European Association of Surface Heating and Cooling

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MINUTES

OF THE ORDINARY GENERAL MEETING, June 15th 2007

Date:	Friday, June 15^{h} 2007
Place:	Hotel Scandic Simonkenttä, Simonkatu 9
Time:	9:00 to 1 p.m. Part I
	1:45 – 3:30 p.m. Part II (Business Agenda)

List of Those present:

HAKA.GERODUR AG		Mr. René Bässler
MASTER SYSTEM		Mr. Alberto Allessina
MASTER SYSTEM;		Mr. Claudio Zanella
SFF* (CH)		Mr. Walter Hilfiker
UHMA**/OSMA/Wavin (GB)		Mr. Rex Ingram
Uponor CE-Austria		Mr. Reinhold Scheuchl
Uponor Finland, Project Manager		Mr. Jyri Laakso
Uponor Finland, Marketing Devel. Manag.		Mr. Raimo Mietinen
Wavin BV		Mr. Bernard Darregert
Guests:	DTU	Prof. Dr. Ing. Bjarne W. Olesen
	Universita. Padua I	Mr. Michele De Carli
	REHAU	Mr. Klaus-Paul Koch

*) SSF = SCHWEIZERISCHER FACHVERBAND FLÄCHEN-HEIZUNG UND –KÜHLUNGL
(Swiss Association of Surface Heating and Cooling)

**) UHMA = UNDERFLOOR HEATING MANUFACTURERS' ASSOCIATION

Apologies:

ALB, S.A.	Mr. Jordi Escuain
EUROTHERM	Mr. Christian Pezzei
RDZ SpA	Mr. Samir Tabban
RETTIG INDUSTRIE ICC	Mr. Johan Struyf
SOLAR COMPUTER GmbH	Mr. Ernst Rosendahl
TEPLOIMPORT Group	Mr. Konakov
TOBLER SYSTEM AG	Mr. Edgar Ballmer
UPONOR Nordic	Mr. Jerker Skarelius
UPONOR Nordic	Mr. Mats Christiansson
VARIOTHERM HEIZSYSTEME GMBH	Mr. Alexander Watzek
VELTA ITALIA	Mr. Massimo Fabricatore

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Business Office:

Legal Chamber of W. Hilfiker	Walter Hilfiker

Presidency:

Chairman	Mr. René-G. Bässler, HAKA GERODUR AG

Minutes:

General Manager	Rex Ingram/Walter Hilfiker

Agenda

The Board wanted more time for the project EN-eu-ray2005 and the coordination with REHVA (European Association of Heating and Air-conditioning Engineers), made a change of the morning agenda.

Information/projects on the way

A Welcome and thanks by the President
B Project EN-eu-ray/Situation of actual European Standards
C REHVA Clima-Conference 2007 / Guidebook

Business agenda (afternoon)

1. Agenda
2. EN-eu-ray2005 project
3. New members
4. Agenda, recording the minutes, vote count
5. Minutes of the General Meeting on June 19th 2006 in Amsterdam
6. 2006 Annual report
7. Marketinng Group report
8. Technical Group report
9. Financial
   - 9.1. Annual accounts 2006
   - 9.2. Budget 2007
   - 9.3. Membership fee 2007/8
10. Elections
    - 10.1. Election of the Executive Board
    - 10.2. Marketing Leader
    - 10.3. Technical Leader
    - 10.4. Election of the President
    - 10.5. Election of the Auditor
    - 10.6. Election of the General Manager
11. Brochure REHVA
12. General Assembly 2008 (proposal Barcelona)
13. Miscellaneous

General Part (Special Matters) – not part of minutes (9 – 12 a.m.)		
A	Welcome by Mr. René Bässler and thanks to UPONOR for their help and the offered sight seeing on Saturday. He presents Professor Bjarne W. Olesen and Mr. De Carli who will show the results of the EN-eu-ray2005 project.	Chairman
B	**1. Standardisation** a. BO reported that EN15316-2.1 has been accepted. This is an essential Standard. EN15316 covers methods for Calculating System Energy Requirements and Efficiency. Part 2.1 specifically covers Space Heating Emission Systems. b. There is also agreement between TC130 and TC228 concerning EN1264.2007 and EN15377. Also, yesterday, the first meeting was held of the ISO Working Group that has been established to create an ISO Standard to cover the same subject matter. It seems that the ISO Standard will closely follow EN15377. The ISO Working Group has representatives from Korea, Japan, Australia and USA, as well as from Europe. The Chairman of ISO 250, Professor Kwang Woo Kim, from the Seoul National University, was our host on eu-ray Dinner June 14th in Helsinki. c. The objective of CEN has been to develop Standards that cover not only floor-heating Types A, B and C, but also all surface heating and cooling including floors, walls and ceilings together with very high mass, passive systems that are referred to as Thermo-Active Building Systems (TABS). d. Nearly two years ago, it was becoming clear that the work of TC130 on revision of EN1264 was crossing over with the work of TC228 formulating EN15377. The two TCs have subsequently met and agreed revisions to part 2 of EN1264 plus the addition of a Part 5. EN1264.3007 is now a test and calculation Standard. It has been translated and was distributed two weeks ago for public review. The new Part 5 is not yet out but is due within the next month. Both need to be considered together. Six months is being allowed for receipt of coments before formal vote. As it stands, the Standard can be used today. e. EN15377 is not a test Standard but instead sets out calculation methods. It refers to EN1264 -2. EN15377-2 has similarities with EN1264-2,3 but it adds Ceilings, Walls and Cooling. It has been agreed that when EN1264 is finally approved, EN15377-2 will be withdrawn. EN15377-3 covers thermodynamic active buildings, and is out for vote.	Prof. Olesen ./.4

f. For floor types A, B and C, use EN1264 if the objective is to obtain a Test Certificate. If the intention is to calculate output, use EN15377.

g. Massive systems are only covered in EN15377. Similarly capillary tube systems. Similarly, wood construction floor systems. Finite Element Methods and Finite Difference modelling have been added to EN15377, which also specifies floor Types A-G.

h. The general advice is, if output cannot be established by a calculation method or by FEM/FDM, then use laboratory testing in accordance with EN1264.

i. It should be noted that Tables in EN15377 set boundary conditions that must be referred to when using calculation methods. If the construction falls outside these boundary conditions, FEM/FDM must be used instead.

j. Thermo-Active Building Systems (TABS), which are embedded-pipe, high mass, cannot be based on a normal steady-state condition and must be used with peak-load shaving, spreading the effect over a longer period and including pre-cooling of a building during the night. EN15377 specifies how to do this. The accuracy achieved varies between methods used and this also affects the calculated size of a chiller. For example, running for a longer period each day with higher water temperatures can enable a smaller capacity chiller to be used (in terms of W/m2). EN15377-3 covers all this.

k. Some commercially-available simulation programs have been validated against the new Standard. Finite Element methods can give an accuracy of $\pm$1%. The Standard states that 2D models are fine for steady-state situations but these are not so good with TABS.

l. The Resistance Method is a simple way of predicting output of most floor constructions. With standard floor types, FEM/FDM is more useful for marketing purposes but can also be used for either non-standard floor types or for standard floor types that are to be used outside the boundary conditions set for calculation methods.

m. The first meeting of the ISO working group yesterday decided that the scope of the ISO Standard should include not only embedded systems, where pipe is incorporated within the surface, but also panel systems, where a large surface area panel is suspended from the underside of a ceiling. It is likely to be a standard with eight parts, including sections on embedded electric systems. A study has already been made of which CEN and ASHRAE Standards can be used to form the basis of each of the eight parts. The objective is to aim toward getting ISO Standards in place for vote during 2010. Then there will be a consolidation of CEN and ISO, to achieve common world-wide Standards.

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n. It is intended that the ISO Standard will incorporate issues such as
   - comfort criteria
   - surface temperature limits
   - maximum water temperature
   - radiation asymmetry
   - operative temperature
   - water velocity and noise

o. It is anticipated that ASHRAE will adopt the ISO Standards because ASHRAE will be involved in the formulation of the ISO Standards.

p. In 2008, the Radiant Panel Association will be holding its General Meeting in Salt Lake City on 19/20th June. It may be that this could become a Joint US/European Meeting. The RPA supports CEN Standards and ASHRAE is likely to do likewise.

2. EN-eu-ray2005 Project - Report on Part 1

a. Members have been sent a copy of a spreadsheet prepared by BO that shows all relevant regulations that will affect Surface Heating and Cooling in the future. Members were also given a copy of Version 7 of the EEPBD Umbrella Document (prCEN/TR 15615) which explains the general relationship between the CEN Standards and EEPBD.

b. The Marketing Group and the Technical Group should now meet to decide how best to disseminate this information to Members and non-Members.

3. EN-eu-ray2005 Project – Report on Part 2

a. This Report was presented by MdC. The EN-eu-ray2005 Project commissioned two outputs
   - Excel spreadsheets to calculate output for each floor type specified in EN1264 and EN15377
   - FEM or FDM models for each floor type specified in EN1264 and EN15377

M. De Carli

b. The intention was to help Members spread the cost of producing spreadsheets and finite-element models for each floor type, which they will all need anyway, by sharing the cost of their creation.

c. MdC explained that the Spline Interpolation function needed for EN1264 had been difficult to create in Excel but that this was now completed.
He demonstrated the spreadsheets that have been developed for floor Types A-G and also showed a selection of finite-element model outputs, one for each.

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d. FDM models were preferred to FEM, and the FDM models that have been created need to be run using the standard program called HEAT2 Version 7, which is available from www.buildingsphysic.com at a cost of $ 900 per copy. MdC explained, that the FDM models are simpler to use and they produce results more quickly, whereas FEM models take much longer to calculate.

e. For each of a Member's specific floor constructions, it will be necessary for a Member to calculate the boundary condition needed by the FDM calculation, to take account of different floor coverings, and of their emission and actual resistance, in order to bring calculated outputs into accordance with measured outputs from that floor construction and covering. The FDM models assume zero air movement across the output surface, and to this extent represent worst case because the predicted output will be lower than it might otherwise be if air movement across the surface was assumed.

4. EN-eu-ray2005 Project – Report on Part 3

Prof. Olesen

a. This Report was presented by BO. He has given Walter Hilfiker a copy set of the slides he used.

b. He explained that completion of the report had been held up because radiator manufacturers objected to the original emission calculation processes proposed for EN15316-2.1. This dispute has now been resolved and two calculation methods have been agreed. He explained that the agreed calculation methods are based on DIN18599, which is now generally accepted.

c. The overall efficiencies of three buildings were compared, with the assumption that they were each built in Venice, Brussels or Stockholm. The buildings were a Single-Family Residence, a Block of Flats and a small Industrial Building. Each was assumed to be fitted with either radiator heating or floor heating.

d. The Single-Family Residence was assumed to be a single-storey building and it was agreed that this configuration is most favourable to radiators because it maximises the effect of any higher down-loss from floor heating.

e. The basis of the comparison was to examine efficiency across four separate sources -
- emission losses
- distribution losses
- auxiliary losses (from pumps and valves etc)
- heat generation losses

f. Emission losses are similar between radiators and floor heating. Floor heating is better if down-loss can be kept

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	to not more than 5W/m2. g. Distribution losses are higher with radiator heating (even after considering whether such losses are 'useful' or not). h. With auxiliary losses, floor heating is worse. However, because Auxiliary losses represent only a small part of the total loss, this is not significant. i. Heat Generation efficiency compared various forms of heat generation – fossil-fuel boilers, heat pumps, co-generation units and district heating. In all cases, floor heating was best. More work needs to be done with Heat Pumps and it is expected that floor heating plus a heat pump will be best of all. j. When the losses are examined in total, a pie-chart is to be produced for each. The charts for radiators in Stockholm have been completed but the others have yet to be finished. k. In general, the efficiency of floor heating is shown to be better than radiators, in all buildings types and all locations. In particular, floor heating with a heat pump is the best combination. l. Final calculations will be completed during July, with the Report being completed during August. m. It was agreed that a special General Meeting of eu-ray will be held in Koln on Wednesday 5th September 2007 in order to receive this Report from BO.	
C	REHVA CLIMA 2007 HELSINKI BO reported that the whole theme of this year's REHVA Conference had been the move towards Low Temperature Heating and High Temperature Cooling. In fact, REHVA had published five days ago a specialised booklet on this topic. Copies cost €40 each. It was agreed that Walter Hilfiker should make contact with REHVA to discuss the second print of this booklet bearing the eu-ray logo.	Prof. Olesen

Business Meeting Agenda

General Meeting, Business Agenda (1:30 – 3:30 p.m.)		
1.	**Agenda** No objection to the Agenda.	
2.	**EN-eu-ray2005 project** f. There was a lot of discussion about whether the spreadsheets and FDM models from Part 2 of the Project could/should be securitised before distribution, perhaps by Solar Computers, and about who should be responsible for production of Operating Manuals and for the provision of a technical support help desk, and about who should take responsibility for the accuracy of any output predictions. Also, who should be responsible for on-going maintenance and production of updates. It was generally agreed that eu-ray could not and should not be responsible for manuals, technical support or updates. g. It was agreed that a 'train the trainers' session should be held during the beginning of December 2007 for 20-25 engineers from sponsoring Member companies. This will be arranged to be held at University of Padova as soon as possible (3rd and 4th of dec.) h. It was agreed that Members should be sent an electronic copy of the spreadsheets and models straight away by the secretariat of eu-ray , on the strict understanding that these are not to be copied outside the Member's company. These copies will provide evidence to accountants that there is real benefit to be derived from eu-ray membership. They are then to be given one copy on CD of each of the spreadsheets and FDM models at the formal training session in December. The CDs should be branded eu-ray and carry disclaimers about the user being responsible for the accuracy of predicted outputs (rather than eu-ray) plus a Copyright eu-ray 2007 message plus an instruction NOT TO BE COPIED etc. i. Following the 'train the trainers' session, Members will be permitted to train their own staff/customers, and each Member would thereafter become responsible for supporting its own versions of the software. j. This arrangement will be in line with the original objective, which was to help Members develop the spreadsheets and FDM models at shared cost. It was agreed that it was never intended that eu-ray should become a developer and supplier of design software. k. The Marketing Group is to determine how the study can be used to raise the profile of eu-ray. This might include selling a copy to Solar Computers or other UFH computer software suppliers, for them to incorporate into own products. The Marketing Group is also to prepare draft PR copy.	WH ./.9

	Regarding Part 1 of the Project, the Marketing Group will meet to discuss creating a 4-6 page version of the Report and it will also begin to consider how best to disseminate the Part 3 comparison, and raise the profile of eu-ray generally.	
3.	**New members** WH reported that no new Members have joined during the year but that there are 15 prospective Members.	
4.	**Recording the minutes, vote count** Minutes is established by WH assisted by RI. No vote-tellers would be appointed. If there was a need for votes to be counted for any piece of business, vote-tellers would be appointed at the time	
5.	**Minute of the General Meeting on June 19th 2006** The Minutes were unanimously approved as they stood.	
6.	**2006 Annual report of the Chairman** A copy is attached. There was no discussion. A vote produced unanimous approval for this Report. The work of the Board and the General Manager was thus approved.	
7.	**Marketing Group report** Changing of Leader, no report.	
8.	**Technical Group report** The report of WF had no new points sins GM 2006	
9.	**Financial report** The current financial position is dire. The Association has cash assets of about €100 but short-term liabilities of about €85,000 in respect of paying for the Eu-Ray 2005 Project and associated printing costs and also the costs of previewed meetings during 2007. The position has arisen because only a few invoices have been sent out either for 2006 fees or for contributions towards the Project costs that were agreed two years ago with sponsoring members. It was agreed that WH should immediately present invoices for Project sponsorship, 2006/7 fees and for 2007/8 fees, and then chase up payment with a view to getting sufficient cash in the bank quickly in order that Eu-Ray should be in position to pay for the Project work. WH will then submit to the Board a considered statement of which of the 15 prospective members could be persuaded to join, and when. From this, he will prepare a detailed budget of forecast income and expenditure during the coming 12months. Based on this, the Board will consider his recommendations regarding increasing fees. For the time being, it was agreed that fees would remain unchanged.	WH ./.10

10.	**Elections** 10.1. Executive Board The following positions were unopposed – René Baessler HAKA GERODUR President Rex Ingram UHMA Vice President Reinhold Scheuchl UPONOR Vice President Jerker Skarelius UPONOR Vice President 10.2. Marketing Leader **Rex Ingram** UHMA Chairman (new) (Unanimously approval) Marketing Group: Johan Struyf RETTIG ICC Bernard Darregert WAVIN new Reinhold Scheuchl UPONOR Christian Pezzei EUROTHERM 10.3. Technical Leader, was confirmed as comprising: Werner Frieling UPONOR Technical Workgroup: Jerker Skarelius UPONOR Samir Tabban RDZ Joachim Plate BvF Sandra Pradal Eurotherm Claudio Zanello MA.S.TER 10.4. Election of the President, was confirmed as comprising: René Bässler HAKA GERODUR 10.5. Election of the Auditor, was confirmed as comprising: Edgar Ballmer Tobler Systeme 10.6. Election of the General Manager, was confirmed as comprising: Walter Hilfiker SFF	
11	**Brochure REHVA** The Guidebook “Low Temperature Heating and High Temperature Cooling” could be completed by a resume of EN-eu-ray report, a presentation of eu-ray and edited under eu-ray logo. WH must coordinate with REHVA The marketing group will study printing of the eu-ray Guidebook	WH RI
12	**General Assembly 2008** It was agreed that the next meeting will be held on 9th June 2008. Provisionally, it will be held in Barcelona but this is dependent on WH persuading Spanish members and potential members, specifically Blansol, Polytherm Espagna, ALB and Mr. E. Ballmer (Tobler Systeme and friend of Spain) to sponsor the event and organise place and social program. The next board meeting should be held after clarifying budget situtuation. Could be telephone conference or personal meeting depending on open points. Eventually could be held in connection with a marketing or technical group meeting.	WH WH

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	Workshop I 2007: September 4/5 2007 Cologne, Germany **Workshop II 2007**: December 2-4th 2007, Padua, Italy	WH WH
13.	**Miscellaneous** It was reported that the current website is not actual and is steadily hacked. The Marketing Group is to consider ways of improving this. An offer of new homepage-tool has been made (less risk of hacker-desaster) for 3'000 euros (inclueding assistance for text and pictures).	

The Chairman closed the meeting at 3:30 p.m., Mr. René-G. Bässler gives a further expression of gratitude to UPONOR for helping in organisation and the social program on Saturday.

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Minutes Secretary

Walter Hilfiker

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