POWUr NEWS
Saskatoon Chapter News
January 31st ,2006

Meeting Notice

Tuesday February 7th, 2006

@ The Willows Golf & Country Club

Speaker: Jeannine Paul of Nexus Solar
Topic: New Energy Systems for Buildings

The February Meeting is
Membership Promotion & Student Night

5:30 - 6:00	Cash Bar
6:00 - 6:45	Supper
6:45 - 7:15	Chapter Meeting
7:30 - 8:30	Dinner Speaker

AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS
ASHRAE SASKATOON

ASHRAE
Saskatoon
P.O Box 7043
Saskatoon SK
S7K 4J1

ASHRAE Chapter local funspiel

To be held Saturday, February 18th , 2006 at the Granite Curling Club starting at 3:00 P.M. Open to members, partners, friends, distant acquaintances or anyone else who might like to have a fun time curling. Cost is $ 20.00 to curl, dinner and prize presentation to follow at your own cost. Call Jack Scott if you're up for it.

The John Ross playdown is in Edmonton on February 25. Anyone who would be interested in going to Edmonton to compete should let Jack Scott know as soon as possible.

Thanks,
Jack

RESEARCH PROMOTION

The February Meeting will be ASHRAE Research Donor Appreciation Night. Thanks to all those who donated last year ! If you would like to donate to this years goal, please contact Mike Osborn @ 242-3333 or m.osborn@cypresssales.com

PROGRAM SPEAKERS

I am looking for suggestions for Meeting Speakers and Topics for our local Chapter Meetings for the 2006-2007 season. If anyone has an interesting topic, or knows someone that might be interested in Speaking at one of our Local Meetings, please contact Bruce Waldbillig @ 931-3316 or via email bwaldbillig@price-hvac.com

MEMBERSHIP NEWS

Previous Meeting Attendance: Many thanks to those who attended the January 2006 local chapter meeting and listen to the presentation by Robert Renaud from Sanuvox Technologies and his presentation on Ultra-Violet Air Purification. Those in attendance were;

Jeff Frie	Linda Lin	Trent Washkosky	Dean Buchholz	Colin Hilderman
Jack Scott	Grant Jones	Blake Alberts	Michael Nemeth	Melissa Boehm
Lisa Gerspacher	Reg Hofmann	Brad Chisan	Kelly Snider	Reg Povey
Kirk Campbell	Bruce Waldbillig	Paul Khanna	Manish Baweja	Myles Bantle
Mike Carr	Chris Conley	Bernie Kaminski	Hector Drolet	Jonathan French
Greg Scrivner	Ryan MacGillivray			

New Members: I would like to congratulate and welcome 3 new ASHRAE members, Colin Hilderman with the HVAC Sales, Travis Clarke with CHB Technologies and Steve Mohr with DMA Controls. However, Steve is in Regina and will be reassigned to their chapter.

Student Night: Tuesday February 7th will be student night. Kelsey and University of Saskatchewan students are invited to attend this and all local ASHRAE Chapter meetings. This is a great opportunity to meet local contacts in the HVAC industry and gain knowledge about ASHRAE. The cost for the meal and meeting for students has been set at $5.00 per person.

Membership Promotion Night: Tuesday February 7th will be the second of 2 membership promotion nights for the year. If you know of someone who would like to become a member or if they are just curious about ASHRAE, bring them along to the next meeting. The cost for the meal and meeting for prospective news members has been set at $10.00 per person.

Rosters: Saskatoon Chapter 2005-2006 rosters will be updated for the current year. Contacting and confirming personal information as it relates to privacy issues has been challenging. As a result updated rosters may not be available until December.

Web Site: Check our web page for all the latest news on our local chapter.
http://www.saskatoon.ashraechapters.org

Jeff
Membership Promotion Chairperson

Energy Answers

Rob Dumont

What would be the very best window for a south orientation for passive solar heating in the southern parts of Canada?

To my knowledge, no manufacturer makes such a window, but here is the window that I would choose if money were no object and a manufacturer would assemble it. The window is also assumed to have good visual properties. (An aerogel sandwiched between two sheets of glass fibre would not be visually acceptable.)

With a southfacing window optimized for passive solar gain, you want to maximize the solar gain while minimizing the heat losses.

There are many parts to an outstanding window. Here's my choice for the very best:

1. Glazing
The glass would be low iron to ensure high transmittance of solar radiation.(Conventional glass when viewed from the edge has a green tint to it because of iron impurities.) Each glass layer would also have an anti-reflection coating facing the outside to minimize reflection of the sun's rays and improve transmittance. Some eyeglasses and camera lenses use anti-reflection coatings.

2. Multiple glazing layers.
The window would likely have three glazing layers, although 2 layers might be optimum in the warmer parts of southern Canada.

3. Low emissivity coatings.
The purpose of the low e coatings is to reflect lower temperature long wave radiation back toward the warm side of the window. A good low e coating has high transmittance to the higher temperature shorter wave solar radiation.

4. Heavy gas fill. Krypton gas is the most practical available gas at present for the very best window, but Argon is used more frequently because of lower cost. Argon, however, does not have as high a molecular weight as Krypton. Krypton has the performance edge.

5. Low conductivity spacer bar
Most conventional windows use an aluminum spacer bar to keep the panes separate. A non-metallic spacer bar with an excellent air and vapour seal would be my choice.

6. Low conductivity frame
A non-metallic material would be my choice. Glass fibre extruded sections filled with polyurethane would likely be my pick.

7. Modest frame dimensions
The narrower the frame size, the greater the amount of solar radiation that can enter the window.

8. If operable, the window should have excellent air tightness characteristics.

The attached figure shows a window that has a number of the above characteristics. The graphic is from the Saskatchewan Advanced House booklet produced by Sunridge Residential.

From Solplan Review Magazine, Box 86627, North Vancouver, BC, V7L 4L2? An annual subscription to the publication is $48.15 including GST.

For non-south window orientations, what would be the very best choice?

For the non-south windows, I would opt for a window that had the smallest heat loss. The winter solar gains on east, west, and north windows are modest compared with the south window gains. A high R value window would be my choice.

Here's my selection: A quadruple glazed unit with three low e coatings, krypton gas fill, low conductivity spacer bar and low conductivity frame.

And if money were ***truly*** no object, I would put two quadruple glazings units in series, and vent the space between the two units to the outside.

What are some heat transfer properties for commercially available windows?

The two heat transfer properties of greatest interest are the Solar Heat Gain Coefficient (SHGC) and the overall window R value. The values shown in the table below are for the entire window including both the glass and the frame. Also very important is the air leakage value for the window, but it assumed that this will be very low.

The following table is from the ASHRAE Handbook of Fundamentals (Chapter 31, Tables 4 and 13, 2005 Edition.) Generic SHGC and R values are presented for various types of vertical windows with solar radiation at normal incidence with insulated fiberglass or vinyl frames, with a half inch space between panes, and a fixed window (non-opening) type. The panes of glass are assumed to be 1/8 inch (3 mm) thick using clear glass with and without low e coatings. R values are quoted for winter, night-time heat losses.

Generic Window Properties
Windows are arranged in descending order of Solar Heat Gain Coefficients

	Solar Heat Gain Coefficient	R Value ($h\text{-}ft^2\text{-}{}^oF/BTU$)
Single glazing, uncoated	0.90	1.06
Double glazing, uncoated, air	0.76	2.08
Triple glazing, uncoated, air	0.68	2.94
Double glazing, low e = 0.1, argon	0.65	2.85
Triple glazing, two low e =0.1, air	0.41	4.00
Triple glazing, two low e=0.1, argon	0.41	4.35
Quadruple glazing, two low e =0.1, argon	0.26*	5.26
Quadruple glazing, two low e =0.1, krypton	0.26*	5.26

*Estimated from table in the ASHRAE Handbook of Fundamentals, Ch 31, Table 13, 2005
**Quadruple glazing with krypton is assumed to have 1/4 inch spaces between the panes.
*** To convert R values to metric quantities, divide the values in the above table by 5.678.
**** For best winter performance, the low e coatings should be positioned to yield a higher SHGC coefficient. Thus on a double glazed window, the low e coating should be on the surface 3, where surface 1 is on the outside of the outside pane, surface 2 is on the inside of the outside pane. Surface 3 is on the outside of the inner pane.

There is a tradeoff, in that going for a high SHGC such as an uncoated double glazing yields a relatively high 0.76, but the R value is not very high at 2.08. At the other extreme, a window with a low SHGC (quadruple glazed SHGC = 0.26) can have a much higher R value of 5.26.

For the south windows, assuming we have chosen a window design with good spacers and frame material, there are several options that could be chosen: double glazed with low e and argon, triple glazed with one low e coated pane and argon, triple glazed with two low e coated panes and argon. The double glazed has the advantage of the higher solar heat gain; the triple low e argon unit has the advantage of a higher R value. With the triple low e the SHGC is 0.41 vs 0.65 for the double glazed unit with one low e coating. This triple would admit only about 0.41/0.65 times or 0.63 times as much solar heat gain, and would thus have fewer problems with over heating.

For the **non-south** windows, the quad glazing would be the best, given that solar gains are low on these orientations.

I don't have any definitive information about the advantages of going to low iron glass, but I would expect that the SHGC would increase a few percentage points with that type of glass.

ASHRAE Saskatoon Chapter

General Meeting Minutes
January 10th, 2006

I. Call to order

Reg Hofmann called to order the regular meeting of the ASHRAE Saskatoon General Meeting at 7:12 p.m on January 10th, 2006 At the Willows Golf & Country Club.

II. Reading of minutes from last meeting

- The meeting minutes from the November meeting were read by Bruce Waldbillig. Jack Scott made a motion to accept the minutes as read which was seconded by Brad Chisan.
- There were no changes or omissions
- A vote to accept the minutes as read or amended was passed unanimously

III. Reports

Treasurer – Ryan MacGillivray
- Account balances were noted and not published.

Programs - Kirk Campbell
- Welcome Robert Renaud from Sanuvox.
- The February meeting speaker is confirmed.
- Kent Peterson (Distinguished Lecturer) will be speaking in March about Chilled Water Systems
- Still searching for a speaker for the April meeting

CTTC – Chris Conley
- No volunteers yet to Instruct the Fundamentals of Air Systems design course for next year.
- Looking to offer a satellite broadcast on Green Building Technology.
- No new ASHRAE Library books have been purchased, have only received (1) request

Student Activities – Paul Khanna
- February is student night, will be expecting approx. 20 students
- The meal plan is only $ 5.00 to promote student activity
- Thank-you to all those who forwarded Industrial Project suggestions to the SIAST Students

History – Jack Scott
- Local Curling funspiel will be February 18th at the Granite Curling Club starting at 2:30. Cost is $20.00 / person to curl. Supper to follow at your own expense.

Membership – Jeff Frie

- The February meeting will be a combined Student and Membership Promotion Night
- ASHRAE Rosters are available for pick-up
- Welcome new chapter member Hector Drolet from UMA Engineering Ltd.
- Currently have 93 area assigned members, 7 new members, 12 member delinquents, no member advancements and 2 member cancellations

Research Promotion – Mike Osborn

- Not present

IV. Unfinished Business from the Previous Meeting

- Presidential plague was engraved, and is present at this meeting for display.

- Thanks to Jack Scott for his impressive Chapter History display at our December meeting.

V. New business

- Looking for suggestions for new book(s) to add to our ASHRAE library, please contact Chris Conley with your requests.
- Looking for Nominations for ASHRAE Awards at the CRC.

VI. Adjournment

Chris Conley made a motion to adjourn the meeting, which was seconded by Bernie Kaminski. Meeting adjourned at 7:30 p.m.

Minutes submitted by: Bruce Waldbillig

Construction Specifications Canada | Devis de Construction Canada

The CCCA
CERTIFIED CONSTRUCTION CONTRACT ADMINISTRATOR

Saskatoon Chapter

Construction Contract Administration Course

The Saskatoon Chapter of **Construction Specifications Canada** is pleased to offer its **CONSTRUCTION CONTRACT ADMINISTRATION** course. This 12 session course is comprised of 10 sessions of classroom instruction, a review session, and a final exam. The course has been fully **UPDATED** (July 2005), and is the core course for CSC's certification programme, Construction Contract Administrator (CCA).

The **CONSTRUCTION CONTRACT ADMINISTRATION** course is a **Gold Seal** Accredited Course, successful completion of which contributes towards CCA Gold Seal Certification.

When:

Monday evenings, 6:30 pm to 10:00 pm, tentative start date February 20, 2005, and ending with the course exam May 15, 2006.

Registration Information:

Contact: Brent Fraser, RSW
Phone: 655-2840
Email: brent.fraser@saskatoonhealthregion.ca
Registration Forms will be distributed upon request.