VACUUM INSULATION PANEL

VIPA

GLOBAL ASSOCIATION

Annual Report of VIPA International Activities

September 2015 – September 2016

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VIPA
GLOBAL ASSOCIATION

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1. Foreword

Dear VIPA International member,

It will be a pleasure to welcome you to our second General Assembly in Barcelona, Spain. After a very exciting first year of activities, culminated in our first General Assembly in Nanjing, China, we focused this year on the consolidation of the association. VIPA International has a solid organisational base of three Working Groups, an Executive Committee and a Board of Directors. We now have 14 regular members and 4 associate members, a good representation of the industry worldwide. Continuous growth of the membership base remains, notwithstanding, among our key objectives for the future.

While the first year was mostly dedicated to the creation of the association, this second year delivered some clear and positive results. First of all, in Barcelona we will sign the cooperation agreement with the German association GSH for the use of the RAL quality assurance label for VIPs. During the past months both VIPA and the GSH worked hard to deliver a deal that could be satisfactory for both associations and beneficial for all VIPA International members. I can say that the final result is extremely positive: the RAL quality assurance label for VIPs will be an important tool to certify and promote the quality of VIPs produced by the members of VIPA International.

At the same time, considerable progresses were made on the technical side. The CEN TC 88 WG 11 is expected to finalise the standard for VIPs before the end of 2016. VIPA International contributed to the work of the CEN through its members and in its capacity of liaison organisation to CEN. Besides, three different technical studies were financed to improve knowledge on VIPs and support the standardisation process. The final report of the study on compressive strength measurement will be delivered the next weeks and the results will be presented in Barcelona.

The Communications and PR Working Group continued producing different resources to improve the association's website and visibility. We published eight press releases the past twelve months and three case studies which also feature on the EU-funded platform Build Up. New sections were added to the website: "Science on VIPs" and "IVIS" making it a truly unique knowledge platform about VIPs.

Our Public Affairs Working Group is analysing different regulations in Europe, USA and Asia. In the European Union new legislative proposals will have an impact on the energy performance of buildings and on the energy labelling of appliances. VIPA International is also in contact with different stakeholders to advocate for higher energy efficiency standards. On this regard, VIPA International held a meeting with the European Commission to discuss the contribution of VIPs to the energy efficiency of European buildings.

My mandate as VIPA International President is coming to an end this October. After two years in this position, I can clearly see how VIPA helped and supported the growth of the VIPs industry, communicated the benefits of this technology and established the basis for further expansion. I would like to thank all members of VIPA International for their support. It has been a pleasure leading VIPA International in these first years of activity.

I hope you find this publication a helpful outline of VIPA International's activities and I look forward to meeting you in Barcelona.

Roland Caps,
President of VIPA International,
Chief Research Officer and Founder of va-Q-tec

2. 2015-2016 activities of VIPA International

2.1 RAL VIP label: a label to attest the quality of VIPs

During the second General Assembly of VIPA International in Barcelona the agreement with the German Association of Manufacturers of Insulation Materials Güteschutzgemeinschaft Hartschaum (GSH) for the use of the RAL quality assurance label for VIPs will be officially signed. The label is an important tool for the manufacturers of vacuum insulation panels to demonstrate the quality of their products and increase the trust and confidence on the product among architects, installers and consumers.

VIPA International's mission statement adopted when the association was created in 2014 stated the commitment to promote and raise the quality of the VIP industry. The adoption of the VIP label is surely a step in the right direction.

Together with the GSH, the Technical Working Group of VIPA International will review the quality assessment rules of the label (document RAL-GZ 960). The objective is to go beyond the existing rules and align it as much as possible with the discussions and decisions taken by the CEN TC 88 WG 11. The maximum thermal conductivity of the VIP should be below 15 mW/K (see the procedure to determine the declared value of thermal conductivity of VIPs in the next page).

All core materials (fumed silica, glass fiber, powders, foams) will be covered in the new quality assessment rules and the label will be applicable to different VIP applications:

a) VIPs used in boxes and containers
b) VIPs for buildings
c) VIPs in appliances (refrigerators and freezers)
d) VIPs for hot water tanks

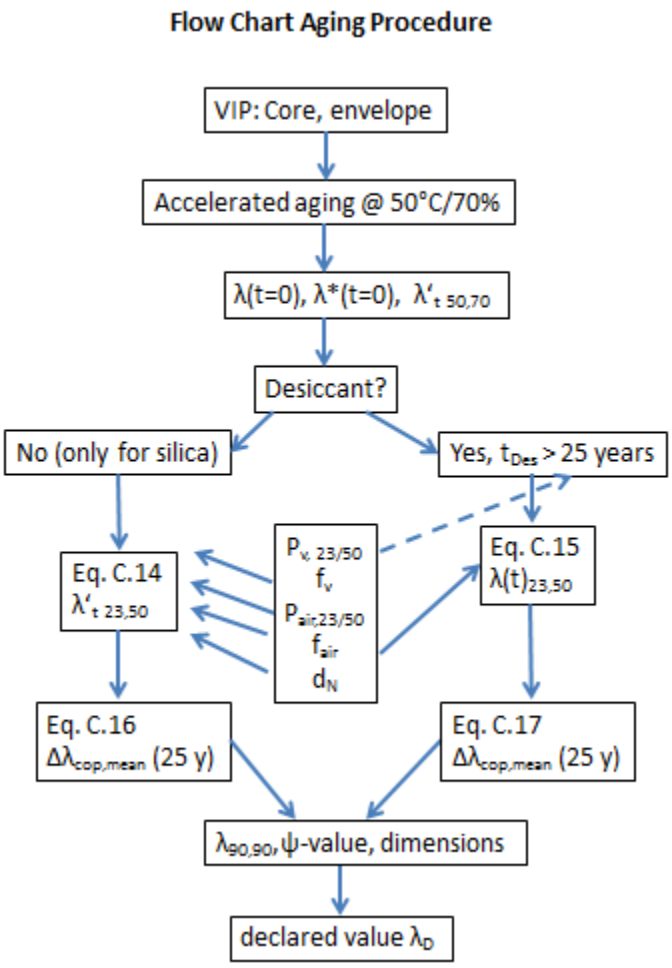
All changes proposed by VIPA to the RAL-GZ 960 document will be submitted to the RAL for final approval.

As part of the deal, VIPA International will pay an annual fee to GSH in accordance with the number of VIPA members using the RAL VIP quality mark:

• 3 to 5 plants: 2,500 EUR for each plant.
• for each plant above 5: 2,250 EUR.

Additionally, the users of the RAL quality mark will be charged 150 € per year for each award. The costs for the inspection and the product tests have to be paid by the users as well.

Procedure to determine the declared value of thermal conductivity of VIPs



1. Measurement of thermal conductivity, gas pressure and mass of VIP
2. Storage of the panel at climate 50°C/70% r.h.after 1 month, 2 months, 3 months, 4 months and 6 months measurements as in 1.)
3. Determination of linear increase of thermal conductivity with time (month 2 until month 6)
4. Calculation of mean thermal conductivity during service life time from linear increase
   - for silica VIPs
   - for VIPs with desiccants (fiber glass , foams etc.)
5. Calculation of declared value, which includes mean thermal conductivity and edge losses (ψ-value). Further input needed: properties of barrier films (air and water permeation, Arrhenius coefficient for both).

The maximum thermal conductivity of the VIP to obtain the label should be below 15 mW/K.

2.3 Technical activities

The Technical Working Group follows closely the standardisation activities of the CEN TC 88 WG 11. Vladimir Pogač represents the association in this standardisation body and in fact most VIPA member companies also take part in this group. WG 11 is working on a building's specification for factory made vacuum insulated panels since 2013 and expects to finalise it by the end of 2016.

The past twelve months, VIPA International commissioned three technical studies to support the standardisation process of VIPs and improve knowledge on vacuum insulation panels. The study on compressive strength measurement was completed with some delays due to the late reception of the samples. The final report was submitted by FIW in September and will be presented at the General Assembly in Barcelona.

Other two studies were commissioned in 2016:

- Hanita Coatings will conduct a study to develop an advanced technique for measuring the effect of moisture content on the thermal conductivity of VIPs
- FIW and Hanita will work on a joint project on the calibration of the lift-off technique for measuring the internal pressure of fumed silica VIPs.

The results of the two studies will be available in 2017. Additional details on these studies are available in the tables below:

Compressive strength of Vacuum Insulation Panels according to EN 826: difficulties with the measurement results for VIPs and possible solutions	
Awarded to: Forschungsinstitut für Wärmeschutz e.V. (FIW), München, Germany	
Started in: January 2016 **Expected end:** September 2016	**Total cost:** EUR 15.000
Description of the project: Results of compressive strength according to EN 826 of VIPs without any facings (e.g. EPS, PU, etc.) are difficult to evaluate. The main reason is the absence of a linear range in the stress-strain graph, caused by warping of the panel, surface joints and the general behavior of an inhomogeneous product under load. The consequence of this is that the values for the compressive strength for products on the market are highly depending on the skills of the testing laboratory and show a rather high range of diversity. This problem is very striking at thin panels like 10 mm or 20 mm. This project will describe possible approaches to eliminate the fortuity and to increase the reproducibility for the compressive strength measurement on VIP.	

Develop an advanced technique for measuring the effect of moisture content on the thermal conductivity of VIPs

Awarded to: Hanita Coatings, Kibbutz Hanita, Israel

Started in: April 2016 **Expected end:** April 2017	**Total cost:** EUR 25.000

Description of the project:

Recent lab and field tests on fumed silica panels showed that the degradation rate of VIPSs is predominantly determined by the moisture permeating through the envelope and much less by the permeated air molecules. In the last 2 years Hanita has developed very efficient and easy to operate technique for measuring the response of any core material to the increasing pressure of air. However, at the moment there is no available easy to operate technique for measuring the relation between the amount of moisture absorbed by fumed silica cores and their thermal conductivity.

The newly developed technique will be later used by labs for qualifications actions of commercial panels and by labs and industrial companies to characterized newly developed core materials.

Calibration of the lift-off technique for measuring the internal pressure of fumed silica VIPs and determination of boundary conditions for the lift-off measurements and processing of measurement raw data

Awarded to: Forschungsinstitut für Wärmeschutz e.V. (FIW), München, Germany and Hanita Coatings, Kibbutz Hanita, Israel

Started in: May 2016 **Expected end:** December 2016	**Total cost:** EUR 25.000

Description of the project:

The foil lift-off technique is the most commonly used method to determine the internal pressure of VIPs during and after the production process. It is used for more than a decade now without any evidence or comparison to a direct and calibrated measurement method. Besides, boundary conditions for the measurement of the internal pressure according to the lift-off technique are not fixed in a standard or in scientific articles. The purpose of this project is to:

1. calibrate the readings of the lift-off units against calibrated pressure gauges;
2. fix the boundary conditions for the measurement;
3. describe a reliable procedure for deriving pressure results from the obtained measurement raw data (assessment and algorithm);
4. cross-check the results with fast methods, such as the Va-Q-Check device.

2.4 Public affairs activities

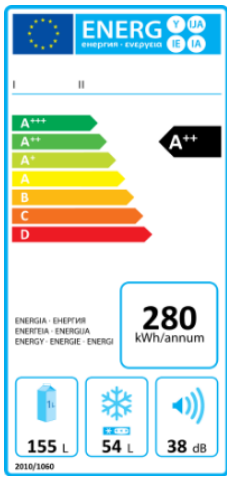
The European Commission will present in October 2016 a new proposal to **reform its two key directives on energy efficiency**: the Energy Efficiency Directive (EED)[1] and the Energy Performance of Buildings Directive (EPBD)[2]. The two directives are generally recognised as two ambitious pieces of legislation, able to deliver important results in terms of energy savings and refurbishment of EU buildings. However, even if their ambition was quite high, the two directives lacked enforcement power.

VIPA International participated to the public consultations on the two directives. A meeting was also organised on 28 July 2016 with the Directorate-General for Energy of the European Commission to present VIP technology, the activities of VIPA International and our policy suggestions in view of the new energy efficiency proposal. The meeting was overall positive: Commission officials were particularly interested in understanding the VIP technology and their performances compared to other insulation products. To better understand the VIP industry, the Commission asked us additional information on the volume of VIP sales in the past years, as well as the indexed costs of VIPs of the past 10 years.

The responses of VIPA International to the two public consultations and the VIPA case for advocacy are available on our website. In these documents, we stressed how better insulation offers an unrivalled opportunity to decrease CO_2 emissions, improve energy security and energy independence of Europe. In particular, we highlighted how deep renovation has the highest potential to deliver energy savings and must become the norm in the EU.

VIPA International recommended the adoption of ambitious measures to improve the energy efficiency of buildings in Europe. In addition, we highlighted how VIPs can offer super insulation performances in a reduced space and we advocated for the inclusion of space considerations in the key instruments of the two directives: the cost-optimal methodology and the Nearly Zero Energy Buildings (NZEBs).

Partially recognising the limits highlighted by VIPA International, the new proposal is expected to address the enforcement problem reinforcing surveillance and implementation. Besides, the Smart Financing for Smart Buildings Initiative will provide new funding for energy efficiency projects. This issue is particularly relevant for VIPs, considering their top class performance but also their high upfront costs.



VIPA International followed closely the activities of the European Union on the new **Energy Labelling Regulation**, that will propose a single energy labelling scale from 'A to G' to replace all existing labels for all appliances, including refrigerators. A press release was published on our website on 13 June 2016, welcoming the new proposal as an effective tool to allow consumers to take informed decisions about the most efficient products on the market. However, VIPA underlined how the technological progress of every product is different, making it hence important to respect the specificities of every product when rescaling takes place.

Refrigerators will switch to the new label within 21 months from the adoption of the proposal. To be approved, the proposal will have to be accepted by the European Parliament and the European Council. Negotiations between the Parliament, the Commission and the Council started in September 2016.

Finally, VIPA International is in contact with several stakeholders in China (CIEEMA - China Insulation & Energy Efficiency Materials Association), Japan (Japan Construction Material & Housing Equipment Industries Federation) and the United States to follow the legislative developments in these markets.

[1] http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1399375464230&uri=CELEX%3A32012L0027
[2] http://eur-lex.europa.eu/legal-content/EN/ALL/;ELX_SESSIONID=FZMjThLLzfxmmMCQGp2Y1s2d3TjwtD8QS3pqdkhXZbwqGwlgY9KN!2064651424?uri=CELEX%3A32010L0031

2.5 Communication activities

Case studies

VIP technology provides luxury finish to mixed-use development in London - Kingspan

VIP technology simplifies the energetic refurbishment of an office building built in the 1960s – Evonik and Porextherm

VIP technology checks in at the Premier Inn - Kingspan

Newsletters

Press releases published between September 2015 and September 2016

- VIPA International attends International Vacuum Insulation Symposium - 28 Sept 2015
- VIP technology simplifies the energetic refurbishment of an office building built in the 1960s - 8 Oct 2015
- Luxurious mixed-use development in London designed with VIP technology - 2 Nov 2015
- VIPA International advocates for higher energy efficiency requirements and deep renovation of building in its reply to the Public Consultation on the Energy Efficiency Directive - 8 Feb 2016
- VIP technology checks in at the Premier Inn - 26 April 2016
- VIPA International welcomes the development of the new European Regulation on energy efficiency labelling - 13 June 2016
- Standardisation of VIP technology is progressing well: final draft expected in 2016 - 18 July 2016
- VIPs, creating space and saving energy – 25 August 2016

3. Finances

VIPA International 2015 Annual Accounts		
ITEM	**budgeted in Jan**	**Actuals at 31 Dec.**
Income		
Membership fees full members (15): 10,000 EUR	130,000	140,000
Membership fees associate members (5): 1,000 EUR/500 EUR	2,000	2,000
Carry-over from 2014 budget	21,779	21,779
TOTAL INCOME	**153,779**	**163,779**
Expenditure		
Kellen Europe fees (secretariat & management)	73,723	84,188
Studies	35,000	7,500
Sponsorship IVIS (8,000$)	7,708	7,708
Sponsorship IVIS extra costs (printing, stand)	1,142	1,289
Out of pocket costs (meetings & travel expenses)	7,000	7,512
Communications (website support, professional design, etc)	4,600	1,713
Website annual hosting fee (Alias)	400	400
Legal advice	5,000	0
Bank charges	0	272
Greenberg fees (monitoring US legislation)	0	0
Participation at CEN	0	167
TOTAL EXPENDITURE	**134,573**	**110,749**
RESULT	**19,206**	**53,030**

In 2015, VIPA International finished the year with 14 regular members and 4 associate members, amounting to a total of EUR 142,000 of membership fees revenue for the association. We received the application forms for one additional regular member and one additional associate member, but the two of them never paid the invoice and consequently did not officially join the association. In addition to the membership fees revenue, the association benefited from a carry-over from the 2014 budget of EUR 21,779 resulting in a total income for 2015 of EUR 163,779.

On the side of the expenses, Kellen's fees for secretariat services amounted to EUR 84,188. VIPA International commissioned one study to FIW on compressive strength measurement. The first installment of this study was paid in 2015 (EUR 7,500). VIPA also sponsored IVIS 2015 (EUR 7,708) and spent EUR 1,289 for other costs related to this event. Some of the expenditure initially foreseen did not take place like the Greenberg fees for a monitoring report about the US regulatory framework for VIPs. Similarly, the EUR 5,000 set aside for legal advice were not used in 2015.

The total expenditure for 2015 amounted hence to EUR 110,749 resulting in a positive result of EUR 53,030 that was carried forward to the 2016 budget.

For detailed information on VIPA International's finances, please contact the secretariat or the Treasurer Vladimir Pogač.

VIPA International Budget 2016 (EUR)	
ITEM	**EUR**
Income	
Membership fees full members (14): 10,000 EUR	140,000
Membership fees associate members (4): 500 EUR	2,000
Carry-over from 2015 budget	53,030
TOTAL INCOME	**195,030**
Expenditure	
Kellen fees	94,535
Studies	50,000
Out of pocket costs (meetings/conf calls & travel expenses)	7,000
Communications (website support, professional design, etc)	2,500
Website annual hosting fee (Alias)	400
Bank fees	500
Participation at CEN	525
Legal advice	5,000
GSH Quality Scheme set-up costs	5,000
TOTAL EXPENDITURE	**165,460**
RESULT	**29,570**

In 2016, the income of the association should almost reach EUR 200,000, thanks to the membership fees of 14 regular members and 4 associate members. Further to that, the EUR 53,030 which was not used in the 2015 financial year was added to the 2016 budget.

On the side of the expenses, the Board increased the funds available to finance studies to EUR 50,000. Two new studies have been commissioned and the first installment paid (second installment will come in 2017):

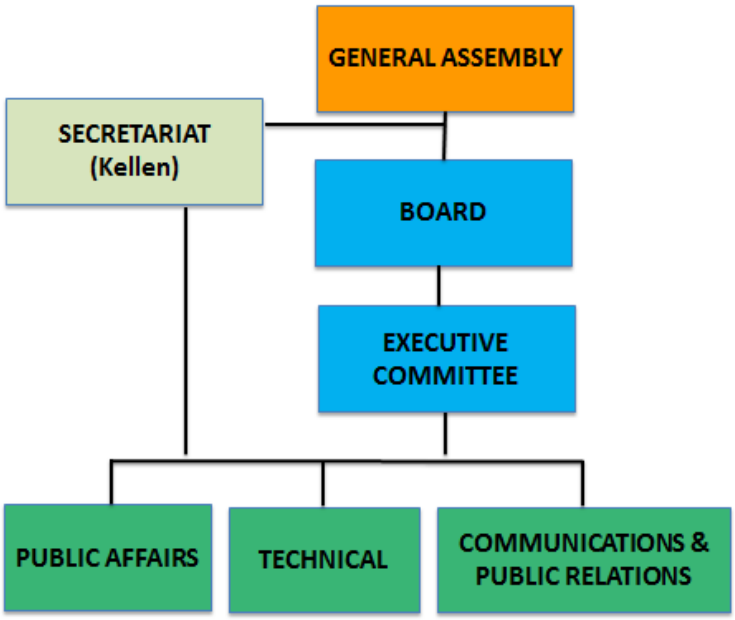
- EUR 25,000 for the Hanita study on measuring the moisture effect on thermal conductivity
- EUR 25,000 for the joint study of Hanita and FIW on the lift-off technique

In addition, the second and final installment of the study on compressive strength measurement prepared by FIW will also be paid this year (EUR 7,500). Put aside the costs to run the association (Kellen), the investment in technical studies represents this year 30% of VIPA's budget, compared to 23% in 2015. The remaining is divided between communications, set-up costs for the GSH quality scheme and other administrative costs. The initial budget approved by the Board in the beginning of 2016 included EUR 20,000 for costs related to IVIS 2017. However since the Board decided not to co-host this event anymore, this expense item was removed from the budget.

The budgeted expenditure for 2016 will amount to EUR 165,460. The remaining EUR 29,595 have not been allocated yet and will be used by the Board as deemed necessary.

For detailed information about VIPA International's finances, please contact the secretariat or the Treasurer Vladimir Pogač.

4. Organisation chart



Board of Directors

Scope

The Board of Directors manages the business and affairs of the association. The Board of Directors is composed of all regular members of the association. Every regular member has the right to nominate one main representative to the Board as well as one substitute/deputy. Each company has one vote.

President: Roland Caps

Current composition

Roland Caps, Va-Q-tec
Oved Shapira, Hanita
Vladimir Pogač, Turna
Richard Burnley / Tony Scott, Kingspan
Gary Chalkley, Camvac
Michel Chauvois / Pascal Rousset, Rexor
Uroš Cotelj, Knauf Insulation
Miki Mi, Jiangsu Sanyou Dior
Gregor Erbenich / Hans-Frieder Eberhardt, Porextherm
Reiner Wartusch, Evonik
Qiang Liu / Xiaoyi Zhou, Fujian Super Tech
Steven Heytens / Filip Verstraete, Microtherm
Yanqing Zhou, Hongda Suzhou
Zhai Chuanwei / Yi He / Zhang Tao Qingdao Kerui

2015/2016 Activities

- Budget approval
- Co-operation agreement with the GSH on the use of the RAL VIP quality label
- Approval and review of the 2016 Work Plan
- Review VIPA Bylaws
- Two new technical studies commissioned
- Approval of the Terms of Reference of the Working Groups
- Discussion on IVIS 2017 and co-operation with the CSTB

Meetings and calls

2 December 2015
14 April 2016
12 September 2016

Executive Committee

Scope

The Executive Committee prepares the meetings and conference calls of the Board and the decisions that need to be taken. It also acts as main point of contact to the secretariat when urgent decisions are needed. The Executive Committee is composed of the President, the Vice-President and the Treasurer of the association and of the secretariat staff members.

Meetings and calls

23 November 2015
6 June 2016

President:
Roland Caps

Vice-President:
Oved Shapira

Treasurer:
Vladimir Pogač

Public Affairs Working Group

Scope

The Public Affairs Working Group works on recommendations to the Board of Directors on any public affairs matter related to VIPs and VIPA.

Chair:
Gregor Erbenich

Current composition

Gregor Erbenich, Porextherm
Roland Caps, Va-Q-tec
Gary Chalkley, Camvac
Vladimir Pogač, Turna
John Garbutt, Kingspan
Pascal Rousset, Rexor

Meetings and calls

23 November 2015
21 March 2016

2015/2016 Activities

- Preparation of the advocacy case
- Reply to public consultations on EED, EPBD and Resource Efficiency for the Building Sector
- Press release on Energy Labelling Regulation
- Meeting with DG Energy to present the VIPA advocacy case
- Monitor of relevant legislative updates in EU, China and Japan

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Technical Working Group

Scope
The Technical Working Group works on recommendations to the Board of Directors on any technical matter related to VIPs.

Chair:
Yoash Carmi

Current composition
Yoash Carmi, Hanita
Roland Caps, Va-Q-tec
Christoph Sprengard, FIW
Estelle Perrin, Rexor
Hans-Frieder Eberhardt, Porextherm
Justin Davies, Kingspan
Liat Suari, Hanita
Marko Meglič, Knauf Insulation
Matthias Geisler, Evonik
Pascal Rousset, Rexor
Yi He, Qingdao Kerui

2015/2016 Activities
- Review proposals for new studies and advise the Board on their acceptance
- Review the technical aspects of RAL VIP quality label (RAL-GZ960)
- Monitor progress on the studies financed by VIPA
- Monitor standardisation process

Meetings and calls
5 February 2016
28 April 2016
30 June 2016

Public Relations & Communications Working Group

Scope
The Public Relations & Communication Working Group oversees all the association's communications outputs and prepares recommendations to the Board of Directors on any communications-related activity to promote VIP and VIPA.
The Working Group proposed to merge activities with the Public Affairs Working Group.

Current composition
Alison Navon, Hanita
Gregor Erbenich, Porextherm
Insook Yoo, va-Q-tec
John Garbutt, Kingspan
Maja Tomazin, Knauf Insulation
Michel Chauvois, Rexor
Reiner Wartusch, Evonik

2015/2016 Activities
- 8 Press releases published
- 3 case studies published
- New sections on the website: "science on VIPs"; "IVIS" and "events"
- 1 article published in the Global Insulation Magazine
- Sponsorship of the IEA Annex 65 meeting in Turin in February 2016

Meetings and calls
24 May 2016

5. Membership

Regular Members (in September 2016)

Associate members (in September 2016)

New membership categories and criteria (to be adopted at General Assembly in October)

	Criteria	Membership fee	Rights and benefits
Regular members	**Manufacturer:** companies that make and market VIPs. **Material Supplier:** companies supplying components and raw materials to make VIP panels or VIP materials (and which will be used in the final product) such as films, core. **Equipment supplier:** companies that provide equipment to produce VIP panels or VIP materials.	EUR 10,000	Influence the Association's strategy and positions: regular members have a seat at the Board Participate at the VIPA International Working Groups to move issues forward Gain access to industry and customers specific resources, guides and updates Share knowledge, expertise and best practices Grow the market for VIPs Network with peer high level representatives from the VIP industry Have a common voice in the decision-making process in Europe, China and USA Free access to the RAL quality assurance label for VIPs
Associate members	Companies with an interest in the VIP industry which do not fall in the previous categories.	EUR 5,000	
Academia	Institutes, laboratories and universities with an interest in the VIP industry.	EUR 500	
Associations	Not-for-profit associations with an interest in VIP industry.	EUR 500	

Interested in joining VIPA International? Contact the Secretariat at:

VIPA International Secretariat

VIPA International secretariat is run by Kellen (http://kellencompany.com), an association management company based in Brussels.

Executive Director:
Raquel Ponte Costa

Policy Officer:
Francesco Gattiglio

Managing Assistant:
Bénédicte Lambert

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