

# RIMA Newsletter

May 1997

Volume 1 Issue 2

## Welcome New Members! Membership in RIMA Reaches All-Time High

**S**ix new members joined RIMA since the last business meeting in October, 1996. The surge of new members brought the total membership to an all-time high of 22.

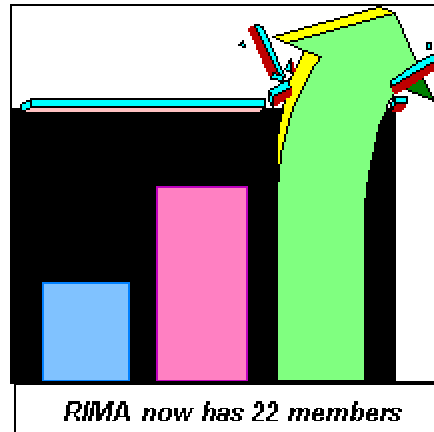
### *The new members are:*

Louisiana Pacific / Kool\*Ply  
Advanced Foil Systems (AFS)  
Cleveland Laminating Corporation  
Compac Corporation  
Unlimited Quality Products  
Simplex Products Division

RIMA's Membership Committee Chairman, Bob Wadsworth, suggests that there are eight more potential members that are active in the industry and encourages all current members to reach-out to these companies and explain some of the benefits of being a member.

Perhaps one of the greatest benefits is working together to achieve common goals. President, Dan Russell said in a recent memo "RIMA is an organization that allows us to collectively solve problems that not only affect us individually but also as an industry." The more members that we have working together, the more strength that we have. This was especially evident at the recent Florida Code Hearings ( see story in this issue).

In addition to the explosive growth of new members, all previous 1996 members re-joined RIMA for 1997. Some of you that have "grown gray with RIMA" probably recognize that Advanced Foil Systems is not really a new member.



Roy Akers from AFS, a past President of RIMA, when asked why he rejoined said "It is critical to come together especially to resolve national issues that will affect us all. The major players are now involved which is a much better representation of the reflective industry. With their strength and the wide representation, we have an opportunity to speak as one voice."

***"RIMA is an organization that allows us to collectively solve problems that not only affect us individually but also as an industry." President Dan***

In the past two years RIMA has doubled in membership. Congratulations to the Membership Committee for this unbelievable achievement.

## EFFORT MADE TOWARD SINGLE SET OF MODEL CODES

**B**uilding codes are changing and most agree that the current changes will be minor compared to what we will see in four years. The goal is to combine the three model code groups into a single national code by the year 2000.

The first major step in the move toward a single model code occurred in the early '90's when BOCA, ICBO, and SBCCI all agreed to publish their respective codes in the same format. Subjects are now covered in the same chapter of each code. The 1993 and 1994 edition of the model codes were published in the Common Code Format.

### **Will Reflectives be represented in the International Building Code?**

Writing a new code is quite an undertaking. To simplify this, the code has been broken down into parts and assigned to five subcommittees: General, Occupancies, Fire Safety, Means of Egress, and Structural Subcommittees. Each committee is made up of three building officials from each of the three model code regions. A steering committee is overseeing the entire process.

The schedule called for meetings from August, 1996 to April, 1997. A working draft will be published in May, 1997 and in August, public hearings will be held to accept input on the draft.

In 1998 and 1999, the draft code will go through two full code change cycles, similar to the process now used. In September, 1999, the membership will take action on the results of the hearings. Publish date is April, 2000 for the (IBC) International Building Code.

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# New Credits for Radiant Barriers in Florida Energy Code

**I**n 1997, the Florida Energy Code will include a 30% Cooling Credit and a 15% Heating Credit for Radiant Barriers. In addition, a "credit" will be awarded for air conditioning ducts that are in an attic with a radiant barrier versus A/C ducts in an attic without a radiant barrier. The credits are more specific than the method by which the 1993 Code rewarded the use of the technology.

Previously, a 5% cooling and 2% heating credit was taken against the entire house. This method reduced BTU load on areas that were not affected by the radiant barrier system. When the Code was re-opened several suggestions were proposed. The North American Insulation Manufacturers Association (NAIMA) was one of the proponents that would have weakened the radiant barrier's position. Philip Faurey from the Florida Solar Energy Center (FSEC), Bill Lippy from Fi-Foil Company, and Robert Hageman from Kool\*Ply requested changes that strengthened radiant barriers in the Code. One of the proposals, allowing the air conditioner air handler to be placed back into the attic space if the attic included a radiant barrier, turned out to be the hottest item at the hearings.

NAIMA made a proposal which would have assigned penalties to air handlers located anywhere outside a conditioned space (radiant barriers would have a small penalty as compared to most others). NAIMA's proposal, after three days of comments, was generally accepted as the best alternative. Kool\*Ply's representatives, Mark Modera & Dr. Mario Medina, sighted several assumptions that were used to develop NAIMA's proposal that were questionable. It was agreed upon at the close of the meeting on the final day that the State of Florida's Contractor (FSEC) would consult with all the parties and make whatever adjustments that would be necessary to finalize the multipliers. It appeared that the only group that would not be satisfied with the results would be the air conditioning industry due to safety concerns (working in hot

attics when the air handler is installed without any thermal protection). The last day for public comment on all the issues was April 18. As of May 16, the public is to be noticed on the Final Draft of the Florida Energy Code. As it stands now, the issue is still being tossed around within the Department of Community Affairs and in addition to the technical details that still need to be worked-out, also appears to have political overtones so the air handler issue remains questionable.

In total, there were six hearing dates plus

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***"Credits" are now given for air conditioning ducts located in attics with radiant barriers.***

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the meeting in Tallahassee. The radiant barrier issues remained at the forefront throughout the hearing process. The turning event was a special meeting held in December in Tallahassee that involved NAIMA, Owens Corning, Kool\*Ply, and Fi-Foil. NAIMA brought in Dave Winiarski and Dave Ober as their technical representatives. RIMA was represented by Mark Modera and Dave Yarbrough. A methodology was devised to evaluate the different proposals and come to a final conclusion. The 30% cooling / 15% heating credits were decided upon after the results of the analysis and the A/C duct credits were accepted. *Without the influence from the reflective industry the credits would be significantly less.*

The implications of the new credits are potentially far-reaching. The results are based on two nationally recognized modeling programs. The new credits set a precedent. Florida's results, and the methodology to obtain them, can be used in other States.

Eventually, and unfortunately, the Florida Energy Code will be replaced by a national standard such as the Model Energy Code or ASHRAE 90.2. The question is how do these national standards deal with radiant barriers?

Strong consideration should be given to establish a task group within RIMA to study, monitor and stay involved with this important issue.

## Credibility *An Editorial by Roy Akers, A.F.S.*

**L**ike many other industries, ours is dominated by many credible people and companies. However, one of the primary reasons the foil industry has had difficulty establishing credibility, for its many distributors and manufacturers, is the few bad apples that try and give themselves an edge in whatever they do.

Over my seventeen years in this industry, I have put together a very interesting collection of sales literature and foil memorabilia. Some are funny; some are drastic exaggerations.

"For the cost of a 3-day weekend 'get-away'."

"Guaranteed for the life of the building."

"Reflective Insulation Technology (a benefit from the space program) is revolutionizing the way in which buildings on Earth are insulated..."

"We are now the nation's largest manufacturers of reflective insulation products."

"Our products have the potential of having the same impact on the insulation industry as the transistor has had on the electronics industry."

"...takes foil technology to its most advanced state to insure the highest performance in the industry."

"Saves up to 40% on insulation purchase costs."

"...with a proven 40-year history, is the most technologically advanced, lowest cost insulation in the world today."

Finally, one of the classics: "Used as a tanning blanket, sunbathers can ensure a smooth even tan." I'll bet everyone is trying to figure out how the tanning blanket works! There are claims for individual products that are just as crazy. Some RB sales types sell their product installed on the roof, between the roof covering and the felt. Now there is a waste of money. We have others who test their product for R-value in a 2x6 roof application and imply the same performance would be true if it was used in the walls.

Claims such as those I've listed are the reason it is important to support an association such as RIMA. By working together, on code standards and other items, such as proper installation procedures, we can go a long way in preventing people, such as those quoted, from misleading their customers or anyone else.

If the foil industry wishes equality with others in the insulation industry, then we need to police ourselves. A good place to start is by joining RIMA and ASTM.

*Editorials and comments are welcomed by the association. RIMA is not responsible as a body for statements and opinions made by the authors.*

# Reflective Insulation & Radiant Barrier

## Question & Answer

Dave Yarbrough, PhD, PE

**Q:** Why does reflective insulation have to be tested in three heat-flow directions while other types of insulation do not and why does reflective insulation achieve higher R-values in the heat-flow down direction than in other directions?

**A:** Reflective insulation systems consist of unfilled air spaces bounded by low-emittance aluminum foil. The foil significantly reduces the thermal radiation across the air space. Because of the low thermal conductivity of air, the R-value of an air space without radiation or convection is large, about 5.5 per inch of thickness at 75°F. Convective heat flow across an air space is caused by the buoyancy of air. This “buoyancy” results from differences in air density caused by temperature differences. Warm air is less dense than cold air, so warm air rises and cold air falls. If a horizontal-enclosed air space has a warm surface on the bottom and a cold surface on the top, then air will be heated by the bottom surface and rise to the top where it is cooled.

This movement of air, convection, and the resulting transfer of heat from the warm surface to the cold surface, convective heat transfer, can be significant. As convection increases R-value decreases.

Heat flow in the downward direction across a horizontal layer of air occurs when the warm surface is on the top and the cold surface is on the bottom. In this case the warm low-density air is on top and the cold high-density air is on the bottom. Thus, there is no reason for air to rise or fall. There is little or no convection when the warm surface is on the top. The extent of natural convection across an air space depends on orientation. The contribution of natural convection to the overall heat-flow is greatest when the warm surface is on the bottom. Every orientation between the previous extremes will have different air-flow or convection characteristics. For these reasons,

reflective products are labeled for the three most important heat-flow directions; up, down, and horizontal.

Fibrous insulations like cellulose, fiberglass, and rock wool also form air-filled systems. The air in these insulations generally exceeds 90% of the available volume. The fibers, however, provide resistance to the movement of air and natural convection is significant only when extreme temperature differences exist and the heat-flow directions is up. The method for evaluating the thermal resistances of loose-fill and batt insulation, ASTM C 518, places the warm surface on the bottom of a horizontally oriented test specimen in order to include convective effects, if any.

*If you have a question that you would like answered in the next RIMA Newsletter, fax it to Dave Yarbrough at R&D Services, Inc. (423) 986-0836.*

### Reflective Insulation & Radiant Barrier Course Under Consideration

Dave Yarbrough, PhD, PE from the Oak Ridge National Laboratory and Tennessee Technological University is considering creating a short course on reflective technology. The intent would be to cover the major issues and the most commonly asked questions.

The course could be offered at ASTM meetings, RIMA meetings, or major Industry Trade Shows. Also some states require continuing education credits (CEU) for contractors to maintain their license. What a great way to educate the trades! If you or your company believes that a course of this nature would have value, please comment and provide some input to Dr. Yarbrough at the next RIMA meeting.

# ***RIMA Member Honored***

David Yarbrough, Professor and Chairperson of Chemical Engineering at Tennessee Technological University, was named co-recipient of the "Thermal Conductivity Conference Award", presented at the 23rd International Thermal Conductivity Conference that took place recently in Nashville. Yarbrough shared the honor with Professor Roy Taylor of the Department of Metallurgy, University of Manchester, England. The award recognizes contributions to the understanding of the thermal conductivity of materials and is symbolized by a piece of ARMCO iron that was part of the lot of material shared among laboratories around the world in the 1960's to establish a common point of reference. Dr. R.W. Powell of the National Physical Laboratory, Teddington, England, received the first conference award in 1970. Last year's award went to Professor J. Fricke of the Institute of Inorganic Chemistry, Wutzburg, Germany. Yarbrough's research on the thermal conductivity of materials has included work on metals and metal alloys, porous and fibrous materials, liquids and polymeric foams. In recent years his research emphasis has been in the area of thermal insulation for buildings and appliances. Recent work has included "superinsulation," a new area of insulation research. Superinsulations have 10 to 20 times the insulation effectiveness of materials that are now commonly used, thus promising greater insulating efficiency and energy savings for home, industry and a wide range of other applications. Yarbrough has participated in thermal conductivity conferences since 1979. He organized the 19th conference that was hosted by Tennessee Tech. In 1985, he was designated a conference "Fellow" in 1987 and has served as financial steward since 1994.

## ***So Long Robert... Good Luck!***

Robert Hageman will not be at the upcoming RIMA meeting. Hageman sold Kool\*Ply to Louisiana Pacific this Spring and will no longer take part in company business. As of this date, Steve McDonald, the Dallas Branch Manager, will be LP's representative for RIMA / ASTM.

## **ASTM Meetings in Quebec City Hold Special Significance for Reflective Insulation**

RIMA member Roy Akers is currently heading a task group that is reviewing ASTM C1224-90, Standard Specification for Reflective Insulation for Building Applications. The standard was re-opened in the October ASTM meetings in New Orleans. Currently several issues regarding thermal testing, mold & mildew, and emittance measurements have surfaced. In regard to thermal testing, the standard in its present form requires that the presence of the framing members be verified by repeating the hot box (C236) measurement. What it means is another expensive test says Akers. Many code bodies including SBCCI, the State of Florida and Dade County in Florida have adopted the standard and more are expected to follow suit. The ASTM task group meeting date is Monday, May 19 from 10:00 AM - 12:00 PM.



*This could impact reflective insulation for many years given the recent code changes and the coming of the IBC.*

## **RIMA Committees**

Membership Committee: Chairman, Robert Wadsworth

Public Relations Committee: Chairman, Larry Ryan

Technical Committee: Chairman, Robert Hageman

# RIMA Newsletter

## President's Message

*Dan Russell, RIMA President*

Fellow members of RIMA:

Wow, what explosive growth we have experienced over the last two years by doubling in size. Congratulations to everyone who was a part of this tremendous growth. RIMA is an organization that allows us to collectively solve problems that not only affect us individually but also as an industry.

If you are a new member of RIMA or have grown gray with RIMA, each member has the same opportunity to learn and the same responsibility to contribute. A great place to start is by becoming active in your committee. It is truly at this level that RIMA will accomplish or fail to accomplish its goals. If you have forgotten your committee or need to join a committee please call me at 1-800-279-4123. This is your association and our industry.

Thank you for allowing me to serve as your President. I look forward to seeing all of you in Quebec City.

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