

Mirian Concrete Homes

Integrated Services

Engineered for Resilience. Designed for Life.

TECHNICAL CONCEPT REVIEW & DESIGN PORTFOLIO | 2026

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THE MIRIAN DIFFERENCE

In conventional Australian residential construction, plumbing and electrical services are typically either surface-mounted (creating unsightly trunking, conduits and power poles) or chased into hardened walls after the structure is complete. Both methods compromise the clean monolithic aesthetic of exposed concrete, introduce dust and structural risk during chasing, create future maintenance liabilities, and limit design flexibility.

MIRIAN CONCRETE HOMES DELIVERS A FUNDAMENTALLY SUPERIOR SOLUTION

All services — water supply lines, drainage coordination, electrical power and lighting circuits, data cabling, security, and smart home infrastructure — are **precisely engineered, positioned and secured within the formwork before the concrete pour**. When forms are stripped, the result is a beautiful, durable exposed concrete surface with fully integrated, protected services and only minimal, thoughtfully designed flush access points.

KEY BENEFITS OF CAST-IN SERVICES

- **Architectural Purity**

Uninterrupted exposed concrete finishes. No trunking, no patch repairs, no visual compromise to the design intent.

- **Superior Protection & Durability**

Services encased in concrete are inherently fire-resistant, impact-protected, moisture and termite resistant, and UV shielded. Ideal for BAL-40/FZ and flood-prone sites.

- **Future-Proof Infrastructure**

Additional spare conduits and draw-wires are installed as standard, allowing easy future upgrades or new circuits without invasive works or aesthetic damage.

- **Faster, Cleaner Fit-Out**

No post-pour chasing, no dust, no patching. Internal fit-out proceeds immediately on a clean, finished concrete shell.

- **Lower Lifecycle Cost**

Dramatically reduced maintenance, fewer call-backs, superior insurability, and higher long-term asset value.

- **Premium Smart Home Ready**

Comprehensive pre-installed backbone for lighting control, security, energy management, EV charging, solar/battery integration and whole-home automation.

RECENT PROJECT — ON-SITE INTEGRATION

Recent Mirian project: Exposed concrete walls during construction — precision formwork, rebar and service pathway preparation for integrated plumbing, electrical and smart home infrastructure.



PLUMBING & ELECTRICAL INTEGRATION

PLUMBING INTEGRATION

Hot and cold water supply lines (typically PEX or copper) are routed vertically within perimeter walls or core walls and horizontally within slabs where required. All pipework is securely fixed to reinforcement with appropriate cover and protection prior to the pour. Pressure testing is completed before concrete placement. Concealed cisterns, tap connection points and manifold locations are pre-coordinated with hydraulic engineers and precisely positioned. Drainage stacks and major vertical services are coordinated with the structural design (often located in service cores or specific wall zones). Greywater recovery from the dehumidification system (as standard in Mirian designs) is integrated into the overall water management strategy.

ELECTRICAL & DATA INTEGRATION

Heavy-duty PVC or EMT conduits (minimum 25mm, typically 25–32mm) are cast directly into the concrete walls for all power circuits, lighting, GPOs and dedicated circuits (e.g. EV, air-conditioning, solar). Junction boxes, switch boxes and GPO boxes are precisely located, securely fixed to formwork or reinforcement, and cast in flush with the finished concrete surface. Draw-wires are installed in all conduits for easy cable pulling post-pour. Data and communications infrastructure includes Cat6A (or higher) and fibre-ready conduits, providing a robust wired backbone that is far more reliable than wireless in concrete structures. Main switchboard rough-in, sub-board locations and earthing pathways are fully coordinated. All electrical work is performed by licensed professionals to AS/NZS 3000 and relevant standards.

FLUSH FINISH & AESTHETIC INTEGRATION

A key advantage of the Mirian approach is maintaining the purity of exposed concrete. Cast-in boxes are designed with minimal visual impact — either flush covers that can be finished to match the concrete texture or discreet metal trim plates in contemporary finishes. No surface-mounted conduit or bulky trunking is required. The result is a seamless, high-end architectural finish that showcases the concrete while delivering full functionality.

TECHNICAL SPECIFICATIONS — SERVICES INTEGRATION

Element	Specification	Notes / Rationale
Conduit Type	Heavy duty PVC or EMT, 25–32mm typical	Corrosion resistant, easy cable pull, fire rated options available
Pipework (Water)	PEX or copper, secured to rebar	Pressure tested pre-pour; manifold & connection points pre-positioned
Box Placement	Cast-in flush to finished face	Minimal visual impact; covers match concrete or contemporary trim
Concrete Cover	Minimum 40–60mm to conduits/pipes	Maintains fire rating, structural integrity & thermal mass performance
Data / Smart	Cat6A + fibre-ready conduits + draw wires	Robust wired backbone for reliable automation & future upgrades
Testing	Full pressure & continuity testing pre-pour	Zero defects; services proven before concrete encasement
Coordination	Detailed shop drawings + structural liaison	Clash-free integration with RFIs resolved before pour

SMART HOME & FUTURE-READY INFRASTRUCTURE

Mirian Concrete Homes are delivered **smart-home ready** as standard. The cast-in conduit network provides a robust, reliable wired infrastructure that outperforms wireless-only solutions in concrete structures (which can attenuate signals). This backbone supports current and future technologies while maintaining the clean aesthetic of exposed concrete.

STANDARD SMART HOME PROVISIONS

■ Lighting Control

Dedicated conduits for DALI, 0-10V, Zigbee or wired control bus to all lighting zones. Pre-wired for scene setting, circadian lighting and app/voice control.

■ Security & Access

Conduits for CCTV, intercom, access control, door/window sensors and alarm systems. Central monitoring panel location pre-planned.

■ Energy Management

Dedicated pathways for solar inverter communication, battery storage (Tesla Powerwall compatible zones), energy monitoring and load control.

■ EV Charging Ready

Heavy-duty dedicated circuits and conduits from main switchboard to garage/carport locations. Data for smart charging management.

■ Climate & Comfort

Sensor conduits for temperature, humidity and air quality. Integration with the Mirian dehumidification + greywater recovery system. HVAC control wiring.

■ AV & Entertainment

Multi-room audio/visual distribution conduits and central equipment location planning.

■ Connectivity

NBN/fibre to the premises ready. Whole-home wired network backbone (Cat6A minimum) with Wi-Fi access point locations pre-planned.

■ Future Expansion

Spare conduits with draw-wires in key zones for unknown future technologies. Easy retrofit capability without structural works.

WHY WIRED INFRASTRUCTURE MATTERS IN CONCRETE HOMES

Reinforced concrete provides excellent thermal mass, fire resistance and durability — but it also attenuates wireless signals. A comprehensive wired backbone ensures reliable performance for critical systems (security, lighting control, energy management) while still supporting wireless devices where appropriate. Mirian designs deliver the best of both worlds: robust hidden infrastructure with a clean exposed concrete aesthetic.

INTEGRATION WITH MIRIAN SUSTAINABLE FEATURES

The services infrastructure is designed to work seamlessly with Mirian's standard sustainable features: solar-ready roof geometry and conduit pathways, EV charging readiness, smart conduit pathways for NBN/CCTV/lighting control/home automation, and the innovative dehumidification + condensate recovery system that captures water for greywater reuse (where permitted). All systems are engineered to meet or exceed NCC 2022, BASIX and relevant Australian Standards.

READY TO BUILD STRONGER?

Homes with Integrated Plumbing, Electrical & Smart Home Infrastructure

Seamless exposed concrete with fully integrated services — the Mirian signature finish.

RESILIENT

Fire • Flood • Termite
BAL-FZ capable

SUSTAINABLE

Thermal mass • Solar ready
Greywater recovery

SMART

Wired backbone • EV ready
Full automation

WHY ENGAGE MIRIAN EARLY

Early involvement lets us optimise service routes, column grids and staging for cost and programme certainty.

We bring real hands-on experience — not just desktop design. All systems are coordinated via detailed shop drawings and RFIs with your full consultant team.

OUR OFFERING

- Custom dwellings & duplexes with full cast-in services design
- Perimeter wall or column-slab systems with integrated plumbing, electrical & smart infrastructure
- BAL 40/FZ and flood-resilient homes with protected services
- Complete service: design coordination, RFIs, formwork, reinforcement, concrete placement & finishing

NEXT STEPS

We welcome feasibility studies, concept development and full project enquiries.

Mirian delivers the technical foundation for homes that are Resilient. Sustainable. Australian. Smart.

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