May 26th, 2106

Mr. Richard Corey,
Executive Officer
California Air Resources
1001 I Street
Sacramento, CA 95814

RE: **Draft Strategy Reducing Short-Lived Climate Pollutants in California**

These comments are submitted by Structural Concepts Corporation in response to the California Air Resources Board (ARB) proposed short lived climate pollutants reduction strategy.

Structural Concepts Corporation is a privately held company located in Muskegon MI. We are a producer of remote and stand-alone commercial refrigerated units for the retail and food service industry. 80% of our equipment is standalone with the vast majority of our cases falling in the ¾ to 3 hp range. We have over 600 active models in our product offering. Structural Concepts is a member of both AHRI and NAFEM and fully support their written comments.

Structural Concepts Corporation has supported and wants to continue to support the effort to reduce the overall energy usage and the carbon foot print our product has on the environment. With each phasedown of refrigerant gases in the past, from CFC to HCFC, HCFC to HFC there has been a readily available alternative refrigerant that required no more than a compressor and valve change. If the GWP limits are set too low, we are left with only flammable refrigerants or a high pressure refrigerant with no component availability and reduced efficiency rates at elevated temperatures.

With the refrigerant limit set at 150 GWP and the current SNAP approved refrigerants for commercial refrigeration this really only allows manufacturers to use A3 refrigerants as CO2 runs too inefficiently in an NSF Type II environment to pass DOE regulations and is too cost prohibitive on a per unit basis. With the current charge limit set at 150 grams for A3 refrigerants only the smallest commercial refrigeration systems can be made with a unitary

condensing unit. With our current commercial refrigeration equipment cases being as large as 2 tons of refrigeration, it would require up to 6 condensing units to be installed which would not be physically possible nor would it pass the DOE energy limits. Compressor discharge gas used to evaporate off the condensate produced from the equipment would have to be eliminated due to charge limitations. Electric condensate evaporator pans would need to be added back in to systems dramatically increasing the energy consumption.

Structural Concepts and other commercial refrigeration manufacturers have worked closely with the federal EPA through their SNAP rulemaking and we believe this has been instrumental in getting HFO blends like R-450A and R-513A approved for medium temperature commercial refrigeration systems for the very reason listed in the above and our previous comments to ARB. These drop in R134a alternatives allow for larger commercial refrigeration equipment to continue to be single condensing units, do not have the safety concerns that larger charge limits of A3 gasses would have and provide a stepping stone until the A2L class of refrigerants become approved, available, and written into UL and building codes.

Ideally the R404A replacement gasses, like R-448A and R-449A and B will be allowed for the large systems as the volumetric efficiency of the low pressure R-134A gasses are prohibitive on the machine compartment size. As is, the refrigeration equipment will have to increase in size requiring a redesign of all of the cases just to accommodate the low pressure gasses that are currently using the medium pressure R-404A refrigerant.

To this end, we propose that ARB adapt a phase down approach on the GWP prohibition that would allow for the R-404A alternatives to be used at 1500 GWP until the A2L versions of these gasses become available for the market and EPA SNAP approved. At a minimum we would ask that the ARB align with federal EPA allowances so that large commercial refrigeration equipment will still be allowed to be used in the state of California.

Sincerely,

Jason Paquette
Director of Engineering
Structural Concepts Corporation