Grosvenor Americas

Leak Mitigation Plan

Ambleside Phase 2 (1327 Bellevue Avenue)

Ledcor Construction Limited

1327 Bellevue Avenue,
West Vancouver, BC V7T 2P9
Phone: 604-681-7500

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1.0 PROJECT DETAILS

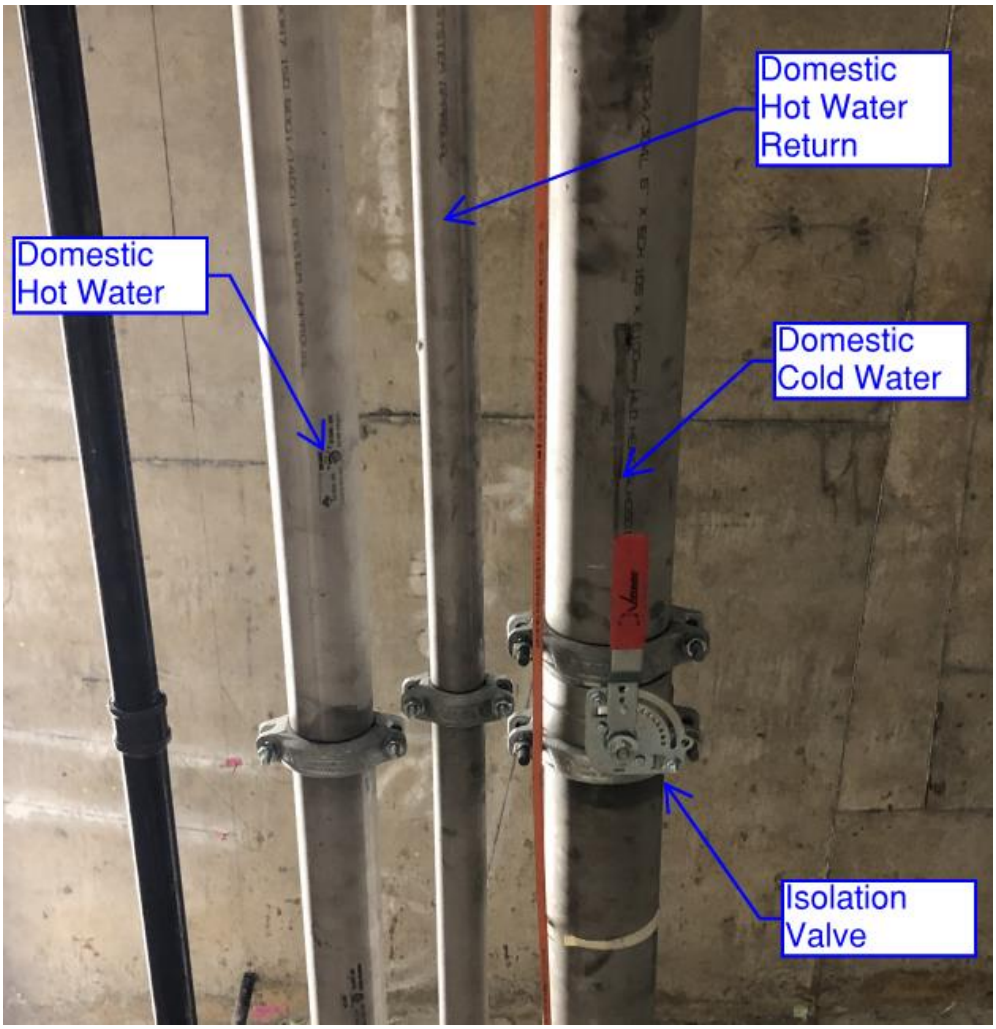
1.1 Introduction

The purpose of this document is to address the methods and procedures being used to limit the possibility of a leak causing damage to finished materials in Ambleside Phase 2. This document has been put together by Ledcor and Enersolv / Craftsman plumbing. The main cause of water damage in construction buildings is a pipe or fitting failure which is connected to a live water line during a time where the building is empty i.e. weekends etc. We are aiming to reduce this possibility using the following procedures outlined.

1.2 Leak Mitigation Procedure

The first strategy Ledcor has completed is the installation of Isolation valves on all water mains entering from Phase 1 to Phase 2 – see illustration below. This includes;

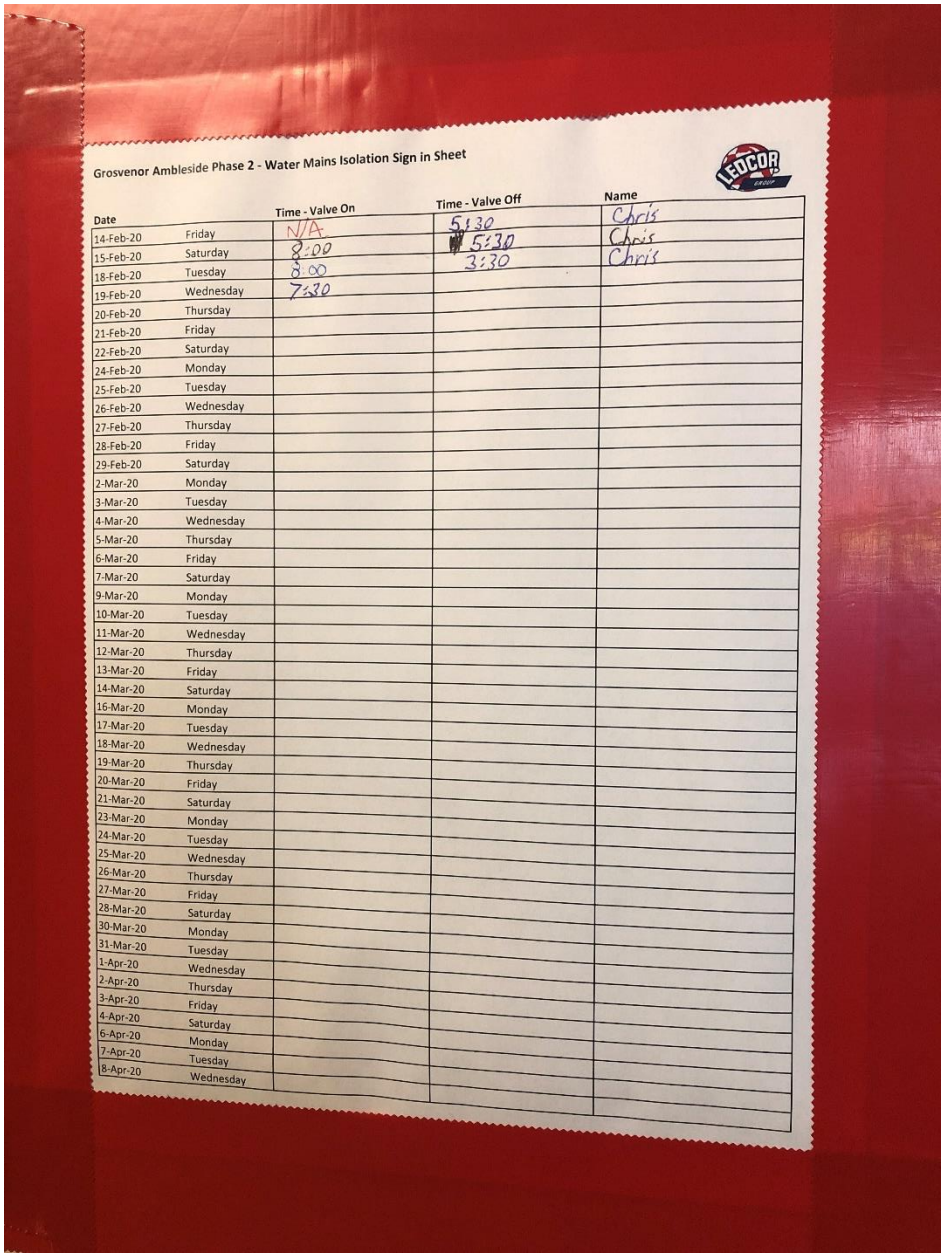
1. Domestic Cold Water (DCW)
2. Domestic Hot Water (DHW)
3. Domestic Hot Water Return (DHWR)



As of the time of this report, only one valve has been installed on one of water pipes; Domestic Cold Water. As the remaining two water pipes become live, they will also have a valve fitted and follow the same on/off daily procedure.

The valves will be turned on at the beginning of each workday and shut off at the end of each day. The valves will be turned *"off"* outside of work hours without exception.

Enersolv/Craftsman and Ledcor will manage this process and a sign-in sheet as shown below will be used in the superintendents' office to ensure procedure is followed.



Grosvenor Ambleside Phase 2 - Water Mains Isolation Sign in Sheet

Date		Time - Valve On	Time - Valve Off	Name
14-Feb-20	Friday	N/A	5:30	Chris
15-Feb-20	Saturday	8:00	5:30	Chris
18-Feb-20	Tuesday	8:00	3:30	Chris
19-Feb-20	Wednesday	7:30		
20-Feb-20	Thursday			
21-Feb-20	Friday			
22-Feb-20	Saturday			
24-Feb-20	Monday			
25-Feb-20	Tuesday			
26-Feb-20	Wednesday			
27-Feb-20	Thursday			
28-Feb-20	Friday			
29-Feb-20	Saturday			
2-Mar-20	Monday			
3-Mar-20	Tuesday			
4-Mar-20	Wednesday			
5-Mar-20	Thursday			
6-Mar-20	Friday			
7-Mar-20	Saturday			
9-Mar-20	Monday			
10-Mar-20	Tuesday			
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26-Mar-20	Thursday			
27-Mar-20	Friday			
28-Mar-20	Saturday			
30-Mar-20	Monday			
31-Mar-20	Tuesday			
1-Apr-20	Wednesday			
2-Apr-20	Thursday			
3-Apr-20	Friday			
4-Apr-20	Saturday			
6-Apr-20	Monday			
7-Apr-20	Tuesday			
8-Apr-20	Wednesday			

1.3 Procedure for fixture commissioning

Prior to a suite being having water lines charged at all times, the following per suite procedure will be conducted by Craftsman to ensure no leaks are detected.

1. Turn on service mains in Parkade Level P1 as normal
2. Craftsman to walk commissioned floor and ensure all corridor suite manifolds *(see Fig. 1)* are in the *"off"* position
3. Craftsman to ensure all in-suite manifold and individual fixture valves are off *(see Fig. 2)*.
4. Craftsman to turn on valves to entire floor *(see Fig. 3)*
5. Craftsman will then enter individual suite and visually inspect for damaged pipes, all fixtures or open outlets – the following sequence will be used;
    a. Plumber to charge pipes at individual suite manifold *(see Fig. 2)* to fixtures. Once water is static, manifold isolation will be shut off. Walk suite and visually inspect, after 2 minutes, return to manifold; the open valves at the manifold should remain static. If flow is observed, Craftsman will investigate, as this usually means a break in a pipe or damaged fixture. If pipe remains static, suite finishes will continue and suite will be signed off.
6. Lateral floor isolation valves to be turned off each day until the floor is locked off
7. Mains in P1 Isolation Valve to be shut off at the end of each day without exception.

At such a time as water is turned on full time in a unit, the unit will be locked off and access given only from Ledcor personnel.

Fig. 1


SUITE MANIFOLD
Suite Shut-Off
Individual Fixture
Shut-offs

Fig 2.

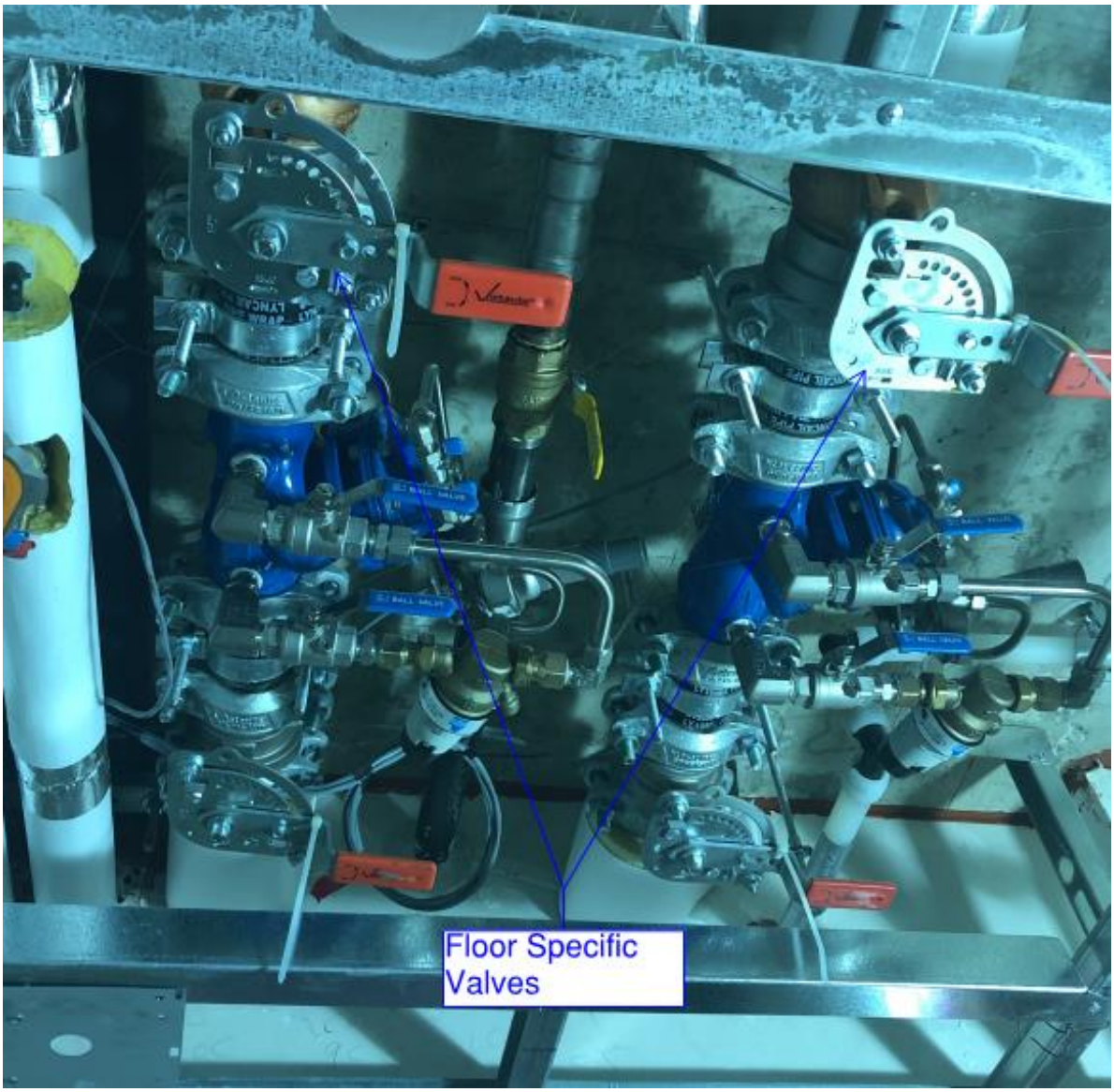

Fig. 3

1.4 Sprinkler Hazards

The below table is used to mitigate water damage from a sprinkler line and is followed by Sprinkler Contractor at all times;

Hazard Controls

ELIM: Eliminating the hazards
EC: Engineered Control-eliminate hazard by design specifications, substitution, isolation, ventilation
ADM: Administrative Control-limit exposure/time to hazard, use written SWP, SJPs, safety rules & regs, proper safety training for Workers etc.
PPE: Personal Protective Equipment (additional equipment, PPE must be used in conjunction with engineered & administrative controls)

#	Job Task Basic Steps	Potential/Existing Hazards (Each task may have several hazards)	Pre-Control Risk Rank	Current Hazard Controls	Hazard Controls				Remaining Risk Rank
					ELIM	EC	ADM	PPE	
1.	Test pre-check	1. Sprinkler heads missing/flood potential/ opened hose valve 2. High pressures when bleeding air	4	1. Confirm test can begin by performing blow-back 2. Confirm panic valve is installed at furthest point to bleed air or use low point drain. Do not back off sprinkler head to bleed air as this may lead to injury. 3. Confirm all hose valves are closed 4. Spill kit readily available		X			2
2.	Install/hook up testing equipment	1. Falls	2	1. Refer to Working at Heights JSA 2. 3 point contact when ascending or descending from heights 3. Review SWP3.019.2 – Ladders		X	X		1
3	Pressurize system with city pressure	1. Improper setup 2. Line rupture/Flooding	2	1. Foreman will ensure that all valves are in proper position before pressurizing system 2. Walk entire length of all pipe to ensure no visible leaks 3. Spill kit readily available		X			1
4.	Pressurize system to 210 psi	1. Line rupture/Flooding 2. Line under pressure 3. Equipment failure specifically hydrostatic pump	3	1. Ensure proper communication is maintained to avoid over pressurizing line. 2. If communication is lost, stop all work 3. Keep all unnecessary worker out of area 4. Spill kit readily available 5. Constant monitoring for leaks 6. NEVER torque any fittings or sprinkler heads that are under pressure 7. Ensure drain is connected to quickly evacuate water from system in the event of line rupture 8. Review SWP3.027.2 – Preventative Maintenance		X	X		2
5.	Remove testing equipment	1. Pressure release	3	1. Ensure all valves are in closes position and plugs are installed after removal of equipment so pressure holds at 210 psi.		X			2
6.									
7.									
8.									
9.									
10.									
11.									

1.5 Interior Water Damage Cleanup Response Plan

In the event of a water leak in a finished suite or common area of phase 2, the following steps will occur;

1) LCL superintendent to be notified of current situation.

2) Appropriate Water supply valve to be shut down from corridor manifold *(see Fig. 2)*

3) All efforts to be made to contain and clean up standing water off all surfaces affected as soon as possible.

4) If the extent of water is too great or there is visible damage forming from water exposure (floors warping, drywall falling/hanging ect.) the below steps are to be followed;

Contact Onside Restoration Services:

1) Nirmal Mistry Project Manager- **604-219-8464**

Provide the following information to the project manager or dispatcher:

Site Address- 1327 Bellevue Avenue West Vancouver (main project entrance is on south side)

Project File Number: **20-10-261778**

Site Contact(s)- (1) Alex Svedic- Superintendent (236)-990-8205 alex.svedic@ledcor.com // (2) Jerrod Chuka-Senior Superintendent (604)-841-1175 jerrod.chuka@ledcor.com

Service(s) Required: Crew(s) to be dispatched to site to clean up remaining standing water, install drying equipment (de-hums, fans, floor drying mats for hardwood). Extent of drying equipment to be installed under discretion of flood technician responding. Report to be drafted within 24 hours detailing extent of damage.