Corner Brace Screw Torque Verification

1.0 Objective & Quality Standard

The objective of this procedure is to ensure that all corner brace screws are tightened to the specified torque range, preventing joint loosening, squeaking, or structural failure during cabinet use. The acceptable torque range for all corner brace screws is 2.5 Nm to 3.0 Nm. Any screw reading outside this range must be adjusted and re-verified.

2.0 Required Tools & Gauges

- Torque screwdriver (preset or adjustable, range 1-5 Nm, calibrated within last 90 days)
- Torque verification tool (e.g., torque checker or digital torque adapter)
- Phillips or square drive bit (matching screw head type)
- Calibration log for torque tool
- Red tag and marker for defect identification

3.0 Safety & Material Handling

- Wear safety glasses to protect against debris or tool slip.
- Use ergonomic grip on torque screwdriver to avoid wrist strain during repeated use.
- Handle assembled cabinets with care to avoid scratching or damaging finished surfaces.
- Ensure work area is clean and free of clutter to prevent tripping or tool misplacement.

4.0 Step-by-Step Procedure

1. Verify that the torque screwdriver is calibrated by checking the calibration sticker and log. If calibration is overdue, do not use the tool and notify the QA supervisor.
2. Set the torque screwdriver to the target torque of 2.8 Nm (midpoint of acceptable range 2.5-3.0 Nm). Lock the setting if applicable.
3. Select the correct drive bit (Phillips #2 or square #2) that matches the screw head on the corner brace. Inspect the bit for wear or damage; replace if worn.
4. Position the assembled cabinet on a stable, level work surface with the corner brace accessible.
5. Insert the torque screwdriver bit into the first corner brace screw head. Ensure full engagement to avoid cam-out.
6. Apply steady, even pressure while turning the screwdriver clockwise until the clutch clicks or the tool indicates the set torque is reached. Do not overtighten.
7. Repeat step 6 for all remaining screws on the same corner brace. For a standard corner brace, this includes four screws.
8. After tightening all screws, use the torque verification tool to check each screw. Place the verification tool on the screw head and apply torque until the tool indicates the reading. Record the reading for each screw on the QA checklist.

9. If any screw reads below 2.5 Nm, re-tighten using the torque screwdriver set to 2.8 Nm and re-verify. If the screw reads above 3.0 Nm, loosen the screw slightly and re-tighten to the correct torque, then re-verify.

10. If a screw cannot be adjusted to within the acceptable range after two attempts, inspect the screw and corner brace for damage (stripped threads, deformed brace). If damaged, red-tag the assembly and report to QA supervisor.

11. Document all torque readings on the QA checklist or in the ShopDocs QA module. Include the date, operator ID, and any corrective actions taken.

12. Proceed to the next corner brace on the assembly and repeat steps 5 through 11 until all corner braces are verified.

5.0 Verification & Defect Reporting

1. After completing torque verification for all corner braces on the assembly, review the QA checklist to ensure all readings are within the 2.5-3.0 Nm range.

2. If any screw reading is outside the acceptable range and cannot be corrected, attach a red tag to the assembly with the defect description, date, and operator ID.

3. Move the red-tagged assembly to the designated rework area. Notify the QA supervisor for disposition (rework, scrap, or engineering review).

4. Log all out-of-tolerance defects in the ShopDocs QA module for root cause analysis and continuous improvement tracking.

5. If a pattern of defects is observed (e.g., multiple screws consistently under-torqued), escalate to the production supervisor to review the assembly process or tool calibration.