Construction of this 23 storey commercial tower in Toronto, Ontario was completed in 1986. Just over fifteen years later, loose metal panels with a risk of becoming dislodged were observed. C3 Specialty Glazing Solutions was contracted to investigate the root cause of the failure and to devise durable, cost effective repairs. C3 Specialty Glazing Solutions retained the services of a structural engineer to review the load capacity of the assembly relative to actual service loads. The investigations concluded that there was a systemic problem extending to a significant percentage of the metal panels.

Load tests were conducted that confirmed the inadequacy of the metal stiffeners. The curved corners and sloped roof panels on the Madison Centre raised a concern that standard wind loads from the Ontario Building Code may not be adequate. Wind tunnel testing was completed at the Boundary Layer Wind Tunnel Laboratory at the University of Western Ontario to obtain more accurate values for the loading criteria.

C3 Specialty Glazing Solutions’ proposed solution enabled the reuse of the existing panels. This resulted in significant cost savings over the option of installing new panels. A mockup was built and tested to confirm that the proposed repair could withstand the newly specified loads. Full scale repairs were completed on the Madison Centre in late 2007.

**Rapid Site Mobilization**
When the loose panels were observed in 2002, C3 Specialty Glazing Solutions sent a team to the site to examine and document the existing conditions in order to plan the resources and steps needed to identify the source of the problem.

**Root Cause Identification**
Once dislodged panels were removed, the obvious distress of fastening components led to more in depth investigation of component and assembly strengths versus service loads.

**Comprehensive Testing**
Wind tunnel testing verified actual wind loads in key areas. Testing of a re-designed mockup confirmed its structural performance relative to the newly defined loads.

**Adaptive Reuse**
Re-design and refabrication of the metal stiffeners and fastening system allowed for reuse of the existing metal panels, offering significant cost savings.
C3 Specialty Glazing Solutions assembled the team necessary to ensure a cost effective, durable repair that addressed the root causes of failure while reusing existing materials.

C3 Specialty Glazing Solutions is a full service contractor providing:
- Timely response,
- Thorough investigation;
- Comprehensive testing;
- Sustainable solutions &
- Installation