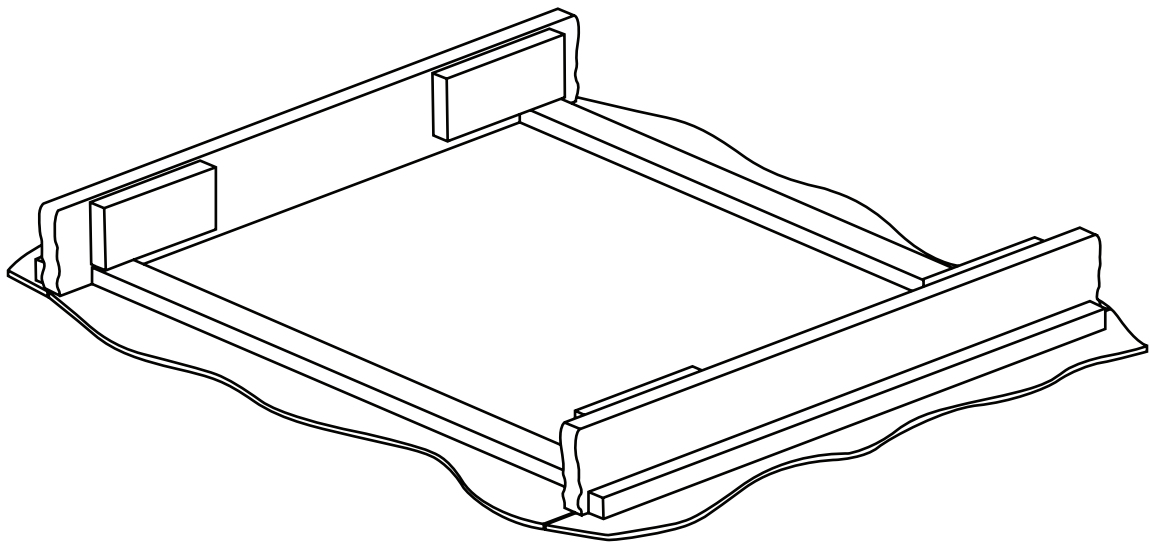




future automation

CEILING

GUIDELINES IN CEILING MECHANISM
INSTALLATIONS



DESIGN GUIDE

ISSUE 001

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INTRODUCTION

This guide provides general recommendations based on industry-standard installation practices. It does not replace building regulations, fire codes, plenum requirements, structural assessments, electrical standards, or manufacturer documentation. All statutory obligations and project-specific requirements remain applicable regardless of the guidance contained here.

Ceiling cavities differ widely in construction and the routing of services. Every installation must be planned carefully to avoid interference with joists, wiring, pipework, HVAC ducts, insulation, and ceiling finishes.

This guide outlines the minimum recommended safety and construction considerations for integrating ceiling-mounted AV mechanisms. It is intended to support designers, builders, and installers, but it does not override manufacturer instructions or local regulations. Where conflicts exist, manufacturer guidance and regulatory requirements must take priority. The responsibility for a safe and compliant installation lies with the designers, builders, and installers involved.

OVERVIEW

Successful ceiling-mounted mechanism installations rely on thorough planning before any structural, electrical, or finishing work begins. Because ceiling voids vary significantly in depth, construction type, and the presence of existing services, a full site assessment is essential.

Structural support

Plasterboard, MF (metal furring) systems, and ceiling tiles cannot support mechanism loads. A structural pattress or mounting frame must be installed to carry the combined weight of the mechanism, TV, and any ancillary equipment.

Access for servicing

Most hinge-style ceiling mechanisms can be opened manually for servicing, but adequate clearance must still be provided for adjustments, cable access, and maintenance.

Clear travel space

The mechanism must have unobstructed room to open and close without contacting framing, joists, wiring, or pipework. Verify travel envelopes before installation.

Avoid conflicts with services

Ceiling voids often contain plumbing, HVAC ducts, wiring, and structural members. Identify these early to prevent installation conflicts that require corrective work by other trades.

Cable routing & serviceability

Plan cable paths to avoid snagging or entanglement during operation. Use conduit or trunking where appropriate and allow sufficient cable slack for unrestricted movement.

Care around ceiling finishes

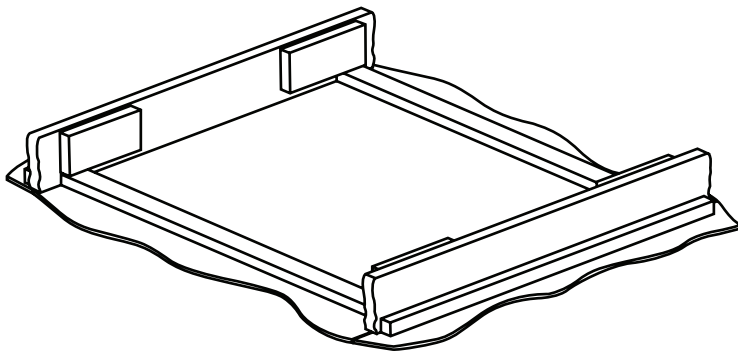
Ceilings may crack or deform around openings unless properly supported. Reinforcing the ceiling edges helps maintain a clean finish and reduces long-term movement.

Installation should not begin until a full site survey is completed.

CEILING TYPE

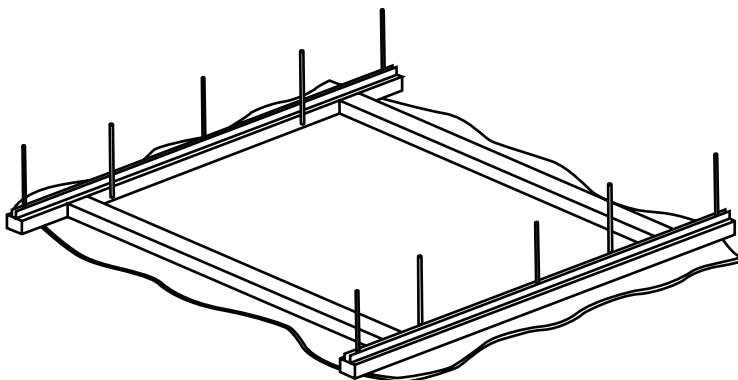
Different ceiling structures require different installation methods. The two most common ceiling types are timber-joisted ceilings and suspended ceilings, each with unique considerations.

WOODEN BEAMS



- Identify joist direction and spacing.
- The structural pattress or mounting frame must span between joists.
- Do not cut, notch, or drill joists unless approved by a qualified structural professional.
- Survey joist bays for electrical cables, plumbing, and other services.
- Confirm that cavity depth is sufficient for the mechanism and its movement envelope.

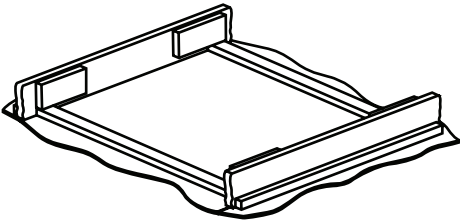
SUSPENDED CEILING



- Suspended ceiling grids cannot support any load. A separate structural framework is required above the grid.
- The mechanism must be fixed to the structural soffit, pattress, or metal framing above the ceiling.
- MF plasterboard or ceiling tiles must function only as cosmetic finishes, not structural supports.
- Confirm clearance within the void to avoid ductwork, pipework, and cable trays.
- Ensure the mechanism lid or panel aligns cleanly with the finished ceiling.

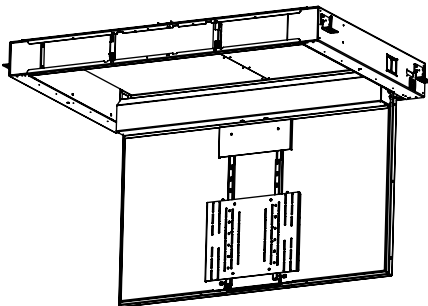
KEY DETAILS

STRUCTURAL SUPPORT



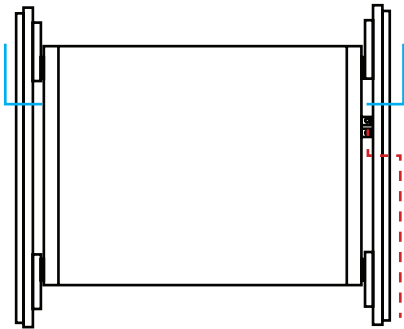
The supporting structure must safely carry the full weight of the mechanism, TV, and any associated components. A properly engineered pattress or mounting frame is essential.

ACCESS



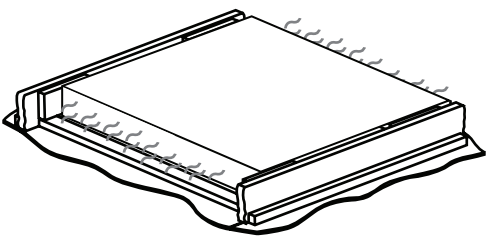
No dedicated access panel is typically required because most mechanisms can be opened manually for servicing. However, additional access may be needed depending on the model and site conditions.

WIRING AND AV SERVICES



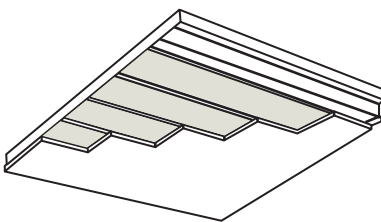
Ensure cables can be routed to and through the ceiling structure. Cable paths must avoid sharp edges, moving parts, and areas where snagging could occur.

HEAT CONSIDERATIONS



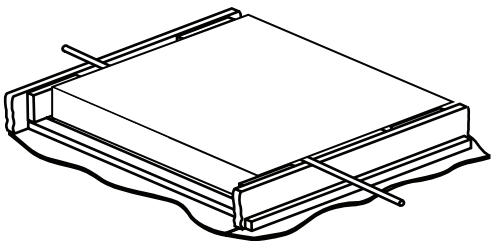
Future Automation mechanisms are not in constant operation and do not generate significant heat. No special ventilation or heat-management procedures are required. Screens may need ventilation.

FIRE SAFETY



Mechanisms are primarily constructed from metal and do not carry any fire rating. Fire-safety provisions must be considered as part of the installation and reinstated where penetrations are made.

INSTALL CONSIDERATIONS



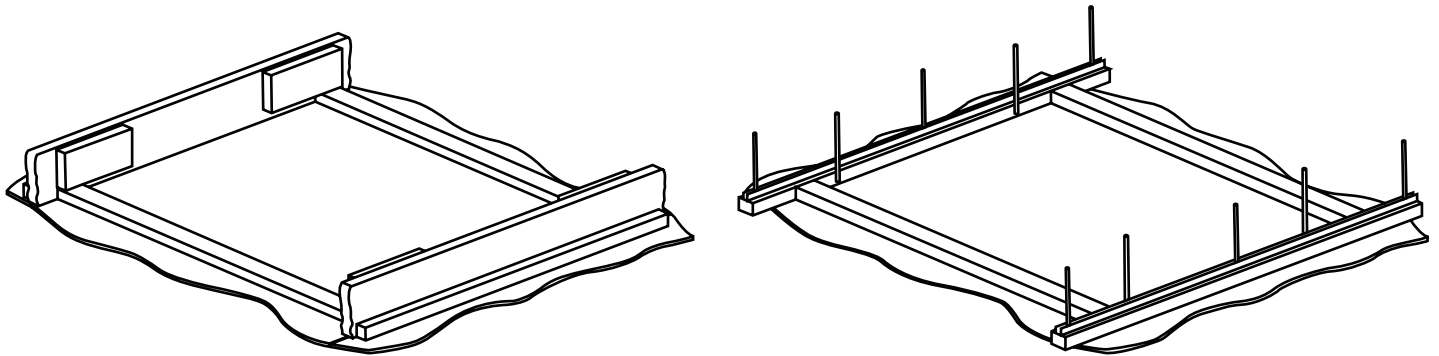
The mechanism must not interfere with other building services or compromise compliance with relevant building regulations.

SUPPORT STRUCTURE

Ceiling finishes such as plasterboard or MF systems cannot support any mechanical load. A dedicated structural support system must be designed and integrated to mount the mechanism.

A minimum 2:1 safety factor for residential applications.

A minimum 5:1 safety factor for marine applications.



All fixings must be appropriate for the materials used and rated to meet or exceed the required safety factor. Anti-vibration fixings are recommended to prevent loosening over time.

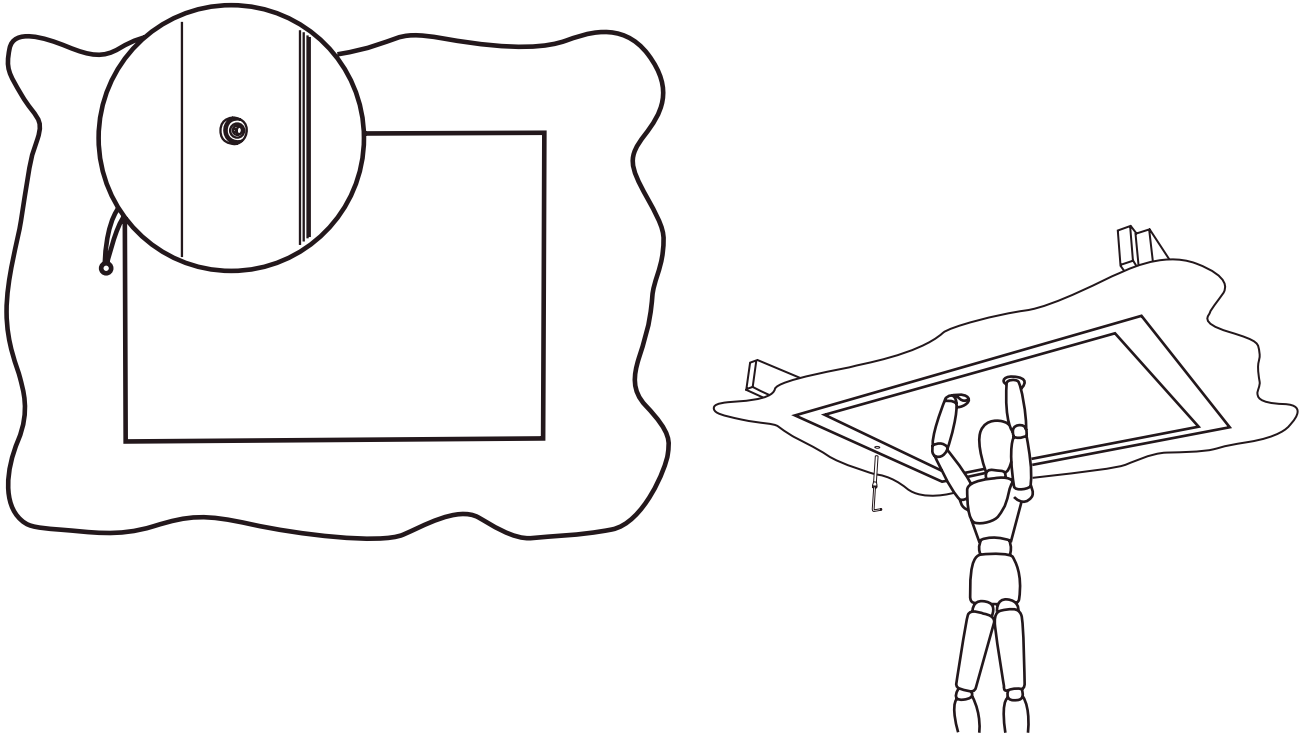


Assess the integrity of any pre-existing structure to ensure it is capable of supporting the pattern and mechanism. Do not rely on plasterboard or suspended grid systems for structural support.

ACCESS

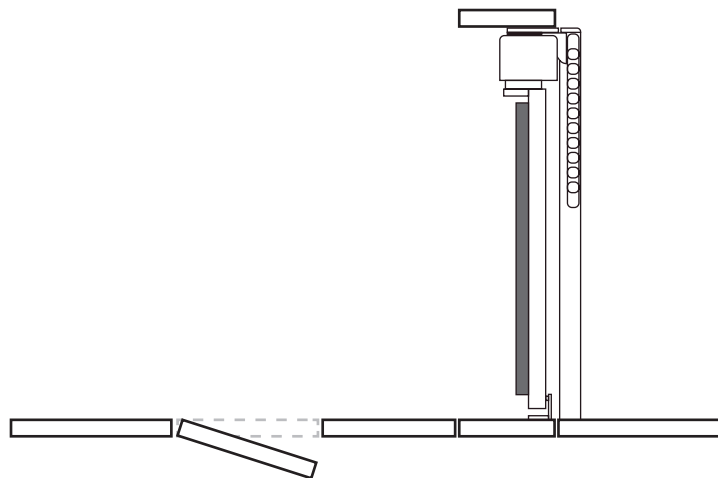
Dedicated access may be required if the mechanism cannot open under power. Each product's technical documentation outlines any specific access requirements.

CHR EXAMPLE



When manually opening the mechanism, two qualified personnel must support the hinge assembly and lower it safely to approximately 90 degrees.

LSH EXAMPLE

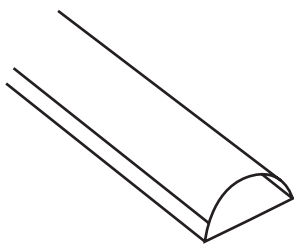


A separate access panel is required to enable servicing. This can be provided either through a loft hatch or a dedicated access route for the system only.

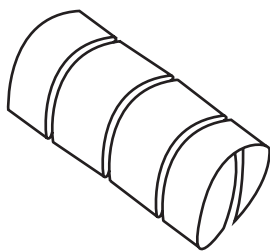
WIRING

All cabling connected to the mechanism must be securely restrained and kept clear of all moving or rotating components. Define cable routes within the ceiling to prevent entanglement or obstruction during operation.

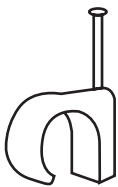
Where possible, cables should be run through conduit, trunking, or protective channels to minimise wear and reduce the risk of damage. Provide adequate cable slack to accommodate the full movement range.



D-line

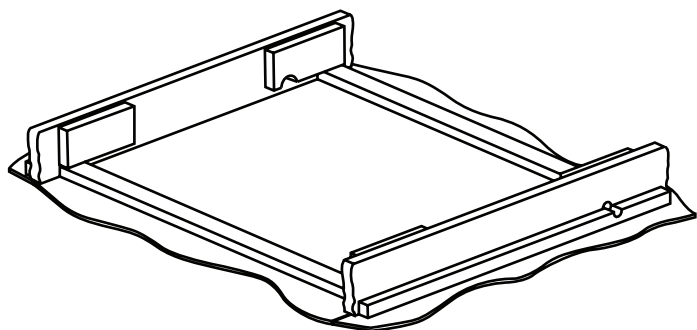


Spiral wrap

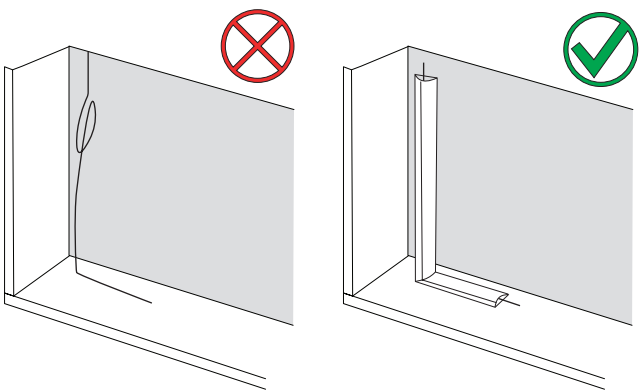


Cable Clips

Considerations



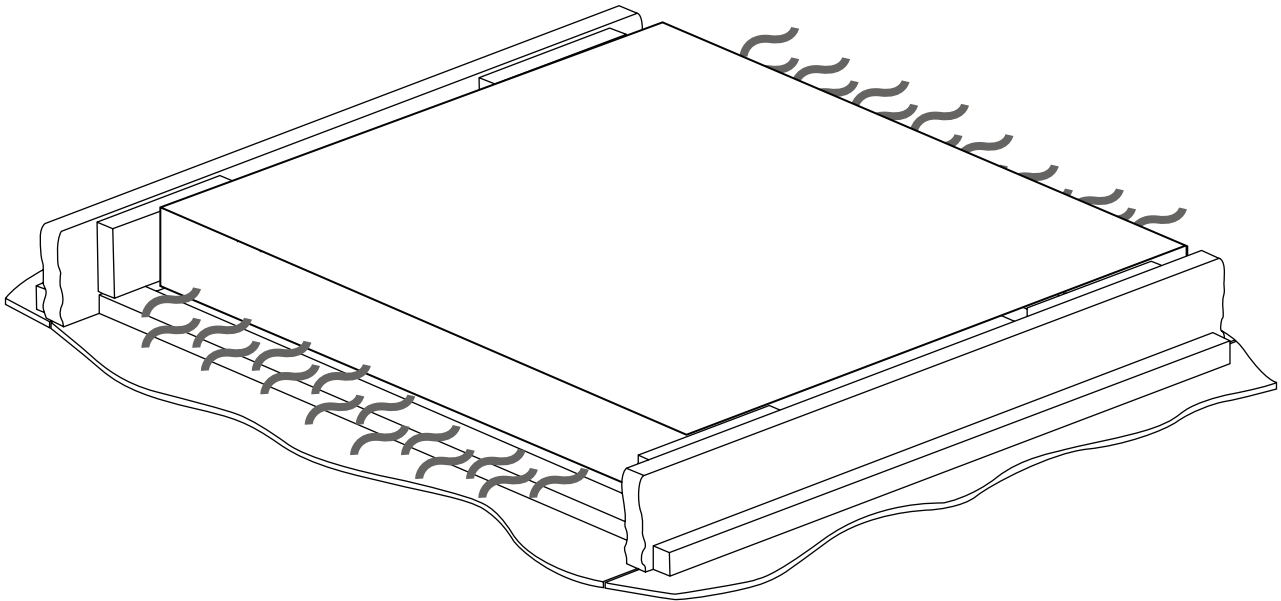
Ensure dedicated cable access holes are incorporated into the pattress before fitting mechanism.



Secure all cables and protect them in conduit. Provide enough slack for full range of motion.

HEAT CONSIDERATION

Ceiling-mounted mechanisms do not produce meaningful heat during use. Operation is brief and intermittent, resulting in negligible temperature rise, so no active ventilation or heat-management system is required.



Although the mechanism does not generate heat, avoid enclosing it within an airtight compartment. Allow for basic natural air movement, and ensure insulation or acoustic materials are not compressed tightly around the mechanism. This prevents warm air from adjacent equipment, such as lighting drivers from becoming trapped.

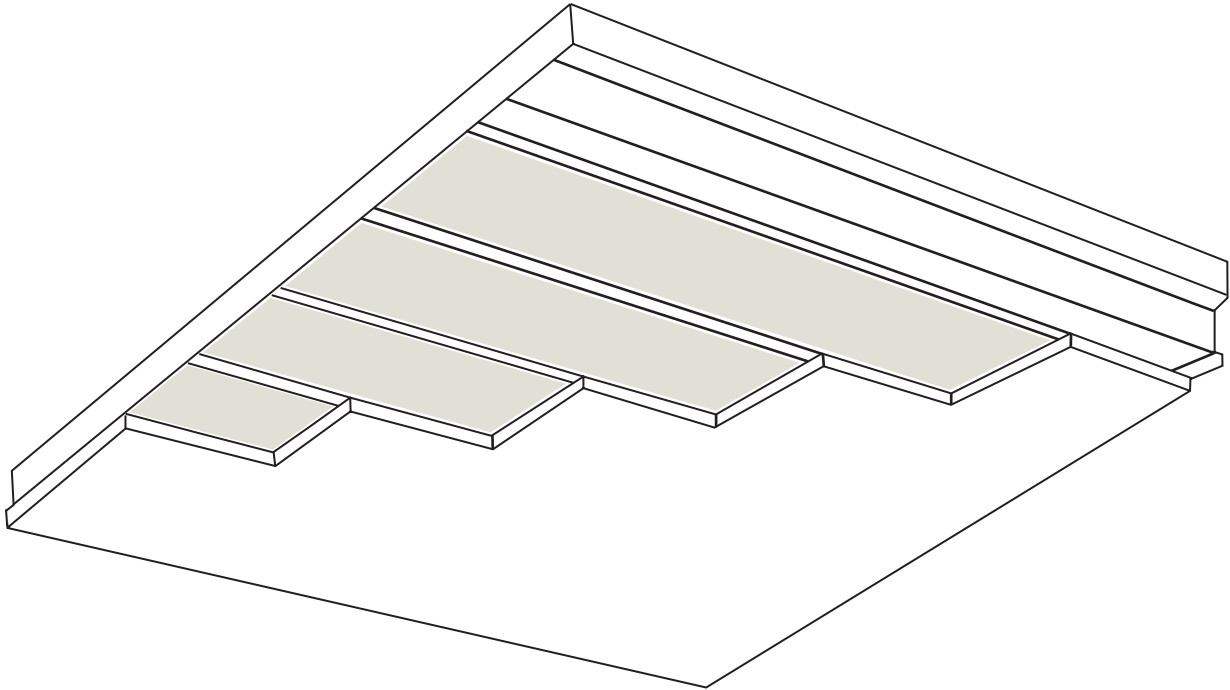
TVs installed within the mechanism may generate some heat during prolonged operation. Modern LED displays typically operate within safe temperature ranges, but they still rely on passive airflow around the rear of the screen to dissipate heat. Ensure the installation provides sufficient clearance around the TV to allow heat to escape naturally. Avoid sealing the TV within a tight cavity, as trapped heat may shorten component lifespan or reduce performance.

Installers should ensure:

- Natural air movement around the mechanism is maintained.
- Adequate clearance is provided so that insulation or acoustic materials are not compressed tightly against the mechanism.
- Sufficient free space is maintained around the TV to allow heat to dissipate naturally.

FIRE SAFETY

This guide does not serve as a fire-safety specification. Ceiling voids may form part of the building's fire compartmentation or air-handling plenum, and these requirements must not be compromised.

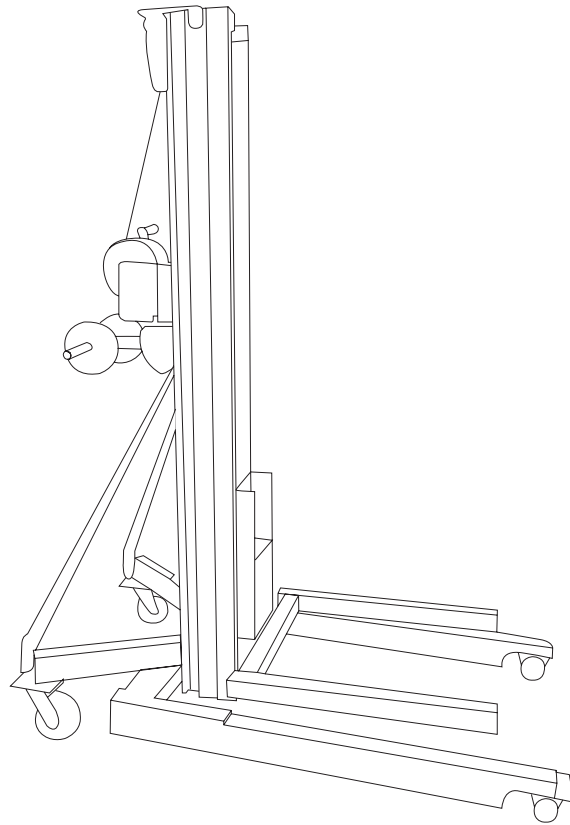


Do not damage or remove fire-resistant materials without reinstating them using appropriate fire-stopping systems. Mechanism lids and panels provide no fire resistance and cannot act as fire barriers.

Ceiling mechanisms are not plenum rated. If the void is used as part of an air-handling system, additional plenum-compatible materials or cabling may be required, as determined by the project's electrical or HVAC specialists.

INSTALL CONSIDERATIONS

Some Future Automation lifts can weigh up to 1.6 tons depending on model and specification. Refer to product technical sheets for exact weights. A temporary support platform, hoist, or winch is strongly recommended to facilitate safe installation. Most ceiling lifts require two to three personnel for proper handling.



A clear and well-structured installation plan is essential. Installers must ensure that all Risk Assessment and Method Statements (RAMS) are fully prepared, reviewed, and followed throughout the project. All work must comply with relevant local legislation, building regulations, and site-specific safety requirements to ensure a safe, compliant, and efficient installation process.



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