

TECHNICAL RESOURCE · DESIGN PROFESSIONALS

Elevator Pit Sump Specification & Detail Guide

A ready-to-edit spec section, design checklist and coordination detail for elevator pit sumps on new and modernized elevators in Alberta.

INSIDE THIS GUIDE

- Code and maintenance drivers
- Pre-tender design checklist
- Editable MasterFormat specification section
- Typical section and responsibility matrix

Written for: Architects, mechanical and electrical engineers, and elevator consultants.

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How to use this guide

Elevator pit sumps sit between three disciplines: elevator, plumbing and electrical. Each one tends to assume another has it covered, so sumps are often under-specified and turn into change orders.

This guide gives architects and engineers a starting point they can drop into a project manual:

- **Why pit sumps matter** — the code and maintenance drivers.
- **Design checklist** — items to confirm before tender.
- **Specification section** — editable text in CSC MasterFormat style.
- **Typical detail** — a pit sump section and who owns each part.

All content must be reviewed and sealed by the professional of record. Code requirements are paraphrased. Confirm them against the editions adopted in Alberta for your project, and against the elevator contractor's requirements.

Why pit sumps matter

A wet pit takes an elevator out of service, corrodes buffers and rails, and fails inspection. On hydraulic units, the same water can carry oil into the building drain.

CODE DRIVERS (PARAPHRASED — VERIFY CURRENT EDITIONS)

- CSA B44, adopted in Alberta under the Elevating Devices Codes Regulation, follows ASME A17.1 on pits. Drains and sump pumps, where provided, must comply with the plumbing code. They must also include a positive means to stop water, gas and odour from entering the hoistway.
- Elevators with Firefighters' Emergency Operation need a pump or drain that removes at least **11.4 m³/h (3,000 US gal/h) per elevator**.
- Sumps and pumps must be covered. The cover must be secured and flush with the pit floor.
- Discharge is governed by the National Plumbing Code – 2020 Alberta Edition and the local sewer-use bylaw. Oil-bearing discharge to the sanitary sewer is typically prohibited without interception.

WHAT WE SEE GO WRONG

- No sump shown on the architectural, mechanical or elevator drawings — each discipline assumes another has it.
- Pump sized for groundwater only, not for the FEO flow rate.
- No oil-detecting control on hydraulic units, so the pump empties oil into the drain.
- Discharge piping routed through the hoistway, or no isolation valve and union for pump service.
- No dedicated circuit, alarm or remote high-water signal.

Design checklist before tender

- | | |
|---|---|
| <ul style="list-style-type: none"> ☐ Elevator type confirmed: traction or hydraulic (in-ground or holeless) ☐ FEO provided? If so, pump capacity $\geq 11.4 \text{ m}^3/\text{h}$ per elevator ☐ Sump pit shown on structural drawings: location, size, depth, cover, reinforcing ☐ Sump clear of buffers, jack, car and counterweight runby — confirmed with elevator contractor ☐ Cover rated for pit loads, secured and flush with the pit floor ☐ Submersible pump, with oil-sensing control on hydraulic units ☐ Oil handling: oil-sensing control, holding volume or interceptor per AHJ | <ul style="list-style-type: none"> ☐ Discharge destination confirmed with the municipality: sanitary, storm or interceptor ☐ Indirect connection or backflow protection so water, gas and odour cannot enter the hoistway ☐ Discharge piping outside the hoistway; isolation valve and union at pump; check valve per AHJ ☐ Dedicated circuit, disconnect and GFCI as required ☐ High-water and oil alarm with remote signal to BAS or panel ☐ Pit waterproofing specified separately for groundwater ☐ Responsibility matrix: who supplies, installs, wires and commissions the pump |
|---|---|

Specification section (editable)

Copy this into the project manual and edit it. Items in [brackets] are choices for the specifier. A Word version is available from Boald on request.

Section 22 14 29.13 — Elevator Pit Sump Pumps

PART 1 — GENERAL

1. **Related sections:** Section 14 [21 00 Traction Elevators] [24 00 Hydraulic Elevators]; 03 30 00 Cast-in-Place Concrete; 07 10 00 Dampproofing and Waterproofing; Division 26 Electrical.
2. **Reference standards:** CSA B44 as adopted in Alberta; National Plumbing Code – 2020 Alberta Edition; CSA C22.1 Canadian Electrical Code as adopted in Alberta; [Municipality] sewer use bylaw.
3. **Scope:** Supply, install, connect and commission one sump pump system per elevator pit. This includes the sump liner, cover, pump, controls, alarm, discharge piping and [oil interception].
4. **Submittals:** Product data, pump curve showing duty point, control and alarm wiring diagram, sump and cover detail, and the elevator contractor's written acceptance of the sump location.
5. **Coordination:** Confirm sump location, cover and pit clearances with the elevator contractor before concrete placement.

PART 2 — PRODUCTS

1. **Sump:** [Cast-in-place concrete] [HDPE / fibreglass liner], minimum [460 × 460 × 460 mm], cast flush with pit floor.
2. **Cover:** [Steel checker plate] [cast iron], secured, flush with pit floor, rated for [___] kPa.
3. **Pump:** Submersible, [simplex] [duplex], rated for at least $11.4 \text{ m}^3/\text{h}$ (3,000 US gal/h) per elevator at system head [where Firefighters' Emergency Operation is provided].
4. **Controls (hydraulic elevators):** Oil-sensing control that stops the pump and activates an alarm when hydraulic oil is detected. [Holding capacity not less than the hydraulic system oil volume below the pit

drain inlet, where required by the AHJ.]

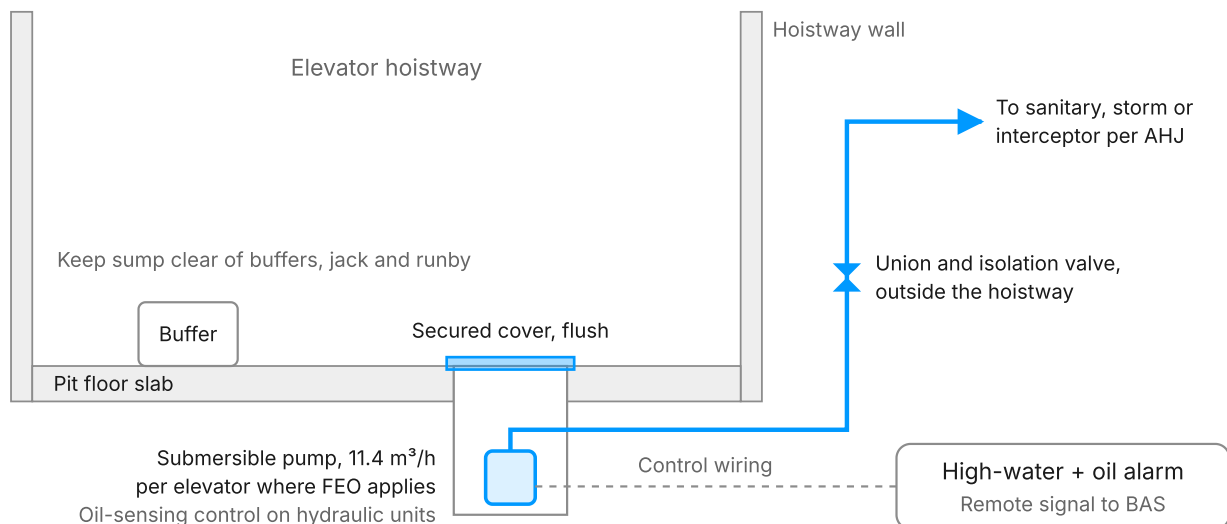
5. **Alarm:** High-water and oil alarm with local indication and dry contacts to [BAS] [fire alarm annunciator] [owner's monitoring].
6. **Discharge piping:** [Material], sized to pump outlet, with union and isolation valve [and check valve where accepted by AHJ], routed outside the hoistway.

PART 3 — EXECUTION

1. Install the pump, controls and piping so no water, gas or odour can enter the hoistway through the drain connection.
2. Discharge to [sanitary] [storm] [oil interceptor] as accepted by the municipality.
3. Provide a dedicated circuit and disconnect per Division 26.
4. **Testing:** Fill the sump with clean water and demonstrate pump operation, flow rate and alarm function to the elevator inspector or Consultant. On hydraulic units, also demonstrate the oil-sensing shutdown.
5. **Closeout:** O&M manual, warranty, and owner training on testing and alarm response.

Typical detail and coordination

The pump sits in a covered sump below the pit floor. The discharge piping and alarm panel are routed outside the hoistway.



Typical elevator pit sump section — not to scale, for coordination only.

Item	Usually owned by	Confirm before tender
Sump pit, cover, reinforcing	Structural / concrete	Location accepted by elevator contractor
Pump, controls, discharge piping	Mechanical	Duty point, oil control, discharge destination
Power, disconnect, alarm wiring	Electrical	Circuit; alarm points to BAS
Pit clearances, acceptance test	Elevator contractor	Inspector to witness pump test
Pit waterproofing	Architectural	Below-grade water conditions

Need a second set of eyes on a pit sump design?

Boald installs and services elevator pit sumps across Alberta. Send us your drawings for a design review or a budget price before tender.

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