



National Research Council    Conseil national de recherches  
Canada                                    Canada

Institute for                                    Institut de  
Research in Construction                    Recherche en Construction

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## Special Interest Group for Dynamic Evaluation of Roofing Systems SIGDERS - Phase V

### Background

On Nov. 16, 1994, members of the roofing community met at the National Research Council of Canada and formed a group with a common focus of evaluating roofing systems under dynamic environment. Thus, a *Special Interest Group on Dynamic Evaluation of Roofing Systems* (SIGDERS) was created. The mandate of SIGDERS joint research program is to carry out generic, pre-competitive research of benefit to all its members. During the Phases 1, 2, 3 and 4 objectives were identified; tasks were developed and executed through approval process by the Steering Committee members. For each of the Phase, SIGDERS deliverables were presented to the members via formal technical meetings and fulfilled all established tasks. Based on the focused effort, recently, SIGDERS made two major contributions to the roofing community by publishing national dynamic wind uplift standard and a guide for wind design of mechanically attached roof assemblies. In addition, SIGDEERS' technology was transferred via more than 100 peer reviewed technical publications.

### Mode of operations and membership benefits

Members have the privileges for first access to the knowledge and technologies developed similar to the previous Phases. The Steering Committee will meet at least twice a year and will consist of all the voting members. Although any member may send, more than one representative, each member will only have one vote. It will be the responsibility of the Steering Committee to develop the research program, establish the project schedule, and set the major milestones for the agreed deliverables. The Steering Committee, through the auspices of the NRC, will prepare and circulate minutes of the Steering Committee and Task Group meetings, and will provide progress reports to its members. Efforts will be made to have summer meeting at the NRC campus in Ottawa and winter meeting together with North American roofing industry related events with the aim to save the travel cost.

### Overall work plan

SIGDERS Phase IV, meeting 5 was held at Marriott Waterside, Tampa, FL along with ASTM D08 – Roofing Symposium on December 1, 2007. Existing and new members participated in a discussion forum – *Where we go from here?* For discussion purposes, the following objectives (not in the order of the priority) were presented to the members:

- Development of Appropriate Testing Table Size for MARS, FBS, AARS
- Investigation of Hybrid Systems
- Investigate Wind Uplift Resistance of Fully Bonded Systems
- Quantifying the Wind Uplift Resistance of Mounted Roof Tops
- Codification of SIGDERS' Research Findings – Tech Transfer
- Development of a Web Based Design Tool – Tech Transfer
- Estimating the Adverse Effect of Corner/Edge Linear Enhancements
- Field Monitoring of the Wind Performance of Roofs

SIGDERS Phase V, meeting 1 was held at the National Research Council of Canada in Ottawa, Canada

on April 16, 2008. Based on the involved discussions and members voting, the following three objectives have been finalized.

**Objective 1: Field Monitoring of the Wind Performance of Roofs**

- T1: In consultation with members, identify 3 buildings located in a moderate wind zone.
- T2: Measure rooftop wind speed and compare with weather data.
- T3: Instrument the field/edge/corner zones
- T4: Collect data for wind pressures, fastener forces and membrane deflections
- T5: Compare field system performance with wind tunnel data

**Objective 2: Air Intrusion Quantification of Mechanically Attached Roofing Assemblies**

- T1: Documenting that wind uplift testing can address the issue of air leakage in roofing.
- T2: Measure air intrusion of mechanically attached roofing systems without any barrier/ retarder.
- T3: Measure air intrusion of mechanically attached roofing systems with barrier/ retarder.
- T4: Measure air intrusion of roofing systems with multilayer insulation arrangements.

**Objective 3: Update CSA A123.21-04 Standard to Include Wind Uplift Resistance Evaluation of Fully Bonded System**

- T1: Determine appropriate test specimen size for wind uplift resistance evaluation of FBS.
- T2: Evaluate the wind uplift resistance of rigid roofing systems with single-ply membranes.
- T3: Verify the existing CSA load cycle and its applicability to rigid systems.

**Phase V**

To become a voting member of SIGDERS, an annual membership fee of \$7,000 Canadian Funds and commitment of two years (\$14,000) was established. For the following existing members, contract agreements can remain same as before.

- **Manufacturers:** Atlas Roofing Corporation, Canadian General Tower Ltd., Carlisle Syntec Incorporated, Duro-Last Inc, GAF Materials Cooperation, Firestone Building Products Co., IKO industries Canada, Johns Manville Corporation, OMG, Sarnafil Ltd, Soprema Canada, Stevens Roofing Systems, Tremco, Inc.
- **Building owners:** Canada Post Corporation, Public Works and Government Services Canada and
- **Associations:** Canadian Roofing Contractors' Association, Canadian Sheet Steel Building Institute, National Roofing Contractors Association and the RCI Inc.

Three payment options are proposed.

- Option 1: \$5000 due no later than September 2008 and \$5000 due no later than July 2009, \$4000 due no later than July 2010;
- Option 2: \$7000 due no later than September 2008, \$7000 due no later than July 2009 and
- Option 3: \$14000 due no later than September 2008.

Depending on the client preference, invoices will be processed. A signed contract agreement is needed for any new members.

Phase V will be officially launched summer of 2008 with the estimated completion of summer of 2010. Task Groups can be formed to develop exact deliverables for the above objectives. Members will be notified before releasing data/reports in to the web site and other medias. In the SIGDERS web site password protected (members only) section will be developed and access will be provided for all the Phase V members.