@maintainable.xyz/house-spec

Documentation for @maintainable.xyz/house-spec

readme.md for @maintainable.xyz/house-spec

The open specification for building maximally maintainable, healthy homes.

What This Is

A complete, opinionated building specification for a Baufritz timber-frame house engineered around **clean-room-level indoor air quality**, **laboratory-grade water purity**, **self-hosted infrastructure**, and **lifetime maintainability**. Every system — air filtration, water treatment, heating, flooring, plumbing, datacenter — is designed so that components can be inspected, serviced, and replaced without destructive intervention.

Specification Documents

Spec	Scope
01 — Air System	H13 HEPA whole-house filtration, MVHR, steam humidification, duct design, pressure management
02 — Sensors & Automation	Per-room air quality sensors, KNX/Zigbee architecture, Home Assistant integration, demand-controlled ventilation
03 — Baufritz Coordination	Technical room, duct routing, airtightness, radon protection, construction checkpoints
04 — Flooring & Ceiling	Lindner NORTEC Doppelboden raised floor, WOODline parquet, Plafotherm AirHybrid radiant ceiling
05 — Water System	POE reverse osmosis, 316L stainless steel plumbing, ceiling-routed distribution, leak detection
06 — Home Datacenter	Cellar, 4x 42U racks, closed-loop cooling, heat recovery, goods elevator, UPS, structured cabling

Key Design Principles

- **Whole-house H13 HEPA** — 99.95% particle capture at 0.3 um, ISO Class 7-8 equivalent
- **Every air parameter controlled** — particulates, CO2, VOCs, humidity, temperature, pressure, radon
- **Heating via ceiling** (Plafotherm AirHybrid), not floor — fast response, furniture-independent, integrates MVHR supply air
- **Raised access floor** (Lindner NORTEC Doppelboden) — individually liftable 600x600 mm panels for full access to services underneath
- **Dry construction throughout** — no wet trades, ideal for Baufritz timber-frame
- **Whole-house POE reverse osmosis** — 95-99% TDS removal, remineralized, UV-sterilized, PFAS/microplastic-free
- **316L stainless steel plumbing** — food-grade, zero leaching, press-fit, routed accessibly under suspended ceiling
- **Home datacenter in cellar** — 4x 42U racks, 10 kW closed-loop cooling, N+1 redundancy, heat recovery heats the house in winter
- **Goods elevator** — 1000 kg capacity, cellar to ground floor, handles fully loaded server racks
- **Positive pressure** (+3-5 Pa) — unfiltered air never enters the building envelope

PDF Build

The specs can be compiled into a single styled PDF with rendered Mermaid diagrams:

```
pnpm install
pnpm build
# Output: dist/house-spec.pdf
```

Requires Chromium (installed automatically via Puppeteer).

License

changelog.md for @maintainable.xyz/house-spec

2026-03-15 - 1.2.0 - feat(specs)

add whole-house water system and cellar datacenter specifications with cross-document coordination updates

- Introduce a new water system specification covering point-of-entry reverse osmosis, 316L stainless steel distribution, leak detection, monitoring, and installation sequencing.
- Introduce a new home datacenter specification for a reinforced concrete cellar with racks, cooling, UPS, elevator, structured cabling, and commissioning requirements.
- Update existing air, automation, Baufritz coordination, flooring, and README documents to integrate water treatment, plumbing access strategy, cellar infrastructure, electrical sizing, and datacenter monitoring requirements.

2026-03-15 - 1.1.2 - fix(repo)

no changes to commit

2026-03-15 - 1.1.1 - fix(package)

mark package as publishable by disabling private mode

- Change package.json private from true to false to allow publishing or external consumption of the package.

2026-03-15 - 1.1.0 - feat(package)

add project metadata, release configuration, and README documentation

- add npmextra release configuration for publishing metadata and registries
- expand package metadata with repository, homepage, author, keywords, and updated project description
- add pnpm build config for esbuild and puppeteer
- introduce a README describing the specification scope, design principles, and PDF build workflow

2026-03-08 - 1.0.0 - initial specification

Initial house specification covering HVAC, sensors, construction coordination, and finish systems.

- Defined whole-house air system with H13 HEPA filtration, MVHR, duct design, and pressure management
- Documented sensor placement, automation logic, Home Assistant integration, and wiring
- Added Baufritz builder coordination details, construction checkpoints, and project timeline
- Specified Lindner NORTEC Doppelboden with WOODline parquet and Plafotherm AirHybrid radiant ceiling
- Introduced the documentation build system using tsx, marked, and puppeteer with Mermaid-to-PDF rendering