

SUSPENDED CEILING SYSTEM WITH CEILING TILES

INSTALLATION MANUAL

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INSTALLATION GUIDELINES & COMPLIANCE

This guide provides a general overview of the essential steps for installing a suspended ceiling. Please note the following regarding technical standards and compliance:

- **Standard Procedures:** These instructions reflect the manufacturer's approved methods and are designed to complement the relevant standards.
- **Regulatory Precedence:** While these recommendations align with industry best practices, all project work must ultimately comply with the specific requirements established by your local building authority.
- **Safety & Oversight:** Always verify local code requirements before beginning installation, as jurisdictional mandates supersede manufacturer suggestions.

RISK ASSESSMENT RECOMMENDATIONS*

Hazard	Safety Controls
General health & safety	1. Installer should be informed of specific health and safety requirements in context via joining Instructions.
Hand tools	1. All workers should be properly trained regarding tools and provided with hand tools that meet relevant safety requirements. 2. Tools should be inspected by supervisors at regular intervals & damaged/defective tools to be taken out of use immediately. 3. The installer is instructed by joining instructions and provided with all necessary PPE.
Power tools	1. Site Supervisor to provide training & demonstration on power tools operation & safety. 2. Cables should be routed away from aisles and walkways where they could create trip hazards to other persons. 3. Periodically check power tools and its cables for damage/defects and where necessary take out of action and label "Do not use".
Manual handling	1. All materials to be stored in approved and agreed locations within a working area. 2. Forklift truck/pallet truck to be provided for transport of large pallets and waste skips. 3. PPE to be worn when mixing plaster, this includes goggles, dust mask, overalls, safety shoes. 4. Use cut 5 resistance gloves specially when working with metal profiles
Working at height	1. Demonstration by a certified individual in the safe use of: erection, securing, stabilizing steps, hop ups, trestles. 2. Provision of safe means of access to steps, hop ups, trestles. 3. Use of warning signs at all access points to the work area where work is being carried out above ground level.
Materials	1. All materials are stored in an approved location within a working area 2. MSDS to be displayed in the storage area. 3. Site Supervisor to instruct / explain the safe handling of materials. 4. The worker informed of personal hygiene requirements, wash hands after use/contact and before eating, drinking, and smoking.
General house keeping	1. Worker given verbal instructions to maintain clean/tidy up individual workplaces during and after work times. 2. Tools/equipment to be stored in lockable toolbox. 3. Wet/damp sweeping techniques to be used for general cleaning of work area to control dust levels.
Site Suitability	1. Mada Gypsum systems are intended for use as internal construction systems (unless stated otherwise). As a result, construction of Mada Gypsum elements should commence only when the perimeter of the build is sufficiently sealed as to provide appropriate levels of weather resistance. 2. Additionally, if the project site is located in an environment that can cause abnormal conditions (such as corrosive sprays), please contact the Mada Technical team for additional guidance.

* It is the sole responsibility of the contractor to conduct an appropriate risk assessment for the site.

STORAGE

RECOMMENDATIONS

Mada Ceiling Tiles shall be stored in a warehouse or other suitable structure where they will not be exposed to inclement weather or to temperatures that frequently exceed 52 °C. Stacks of Mada Ceiling Tiles shall be supported evenly on a firm, dry, level and structurally sound floor, and shall always be stored on flat surface. No more than 3 pallets should be stacked one over the other.

Mada Ceiling Tiles shall not be stored in areas of excessive humidity, nor beneath overhead equipment that may drip grease, oil or water. They shall not be left in heavy-traffic areas or where they can be damaged by lift-trucks or other warehouse equipment, nor shall they be stored at aisle intersections. Where stacks are positioned at aisle junctions, corner protectors made of sheet-metal or other suitable material must be used.

Most ceiling-tile panels are sensitive to moisture and must never be stored outdoors without complete weather protection. The plastic wrapping applied for transport on flat-bed trucks is not suitable for storage and must be removed immediately on arrival. Failure to remove this wrap can lead to moisture, condensation, wet product and/or mold damage. Metal suspension-grid components are supplied in pack or sub-pack bundles and must be handled in accordance with Local Health-and-Safety at Work Principles and Practices. Store metal suspension-grid components away from airborne contaminants such as acid or salt spray, in a clean, environmentally controlled area.

Storing Ceiling Tiles on Job Sites

- Mada Ceiling Tiles delivered to the job site shall be separated by type and placed close to the areas where they will be installed, reducing the risk of mix-ups and improving installer access.
- Mada Ceiling Tiles on a job site shall never have any other materials stored or stacked on top of them.
- Do not place longer-length cartons on top of shorter ones.
- Stacks shall be arranged so their weight is evenly distributed and the floor is not overloaded.
- Stacks shall be kept clear of construction traffic.
- Stacks shall not be built high enough to pose a risk of toppling.
- Mada Ceiling Tiles shall be stockpiled so as not to hinder the work of construction trades.
- Mada Ceiling Tiles stored in unenclosed buildings shall be set sufficiently inside the perimeter to avoid wind-blown rain.
- Extra precautions are necessary when stockpiling on upper floors of open buildings during periods of high wind.
- Where mechanical lifting or moving equipment is required, trained and licensed operators must be used.

Metal Suspension-Grid Storage

- Mada Tee grid components are supplied in boxes and should be handled in line with Health-and-Safety at Work Principles and Practice.
- Do not place longer-length boxes on top of shorter ones.
- Mada Tee grid components should be stored in an environmentally friendly, dry area away from airborne contaminants such as acid and salt sprays.

EXECUTION OF WORK

Grid Layout

Grid layouts vary based on product type, panel dimensions, and fixture integration. The following guidelines outline the most common configurations.

Grid size: 600 x 600mm (Figure 1a)

- Mada Main Tee @1200mm centres; suspended from soffit typically at 1200mm centres.
- Mada 1200 Cross Tee @600mm centres - perpendicular to the main tee.
- Mada 600 Cross Tee @600mm centres -parallel to the Mada Main Tee but perpendicular to Mada 1200 Cross Tee.
- For high-load areas (service corridors, etc.) install Mada Main Tee @ 600mm centres and use only Mada 600 Cross Tee at 600mm centres perpendicular to the main tee.

Grid size:1200 x 600mm (Figure 1b)

- Mada Main Tee @1200mm centres; suspended from soffit typically at 1200mm centres.
- Mada 1200 Cross Tee @600mm centres and perpendicular to the Mada Main Tee.

Room Layout

Set control gridlines

To ensure a high-quality installation, getting the layout right is non-negotiable. Often, architects define a specific starting point within the project blueprints, whether that's to maintain uniform border dimensions, accommodate full-sized tiles, or align the work with structural elements like columns and lighting fixtures. Always verify the project plans before you begin to ensure the layout matches the intended design.

Border-tile rule

Keep edge tiles ≥ 300 mm for visual balance. If this is not possible, shift the grid to equalize opposite borders.

Step 1: Identify Layout Direction

Determine the orientation of your main tees and the dimensions of the panels you are using.

Step 2: Calculate the Remainder

Divide the total length and width of the room by the corresponding panel dimension to find your "leftover" space.

Example Calculation:

- Room Width: 5450mm
- Panel Width: 600mm
- Result: 9 full-size panels with a 50mm remainder.

Step 3: Equalize the Borders

To center the layout, take that 50mm remainder, add the width of one full panel (600mm), and divide by two. This ensures your borders are substantial and matching, rather than having one full panel on one side and a tiny piece on the other.

- Result: 8 full-size panels with 2 x 325mm pieces for the two sides.

Figure 1a: 600 x 600 grid

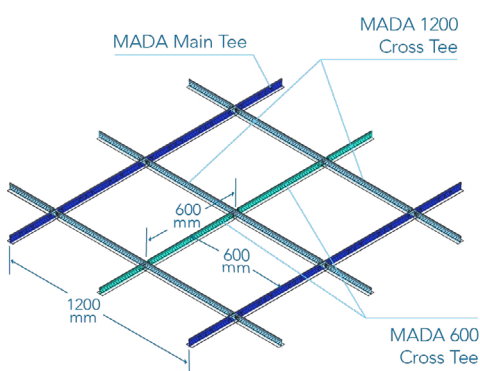


Figure 1b: 1200 x 600 grid

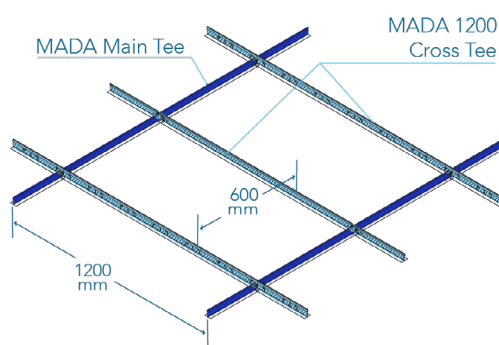
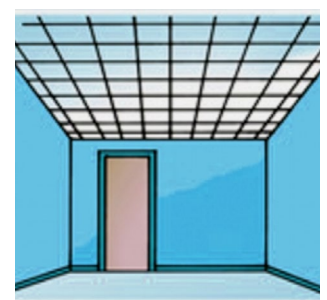


Figure 2: Typical Layout



PERIMETER FRAMING

Define finish line

Mark the finished ceiling level on all perimeter walls, maintaining minimum 80-100 mm vertical drop from the bottom of the concealed services, for tile insertion clearance.

Perimeter Angle Fixing

Mada L Wall Angle Or Mada W Angle (with same color finishing as Tee profiles), is fixed along the marked finish line, using suitable Mada fixings at 600mm centres.

Corners

Create a false 45° miter on the visible flange and overlap & dress the non-visible flange.

Figure 3: Internal corner

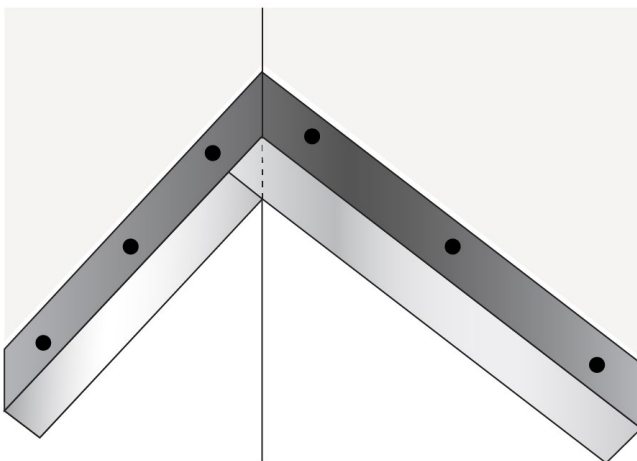
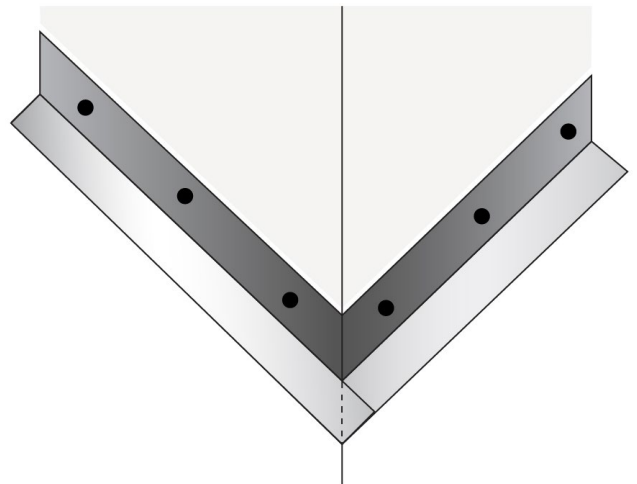


Figure 4: External corner



SUSPENSION SYSTEM

Anchor

Mada Main Tee positions are determined by the grid layout. Mada Main Tee has slots for cross tee that are at 150mm centres, starting at 75mm from the profile's edge. The Mada Main Tee at the perimeter wall side will be suitably cut, such that cross tee slots are available as per grid layout determined earlier.

Holes for suspending the Mada Main Tee, occurs at 20mm on either side of the slots for cross tee. Based on this, mark the anchoring points on the ceiling @1200mm centres or as specified in the design proposal, such that these points are vertically above the proposed Mada Main Tee position; with first and last anchor point @≤150mm from perimeter wall. Use laser, as appropriate to get the Mada Main Tee position.

Concrete slab

For fixing of suspension points to soffit of slab, use suitable tooling to drill holes into concrete to receive Mada Wire Anchor for suspending the suspension rod/wire hanger. The Mada Wire Anchor is then tapped into the hole and secured appropriately. (Figure 5a)

Steel beams

For fixing of suspension points to steel beams use shot fired pins with cleat and eye or beam clamps, as per design proposal.

Fire expansion relief

When installing Mada Main Tee for fire rated installation, all fire expansion relief cut outs must have a suitable suspension within 80mm from these reliefs. (Figure 5b)

Figure 5a

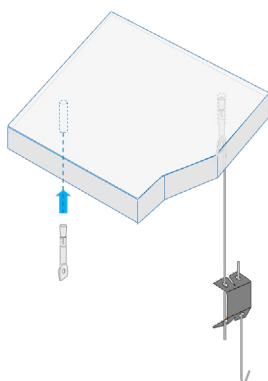


Figure 5b

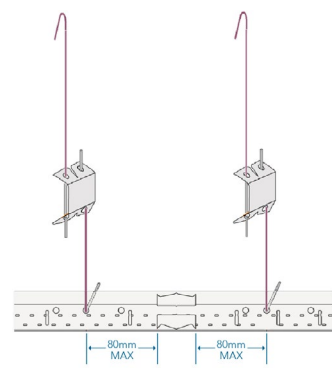
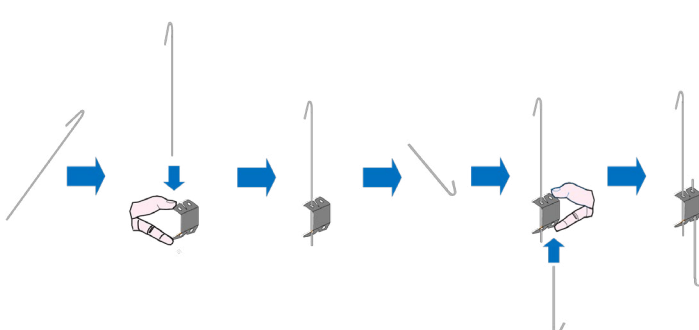


Figure 6



Suspension

Use Mada Suspension Rod with Mada Adjustable Clip or Mada Wire Hanger as the suspension.

Suspension Length

Determine the total drop required from the eye of Mada Wire Anchor to the suspension point on the Mada Main Tee.

Suspension Assembly (Figure 6)

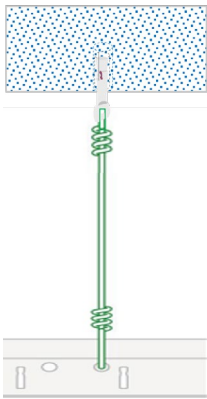
- Bend Mada Suspension Rod to form a hook $\leq 30^\circ$ (with 75mm leg).
- Pass the straight end through one pair of holes in the Mada Adjustable Clip such that the end protrudes 40mm from the clip.
- Bend a second piece of Mada Suspension Rod to form a hook $\leq 30^\circ$.
- Pass the straight end of the second Mada Suspension Rod, through the remaining pair of holes in the Mada Adjustable Clip in the opposite direction, such that it protrudes 40mm from the clip.
- Ensure the total length of this suspension exceeds the suspension length required.
- Prepare sufficient suspension assemblies to match the quantity of anchor points.
- Suspend this assembly by passing the upper hook through the eye of the Mada Wire Anchor. Hang this from all anchor points.
- **Tip:** Ensure Mada Adjustable clips are all in the same level and closer to the Tee grid for ease of accessibility.

Using Mada Wire Hanger

Mada Wire Hanger is a 3mm soft annealed, mild steel wire supplied in coils. When used as suspension, after pre-tensioning, securely fix the Mada Wire Hanger to the Mada Wire Anchor with a minimum of three full turns wrapped around itself within 75mm height.

Allow Mada Wire Hanger to extend down, 150-200mm below the planned level of the ceiling. This extra length will be used to secure the Mada Main Tee with a minimum of three full turns wrapped around itself within 75mm height. (Figure 7)

Figure 7: Wire hanger



LEVELING

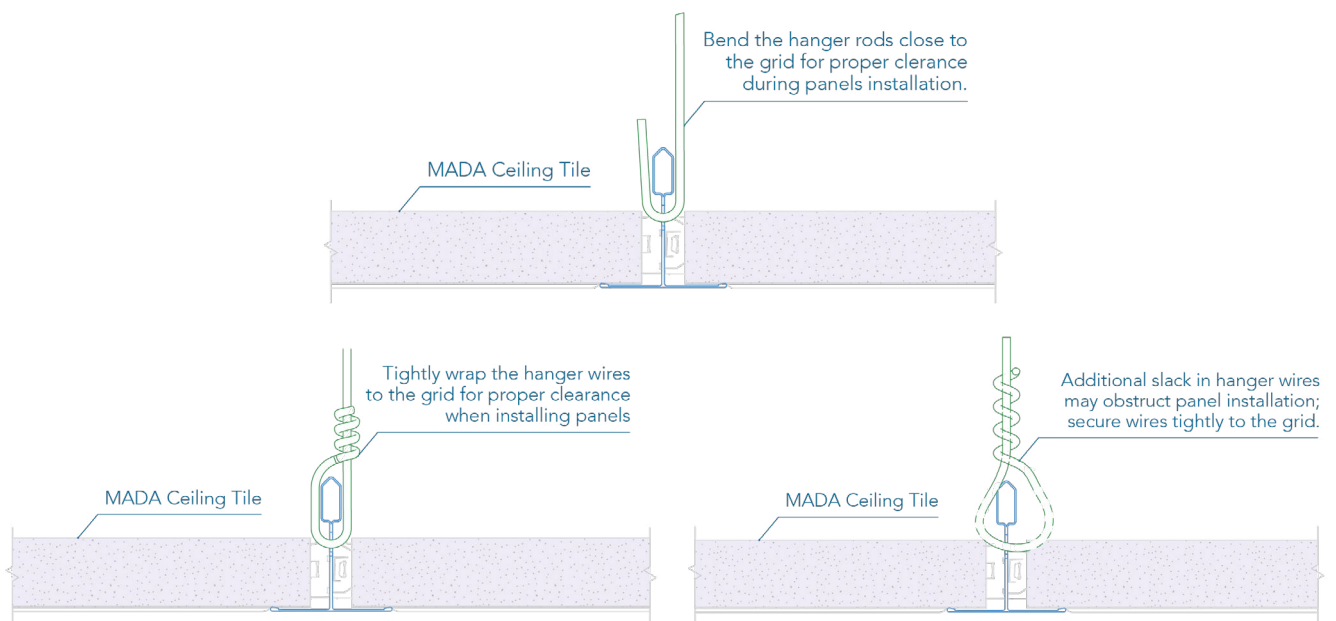
- Set laser line at finished ceiling datum.
- Verify/adjust the level of ceiling and squareness by diagonal check before Mada Main Tee loading.

GRID

ASSEMBLY

- Mada Main Tee will be cut size at the end that will abut the perimeter angle, such that there is a cross tee insertion slot as per grid layout determined earlier.
- Place the cut end of the Mada Main Tee on the perimeter angle such that it rests fully.
- Pass the installed suspension through the holes on the Mada Main Tee, selecting them in such a way that the hangers are all almost vertical.
- Ensure the hanger around the Mada Main Tee, will not obstruct the installation of the tile. (Figure 8)
- Using the laser as a guide maintain the Mada Main Tee level.
- Thus, each Mada Main Tee gets supported @1200mm centres
- For lengths in excess of 3600mm, insert and interlock the subsequent Mada Main Tee and at same time supporting it with suspensions @1200mm centres.
- At the other end of the ceiling, cut the Mada Main Tee such that it rests properly on the perimeter angle.
- Similarly, install the remaining Mada Main Tees in parallel.
- Inserted the Mada 1200 Cross Tees perpendicular to the Mada Main Tee @600mm centres, forming 1200 x 600mm grid. Check for audibly click and ensure no visible gaps between the tees.
- Insert the Mada 600 Cross Tees perpendicular to Mada 1200 Cross Tee to form the 600 x 600mm grid. Check for audibly click and ensure no visible gaps between the tees.
- Now make final ceiling level check.

Figure 8



TILE INSTALLATION

Sequence

Start opposite to the primary line of sight (usually away from main entrance). Start with border.

Cut tiles

- Ensure hands are clean or wear clean gloves before handling tiles.
- Score the tile face up with sharp knife against a hard straight edged object and break clean.
- Cut the tile in such a way that the cut edge rests on the perimeter angle.

Placement

Tilt tile, insert, and lower gently onto T-bar flange

Inspection

Confirm flush alignment; no sag, twist, or visible camber.



POST - INSTALLATION CARE

Dust Removal

On completion & before handover, soft brush or vacuum but no water.

Cleaning

As needed using damp cloth + mild soap; no abrasives, solvents, or pressure wash.

WARRANTY & COMPLIANCE

Use only Mada components. Mixing with non approved Mada components voids system warranty.

Why This Consolidated Method Is the Mada Benchmark

- **Reduced re-work:** tighter perimeter fixings and dual border-tile rule eliminate last-minute cut strip issues.
- **Optimized load path:** Suspensions @1200mm hanger centres balances speed with structural integrity.
- **Total system integrity:** single-source Mada materials ensure finish consistency, faster approvals, and long-term performance.

Mada's Technical Team remains at your service for shop-drawing reviews, load checks, or bespoke detailing. Let's elevate every ceiling, together.



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