

Linderud Borettslag II

Technical facilities in the apartments

Requirements for renovation

Contents:

PURPOSE	2
STATUTES OF THE HOUSINGCOOP	2
THE PLANNING AND BUILDING ACT – BUILDING REGULATIONS (TEK17).....	3
REFERENCES	3
1. BATHROOMS	4
1.1 MAJOR RENOVATION – TEK17 AND THE WET ROOM STANDARD	4
1.2 REPLACEMENT OF FLOOR DRAIN	4
1.3 CLEANING OF FLOOR DRAINS.....	4
2. VENTILATION – AIR EXTRACTION	5
2.1 VENTILATION IN THE APARTMENTS	5
2.2 AIR EXTRACTION FROM BATHROOM, KITCHEN, STOVE, TUMBLE DRYER ETC.	5
3. WATER AND DRAINAGE	5
3.1 KITCHEN.....	5
3.2 BATHROOM	5
3.3 OTHERS	6
4. WASHING MACHINE AND DISHWASHER	6
5. HEATING AND METERING	6
5.1 RADIATORS	6
5.2 HOT WATER.....	7
6. ELECTRICAL SUPPLY	7
7. TV CABLE SYSTEM	7
7.1 OPERATIONAL RESPONSIBILITY	8
7.2 TV JOINT AGREEMENT - TV DECODER.....	8
8. FIBRE NETWORK FOR INTERNET ACCESS.....	8
9. TELEPHONE CABLE (OBSOLETE).....	8
10. DOORBELL AND INTERCOM SYSTEM.....	9
11. BALCONY.....	9
11.1 BALCONY DOOR	9
11.2 GLAZING	9
11.3 RAIN, WATER AND DRAINAGE.....	9
11.4 AWNING	9
12. ELEVATORS	10
13. FIRE HOSE AND SMOKE DETECTORS	10
14. GARBAGE CHUTES (HISTORICAL).....	10
15. WASTE MANAGEMENT – WASTE SORTING	10

Purpose

This guide describes the technical installations in the apartments in Linderud Borettslag II. It should be read thoroughly by new residents and **must** be read before starting any renovation or conversion work.

The description is precise for 3-room apartments, while 2- and 1-room apartments on the 4th and 8th floors will differ in some respects.

Statutes of the HousingCoop

The distribution of maintenance responsibilities between the unit owner and the HousingCoop is defined in **§5 and §6 of the Statutes**, and should also be read!

Article 5.9 of the Statutes: Conversion of Apartments

- a) Removal of load-bearing walls is not permitted.
- b) Change of use of a room to be kitchen or bathroom must be **approved in advance** by the Board of Directors.
- c) Changes to units for which the HousingCoop has the maintenance responsibility (see §6) must be **approved in advance** by the Board.

The Planning and Building Act – Building Regulations (TEK17)

Norway has one of the world's strictest sets of regulations governing the construction and renovation of buildings. The overarching aim is to safeguard the health, environment, safety and accessibility for all residents. When undertaking a major renovation, you must comply with the Planning and Building Act and the applicable technical regulations, which is currently **TEK17**.

In principle, the strictest requirements in TEK17 apply to new buildings, but in the case of a "major refurbishment" of existing buildings, the local authority may require the property to be upgraded to modern standards as far as is appropriate. Although full compliance with the TEK17 standard is not required in all areas during a renovation, it will almost always be worthwhile to use these standards as a basis for energy efficiency measures, ventilation and fire safety.

It is important to distinguish between measures requiring planning permission and works that can be carried out without permission from the Planning and Building Agency of Oslo Municipality: [Planning application for minor indoor alterations](#).

References

1. Linderud Borettslag II web pages: <http://Linderudbo.no>
2. Linderud Borettslag II: [Regulations](#)
3. Norwegian Directorate for Building Quality (DIBK): [Work on existing buildings](#)
4. Regulations on technical requirements for buildings (Building Regulations TEK17) <https://lovdata.no/dokument/SF/forskrift/2017-06-19-840>
5. DIBK: Building Regulations (TEK17) **with guidance**. <https://www.dibk.no/regelverk/byggteknisk-forskrift-tek17/13/vi/13-15>
6. The Construction Industry's Wet Room Standard (BVN): <https://www.byggforsk.no/vaatromsnormen>
7. The Wet Rooms Advisory Council (FFV) <https://ffv.no/>
8. Byggforsk: <https://byggforsk.no/>
9. Certification of materials and personnel: www.sintefcertification.no
10. The Wet Room Advisory Council (FFV): [Approved wet room contractors](#)

1. Bathrooms

1.1 Major renovation – TEK17 and the Wet Room Standard

During renovation work, the relevant sections of TEK17 must be complied with, including documentation. [The Construction Industry's Wet Room Standard](#) (BVN) can be regarded as a method for achieving this.

Formal documentation is required for both the work carried out AND the materials/components used. It is the responsibility of the contractor carrying out the work to ensure that the materials and components used are certified for the intended application.

- Bathroom renovations must be notified in advance to the housing association to ensure the work is carried out to a professional standard.
- The work must be carried out by a contractor holding **a wet room certificate**.
- A membrane must be installed in the floor and a moisture/vapour barrier in the walls.
- Pipe and ventilation shafts (Section 3.2) are the responsibility of the HousingCoop. The walls facing the shaft constitute a fire barrier, and no holes may be made in them apart from the service hatch, the air extraction vent and the necessary pipe routing.

1.2 Replacement of floor drain

Our drains and sewage pipes were renewed using the Dakki method in 2010, coating the floor drain and sewage pipes internally with epoxy. This complicates replacement of the floor drains.

In consultation with people from Dakki and others, our plumber has now found a way to replace Dakki-treated drains. Price (2014): 11.500 NOK + MVA.

- Nobody is permitted to replace the floor drain on their own, because special expertise is required. The HousingCoop's regular plumber will assess the need for replacement and, if required, perform the replacement.

Contact: Juuls Rørservice AS, www.juuls.no, tel. 22720800

Please allow for up to 2 weeks from order to start of work.

- If replacement is required, LBR2 will pay the entire cost according to §6.3 of the Statutes.
- If replacement is not required but still wanted, LBR2 will pay half of the cost.

1.3 Cleaning of floor drains

- The shareholder is responsible for clearing the bathroom floor drain of hair and dirt so that water from bathtub, shower and washbasin does not overflow on emptying (Statutes §5.2 and Rules of Order §3).

2. Ventilation – Air extraction

2.1 Ventilation in the apartments

- a) The apartment buildings have air extraction shafts for kitchens and bathrooms, with common fans on the roof. There are adjustable vents leading to these shafts in the kitchen and bathroom.
- b) Fresh air inlet vents are located at the top of some of the windows, as well as on the outer wall of the kitchen and in both bedrooms. In addition, windows can of course be left ajar. Ventilation fittings are strongly recommended to protect the windows against strong gusts of wind.

It is strongly discouraged to close all the fresh air vents, as the extraction will then create a negative pressure in the apartments and moisture will not be transported out.

2.2 Air extraction from bathroom, kitchen, stove, tumble dryer etc.

The Rules of Order §2 states:

"It is not permitted to connect kitchen/bathroom fans, tumble dryers, etc. to the apartment's air extraction ducts or to vents in the exterior wall."

The reason is that multiple fans against the common exhaust ducts will create an positive pressure in the ducts, so that impure air will blow out of vents in other apartments.

Kitchen fans require (charcoal) filters that purify the air before it is released back into the room. The flow of air from fresh air inlets to exhaust vents will carry the stale air along.

3. Water and drainage

3-room apartments have two pipe shafts:

3.1 Kitchen

- a) The pipe shaft is located next to the air extraction shaft, on the living room side. In the living room, there is a service hatch in the corner by the kitchen for access to the pipes. The shaft also contains cables for the TV system and fibre optic network.
- b) Access to this hatch must not be blocked, for example by fitting a panel over it – in which case a hatch must be created from the panel that can be removed when maintenance is required.
 - Some people move the kitchen into the living room. In such cases, it is suggested that a freestanding fridge be placed in the recess in front of the access panel; it can easily be pulled out should access to the shaft via the service hatch be required.
- c) Stopcocks and a hot water meter is usually located under the kitchen worktop, but in some cases these are instead situated behind the service hatch.

3.2 Bathroom

- a) The pipe shaft is combined with the air extraction shaft. There is a service hatch in the entrance hall. Behind the hatch are the stopcock and hot water meter for the bathroom. Access to the hatch must not be blocked. The hatch must always be closed and sealed, except when maintenance is being carried out.
- b) The bathroom has an air extraction vent leading to the shaft.

3.3 Others

- a) Encased drainage pipe in the entrance hall, towards the elevator shaft, in some apartments.
- b) Drainage pipe from the building's roof, and a pipe to obsolete fire hoses in the stairwells. These run through the west-side bedrooms, in every other apartment. The pipes are encased inside the original wardrobe, in the corner closest to the stairwell.

4. Washing machine and dishwasher

- a) **In the bathroom:** In 3-room apartments, there is originally space for a washing machine just inside the door from the hallway, with connections for electricity, cold water and drainage. This may have been altered during renovation work carried out by previous owners.
- b) **In rooms without a drain:** Building Regulation TEK17 §15-5 (4) requires **an automatic leak stop** (Aquastop / Waterguard) if a dishwasher or washing machine is installed in a room without a drain.

<https://www.dibk.no/regelverk/byggteknisk-forskrift-tek17/15/ii/15-5#panel11b#hash49>

If the building's fixed water installation has an indoor tap from which any leaked water will not run into a drain or overflow, an automatic leak stopper must be fitted. The same applies to connection points for products and equipment that use water, such as **washing machines and dishwashers**. An automatic leak stopper is a moisture sensor that sends a signal to a valve which shuts off the water supply.

5. Heating and Metering

5.1 Radiators

- a) The apartments have radiators in the living room, kitchen, east bedroom and west bedroom.
- b) Each radiator has a meter that reports consumption via radio signals. Consumption can be monitored at <http://www.istaonline.no> by logging in with the assigned ID. The meters can also be read manually using a push button and the display. Instructions can be downloaded from www.Linderudbo.no/L2/.
- c) The radiators previously had manual control valves. In the autumn of 2019, thermostatic valves were installed in all accessible apartments, and in the remaining apartments in the summer of 2020.
The scale * 1 2...3...4 5 represents temperature, where 3 corresponds to approx. 20 degrees. The radiator will switch on when it is colder than set, and switch off (and become cold) when the desired temperature has been reached. Use a thermometer to check the air temperature in the room, and fine-tune the thermostat to the desired heat.
ATTENTION: Even in the lowest position (*), the radiator will switch on if the room temperature drops to 0 degrees, to prevent the water in the radiator from freezing and thereby causing leaks.
- d) Each radiator has a "bleed valve" for letting trapped air escape. Airing should be done if the radiator heats poorly or if you hear the sound of running water inside. A special square key is inserted into the end of the valve and turned. Some water will also come out, so hold a can or bottle underneath while the air escapes. NOTE! Do not unscrew the valve itself from the radiator!
A key for the vent (5 mm square hole) may be purchased from e.g. Jernia or Clas Ohlsson. (Norwegian: «Radiator luftnøkkel»)

- e) Some shareholders have chosen to remove one or more radiators.
 - The Board shall be notified in advance before removal, so that heat meters can be de-registered.
 - If radiators are to be reinstalled at a later date, the shareholders must pay for this themselves, even after any change of ownership.

In the event of selling the apartment, dismantled radiators constitute a defect.
- f) Radiators can be dismantled during refurbishment.

The supply and outlet valves must be closed first, and kept closed while the radiator is dismantled. The outlet valve has a lid that must be unscrewed before the valve can be operated with a hex "Unbraco" key. The water in the radiator must be collected when the couplings are unscrewed.

 - If in doubt about the procedure, contact the caretaker.
- g) If the shareholder wishes to replace the radiator, e.g. in connection with major refurbishment, contact the caretaker.
 - A model approved by the HousingCoop must be installed.
 - After replacement, the heat meter must be installed by the ISTA company.

5.2 Hot water

- The hot water inlets for kitchens and bathrooms have volume meters that report consumption via radio signals. The meters also have counters that can be read manually.

6. Electrical supply

- a) The fuse box is recessed in the wall outside the apartment's entrance door.
- b) The unit owner is responsible for electrical installations from and including the apartment's fuse box/main fuse, including cables and wires, sockets, switches, heating cables and appliances.
- c) Common risers in the stairwells were originally dimensioned for a 25A main fuse for each apartment. Some shareholders wanted a higher current, specifically for induction cookers in kitchens. The common risers have been upgraded.

All apartments can now have a main fuse of up to 40A.

Upgrading the apartment's fuses, as well as the cabling to the kitchen, must be done by an authorised electrician, and paid for by the shareholder, ref. Statutes §5.1e.

7. TV cable system

- a) Each apartment has a TV outlet box, with connectors labelled DATA, TV and RADIO. The box is usually located on the long wall in the living room, approx. 2 metres from the balcony window (DATA and RADIO are no longer in use: We have a fibre network, and the FM broadcast network has mostly been discontinued).
- b) The HousingCoop's maintenance responsibility includes the TV outlet box and its supply cable.
- c) The shareholder is responsible for cables between the apartment's outlet and their own appliances, including any branches to other rooms in the apartment.
- d) The old TV and RADIO outlet (recessed in the wall) was phased out in 2009. It can be removed if desired. On the 6th floor, the cable to the old outlet from the balcony can also be removed.

7.1 Operational responsibility

The HousingCoop has a maintenance and operation agreement with ATMcom AS for the TV cable system and the fibre network for Internet, including operation and troubleshooting. Problem reporting: e-mail, telephone

- See our website www.Linderudbo.no/L2/, as well as notices in the lobbies.

7.2 TV joint agreement - TV decoder

- a) Since 2019-04, the HousingCoop has a joint agreement for a TV package from **Telia** (formerly GET).
- b) Through the joint agreement, each apartment is entitled to one "Telia TV BoX". This decoder is the property of Telia, and the shareholder is responsible for it. If an apartment is sold, the decoder can be passed on to the new shareholder, provided this is reported to the Telia Customer Service.
- c) It is possible to opt out of the joint agreement for TV on an annual basis. Get the form with conditions at http://linderudbo.no/TV/TV_Fellesavtale.html
- the form exists in both Norwegian and English language.

8. Fibre network for Internet access

- a) In 2016, the HousingCoop installed a **fibre network** with four fibres to each apartment. One fibre is used for Internet access, and a fibre switch is installed in each apartment. The three unused fibres are available for future services.
- b) The HousingCoop has a contract with ATMcom AS for the provision of Internet access, currently including 1 Gb/s speed (symmetrical) to all apartments. Payment is part of the monthly joint expenses, and is specified on the invoices.
- c) 1 Gb/s (symmetric) is the maximum speed available for the currently installed equipment.
- d) Requirements regarding the cleaning procedure when connecting the fibre mean that flat owners are not permitted to open the box, and will lose the warranty if the seal is broken. If the fibre cable becomes detached from the skirting board, it must not be cut or pulled in such a way that it is pulled out of the fibre box. **Unit owners must pay for assistance from the fibre provider themselves** – including when relocating the box during renovation work. The price for fibre re-termination was NOK 3,500 in December 2021.

9. Telephone cable (obsolete)

Note! The copper network for telephone services has been decommissioned. It was shut down for Telenor's customers in December 2022, and for wholesale customers in September 2025.

- a) The cable enters the apartments through a pipe opening in the ceiling above the entrance door on the side closest to the elevator. It was used for landline telephone, alarm system, and (historically) Internet via ADSL/VDSL.
- b) Cabling and equipment inside the flat are the responsibility of the flat owner. As the copper network has been decommissioned, any connected equipment can usually be removed.

10. Doorbell and intercom system

- a) The intercom for the doorbell panel at the front door is fitted in the entrance hall on the wall facing the bathroom. The intercom has a button with a key symbol to open the front door.
- b) The call button outside the entrance door is connected to the 'ding-dong' doorbell at the top of the wall facing the bathroom.

NOTE! The local doorbells are battery-operated. Replace the batteries when required.

11. Balcony

Instructions for use from the suppliers can be downloaded from the Regulations collection at <http://linderudbo.no/L2/index.html#Regelverk>

11.1 Balcony door

This is a raise-and-slide door. To be able to slide the door sideways, it must first be raised:

- a) Opening: Turn the lever on the inside so that it points downwards. The door can now be pushed open sideways.
- b) Closing: Pull the door sideways until the opening is closed, then turn the lever on the inside so that it points upwards. The door is now maximally sealed.
If you do not lower the door after closing, there will be a draft.
- c) Maintenance: The metal rail on which the door slides should be kept clean. Remove any slag from oil etc. with white spirit. A clean rail also results in less noise when the door is moved.

11.2 Glazing

The lower part of the glass is fixed, while the upper part has 6 panes in the front that can be slid all the way to one side and rotated 90° for a full opening. In addition, the side window and one front window have fittings for airing adjustment.

NOTE! The windows must be secured/locked to prevent damaged by strong wind.

11.3 Rain, water and drainage

- a) There is a grate in the floor with a drain approx. 1 metre in from the windows. This should not be covered by carpets etc. When dirt and debris accumulates under the grate, it can be lifted up so that the gutter underneath can be cleaned and the drain be unblocked.
- b) In the event of rain and wind against the balcony, some water will get through the cracks between the panes. Below the panes there is a gutter that collects this water, but this does not have a drain by default. It is recommended to install a thin hose from the gutter to the grating in the floor.
- c) During rain and wind, a design flaw allows water to enter cavities in the structure and drip from the fittings in the separation between the original concrete roof and the protruding part of the balcony. Unfortunately, there is no known solution to completely avoid this.

11.4 Awning

The awning provides sun protection on the outside of the glass. Up/down is controlled by an electrical switch mounted just inside the sliding balcony door.

NOTE! During strong winds, the awning must be raised to avoid damage.

Maintenance responsibility: The shareholder shall pay for any repairs.

12. Elevators

All the HousingCoop's 12 elevators were replaced between 2016-09 and 2018-04. The manufacturer is Schindler.

- Maximum capacity: 900kg. Speed: 1.6 m/s. Automatic sliding doors on all floors.
- There is an alarm in the cabin with voice connection to a 24-hour alarm centre.
- Each stairwell has an elevator with stops in the basement (-1), exit floor (0) and residential floors 1 to 13. In the centre stairwell of each apartment block, the elevator can reach the roof (14), requiring a key.
- During moving jobs, the elevator may be operated manually. Contact the caretaker to borrow a key for this.
- The elevator will be blocked if, after 20 attempts, the sliding doors cannot be closed without a fixed obstruction being detected in the door opening. **Avoid** allowing dirt, gravel, etc. to accumulate in the sliding door tracks. Such could stop the elevator.

13. Fire hose and smoke detectors

Installed in each apartment is:

- One "RedBox" flat/rolled fire hose, under the kitchen sink or in the bathroom. The hose shall be permanently connected to the dedicated tap. Instructions for use are on the lid.
- Two smoke/fire alarms, one optical and one ionic, but from 2026, 2 optical alarms are recommended. These are not connected to any network and so provide only a local warning.
Batteries: The detectors may be fitted with a lithium battery, with a lifespan of up to 10 years. Standard alkaline batteries, on the other hand, must be replaced annually. Some of the detectors have a permanently fitted battery, which cannot be removed without tools. In the event of a fault where the detectors beep continuously, the battery can be disconnected by pulling out a small (black) clip.
- Faulty smoke alarms can be replaced by visiting the caretaker's office.

14. Garbage chutes (historical)

In all stairwells, on each residential floor, there is a **closed** hatch leading to a historic garbage chute next to the elevator door. **These chutes are decommissioned** since 26 September 2011, when waste sorting was introduced in Oslo. They are now used, amongst other things, for cable routing.

15. Waste management – Waste sorting

Waste must be sorted at the source and – depending on the type – disposed of, wrapped, in the waste bins in the courtyard outside the apartment block, in the container for cardboard/paper or in the container for glass and metal packaging.

Guidance from Oslo Municipality: <https://www.oslo.kommune.no/avfall-og-gjenvinning/>