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Test façade actuator synchronization across linked panels

Test dynamic façade actuator synchronization across linked panels with an interactive checklist that is commentable and can export as PDF/Excel for verified safety, timing, and performance.

Project:	
Date:	
Filled by:	

Pre-Test Verification	
1	Confirm latest drawings, sequences, and actuator schedules are approved and issued for construction.
2	Record actuator model, firmware, and serial numbers; photograph labels; verify match to submittals.
3	Inspect mechanical linkages, hinges, and fasteners; torque-check critical fixings to specified Nm; photograph evidence.
4	Measure supply voltage at each actuator under load using a true-RMS meter; acceptable ±5% of rated voltage.

Network and Controls	
5	Verify network topology and addressing; ping each controller; no packet loss >0.1% over 10 min.
6	Confirm NTP time sync across controllers and BMS; offset ≤50 ms; attach time-sync screen capture.
7	Calibrate position feedback (0–100% stroke) using manufacturer tool; linearity error ≤1% FS; save calibration file.
8	Set group control parameters (ramp rate, deadband, acceleration) per sequence; record exact values.

Safety and Environment	
9	Check emergency stops, interlocks, and local isolators; verify stop-to-zero response ≤500 ms; video evidence.
10	Establish exclusion zone with barriers; assign spotter and radio; log toolbox talk attendance.
11	Confirm wind sensor inputs and override logic; simulate 8 m/s wind; system moves to safe preset within 3 s.

Synchronization Test	
12	Baseline latency: command 10% step; log response at each actuator; command-to-90% response spread ≤100 ms.
13	Full-stroke ramp 0–100–0% at specified rate; positional skew between linked panels ≤1% of stroke throughout.
14	Hold position at 50% for 5 min; drift ≤0.5% FS; record current draw with clamp meter.
15	Cycle test 20 repetitions 0–100–0%; no missed counts or faults; log temperature rise <20 °C above ambient.
16	Obstruction test at 30% closing using calibrated soft block; force limit triggers <2 s; no panel damage.
17	Power-loss test: cut supply mid-move; system stops safely; upon restore, resumes to commanded setpoint within 10 s.

Measurements and Evidence	
18	Measure stroke with laser distance meter; confirm design travel ±2 mm; attach photos of measurement points.
19	Export BMS trend logs (1 Hz minimum) for all actuators; include timestamps and units; attach CSV.
20	Capture controller screenshots of parameter sets and alarms; annotate with panel IDs; upload PDFs.

Closeout and Sign-Off	
21	Record final acceptance criteria met; list deviations and corrective actions; obtain digital signatures.
22	Provide O&M; update: parameters, maintenance intervals, and spare parts; archive package with QR-linked evidence.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Test dynamic façade actuator synchronization across linked panels to ensure coordinated motion, predictable timing, and safe operation during commissioning. This checklist focuses on multi-panel synchronization for linked façade units, covering actuator commissioning, BMS integration, latency, and positional skew. It excludes unrelated envelope tests (air/water infiltration, thermal imaging) and non-linked single-panel operation. By following the steps, teams verify addressing, control logic, and safety interlocks while capturing evidence for handover. You will measure timing jitter, compare position feedback, and validate recovery after power loss and emergency stops. Outcomes include smoother motion, reduced binding, lower mechanical stress, and traceable documentation for authorities and owners per approved project specifications and authority requirements. Use calibrated tools and clearly marked test configurations to avoid misinterpretation. Start in a safe, controlled environment with barriers and spotters where required. Launch interactive mode to tick items, add comments, and attach readings; then export your record as PDF/Excel with embedded QR for authentication.	1. Preparation: gather laser distance meter, true-RMS multimeter, clamp meter, radio headsets, calibrated soft obstruction block, data logger/BMS access, and PPE. Confirm approved drawings, sequences, and permits. Set up exclusion zones and a spotter. 2. Verify tools are calibrated and batteries charged. Label panels and controllers clearly so screenshots, photos, and trend logs map to consistent IDs. 3. Using the Interactive Checklist: start interactive mode, tick items as completed, add time-stamped comments, and attach photos, CSV trend logs, and parameter exports to each step. 4. During tests, record acceptance readings directly in the item fields. Cross-reference evidence with synchronized timestamps for traceability. 5. Export: generate a consolidated PDF/Excel package with embedded photos, measurement tables, and parameter listings for stakeholder review. 6. Sign-Off: capture digital signatures from commissioning lead, controls integrator, and client representative; include date, panel IDs, and version numbers. 7. Archive and QR authentication: store the package in your document system and link a QR code on-site to the immutable record.