

Low-Voltage Pre-Wire Guide

For builders, electricians and site foremen. Please share before any drywall goes up.

This guide explains what Modern Innovation Solutions needs on site so smart-home and security systems can be installed cleanly later. Most problems we see are caused before drywall: a missing box, a cable cut by another trade, or an equipment room with no cooling. Following this guide avoids them.

Our project drawings take priority. Where they differ from this guide, follow the MIS drawings and call us.

1. The equipment room (head-end)

- **Location:** A cool, dry closet or room, agreed with MIS, where every low-voltage cable ends.
- **Height:** Keep all equipment above flood level. Never under a bathroom or beside a water heater.
- **Power:** A dedicated circuit for MIS equipment, on surge protection, as specified by the licensed electrician.
- **Cooling:** Active or passive airflow to keep equipment below 35°C (95°F). A closed closet with no ventilation will overheat.
- **Backing:** 3/4-inch fire-rated plywood backer board on the equipment wall.
- **Conduit:** At least one 1-inch or larger conduit from the equipment room to the attic or ceiling space for future cables.

2. Cable schedule

Every run is a single, unbroken home run from the device location to the equipment room.

Location	Cable	Box / notes
Wi-Fi access point	1 × Cat6	Round ceiling box, centred in the room, away from metal and ducts
Outdoor camera	1 × outdoor-rated Cat6	Weatherproof junction box at the marked height; seal the penetration
Video doorbell	1 × outdoor-rated Cat6	Single-gang low-voltage box beside the door frame
TV location	2 × Cat6 + 2-inch conduit	Dual-gang recessed box behind the TV; conduit to the equipment location
Touch panel	1 × Cat6	Single-gang low-voltage box at the height on MIS drawings
In-ceiling speaker	16/4 or 14/4 speaker wire	Run to the amplifier location; bracket or ring as marked
Door access / intercom	Shielded Cat6 + 18/2 to the lock	Double-gang deep box for intercoms, 48–52 in. above finished floor
Network jack (desk, office)	1 × Cat6	Standard low-voltage box
Motorised shade	As shown on MIS shade plan	Pocket and power as marked; confirm with MIS before framing the pocket
Lighting keypads & dimmers	Line voltage (electrician)	Deep boxes, neutral wire in every switch box, as on MIS lighting plan

3. Cabling rules

- No splices. Every run is one continuous cable from end to end.
- Label both ends with the same number and room name before pulling.
- Leave a service loop at both ends: about 18 inches at the device and 3 feet at the equipment room.
- Keep low-voltage cable at least 12 inches from mains wiring. Cross mains only at right angles.

- Do not staple or crush Cat6. Use cable supports or loose ties.
- Use outdoor-rated cable for every exterior run, and seal every wall penetration.

4. Protecting the work

- Other trades must not cut, move or reroute low-voltage cables. Please call MIS instead.
- Coil and bag cable ends in boxes so plaster and paint don't reach them.
- MIS photographs every wall before drywall. Please give 48 hours' notice before closing walls.

5. Pre-drywall sign-off

- ☐ All boxes installed at the heights on MIS drawings
- ☐ All cables pulled, labelled at both ends and tested by MIS
- ☐ Equipment room power, backer board and ventilation in place
- ☐ Conduits installed and pull strings left in
- ☐ MIS photos of every wall taken

Site foreman: _____ MIS: _____ Date: _____