dryer's cooling thermal mass, assuring a consistent and continuous 38ºF/3ºC pressure dew point.

Centrifugal Air/Moisture Separator efficiently and effectively removes moisture for all applications even under partial load conditions.



Refrigeration System employs a reliable, time-proven hermetic reciprocating compressor.

Thermal Mass Cooling System circulates the thermal mass fluid to provide a continuous cold medium for heat transfer.

Compressed Air Side System pre-cools the inlet air, chills the air to 38°F/3ºC, removes moisture through the centrifugal separator and is re-heated for process use.

Global Reach

Unsurpassed Local Customer Support

Ingersoll Rand provides its products and services directly or through distributors to customers in close to 200 countries. We focus on providing innovation to increase your productivity and profitability. Expect more with Ingersoll Rand. We are your total solutions provider.

Long-term Value

There is more to value than simply price. The commitment of many thousands of dedicated compressed air specialists, either directly employed or members of a select market channel partnership, mean that friendly Ingersoll Rand support is close at hand. In addition to parts availability, qualified on-site service is available globally.

Preventative Maintenance and Warranty

Factory training and certified Ingersoll Rand technicians can protect your investment by providing high-quality preventative maintenance. In addition, we can offer a comprehensive seven-year parts and labor warranty.

Replacement Parts Made Easy

Ensure that you have all the right parts on hand with our simplified ordering. Ingersoll Rand's reputation for dryer parts availability is second to none.

The best overall value is getting the most out of your investment. Ingersoll Rand customer support teams will help you protect your investment.

Specifications

Model	Air Capacity (SCFM 38ºF/ 3ºC m3/min)	Pressure Drop (psig/barg)	Operating kW Air Cooled	Operating kW Water Cooled	Dimensions (in/mm) W	D	H	Approx. Ship Wt. (lbs /kg)	Air In/Out (in)
NVC200	200/5.7	1.6/0.11	1.66	1.06	28/711	33/838	58/1473	620/282	1.5 NPT
NVC300	300/8.5	2.1/0.14	2.54	1.65	28/711	33/838	58/1473	735/334	2 NPT
NVC400	400/11.3	2.9/0.20	3.24	2.19	28/711	33/838	58/1473	745/339	2 NPT
NVC500	500/14.1	2.9/0.20	4.65	4.28	42/1067	40/1016	62/1575	1250/570	3 NPT
NVC600	600/17.0	3.0/0.21	4.82	3.14	42/1067	40/1016	62/1575	1275/580	3 NPT
NVC700	700/19.8	2.7/0.19	5.79	3.58	42/1067	40/1016	62/1575	1320/600	3 NPT
NVC800	800/22.7	2.9/0.20	6.50	4.16	42/1067	40/1016	62/1575	1415/643	3 NPT
NVC1000	1000/28.3	2.4/0.17	7.03	4.48	32/813	76/1930	69/1753	2315/1052	4 FLG
NVC1200	1200/34.0	3.1/0.21	8.72	5.48	32/813	76/1930	69/1753	2435/1107	4 FLG
NVC1600	1600/45.3	3.3/0.23	11.48	7.34	32/813	76/1930	69/1753	2785/1266	4 FLG
NVC2000	2000/56.7	3.5/0.24	13.18	9.09	34/864	91/2311	91/2311	4070/1850	6 FLG
NVC2400	2400/68.0	3.5/0.24	14.29	9.59	34/864	91/2311	91/2311	4150/1886	6 FLG
NVC3250	3250/92.1	3.0/0.21	18.03	14.77	75/1905	96/2438	100/2540	6330/2877	8 FLG
NVC4000	4000/113.3	3.0/0.21	21.77	15.26	75/1905	100/2540	96/2438	7060/3029	8 FLG
NVC4800	4800/136.0	3.0/0.21	28.72	19.32	75/1905	100/2540	96/2438	7200/3273	8 FLG
NVC6000	6000/170.0	3.0/0.21	32.65	22.89	110/2794	98/2489	101/2565	9870/4486	10 FLG
NVC8000	8000/226.6	3.0/0.21	43.54	30.52	143/3632	99/2515	102/2591	12575/5716	12 FLG

Performance data presented in accordance with CAGI standard ADF 100 under 100°F inlet temperature, 100°F ambient temperature and 100 psig conditions.
Maximum working pressure: NVC200 - 800, 230 psig; NVC1000 - 8000 SCFM, 220 psig.
Weights and dimension shown for NVC200-2400 air-cooled, NVC3250 and larger in water-cooled.
Average kilowatts per hour of dryer operation at full rated capacity.
Standard NVC200-800 SCFM models ETL-certified, 1000-2400 models UL 508 panels.
Available voltages 460-3-60, 575-3-60, 380-3-50. NVC200-400 available in 230-3-60 and 220-3-50. NVC200 available in 230-1-60.
Pressure drop ± 0.5 psig.

Correction Factors

	Inlet Air Temperature	Correction Factor	Inlet Air Pressure	Correction Factor	Ambient Air Temperature	Correction Factor
Dryer Selection Example:	80ºF	1.64	75 psig	0.91	80ºF	1.25
	90ºF	1.27	100 psig	1.00	90ºF	1.12
500 SCFM	100ºF	1.00	**125 psig**	**1.08**	**100ºF**	1.00
110ºF inlet	**110ºF**	**0.81**	150 psig	1.16	110ºF	0.86
125 psig	120ºF	0.66	225 psig	1.22	120ºF	0.77
100ºF ambient						
Calculation:	Dryer Size = 500/(0.81 x 1.08 x 1.00) = 572 SCFM = NVC600					

Ingersoll Rand
Industrial Technologies

Ingersoll Rand Industrial Technologies provides products, services and solutions that enhance our customers' energy efficiency, productivity and operations. Our diverse and innovative products range from complete compressed air systems, tools and pumps to material and fluid handling systems and environmentally friendly microturbines. We also enhance productivity through solutions created by Club Car®, the global leader in golf and utility vehicles for businesses and individuals.

www.ingersollrand.com

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(704) 655-5000
(704) 655-4039 Fax

Member of CAGI
www.cagi.org

Save Time and Materials with Matrix

Automatic Fluid Management

The Matrix Total Fluid Management System provides automated tracking and monitoring plus state-of-the-art dispensing for complete control of your fluid inventory. Save time, gain billable hours and maximize your fixed operation's profitability with Matrix.

Simple to install and operate!

Reynolds & Reynolds
RCI Reynolds Certified Interface
Certified for ERA®

ADP
Approved Interface

Automate Your Fluid Dispense:

- Beat the book time and move more vehicles through your shop
- Reduce human error and inventory shrinkage
- Automatically post fluid dispenses to the work order
- Eliminate out-of-stock problems and over-fill tank issues–Matrix automatically emails fluid levels to oil suppliers and oil recyclers
- ADP and Reynolds interfaces provide secure, reliable data transfer between Matrix and the management software
- Works with ADP's Elite 9200, WebSuite® 2006 or higher and Reynolds & Reynolds ERA 6.4 or higher

Saving just a few minutes each day can **add** up to **thousands** of **dollars** in revenue each year.




Ideal for car dealerships, truck dealerships, off-road maintenance shops, including mining and construction, fleet facilities, fast lubes, service shops and in-plant applications

Matrix Total Fluid Management System–choosing the right system is easy!

Get a QUICK-QUOTE!

Just fill in and fax this form to your distributor for a free audit of your fluid management needs

Choose the level of reporting and data you need, from basic to comprehensive. If your requirements change, it's easy to upgrade later.

MATRIX SOFTWARE INTERFACE		Quantity
256634	Premier software CD	
256635	Professional software CD	
256636	Basic software CD	
256637	Premier with ADP Interface	
256638	Premier with Reynolds Interface	

Choose a transceiver and the connecting hardware for your shop layout to wirelessly send and receive information from your bulk tanks, pumps and meters.

TRANSCEIVER AND CONNECTION HARDWARE		Quantity
255231	Transceiver w/universal power adapter*	
255731	USB/RS422 converter	
15T999	15 ft USB cable	
15T998	3 ft USB cable	
119572	RS422 bulk wire (1000 ft rolls)	

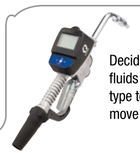
*Minimum one required

One PAC required for each air pump. For safety and increased security, the PAC is a must have to maximize your fluid management system. Designed to supply air to the pump only when Matrix authorizes the dispense.

PUMP AIR CONTROL (PAC)		Quantity
247436	93 scfm valve for pump mount	

Choose one TLM for each bulk fluid tank. Tank readings are automatic for used or new oil and anti-freeze products.

TANK LEVEL MONITOR (TLM)		Quantity
256285	Tank Level Monitor	



Decide how many meters per work bay, which fluids you want to dispense and which extension type to use. High flow options are available to move more fluids faster.

MATRIX ELECTRONIC DISPENSE METER, 5 GPM OR LESS		Quantity
256282	1/2 in npt(f) swivel with rigid extension and standard automatic non-drip quick-close nozzle for oil	
256482	1/2 in npt(f) swivel with flexible extension and standard automatic non-drip quick-close nozzle for oil	
256483	1/2 in npt(f) swivel with gear lube extension and standard quick-close nozzle	
256484	1/2 in npt(f) swivel with rigid extension and standard quick-close nozzle for anti-freeze	
256485	1/2 in npt(f) swivel with flexible extension and standard quick-close nozzle for anti-freeze	

MATRIX ELECTRONIC DISPENSE METER, 14 GPM OR LESS		Quantity
256486	1/2 in npt(f) swivel with rigid extension, high flow, quick-close nozzle for oil	
256487	1/2 in npt(f) swivel with flexible extension, high flow, quick-close nozzle for oil	
256488	3/4 in npt(f) swivel with rigid extension, high flow, quick-close nozzle for oil	
257120	3/4 in npt(f) swivel with flexible extension, high flow, quick-close nozzle for oil	

Accessories

Protect the finish of the vehicle you're working on with an inlet swivel cover. Color code your meters to easily identify which fluid you're dispensing.

INLET SWIVEL COVERS		Quantity
15T366	Black cover for 3/4" hose (standard)	
15T367	Red cover for 3/4" hose	
15T368	Blue cover for 3/4" hose	
15T369	Green cover for 3/4" hose	
15T370	Yellow cover for 3/4" hose	

FILTER KITS AND MISCELLANEOUS ACCESSORIES		Quantity
255885	Filter kit includes (10) filters/strainers (15M308), (10) spacers (15M309), and (10) O-rings (155332)	
15B750	Drum cover mount bracket	
249440	Console bracket	

OIL BAR*		Quantity
256719	Oil bar cabinet for Matrix 3; holds up to three Matrix meters	
257539	Matrix meter for oil bar (no extension or inlet swivel)	
255370	Oil bar kit for one Matrix meter; includes pipe fittings and nozzle	

*For a 3-meter oil bar, order the following part numbers and quantities: 256719 (1), 257539 (3), 255370 (3)

CLEANLINE™ FILTER ASSEMBLIES		Quantity
248421	900 psi (62 bar) tank mount	
248418	900 psi (62 bar) wall mount	
248419	1800 psi (124 bar) tank mount	
248417	1800 psi (124 bar) wall mount	

CLEANLINE ASSEMBLY REPLACEMENT FILTERS		Quantity
15D702	900 psi (62 bar) screw-on filter	
119278	1800 psi (124 bar) filter element	

Potential material and labor savings in just one year!

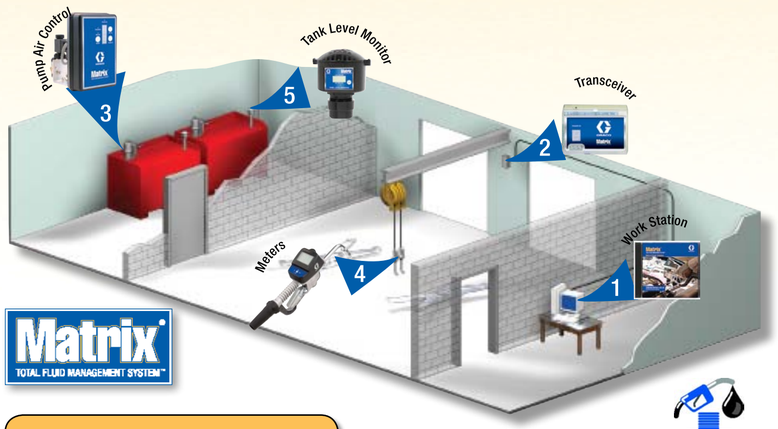
TYPICAL AUTOMOTIVE DEALERSHIP SHRINKAGE	
Price of oil (per gallon)	$8 **X**
Gallons used (per year)	15,000 **=**
Total oil cost (per year)	$120,000 **X**
Typical Inventory loss	10% **=**
Total Inventory savings per year	$12,000

LABOR SAVINGS WITH MATRIX SYSTEM	
Weekly Savings (inventory tracking)	5 hours
Shop Rate per hour	$95
Total labor cost (per week)	$475
Weeks (per year)	52
Total labor savings	$24,700

*Example shown in gallons and U.S. dollars

POSSIBLE ANNUAL SAVINGS WITH MATRIX = $36,700.00

Fluid dispense and inventory control at your fingertips for petroleum, synthetic oil products and anti-freeze mixtures



5 Steps to Choose Your System

1 Select Application Software
Matrix offers three software platforms using the Matrix meter including Premier, Professional and Basic.

2 Include a Transceiver
Sends and receives information from the meters, Tank Level Monitors and Pump Air Control to the work station.

3 Security with the Pump Air Control
Supplies air to the pump only when Matrix authorizes the dispense.

4 Performance of the Matrix Meter
The Matrix Meter dispenses fluid and communicates dispense information wirelessly to the PC.

5 The Time-Saving Tank Level Monitor
Ultrasonic signal accurately measures fluid levels and communicates to used oil recyclers or bulk fluid suppliers.

Tracking dispenses right to the work order saves time and eliminates lost inventory

Matrix Application Features

Feature	Basic	Professional	Premier
Maximum Number of Transceivers	1	2	8
Maximum Number of Meters	30	100	300+
Maximum Number of Tank Monitors	0	12	50
Client PC Networking	0	6	300
Number of users	250	500	1000
Basic Reporting	X		
Comprehensive Reporting		X	X
Tank Level Email		X	X
Third Party Interface Capable		X	X
Track Dispense by Technician		X	X
Track Dispense by Vehicle Number			X
ADP® Certified Interface			X
Reynolds® Certified Interface			X

Note: All products have no fluid limit and are oil bar capable.

ABOUT GRACO

Founded in 1926, Graco is a world leader in fluid handling systems and components. Graco products move, measure, control, dispense and apply a wide range of fluids and viscous materials used in vehicle lubrication, commercial and industrial settings.

The company's success is based on its unwavering commitment to technical excellence, world-class manufacturing and unparalleled customer service. Working closely with qualified distributors, Graco offers systems, products and technology that set the quality standard in a wide range of fluid handling solutions. Graco provides equipment for spray finishing, protective coating, paint circulation, lubrication, and dispensing sealants and adhesives, along with power application equipment for the contractor industry. Graco's ongoing investment in fluid management and control will continue to provide innovative solutions to a diverse global market.

GRACO LOCATIONS

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Fax: 82 31 476 9801

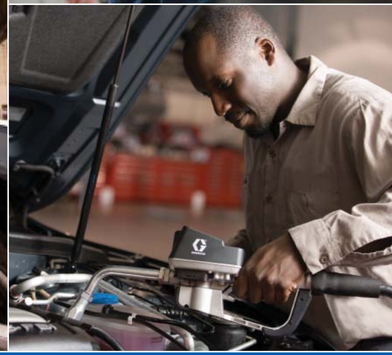
SALES/ DISTRIBUTION/ SERVICE

Contact us today!

Send an E-mail to **info_APLube@graco.com** for product information or visit us at **www.graco.com**

Matrix® Total Fluid Management System™

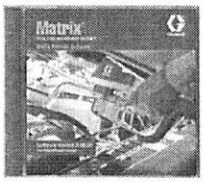
Automated, wireless oil dispense tracking and bulk tank monitoring



Matrix™
Fluid Management Systems

Features and Benefits

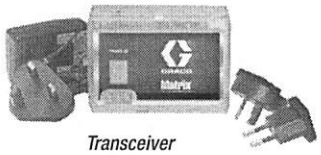
- Wireless transmission and reception of meter and tank level information make it simple to track your entire facility's activities
- Customize to fit your business–three product platforms (Basic, Professional, and Premier) to fit any size facility
- Multi-level security to protect your assets
- Precise measurement and control of fluids ensures profits and eliminates out of stock issues for critical inventory
- ADP and Reynolds & Reynolds interfaces provide secure, reliable, data transfer between the Matrix database and the dealership management software



Premier software
256634

Typical Applications

- Auto dealerships
- Heavy-duty fleet service
- Off-road maintenance shops
- Industrial in-plant lubrication

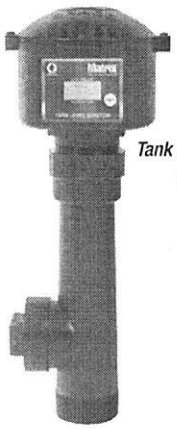


Transceiver
257464

Matrix Meter
256282

Typical Fluids Handled

- Petroleum- and synthetic-based oils
- Anti-freeze
- Gear lube



Tank Level Monitor
256285

Matrix Application Features

Feature	Basic	Professional	Premier
Maximum Number of Transceivers	1	2	8
Maximum Number of Meters	30	100	300
Maximum Number of Tank Monitors	0	12	50
Client PC Networking	0	6	300
Number of users	250	500	1000
Track Dispense by Work Order	X	X	X
Track Dispense by Technician			X
Track Dispense by Vehicle Number			X
Tank Level Email		X	X
Third Party Interface Capable		X	X
ADP® Certified Interface			X
Reynolds® Certified Interface			X
No fluid limitations with any Matrix Platform			

Pump Air Control
247436

Matrix Demo Kit

Professional Matrix demo case with everything you need to show your customers how Matrix will save them time, gain them more billable hours, and maximize their fixed-operation's profitability.

Ordering Information

Matrix Demo Kit	
24X077	Includes Matrix Demo Meter (24F318), Matrix Premier Software (256634), Matrix Transceiver (257464), Matrix Tank Level Monitor (256285), Matrix Pump Air Control (247436), USB Cable (15T998), Custom Protective Case

Software System Operating Requirements

Matrix software can be configured as a stand-alone PC or networked to multiple PC's. This software is not compatible with Apple® Computers, and is not available for the Apple® Operating system. The PC requirements for the Matrix Server and Matrix Client or shop PC's are noted below.

Server PC Hardware Requirements

- Windows® 2003 and Windows® 2008 (R2) server platforms
- Pentium® 4 or better processor
- Processor speed of 3.0 GHz or better
- RAM memory of 1 GB or better
- CD-RW or DVD/RW drive
- Serial port configuration for (1) RS422 and (1) USB connection

PC Clients

- Windows® XP, Vista®, Windows® 7 and Windows® 8 operating system
- Pentium® 4 or better processor with a processor speed of 2.0 GHz or better
- RAM memory of 1 GB or better

Software Instruction Manuals

Basic	Professional	Premier	ADP	Procede	Reynolds & Reynolds
313104	313106	313108	313112	334786	313114

RF Communication (Meters, Transceivers, Tank Level Monitors, Pump Air Control)

Description	Performance
RF Communication	2.4 GHz Direct Sequence Spread Spectrum
RF Communication Range	Unobstructed: 300 to 500 ft (91 to 152 m); Obstructed: 250 to 300 ft (76 to 91 m)
RF Temperature Range	-40° F to 185° F (-40° C to 85° C)
Approvals	FCC, Industry Canada (IC), C-Tick, CE

Ordering Information

System Software	
256634	Premier Software CD (includes 3rd party interface)
256635	Professional Software CD
256636	Basic Software CD
256637	Premier Software with ADP Interface
128160	Premier Software with Procede Excede Interface
256638	Premier Software with Reynolds & Reynolds Interface
Transceiver and Connection Hardware	
257464	Transceiver with Universal Power Adapter
255731	USB/RS422 Converter
15T999	15 ft USB Cable
15T998	3 ft USB Cable
119572	RS422 Bulk Wire (1000 ft roll)

257464

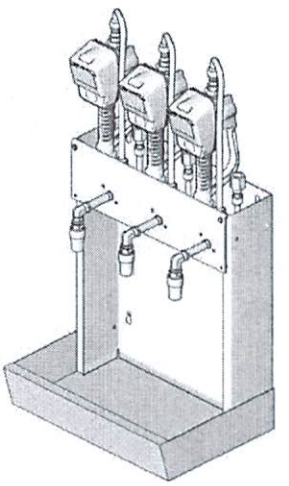
Transceiver and Connection Hardware Technical Specifications

Weight . . . . . 1.0 lb (454 grams)
Power Supply . . . . . 100 – 240 V, 50/60 Hz to 12 VDC plug-in transformer
Instruction Manual 313008

Matrix Meter and Accessories

Matrix Electronic Meter with Extension, 5 gpm or Less		
256282	1/2 in npt(f) swivel, rigid extension and standard automatic non-drip quick-close nozzle for oil	
✱ 256482 ✱	1/2 in npt(f) swivel, flexible extension and standard automatic non-drip quick-close nozzle for oil	
256483	1/2 in npt(f) swivel, gear lube extension and standard quick-close nozzle	
256484	1/2 in npt(f) swivel, rigid extension and standard quick-close nozzle for anti-freeze	
✱ 256485 ✱	1/2 in npt(f) swivel, flexible extension and standard quick-close nozzle for anti-freeze	
Matrix Electronic Meter with Extension, 14 gpm or Less		
256486	1/2 in npt(f) swivel, rigid extension, high flow, quick-close nozzle for oil	
256487	1/2 in npt(f) swivel, flexible extension, high flow, quick-close nozzle for oil	
256488	3/4 in npt(f) swivel, rigid extension, high flow, quick-close nozzle for oil	
257120	3/4 in npt(f) swivel, flexible extension, high flow, quick-close nozzle for oil	
Swivel Covers		
15T366	Black swivel cover (standard color with meter)	
15T367	Red swivel cover	
15T368	Blue swivel cover	
15T369	Green swivel cover	
15T370	Yellow swivel cover	
Accessories		
249440	Console bracket	
257539	Matrix meter for oil bar (swivel and extension removed)	Instruction Manual 313013
256719	Oil bar console–complete cabinet without piping and meters	
255370	Oil bar kit (fittings, nozzles, and piping)	
257556	Retro fit kit–mount Matrix meter in 222107 console	
Filter Kits for Matrix Meters		
255885	Filter kit includes (10) filters/strainers (15M308), (10) spacers (15M309) and (10) O-rings (155332)	

Matrix Meter 256282



Oil Bar
Components ordered separately. For complete unit, order oil bar 256719, kit 255370 (one per meter) and Matrix meters (257539) as needed

Technical Specifications

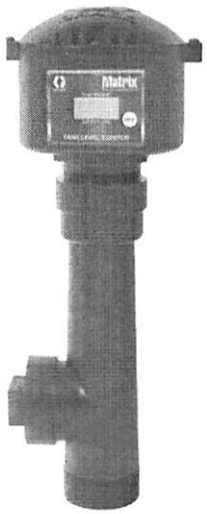
Flow Range [1] . . . . . 0.1 to 14 gpm (0.4 to 53 lpm)
Maximum Working Pressure . . . . . 1500 psi (103.4 bar)
Operating Fluid Pressure Range . . . . . 100 – 1500 psi (7–103 bar, 0.7–10.3)
Weight (with battery and rigid nozzle extension) . . . . . 6.07 lbs (2.75 kg)
Units of Measurement . . . . . Programmable in pints, quarts, gallons, or liters
Inlet . . . . . 3/4 in–14 npt or 1/2 in–14 npt
Outlet . . . . . 3/4 in–16 straight thread O-ring Boss
Maximum Totalizer . . . . . 999,999 gallons or liters
Maximum Recorded Dispense . . . . . 999.9 Units
Maximum Pre-Set Volume . . . . . 999.9 Units
Battery . . . . . 4 AA alkaline or 4 AA lithium
Battery Life [3] . . . . . Preset Models–six months, manual models–one year
Wetted Parts . . . . . Aluminum, sst, pbt/pc, nitrile rubber, cs
Fluid Compatibility . . . . . Petroleum- and synthetic-based oils and anti-freeze mixtures (not compatible with fuel and windshield washer fluid)
Meter Pressure Loss [1] . . . . . ± 0.5%
Accuracy [2] . . . . . ± 0.5%
Repeatability [2] . . . . . ±0.15 %
Dimension w/o Extension . . . . . 13 in L x 3.75 in W x 5.75 in H, (33 cm x 9.5 cm x 14.6 cm)
Instruction Manual 313046

1. Tested in 10W oil at 70° F. Flow rates vary with fluid pressure, temperature, viscosity, inlet fitting and nozzle type.
2. At 2.5 gpm (9.5 lpm) @ 70° F (21° C) with 10 wt. oil and 1 gal (3.8 l) dispensed. May require re-calibration. Out-of-box accuracy ±1.25%.
3. Average shop use with alkaline batteries (included); 30-35% longer life with lithium AA

Matrix™
Fluid Management Systems

Tank Level Monitor
Choose one TLM for each bulk fluid tank. Tank readings are automatic for used or new oil and anti-freeze products.

Tank Level Monitor	
256285	Tank Level Monitor



Tank Level Monitor
256285

Technical Specifications
Ultrasonic Tank Depth Measurement Range ..... 0 – 30 ft. (0-9 m) (Not recommended for use with pressurized tanks)
Fluid Level Measurement Accuracy* ..... ± 0.5%
Weight ..... 2.34lb (1.06 kg)
Operating Temperature Range ..... -22° F - 122° F (-30° C - 50° C)
RF Operating Temperature Range ..... -40° F - 185° F (-40° C - 85° C)
Storage Temperature Range ..... -40° F - 185° F (-40° C - 85° C)
Ambient temperature range** ..... -22° F - 122° F (-30° C - 50° C)
Batteries ..... (2) 9 VDC Alkaline only
Vertical Tanks ..... Maximum volume: 999,999 gallons or liters, maximum height: 30 ft (360 in.)
Cylindrical Tanks ..... Maximum volume: 999,999 gallons or liters, maximum diameter: 30 ft (360 in.)
Approvals ..... FCC, Industry Canada (IC), C-Tick, CE
Instruction Manual 312964

Note: Do NOT use the Matrix Tank Level Monitor with gasoline, diesel fuel, or other flammable liquids, and materials with an auto ignition temperature below 419° F (215° C)

* The difference in air temperature between the inside and outside of the tank may affect the accuracy of fluid levels

** Display will not function below 32° F (0° C)

Pump Air Control
One PAC required for each air pump. For safety and increased security, the PAC is a must have to maximize your fluid management system. Designed to supply air to the pump only when Matrix authorizes the dispense.

Pump Air Control (PAC)	
247436	93 scfm valve

Pump Air Control
247436

Technical Specifications
Operating Pressure Range ..... 23-145 psi (1.7 - 10 bar)
Maximum Air Flow ..... 247436 - 93 SCFM (2.6m³/min)
Power Supply ..... 120-240 VAC line voltage, 24VDC solenoid
Output Power ..... 10mW - 100mW
AMPS 1A
Frequency ..... 50/60 Hz
Operating Temperature Range* ..... 32° F - 122° F (0° C - 50° C)
Enclosure Type ..... NEMA Type 3
Weight ..... 247436 - 3.4 lbs (1.5 kg)
Instruction Manual 312417

Note: Do NOT use the Matrix Tank Level Monitor with gasoline, diesel fuel, or other flammable liquids, and materials with an auto ignition temperature below 419° F (215° C).

* The difference in air temperature between the inside and outside of the tank may affect the accuracy of fluid levels. Display will not function below 32° F (0° C).

Tank Accessories

CleanLine Filter Assemblies	
248421	900 psi tank mount CleanLine filter assembly (includes thermal relief)
248418	900 psi wall mount CleanLine filter assembly (includes thermal relief)
248419	1800 psi tank mount CleanLine filter assembly
248417	1800 psi wall mount CleanLine filter assembly
Replacement Filters	
15D702	900 psi CleanLine screw-on type filter
119278	1800 psi CleanLine filter element

SD Series Electronic Meters

Dispense Meters and Control Valves

Features and Benefits

- Fluid inlet options (½ in and ¾ in npt) meets standard and high-flow requirements
- Large LCD display and simple operator controls
- Locking trigger (LDP5/LDP15 models) and durable cast guard prevents accidental triggering
- Flush-mount nozzle valve design prevents leaks and contamination

255350

Typical Applications

- Automotive dealerships
- Heavy-duty dealerships
- Fast lube centers
- Lube trucks
- Fleet service facilities
- Service shops
- In-plant
- Mining

Typical Fluids Handled

- Petroleum- and synthetic-based oils
- Anti-freeze

Technical Specifications

Flow Range [1]	0.1–14 gpm (0.4 - 53 lpm)
Maximum Working Pressure	1500 psi (103.4 bar)
Weight	5 lbs (2.3 kg)
Inlet	3/4 in–14 npt or 1/2 in–14 npt
Outlet	3/4 in–16 straight thread O-ring Boss
Maximum Totalizer	999,999 gallons or liters
Maximum Recorded Dispense	999.9 Units
Maximum Pre-Set Volume	999.9 Units
Storage Temperature Range	-40–158° F (-40-70° C)
Operating Temperature Range	4–158° F (-20-70° C)
Battery	4 AA alkaline or 4 AA lithium
Battery Life [3]	. . . Preset Models – six months w/alkaline, manual models – one year w/alkaline 4 AA alkaline/lithium
Wetted Parts	Aluminum, sst, pbt/pc, nitrile rubber, cs
Meter Pressure Loss [1]	180 psi (12 bar) @ 14 gpm (53 lpm)
Accuracy [2]	+/- 0.5%
Dimensions (without extension)	13 in L x 3.75 in W x 5.75 in H, (33cm x 9.5cm x 14.6cm)
Warranty	Five years overall, three years electronics
Instruction Manual	312865

[1] Tested in 10W oil at 70° F. Flow rates vary with fluid pressure, temperature, viscosity, inlet and nozzle type.
[2] At 2.5 gpm (9.5 lpm) @ 70° F (21° C) with 10 wt. oil and 1 gal (3.8 l) dispensed. May require re-calibration. Out-of-box accuracy ±1.25%.
[3] Average shop use with alkaline batteries (included); 30-35% longer life with lithium AA.

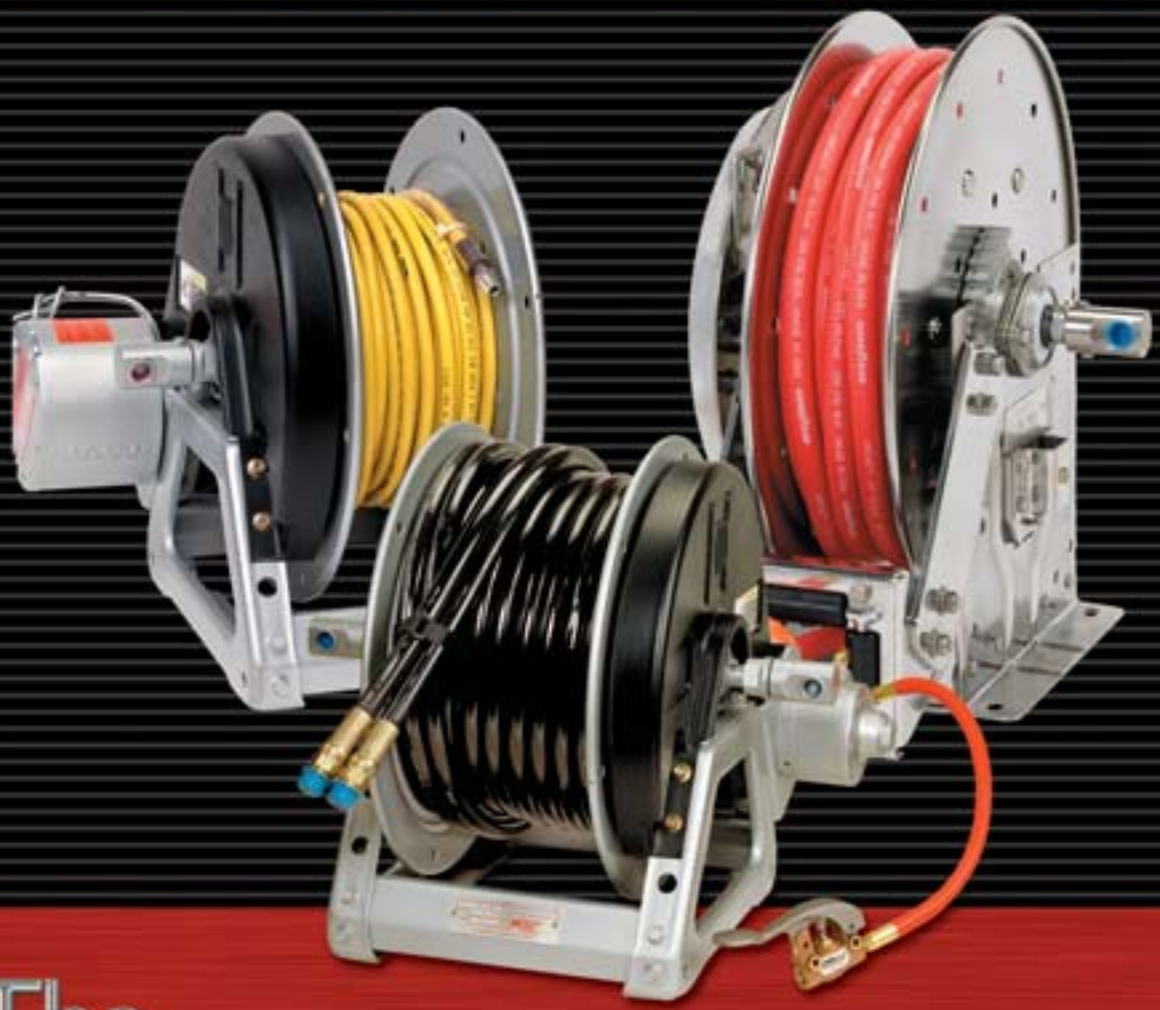
Ordering Information

SDM5 MANUAL DISPENSE ELECTRONIC METER, 5 GPM OR LESS	
255350	1/2 in npt(f) swivel, rigid extension with standard automatic non-drip quick-close nozzle for oil
255348	1/2 in npt(f) swivel, flexible extension with standard automatic non-drip quick-close nozzle for oil
255349	1/2 in npt(f) swivel, extension with standard quick-close nozzle for gear lube
255802	1/2 in npt(f) swivel, rigid extension with standard quick-close nozzle for anti-freeze
255803	1/2 in npt(f) swivel, flexible extension with standard quick-close nozzle for anti-freeze
SDM15 MANUAL DISPENSE ELECTRONIC METER, 14 GPM OR LESS	
256836	1/2 in npt(f) swivel, rigid extension with high flow, quick-close nozzle for oil and anti-freeze
256837	1/2 in npt(f) swivel, flexible extension with high flow, quick-close nozzle for oil and anti-freeze
255800	3/4 in npt(f) swivel, rigid extension with high flow, quick-close nozzle for oil and anti-freeze
255801	3/4 in npt(f) swivel, flexible extension with high flow, quick-close nozzle for oil and anti-freeze
SDP5 PRESET DISPENSE ELECTRONIC METER, 5 GPM OR LESS	
255200	1/2 in npt(f) swivel, rigid extension with standard automatic non-drip quick-close nozzle for oil
255351	1/2 in npt(f) swivel, flexible extension with standard automatic non-drip quick-close nozzle for oil
255352	1/2 in npt(f) swivel, extension with standard quick-close nozzle for gear lube
255355	1/2 in npt(f) swivel, rigid extension with standard quick-close nozzle for anti-freeze
255356	1/2 in npt(f) swivel, flexible extension with standard quick-close nozzle for anti-freeze
SDP15 PRESET DISPENSE ELECTRONIC METER, 14 GPM OR LESS	
256838	1/2 in npt(f) swivel, rigid extension with high flow, quick-close nozzle for oil and anti-freeze
256839	1/2 in npt(f) swivel, flexible extension with high flow, quick-close nozzle for oil and anti-freeze
255353	3/4 in npt(f) swivel, rigid extension with high flow, quick-close nozzle for oil and anti-freeze
255354	3/4 in npt(f) swivel, flexible extension with high flow, quick-close nozzle for oil and anti-freeze

FAMILY OWNED AND OPERATED SINCE 1933

Hannay Reels®
The reel leader.

Industrial Hose Reels



The Hannay Way

Washdown • Chemical Transfer • Potable Water
Food Processing • Pharmaceuticals & Cosmetics • Fueling
Fire Protection • Dairy Operations • Bottling Plants

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Pride in workmanship • Reels built to order • Consistent quality • Service with integrity • Value for your dollar

CONTENTS

Hannay hose reels come in all sizes and capacities.

Hannay Reels is the leading manufacturer of high quality hose and cable reels for most every conceivable application. This catalog describes and gives specifications on our most popular hose reels. If you don't see what you're looking for, give us a call and we will help you meet your needs.

Reel Selector Chart

Reel Type	I.D. Hose Sizes	Page
Hose Assemblies	1/4"–1-1/2"	3
Hannay Reels Policies Our Guarantee, Service Policy, Paint Notice, Return Goods Policy		4
Spring Rewind Reels		
Series N500 (high pressure)	1/4" & 3/8"	5
Series N600/600 (dual hose)	1/4"–3/4" Dual	6-7
Series N700/700	3/8" & 1/2"	8-9
Series N800/800	3/4" & 1"	10-11
Series 900	1-1/4" & 1-1/2"	12
Compact Manual Rewind Reels		
Series 1000	1/4"–3/8"	13
Power and Manual Rewind Reels		
Series 1500, 1800	1/4"–3/4"	14-15
Series 2000 (dual hose), G2000	1/4"–1/2" Dual	16-17
Series 3000, 3500 (manual only)	3/4"–1-3/4"	18-19
Series 4000, G4100	3/4"–1"	20-21
Series 6000	1/2"–1"	22-23
Series 7000 (dual hose)	3/4"–1" Dual	24
Series 7500	1"–1-1/2"	25
Series 8000	1-1/2"–2"	26-27
Series 9000	2"–3"	28-29
Portable Hose Reels		
Series 1100, AT1200	3/8"–1"	30-31
Storage Reels		
Series C1150, ATC1250	16/3–10/3	32-33
Series C1500, C3200	1/4"–1-1/2"	34-35

Lube Reel Chart

Reel Type	I.D. Hose Sizes	Page
Spring Rewind Reels		
Series N500 (high pressure)	1/4" & 3/8"	5
Series N700	3/8" & 1/2"	8
Series N800	3/4" & 1"	10
Series 900	1-1/4" & 1-1/2"	12
Power Rewind Reels		
Series 7500	1"–1-1/2"	25

Mounting Hole Sizes

N Series Reels — 7/16" x 7/8" running front to back

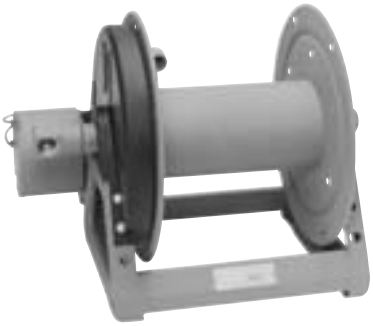
Pressed Frame Reels — 7/16" x 7/8" running left to right

Series 1000 — 5/16" x 7/8"

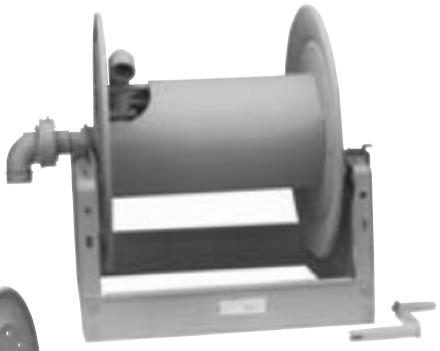
Series 1500, 1800, 4000, 2000 — 13/32" round holes

Spring Rewind Reels

Compact Manual Rewind Reels



Power Rewind Reels



Manual Rewind Reels

Storage Reels

Hannay Reels, Inc. Phone 518-797-3791 Toll Free 1-877-GO REELS (467-3357)
FAX 1-800-REELING (733-5464) USA or FAX 518-797-3259 (International) www.hannay.com reels@hannay.com

HOSE ASSEMBLIES

Complete Reel Packages are also available. For further information refer to our form H-0001-Pkg.

Hose Assemblies

Hannay offers a wide selection of low, medium, and high pressure hose assemblies for a variety of applications such as general purpose air and water, petroleum products, hydraulics, oxygen/acetylene, breathing air, potable water, steam, and pressure washing. These assemblies are available with inside diameters ranging from 3/16" to 3", working pressures from 100 psi to 10,000 psi (7 bar to 689 bar), working temperatures from -65° F to +450° F (-54° C to +232° C), and in most cases at least a 4:1 burst pressure ratio. Hannay also offers 24" flexible connectors for most reels. Please contact our factory with your specific need.

Low Pressure Hose

Our low pressure hose assemblies with inside diameters of 1/4", 3/8", 1/2", and 3/4" have working pressures from 300 psi to 350 psi (21 bar to 24 bar), working temperatures from -40° F to +212° F (-40° C to +100° C) depending on fluid, have a synthetic rubber core and cover with a one textile braid reinforcement. They are designed for use with petroleum-based hydraulic fluids and lubricating oils, water, water/glycol, water/oil emulsion hydraulic fluids, and air. Our low pressure hose assemblies with inside diameters of 1", 1-1/4", and 1-1/2" have working pressures of 200 psi (14 bar), working temperatures from -40° F to +180° F (-40° C to +82° C). They have a blended nitrile core, a neoprene cover, and four spiral reinforcements for the 1" and an EPDM core and cover with a two textile braid reinforcement for the 1-1/4" and 1-1/2" (also available in 1"). The nitrile/neoprene hose is designed for transfer of air and water. The EPDM hose covers these applications, plus it is good for conveying water-based liquid fertilizers, pesticides and other products.

Medium Pressure Hose

Our medium pressure hose assemblies with inside diameters of 1/4", 3/8", and 1/2" have working pressures from 2000 psi to 2750 psi (138 bar to 190 bar), working temperatures from -40° F to +250° F (-40° C to +121° C), and have a synthetic rubber core and cover with one braid of high tensile steel wire for reinforcement. They are designed for use with petroleum-based hydraulic fluids and lubricating oils, water, water/glycol, water/oil emulsion hydraulic fluids, and air.

High Pressure Hose

Our high pressure hose assemblies with inside diameters of 1/4", 3/8", and 1/2" have working pressures from 3500 psi to 5000 psi (241 bar to 345 bar), working temperatures from -40° F to +257° F (-40° C to +125° C), depending on fluid, have a synthetic rubber core and cover with two braids of high tensile steel wire separated by a synthetic layer for reinforcement. They are designed for use with petroleum-based hydraulic fluids and lubricating oils, water, water/glycol, water/oil emulsion hydraulic fluids, and air.

Twin Oxygen/Acetylene Hose

Our oxygen/acetylene grade R hose assemblies with inside diameters of 1/4" and 3/8" have working pressures of 200 psi (14 bar), working temperatures of -40° F to +200° F (-40° C to +93° C), or have an EPDM core and cover with one textile braid reinforcement. This hose is designed for oxygen/acetylene only. Grade T oxygen/acetylene, propane, MAPP gas hose is also available.For oxygen/acetylene reels see Hannay Welding Catalog H-0408-W.

Twin Hydraulic Hose

Our twin hydraulic hose assemblies with inside diameters of 1/4", 3/8", and 1/2" have working pressures from 2000 psi to 5000 psi (138 bar to 345 bar), working temperatures from -40° F to +212° F (-40° C to +100° C), have a polymeric core, abrasion-resistant urethane cover, and braided fiber reinforcement. This hose is not only designed for hydraulic and pneumatic circuits, but has a wide chemical compatibility that covers applications such as agricultural sprays, urethane foam mixers, and fire resistant fluids.

Note: All spring rewind reels complete with hose are supplied with appropriate hose stop.
(See Ordering & Accessory Guide.)

REEL POLICIES

Our Guarantee and Service Policy

Equipment manufactured by Hannay Reels, Inc. is guaranteed for two years from date of shipment when installed according to our instructions, given proper care, and used for the purpose for which it is designed.

Equipment which proves to be defective upon our inspection will be replaced free of charge, including freight to the customer. Our responsibility ceases upon delivery to any common carrier and we do not, unless previously instructed, insure shipments beyond point of delivery to such carrier. No material will be accepted for return without a return goods authorization. No allowance will be made for labor charges incurred in making exchanges, replacements or repairs.

Components (including hose and cable) which are manufactured by other vendors will be subject to the warranty terms of their own manufacturers. Also excluded from the general guarantee are normal wear items (including seals, motor brushes, and paint finish).

We reserve the right to modify or alter materials, dimensions, design and construction when necessary to improve the performance of the reel and/or accessories, or to meet delivery requirements.

Failure to use a properly sized circuit breaker with any electric rewind motor will void warranty on motor.

Failure to use a flexible connector with any live hose reel will void warranty on swivel joint.

We expressly disclaim any liability for damage or injuries resulting from the use, operation, service, maintenance or failure of equipment.

Paint Notice

To meet the requirements and performance of vehicle and OEM apparatus paints we recommend our reels be painted with the same or equal paint as used on the specific apparatus the reel is being mounted on.

Hannay Reels will supply any model or custom reel or part with an automotive primer or rust preventative oil finish upon request, allowing application of final coating at your facility. Or at additional cost Hannay can prime / pre-paint all material before final assembly.

In today's regulatory environment this would be the most cost-effective way to meet your finishing standards.

Optional finishes are available for various environmental conditions and should be discussed with the factory.

Standard finish is oven cured enamel. **High performance finishes for demanding and corrosive environments are available at an additional cost. Consult factory for specific requirements.**

Return Goods Policy

All Hannay Reels are built to order. The parts and components are ordered or placed into production as soon as the order is written.

In order to keep the number of returned goods at a minimum, we ask that you use the Hannay Reels Order Worksheet and/or Accessories Order Form when specifying reels with us. These forms can be found in our Ordering and Accessory Guide, H-0415-OA. **Be sure to include any size and/or weight limitations for your installation.**

In the event that an item does need to be returned for credit, repair or replacement, prior approval **must** be obtained from Hannay Reels, Inc. Upon your request, we will fax a Return Goods Authorization form. A signed copy of this form **must** accompany the material when returned to us.

All material must be returned prepaid, unless otherwise noted on our Return Goods Authorization. No return will be accepted that has been damaged due to improper return packaging, tampered with or altered from its original condition. **Equipment specially built to customer specifications and requirements is not subject to cancellation or returnable for credit under any conditions.**

Our restocking and handling fee is a **MINIMUM** of 25% for standard catalog reels and parts.

No material will be accepted for credit when returned without permission. Orders for equipment incorporating variations from catalog listed items are special and are not subject to return.

No allowance will be made for labor or mileage charges incurred in making exchanges, replacements, or repairs.

Hannay Reels, Inc. Phone 518-797-3791 Toll Free 1-877-GO REELS (467-3357)
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Standard Configuration Shown

N500

HIGH PRESSURE SPRING REWIND REELS

To handle single 1/4" or 3/8" I.D. hose.

- *Compact frame and narrow base.*
- *Non sparking ratchet assembly.*
- *Declutching arbor to prevent damage from reverse winding.*
- *Standard inlet 90° swivel joint 1/4" female NPT threads. 3/8" female NPT threads are optional and* ***must be specified.***
- *Standard outlet is 1/4" female NPT threads. 3/8" female NPT threads are optional and* ***must be specified.***
- *Other threads can be furnished and* ***must be specified.***
- *Standard pressure of 10,000 psi (689 bar), product temperatures from -40° F to +250° F (-40° C to +121° C). Optional 1/4" 3000 psi (207 bar), or 3/8" 3000 psi (207 bar) or 8000 psi (552 bar) are available upon request.*
- *4-way roller assembly.*
- *Constant Tension is available – consult factory.*

For:
- **Chassis Grease**
- **Hydraulics**
- **Air/Water**

Parts Drawing – ISO 92

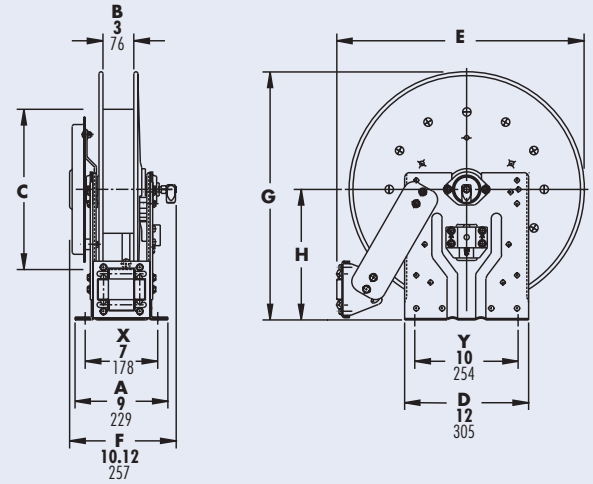
Model Number	Hose Capacity of Reel feet / m.		Approx. Weight lb. / kg.		Standard Roller Assy	Reel Dimensions*** inches / mm.			
	I.D. (in) / I.D. (mm)	1/4" 6	3/8" 10	NET	Frt. SHIP Wt.		C	E	G	H
	O.D. (in) / O.D. (mm)	5/8" 16	3/4" 19							
N515-14-16-8C		25 8	25 8	48* 22	83 38	N203	8 203	17.62 448	16.25 413	9.12 232
N515-16-17C		35 11	35 11	51* 23	86 39	N203	10.5 267	18.5 470	17 432	9.12 232
N515-19-20J		50 15	50 15	63* 29	98 44	N203	10.5 267	20.75 527	20 508	10.62 270
N515-23-24J		75 23	75 23	75* 34	110 50	N203	15.5 394	23.75 603	24 610	12.62 321

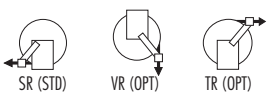
Notes:
1. Specifications subject to change.
2. Reel models and capacities shown are for standard drag applications; for vertical lift applications consult factory.
3. Other sizes, from standard components, available on request.
4. **Finish:** refer to Page 4.
5. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

* When shipped as a parcel package (via Fed-Ex or UPS Ground), Net wt. plus carton wt.

*** x,y indicate mounting holes. See page 2





Available Roller Positions

N600

SPRING REWIND DUAL HOSE REELS

To handle dual 1/4" through 1/2" I.D. hose.

- *Narrow frame and compact mounting base.*
- *Non sparking ratchet assembly.*
- *Declutching arbor to prevent damage from reverse winding.*
- *Standard inlets 90° balanced pressure swivel joints 1/2" female NPT threads.*
- *Standard outlets 1/2" female NPT threads.*
- *Pressures to 3000 psi (207 bar)*
- *Temperatures from -60° F to +250° F (-51°C to +121°C).*
- *Consult factory for other pressures & temps.*
- *4-way roller assembly.*
- *Constant Tension is available – consult factory.*
- *Reels for use with oxygen/acetylene. See Series N400 Hannay Reels Welding Catalog H-0408-W.*

Optional TR roller position shown

For:
- **Hydraulics**
- **Air/Water**
- **Spray Painting**

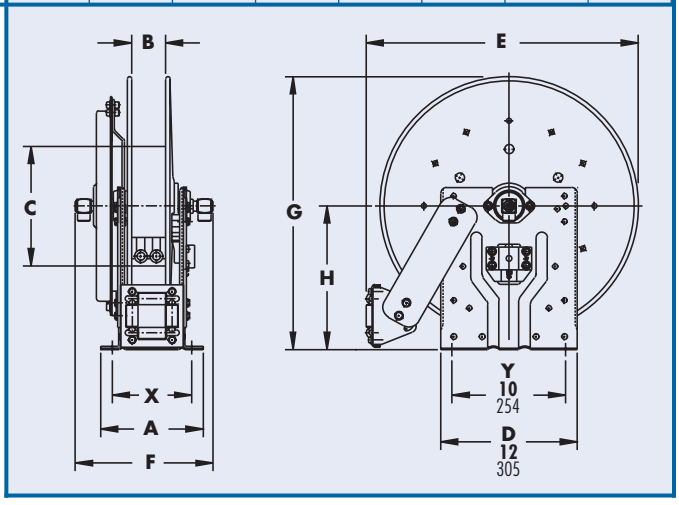
Parts Drawing – ISO 80

Model Number	Hose Capacity of Reel feet / m.				Approx. Weight lb. / kg.		Standard Roller Assy	Reel Dimensions*** inches / mm.							
	I.D. (in) / I.D. (mm)	1/4" 6	3/8" 10	1/2" 13	NET	SHIP		A	B	C	E	F	G	H	X
	O.D. (in) / O.D. (mm)	5/8" 16	3/4" 19	7/8" 22											
N615-19-20C		2/35 2/11	2/35 2/11	2/20 2/6	63 28.6	78* 35.4	N203	9 229	3 76	10.5 267	20.75 527	11.75 298	20 508	10.62 270	7 178
N617-19-20J		2/50 2/15	2/50 2/15	2/25 2/8	66 29.9	86* 39	N205	11 279	5 127	10.5 267	20.75 527	13.75 349	20 508	10.62 270	9 229
N615-23-24B		2/65 2/20	2/60 2/18	2/30 2/9	87 39.5	104* 47.2	N203	9 229	3 76	10.5 267	23.75 603	11.75 298	24 610	12.62 321	7 178
N617-25-26-15.5B		2/75 2/23	2/75 2/23	2/50 2/15	93 42.2	128 58.1	N205	11 279	5 127	15.5 394	25.25 641	13.75 349	26 660	13.62 346	9 229
N617-25-26-15.5A		2/100 2/31	2/85 2/26	– –	120 54.4	155 70.3	N205	11 279	5 127	15.5 394	25.25 641	14.5 368	26 660	13.62 346	9 229

Notes:
1. Specifications subject to change.
2. Reel models and capacities shown are for standard drag applications; for vertical lift applications consult factory.
3. Other sizes, from standard components, available on request.
4. **Finish:** refer to Page 4.
5. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

* When shipped as a parcel package (via Fed-Ex or UPS Ground).
*** x,y indicate mounting holes. See page 2



Available Roller Positions

For hydraulic tool circuit applications full flow swivels w/viton seals are recommended (add 2.25 to "F" dim in chart)

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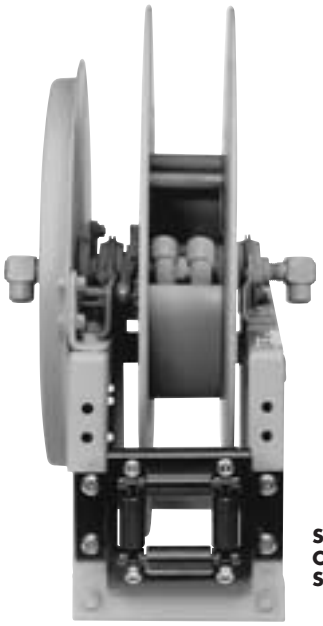
FAX 1-800-REELING (733-5464) USA or FAX 518-797-3259 (International) www.hannay.com reels@hannay.com

600

SPRING REWIND DUAL HOSE REELS

To handle dual 1/4" through 3/4" I.D. hose.



Standard Configuration Shown

- *Rollformed channel frame for heavy duty applications.*
- *Non sparking ratchet assembly.*
- *Declutching arbor to prevent damage from reverse winding.*
- *Standard inlets 90° balanced pressure swivel joints 1/2" female NPT threads. (1" inlet available).*
- *Standard outlets 1/2" female NPT threads. (3/4" outlet available).*
- *Pressures to 3000 psi (207 bar)*
- *Temperatures from -60° F to +250° F (-51ºC to +121ºC).*
- *Consult factory for other pressures & temps.*
- *4-way roller assembly.*
- *Constant Tension is available – consult factory.*
- *Reels for use with oxygen/acetylene. See Series N400 Hannay Reels Welding Catalog H-0408-W.*

For:

- **Hydraulics**
- **Air/Water**
- **Spray Painting**

Parts Drawing – ISO 8

Model Number	Hose Capacity of Reel feet / m.					Approx. Weight lb. / kg.		Standard Roller Assy	Reel Dimensions*** inches / mm.									
	I.D. (in) I.D. (mm)	1/4" 6	3/8" 10	1/2" 13	3/4" 19	NET	SHIP		A	B	C	D	E	F	G	H	X	Y
	O.D. (in) O.D. (mm)	5/8" 16	3/4" 19	7/8" 22	1-9/32" 33													
617-25-26-15.5B		2/75 2/23	2/75 2/23	2/50 2/15	– –	93 42.2	128 58.1	R205	10.25 260	5 127	15.5 394	25 635	26.12 663	15.0 381	25.88 657	13.5 343	5.5 140	22 559
617-25-26-15.5A		2/100 2/31	2/85 2/26	– –	– –	120 54.4	155 70.3	R205	10.25 260	5 127	15.5 394	25 635	26.12 663	15.75 400	25.88 657	13.5 343	5.5 140	22 559
† 618-30-31-15.5A		– –	– –	2/100 2/31	2/50 2/15	130 59	165 74.8	R206	11.25 286	6 152	15.5 394	28.5 724	29.62 752	21.75 552	31.38 797	17 432	6.5 165	25.5 648

Notes:

1. Specifications subject to change.
2. Reel models and capacities shown are for standard drag applications; for vertical lift applications consult factory.
3. Other sizes, from standard components, available on request.
4. **Finish:** refer to Page 4.
5. **Be sure to check dimensions and weights prior to ordering.**

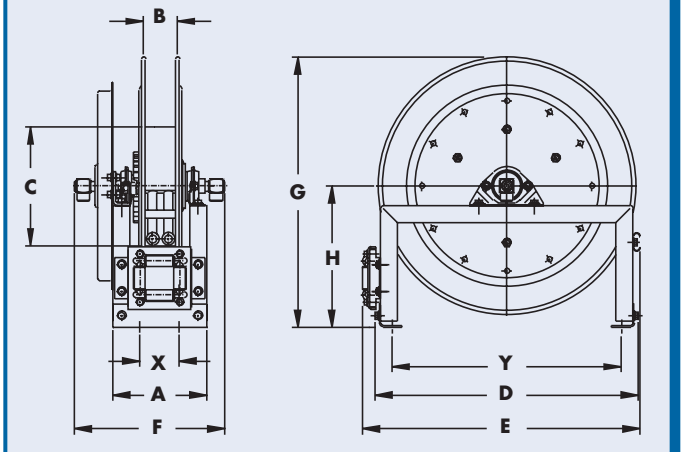
NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

*** x,y indicate mounting holes. See page 2

NPT threads, standard outlets are 1/2" female NPT threads.

† Must specify if 1" joints and 3/4" outlet risers are required.

Available Roller Positions



For hydraulic tool circuit applications full flow swivels w/viton seals are recommended (add 2.25 to "F" dim in chart)

N700

SPRING REWIND REELS

To handle 1/4" through 1/2" I.D. hose.

- *Standard N Series has a narrow frame and compact mounting base.*
- *Non sparking ratchet assembly.*
- *Declutching arbor to prevent damage from reverse winding.*
- *Standard inlet 90° balanced pressure swivel joint 1/2" female NPT threads.*
- *Standard outlet 1/2" female NPT threads.*
- *Standard Pressures to 3000 psi (207 bar) (available up to 10,000 psi 690 bar).*
- *Temperatures from -60° F to +250° F (-51° C to +121° C).*
- *Consult factory for other pressures & temps.*
- *4-way roller assembly.*
- *Constant Tension is available – consult factory.*

Shown with Optional TR Roller Position

For:

- **Lubrication**
- **Air/Water**
- **Assembly Operations**
- **Washdown**
- **Air Tools**
- **General Industrial Applications**

Parts Drawing – ISO 79

Model Number	Hose Capacity of Reel feet / m.				Approx. Weight lb. / kg.		Standard Roller Assy	Reel Dimensions*** inches / mm.							
	I.D. (in) I.D. (mm)	1/4" 6	3/8" 10	1/2" 13	NET	Frt. SHIP Wt.		A	B	C	E	F	G	H	X
	O.D. (in) O.D. (mm)	5/8" 16	3/4" 19	7/8" 22											
N716-14-16-8C		– –	25 8	25 8	52* 24	70 39	N204	10 254	4 102	8 203	17.62 448	11.25 286	16.25 413	9.12 232	8 203
N716-16-17C		– –	35 11	35 11	55* 25	71 32	N204	10 254	4 102	10.5 267	18.5 470	11.25 286	17 432	9.12 232	8 203
N716-19-20J		– –	50 15	50 15	64* 29	85 38	N204	10 254	4 102	10.5 267	20.75 527	11.25 286	20 508	10.62 270	8 203
N716-23-24-15.5G		100 30	75 23	65 20	94* 43	129 59	N204	10 254	4 102	15.5 394	23.75 603	11.25 286	24 610	12.62 321	8 203
N716-23-24-15.5J		– –	65 20	65 20	79* 36	96 44	N204	10 254	4 102	15.5 394	23.75 603	11.25 286	24 610	12.62 321	8 203
N716-25-26-15.5B		– –	75 23	75 23	90 41	125 57	N204	10 254	4 102	15.5 394	25.25 641	11.25 286	26 660	13.62 346	8 203
N718-25-26-15.5G		– –	100 30	100 30	96 44	131 59	N206	12 305	6 152	15.5 394	25.25 641	13.25 337	26 660	13.62 346	10 254

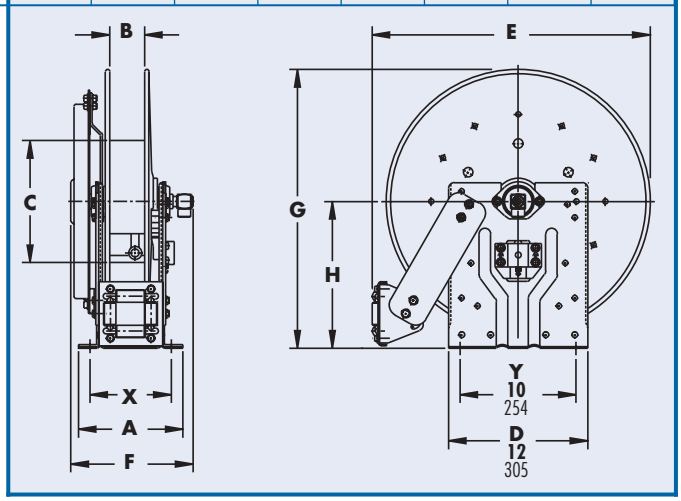
Notes:

1. Specifications subject to change.
2. Reel models and capacities shown are for standard drag applications; for vertical lift applications consult factory.
3. Other sizes, from standard components, available on request.
4. **Finish:** refer to Page 4.
5. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

* When shipped as a parcel package (via Fed-Ex or UPS Ground). Net wt. plus carton wt.

*** x,y indicate mounting holes. See page 2



Available Roller Positions

Hannay Reels, Inc. Phone 518-797-3791 Toll Free 1-877-GO REELS (467-3357)
FAX 1-800-REELING (733-5464) USA or FAX 518-797-3259 (International) www.hannay.com reels@hannay.com

700

SPRING REWIND REELS

To handle 1/4" through 1/2" I.D. hose.

Standard Configuration Shown

- *Rollformed channel frame for heavy-duty applications.*
- *Non sparking ratchet assembly.*
- *Declutching arbor to prevent damage from reverse winding.*
- *Standard inlet 90° balanced pressure swivel joint 1/2" female NPT threads.*
- *Standard outlet 1/2" female NPT threads.*
- *Standard Pressures to 3000 psi (207 bar) (available up to 10,000 psi 690 bar).*
- *Temperatures from -60° F to +250° F (-51° C to +121° C).*
- *Consult factory for other pressures & temps.*
- *4-way roller assembly.*
- *Constant Tension is available – consult factory.*

For:

- **Lubrication**
- **Air/Water**
- **Assembly Operations**
- **Washdown**
- **Air Tools**
- **General Industrial Applications**

Parts Drawing – ISO 66

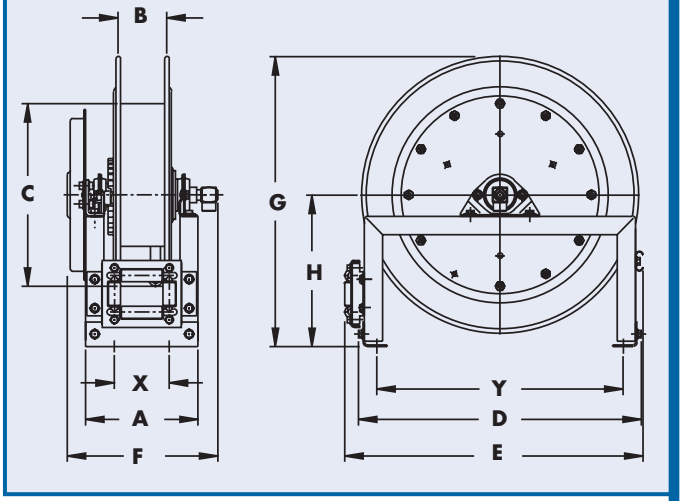
Model Number	Hose Capacity of Reel feet / m.			Approx. Weight lb. / kg.		Standard Roller Assy	Reel Dimensions*** inches / mm.									
	I.D. (in) I.D. (mm)	3/8" 10	1/2" 13	NET	Frt. SHIP Wt.		A	B	C	D	E	F	G	H	X	Y
	O.D. (in) O.D. (mm)	3/4" 19	7/8" 22													
716-25-26-15.5B		75 23	75 23	90 41	125 57	R204	9.25 235	4 102	15.5 394	25 635	26.12 663	12.75 324	25.88 657	13.5 343	4.5 114	22 559
718-25-26-15.5G		100 30	100 30	96 44	131 59	R206	11.25 286	6 152	15.5 394	25 635	26.12 663	14.75 375	25.88 657	13.5 343	6.5 165	22 559
718-30-31-20D		150 46	125 38	127 58	162 73	R206	11.25 286	6 152	20 508	28.5 724	29.62 752	15.5 394	31.38 797	17 432	6.5 165	25.5 648

Notes:

1. Specifications subject to change.
2. Reel models and capacities shown are for standard drag applications; for vertical lift applications consult factory.
3. Other sizes, from standard components, available on request.
4. **Finish:** refer to Page 4.
5. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

*** x,y indicate mounting holes. See page 2



Available Roller Positions

N800

SPRING REWIND REELS

To handle 3/4" or 1" I.D. hose.

- *Standard N series has a narrow frame and compact mounting base.*
- *Non sparking ratchet assembly.*
- *Declutching arbor to prevent damage from reverse winding.*
- *Standard inlet 90° balanced pressure swivel joint 1" female NPT threads.*
- *Standard outlet 1" female NPT threads.*
- *Pressures to 1000 psi (69 bar).*
- *Temperatures from -40° F to +250° F (-40° C to +121° C).*
- *Consult factory for other pressures & temps.*
- *4-way roller assembly*
- *Constant Tension is available – consult factory.*

Optional TR roller position shown

For:

- **Fuel Dispensing** (Consult Factory)
- **Waste Oil Evacuation**
- **Air/Water**

Parts Drawing – ISO 81

Model Number	Hose Capacity feet / m.		Approx. Weight lb. / kg.		Standard Roller Assy	Reel Dimensions*** in. / mm							
	I.D. (in) I.D. (mm)	3/4" 19	1" 25	NET	SHIP		A	B	C	E	F	G	H	X
	O.D. (in) O.D. (mm)	1-9/32" 33	1-9/16" 40											
N816-19-20J		25 8	15 5	75 34	91* 41	N204	10 254	4 102	10.5 267	20.75 527	13 330	20 508	10.62 270	8 203
N818-23-24J		50 15	25 8	87 39	100 45	N206	12 305	6 152	10.5 267	23.75 603	15 381	24 610	12.62 321	10 254
N816-25-26B		60 18	35 11	96 44	131 59	N204	10 254	4 102	10.5 267	25.25 641	13 330	26 660	13.62 346	8 203
N818-25-26B		70 21	50 15	102 46	137 62	N206	12 305	6 152	10.5 267	25.25 641	15 381	26 660	13.62 346	10 254

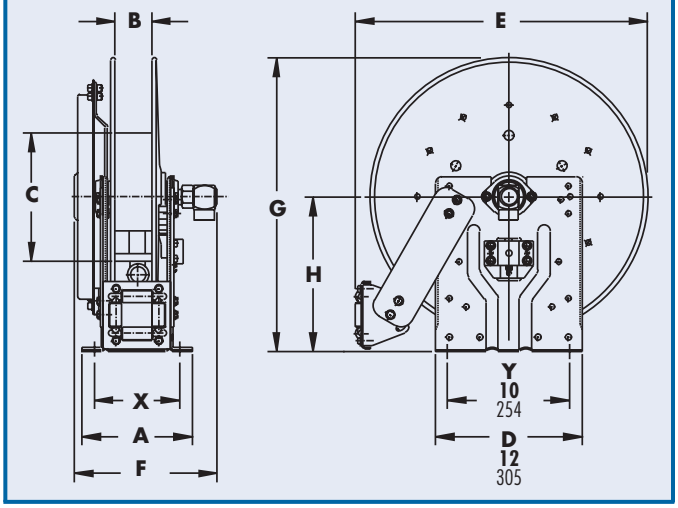
Notes:

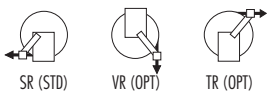
1. Specifications subject to change.
2. Reels models and capacities shown are for standard drag applications; for vertical lift applications consult factory.
3. Other sizes, from standard components, available on request.
4. **Finish:** refer to Page 4.
5. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

* When shipped as a parcel package (via Fed-Ex or UPS Ground).

*** x,y indicate mounting holes. See page 2





Available Roller Positions

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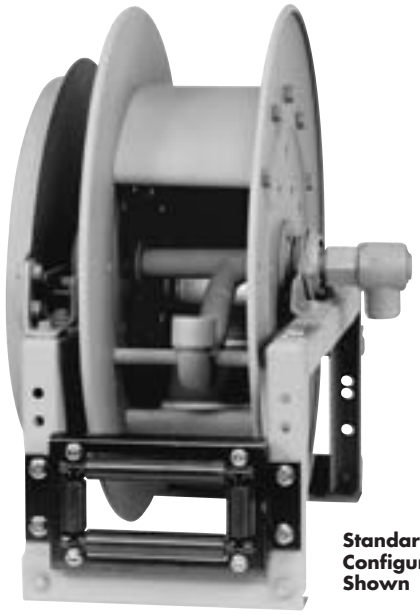
FAX 1-800-REELING (733-5464) USA or FAX 518-797-3259 (International) www.hannay.com reels@hannay.com



Standard Configuration Shown

800

SPRING REWIND REELS

To handle 3/4" or 1" I.D. hose.

- *Rollformed channel frame for heavy-duty applications.*
- *Non sparking ratchet assembly.*
- *Declutching arbor to prevent damage from reverse winding.*
- *Standard inlet 90° balanced pressure swivel joint 1" female NPT threads.*
- *Standard outlet 1" female NPT threads.*
- *Pressures to 1000 psi (69 bar).*
- *Temperatures from -40° F to +250° F (-40° C to +121° C).*
- *Consult factory for other pressures & temps.*
- *4-way roller assembly.*
- *Constant Tension is available – consult factory.*

For:

- **Fuel Dispensing** (Consult Factory)
- **Waste Oil Evacuation**
- **Air/Water**

Parts Drawing – ISO 42

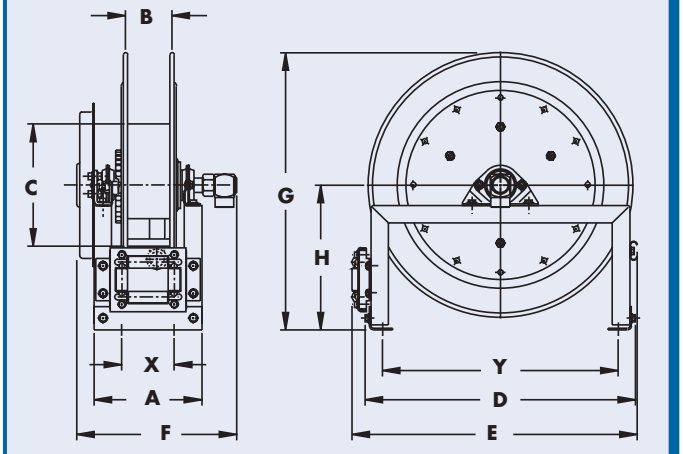
Model Number	Hose Capacity feet / m.		Approx. Weight lb. / kg.		Standard Roller Assy	Reel Dimensions*** in. / mm									
	I.D. (in) I.D. (mm)	3/4" 19	1" 25	NET	SHIP		A	B	C	D	E	F	G	H	X	Y
	O.D. (in) O.D. (mm)	1-9/32" 33	1-9/16" 40													
816-25-26B		60 18	35 11	96 44	131 59	R204	9.25 235	4 102	10.5 267	25 635	26.12 663	13.5 343	25.88 657	13.5 343	4.5 114	22 559
818-25-26B		70 21	50 15	102 46	137 62	R206	11.25 286	6 152	10.5 267	25 635	26.12 663	15.5 394	25.88 657	13.5 343	6.5 165	22 559
820-25-26-10.5A		85 26	75 23	131 59	166 75	R308	13.25 337	8 203	10.5 267	25 635	27 686	18.25 464	25.88 657	13.5 343	8.5 216	22 559
820-30-31-10.5A		– –	100 30	137 62	172 78	R308	13.25 337	8 203	10.5 267	28.5 724	30.5 775	18.25 464	31.38 797	17 432	8.5 216	25.5 648
820-30-31-15.5A		100 30	– –	145 66	180 82	R308	13.25 337	8 203	15.5 394	28.5 724	30.5 775	18.25 464	31.38 797	17 432	8.5 216	25.5 648

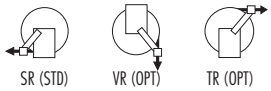
Notes:

1. Specifications subject to change.
2. Reels models and capacities shown are for standard drag applications; for vertical lift applications consult factory.
3. Other sizes, from standard components, available on request.
4. **Finish:** refer to Page 4.
5. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

* When shipped as a parcel package (via Fed-Ex or UPS Ground).
*** x,y indicate mounting holes. See page 2





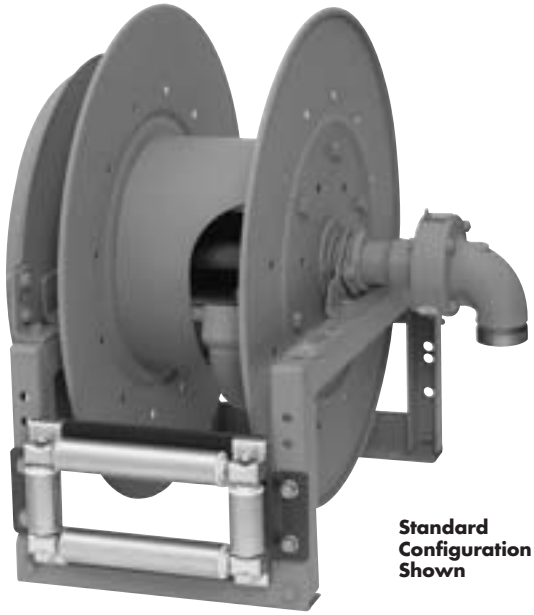
Available Roller Positions

900

SPRING REWIND REELS

To handle 1-1/4" or 1-1/2" I.D. hose.

- *Rollformed channel frame construction.*
- *Non sparking ratchet assembly.*
- *Declutching arbor to prevent damage from reverse winding.*
- *Standard inlet 90° swivel joint 1-1/2" female NPT threads and 2" victaulic groove.*
- *Standard outlet 1-1/2" female NPT threads.*
- *Pressures to 600 psi (41 bar)*
- *Temperatures from -40° F to +175° F (-40° C to +79° C).*
- *Consult factory for other pressures & temps.*
- *4-way roller assembly.*
- *Constant Tension is available – consult factory.*



Standard Configuration Shown

For:

- **Bulk Transfer**
- **Fuel Dispensing** (Consult Factory)
- **Suction/Discharge** (Consult Factory)

Parts Drawing – ISO 29

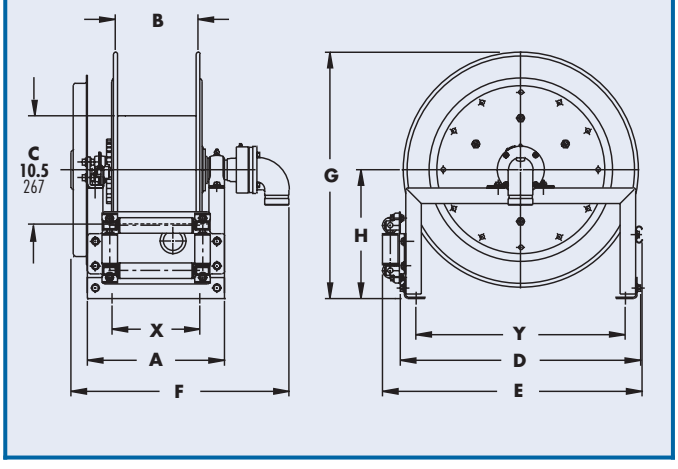
Model Number	Hose Capacity of Reel feet / m.			Weight lb. / kg.		Standard Roller Assy	Reel Dimensions*** inches / mm.								
	I.D. (in) I.D. (mm)	1-1/4" 32	1-1/2" 38	NET	SHIP		A	B	D	E	F	G	H	X	Y
	O.D. (in) O.D. (mm)	1-13/16" 46	2-1/16" 52												
922-23-24B		40 12	25 8	104 47	139 63	R310	15.25 387	10 254	23.25 591	25.25 641	24 610	23.88 607	12.5 318	10.5 267	20.25 514
920-25-26A		50 15	40 12	127 58	162 73	R308	13.25 337	8 203	25 635	27 686	22.75 578	25.88 657	13.5 343	8.5 216	22 559
922-30-31A		75 23	50 15	156 71	191 87	R310	15.25 387	10 254	28.5 724	30.5 775	24.75 629	31.38 797	17 432	10.5 267	25.5 648

Notes:

1. Specifications subject to change.
2. Reel models and capacities shown are for standard drag applications; for vertical lift applications consult factory.
3. Other sizes, from standard components, available on request.
4. **Finish:** refer to Page 4.
5. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

*** x,y indicate mounting holes. See page 2



Available Roller Positions

Hannay Reels, Inc. Phone 518-797-3791 Toll Free 1-877-GO REELS (467-3357)
FAX 1-800-REELING (733-5464) USA or FAX 518-797-3259 (International) www.hannay.com reels@hannay.com

1000

COMPACT MANUAL REWIND REELS

To handle single 1/4" or 3/8" I.D. hose.

Standard Configuration Shown

- *Lightweight*
- *Compact*
- *Direct crank rewind permanently attached.*
- *Adjustable cam lock brake standard.*
- *Optional pin lock available.*
- *Standard inlet 90° ball bearing swivel joint 1/2" female NPT threads.*
- *Standard outlet 3/8" female NPT threads.*
- *Pressures to 3000 psi (207 bar).*
- *Temperatures from +20° F to +400° F (-7° C to +204° C).*
- *Consult factory for other pressures & temps.*

For:

- **Pressure Washing**
- **Spray Operations**
- **Washdown**
- **Air**

Parts Drawing – ISO 165

Model Number	Hose Capacity of Reel feet / m.			Approx. Weight Crank Rewind lb. / kg.		Reel Dimensions*** inches / mm.			
	I.D. (in) / I.D. (mm)	1/4" / 6	3/8" / 10	NET	SHIP	A	B	F	X
	O.D. (in) / O.D. (mm)	5/8" / 16	3/4" / 19						
1014-14-16		100 / 31	75 / 23	23 / 10	30* / 14	8.12 / 206	6 / 152	19 / 483	4 / 102
1016-14-16		150 / 46	100 / 31	24 / 11	30* / 14	10.12 / 257	8 / 203	21 / 533	6 / 152
1020-14-16		250 / 76	175 / 53	25 / 11	30* / 14	14.12 / 359	12 / 305	25 / 635	10 / 254

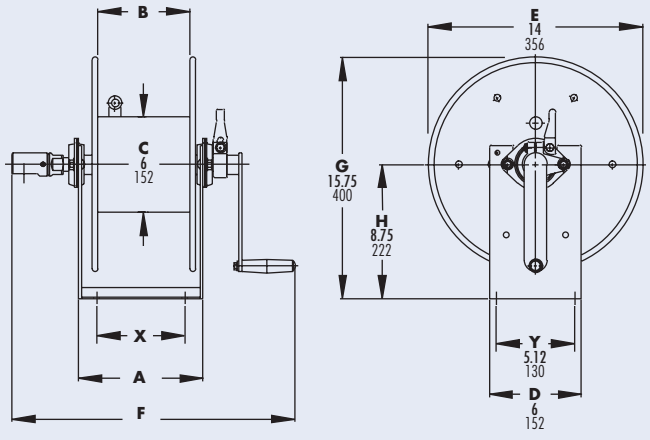
Notes:

1. Specifications subject to change.
2. Other sizes, from standard components, available on request.
3. **Finish:** refer to Page 4.
4. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

* When shipped as a parcel package (via Fed-Ex or UPS Ground).

*** x,y indicate mounting holes. See page 2



1500

MANUAL OR POWER REWIND REELS

To handle single 1/4" through 5/8" I.D. hose.

- *Lightweight compact reels designed for long lengths of hose in manual and power rewind.*
- *Direct crank rewind is permanently attached.*
- *Chain and sprocket drive powered by electric, hydraulic, or compressed air motor.*
- *Direct crank rewind, cam-lock drag brake, spring actuated pin lock.*
- *Standard inlet 90° ball bearing swivel joint 1/2" female NPT threads.*
- *Standard outlet 1/2" female NPT threads.*
- *Optional Rollers: Specify roller position when ordering.*
- *Pressures to 3000 psi (207 bar)*
- *Temperatures from +20° F to +400° F (-7° C to +204° C).*
- *Consult factory for other pressures & temps.*

Electric Rewind
Standard Configuration Shown

For:

- **Lawn Care**
- **Pest Control**
- **Pressure Washing**
- **Agriculture**
- **Steam Cleaning**

Optional External Mounting Brackets part no. 9906.0025. Add 2-1/2" to the X dimensions shown in the chart.

Parts Drawing – ISO 90 (power); ISO 179 (manual)

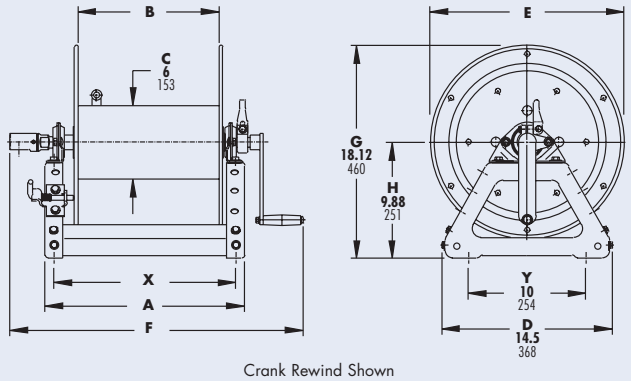
Model Number	Hose Capacity of Reel feet / m.					Approx. Weight Crank Rewind [3] lb. / kg.		Reel Dimensions*** inches / mm.						
For Power Rewind See Note 5	I.D. (in) / I.D. (mm)	1/4" 6	3/8" 10	1/2" 13	5/8" 16	NET	SHIP	A	B	E CRANK	E POWER	F CRANK	F POWER	X
	O.D. (in) / O.D. (mm)	5/8" 16	3/4" 19	7/8" 22	1" 25									
1514-17-18		175 53	125 38	75 23	50 15	27 12	50* 23	11 279	6 152	16.5 419	19 483	19 483	16.5 419	9.5 241
1520-17-18		350 107	275 84	175 53	125 38	29 13	50* 23	17 432	12 305	16.5 419	19 483	25 635	22.5 572	15.5 394
1526-17-18		500 152	400 122	300 91	200 61	31 14	50* 23	23 584	18 457	16.5 419	19 483	31 787	28.5 724	21.5 546
1530-17-18		– –	500 152	375 114	275 84	33 15	50* 23	27 686	22 559	16.5 419	19 483	35 889	32.5 826	25.5 648
1536-17-18		– –	– –	475 145	350 107	35 16	50* 23	33 838	28 711	16.5 419	19 483	41 1041	38.5 978	31.5 800

Notes:

1. Specifications subject to change.
2. Upon request, reels can be supplied with drum lengths other than shown.
3. Weights shown in chart are for crank rewind models. ADD these amounts for power rewind models:

	Net (lbs.)	Ship (lbs.)	Net (kg.)	Ship (kg.)
Electric	**18**	**18**	8.2	8.2
Hydraulic	**15**	**15**	6.8	6.8
Air	**15**	**15**	6.8	6.8

4. Dimension "F" is the overall length of standard model reels.
5. When ordering power rewind models, prefix model number with:
   A = Air Rewind E = Electric Rewind HD = Hydraulic Rewind
   (Air rewind reels are supplied with control valve and hose; 12v and 24v DC rewind reels are supplied with switch and solenoid; 115v AC rewind reels are not supplied with switch but can be ordered separately; hydraulic rewind reels are not supplied with control valve.)
6. Manual rewind available in RT or LB configuations only.
7. **Finish:** refer to Page 4.
8. **Be sure to check dimensions and weights prior to ordering.**
9. Some roller options may prohibit the use of our molded chain guard.



Crank Rewind Shown

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

* When shipped as a parcel package (via Fed-Ex or UPS Ground).
*** x,y indicate mounting holes. See page 2

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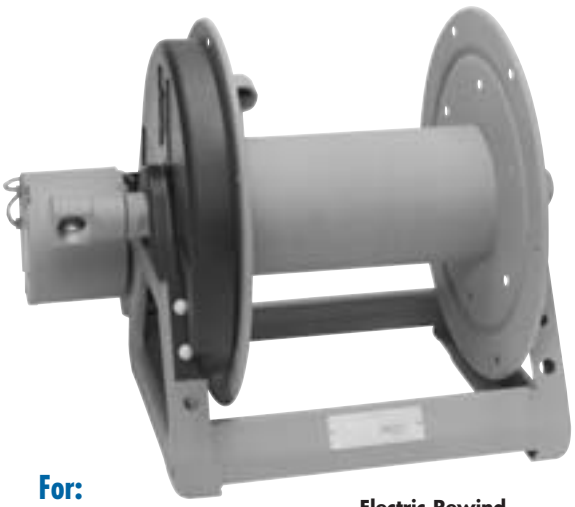


For:
- **Air Compressors**
- **Washdown**

Electric Rewind Standard Configuration Shown

Optional External Mounting Brackets part no. 9906.0025. Add 2-1/2" to the X dimensions shown in the chart.

1800

MANUAL OR POWER REWIND REELS

To handle single 5/8" or 3/4" I.D. hose.

- *Lightweight compact reels designed for long lengths of hose in manual and power rewind.*
- *Direct crank rewind is permanently attached.*
- *Chain and sprocket drive powered by electric, hydraulic, or compressed air motor.*
- *Direct crank rewind, cam-lock drag brake, spring actuated pin lock.*
- *Standard inlet 90° ball bearing swivel joint 1" female NPT threads.*
- *Standard outlet 3/4" female NPT threads.*
- *Optional Rollers: Specify roller position when ordering.*
- *Some roller options may prohibit the use of our molded chain guard.*
- *Pressures to 1000 psi (69 bar).*
- *Temperatures from -40° F to +250° F (-40° C to +121° C).*
- *Consult factory for other pressures & temps.*

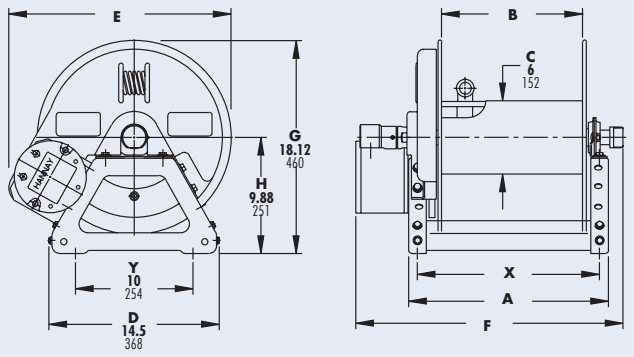
Parts Drawing – ISO 136

Model Number	Hose Capacity of Reel feet / m.			Approx. Weight Crank Rewind [3] lb. / kg.		Reel Dimensions*** inches / mm.						
For Power Rewind See Note 5	I.D. (in) / I.D. (mm)	5/8" 16	3/4" 19	NET	SHIP	A	B	E CRANK	E POWER	F CRANK	F POWER	X
	O.D. (in) / O.D. (mm)	1" 25	1-9/32" 40									
1816-17-18		75 23	50 15	28 13	50* 23	13 330	8 203	16.5 419	19 483	23.38 594	18.5 470	11.5 292
1822-17-18		150 46	100 30	30 14	50* 23	19 483	14 356	16.5 419	19 483	29.38 746	24.5 622	17.5 445
1826-17-18		200 61	125 38	32 15	50* 23	23 584	18 457	16.5 419	19 483	33.38 848	28.5 724	21.5 546
1830-17-18		275 84	150 46	33 15	50* 23	27 686	22 559	16.5 419	19 483	37.38 950	32.5 826	25.5 648
1836-17-18		350 107	200 61	36 16	50* 23	33 838	28 711	16.5 419	19 483	43.38 1102	38.5 978	31.5 800

Notes:
1. Specifications subject to change.
2. Upon request, reels can be supplied with drum lengths other than shown.
3. Weights shown in chart are for crank rewind models. ADD these amounts for power rewind models:

	Net (lbs.)	Ship (lbs.)	Net (kg.)	Ship (kg.)
Electric	**18**	**18**	8.2	8.2
Hydraulic	**15**	**15**	6.8	6.8
Air	**15**	**15**	6.8	6.8

4. Dimension "F" is the overall length of standard model reels.
5. When ordering power rewind models, prefix model number with:
   A = Air Rewind E = Electric Rewind HD = Hydraulic Rewind
   (Air rewind reels are supplied with control valve and hose; 12v and 24v DC rewind reels are supplied with switch and solenoid; 115v AC rewind reels are not supplied with switch but can be ordered separately; hydraulic rewind reels are not supplied with control valve.)
6. Manual rewind available in RT or LB configurations only.
7. **Finish:** refer to Page 4.
8. **Be sure to check dimensions and weights prior to ordering.**
9. Some roller options may prohibit the use of our molded chain guard.



Power Rewind Shown

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

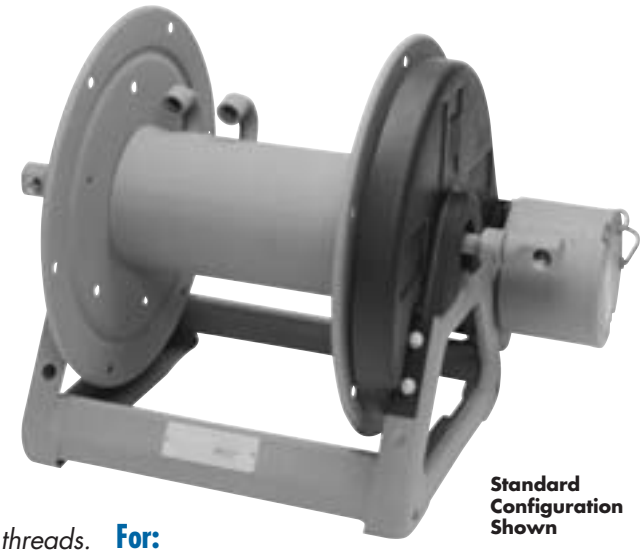
* When shipped as a parcel package (via Fed-Ex or UPS Ground).
*** x,y indicate mounting holes. See page 2

2000

MANUAL OR POWER REWIND REELS

To handle dual 1/4" through 1/2" I.D. hose.

- *Two swivel joint inlets and two outlet risers to handle two equal lengths of hose.*
- *Chain-drive crank rewind or chain and sprocket rewind powered by an electric, or compressed air motor.*
- *MX Crank rewind reels pinion brake as standard.*
- *Power rewind reels are not supplied with a brake.*
- *Standard inlets 90° ball bearing swivel joints 1/2" female NPT threads.*
- *Standard outlets 1/2" female NPT threads.*
- *Pressures to 3000 psi (207 bar).*
- *Temperatures from +20° F to +400° F (-7° C to +204° C).*
- *Consult factory for other pressures & temps.*
- *Reels for use with oxygen/acetylene. See Series 2400 Hannay Reels Welding Catalog H0408-W.*



Standard Configuration Shown

For:
- **Hydraulics**
- **Air/Water**
- **Spray Painting**

Optional External Mounting Brackets part no. 9906.0025. Add 2-1/2" to the X dimensions shown in the chart.

Parts Drawing – ISO 112

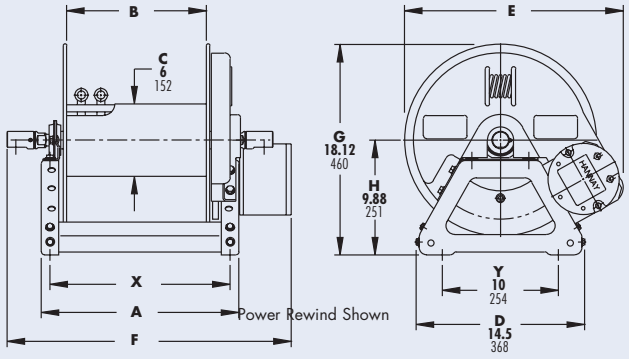
Model Number	Hose Capacity of Reel feet / m.				Approx. Weight Crank Rewind [3] lb. / kg.		Reel Dimensions*** inches / mm.						
For Power Rewind See Note 5	I.D. (in) I.D. (mm) / O.D. (in) O.D. (mm)	1/4"	3/8"	1/2"	NET	SHIP	A	B	E CRANK	E POWER	F CRANK	F POWER	X
2016-17-18		2/100 2/31	2/75 2/23	2/50 2/15	32 15	50* 23	13 330	8 203	18.5 470	19 483	21 533	20.75 527	11.5 292
2020-17-18		2/175 2/53	2/125 2/38	2/75 2/23	34 15	50* 23	17 432	12 305	18.5 470	19 483	25 635	24.75 629	15.5 394
2026-17-18		2/275 2/84	2/200 2/61	2/125 2/38	36 16	50* 23	23 584	18 457	18.5 470	19 483	31 787	30.75 781	21.5 546
2030-17-18		2/350 2/107	2/250 2/76	2/175 2/53	37 17	50* 23	27 686	22 559	18.5 470	19 483	35 889	34.75 883	25.5 648
2036-17-18		2/425 2/130	2/300 2/91	2/225 2.69	39 18	50 23	33 838	28 711	18.5 470	19 483	41 1041	40.75 1035	31.5 800

Notes:

1. Specifications subject to change.
2. Upon request, reels can be supplied with drum lengths other than shown and with disc sizes in other diameters.
3. Weights shown in chart are for crank rewind models. ADD these amounts for power rewind models:

	Net (lbs.)	Ship (lbs.)	Net (kg.)	Ship (kg.)
Electric	**18**	**18**	8.2	8.2
Air	**15**	**15**	6.8	6.8

4. Dimension "F" is the overall length of standard model reels. MX chain drive crank models, reels require 2" clearance to remove crank handle.
5. When ordering, prefix model number with:
   A = Air Rewind E = Electric Rewind
   MX = Chain Drive Crank
   (Air rewind reels are supplied with control valve and hose; 12v and 24v DC rewind reels are supplied with switch and solenoid; 115v AC rewind reels are not supplied with switch but can be ordered separately.)
6. **Finish:** refer to Page 4.
7. **Be sure to check dimensions and weights prior to ordering.**
8. Some roller options may prohibit the use of our molded chain guard.



NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

* When shipped as a parcel package (via Fed-Ex or UPS Ground).
*** x,y indicate mounting holes. See page 2

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Standard Gear Driven Crank Rewind Shown

G2000

MANUAL REWIND REELS

To handle dual 1/4" through 1/2" I.D. hose.

- *Two swivel joint inlets and two outlet risers to handle two equal lengths of hose.*
- *Gear-drive crank rewind.*
- *Pinion brake as standard.*
- *Standard inlets 90° ball bearing swivel joints 1/2" female NPT threads.*
- *Standard outlets 1/2" female NPT threads.*
- *Pressures to 3000 psi (207 bar).*
- *Temperatures from +20° F to +400° F (-7° C to +204° C).*
- *Consult factory for other pressures & temps.*
- *For power rewind see Series 2000, pg. 16.*
- *Reels for use with oxygen/acetylene. (See Welding Catalog H-0408-W).*

For:

- **Hydraulics**
- **Air/Water**
- **Spray Painting**

Optional External Mounting Brackets part no. 9906.0025. Add 2-1/2" to the X dimensions shown in the chart.

Parts Drawing – ISO 205

Model Number	Hose Capacity of Reel feet / m.				Approx. Weight Crank Rewind lb. / kg.		Reel Dimensions*** inches / mm.			
	I.D. (in) I.D. (mm)	1/4" 6	3/8" 10	1/2" 13	NET	SHIP	A	B	F	X
	O.D. (in) O.D. (mm)	5/8" 16	3/4" 19	7/8" 22						
G2016-17-18-8		2/75 2/23	2/50 2/15	2/35 2/11	40 15	50* 23	13 330	8 203	21 533	11.5 292
G2020-17-18-8		2/125 2/38	2/100 2/31	2/50 2/15	42 18	50* 23	17 432	12 305	25 635	15.5 394
G2026-17-18-8		2/200 2/61	2/150 2/46	2/100 2/31	44 19	50* 23	23 584	18 457	31 787	21.5 546

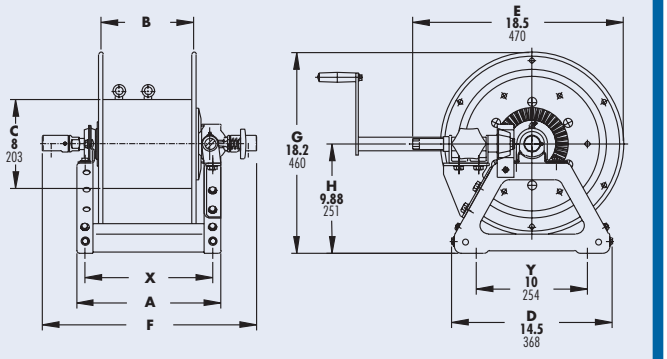
Notes:

1. Specifications subject to change.
2. Upon request, reels can be supplied with drum lengths other than shown.
3. **Finish:** refer to Page 4.
4. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

* When shipped as a parcel package (via Fed-Ex or UPS Ground).

*** x,y indicate mounting holes. See page 2

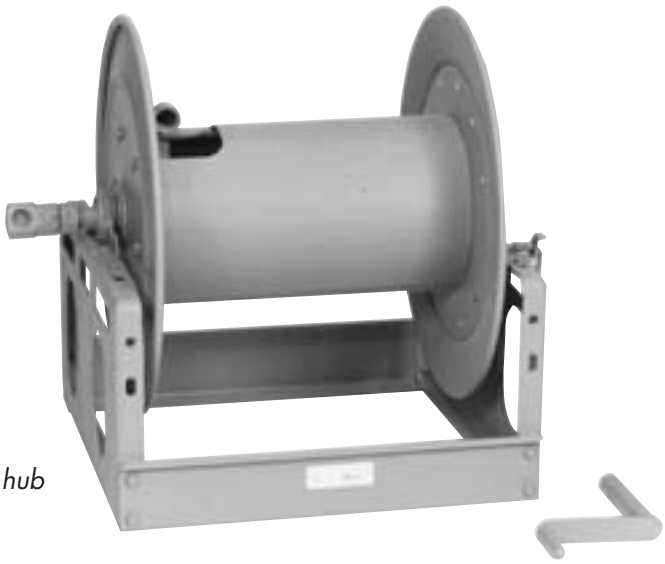


3000

MANUAL REWIND REELS

To handle 3/4" or 1" I.D. hose.

- *Economical manual rewind reels for long lengths of hose.*
- *Choose disc rewind or removable direct crank rewind.*
- *Supplied with spring-actuated pin lock.*
- *Standard inlet 90° ball bearing swivel joint 1" female NPT threads.*
- *Standard outlet 1" female NPT thread.*
- *Optional bronze or aluminum swivel joint and stainless steel hub assembly and riser, are available*
- *Optional Rollers may be purchased.*
- *Pressures to 1000 psi (69 bar)*
- *Temperatures from -60° F to +250° F (-51° C to +121° C).*
- *Consult factory for other pressures & temps.*



Standard with Crank Handle

For:

- **Fuel Dispensing** (Consult Factory)
- **Spray Operations**
- **Fire Protection**

Parts Drawing – ISO 113

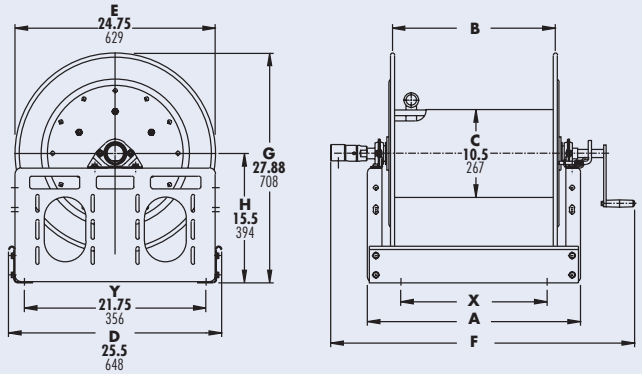
Model Number	Hose Capacity of Reel feet / m.				Approx. Weight Crank Rewind lb. / kg.		Reel Dimensions*** inches / mm.			
	Round Hose			Collapsible Hose						
	I.D. (in) / I.D. (mm)	3/4" 19	1" 25	1" 25						
	O.D. (in) / O.D. (mm)	1-9/32" 33	1-9/16" 40	1/2"x1-3/4" 13 x 44	NET	SHIP	A	B	F	X
3016-25-26		100 30	50 15	200 61	85 39	120 54	13 330	7.5 191	23.75 603	7.75 197
3020-25-26		150 46	100 30	300 91	94 43	129 59	17 432	11.5 292	27.75 705	9 229
3024-25-26		250 76	150 46	400 122	103 47	138 63	21 533	15.5 394	31.75 806	13 330
3028-25-26		300 91	200 61	550 168	113 51	155 70	25.5 648	20 508	36.25 921	17.5 445

Notes:

1. Specifications subject to change.
2. Upon request, reels can be supplied with drum lengths other than shown and with disc sizes in other diameters.
3. **Power rewind NOT available on these models.**
4. Dimension "F" is the overall length of standard model reels. Crank rewind models, 3–1/2" clearance required to remove crank.
5. Subtract 5" from 'F' dimension for disc rewind models.
6. **Finish:** Call factory for offshore/marine finish, available at extra cost. Refer to Page 4.
7. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

*** x,y indicate mounting holes. See page 2



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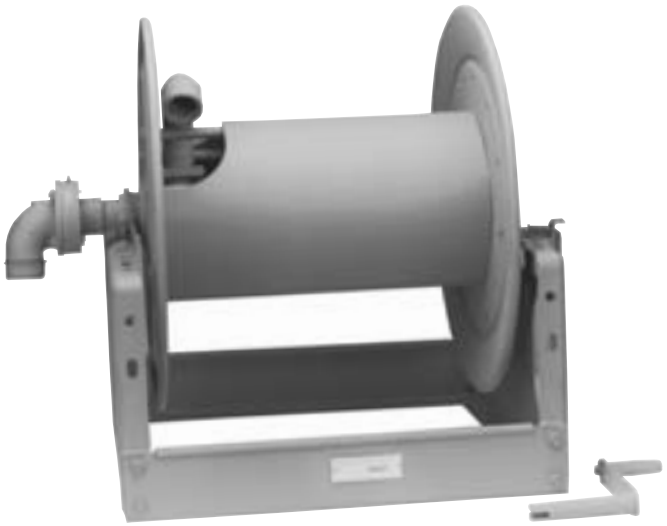


Standard with Crank Handle

3500

MANUAL REWIND REELS

To handle 1" through 1–3/4" I.D. hose.

- *Economical manual rewind reels for long lengths of hose.*
- *Choose disc rewind or removable direct crank rewind.*
- *Supplied with spring-actuated pin lock.*
- *Standard inlet 90° swivel joint 1-1/2" female NPT threads and 2" victaulic groove.*
- *Standard outlet flanged riser with 1-1/2" female NPT threads.*
- *Optional bronze or aluminum swivel joint and stainless steel hub assembly and riser, are available*
- *Optional Rollers may be purchased.*
- *Pressures to 600 psi (41 bar)*
- *Temperatures from -40° F to +175° F (-40° C to +79° C).*
- *Consult factory for other pressures & temps.*

For:

- **Fuel Dispensing** (Consult Factory)
- **Bulk Transfer**
- **Fire Protection**

Parts Drawing – ISO 111

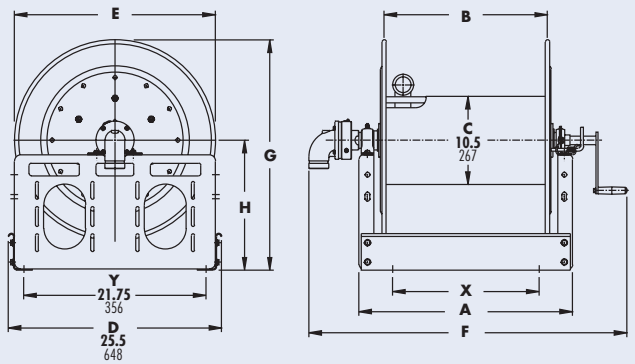
Model Number	Hose Capacity of Reel feet / m.					Approx. Weight Crank Rewind lb. / kg.		Reel Dimensions*** inches / mm.						
	Round Hose			Collapsible Hose										
	I.D. (in) I.D. (mm)	1" 25	1-1/2" 38	1-1/2" 38	1-3/4" 44									
	O.D. (in) O.D. (mm)	1-9/16" 40	2-1/16" 52	3/4"x3" 19 x 76	7/8"x3-1/4" 22 x 83	NET	SHIP	A	B	E	F	G	H	X
3516-25-26		50 15	– –	50 15	50 15	95 43	130 59	13 330	7.5 191	24.75 629	26 660	27.88 708	15.5 394	7.75 197
3520-25-26		100 30	50 15	100 30	75 23	104 47	139 63	17 432	11.5 292	24.75 629	30 762	27.88 708	15.5 394	9 229
3524-25-26		150 46	75 23	150 46	100 30	113 51	157 71	21 533	15.5 394	24.75 629	34 864	27.88 708	15.5 394	13 330
3528-25-26		200 61	100 30	200 61	150 46	123 56	173 78	25.5 648	20 508	24.75 629	38.5 978	27.88 708	15.5 394	17.5 445
3524-30-31		200 61	100 30	250 76	150 46	124 56	174 79	21 533	15.5 394	28.75 730	34 864	29.88 759	15.5 394	13 330
3528-30-31		250 76	150 46	300 91	250 76	134 61	184 83	25.5 648	20 508	28.75 730	38.5 978	29.88 759	15.5 394	17.5 445
3534-30-31		350 107	200 61	450 137	350 107	147 67	197 89	31.5 800	26 660	28.75 730	44.5 1130	29.88 759	15.5 394	23.5 597
3530-33-34		400 122	250 76	450 137	350 107	138 63	188 85	27.5 699	22 559	31.75 806	40.5 1029	32.38 822	16.5 419	19.5 495

Notes:

1. Specifications subject to change.
2. Upon request, reels can be supplied with drum lengths other than shown and with disc sizes in other diameters.
3. **Power rewind NOT available on these models.**
4. Dimension "F" is the overall length of standard model reels. Crank rewind models, 3–1/2" clearance required to remove crank.
5. Subtract 5" from 'F' dimension for disc rewind models.
6. **Finish:** Call factory for offshore/marine finish, available at extra cost. Refer to Page 4.
7. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

*** x,y indicate mounting holes. See page 2

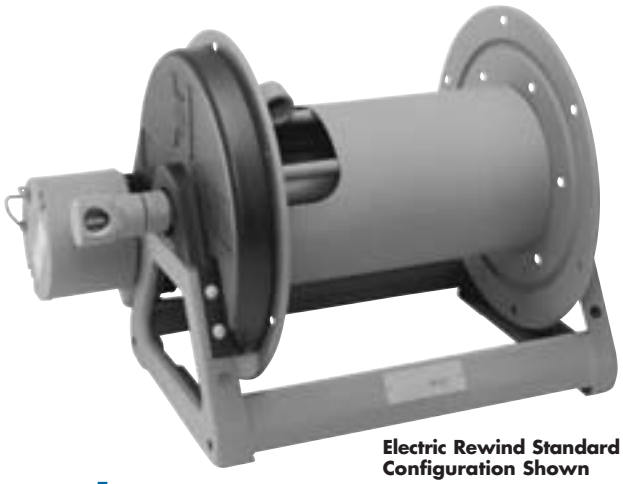


4000

MANUAL OR POWER REWIND REELS

To handle single 3/4" or 1" I.D. hose.

- *Lightweight compact reels designed for long lengths of hose in manual and power rewind.*
- *Direct crank rewind is removable.*
- *Chain and sprocket drive powered by electric, hydraulic, or compressed air motor.*
- *Direct crank rewind, cam-lock drag brake, spring actuated pin lock.*
- *Standard inlet 90° ball bearing swivel joint 1" female NPT threads.*
- *Standard outlet 1" female NPT threads.*
- *Optional Rollers: Specify roller position when ordering.*
- *Pressures to 1000 psi (69 bar).*
- *Temperatures from -60° F to +250° F (-51° C to +121° C).*
- *Consult factory for other pressures & temps.*



Electric Rewind Standard Configuration Shown

For:

- **Fuel Dispensing (Consult Factory)**
- **Fire Protection**
- **Water Supply**
- **Chemical Transfer**

Optional External Mounting Brackets part no. 9906.0025. Add 2-1/2" to the X dimensions shown in the chart.

Parts Drawing – ISO 68

Model Number	Hose Capacity of Reel feet / m.			Approx. Weight Crank Rewind [3] lb. / kg.		Reel Dimensions*** inches / mm.						
For Power Rewind See Note 5	I.D. (in) / I.D. (mm)	3/4" 19	1" 25	NET	SHIP	A	B	E CRANK	E POWER	F CRANK	F POWER	X
	O.D. (in) / O.D. (mm)	1-9/32" 33	1-9/16" 40									
4018-17-18		50 15	35 11	36 16	50* 23	15 381	10 254	16.5 419	19 483	27 686	20.5 521	13.5 343
4024-17-18		100 30	50 15	46 21	56* 25	21 533	16 406	16.5 419	19 483	33 838	26.5 673	19.5 495
4030-17-18		150 46	75 23	57 26	62* 28	27 686	22 559	16.5 419	19 483	39 991	32.5 826	25.5 648
4038-17-18		200 61	100 30	70 32	112 51	35 889	30 762	16.5 419	19 483	47 1194	40.5 1029	33.5 851

Notes:

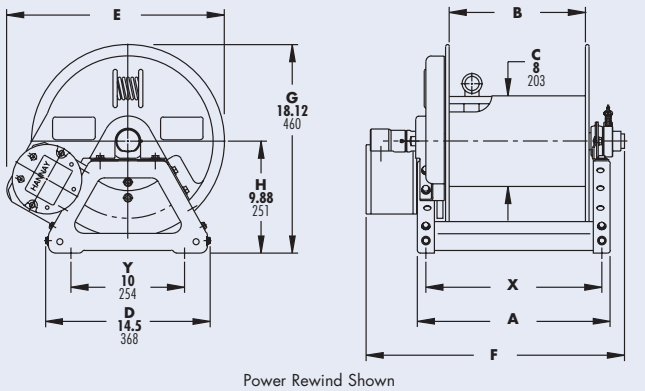
1. Specifications subject to change.
2. Upon request, reels can be supplied with drum lengths other than shown.
3. Weights shown in chart are for crank rewind models. ADD these amounts for power rewind models:

	Net (lbs.)	Ship (lbs.)	Net (kg.)	Ship (kg.)
Electric	**18**	**18**	8.2	8.2
Hydraulic	**15**	**15**	6.8	6.8
Air	**15**	**15**	6.8	6.8

4. Dimension "F" is the overall length of standard model reels. Crank rewind reels require 3–1/2" clearance to remove or install crank handle.
5. When ordering power rewind models, prefix model number with:
   A = Air Rewind E = Electric Rewind HD = Hydraulic Rewind
   (Air rewind reels are supplied with control valve and hose; 12v and 24v DC rewind reels are supplied with switch and solenoid; 115v AC rewind reels are not supplied with switch but can be ordered separately; hydraulic rewind reels are not supplied with control valve.)
6. **Finish:** refer to Page 4.
7. **Be sure to check dimensions and weights prior to ordering.**
8. Some roller options may prohibit the use of our molded chain guard.

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

* When shipped as a parcel package (via Fed-Ex or UPS Ground).
*** x,y indicate mounting holes. See page 2, also for external mounting brackets.



Power Rewind Shown

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Electric Rewind Shown with Gear Driven Crank Rewind

4100

MANUAL OR POWER REWIND REELS

To handle single 3/4" or 1" I.D. hose.

- *Lightweight compact reels designed for long lengths of hose in manual and power rewind.*
- *Gear driven crank rewind handle is removable.*
- *Chain and sprocket drive powered by electric, hydraulic, or compressed air motor.*
- *Gear driven crank rewind, adjustable pinion brake.*
- *Standard inlet 90° ball bearing swivel joint 1" female NPT threads.*
- *Standard outlet 1" female NPT threads.*
- *Optional Rollers: Specify roller position when ordering.*
- *Pressures to 1000 psi (69 bar).*
- *Temperatures from -60° F to +250° F (-51° C to +121° C).*
- *Consult factory for other pressures & temps.*

For:

- **Fuel Dispensing** (Consult Factory)
- **Fire Protection**
- **Water Supply**
- **Chemical Transfer**

Parts Drawing – ISO 206

Model Number	Hose Capacity of Reel feet / m.			Approx. Weight Crank Rewind [3] lb. / kg.		Reel Dimensions*** inches / mm.					
For Power Rewind See Note 5	I.D. (in) / I.D. (mm)	3/4" / 19	1" / 25	NET	SHIP	A	B	E CRANK	E POWER	F	X
	O.D. (in) / O.D. (mm)	1-9/32" / 33	1-9/16" / 40								
4118-17-18		50 / 15	35 / 11	62 / 28	97 / 44	15 / 381	10 / 254	18 / 457	20.5 / 521	21.5 / 546	7.5 / 190
4124-17-18		100 / 30	50 / 15	72 / 33	107 / 49	21 / 533	16 / 406	18 / 457	20.5 / 521	27.5 / 699	13.5 / 343
4130-17-18		150 / 46	75 / 23	83 / 38	118 / 54	27 / 686	22 / 559	18 / 457	20.5 / 521	33.5 / 851	19.5 / 495
4138-17-18		200 / 61	100 / 30	96 / 44	131 / 59	35 / 889	30 / 762	18 / 457	20.5 / 521	41.5 / 1054	27.5 / 698

Notes:

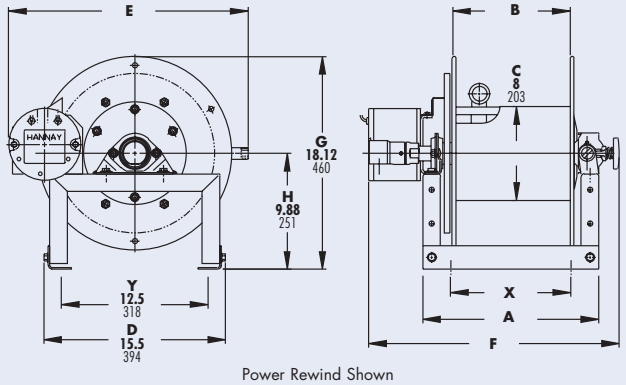
1. Specifications subject to change.
2. Upon request, reels can be supplied with drum lengths other than shown.
3. Weights shown in chart are for crank rewind models. ADD these amounts for power rewind models:

	Net (lbs.)	Ship (lbs.)	Net (kg.)	Ship (kg.)
Electric	**18**	**18**	8.2	8.2
Hydraulic	**15**	**15**	6.8	6.8
Air	**15**	**15**	6.8	6.8

4. Dimension "F" is the overall length of standard model reels.
5. When ordering power rewind models, prefix model number with:
   A = Air Rewind E = Electric Rewind HD = Hydraulic Rewind
   (Air rewind reels are supplied with control valve and hose; 12v and 24v DC rewind reels are supplied with switch and solenoid; 115v AC rewind reels are not supplied with switch but can be ordered separately; hydraulic rewind reels are not supplied with control valve.)
6. **Finish:** refer to Page 4.
7. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

*** x,y indicate mounting holes. See page 2



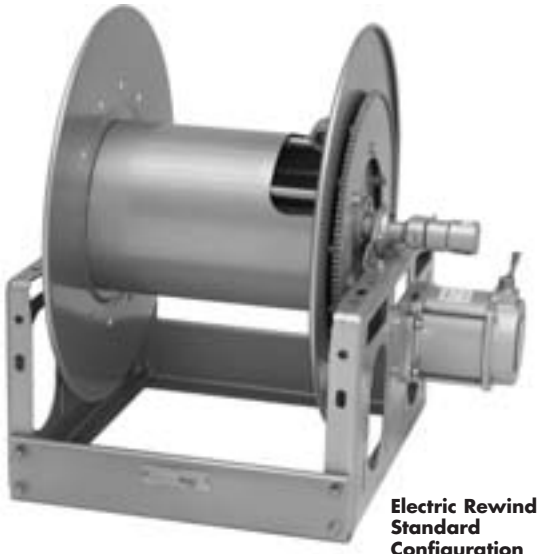
Power Rewind Shown

6000

MANUAL OR POWER REWIND REELS

To handle single 1/2" through 1" I.D. hose.

- *Heavy-duty reel for longer lengths of hose.*
- *Choose Gear-driven crank rewind or chain and sprocket drive powered by an electric, hydraulic or compressed air motor.*
- *Crank rewind reels supplied with pinion brake, power rewind reels with a comet brake.*
- *Standard inlet a 90° ball bearing swivel joint 1" female NPT threads.*
- *Standard outlet 1" female NPT threads.*
- *Standard inlet, outlet riser and hub assembly are steel. Optional bronze or aluminum swivel joint and stainless steel hub assembly and riser, are available.*
- *Optional Rollers may be purchased.*
- *Pressures to 1000 psi (69 bar).*
- *Temperatures from -60° F to +250° F (-51° C to +121° C).*
- *Consult factory for other pressures & temps.*

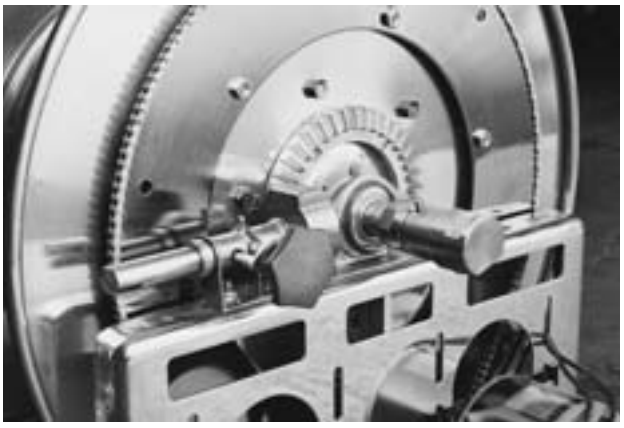


Electric Rewind Standard Configuration Shown

For:

- **Fuel Dispensing (Consult Factory)**
- **Spray Operations**
- **Fire Protection**
- **Water Blasting***
- **Sewer Cleaning***

*Heavy-duty construction required. Consult factory.



Optional Auxiliary Rewind

Ring and pinion shaft rewind unit with removable crank handle

Shown with optional Assembly C Roller Top Wind

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6000

Parts Drawing – ISO 84

Model Number	Hose Capacity of Reel feet / m.				Approx. Weight Crank Rewind [3] lb. / kg.		Reel Dimensions*** inches / mm.									
For Power Rewind See Note 4	I.D. (in) I.D. (mm)	1/2" 13	3/4" 19	1" 25	NET	SHIP	A	B	D	E	F CRANK	F POWER	G	H	X	Y
	O.D. (in) O.D. (mm)	7/8" 22	1-9/32" 33	1-9/16" 40												
6024-19-21		235 72	125 38	60 18	85 39	127 58	21 533	15.5 394	20.5 521	18.75 476	25.38 645	28.5 724	21.5 546	12.12 308	13 330	16.75 425
6032-19-21		350 107	200 61	100 30	102 46	144 65	29.5 749	24 610	20.5 521	18.75 476	33.88 861	37 940	21.5 546	12.12 308	21.5 546	16.75 425
6024-23-24		450 137	185 56	100 30	92 42	134 61	21 533	15.5 394	20.5 521	22.75 578	25.38 645	28.5 724	23.5 597	12.12 308	13 330	16.75 425
6030-23-24		– –	250 76	150 46	105 48	147 67	27.5 699	22 559	20.5 521	22.75 578	31.88 810	35 889	23.5 597	12.12 308	19.5 495	16.75 425
6038-23-24		– –	350 107	200 61	120 54	162 73	35 889	29.5 749	20.5 521	22.75 578	39.38 1000	42.5 1080	23.5 597	12.12 308	27.5 699	16.75 425
6016-25-26		285 87	100 30	60 18	88 40	130 59	13 330	7.5 191	25.5 648	24.75 629	17.38 441	20.5 521	27.88 708	15.5 394	7.75 197	21.75 552
6022-25-26		500 152	200 61	100 30	100 45	142 64	19 483	13.5 343	25.5 648	24.75 629	23.38 594	26.5 673	27.88 708	15.5 394	11 279	21.75 552
6028-25-26		– –	300 91	200 61	113 51	155 70	25.5 648	20 508	25.5 648	24.75 629	29.88 759	33 838	27.88 708	15.5 394	17.5 445	21.75 552
6018-30-31		450 137	235 72	135 41	101 46	151 68	15 381	9.5 241	25.5 648	28.75 730	19.38 492	22.5 572	29.88 759	15.5 394	7 178	21.75 552
6024-30-31		– –	400 122	200 61	113 51	163 74	21 533	15.5 394	25.5 648	28.75 730	25.38 645	28.5 724	29.88 759	15.5 394	13 330	21.75 552
6028-30-31		– –	500 152	265 81	121 55	171 78	25.5 648	20 508	25.5 648	28.75 730	29.88 759	33 838	29.88 759	15.5 394	17.5 445	21.75 552
† 6030-30-31		– –	550 168	300 91	125 57	175 79	27.5 699	22 559	25.5 648	28.75 730	31.88 810	35 889	29.88 759	15.5 394	19.5 495	21.75 552
† 6028-33-34		– –	600 183	350 107	129 59	179 81	25 635	20 508	31.5 800	31.75 806	29.62 752	32.75 832	33.62 854	17.75 451	17.5 445	27.75 705

Notes:

Specifications subject to change.

1. Upon request, reels can be supplied with drum lengths other than shown and with disc sizes in other diameters.
2. Dimensions shown for reels up to and including 30-31 disc size reflect pressed frames. All others are rollformed channel frames.
3. Weights shown in chart are for crank rewind models. ADD these amounts for power rewind models:

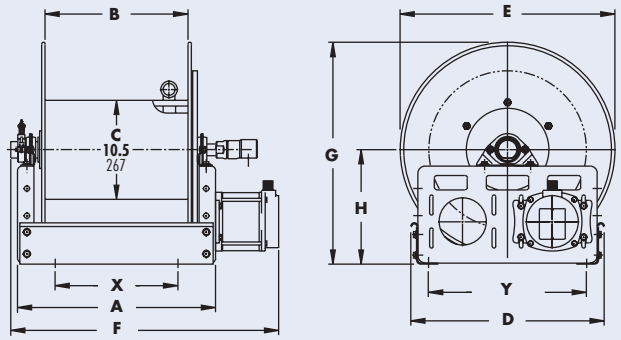
	Net (lbs.)	Ship (lbs.)	Net (kg.)	Ship (kg.)
Electric 1/2 HP	**40**	**40**	18.1	18.1
Hydraulic	**20**	**20**	9.1	9.1
Air	**20**	**20**	9.1	9.1

4. When ordering power rewind models, prefix model number with:
   A = Air Rewind EP = Electric Rewind (1/2 hp) HD = Hydraulic Rewind
   (Air rewind reels are supplied with control valve and hose; 12v and 24v DC rewind reels are supplied with switch and solenoid; 115v AC rewind reels are not supplied with switch but can be ordered separately; hydraulic rewind reels are not supplied with control valve.)
5. **Finish:** refer to Page 4.
6. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

*** x,y indicate mounting holes. See page 2

† Some applications require a clutch/reduction unit.



Power Rewind Shown

7000

MANUAL OR POWER REWIND REELS

To handle dual 3/4" or 1" I.D. hose.

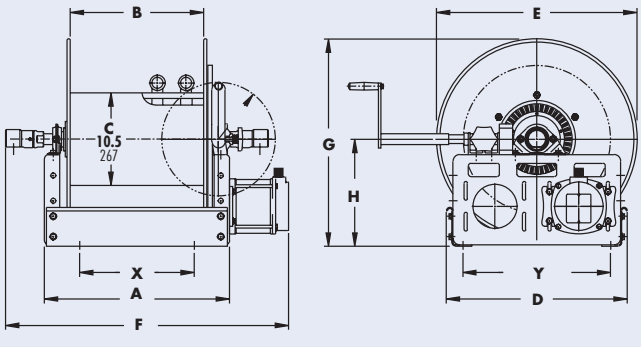
Standard Configuration Shown

- *Two swivel joint inlets and two outlet risers to handle two equal lengths of hose.*
- *Choose gear-driven crank rewind or chain & sprocket drive powered by an electric, hydraulic or compressed air motor. An auxiliary rewind is standard.*
- *Crank rewind and power rewind reels, pinion brake standard.*
- *Standard inlets 90° ball bearing swivel joints 1" female NPT threads.*
- *Standard outlets 1" female NPT threads.*
- *Standard inlet, outlet riser and hub assembly are steel. Optional bronze or aluminum swivel joint and stainless steel hub assembly and riser, are available.*
- *Pressures to 1000 psi (69 bar).*
- *Temperatures from -60° F to +250° F (-51° C to +121° C).*
- *Consult factory for other pressures & temps.*

For:
- **Hydraulics**
- **Dual Agents**

Parts Drawing – ISO 72

Model Number	Hose Capacity of Reel feet / m.		Approx. Weight Crank Rewind [4] lb. / kg.		Reel Dimensions*** inches / mm.									
For Power Rewind See Note 5	I.D. (in) / I.D. (mm)	3/4" / 19	1" / 25	NET	SHIP	A	B	D	E	F CRANK	F POWER	G	H	X	Y
	O.D. (in) / O.D. (mm)	1-9/32" / 33	1-9/16" / 40												
7024-19-21		2/60 / 2/18	2/25 / 2/8	100 / 45	142 / 64	21 / 533	15.5 / 394	20.5 / 521	21.88 / 556	29.75 / 756	32.12 / 816	21.5 / 546	12.12 / 308	13 / 330	16.75 / 425
7026-23-24		2/90 / 2/27	2/50 / 2/15	105 / 48	147 / 67	23 / 584	17.5 / 445	20.5 / 521	23 / 584	31.75 / 806	34.12 / 867	23.5 / 597	12.12 / 308	15 / 381	16.75 / 425
7016-25-26		2/40 / 2/12	2/30 / 2/9	95 / 43	145 / 66	13 / 330	7.5 / 191	25.5 / 648	24.75 / 629	21.75 / 552	24.12 / 613	27.88 / 708	15.5 / 394	7.75 / 197	21.75 / 552
7032-25-26		2/175 / 2/53	2/100 / 2/31	129 / 59	179 / 81	29.5 / 749	24 / 610	25.5 / 648	24.75 / 629	38.25 / 972	40.62 / 1032	27.88 / 708	15.5 / 394	21.5 / 546	21.75 / 552
† 7032-30-31		2/300 / 2/91	2/150 / 2/46	137 / 62	187 / 85	29.5 / 749	24 / 610	25.5 / 648	28.75 / 730	38.25 / 972	40.62 / 1032	29.88 / 759	15.5 / 394	21.5 / 546	21.75 / 552
† 7024-33-34		2/225 / 2/69	2/115 / 2/35	120 / 54	170 / 77	20.5 / 521	15.5 / 394	31.5 / 800	31.75 / 806	29.75 / 756	32.12 / 816	33.62 / 854	17.75 / 451	13 / 330	27.75 / 705
† 7032-33-34		2/350 / 2/107	2/200 / 2/61	137 / 62	187 / 85	29 / 737	24 / 610	31.5 / 800	31.75 / 806	38.25 / 972	40.62 / 1032	33.62 / 854	17.75 / 451	21.5 / 546	27.75 / 705



Power Rewind Shown

Notes:

1. Specifications subject to change.
2. Upon request, reels can be supplied with drum lengths other than shown and with disc sizes in other diameters.
3. Dimensions shown up to and including 30-31 disc size reflect pressed frames. All others are rollformed channel frames.
4. Weights shown in chart are for crank rewind models. ADD these amounts for power rewind models:

	Net (lbs.)	Ship (lbs.)	Net (kg.)	Ship (kg.)
Electric	**40**	**40**	18.1	18.1
Hydraulic	**20**	**20**	9.1	9.1
Air	**20**	**20**	9.1	9.1

5. When ordering, prefix model number with:
   A = Air Rewind — EP = Electric Rewind
   MX = Chain Drive Crank — HD = Hydraulic Rewind
   (Air rewind reels are supplied with control valve and hose; 12v and 24v DC rewind reels are supplied with switch and solenoid; 115v AC rewind reels are not supplied with switch but can be ordered separately; hydraulic rewind reels are not supplied with control valve.)
6. **Finish:** refer to Page 4.
7. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

*** x,y indicate mounting holes. See page 2

† Some applications require a clutch/reduction unit.

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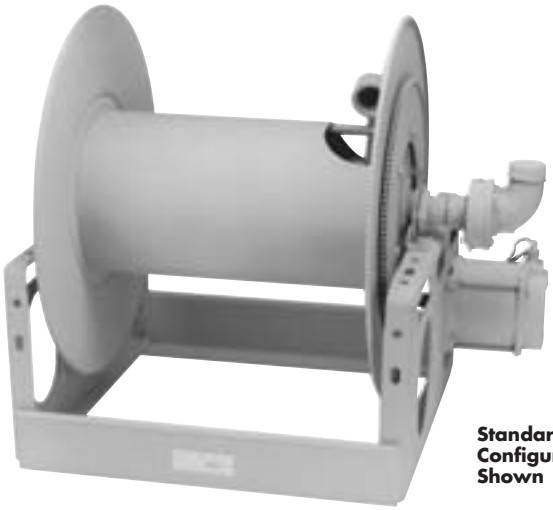


Standard Configuration Shown

7500

MANUAL OR POWER REWIND REELS

To handle single 1" through 1-1/2" I.D. hose.

- *Heavy-duty reel designed for longer lengths.*
- *Choose gear-driven crank rewind or chain and sprocket drive powered by an electric, hydraulic or compressed air motor.*
- *Crank rewind reels supplied with pinion brake and power rewind reels with a comet brake.*
- *Standard inlet 90° ball bearing swivel joint 1-1/2" female NPT threads and 2" victaulic groove.*
- *Standard outlet flanged riser 1-1/2" female NPT threads.*
- *Standard inlet, outlet riser and hub assembly are steel. Optional bronze or aluminum swivel joint and stainless steel hub assembly and riser, are available.*
- *Rollers may be purchased as accessory items.*
- *Operate at pressures to 600 psi (41 bar).*
- *Temperatures from -40° F to +175° F (-40° C to +79° C).*
- *Consult factory for other pressures & temps.*

Optional Auxilary Rewind (Ring and pinion shaft rewind unit with removable crank handle)

For:

- **Fuel Dispensing (Consult Factory)**
- **Bulk Transfer**
- **Suction/Discharge (Consult Factory)**

Parts Drawing – ISO 18

Model Number	Hose Capacity of Reel feet / m.				Approx. Weight Crank Rewind [4] lb. / kg.		Reel Dimensions*** inches / mm.									
For Power Rewind See Note 5	I.D. (in) / I.D. (mm)	1" / 25	1-1/4" / 32	1-1/2" / 38	NET	SHIP	A	B	D	E	F CRANK	F POWER	G	H	X	Y
	O.D. (in) / O.D. (mm)	1-9/16" / 40	1-13/16" / 46	2-1/16" / 52												
7528-19-21		85 / 26	70 / 21	50 / 15	104 / 47	146 / 66	25.5 / 648	20 / 508	20.5 / 521	18.75 / 476	32 / 813	33 / 838	21.5 / 546	12.12 / 308	17.5 / 445	16.75 / 425
7538-23-24		200 / 61	190 / 58	100 / 30	130 / 59	172 / 78	35 / 889	29.5 / 749	20.5 / 521	22.75 / 578	41.5 / 1054	42.5 / 1080	23.5 / 597	12.12 / 308	27 / 686	16.75 / 425
7520-25-26		115 / 35	75 / 23	50 / 15	106 / 48	148 / 67	17 / 432	11.5 / 292	25.5 / 648	24.75 / 629	23.5 / 597	24.5 / 622	27.88 / 708	15.5 / 394	9 / 229	21.75 / 552
7528-25-26		200 / 61	135 / 41	100 / 30	123 / 56	165 / 75	25.5 / 648	20 / 508	25.5 / 648	24.75 / 629	32 / 813	33 / 838	27.88 / 708	15.5 / 394	17.5 / 445	21.75 / 552
7522-30-31		190 / 58	160 / 49	100 / 30	118 / 54	168 / 76	19 / 483	13.5 / 343	25.5 / 648	28.75 / 730	25.5 / 648	26.5 / 673	29.88 / 759	15.5 / 394	11 / 279	21.75 / 552
† 7528-30-31		285 / 87	260 / 79	160 / 49	131 / 59	181 / 82	25.5 / 648	20 / 508	25.5 / 648	28.75 / 730	32 / 813	33 / 838	29.88 / 759	15.5 / 394	17.5 / 445	21.75 / 552
† 7526-33-34		335 / 102	200 / 61	200 / 61	133 / 60	183 / 83	22.5 / 572	17.5 / 445	31.5 / 800	31.75 / 806	29.25 / 743	30.25 / 768	33.62 / 854	17.75 / 451	15 / 381	27.75 / 705

Notes:

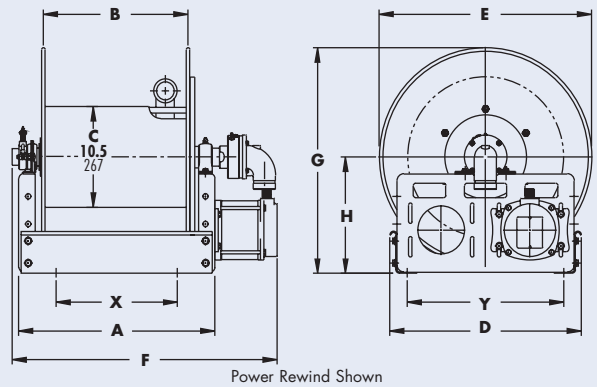
1 Specifications subject to change.
2. Upon request, reels can be supplied with drum lengths other than shown and with disc sizes in other diameters.
3. Dimensions shown for reels up to and including 30-31 disc size reflect pressed frames. All others are rollformed channel frames.
4. Weights shown in chart are for crank rewind models. ADD these amounts for power rewind models:

	Net (lbs.)	Ship (lbs.)	Net (kg.)	Ship (kg.)
Electric	**40**	**40**	18.1	18.1
Hydraulic	**20**	**20**	9.1	9.1
Air	**20**	**20**	9.1	9.1

5. When ordering power rewind models, prefix model number with:
A = Air Rewind EP = Electric Rewind (1/2 hp) HD = Hydraulic Rewind
(Air rewind reels are supplied with control valve and hose; 12v and 24v DC rewind reels are supplied with switch and solenoid; 115v AC rewind reels are not supplied with switch but can be ordered separately; hydraulic rewind reels are not supplied with control valve.)
6. **Finish:** refer to Page 4.
7. Be sure to check dimensions and weights prior to ordering.

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

*** x,y indicate mounting holes. See page 2
† Some applications require a clutch/reduction unit.



Power Rewind Shown

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8000

MANUAL OR POWER REWIND REELS

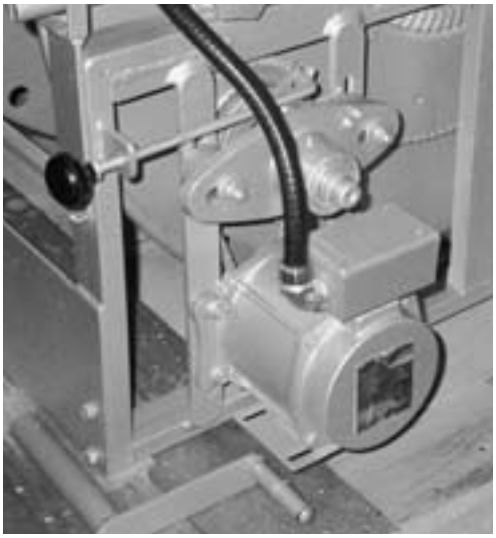
To handle single 1-1/2" or 2" I.D. hose.

- *Heavy-duty reel designed for longer lengths and larger diameters of hose through 2" I.D.*
- *Choose gear-driven crank rewind or chain and sprocket drive powered by an electric, hydraulic or compressed air motor.*
- *Crank rewind reels supplied with a pinion brake, power rewind reels with a comet brake.*
- *Standard inlet 90° ball bearing swivel joint 2" female NPT threads.*
- *Standard outlet flanged riser 2" female NPT threads*
- *Standard inlet, outlet riser and hub assembly are steel. Optional bronze or aluminum swivel joint and stainless steel hub assembly and riser, are available.*
- *Rollers may be purchased as accessory items.*
- *Pressures to 600 psi (41 bar).*
- *Temperatures from -40° F to +175° F (-40° C to +79° C).*
- *Consult factory for other pressures & temps.*

Shown with Optional Auxilary Rewind

For:

- **Bulk Transfer**
- **Chemical Transfer**
- **General Dispensing**
- **Suction/Discharge** (consult factory)
- **Fueling Applications**
  Refer to:
  Aviation Catalog H-0418-AVIA
  Petroleum Catalog H-0417-FD



For use on reels with 39" diameter or larger discs and/or when increased torque and slower rewind speeds are required. Factory-installed when specified or available as an accessory item.

Chain Clutch-Reduction Units

Hannay Reels, Inc. Phone 518-797-3791 Toll Free 1-877-GO REELS (467-3357)
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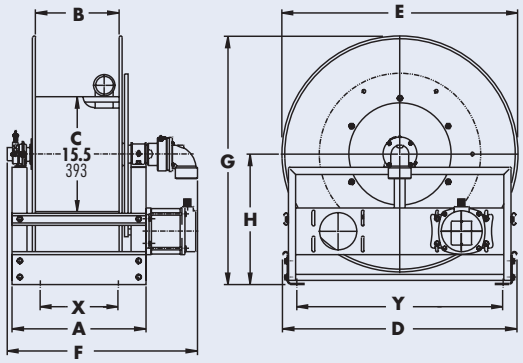
Parts Drawing – ISO 35

Model Number	Hose Capacity of Reel feet / m.			Approx. Weight Crank Rewind [3] lb. / kg.		Reel Dimensions*** inches / mm.									
For Power Rewind See Note 4	I.D. (in) I.D. (mm)	1-1/2" 38	2" 51	NET	SHIP	A	B	D	E	F CRANK	F POWER	G	H	X	Y
	O.D. (in) O.D. (mm)	2-1/16" 52	2-9/16" 65												
8234-26-27		80 24	60 18	120 54	170 77	26.25 667	20 508	27 686	25.75 654	33.75 857	34.75 883	26.62 676	13.75 349	18.75 476	23.25 591
8238-26-27		100 30	75 23	145 66	195 88	30.25 768	24 610	27 686	25.75 654	37.75 959	38.75 984	26.62 676	13.75 349	22.75 578	23.25 591
8246-26-27		145 44	100 30	196 89	245 112	38.25 972	32 813	27 686	25.75 654	45.75 1162	46.75 1188	26.62 676	13.75 349	30.75 781	23.25 591
8226-33-34		85 26	60 18	80 36	150 68	17.75 451	11.5 292	31.5 800	31.75 806	25.25 641	26.25 667	33.38 848	17.75 445	10.25 260	27.75 705
8234-33-34		150 46	115 35	133 60	230 105	26.25 667	20 508	31.5 800	31.75 806	33.75 857	34.75 883	33.38 848	17.75 445	18.75 476	27.75 705
8238-39-40		340 104	225 69	218 99	420 191	30.25 768	24 610	40 1016	39 991	37.75 959	38.75 984	39.88 1013	20.38 518	22.75 578	37 940



Notes:

1. Specifications subject to change.
2. Upon request, reels can be supplied with drum lengths other than shown and with disc sizes in other diameters.
3. Weights shown in chart are for crank rewind models. ADD these amounts for power rewind models:

	Net (lbs.)	Ship (lbs.)	Net (kg.)	Ship (kg.)
Electric	**40**	**40**	18.1	18.1
Hydraulic	**20**	**20**	9.1	9.1
Air	**20**	**20**	9.1	9.1

4. When ordering power rewind models, prefix model number with:
   A = Air Rewind EP = Electric Rewind (1/2 HP)
   HD = Hydraulic Rewind
   (Air rewind reels are supplied with control valve and hose; 12v and 24v DC rewind reels are supplied with switch and solenoid; 115v AC rewind reels are not supplied with switch but can be ordered separately; hydraulic rewind reels are not supplied with control valve.)
5. **Finish:** refer to Page 4.
6. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

*** x,y indicate mounting holes. See page 2

9000

MANUAL OR POWER REWIND REELS

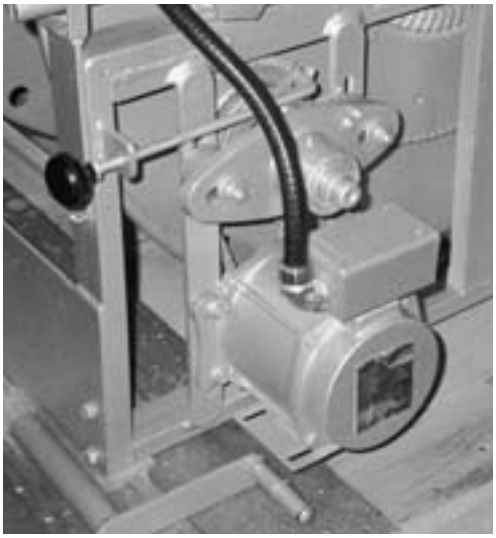
To handle 2" through 3" I.D. hose.

- *Heavy-duty reel designed for longer lengths and larger diameters of hose through 3" I.D.*
- *Choose gear-driven crank rewind or chain and sprocket drive powered by an electric, hydraulic or compressed air motor.*
- *Crank rewind reels supplied with a pinion brake power rewind reels with a comet brake.*
- *Standard inlet 90° ball bearing swivel joint 3" female NPT threads.*
- *Standard outlet flanged riser 3" female NPT threads.*
- *Standard, outlet riser and hub assembly are aluminum with ductile inlet. Optional bronze or aluminum swivel joint and stainless steel hub assembly and riser, are available.*
- *Rollers may be purchased as accessory items.*
- *Pressures to 300 psi (21 bar).*
- *Temperatures from -20° F to +225° F (-29° C to +107° C).*
- *Consult factory for other pressures & temps.*

Shown with Optional Auxilary Rewind

For:

- **Suction/Discharge** (consult factory)
- **High Volume Application**
- **Bulk Transfer**
- **Chemical Transfer**
- **Fueling Applications**
  Refer to:
  Aviation Catalog H-0418-AVIA
  Petroleum Catalog H-0417-FD



For use on reels with 39" diameter or larger discs and/or when increased torque and slower rewind speeds are required. Factory-installed when specified or available as an accessory item.

Chain Clutch-Reduction Units

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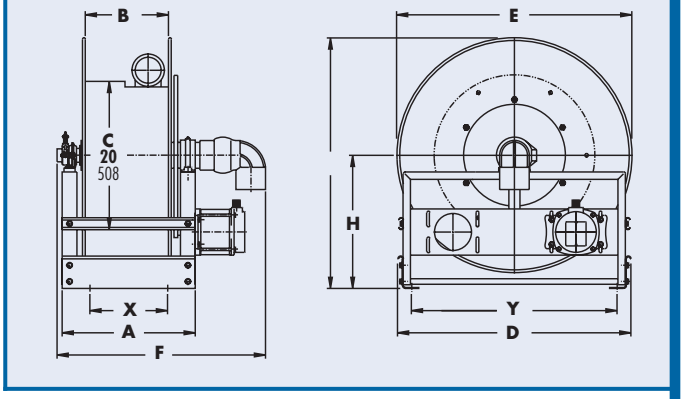
9000

Parts Drawing – ISO 57

Model Number	Hose Capacity of Reel feet / m.				Approx. Weight Crank Rewind [3] lb. / kg.		Reel Dimensions** inches / mm.									
For Power Rewind See Note 4	I.D. (in) I.D. (mm)	2" 51	2-1/2" 64	3" 76	NET	SHIP	A	B	D	E	F CRANK	F POWER	G	H	X	Y
	O.D. (in) O.D. (mm)	2-9/16" 65	3-3/16" 81	3-3/4" 95												
9332-33-34		70 21	30 9	25 8	147 67	217 98	23.75 603	17.5 445	31.75 807	31.75 807	33.75 857	33.25 845	33.88 861	18 457	16.25 413	27.75 705
9338-33-34		100 30	45 14	35 11	187 85	257 117	30.25 768	24 610	31.75 807	31.75 807	40.25 1022	39.75 1010	33.88 861	18 457	22.75 578	27.75 705
9346-33-34		140 43	60 18	50 15	237 108	372 169	38.25 972	32 813	31.75 807	31.75 807	48.25 1226	47.75 1213	33.88 861	18 457	30.75 781	27.75 705
9338-39-40		185 56	90 27	80 24	239 108	480 218	30.25 768	24 610	40 1016	39 991	40.25 1022	39.75 1010	40.38 1026	20.88 530	22.75 578	37 940
9334-45-46		200 61	130 40	115 35	361 164	525 239	26.25 667	20 508	46 1168	45 1143	36.25 921	35.75 908	46.38 1178	23.88 607	18.75 476	43 1092



Notes:

1. Specifications subject to change.
2. Upon request, reels can be supplied with drum lengths other than shown and with disc sizes in other diameters.
3. Weights shown in chart are for crank rewind models. ADD these amounts for power rewind models:

	Net (lbs.)	Ship (lbs.)	Net (kg.)	Ship (kg.)
Electric	**40**	**40**	18.1	18.1
Hydraulic	**20**	**20**	9.1	9.1
Air	**20**	**20**	9.1	9.1

4. When ordering power rewind models, prefix model number with:
   A = Air Rewind EP = Electric Rewind (1/2 HP)
   HD = Hydraulic Rewind
   (Air rewind reels are supplied with control valve and hose; 12v and 24v DC rewind reels are supplied with switch and solenoid; 115v AC rewind reels are not supplied with switch but can be ordered separately; hydraulic rewind reels are not supplied with control valve.)
5. **Finish:** refer to Page 4.
6. **Be sure to check dimensions and weights prior to ordering.**

NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

*** x,y indicate mounting holes. See page 2

1100

PORTABLE HOSE REELS ON WHEELS

To handle 3/8" through 5/8" I.D. hose.

- *Continuous flow reels with swivel joint inlet, fluid hub, outlet riser.*
- *Comes with cam-lock brake.*
- *Direct crank rewind.*
- *One-piece foot, rubber tires, and removable steel handlebar.*
- *Permanently attached crank.*
- *Standard inlet 90° ball bearing swivel joint 1/2" female NPT threads.*
- *Standard outlet is 1/2" female NPT threads.*
- *GH Prefix to model # (e.g. GH1100) includes garden hose thread on outlet, 5' lead-in hose, hose end clips.*
- *Pressures to 3000 psi (207 bar).*
- *Temperatures from +20° F to +400° F (-7° C to +204° C).*

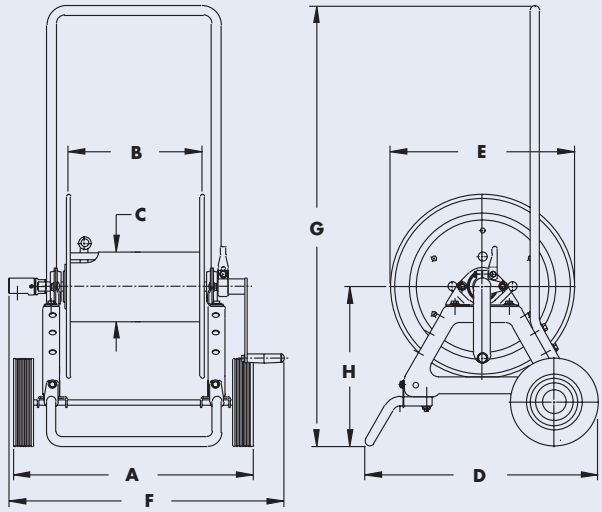
GH 1100 Configuration Shown

For:

- **Grounds Maintenance**
- **Restaurants/Hotels**
- **Home Use**

Parts Drawing – ISO 48

Model Number	Hose Capacity of Reel feet / m.				Approx. Weight lb. / kg.		Reel Dimensions inches / mm.
	I.D. (in) / I.D. (mm)	3/8" / 10	1/2" / 13	5/8" / 16	NET	SHIP	
	O.D. (in) / O.D. (mm)	3/4" / 19	7/8" / 22	1" / 25			
1100		275 / 84	175 / 53	125 / 38	47 / 21	50* / 23	



Notes:

1. Specifications subject to change.
2. **Finish:** refer to Page 4.
3. **Be sure to check dimensions and weights prior to ordering.**

* When shipped as a parcel package (via Fed-Ex or UPS Ground).

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GHAT 1200 Configuration Shown

AT1200

PORTABLE HOSE REELS ON WHEELS

To handle 1/2" through 1" I.D. hose.

- *Continuous flow reels with swivel joint inlet, fluid hub, outlet riser.*
- *Comes with pneumatic tires and cam-lock drag brake.*
- *Direct crank rewind.*
- *One-piece foot, and removable steel handlebar.*
- *Permanently attached crank.*
- *Model AT1200 –standard inlet 90° balance pressure swivel joint 1" female NPT threads.*
- *Standard outlet is 1" female NPT threads.*
- *GH Prefix to model # (e.g. GHAT1200) includes garden hose thread on outlet, 5' lead-in hose, hose end clips.*
- *Operates at pressures to 1000 psi.*
- *Temperatures from -40° F to +250° F (-40° C to +121° C).*
- *Consult factory for other pressures & temps.*

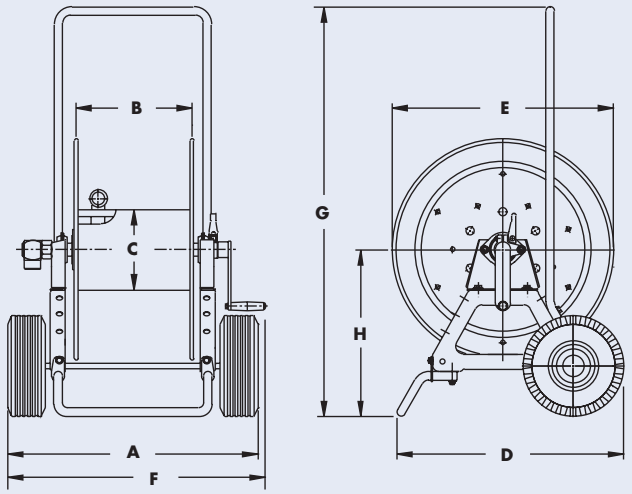
For:

- **Grounds Maintenance**
- **Restaurants/Hotels**
- **Home Use**

Parts Drawing – ISO 87

Model Number	Hose Capacity of Reel feet / m.					Approx. Weight lb. / kg.	
	I.D. (in) / I.D. (mm)	1/2" / 13	5/8" / 16	3/4" / 19	1" / 25		
	O.D. (in) / O.D. (mm)	7/8" / 22	1" / 25	1-9/32" / 33	1-9/16" / 40	NET	SHIP
AT1200		350 / 107	250 / 76	150 / 46	100 / 30	86 / 39	91* / 41

Reel Dimensions inches / mm.



Notes:

1. Specifications subject to change.
2. **Finish:** refer to Page 4.
3. **Be sure to check dimensions and weights prior to ordering.**

*When shipped as a parcel package (via Fed-Ex or UPS Ground)

C1150

PORTABLE STORAGE REELS ON WHEELS

- *Direct crank rewind*
- *One-piece foot, rubber tires, and removable steel handlebar*
- *For storing cable, hose or rope. A 1-1/8" x 2-3/8" (28 mm x 60 mm) opening in the drum to initiate winding.*
- *Comes with cam-lock brake.*

Standard Configuration Shown

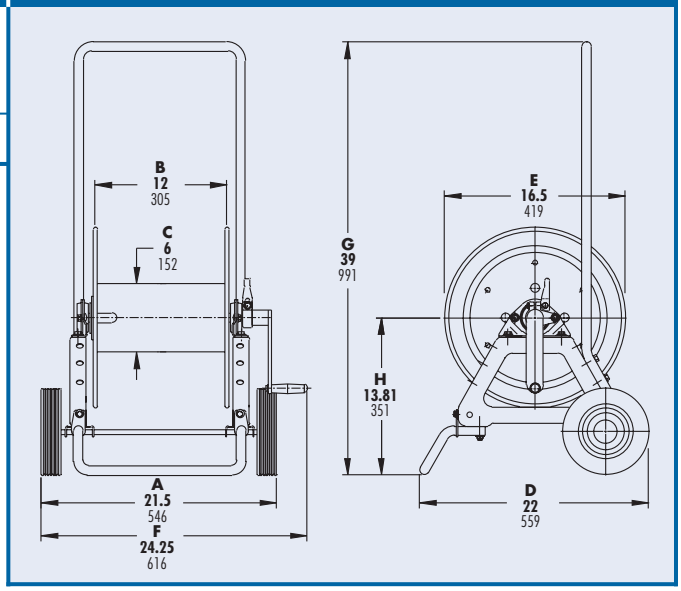
For:

- **Industrial Maintenance**
- **Construction**
- **Agriculture**
- **Grounds Maintenance**

Parts Drawing – ISO 48

Model Number	Cable Capacity of Reel feet / m.					Approx. Weight lb. / kg.	
	Gauge/Number of Conductors						
		16/3	14/3	12/3	10/3		
	O.D. (in) / O.D. (mm)	.390 / 10	.530 / 14	.600 / 15	.690 / 18	NET	SHIP
C1150		1100 / 335	500 / 152	400 / 122	300 / 91	44 / 20	50* / 23

Reel Dimensions inches / mm.



Notes:

1. Specifications subject to change.
2. When ordering specify model number, O.D., length and weight of cable, hose, etc.
3. **Finish:** refer to Page 4.
4. **Be sure to check dimensions and weights prior to ordering.**

*When shipped as a parcel package (via Fed-Ex or UPS Ground), some assembly required.

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Standard Configuration Shown

ATC1250

PORTABLE STORAGE REELS ON WHEELS

- *Direct crank rewind.*
- *One-piece foot, pneumatic tires, and removable steel handlebar.*
- *A larger version of the C1150 model with pneumatic tires and a 4-1/2" x 9" (114 mm x 229 mm) drum opening.*
- *Supplied with a cam-lock drag brake.*

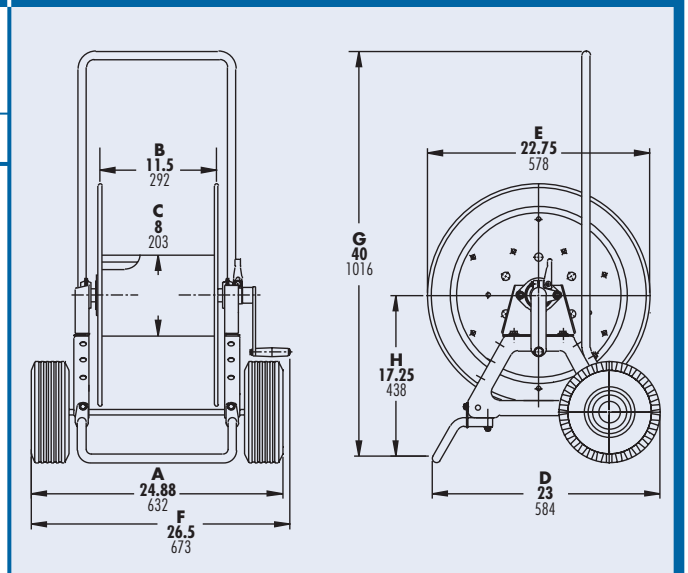
For:

- **Industrial Maintenance**
- **Construction**
- **Agriculture**
- **Grounds Maintenance**

Parts Drawing – ISO 87

Model Number	Cable Capacity of Reel feet / m.					Approx. Weight lb. / kg.	
	Gauge/Number of Conductors						
		16/3	14/3	12/3	10/3		
	O.D. (in) / O.D. (mm)	.390 / 10	.530 / 14	.600 / 15	.690 / 18	NET	SHIP
ATC1250		1800 / 549	950 / 290	750 / 229	550 / 168	84 / 38	89* / 40

Reel Dimensions inches / mm.



Notes:

1. Specifications subject to change.
2. When ordering specify model number, O.D., length and weight of cable, hose, etc.
3. **Finish:** refer to Page 4.
4. **Be sure to check dimensions and weights prior to ordering.**

* When shipped as a parcel package (via Fed-Ex or UPS Ground), some assembly required.

C1500

MANUAL OR POWER REWIND STORAGE REELS

To handle single 1/4" through 1" O.D.

- *Reels are designed for storage of long lengths of hose, cable, rope, wire or other materials.*
- *A 1-1/8" x 2-3/8" (28 mm x 60 mm) opening in the drum to initiate winding.*
- *Direct crank rewind, permanently attached. Removable crank option is available. Also available chain and sprocket rewind powered by electric, compressed air, or hydraulic motor.*
- *Supplied with cam lock brake on manual rewind models only.*
- *Optional divider discs can be placed at almost any point. Be sure to specify spacing of discs on your order.*
- *Rollers may be purchased as accessory items.*

Standard Configuration Shown

For Storage Of:

- **Hose**
- **Cable**
- **Rope**
- **Wire**

Parts Drawing – ISO 179

Model Number For Power Rewind See Note 5	Hose Capacity of Reel feet / m.					Approx. Weight Crank Rewind 4 lb. / kg.		Reel Dimensions*** inches / mm.						
	O.D. (in) / O.D. (mm)	1/4" / 6	1/2" / 13	3/4" / 19	1" / 25	NET	SHIP	A	B	E CRANK	E POWER	F CRANK	F POWER	X
C1514-17-18		1300 / 396	325 / 99	150 / 46	75 / 23	23 / 10	34* / 15	11 / 279	6 / 152	16.5 / 419	19 / 483	16 / 406	15.75 / 400	9.5 / 241
C1520-17-18		– / –	650 / 198	300 / 91	150 / 46	25 / 11	50* / 23	17 / 432	12 / 305	16.5 / 419	19 / 483	22 / 559	21.75 / 552	15.5 / 394
C1526-17-18		– / –	900 / 274	450 / 137	225 / 69	27 / 12	50* / 23	23 / 584	18 / 457	16.5 / 419	19 / 483	28 / 711	27.75 / 705	21.5 / 546
C1530-17-18		– / –	1000 / 305	550 / 168	275 / 84	29 / 13	50* / 23	27 / 686	22 / 559	16.5 / 419	19 / 483	32 / 813	31.75 / 806	25.5 / 648

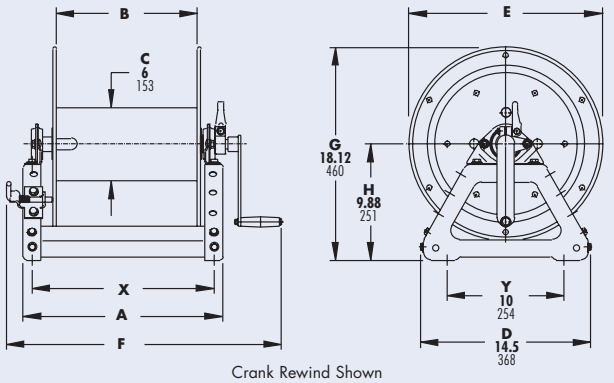
Notes:

1. Specifications subject to change.
2. Upon request, reels can be supplied with drum lengths other than shown and with disc sizes in other dimensions.
3. Dimensions reflect pressed frames.
4. Weights shown in chart are for crank rewind models.
   ADD these amounts for power rewind models.

	Net (lbs.)	Ship (lbs.)	Net (kg.)	Ship (kg.)
Electric	**18**	**18**	8.2	8.2
Hydraulic	**15**	**15**	6.8	6.8
Air	**15**	**15**	6.8	6.8

5. When ordering power rewind models
   Prefix model number with:
   A = Air Rewind E = Electric Rewind HD = Hydraulic Rewind
   (Air rewind reels are supplied with control valve and hose;
   12v and 24v DC rewind reels are supplied with switch and solenoid;
   115v AC rewind reels are not supplied with switch but can be ordered separately; hydraulic rewind reels are not supplied with control valve.)
6. **Finish:** refer to Page 4.
7. **Be sure to check dimensions and weights prior to ordering.**

* When shipped as a parcel package (via Fed-Ex or UPS Ground).
*** x,y indicate mounting holes. See page 2



Crank Rewind Shown

Optional External Mounting Brackets part no. 9906.0025. Add 2-1/2" to the X dimensions shown in the chart.

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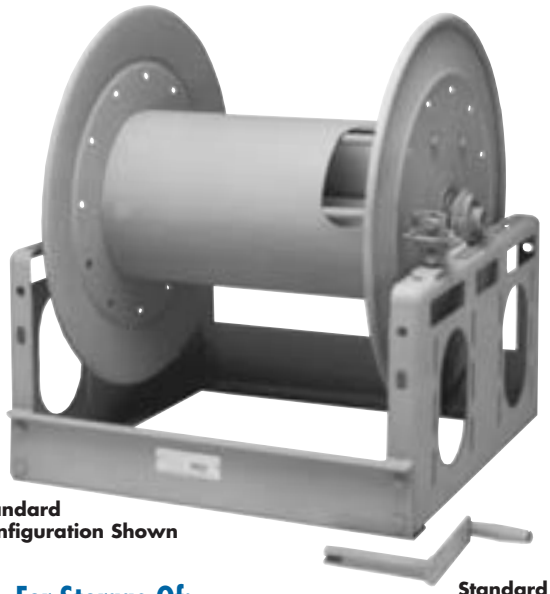


Standard Configuration Shown

Standard with Crank Handle

C3200

MANUAL REWIND STORAGE REELS

To handle single 1/2" through 1-1/2" O.D.

- *A 4–1/2" x 9" (114mm x 229mm) opening in the drum to initiate winding.*
- *Designed for storage of long lengths of hose, cable, rope, wire or other materials.*
- *Choose disc rewind or removable direct crank rewind.*
- *Supplied with spring actuated pin lock.*
- *Optional divider discs can be placed at almost any point. Be sure to specify spacing of discs on your order.*
- *Rollers may be purchased as accessory items.*

For Storage Of:

- Hose
- Cable
- Rope
- Wire

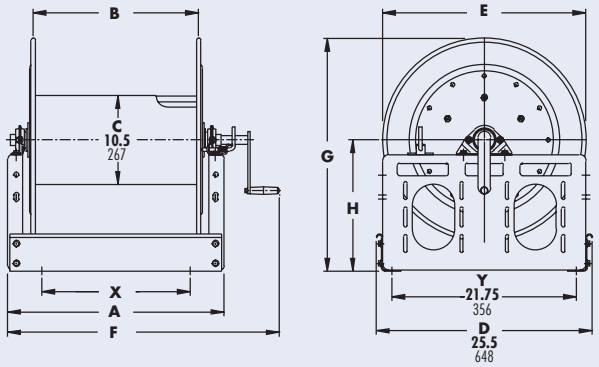
Parts Drawing – ISO 117

Model Number	Hose Capacity of Reel feet / m.						Approx. Weight Crank Rewind lb. / kg.		Reel Dimensions*** inches / mm.						
	O.D. (in) / O.D. (mm)	1/2" / 13	3/4" / 19	1" / 25	1-1/4" / 32	1-1/2" / 38	NET	SHIP	A	B	E CRANK	F CRANK	G	H	X
C3218-25-26		1000 / 305	450 / 137	225 / 69	125 / 38	90 / 27	85 / 39	127 / 58	15 / 381	9.5 / 241	24.75 / 629	22 / 559	27.88 / 708	15.5 / 394	7 / 178
C3228-25-26		– / –	1000 / 305	500 / 152	325 / 99	200 / 61	109 / 49	151 / 68	25.5 / 648	20 / 508	24.75 / 629	32.5 / 826	27.88 / 708	15.5 / 394	17.5 / 445
C3234-25-26		– / –	1300 / 396	650 / 198	400 / 122	275 / 84	122 / 55	164 / 74	31.5 / 800	26 / 660	24.75 / 629	38.5 / 978	27.88 / 708	15.5 / 394	23.5 / 597

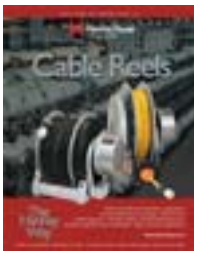
Notes:

1. Specifications subject to change.
2. Upon request, reels can be supplied with drum lengths other than shown and with disc sizes in other dimensions.
3. Dimensions reflect pressed frames.
4. Series C3200 requires 3-1/2" clearance to remove crank handle.
5. Subtract 5" from 'F' dimension for disc rewind on C3200 Series.
6. **Finish:** refer to Page 4.
7. **Be sure to check dimensions and weights prior to ordering.**

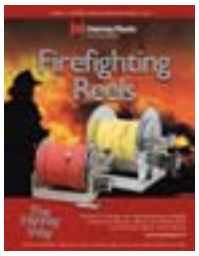
*** x,y indicate mounting holes. See page 2



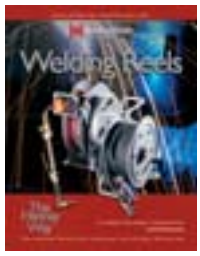
Stainless Steel Reels



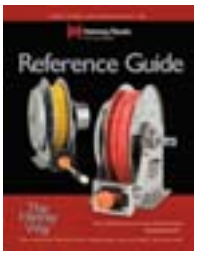
Cable Reels



Firefighting Reels



Welding Reels



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Ordering & Accessory Guide

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