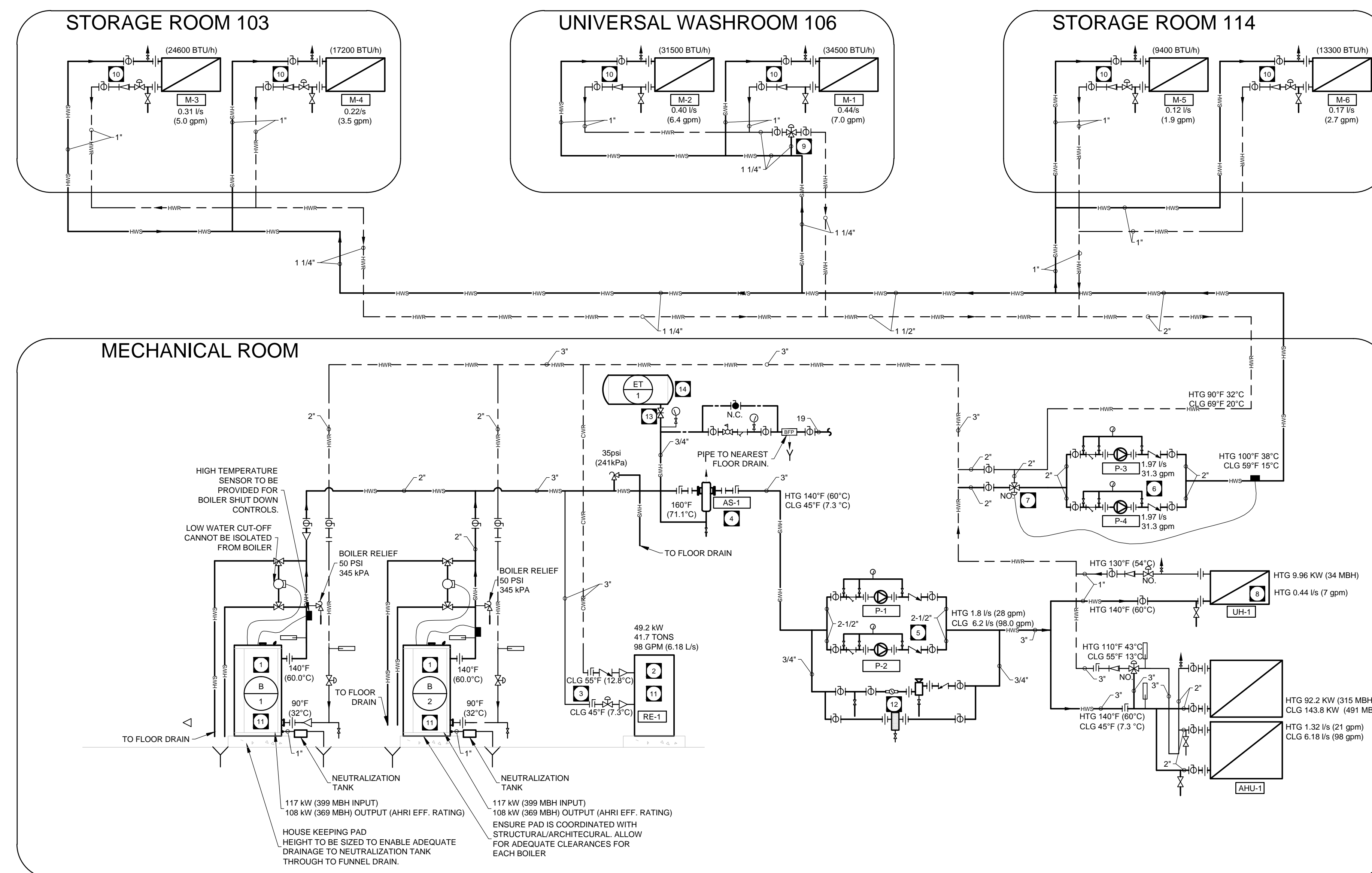


**GENERAL NOTES**

- A. PIPING SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH ASME B31.9 CODE FOR BUILDING SERVICES PIPING.
- B. INSULATE ALL HYDRONIC PIPING IN ACCORDANCE WITH THE SPECIFICATIONS.
- C. COORDINATE PIPE RUNS IN THE BULKHEAD WITH OTHER TRADES TO AVOID CONFLICTS.
- D. SUPPORT PIPING IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND THE SPECIFICATIONS.
- E. FIRESTOP ALL MECHANICAL PENETRATIONS THROUGH FIRE-RATED FLOOR AND WALL ASSEMBLIES. SEE ARCHITECTURAL DRAWINGS FOR LOCATION AND TYPE OF RATINGS.
- F. EXPOSED PIPING IN MECHANICAL ROOMS AND CRAWLSPACES AND OCCUPIED AREAS SHALL BE ENCLOSED WITH PVC JACKET.
- G. EXPOSED PIPING IN OCCUPIED SPACES SHALL BE PAINTED BY THE PAINTING CONTRACTOR. REFER TO ARCHITECTURAL NOTES.
- H. REFER TO SCHEMATIC AND DETAILS FOR PIPING AND EQUIPMENT ARRANGEMENT.
- I. WHEN USED IN RETURN-AIR PLENUMS, INSULATION MATERIALS FOR DOMESTIC, HYDRONIC, AND REFRIGERANT PIPING TO MEET SMOKE AND FLAME SPREAD REQUIREMENTS FOR PLENUM INSULATION.
- J. PROVIDE A MINIMUM OF TWO 90-DEGREE CHANGES IN DIRECTION AT EACH BRANCH CONNECTION TO ALLOW FOR PIPE MOVEMENT.
- K. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR FIELD-FABRICATED EXPANSION LOOPS INCLUDING ANCHORS AND GUIDES.
- L. LAYOUTS ARE SCHEMATIC. ADDITIONAL OFFSETS AND ELBOWS SHALL BE INSTALLED AS REQUIRED TO ACCOMMODATE ALL EXISTING CONDITIONS.
- M. INSTALL VALVES WITH THE STEMS VERTICAL. WHEN THIS IS NOT POSSIBLE, THEY MAY BE INSTALLED ROTATED BUT NEVER LESS THAN HORIZONTAL UNDER ANY CIRCUMSTANCE.
- N. ARRANGE ISOLATION VALVES STAGGERED WHERE THEY ARE INSTALLED IN A COMMON LOCATION SO THEY ARE COMPLETELY AND CONVENIENTLY ACCESSIBLE.
- O. INSTALL VALVES WITH ADEQUATE ROOM TO PERMIT REMOVAL OF THE BONNET, DISK, AND TRIM WITHOUT REMOVING THE VALVE FROM THE LINE.
- P. INSTALLATION SHALL PROVIDE MINIMUM 2050mm (80") OF CLEAR HEAD ROOM THROUGHOUT ALL MECHANICAL ROOMS.
- Q. DRAWING IS SCHEMATIC ONLY. NOT TO BE USED FOR DIMENSIONING.
- R. BALANCER TO TEST AND REPORT PRESSURE DIFFERENTIAL ACROSS EACH AUTOMATIC FLOW CONTROL VALVE.

**KEY NOTES**

1. NEW BOILERS TO BE CONNECTED TO MANUFACTURER'S CONTROLLERS. RUN CONDENSATE PIPE TO NEUTRALIZER. INDIRECTLY DISCHARGE CONDENSATE AFTER NEUTRALIZER TO NEAREST FLOOR DRAIN.
2. CHILLER WITH REMOTE EVAPORATOR - INSTALL ACCORDING TO MANUFACTURER'S REQUIREMENTS INCLUDING SHUTOFF VALVES, FLEXIBLE CONNECTIONS, PRESSURE GAUGES, AND VENTS. INSULATE REMOTE EVAPORATOR AS PER SPECIFICATION.
3. CHILLER PRESSURE AND TEMPERATURE GAUGES AND CONTROL VALVES TO BE INSTALLED WITHIN MECHANICAL ROOM.
4. INSULATED AIR SEPARATOR AS PER SPECIFICATION.
5. NEW PRIMARY ECM PUMPS ARE DUTY/STANDBY IN HEATING AND PARALLEL OPERATION IN COOLING. PUMPS COMPLETE WITH INLINE STRAINER, SHUTOFF VALVES, AND CHECK VALVES. PUMPS ARE TO BE INSULATED AS PER SPECIFICATION.
6. IN-FLOOR ECM SECONDARY PUMPS ARE DUTY/STANDBY IN HEATING AND COOLING. PUMPS COMPLETE WITH SHUTOFF VALVES, AND CHECK VALVES. PUMPS ARE TO BE INSULATED AS PER SPECIFICATION.
7. 3-WAY CONTROL VALVE TO CONTROL SUPPLY WATER TEMPERATURE CONTROL TO THE IN FLOOR MANIFOLDS, CONNECT TO THE DDC.
8. UNIT HEATERS ARE TO FLOW CONTINUOUSLY TO MAINTAIN THE MINIMUM FLOW REQUIREMENTS FOR THE PUMPS. INSTALL AUTOMATIC BALANCE VALVES.
9. MINIMUM CONTROL PRESSURE VALVE. PRESSURE SENSOR TO BE LOCATED ON MAIN PIPE ON PRIOR TO THE MANIFOLDS. CONNECT PRESSURE SENSOR AND CONTROL BACK TO THE DDC.
10. SHUT-OFF VALVES, CONTROL AND BALANCE VALVES SERVING INFLOOR WITHIN THE MANIFOLD ENCLOSURE.
11. TIE DDC TO BOILER AND CHILLER CONTROLLERS, MONITOR ALARMS AAND RESET SUPPLY WATER TEMPERATURE REQUIREMENT ONLY.
12. INLINE FILTER AND CHEMICAL POT FEEDER.
13. LOCK SHUT OFF VALVE.
14. MOUNT EXPANSION TANK OF WALL. CONTRACTOR TO PROVIDE REQUIRED SUPPORT SYSTEM.



**epp siepman engineering inc.**  
mechanical & electrical engineers  
303-100 Osborne St. South  
Winnipeg, MB  
R3L 1Y5  
p 204.453.1080  
ese@eppsiepman.com

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**OWNER**  
**Winnipeg**  
CITY OF WINNIPEG - PLANNING, PROPERTY & DEVELOPMENT DEPARTMENT  
MUNICIPAL ACCOMMODATIONS DIVISION  
3rd FLOOR - 65 GARRY ST., WPG, R3C 4K4

**david penner**  
ARCHITECT  
+  
**h5a**  
h5 architecture  
David Penner, 204.475.8978  
Helo Rodrigues, 204.774.0012  
120 Yale Avenue, Winnipeg, MB, R3M 0L7

**PROJECT**  
Windsor Park Library  
**ADDRESS**  
1201 Archibald Street

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