Dear Ms. Power,

The Polyisocyanurate Insulation Manufacturers Association (PIMA) would like to take this opportunity to comment on New Jersey’s Energy Master Plan now being developed by the Board of Public Utilities. PIMA is the trade association for North American manufacturers of rigid polyiso foam insulation – a product that is used in most low-slope commercial roofs as well as in commercial and residential walls. Polyiso insulation products and the raw materials used to manufacture polyiso are produced in over 50 manufacturing facilities across North America, including Parsippany, New Jersey.

Development of this Energy Master Plan provides New Jersey with the opportunity to demonstrate leadership on energy and environmental policy and to promote energy-efficiency measures that will have a positive impact on New Jersey’s employment and economy. According to the most recent *U.S. Energy and Employment Report*, there are now 2.25 million Americans directly employed in energy-efficiency jobs in the United States and 33,815 of these jobs are in New Jersey.¹ With the right policies, New Jersey can grow this segment of its economy and energy-efficiency can become a key contributor to the Governor’s goal of achieving 100% clean energy by mid-century.

**Recommendations**

- Move forward with adoption of the 2018 International Energy Conservation Code (IECC);

• Strengthen the Rehabilitation Subcode (part of the Uniform Construction Code) to
decrease the number of building retrofit projects that are exempt from the energy
efficiency requirements under the Energy Subcode (which is based on the IECC and also
part of the Uniform Construction Code)
• Provide additional resources for building energy code training and enforcement focused
on the area of existing building alterations; and
• Develop a building energy “stretch” code and allow local jurisdictions the option of
adopting that code.

Building Energy Codes

PIMA encourages the Board to focus more attention on buildings and the use of building
energy codes as a key policy for addressing the environmental and economic consequences of
energy waste. Residential and commercial buildings account for 41% of total U.S. energy use
and 74% of electricity use, so measures targeting this sector will have a relatively large impact.
The most cost-effective and comprehensive tools for reducing this energy use are strong
building energy codes along with quality code training and education of local code officials,
designers, and builders. The benefits of reducing building energy use include: consumer and
business cost savings; improved energy productivity and a stronger economy; reduction in air
pollution; increased job growth; improved resiliency; and increased flexibility and reliability of
our energy system and grid.

Although PIMA is encouraged by the New Jersey’s steady progress in the area of
building energy codes, we believe the State could do more to extend those requirements to
alterations in existing buildings by amending its Rehabilitation Subcode to be more in-line with
the model International Existing Building Code (IEBC), which is commonly used in other states.
The current NJ Rehabilitation Subcode exempts a number of common building alterations from
the energy code. As part of the new Energy Master Plan, we strongly encourage you to include
recommendations for strengthening this aspect of the State’s Rehabilitation Subcode in order
to achieve greater energy savings from existing buildings.

I. Energy Savings Potential Related to New Construction

Updating New Jersey’s commercial building energy code to the 2018 IECC would reduce
building energy costs by approximately 8.2%. Recent advances in energy efficiency under the
IECC have proven to be extremely cost effective for commercial buildings, even when measured
against strict simple payback standards. A cost-effectiveness analysis of the 2018 IECC is not
yet available, but for the 2015 IECC (which had a similar incremental percentage improvement
in energy performance compared to the previous edition), the average incremental cost of

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Energy [June 2017]. Available at: https://www.energycodes.gov/development/determinations.
construction was only a tenth of one percent nationally\(^3\) and the average simple payback period for New Jersey was determined to be 7.4 years.\(^4\)

II. Energy Saving Potential Related to Alterations in Existing Buildings

One of the more impactful changes to the model energy codes was in 1999 and 2000 when the scope of ASHRAE Standard 90.1 and the International Energy Conservation Code (IECC) were both expanded to cover alterations in existing buildings. Underscoring the importance of including existing buildings within the scope of the energy code, the Pacific Northwest National Laboratory (PNNL) advised states who were considering the adoption of ASHRAE Standard 90.1-1999 (which initiated the coverage of alterations in the model codes) that “the expansion of this code to existing buildings could produce nearly 50% more savings then if it were applied to new buildings alone.”\(^5\) This assessment from over 16 years ago is supported today through individual state construction permit data. The amount of commercial construction that is attributed to building alterations vs. new construction is very high: 80% in New York\(^6\) and 50% in New Jersey (both measured as a percentage of total construction).\(^7\)

The intent of including existing buildings under the energy code is to leverage the natural cycle of building upgrades and component replacement in order to improve energy efficiency. More than half of existing commercial buildings were built before state and local governments started to adopt building energy codes, so these older buildings offer a huge opportunity for energy savings and the most cost-effective time to improve a building's energy performance is when it is renovated and/or when components and systems are replaced. This process is particularly important for envelope improvements, which reduce building heating and cooling loads, thus creating the potential for even greater improvement in equipment efficiencies in the future. As one example, approximately 2.5 billion square feet of commercial, low-slope roofs are replaced or re-covered each year on existing buildings. Replacing a typical existing roof with an energy code-compliant roof reduces whole building energy use by an average of 5.7% and could result in a ten-year cumulative energy cost savings of more than $12

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\(^7\) NJ Department of Community Affairs, Dollar amount of construction authorized by building permit type, July 7, 2017 (data averaged over the last five years) [https://www.state.nj.us/dca/divisions/codes/reporter/building_permits.html#7](https://www.state.nj.us/dca/divisions/codes/reporter/building_permits.html#7)
billion and a cumulative CO2 emission reduction of more than 100 million metric tons\(^8\) (equal to the annual emissions of 24.8 coal-fired power plants or 21.4 million cars).\(^9\)

### III. Energy “Stretch” Code

Stretch codes provide easily-adoptable code language that is cost-effective and that local jurisdictions can adopt as an overlay of the base energy code in order to achieve greater energy savings, typically in the range of 10 to 20 percent.\(^10\) Using stretch codes helps signal to the market which direction building practices are heading. This will result in earlier acceptance and adoption of energy-efficient measures and construction practices which should also translate into greater acceptance of the base code. Currently, Massachusetts and New York have energy stretch codes that can be adopted at the local level.

### IV. Energy Code Training

The success of building energy codes depends on enforcement and compliance. Providing adequate resources towards the education and training of building professionals and code officials will provide local governments with the reinforcement they need to effectively enforce building energy codes. Also, regular energy code training keeps builders, designers, and code officials knowledgeable about building science and new construction techniques, materials and technologies that are relevant to building energy use.

### V. Additional Benefits of a Strong Energy Code for New Jersey

Building energy codes enable New Jersey businesses that lease real property to be more competitive and to invest more money back into their businesses and local communities. Sometimes referred to as an issue of “split incentives,” this is particularly prevalent with commercial buildings, were businesses that rent retail, office or commercial space are responsible for paying the energy costs associated with operating the building.\(^11\) They pay these energy costs with little to no influence over improvements that would improve energy efficiency. New Jersey’s energy code can help ensure that these businesses are afforded access to energy efficient buildings.

Furthermore, the 2018 IECC will help ensure New Jersey residents and businesses have homes and buildings that promote general welfare and safety. For example, in a recent Department of Energy survey, one in five respondents reported reducing or forgoing basic

\(^8\) Jerry Phelan et al., *Energy and Environmental Impact Reduction Opportunities for Existing Buildings with Low-Slope Roofs*, Bayer Materials Science, April 2009. This average site energy savings and cumulative energy cost savings is for 7 building categories in climate zones 2-6.


\(^11\) 39% of non-government commercial building space is leased and another 13% have a mix of owner-occupied and leased tenants (2012 CBECS data, Table B1).
necessities like food and medicine to pay an energy bill and 14% reported receiving a disconnection notice for energy service. Moreover, recent events serve as a reminder that severe weather can leave communities stranded without power for days or even weeks. Buildings constructed with energy-efficient envelopes can help protect occupants during the most vulnerable times. The benefits of modern building energy codes are clear and the risks of failing to protect New Jersey’s health and safety can be easily avoided.

Thank you for the opportunity to submit these comments.

Sincerely,

Justin Koscher
President

Enclosure

December 15, 2017 letter to Governor-Elect Murphy from insulation industry regarding energy-efficiency policy and jobs


Insulation Industry Supports Jobs and Energy Efficiency Policies for New Jersey

December 15, 2017

Dear Governor-Elect Murphy,

Congratulations on your successful campaign for Governor of New Jersey. The undersigned organizations represent manufacturers, suppliers, distributors, and installers of building insulation. Our products are installed in homes and buildings saving New Jersey consumers and businesses money on utility bills, lowering the environmental impact of buildings, and creating well-paying jobs in the manufacturing and construction sectors. In fact, the insulation industry is part of an energy efficient economy that delivers more than 31,500 jobs to the state.¹

We write to encourage your Administration to maintain building energy codes as a key component of New Jersey’s energy and environmental policies. Nationwide, commercial and residential buildings account for 40% of total energy use² and 75% of total electricity use.³ Building energy codes require new buildings and substantial retrofits to comply with minimum energy efficiency requirements. Model building codes are developed via a consensus-based process that allows equal stakeholder participation. The development process occurs on a three-year cycle to ensure that code provisions reflect the current industry knowledge and technology. All changes to the model building codes are voted on by governmental representatives from local, state, and federal jurisdictions. Ultimately, individual states decide how and when to update their building codes, and whether to make any modifications to the model code requirements.

The U.S. Department of Energy estimates that building energy codes represent $126 billion in energy cost savings from 2010 to 2040. In terms of avoided emissions, building energy codes can save the equivalent of emissions from 245 coal power plants over the same time period.⁴ However, building energy codes do much more than just save energy. Mortgage default risks are 32% lower in energy-efficient homes.⁵ And two recent Harvard studies demonstrate that working in high-performing buildings can improve decision-making in the workplace.⁶

² https://www.eia.gov/tools/faqs/faq.php?id=86&t=1
³ https://www.eia.gov/energyexplained/index.cfm?page=electricity_use
⁴ U.S. Department of Energy: https://www.energycodes.gov/about/results
Importantly, recent natural disasters have reminded us that we must build today with the challenges of tomorrow in mind. Energy efficiency is an integral component of resiliency and energy codes can ensure that our built environment is comprised of structures that function after the storms pass.

We stand ready to support your efforts to strengthen New Jersey’s building energy efficiency policies. Please use our organizations as a resource for your transition team.

Sincerely,

EPS Industry Alliance
Insulation Contractors Association of America
National Insulation Association
North American Insulation Manufacturers Association
Polyisocyanurate Insulation Manufacturers Association