FORM FOR COMMENTING ON A PUBLIC REVIEW DRAFT
ASHRAE STANDARD, GUIDELINE OR ADDENDUM

PLEASE RETURN COMPLETED FORM BY NOVEMBER 6, 2006

1. **Name:** Mr. Jared Blum
Affiliation: Polyisocyanurate Insulation Manufacturers Association (PIMA)
Address: 7315 Wisconsin Avenue, Suite 400 E, Bethesda, MD 20814
Telephone: 301.654.0000 Fax: 301.951.8401 E-mail: joblum@pima.org

Designation and Title of Public Review Draft:
Proposed Addenda an, at, as, av to ANSI/ASHRAE/IESNA Standard 90.1-2004, Energy Standard for Buildings Except Low-Rise Residential Buildings, First Public Review (November 2006)
Please indicate which addendum you are commenting on: Commenting on **Addenda "as"**

NOTE: Use a separate form for each comment, completing each section (including Sections 1 and 2) to facilitate separate processing. ASHRAE encourages original commentary on its standards. All comments must be accompanied by the commenter's signed release, as provided below. However, if commenters submit comments authored by others, those comments must also be accompanied by a signed copyright release from the author of the original comment. The original comment author, representing commenters who have submitted duplicate comments may be asked to engage in dialog supporting their position. All commenters shall receive acknowledgment from ASHRAE of receipt of their comment, and may receive a response in the form of the resolution of the original comment with that comment's author.

2. Copyright Release:

I hereby grant the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) the non-exclusive royalty rights, including non-exclusive royalty rights in copyright, in my proposals and I understand that I acquire no rights in publication of this standard in which my proposals in this or other similar analogous form is used. I hereby attest that I have the authority and am empowered to grant this copyright release.

Author's Signature: Date: **November 1, 2006**

☐ Check here if you are sending your signature (as required by this form) via fax or mail.

3. Clause or Subclause: Proposed Addenda "as" which modifies Tables 5.5-1 to 5.5-8

4. Comment:

We are pleased to support the proposed action by ASHRAE to improve overall building efficiency by increasing the envelope insulation levels in many commercial buildings.

However, while these proposed changes are a good step forward, we also believe that these changes dramatically under-reach in terms of the truly needed improvements in ASHRAE's minimum efficiency standard for commercial buildings.

We are also concerned that large portions of the commercial building industry appear to be exempt from these proposed building envelope improvements.

A further concern is that the values proposed (even though they represent the first proposed increases in roof and wall insulation levels in nearly 20 years for the ASHRAE Standard) are well below the market norm in many areas, suggesting that even greater energy savings are possible for building owners and managers. {more}

5. Substantiating Statements:
[Attached following our comments]

[x] Check if additional pages are attached. Number of additional pages: 2 Additional Pages

[ ] Check here if your comment is supportive in nature and does not require substantive changes in the current proposal in order to resolve your comment. If you select this option, your comment will not require a response from the project committee and will not be subject to the commenter response procedures.

The ASHRAE Standard is the minimum – the code. Buildings can be built no worse, in terms of their estimated energy use. The proposed changes to the ASHRAE requirements are, in many ways, long overdue. Our energy security and long-term energy efficiency needs are front page issues every day now. And the buildings we build today will continue to be consuming energy for 30, 50 even 100 years from now. So it is right that we carefully examine our recommendations and requirements for minimum efficiency levels. While this proposal shows some marked increases in roof and wall insulation levels in most climate zones, it still contains major "holes" for continued energy waste – even nearly 20 years after the 1989 version of the Standard.

One measure of the weakness of the proposed changes to the roof and wall insulation levels is the fact that many buildings across the US are already employing greater levels of insulation than those proposed. (We would be happy to provide you with numerous examples of buildings across the country of various types which already have insulation levels higher than those proposed in the standard.)

This fact brings into question the cost-effectiveness tests employed by ASHRAE. The United States has entered a new era of constrained energy markets, which is reflected in sharply higher prices for all forms of energy, as well as upward adjustments in the Department of Energy's long-term energy price forecasts. The Annual Energy Outlook 2006 forecasts oil prices in the $50/barrel range over the next 30 years, compared to earlier forecasts that never exceeded $30/barrel. Similar increases are forecast for natural gas—commercial gas prices will average 60% or more than historical levels. And natural gas prices, among other factors, are beginning to drive electricity prices much higher than forecasts in many regions.

These rising price trends are already driving increased focus on energy efficiency in new buildings. As a result, design practice is advancing in many commercial building markets, in many cases above currently proposed 90.1 thermal performance levels. If these higher-than-ASHRAE-proposed insulation levels are already being adopted in the marketplace, shouldn't similar if not higher values be reflected in the ASHRAE Standard?

We also believe that ASHRAE should reconsider some of its assumptions concerning the life expectancy of key energy-related building provisions – such as the assumptions addressing the life of building envelope elements, in comparison with the service lives of lighting and HVAC systems. Building envelopes typically have much longer lives than lighting and mechanical systems, and thus have a larger long-term impact on the total energy consumed over the building life cycle. Given this fact, should not ASHRAE expand its envelope service life assumptions to at least 50 years, for the purpose of cost-effectiveness calculations? We suggest that such a change in economic assumptions would significantly raise ASHRAE minimum thermal performance values and make the 90.1 Standard that much more relevant to the marketplace.

Another key concern with the current proposal is that large portions of the building sector, for some unknown reason, seem to be exempt from the suggested improvements. For example, the proposals show no proposed changes for metal buildings, even though we know that they are a fast growing market segment and in significant need of improvements in their thermal envelope performance. We remain very concerned that there are zero proposed changes to the insulation values for metal buildings.

We are pleased that ASHRAE has finally taken action to remedy another known weakness in 90.1 – that being how to handle the heat loss through steel framing and steel joists. We have long advocated that the addition of continuous insulation to the exterior of these building elements will significantly improve their delivered thermal performance cost effectively.

It would be helpful to have some of the background reasoning and assumptions upon which the proposed changes are based. We can only speculate on certain cost-effectiveness tests, energy costs and other variables. So perhaps many of our concerns can be easily addressed with minor background and clarifying information.

Again, PIMA is pleased to support these proposed changes and encourages ASHRAE and its development committees to look for even more ways to improve the energy performance of our nation's buildings – both new and existing. We also encourage the committees to consider more broadly our nation's overall energy security picture and the important role our buildings play in our total energy needs. Perhaps it is time for ASHRAE to look beyond minimum performance levels. Perhaps it is time for ASHRAE 90.1 to establish a new standard for building energy performance, setting an example of how tomorrow's buildings should perform.

To aid the committee in responding to PIMA's concerns and comments we offer the following numerical listing of requests for some clarifying information to help us better understand the current proposals:

1. Please provide the energy cost assumptions upon which these proposed insulation values were based.

2. Please provide the insulation material cost assumptions upon which these proposed values were based.

3. Please provide the labor cost assumptions upon which these proposed values were based.

4. Please provide justification for not proposing any improvements to the insulation requirements for the metal building elements addressed by this code.

5. Please provide justification for not including additional insulation on below-grade walls in Climate Zone 3 (a requirement in the IECC).

6. Please provide the life expectancy assumptions for the roof and wall cost effectiveness decisions employed.

7. Please provide the peak power assumptions (if any) used in the energy cost model for determining cost effectiveness. (I.e. "Is a dollar's worth of air conditioning savings valued the same as a dollar's worth of heating savings in ASHRAE analyses?")

8. Please provide the inflation and energy escalation rate assumptions used to establish these values as "cost-effective".

9. Please clarify how these proposed values impact re-roofing and re-cladding of walls addressed under this code.

The answers to these questions are important to PIMA. However, they are even more critical as ASHRAE WG2010 and 90.1 begin the critical steps in achieving a new Code 30% more stringent than this one by 2010. We look forward to working closely with ASHRAE on this, and future, improvements to Standard 90.1.