POWUr NEWS

Saskatoon Chapter News

April 4, 2005

Meeting Notice

Tuesday
April 12, 2005

@ The Willows Golf & Country Club

(328 Cartwright Street)

Speaker: Duane Nagy

Enerflo Geothermal Technologies Ltd.

Topic: Geothermal and Integrated Technologies

Plus, Presentations by:

Bill Dean, Director & Regional Chair (XI)

Keith Yelton, Regional Vice Chair for Research Promotion

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

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

ASHRAE SASKATOON

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

President
Mike Osborn
Cypress Sales

Vice President
Reg Hoffman
Air Tech
Management

Treasurer
Bruce Waldbilig
HVAC Sales

Secretary
Kirk Campbell
RSL

Resource Promotion
Jonathan French
Johnson Controls

Membership Promotion
Jeff Frie
Daniels Wingerak
Engineering

Education
Paul Khanna
Kelsey Institute

Historian
Jack Scott
HVAC Sales

Refrigeration
Vacant

Chapter Technology Transfer
Chris Conley
Daniels Wingerak
Engineering

Newsletter
Tina Boyle
Johnson Controls

Spring is Here!

And it's almost time for the
Annual ASHRAE Golf Tournament.
All the information and registration form are at the end of this newsletter – be sure to check it out!

Please review the list of nominations below for the 2005/2006 BOG

Nominations:

President--Reg Hoffman
Vice President--Kirk Campbell
Secretary--Bruce Waldbillig
Treasurer--Ryan MacGillivray

Voting / Elections will
take place at the meeting.

What we say……. What we actually mean

Major Technological Breakthrough
Back to the drawing board.
Developed after years of intensive research
It was discovered by accident.
The designs are well within allowable limits
We just made it, stretching a point or two.
Test results were extremely gratifying
It works, and are we surprised!
Customer satisfaction is believed assured
We are so far behind schedule that the customer was happy to get anything at all.
Close project coordination
We should have asked someone else; or, let's spread the responsibility for this.
Project slightly behind original schedule due to unforeseen difficulties
We are working on something else.
The design will be finalized in the next reporting period
We haven't started this job yet, but we've got to say something.
A number of different approaches are being tried
We don't know where we're going, but we're moving.
Extensive effort is being applied on a fresh approach to the problem
We just hired three new guys; we'll let them kick it around for a while.
Preliminary operational tests are inconclusive
The darn thing blew up when we threw the switch.

Resource Promotion:

Research is a central activity of ASHRAE and is critical to the continued advancement of the HVAC&R industry. Many important environmental issues, such as global warming, CFC's, Ozone Depletion, Energy Conservation and Indoor Air Quality, have been focal points for ASHRAE Research.

ASHRAE must continue to be a leader in resolving these global issues and to do this, your contribution is critical.

To those that have already committed to contributing to ASHRAE Research - Thank You
(please don't forget to submit your contribution however).

If you have not already contributed but would like to do so please call me at your convenience 242-8886 ext. 223.

The commemorative coin (for Honor roll level contributors) this year will feature:

Warren S. Johnson
1847 – 1911

After working in numerous jobs from printer to land surveyor to superintendent of schools, Warren Johnson was appointed Professor at the State Normal School in Whitewater Wisconsin, It was here in 1883 that he invented and later received a patent for the first electric room thermostat. His invention launched the building control industry and was the impetus for a new company.

Johnson and a group of Milwaukee investors incorporated the Johnson Electric Service Company in 1885 to manufacture, install and service automatic temperature regulation systems for buildings. The company was renamed Johnson Controls in 1974.

Between 1885 and 1912, Professor Johnson delved into many other areas, including electric storage batteries, steam and gas powered automobiles, huge pneumatic tower clocks and wireless telegraph communication.

Sincerely,
Jonathan French

CTTC Report

The CRC is happening soon and this is your chance to create motions that will be voted on at this year's CRC. If you have any motions that you would like considered please forward them to this year's delegate: Reg Hoffman (air.tech@shaw.ca)

Do you know someone who deserves an award? ASHRAE offers a wide variety of awards for individuals providing: leadership, dedication, long-term service to the industry, research, and many other qualities.

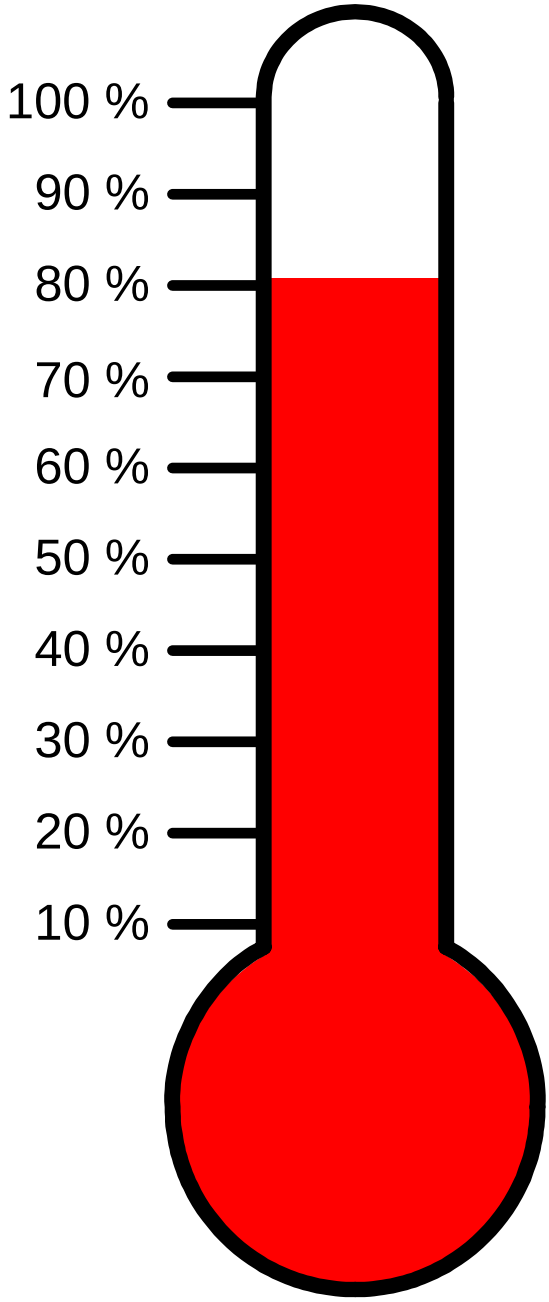
Distinguished and exceptional service awards are available for members with a history of volunteering at the chapter level and beyond.

Chapter service awards are available for members with a long history of volunteering at the chapter level only. Past-presidents in particular should examine the criteria for this award:
http://www.ashrae.org/content/ASHRAE/ASHRAE/ArticleAltFormat/20041130104349_347.pdf

For a full list of awards follow the link to:
http://www.ashrae.org/template/AssetDetail/assetid/24793

If you know someone who you feel should be recognized by ASHRAE for any of the above awards please contact Chris Conley (chris.conley@dwel.com).

RESOURCE PROMOTION



MAJOR DONOR $250 - $2,499

Sask Energy
Conservation Energy Systems
Daniels Wingerak Engineering Ltd.
Cypress Sales Partnership
HVAC Sales Ltd.
ECCO Heating Products Ltd.
Prairie Controls Ltd.
Stantec
Key West Engineering Ltd.
Hain Engineering Ltd.
Associated Engineering
Bill Dean

HONOUR ROLL $100 (Ind) $150 (Bus)

Interwest Mechanical
Intercity Mechanical
Vortec Engineering
Dynamic Agencies
Johnson Controls

Bob Besant
Jonathan French
Mike Carr
Reg Hoffman
Mike Osborn
Kirk Campbell
Bruce Waldbillig

OTHER CONTRIBUTORS

Great West Controls

Membership News

Previous Meeting Attendance: Many thanks to those who attended the March 2005 Local Chapter meeting and speaker. Many thanks to our guest speaker, Carl Lawson and his presentation on Commissioning. Those in attendance were:

Kirk Cambell	Greg Scrivener	Bruce Waldbillig	Bill Dean	Bob Daniels
Jeff Frie	Myles Bantle	Ryan MacGillivray	Mike Carr	Reg Hoffman
Jonathan French	Carl Lawson	Murray Guy	Brad Chisan	Jack Scott
Kevin Thurston	Norm Hain	Bernie Kaminski	Lloyd Labas	Dave Palibroda
Keith Morson	Rob Tomiyiama	Elie Lambert	Jim Greenshields	Mike Osborn
Ted Gaudet	Garry Kreller			

Rosters: Saskatoon Chapter 2004-2005 rosters are available for pick-up at the local meetings

Member Upgrades: A reminder to those who received the member upgrade package, please complete and return to update your membership grade. There is a $20.00 U.S. incentive coupon, which can be used for the purchase of ASHRAE logo merchandise, annual dues of publications.

Membership Summary: The following is a summary of all chapters in Region XI of their membership.

Chapter #	Chapter Name	Chapter Members	Total new Members	Delinquent Members	Membership Advancements	Member Cancellations	% New Members	% Delinquent Members	% net	% Member Advancements	Total PAOE Points
17	Manitoba	164	14	15	0	4	8.54	9.15	6.1	0	0
18	Southern Alberta	268	17	23	0	5	6.34	8.58	4.48	0	340
19	Northern Alberta	204	7	18	0	6	3.43	8.82	0.49	0	50
20	British Columbia	395	19	23	0	10	4.81	5.82	2.28	0	95
78	Inland Empire	90	3	8	0	1	3.33	8.89	2.22	0	0
79	Puget Sound	667	33	58	4	28	4.95	8.7	0.75	0.6	295
80	Oregon	550	22	39	2	35	4	7.09	-2.4	0.36	0
96	Regina	62	2	3	0	1	3.23	4.84	1.61	0	190
102	**Saskatoon**	**89**	**4**	**5**	**1**	**1**	**4.49**	**5.62**	**3.37**	**1.12**	**305**
122	Alaska	183	8	23	0	3	4.37	12.6	2.73	0	0
136	Mid-Columbia	75	5	12	0	9	6.67	16	-5.3	0	0
145	Vancouver Island	59	3	7	0	1	5.08	11.9	3.39	0	150
Region XI Totals		**2806**	**137**	**234**	**7**	**104**	**4.88**	**8.34**	**1.18**	**0.25**	**1425**
							Society Target:	<10%	>6%		

There are numbers yet to be recorded for transferred members, recent membership advancements and potential new members which may not make the posting at the 2005 CRC.

Web Site: The web site is now available and I am in the process of updating the content on the pages. The home page for the Saskatoon Chapter of ASHRAE is located at the following address: http://www.saskatoon.ashraechapters.org

Jeff A. Frie A.Sc.T.
Membership Promotion Chairperson

Energy Answers

Rob Dumont

What is an Integrated Design Process (IDP)?

Here is a definition that hopefully captures the essence of IDP: “An IDP is a design process in which all major components of the building are considered and designed as a totality. Components are not designed in isolation of their effects on other components and systems.”

Two centuries ago, the building process for larger buildings was very simple. An owner would contact an architect/designer who would design almost everything for the building, and then a builder would construct the building. Buildings often had no mechanical systems other than a wood or coal stove; electrical systems such as lighting, telecoms, etc. were nonexistent, interior decorating was done by the architect, as was the landscaping. An architect could do the entire design process himself, and there really was no problem of communication amongst the design staff. If you think about this, many of the great buildings of the world were designed and built this way. I recently visited the Pantheon in Rome, finished in the second century AD, and it and most of the memorable buildings of Rome were likely built with a single designer.

In block diagram form, it worked like this.

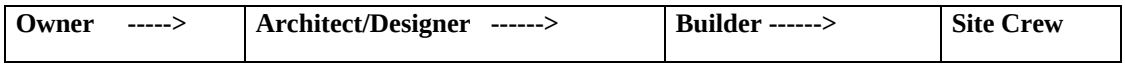


Figure 1. Building Construction circa 200 years ago

Fast forward to the present era. Because of the complexity of building systems the flow now often goes something like this:

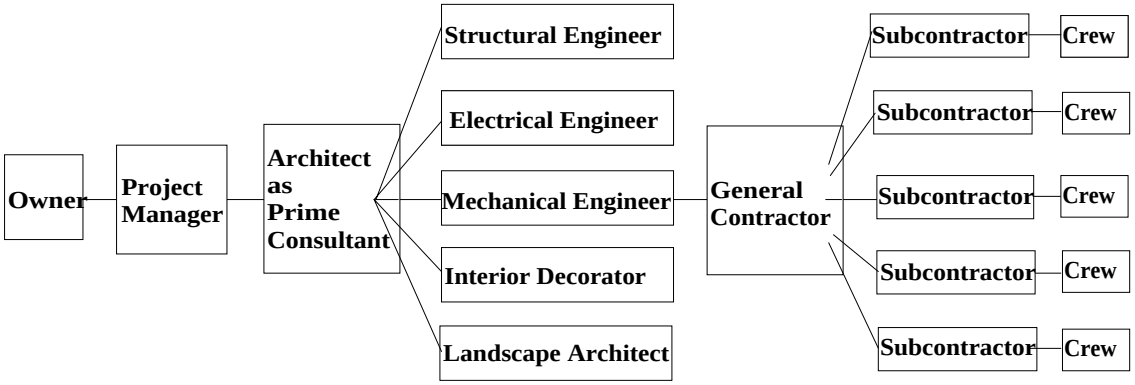


Figure 2. Building Construction in Current Times

Other specialists, such as computer modelers, control systems specialists, code review consultants, cost accountants, elevator specialists, kitchen specialists, internal traffic specialists, etc. can also be involved in the process, further adding to the complications.

As you can see by comparing the block diagrams, the task of building a great building these days is much more complicated. No one designer is an expert in all phases of building design; thus, communication amongst all the designers is now a crucial element in good design.

The basic idea of the integrated design process is to use a single design desk approach in which all the design team members are involved from the beginning of the process. The following diagram shows schematically how this would work.

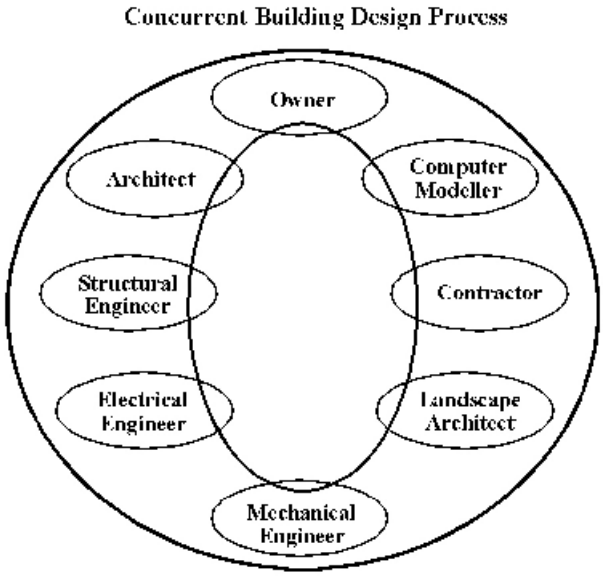


Figure 3. Integrated or Concurrent Design Process

Figure 3 is an idealized diagram. Someone has to co-ordinate the inputs from the various team members and ensure that the integrated design process is on track with real deliverables. Sometimes an external project facilitator is hired for the process, and sometimes one of the design team members can serve as the facilitator.

For most large buildings, the Contractor is not usually involved at the design stage, as it is not known who the contractor will be until after the building is tendered. The accumulated knowledge of contractors, however, should be tapped for the integrated design process, even if the contractor is not directly present at the table.

One might question, for instance, whether all of this communication and integration is necessary. For instance, what information would the electrical engineer and the landscape architect have to share? However, there are several items of interest. The electric lighting scheme for a building is often designed by the electrical engineer, and the exterior planting schedule (trees, vines, site grading, etc.) can affect the daylighting scheme, which will in turn affect the control system for the lighting.

A great advantage of the integrated design process is that capital cost savings in certain areas (heating and cooling, for example) can be achieved by improving the building orientation and the building envelope. Lower energy bills and life-cycle costs can result. The great American architect Frank Lloyd Wright once wrote that "You should never put anything in a building that serves only one function." For building elements to "multi-task," a high degree of integration is needed, and generally this cannot be achieved with "dis-integrated" designs resulting from poor communication among the design staff.

Getting the Integrated Design Process Started.

1. Define the Design Goals

Different owners will have different goals. It is very important, from the start of the IDP, to have the goals well defined. For some building projects, the goal may be very simple, such as providing the owner, who wishes to sell the building on completion, an acceptable rate of return in the marketplace. Another owner, such as a housing co-operative, may have a larger number of goals such as a very durable building with low energy costs, high local material content, high local labour content, a highly attractive building, excellent indoor air quality, etc. Having the goals for the building well articulated is a major first step in the IDP process. A written statement of the design goals is very useful.

2. Be quantitative with the goals where quantitative criteria are appropriate.

Some quantitative criteria might include the following:
Energy Related Goals:

The building will meet the Commercial Building Incentives Program energy target (25% less than the Model National Energy Code for Buildings)
Lighting levels in the offices will not exceed 400 lux; lighting power densities will not exceed 7 watts/sq.metre

All hallway lighting will be controlled during non-occupied hours using occupancy sensors
All ventilation air must have heat recovery equipment installed with a minimum sensible heat recovery effectiveness of 0.6
Heating and cooling energy should preferentially be distributed using liquid flows rather than air flows

Indoor Air Quality Goals:

All interior carpeting must meet the Carpet and Rug Institute standard for offgassing of volatile organic compounds and formaldehyde
The separation distance between air intakes and air exhausts and chimneys for the building must meet the ASHRAE recommended values
All paints must be of a low offgassing type
All occupied spaces must have a ventilation rate of 8 L/s per person when occupied, or match the ventilation rates as specified in the ASHRAE Standard 62

Water Conservation Goals
All clothes washing and dishwashing machines must meet the Energy Star rating standard where appropriate
All shower heads must have a flow rate not to exceed 10 litres/minute at a pressure difference of 551 kilopascals (80 psig)
All toilets must have a water consumption per flush not to exceed 6 litres
Exterior landscaping shall be designed to minimize water use. Native vegetation with low water requirement is to be used, and lawn areas should be minimized.

Natural Lighting Goals

The building orientation and window placement should favour the use of natural lighting and not artificial lighting during the daylit hours. Exterior shading, light shelves and light coloured surfaces are recommended, as well as an interface with the room lighting to dim or turn off artificial lighting when daylight is available.

Recycling and Solid Waste Management Goals
Transportation Goals

All of the major design team members should be present as the goals for the building are formed (assuming the owner does not provide these in advance). In turn, the design team members should ensure that all of their associates involved with the design are also informed. It does little good if the owner wishes to have a high efficiency office lighting system (less than 0.75 watts/square foot) and the draftsperson selects a system that uses 2 watts/square foot because she was unaware of the overall goals of the project.

3. Proceed with the Integrated Design

The following elements in an integrated design should all be formally addressed with all members of the design team present:

1. Owner's expectations, including minimum requirements regarding energy performance.
2. Building function, and massing of the building
3. Site development–use of natural attributes of the site (solar orientation [passive and active], views, access to daylight, levels of daylighting required, wind patterns, snow patterns, opportunities for use of site based resources, transportation, landscaping)
4. Regulatory constraints, code and zoning requirements
5. Building structure type – wood, steel, concrete, etc
6. Building thermal and moisture protection
7. Interior finishes
8. Heating, ventilating, air conditioning, water supply and removal
9. Electricity supply and demand, equipment, artificial lighting, motor selection, controls, etc.
10. Landscaping
11. Quality Control

Each of these 11 categories will have either major or minor effects on each of the design team members. Time should be spent at the start of the project reviewing each of these categories with all design team members present, focussing in on design concepts that can be carried forward. Ideally, consensus on these issues can be reached by the design team members. In some cases, additional information will be needed to help make decisions. Each design team member should come to this meeting prepared with one or more design approaches in his or her specialty area. Visual presentations illustrating the concepts are much preferred to oral descriptions, particularly for technologies that may be new to the other design team members. Every design team member has to "sell" their ideas to other members to get consensus and to show how their idea "fits" with the design/performance goals.

This integrated approach should continue from the conceptual stage through the detailed design stage and on to the construction and commissioning stages. In the C-2000 process for advanced Canadian commercial buildings, a designated Integrated Design Facilitator has been used to assist with the integrated design approach.

What are some of the disadvantages of integrated design?

1. It is a change from past methods, and who ***really*** likes change?
2. Most professional people are trained in an environment where they are most comfortable working with their own kind: architects with architects, engineers with engineers, etc. Integrated designs must be interdisciplinary, but our universities, colleges and trade schools almost exclusively focus on single discipline learning.
3. More decisions have to be justified and defended.
4. Egos are more exposed, power struggles can occur.
5. Designs can take longer until people around the table are more familiar and comfortable with the process.
6. IDP does not work well (or at all) in a fee environment where one's compensation is rigidly based on a percentage of the capital cost of the building. In a percentage-based fee environment, for instance, the mechanical engineer's fee would be a certain percentage of the cost of the mechanical engineering contract for the building. There is no financial incentive for the mechanical engineer to reduce the cooling or heating plant size when his or her fee is based on the size of the mechanical contract. A leaky, poorly insulated envelope with poor windows demands larger heating and cooling equipment, which will generate a higher design fee for the mechanical consultant. It is best to negotiate fee sharing among all participants up front (perhaps using traditional percentages) and get that out of the way.
7. A relatively strong but fair leader or facilitator is needed to keep the process on track. Extra effort is needed to involve all design members in a meaningful way.
8. An environment must exist where <u>all</u> design team members feel free to offer creative suggestions and challenge other members.

What are some advantages of integrated design?

1. Decisions are made in a group environment. There are fewer surprises and fewer guesses involved.
2. An opportunity exists at the start of the project to clearly communicate to the entire design team the expectations of the client and the energy performance goals of the project.
3. Equipment can be more appropriately sized, as the intended use of the building and its spaces are more widely known.
4. Synergies can results; components can serve more than one function and save costs.
5. All expertise is present at one table, and a stimulating environment for problem solving is possible.
6. Conflicts can be dealt with at the design table and not on the job site. Tender document quality and coordination between documents can be improved.
7. Smaller, more appropriately sized heating, cooling, and ventilating equipment can result, with substantial savings.
8. The owner can achieve a more cost-effective and satisfying building, with better comfort levels and lower energy costs.

Most large buildings are not designed using an Integrated Design Process. The Integrated Design Process approach, by breaking down the "Silos" of individual designers, can help make large building projects less dis-integrated, and more successful.

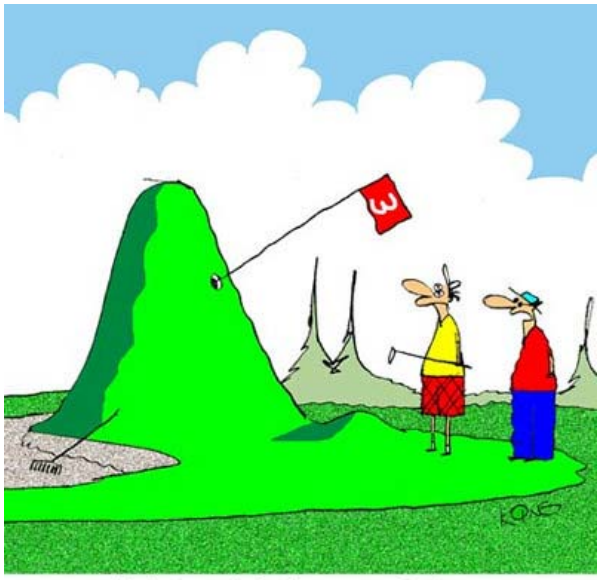
In the automotive and aircraft design field, integrated design is now relatively common. There even exists a **Society of Concurrent Product Development** whose mission is to "develop and promote the application of Concurrent Engineering and Integrated Product Development in companies and organizations worldwide."

Here in Canada, the C-2000 program developed by Natural Resources Canada has been a key catalyst in encouraging the Integrated Design Process for buildings. Nils Larsson of NRCan has been an eloquent and tireless advocate. More information on the C-2000 Integrated Design Process is available at http://www.buildingsgroup.nrcan.gc.ca:80/projects/idp_e.html

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

The problem with golf

The only problem with golf is that the slow people are always In front of you and the fast people always end up behind you.



"I hear this is one of the tougher greens to putt on."

"You were really lucky your ball didn't go in the water!"

ASHRAE – Chapter 102 Saskatoon Meeting
March 8 / 2005

- Mike called meeting to order.

Introductions:

Kirk Campbell	Greg Scrivener	Bruce Waldbillig
Bill Dean	Bob Daniels	Jeff Frie
Myles Bantle	Ryan MacGillivray	Mike Carr
Reg Hofmann	Jonathan French	Carl Lawson
Murray Guy	Brad Chisan	Jack Scott
Kevin Thurston	Norman Hain	Bernie Kaminski
Lloyd Labas	Dave Palibroda	Keith Morson
Rob Tomuyama	Elie Lambert	Jim Greenshell
Mike Osborn	Ted Gaudet	Garry Kreller

- Minutes from the last meeting were read.
- Motion to accept minutes as read by Bernie Kaminski, second by Mike Carr.
- Motion to accept minutes as read, passed unanimously.

Business Arising from minutes:

- None to report.

Old Business:

- We still need a treasurer for next year.
- Mike Carr is nominating Ryan MacGillivray for next year's treasurer. We will vote at Aprils meeting.

Reports:

Programs – Reg Hofmann

- Carl Lawson is our guest speaker for tonight.
- Dwain Nasy is our speaker for next months meeting.

Treasurer – Bruce Waldbillig

- Balances were as follows:

Chequing	$9,446.69
T-Bill	$9,699.51
Balance Fund	$10,900.38

- Bruce was allowed to transfer funds.
- There are still some outstanding balances to collect from people.
- If you have signed up as a Member "B" tonight. Please contact Bruce for payment.

Resource Promotion – Jonathan French

- All donors have contributed.
- Anything over 80% is above contribution goal.
- Still have about $1500 to get to100% contribution goal.

- Keith Yelton will be at next months meeting.

Membership – Jeff Frie
- We welcome all guest members tonight.
- Local dues members will receive SIAST Kelsey card for ASHRAE library.
- Processing and distribution of cards will be discussed at next BOG meeting.
- There are 7 delinquent members.
- There are 2 Non-Renewal, 1 Moving, and 4 outstanding members.
- Rosters are still available.

History – Jack Scott
- John Ross will be in Calgary on April 2nd, 2005.
- Will be sending Ryan McGilliary, Bruce Waldbillig, Greg Scrivener, and Jonathan French to the John Ross Bonspiel.
- Good Luck to the team.

Student Affairs – Not Present

CTTC – Not Present

Golf Tournament – Mike Carr
- Golf tournament is coming up soon.
- Tournament is scheduled for Thursday, May 26th, 2005.
- Willows have given us 2004 prices.
- Will raise price $10.00 to include lunch.
- Proceeds from tournament will go towards resource promotion.
- Names will be asked for sign-up of tournament.
- Bob or Jack will phone to ask for people.
- There is space for 40 people.

New Business:
- Myles brought 2 transactions from past meetings for everyone to look over.
- Bill Dean was at the winters meeting and discussions on the following took place:
  - BOG has listened and will be changing the name of Resource Promotion back to Research Promotion.
  -The ASHRAE fund has got donations to the foundation from Carrier, and Trane.
  -A motion was passed that established ASHRAE libraries could receive yearly CD-Rom standards version for $135.00. To receive this, there has to be proof of an established library.
  -Will have items of library at lower cost, if there is already an established library.

- Will check into CD-Rom version rather than books of standards.
- The ASHRAE scholarship award was presented to Travis Siemens.

- We received a letter that Yaw Asiedu, Bob Besant, and Carey Simonson have been awarded for the 2004 Technical/Symposium paper award.
- We will have motions for society by April for Alternate and Delegate to take to CRC meeting.
- Will need nominations for awards so that we can let the nominating committee know.

Motion to adjourn by Lloyd Labas.

ASHRAE MEMORANDUM

To:	ASHRAE Golf Participant	**From:**	ASHRAE Golf Committee
		Date:	2005
Attention:	Golfers	**Fax No.**	
Regarding:	ASHRAE Golf Tournament	**Sent Via:**	fax

The local ASHRAE golf tournament will be held at the Willows Golf and Country Club (Lakes and Islands) on **May 26th.** Note that this year the green fees **include a lunch** at the Willows.

Prices for golf have increased slightly and our fees have risen accordingly, however, the event is still a non-profit venture. This year's event will be a shot-gun format with Calloway scoring. The start time is 12:45 sharp.

To ensure your spot, please forward a cheque to "ASHRAE, Saskatoon Chapter" by **April 26th** for the following:

	Members	Non-members
Golf and lunch only	$75	$85
Dinner only	$25	$35
Golf, lunch and Dinner	$100	$120

Club rentals and driving range balls are at your own cost.

Forward cheques to :

Mike Carr
c/o Engineered Air
102 - 2366 Ave C North
Saskatoon, Sask.
S7L 5X5

It promises to be an enjoyable day, so please forward your cheque today. **Please note that it will be first paid first served** . If you need more information or would like your name on the list call:

Jack Scott 931-4773
Mike Carr 653-5291
Bob Daniels 477-0678

If you have a cash or merchandise prize to donate, please advise Mike prior to **May 1st** and then drop it off at the above address or bring it to the tournament.

Yours truly,

ASHRAE Golf Committee