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Test shading device movement limits and collision avoidance

Test shading device movement limits and collision avoidance with an interactive checklist; commentable steps and evidence capture; export as PDF/Excel for reliable QA sign-off.

Project:	
Date:	
Filled by:	

Pre-Test Setup	
1	Verify approved submittals match installed motorized roller shade model and motor-controller type; cross-check tag IDs against drawings. Acceptance: all labels and data align with approved project specifications. Evidence: photo of equipment labels and marked submittal/drawing excerpt.
2	Inspect headbox and brackets for secure fixings; level with a 600 mm spirit level. Acceptance: alignment within 2 mm per metre; no loose fasteners. Evidence: photo showing level bubble and fastener torque marks or torque log.
3	Confirm power and polarity at controller using a multimeter. Acceptance: voltage per manufacturer/spec (e.g., 230 V AC ±5% or 24 V DC ±5%). Evidence: photo of meter reading at terminals and recorded circuit ID.
4	Validate control addressing/grouping in the commissioning app or gateway. Acceptance: channels, groups, and presets match the schedule. Evidence: screenshot of channel map and exported configuration file name/version.

Safety & Protection	
5	Barricade the work zone beneath the shade path; place warning signage. Acceptance: exclusion zone established with visible tape/cones. Evidence: wide-angle photo of barriers and signs with timestamp.
6	Test local emergency stop or kill switch. Method: run shade, hit stop. Acceptance: motion halts within 1 s. Evidence: short video with visible time display or controller event log.
7	Confirm manual override tool present and operator trained. Acceptance: tool accessible; operator acknowledges procedure. Evidence: tool photo and signed toolbox talk sheet or digital acknowledgment.

Movement Limit Tests	
8	Initialize controller as required (factory reset/clear limits) per manufacturer. Acceptance: reset complete without faults. Evidence: controller LED/status log photo or app confirmation screen.
9	Set lower limit: jog down to just above sill. Acceptance: hembar clearance 5–10 mm above finished sill; parallel to sill. Evidence: close-up photo with steel ruler showing gap at both ends.
10	Set upper limit: jog up below headbox to avoid overwrap. Acceptance: fabric edge parallel; clearance 5–10 mm below headbox. Evidence: photo of gap and fabric tracking alignment marks.
11	Cycle shade from full open to full close three times. Acceptance: stop positions repeat within ±5 mm; travel time variation ≤5%. Evidence: measurement photos each cycle and timer screenshots.
12	Verify intermediate preset(s) if specified. Acceptance: position accuracy within ±10 mm of setpoint. Evidence: controller preset screen capture and ruler photo at hembar.
13	Check soft-start/soft-stop parameters. Acceptance: ramp 0.3–1.0 s, no bounce or drift after stop. Evidence: video clip and saved parameter report from commissioning tool.
14	Assess motor thermal behavior after five continuous full cycles. Acceptance: motor housing temperature < 60 °C or per spec; no thermal trip. Evidence: IR thermometer photo and cycle count record.

Collision Avoidance Tests	
15	Place compliant obstruction (≈50 mm foam cylinder) at sill; command close. Acceptance: detection triggers stop/reverse within 1 s; peak force ≤ 100 N or per spec. Evidence: video and force gauge reading if applicable.
16	Repeat obstruction test at mid-drop using the same compliant block. Acceptance: stop/reverse within 1 s; no fabric creasing. Evidence: video and photo of obstruction position.
17	Simulate head jam by gently restraining hembar near fully open. Acceptance: controller overcurrent detection halts within 1 s; no slippage. Evidence: controller fault/event log and video clip.
18	Run adjacent shades simultaneously to validate anti-collision logic. Acceptance: minimum gap ≥ 20 mm at all times; no contact. Evidence: side-by-side photo at closest approach with ruler.

Documentation & Handover	
19	Label final limits and group IDs on as-built drawings; update CDE. Acceptance: drawings reflect device tags, limits, and presets. Evidence: uploaded file link and revision ID.
20	Record final demonstration: two full cycles plus one obstruction reversal. Acceptance: video clearly shows stop points and recovery. Evidence: stored video filenames with date/time and location tag.
21	Export checklist with photos, readings, and comments; obtain digital signatures. Acceptance: PDF/Excel exported; QR-authenticated record shared with stakeholders. Evidence: signed export and distribution email or transmittal number.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Test shading device movement limits and collision avoidance is a critical commissioning activity for motorized roller shades. This checklist focuses on travel limits, end stops, and obstruction detection to prevent fabric damage, motor strain, and user injury. It covers pre-test setup, safe execution, verification of upper and lower limit switches (or soft limits), repeatability checks, and collision-avoidance scenarios with adjacent shades. By keeping a single scope—interior motorized roller shades—the workflow remains clear and evidence-driven. You will confirm clearances at sill and head, verify preset positions, measure travel time consistency, and validate anti-collision behavior using compliant test obstructions. Acceptance cues, tolerances, and photo/video evidence are specified to streamline QA and handover. The outcome is reliable operation, reduced rework, and documented compliance per approved project specifications and authority requirements. Start in interactive mode to tick steps as you go, add comments for variances, and export a QR-secured PDF/Excel record for sign-off.	1. Preparation: Gather multimeter, spirit level, IR thermometer, compliant obstruction, ruler, force gauge, and PPE. Confirm power-on permission, access, and a safe exclusion zone. Open approved drawings, submittals, and manufacturer instructions. 2. Open the checklist in interactive mode. Select project, level, and device tag. Assign responsible parties and due dates, then brief the team on safety and communication during tests. 3. Work step-by-step, ticking items as completed. Attach photos, videos, and screenshots. Use comments to note deviations, corrective actions, and cross-references to manufacturer guidance. 4. Use the evidence panel to validate tolerances: measure clearances, log travel times, export controller parameters, and capture tool readings. Tag media with location, shade ID, and time. 5. Export the record as PDF/Excel for review. Ensure all mandatory evidence is attached and comments are resolved or assigned with actions and deadlines. 6. Sign-Off: Capture digital signatures from installer, commissioning agent, and client. Archive the QR-authenticated export in the common data environment and distribute to stakeholders.