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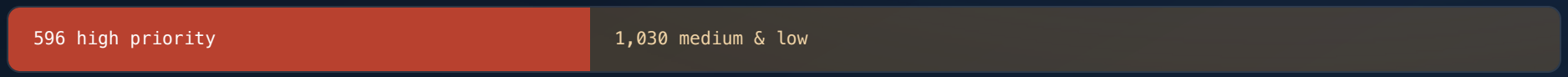
HANDOVER AUDIT FINDINGS

Nearly half the sewage treatment plant (STP) checklist failed at handover

Since 2017, Nemmadi has audited more than fifty new residential developments at handover from builder to residents' association. In 34, the audit covered the STP: independent engineers recorded 1,626 failures there, and 325 of 677 fixed checklist questions failed.

THE 1,626 FAILURES, BY THE SEVERITY THE ENGINEER ASSIGNED



We mark anything high priority only when there is a direct threat to life, a contravention of local statutes and/or IS Codes. Checks marked "not applicable" are excluded from both sides of the ratio.

HANDOVERS AUDITED
50+
since 2017 — this analysis covers 34 with STP checks

QUESTIONS FAILED
48%
325 of 677 fixed questions on the plant

FAILURES RECORDED
1,626
325 failed questions, plus 1,301 defects written up on general checks

RATED HIGH PRIORITY
596
as rated by the engineer on site — see the caveat on page 4

THE EIGHT PATTERNS — THE SAME COLOURS ON EVERY PAGE

Sent out of the premises 29	Worker safety 110	Process not run as designed 193	Pumps & blowers 198
Electrical safety 313	Leaks & standing water 104	Records, labels & boards 179	Supports, rust & lighting 247

WHAT WAS FOUND

Eight patterns inside 1,626 failures

Grouped from the inspecting engineers' own written observations. The count in each card is findings, then how many the engineer rated high priority, then how many of the 34 projects the pattern appeared in.

Sewage and water sent the wrong way

29 · 20 high · 16 proj

29 findings, in 16 projects, record sewage, sludge or treated water sent, or piped to be sent, out of the premises – 11 of them, in 9 projects, raw sewage or sludge without treatment. The highest share rated high of any pattern, 69%.

Process not run as designed

193 · 108 high · 33 proj

The plant was run in manual rather than automatic mode in 14 of the 18 projects where it was asked. The sludge de-watering (cake-making) step was not in use in 17 of 22, and debris left in the bar screen in 15 of 21.

Exposed or unsafe electrical work

313 · 122 high · 32 proj

68 findings, in 23 projects, record earthing missing, not connected or not done to IS 3043 – on panels, pumps and cable glands; several notes cite IS 3043. 18 more record exposed wires or terminations.

Records, labels and caution boards

179 · 30 high · 32 proj

Caution boards or equipment name boards missing in 17 of the 20 projects where it was asked. No repair-and-replacement schedule in 11 of 17; no daily checklist in 11 of 19.

Safety of the plant's workers

110 · 39 high · 28 proj

No first-aid kit inside the plant in 19 of the 22 projects where it was asked; no safety equipment for its workers in 14 of 21. The notes also record open tank edges without barricades.

Pumps, blowers and motors

198 · 102 high · 31 proj

54 findings, in 16 projects, record a pump, blower or motor not working, removed or disconnected; 59, in 21, a leak at a pump or blower or its pipework. Submersible pumps hung on rope, with no chain pulley, recur.

Leaks and standing water

104 · 53 high · 28 proj

Sewage and water leaking from pipes and joints, and water standing where the floor slope is wrong. 51% rated high.

Supports, rust and lighting

247 · 29 high · 32 proj

The least severe pattern: 12% rated high. Pipe supports and clamps, rust, lighting below the required lux level, and ventilation that needs cleaning.

THE REMAINDER

These eight patterns account for 1,373 of the 1,626 failures. The other 253 are individually recorded items – installation work not finished, temporary pumping arrangements and construction material left inside the plant among them. Of all 1,626 failures, 596 were rated high priority and 1,030 medium or low.

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14 things a resident would assume are already in place

Each row is a specific defect the engineers wrote down, counted with a fixed rule over their own words. The label shows how many of the 34 projects it was found in at least once, then how many findings in all; rows are ranked by that share, which the bar shows. 10 rows are checklist questions, so their share is of the projects where the question was asked (“asked”).

1	A first-aid kit inside the plant	**19**/22 asked · 21
2	Caution boards and equipment name boards	**17**/20 asked · 19
3	The plant running in automatic mode, not manual	**14**/18 asked · 17
4	The sludge de-watering (cake-making) step in use	**17**/22 asked · 19
5	Chain pulleys and guide rails to lift the submersible pumps	**15**/20 asked · 18
6	Debris cleared from the bar screen	**15**/21 asked · 16
7	Earthing provided and properly done on panels, pumps and cable glands	**23**/34 proj · 68
8	Safety equipment for the plant’s workers	**14**/21 asked · 14
9	The plant’s ventilation in automatic mode and working	**11**/17 asked · 17
10	A schedule for equipment repair and replacement	**11**/17 asked · 12
11	Pumps, blowers and their pipework free of leaks	**21**/34 proj · 59
12	A written emergency response plan	**10**/18 asked · 10
13	Every pump, blower and motor in place and working	**16**/34 proj · 54
14	Sewage, sludge and treated water kept within the premises	**16**/34 proj · 29

A finding is one recorded failure; the same condition can appear under more than one question. Question counts leave out 19 failures whose note records a different defect or says the opposite. A “proj” row counts projects where the defect was written down, not where it was looked for. A row needs more than one project and no project above half its findings.

The method, and its limits

A handover audit is commissioned by the residents' association of a new apartment complex at the moment the builder hands the common property over to them. Nemmadi's engineers inspect the building against a fixed checklist and record a verdict – passed, failed, or not applicable – for every point, with a written observation and a severity rating on each failure.

Nemmadi has conducted more than fifty of these handover audits since 2017. This report analyses the 34 whose audit records include the sewage treatment plant: the dedicated STP audit (design, plumbing, electrical, safety, maintenance and statutory approval) and the electrical, plumbing and safety checks run inside the plant room. It is not every such audit: some are filed in ways our records do not yet identify.

Some things are deliberately excluded. The water treatment plant is a different plant and is left out. The general checklist run inside the STP room (walls, floors, doors, ceilings, dampness) is civil finishes, so only the room's services checks are kept; its fire-fighting, security and intercom checks belong to those systems. Rooms that only sit next to the plant – toilets, staircases, a panel room "near STP" – are not counted.

Every figure here is a count of records, not an estimate. Patterns and defects are counted with fixed rules over the engineers' written observations. Each failure sits in one pattern only; the defect rows on page 3 can overlap, because one note may record two defects. No project identity appears anywhere.

NO ONE IS NAMED

No building, builder or residents' association is identified. These audits were commissioned by the residents' associations themselves.

THESE DEFECTS WERE FOUND SO THEY WOULD BE FIXED

A handover audit gives the association a list to hand back to the builder before it accepts the building. Only 27 of the 1,626 failures carry a re-inspection result, so nothing here is the current condition of any building.

NOT A RANDOM SAMPLE — AND NOT EVENLY WEIGHTED

Every project here commissioned an independent audit, which may make it better managed than average, not worse. No single project holds more than 7% of all failures or 8% of the high-priority ones; every one of the 34 recorded at least one failure, 33 at least one rated high.

WHY THE RATE QUOTED IS THE CHECKLIST'S

On the fixed checklist questions, 325 of 677 failed, or 48%. General items are usually written up when a defect is found – 1,301 of 1,519 are failures – so their rate is not a pass rate, and no blended rate across all 2,196 items is quoted.

SEVERITY IS THE ENGINEER'S CALL ON SITE

The same written observation is not always rated the same way: 6 observations, worded identically, were rated high in some places and medium in others (16 findings) – in 4 of them within a single project. The note "The debris is partially removed from the bar screen chamber." was rated high 2 times and medium 2 times.