UTAH CLEAN ENERGY

# SUMMARY OF RESIDENTIAL 2021 IECC COST-EFFECTIVENESS & MAIN CHANGES

According to the 2020 Census, Utah is the fastest growing state in the country.[1] Utah won't review another new residential energy code until 2028, which is too long to wait. As Utah is currently in its 6th year of using an out-of-date, amended energy code, Utah must update its energy code to help Utah grow in the smartest way possible, while improving home affordability and supporting clean air.

## THE 2021 IECC IS COST EFFECTIVE FOR UTAH

- According to independent analysis by Pacific Northwest National Laboratory, **adopting the residential 2021 IECC in Utah is cost-effective.**[2]
- The analysis shows that, when compared to Utah's 2015 IECC, the 2021 IECC is expected to:
  - Reduce energy use by **16.4%** on average,
  - Cut energy costs by **$325 per year** on average, and
  - Create **"positive cash flow" for homebuyers in only 3 years** on average after accounting for increase down payment and mortgage costs, and
  - Reduce CO2 emissions by nearly **19,000 tons** every year

## MAIN CHANGES IN THE 2021 IECC AS COMPARED TO THE UTAH 2015 IECC

- Revised to clarify and name the four compliance paths: Prescriptive, Total Building Performance, Energy Rating Index, and Tropical Climate Region.
- New "Addition Energy Efficiency Package Options"
  - Gives credit for high efficiency strategies used by many contractors today (more efficient building envelope (via UA), high efficiency HVAC equipment; high efficiency water heating equipment; locating 100% of ducts in conditioned space; and air leakage rate tighter than 3 ACH). This provision is modeled on commercial IECC provisions that have been in place since 2012.
- Efficiency gains in prescriptive "Building Thermal Envelope" provisions:
  - Improved efficiency for fenestration, ceiling insulation, wood frame wall, slab insulation
  - Requires both a whole house pressure test and field verification, lower air leakage rate.
- Efficiency gains in prescriptive "Systems" provisions:
  - Duct testing required for ducts in conditioned space, lowers duct leakage rate, requires mechanical ventilation systems to be tested/verified, improved fan efficacy for ventilation fans and air handlers
- Efficiency gains in prescriptive "Electrical Power in and Lighting Systems" provisions:
  - Increases lighting efficiency, adds controls for permanently installed lighting, adds lighting power density requirements for exterior lighting, requires manual on/off switch for exterior lighting
- Makes changes to Total Building Performance and Energy Rating Index compliance paths
- Includes a voluntary Zero Energy appendix to support zero energy residential construction

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[1] KUTV News, *Utah is the fastest growing state, according to new census data* (April 2021). Available at: https://kutv.com/news/local/utah-is-the-fastest-growing-state-according-to-new-census-data

[2] Pacific Northwest National Laboratory, *Cost-Effectiveness of the 2021 IECC for Residential Buildings in Utah* (July 2021). Available at: https://www.energycodes.gov/sites/default/files/2021-07/UtahResidentialCostEffectiveness_2021_0.pdf

IECC Code Comparison Study (Nexant, July 15, 2021)

**Appendix B – Incremental Costs**

The table in this appendix contains a table for the incremental costs associated with building a home to IECC 2021 code as compared to IECC 2015 code. This table is to be filled out at a later date.

| Measure | Baseline | Upgrade | Incremental Cost ($) LOW | Incremental Cost ($) HIGH |
|---|---|---|---|---|
| **Wall Insulation (2,369 sq ft)** | R-20 | R-20 + R-5 continuous | $ 1,500 | $ 2,000 |
| **Attic Insulation (1,188 sq ft)** | R-49 | R-60 | $ 500 | $ 700 |
| **Windows (294 sq ft)** | U-Value: 0.32 | U-Value: 0.30 | $ 400 | $ 500 |
| **Duct Leakage** | 6 cfm / 100 sq ft | 4 cfm / 100 sq ft | $ 200 | $ 300 |
| **Infiltration** | 3.5 ACH | 3 ACH | $ 200 | $ 300 |
| **Bathroom Exhaust Fan** | 60 cfm, 1.4 cfm/W | 60 cfm, 2.8 cfm/W | N/A | N/A |
| **Lighting** | 75% LEDs | 100% LEDs | $ 100 | $ 100 |
| **Total** | | | **$ 2,900** | **$ 3,900** |

Source: Garbett Homes (Sept. 2021)

SPENCER J. COX
*Governor*

DEIDRE M. HENDERSON
*Lieutenant Governor*

# Office of Consumer Services

UTAH DEPARTMENT OF COMMERCE

MARGARET W. BUSSE
*Executive Director*

MICHELE BECK
*Director*

**To: Universal Building Code Commission**

**From: Utah Office of Consumer Services**

**Date: June 8, 2022**

**Re: Energy Code Policy Statement**

The Office of Consumer Services (OCS) is Utah's advocate for residential and small commercial customers of public utilities. The OCS supports adoption and enforcement of updated energy codes for new homes and buildings.

Improving the energy efficiency of new homes and commercial buildings by building to updated energy codes provides benefits to home and business owners as well as Utah's public utility ratepayers.

**Updated Energy Codes Benefit Home and Business Owners**

Individual homeowners and business owners benefit because annual utility bills are lowered and the future need to retrofit a home or commercial building is avoided. Retrofits are difficult for homeowners to budget, can be technically challenging since many systems in the house are not accessible after construction is complete, and have a total cost that is much higher than when these efficiency measures are included in initial construction.

**Updated Energy Codes Benefit Utility Ratepayers**

Utah has a growing economy and an even greater growing demand for energy. Since current utility infrastructure is being fully utilized, additional demand often requires expensive infrastructure upgrades and new generating resources which leads to higher utility rates. Using energy as efficiently as possible helps to minimize the need for additional resources, which in turn helps to mitigate increasing costs and other impacts from expanding energy resources. Also, building to updated energy codes helps maximize the use of energy efficiency programs paid for in utility rates. Rather than using those funds to bring recent construction up to higher standards, those funds can have greater impact by retrofitting older building stock. Thus, advancing building codes help to promote long-term efficient use of energy systems in multiple ways.

Uniform Building Code Commission
Division of Occupational & Professional Licensing
Heber M. Wells Building
160 East 300 South
Salt Lake City, UT 84111

May 19, 2022

Dear Commission,

The Utah Association of Energy Users (UAE) represents 34 large energy users in the State of Utah and is made up of a diverse group of companies, including universities, hospitals, retail, mining, steel, natural gas and oil developers, and others. **As strong proponents of cost-effective energy efficiency and conservation in Utah, UAE supports the adoption of the most up-to-date building energy codes for Utah.**

I understand that the Uniform Building Code Commission (UBCC) and its Advisory Committees are currently undertaking a formal review of the 2021 International Energy Conservation Code (IECC). Adoption of the full, unamended 2021 IECC would result in significant and cost-effective energy cost savings while also making wise use of ratepayer funded utility efficiency rebate programs in Utah.

For residential construction, the 2021 IECC represents a 16.4% increase in building efficiency statewide.[1] Given that Utah is on a six-year adoption cycle for residential construction our code is already three years out of date, and we recommend taking action now.

Regarding the commercial energy code, adopting the latest energy code will provide an annual energy cost savings of $0.042 per square foot on average across the state. In addition, it will reduce statewide CO2 emissions by 5.4 MMT (30 years cumulative), equivalent to the CO2 emissions of 1,164,000 cars driven for one year—all while adding hundreds of well-paying jobs to our economy.[2]

For decades Utah has prided itself on low energy costs as an economic development tool. Now as we see unprecedented growth in Utah, we need to ensure the long-term economic

[1] Source: Cost-Effectiveness of the 2021 IECC for Residential Buildings in Utah (July 2021). Available at: https://www.energycodes.gov/sites/default/files/2021-07/UtahResidentialCostEffectiveness_2021_0.pdf

[2] Source: Cost-Effectiveness of ANSI/ASHRAE/IES Standard 90.1-2019 for Utah (July 2021). Available at: https://www.energycodes.gov/sites/default/files/2021-07/Cost-effectiveness_of_ASHRAE_Standard_90-1-2019-Utah.pdf

viability of our state. Requiring that the most up-to-date energy code is used for new homes and commercial buildings slows the increase in energy costs and reduces our demand for natural gas. This translates to reduced building emissions and supporting low energy rates in Utah.

Although UAE members are industrial energy users, failing to adopt the updated energy code in Utah virtually ensures that energy consumption from new homes and commercial buildings is higher than necessary, which *all utility ratepayers* will pay for in two ways: (1) through higher energy rates as Rocky Mountain Power either generates or purchases the additional power required (particularly at expensive peak hours); and (2) through the subsidy of utility energy efficiency programs to retrofit these homes with efficiency upgrades *after the fact*.

As this Commission will provide its recommendation to Utah lawmakers during the Legislature's Interim Session this summer to be debated during the upcoming 2023 General Legislative Session, UAE urges the Commission to recommend adoption of both the residential and commercial 2021 IECC and ASHRAE 90.1-2019 without any weakening amendments.

Thank you for considering these comments.

Sincerely,

Kelly J Francone

Kelly Francone
Executive Director
Utah Association of Energy Users
www.utahenergyusers.org

Hi, our names are Mac, Max, and Teddy and we are senior environmental science majors at Westminster College working on our senior capstone project.

Thank you for giving us a few minutes to tell you why we think Utah needs to adopt the 2021 version of the IECC. We hope that you walk away from this with 3 important things in mind, those being the environmental benefits, economic benefits, and the support for this from the next generation of homeowners.

So, one way the updated building codes will be beneficial is by improving air quality. With an average statewide AQI of 51.8, Utah has the worst air quality in the country. One of the main reasons we have such a poor AQI is because of the frequent temperature inversions that trap harmful chemicals such as NOx and SOx near the ground. Unfortunately, according to a 2017 study done in Po Valley, Italy, inversions will only become more frequent with an increase in climate change.

Another way the updated codes will help is by reducing CO2 emissions which contribute to global climate change.If we adopt the 2021 IECC, CO2 emission reductions compared to the 2015 IECC with amendments are equivalent to the emissions avoided from taking over 5,700 passenger cars off the road per year as stated in a study done by Pacific Northwest National Laboratory.Also, according to the International Code Council, since 2009, the development of new versions of the IECC has already provided savings of just under 700 million metric tons between residential and commercial buildings throughout the country.

In addition to environmental benefits, there are estimations of huge cost savings on both the consumer and statewide levels. In a study done by the Pacific Northwest National Labratory, Residential savings for the consumer are estimated to be over $5,700 throughout a 30 year period

of living in a home that was built with the 2021 IECC requirements (when compared with the 2015 IECC with amendments). Those savings are calculated by energy savings minus additional costs so it is accounting for increased construction costs. While there is an initial increase in the cost of a home, reduction in energy use will result in net savings by the 3rd year. So it pays off quickly and you do not have to wait 10 or 15 years to see a return.

According to the same study, On a statewide level cost savings are estimated to be over 263 million dollars for commercial buildings and over 771 million dollars for residential buildings over the 30 years following the adoption of the 2021 code. Thousands of jobs will also be created through the increased construction activities which will stimulate the local economy. The international code council stated "If all states updated to the 2021 IECC, nationally over 22,000 jobs would be created in the first year and over 632,000 jobs cumulatively over the next 30 years.

For community engagement we set up a petition page that has 150 signatures on change.org that is signed by westminster students and community members outside of westminster in the salt lake area. They are all in favor of adopting the 2021 International energy code conservation . We spread the petition through our social media accounts on instagram as well as the Westminster Environmental center account. We posted fliers all around campus with qr codes to be able to have everybody's vote on this big decision.

It is important we heard everybody's voice in this decision because we are the next generation of homebuyers here in the state of Utah. 25 percent of population of utah is 20-34 years old which is the average age in which a person buys there new house. Salt lake city is growing rapidly as a city and will be progressing to become a larger metropolitan area for the future. With this, we will have more issues for the future if we do not change our building codes

right now. We will have to deal with more air pollution problems, We will deal with higher expenses on utility bills and living day by day and worry more about energy bills than id we have enough for groceries or afford healthcare.

Think about the air you would want for your grandkids to be playing and living in .I hope the committee takes in consideration that it is our future in your decision for this new building code and we are in favor for the 2021 International Energy Conservation code. Thank you for your time.

UTAH CLEAN ENERGY

# SUMMARY OF ASHRAE-90.1 2019 COST EFFECTIVENESS

Standard ASHRAE 90.1-2019 is the latest standard for energy conservation in commercial buildings and is understood to be generally comparable to the commercial provisions of the 2021 IECC.

## ADOPTING ASHRAE 90.1-2019 IN UTAH IS COST-EFFECTIVE

- According to independent analysis by Pacific Northwest National Laboratory, **adopting the ASHRAE 90.1-2019 is cost-effective in Utah.**[1]
- The analysis shows that, when compared to the ASHRAE 90.1-2016 Standard, the 2019 Standard is expected to:
    - **Cut annual energy costs** by $0.042/square foot on average across the state.
    - **Reduce first costs** for construction by $1.07/square foot
- The 30-year **life cycle cost (LCC) savings** for Utah buildings constructed to meet the updated Standard as compared to the previous standard are:
    - $3.51/square foot for publicly-owned buildings
    - $3.07/square foot for privately-owned buildings
- Reduced first costs typically result from the interaction between measures and situations such as:
    - **Fewer light fixtures are required** when the allowed lighting power is reduced. Also, changes from fluorescent to LED technology result in reduced lighting costs in many cases and longer lamp lives, requiring fewer lamp replacements.
    - **Smaller heating, ventilating, and air-conditioning (HVAC) equipment sizes** can result from the lowering of heating and cooling loads due to other efficiency measures, such as better building envelopes. For example, Standard 90.1-2019 has more stringent fenestration U-factors for some climate zones. This results in smaller equipment and distribution systems, resulting in a negative first cost.[2]

Figure 1 compares annual energy cost savings, first cost for the upgrade, and net annualized LCC savings. The net annualized LCC savings per square foot is the annual energy savings minus an allowance to pay for the added cost under scenario 1. Figure 2 shows overall state weighted net LCC results for both scenarios. When net LCC is positive, the updated code edition is considered cost-effective.

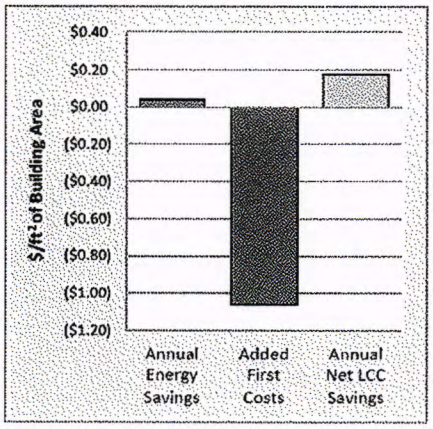



Figure 1. Statewide Weighted Costs and Savings

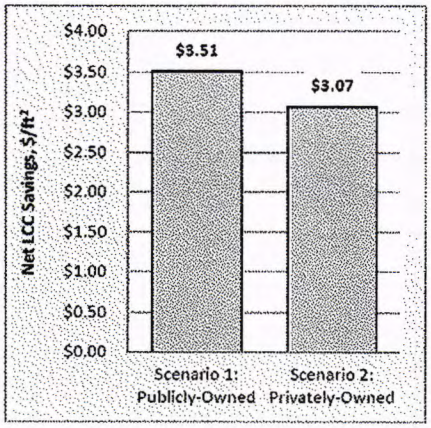



Figure 2. Overall Net Life-Cycle Cost Savings

*Source: PNNL analysis - see footnote 1*

[1] Source: Pacific Northwest Nationall Laboratory, *Cost-Effectiveness of ANSI/ASHRAE/IES Standard 90.1-2019 for Utah* (July 2021), Available at: https://www.energycodes.gov/sites/default/files/2021-07/Cost-effectiveness_of_ASHRAE_Standard_90-1-2019-Utah.pdf

[2] Source: See Note 1

## SIGNIFICANT CHANGES TO THE 2019 STANDARD INCLUDES[3]

**Administration and Enforcement:**

- New commissioning requirements in accordance with ASHRAE/IES Standard 202, Commissioning Process for Buildings and Systems

**Building Envelope:**

- Combined categories of "nonmetal framed" and "metal framed" products for vertical fenestration
- Upgraded minimum criteria for SHGC and U-factor across all climate zones
- Revised air leakage section to clarify compliance
- Refined exceptions related to vestibules, added new option and associated criteria for using air curtains

**Lighting:**

- Modified lighting power allowances for Space-by-Space Method and the Building Area Method
- New simplified method for lighting for contractors and designers of renovated office buildings and retail buildings up to 25,000 ft2 (2300 m2)
- Updated lighting control requirements for parking garages to account for the use of LEDs
- Updated daylight-responsive requirements, added definition for "continuous dimming" based on NEMA LSD-64-2014
- Clarified side-lighting requirements and associated exceptions

**Mechanical:**

- New requirements to allow the option of using ANSI/ASHRAE Standard 90.4-2016, Energy Standard for Data Centers, instead of ASHRAE Standard 90.1 in computer rooms that have an IT equipment load larger than 10 kW
- Added pump definitions, requirements, and efficiency tables to the standard for the first time
- New equipment efficiency requirement tables and changes to existing tables
- Replaced fan efficiency grade (FEG) efficiency metric with fan energy index (FEI)
- New requirements for reporting fan power for ceiling fans and updated requirements for fan motor selections to increase design options for load-matching variable-speed fan applications
- New energy recovery requirements for high-rise residential buildings
- New requirement for condenser heat recovery for acute care inpatient hospitals

**Energy Cost Budget (ECB) Method (Section 11):**

- Numerous changes to ensure continuity
- Set baseline for on-site electricity generation systems

**Performance Rating Method (Appendix G):**

- Clarified Appendix G rules and corresponding baseline efficiency requirement when combining multiple thermal zones into a single thermal block
- New explicit heating and cooling COPs without fan for baseline packaged cooling equipment
- New rules for modeling impact of automatic receptacle controls
- Set more specific baseline rules for infiltration modeling
- Clarified how plant and coil sizing should be performed
- Updated building performance factors

**Both Compliance Paths:**

- Clearer, more specific rules for treatment of renewables
- New updates to rules for lighting modeling

**2021 IECC Commercial Provisions Main Changes**

- Roughly equal to referenced ASHRAE 90.1-2019
- Improved envelope requirements
- New points based table
- 8 to 10% gain in energy efficiency over 2018 IECC
- New voluntary Zero Energy appendix

*Source: NEEP 2021 IECC Commercial Overview: https://www.youtube.com/watch?v=slWP29Df9VM*

[3] Source: ASHRAE webpage, *2019 Update of Standard 90.1 (June 2022)*, Available at: https://www.ashrae.org/news/hvacrindustry/2019-update-of-standard-90-1

# To a Higher Standard:

## Building Codes, Improved Efficiency and Air Quality in Utah

## INTRODUCTION

Poor air quality is both a health issue and an economic challenge in Utah, particularly along the Wasatch Front. One key driver of poor air quality is area source emissions, such as those from residences and commercial structures. Rapid population growth across Utah poses a challenge in terms of increasing emissions, but it also offers the opportunity to build in a manner that promotes greater air quality stewardship. Optimizing this opportunity may require changes to the building code.

Utah has kept up to date on commercial building code standards, but it has maintained older residential building standards that fall short of more efficient building practices. Some argue that upgrading the Utah building code would yield substantial reductions in various types of harmful emissions, while others suggest that higher standards drive-up housing costs at a time when rising prices are already posing socio-economic challenges.

This study zeros in on those specific standards that address air quality – not only a major environmental concern, but one over which Utah has a degree of control. The study explores the costs and benefits of the newest building code recommendations – with the focus squarely on reducing emissions that hurt Utah's air quality.

This study proceeds from the assumption that modern civilization requires building codes for health, safety and general welfare. The Utah Foundation is not "taking sides" with this study, and recognizes that there are limits to Utah Foundation researchers' knowledge of building practices. That said, this study does offer guidance to those looking to building code upgrades as a means of addressing air quality.

## KEY FINDINGS

- Driven by Utah's rapid population growth, over 12% of Utah's homes have been built since 2010 – a far greater proportion than the U.S. average. With a robust pace in new residential and commercial construction expected to continue, the state has a unique opportunity to build in a manner that reduces each structure's pollution emissions. The payoff is long-term, with many of these buildings maintaining reduced emissions far into the future.
- Residences and commercial buildings' air and water heating account for between 6% and 7% of winter inversion emissions for most Utahns; during other seasons and for Utahns living off the Wasatch Front, these emissions are a smaller proportion of local emissions.
- Given the regional variations in air quality issues related to area source emissions, the State might explore whether relevant variations in building codes are appropriate.
- The 2021 energy efficiency building standards are set for review by the Utah Legislature for adoption, rejection or amendment during the 2023 General Session.
- The main arguments for updating the energy efficiency standards in the building code include: lower utility costs for residents, better air quality and an increase in Utah employment. The main points of opposition include: new homes are only a small part of the problem, home costs are too high already, and the government is getting too specific in its building mandates.

- A study of updating the Utah commercial code suggests a substantial savings in energy costs and commensurate emissions reduction – and for most buildings a decrease per square foot in initial construction costs due primarily to the need for a smaller heating and air conditioning systems.
- Studies of updating Utah residential code show life-cycle cost savings that appear to justify a full implementation of the 2021 code.
- Our analysis suggests that each home built to the 2021 code would see emissions related to natural gas usage decrease by about one-third compared to homes built to the current code.
- The cost of implementing the 2021 energy efficiency standards would be between 0.4% and 0.7% of a new $600,000 home (under $5,000). In terms of household cash flow, initial costs would be recouped within two or three years. These homes would see a one-third reduction in local emissions – and a larger reduction during winter months.
- There is a standing loophole in Utah's approach to energy efficiency codes that is used with such frequency that it undermines any code update. It also creates transparency issues.
- Since the 2000s, the independence of Utah's Uniform Building Code Commission has diminished. Observers say that energy efficiency code adoption that affects air quality has become a much more political process.

# BACKGROUND

Utah saw the largest population growth percentage in the nation between 2010 and 2020: 18.4% compared to the national rate of 7.4%.[1] The housing built during that period accounts for 11.7% of our total housing stock.[2] This compares to only 6.3% nationally. During that decade, more than 14,000 new single-family homes were built per year in Utah, along with a sharp increase in multifamily homes, bringing a related increase in the need for commercial buildings.[3] With a robust pace in new construction expected to continue, the state has a unique opportunity to build in a manner that decreases pollution emissions. With buildings lasting decades or even centuries, making changes that yield efficiency now pays dividends far into the future. To that end, building codes offer policymakers a critical policy lever.

Older buildings tend to be less efficient than newer ones, particularly older structures that have seen little upgrade over time. Some argue that Utah ought to focus on those older buildings. In fact, there are federal, state, utility-run, and other programs designed to clean up existing buildings. (See the sidebar on page XX.) This includes funding to add insulation to attics, upgrade furnaces to higher efficiency models, replace windows, and install solar panels and battery storage units. These programs and householder-financed remodels have made major improvements to existing stock, making homes more efficient than when they were first built.

But there is a cost premium to retrofitting structures with better insulation, tighter envelopes, improved ductwork and state-of-the-art HVAC systems. Although the increased cost to install high-efficiency systems in new construction often makes financial sense, retrofit costs might be prohibitive.

The Utah Foundation undertook this study to "fine tune" the newest model energy efficiency standards. For example, in terms of insulation, envelops, and ductwork, we initially explored each aspect's costs to Utah residents and benefits to Utahns' air quality. (Note that lighting requirements do not have local air quality impacts.) Through the course of this research, the Utah Foundation pivoted away from the fine-tuning approach for the following reasons:

1. While some of the building code's energy efficiency approaches that would benefit air quality are estimated as being more cost-effective than others, they are determined by the model code authors to be cost effective as a "package" – to be taken together as interdependent.

2. As shown by numerous studies, the newest model provisions are cost-effective across Utah, depending upon the efficiency options provided to builders.
3. Given the limited number of options that Utah has to improve air quality, it might make sense for the Utah Legislature to embrace the newest model code commercial and residential standards whole-heartedly in order to maximize the impact of code changes. Note that Utah's current residential code is 29% less efficient that the newest model code.[4]

## AREA SOURCES AND AIR QUALITY

There are three broad categories of emissions affecting Utah's air quality. Mobile sources – both on-road and otherwise – have historically created the greatest share of emissions in the state. A subcategory of these mobile sources are non-road emissions, which can include trains, construction machinery and even lawn mowers. Point sources – such as Utah's refineries and power plants – have the least emissions in aggregate, but the greatest individually. These include most large industrial sources, but also some non-industrial sources, such as major universities. Finally, area source emitters include most commercial buildings and homes. It is important to understand the contribution of area source pollution to understand the benefits of building code upgrades.

When Utahns think about bad air quality, they tend to consider the emissions caught during the winter in valley inversions, as well as summer ozone and periodic wildfire smoke. The distinction among these is important for the purposes of this report, because area sources emit pollutants at different times and in different ways.

The Utah Foundation wrote extensively about the effects of poor air quality in a 2014 report.[5] It included a description of myriad health consequences. Many additional consequences have been studied by universities and others since. A 2020 analysis from 23 Utah air quality researchers and specialists estimates that air pollution causes between 2,480 and 8,000 premature deaths in the state annually and decreases Utahns' median life expectancy by 1.1 to 3.6 years.[6]

The effects also include quality of life concerns as noted time and time again in the Utah Foundation's Quality of Life Index survey from Utahns across the state, particularly from along the Wasatch Front.[7] Finally, the effects include economic development concerns, as bad air quality can reduce the state's appeal. The 2020 analysis estimates that the economic costs total between $0.75 and $3.3 billion annually – or about 1.7% of the state's gross domestic product.[8]

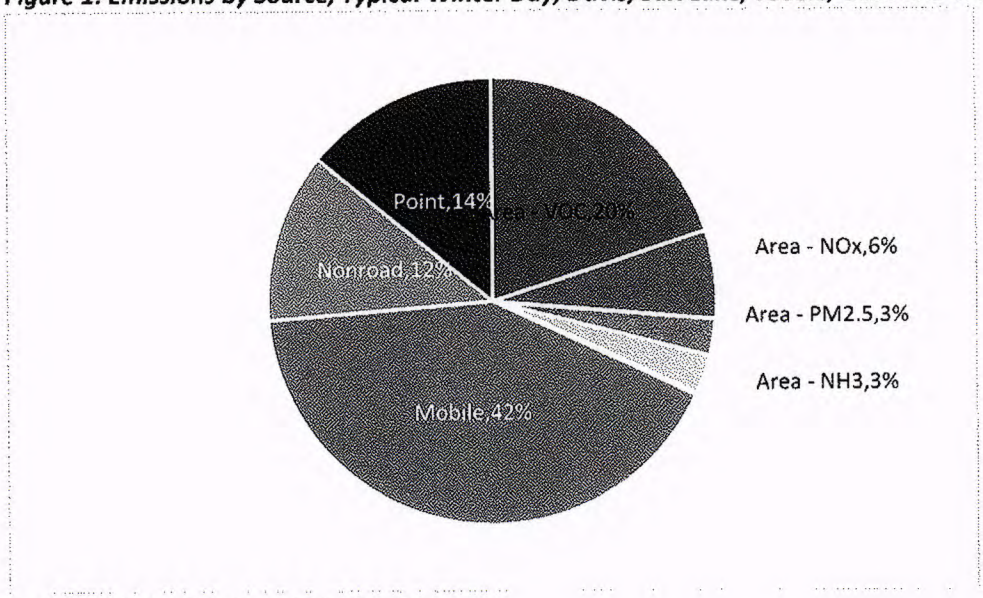
On a typical winter day along the Wasatch Front (Davis, Salt Lake, Utah and Weber counties, plus Tooele), mobile sources emit about 120 tons of pollution, area sources emit about 95 tons, point sources just over 40 tons and non-road sources just under 40 tons.[9] (See Figure 1.)

About half of the emissions are nitrogen oxides (NOx) and about half are volatile organic compounds – both of which are precursors to the creation of small particulate matter, or PM2.5, that ends up in Utah's winter inversions.[10] In addition, some direct PM2.5 and other emissions get caught in these inversions.

When it comes to area sources, most emissions are volatile organic compounds. Nitrogen oxides are also prevalent, with direct PM2.5 and ammonia rounding out the area sources (the latter from crops and livestock).

**Area source emissions account for about one-third of winter emissions; heating air and water for buildings results primarily in nitrogen oxides (NOx).**

***Figure 1: Emissions by Source, Typical Winter Day, Davis, Salt Lake, Tooele, Utah and Weber Counties***




Source: Utah Division of Air Quality.
[COLOR-CODE TO KEEP EACH SOURCE TYPE WITHIN SHADES OF THE SAME COLOR.]

At a more detailed level, area sources can be categorized as follows: solvent utilization; stationary source fuel combustion; storage and transport; waste disposal treatment and recovery; industrial processes; and miscellaneous area sources. The vast majority of these emissions come from the first of those two categories. Of the roughly 95 tons of area source pollutants per day, nearly 50 are from solvents (all of which are VOCs, primarily from surface coating and a variety of other commercial and consumer sources unrelated to building codes) and nearly 30 tons are from fuel combustion.[11]

Fuel combustion is predominantly from using natural gas to heat buildings' air and water. Of the fuel combustion amount, about five tons come from commercial and institutional buildings, about two tons from industrial buildings, and about 22 tons – or roughly three-fourths – from residential buildings.[12] These emissions are mostly nitrogen oxides (91% of the total area source NOx), with volatile organic compounds and direct PM2.5 making up the remainder.

On an annualized basis, about 69% of the fuel combustion pollutants along the Wasatch Front come from natural gas combustion, with much of the rest (28%) from burning wood.[13] And on an annualized basis, about 4% of overall Wasatch Front air pollution is due to residential and commercial natural gas combustion. During winter inversion periods, this is likely between 6% and 7%. The levels are far lower during warmer months.

The percentages for natural gas combustion represent a small portion of the Wasatch Front pollution problem. Several sources are larger contributors to the problem. These include on-highway gasoline vehicles, on-highway diesel vehicles, off-highway diesel vehicles, solvents, and forest-fire smoke. And winter woodsmoke is not far behind natural gas combustion.[14] In short, addressing air quality requires that Utah address multiple individual contributing sources with separate solutions in order to make a meaningful combined impact. When it comes to the fuel combustion slices of the pie, building code upgrades offer policymakers significant potential leverage.

It is important to note that, off the Wasatch Front, residential and commercial natural gas combustion results in a far smaller proportion of pollutants. On an annualized basis, they account for just over 1% of air pollution, being vastly overwhelmed by other factors, such as oil and gas operations in the Uintah Basin.[15] In fact, much of the remainder of the state outside the Wasatch Front has less to worry about in terms of air pollution (except the winter ozone in the Uintah Basin, wintertime inversion pollution in Cache County and to a lesser extent other Utah valleys, and the summer ozone leaving the Wasatch Front for neighboring counties to the east). Furthermore, there are significant differences in heating requirements in different areas of the state because average winter temperatures vary. Compare St. George, for example, to Salt Lake City. As a result, the state is broken into different climate zones based on different needs.

Similarly, building code provisions that may be important to Wasatch Front air quality do not necessarily apply with the same urgency to other parts of the state. This is a key consideration for policymakers. Does Utah's one-size-fits-all approach make sense? The State might explore whether varying approaches to building codes are appropriate.

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## SIDEBAR: Wood Burning

Indoor wood stoves and outdoor bonfires during the winter months contribute to unnecessary air pollution. Wood smoke – while relatively uncommon when compared to other emissions sources – contributes a large portion of the winter particulate emissions.

The Division of Air Quality enforces no-burn days when air quality is poor or expected to be poor – typically during winter inversion periods. These no-burn requirements cover Box Elder, Cache, Davis, Salt Lake, Tooele, Utah and Weber counties. The Division's compliance officers monitor neighborhoods using infrared cameras to detect heat plumes from chimneys. Officers can assess $150 fines to households that violate the no-burn requirement.

In 2015, the Utah Air Quality Board and the Utah Division of Air Quality proposed a complete ban on wood burning from November 1 through March 15 of each year for counties which were categorized as nonattainment. With the possibility of a complete wood-burning ban during the winter months – which would have been the most stringent ban on wood burning in the country – strong opposition arose. Wood stove owners protested the additional heating costs they would bear and pointed out how such a ban would seriously devalue the thousands of dollars invested in installing wood stoves in their homes. Woodstove manufacturers, distributors, and contractors would lose a substantial amount of their business.

In the face of such opposition, the Utah Division of Air Quality backed off their proposal for a complete ban on wood burning during the winter months, and Governor Herbert signed legislation making it illegal to implement a complete ban on wood burning. That said, there is room for Utah to step up its game in reducing woodsmoke emissions.

Sources:


- Utah Foundation, Bringing Air Quality Home, February 2016, www.utahfoundation.org/wp-content/uploads/rr738.pdf.
- Department of Environmental Quality, https://deq.utah.gov/air-quality/mandatory-no-burn-days-stationary-source-compliance.
- Utah House Bill 396, Solid Fuel Burning Amendments, 2015 General Session, http://le.utah.gov/~2015/bills/static/HB0396.html.

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## BUILDING CODES AND AIR QUALITY

Building code regulations govern the construction, renovation and remodel of homes and businesses. In Utah, the state imposes a single code statewide. To build, renovate or remodel, the owner of a property or a general contractor pulls a permit from a local government. An inspector from that local government then ensures that the owner or contractor is following the state code.

Most building codes – including Utah's code – are based on a model code. The International Code Council publishes the commonly used International Building Code, the International Residential Code and the International Existing Building Code. The American Society of Heating, Refrigerating and Air-Conditioning Engineers (known as ASHRAE) publishes a set of commonly used commercial-building focused standards. Building codes include energy efficiency requirements, such as insulation, building air sealing, sizing of heating and cooling equipment, and lighting efficiency. Each of these relates in some way to air quality. Since most homes and businesses in Utah use natural gas for area heating and water heaters, energy efficiencies in the building and the equipment would result in less need for natural gas, thus decreasing local emissions. This is the focus of the study. In addition, some homes and businesses use natural gas for cooking, clothes driers and otherwise. However, due to the limited use of these appliances and lack of available data, these are beyond the scope of this study.

It is important to note that local air quality is related to the energy efficiency included in building codes insofar as residential and commercial buildings use natural gas for heating air and water. If buildings use electric heat pumps instead of furnaces, those buildings' thermal envelopes do not matter in terms of local air quality. If buildings are using electric water heaters, the efficiency of those units and their related insulation have no effect on local air quality. However, envelopes are perhaps more important in for buildings with electric furnaces since the cost of electricity is higher than the cost of natural gas.

It should be noted that broader emissions due to energy produced from power plants farther afield may be of concern to those focused on greenhouse gases and climate impacts. This report, however, focuses on local air quality impacts due to the urgency of addressing the poor seasonal air in areas where the majority of Utahns live. Utah Foundation surveys show Utahns are far more concerned about air quality than climate change.[16] That said, improving air quality can have knock-on benefits in reducing greenhouse gas emissions.

### Model Codes and Standards

Residential and commercial energy efficiency is covered by the International Code Council's International Energy Conservation Code – or IECC – which is published every three years, while ASHRAE also provides commercial energy efficiency standards, also published every three years.[17] Residential codes cover the construction of detached one- and two-family dwellings and multiple single-family dwellings – or townhomes – while commercial codes cover the construction of apartments and other buildings.

Under the IECC and ASHRAE, building codes have seen major improvements in efficiency.[18]

The latest residential IECC was issued in 2021. It is expected to yield large energy efficiency increases.[19] The latest commercial IECC was also issued in 2021. It aligns closely with ASHRAE Standard 90.1-

2019. As with the 2021 residential IECC, the 2021 commercial IECC and ASHRAE yield large energy efficiency increases. These efficiencies are explained in detail beginning on page XX.

Some version of the IECC has been adopted by 42 states for both residential and commercial buildings.[20] The remaining states provide "home rule" or "local control" to jurisdictions so that they may modify state standards – as is the case in Colorado.[21] However, Colorado's 2022 General Assembly passed a law requiring local jurisdictions to adopt efficiency codes that are at least as efficient as the 2021 IECC by 2026 or be subject to the state's adopted code.[22] In Utah, local governments cannot go beyond or less than the code approved by the Utah Legislature. Given Utah's varying pollution issues noted earlier, this might be something for the Utah Legislature to consider, perhaps as energy efficiency building code adoption moves its way through the Utah process.

## THE BUILDING CODE ADOPTION PROCESS IN UTAH

Utah's Uniform Building Code Commission is made up of 13 subject-matter experts and stakeholders appointed by the executive director of the Department of Commerce (though the licensed building inspector position is nominated by the Utah League of Cities and Towns). The nominees are approved by the Utah governor. Commission members have a wide range of expertise, from contractors and engineers to architects and building inspectors.[23] As of 2022, there is just one member from the general public who has no affiliation with the construction industry or real estate development industry. (There were two members from the general public before a recent legislative change). There is not a seat for an environmental advocacy representative, though an employee of Utah Clean Energy and former Uniform Building Code Commission member has actively participated in recent building code discussions.

The Commission's committees review building code specifics and other building matters to provide guidance to the full Commission.[24] The committees and Commission take a deep dive into building codes so that these particulars do not fall on the shoulders of the Utah Legislature. The work of the Mechanical Advisory Committee is most pertinent to energy efficiency and air quality.

The Mechanical Advisory Committee reviews the IECC model code to provide energy efficiency recommendations to the full Commission. As with the other committees, the Mechanical Advisory Committee is reactive in that it responds to suggested IECC model code amendments provided by interested parties. Many amendments reviewed by the Mechanical Advisory Committee come from the Utah Home Builders Association – including about 50 amendments to the 2021 IECC model code. The committee reviews and then approves, rejects or amends the amendments. The Mechanical Advisory Committee then provides recommendations to the full Commission.

The Commission's meetings and public feedback aim to determine what it will recommend to the Utah Legislature. The Commission prepares a report and presents it to the Utah Legislature's Business and Labor Interim Subcommittee with its recommendations for adoption, as accompanied by an analysis of the cost and benefits of each recommended change.[25]

A bill from the Business and Labor Interim Subcommittee or from a legislative sponsor is then vetted and voted on by both bodies in the subsequent legislative session. The next review will take place in late 2022 to be voted on during the 2023 General Session.

The process is meant to provide Utah Legislators with the information they need to determine whether to adopt the newest building codes, including the updated energy efficiency code provisions. However, given the complexity of the codes, many will be forced to rely on lobbyists and their legislative

colleagues for guidance on both adoption and further amendment. This report seeks to assist in decision making by pulling key information together in a manner that the broader public, policymakers and the press can easily understand.

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## SIDEBAR: Utah Governance Timeline

2016 – The Utah Legislature adopts the 2015 IECC provisions for the commercial code and the 2015 IECC provisions with amendments to the residential code.

2019 – The Utah Legislature adopts the 2018 IECC provisions for the commercial code but takes no action on the 2018 IECC for the residential code.

2021 – The Mechanical Advisory Committee begins 2021 IECC review in August 2021.

2022 (June) – The Mechanical Advisory Committee completes its 2021 IECC review, providing recommendation to the Uniform Building Code Commission.

2022 (July) – The Commission set its recommendations on the 2021 IECC.

2022 (August) – The Commission will hold public hearings on its recommendations for the 2021 IECC.

2022 (September) – The Commissions will provide its recommendation s for the 2021 IECC to the Business and Labor Interim Committee.

2023 (January-March) – The Utah Legislature will vote to approve, reject or amend the 2021 IECC.

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# UTAH'S APPROACH TO ENERGY EFFICIENCY IN ITS BUILDING CODE

According to a 2013 report from the Pacific Northwest National Laboratory, Utah was considered an "aggressive" state in terms of energy efficiency code adoption for commercial buildings (one of only 14 states). The state nearly always accepted the newest IECC between 2003 and 2018 within one year of release (except the 2012 code which it approved two years later). Utah has most recently adopted the 2018 IECC for commercial buildings, along with the ASHRAE, section 90.1-2016.[26]

However, the state is considered "slow" for residential building code adoption (one of 20 states). While the Commission accepted the 2003 and 2006 IECC in 2004 and 2007, respectively, the Utah Legislature then made the Commission an advisory body, giving itself the final say in building code updates. (The Utah Home Builders Association lobbied to change the Commission from a code *adoption* body to a code *recommendation* body; the Association fought for the change because it did not like the fire sprinkler requirement and the large improvements in energy efficiency in the 2009 code.)

The Utah Legislature updated the 2009 IECC, but for the residential provisions it replaced the energy efficiency section with less-efficient 2006 IECC requirements.

The Utah Legislature did not adopt the residential provisions of the 2012 IECC model code, but in 2016 accepted the residential provisions of the 2015 IECC code with amendments. A key amendment to the 2015 code allows Utah builders to use a software program allowing them to calculate compliance with energy codes (a performance approach) instead of complying directly with the methods laid out in the model IECC code (the prescriptive approach). As a result, instead of adhering to the 2015 IECC recommendations (as amended), it is possible for Utah builders to use the state-approved REScheck program based on older 2012 IECC standards and more cost-effective, less-energy-efficient trade-offs to comply with Utah Code.[27] (See the sidebar on this page.)

Many Utah builders use the less-energy-efficient approach. However, others comply using more current standards or by directly adhering to the specifics in the Utah Code. And others far surpass the code, targeting consumer interest in high efficiency that can result in utility bill savings for residents and lower emissions for communities.

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## SIDEBAR: The Loophole in Utah Building Codes

Builders may comply with the Utah Code using two main approaches: prescriptive or performance. The prescriptive path requires builders to follow the specifics each part of the energy efficiency code, such as building walls with the code's prescribed amount of insulation and using windows that have the code's prescribed efficiency. The performance paths allow builders to meet an overall energy efficiency, where one builder might use more wall insulation but lower window efficiency, while another builder might use better windows but a bit less wall insulation. They choose these particular methods because of personal preference and cost effectiveness, as long as they meet the building's overall performance requirement.

There are several performance paths recommended by the International Code Council. Utah Code includes a different performance path: 2012 REScheck. The 2012 REScheck software includes a trade-off that allows builders to upgrade mechanical systems in exchange for less-than-code standards on air tightness and insulation. For example, a builder might opt for a high-efficiency furnace but have wall insulation that is far below current efficiency recommendations. This trade-off is not recommended in newer standards because while furnaces wear out and are updated throughout the life of a home, exterior walls typically remain unchanged. This mechanical trade-off is seen as a loophole; it is no longer part of IECC standards. In effect, it allows builders to build to an outdated standard.

The Utah Legislature created a requirement to improve upon the 2012 REScheck software by requiring a higher calculation for energy efficiency, increasing efficiency requirements over the 2012 REScheck by 3% in 2017 to 5% in 2021. However, while the loophole has gotten smaller, it remains in place. The Responsible Energy Code Alliance suggests that Utah is the only state that fully allows the trade-off loophole.

Furthermore, given that the Federal Register only requires three iterations of REScheck, the 2012 version could be eliminated now that the 2021 version has been added to the 2018 and 2015 versions.

Sources:

- Utah Mechanical Advisory Committee.
- Utah Code, Title 15A, Chapter 3, Part 7, Section 701 https://le.utah.gov/xcode/Title15A/Chapter3/15A-3-S701.html.
- A representative of the Responsible Energy Code Alliance.

- Energy.gov, REScheck, www.energycodes.gov/rescheck. And Building Codes Assistance Project, State Code Status: Utah, https://bcapcodes.org/code-status/state/utah/.
- Pacific Northwest National Laboratory, *Building Energy Codes Program: National Benefits Assessment, 1992-2040*, pp. 3.14-3.15 and 4.9-4.12, www.greenbuildinglawblog.com/uploads/file/DOE%20Building%20Energy%20Code%20Savings%20Report%20Oct%202013(1).pdf. And Energy.gov, Status of State Energy Code Adoption, www.energycodes.gov/status/commercial and www.energycodes.gov/status/residential.

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## SIDEBAR: STATE BUILDINGS

In addition to following commercial buildings codes, Utah's Division of Facilities Construction and Management sets special, higher standards for state government buildings.

The Division's High Performance Building Standard is a self-authored code based on other standards to be used when constructing buildings with a life of 50 years or more. It applies to all state-funded projects. Used to improve performance and decrease total cost of ownership, the intent is to save the taxpayer dollars in the long run throughout the life cycle of the building. It includes performance requirements (how efficient the structures must be) as well as process requirements (how to build the structures).

The first version of the Standard was drafted in 2015 and fully adopted in 2017. With four years of lessons learn, the Standard was updated in 2021.

The 2021 Standard focuses on delivering "high performance, low cost of operation" buildings by deploying an energy use intensity performance target provided by the Division. The major efficiency change in the 2021 Standard provides energy modeling with a tool designed to achieve energy use intensity less than or equal to the Outcome Based Performance Target; this is based on a post-occupancy measured performance or 15% improvement over the current Utah commercial code (ASHRAE 2016). The performance-based energy target aims to provide low-cost approaches to measurably increase building performance as a model for more energy efficiency across the state.

A deeper analysis of the Division's requirements is outside the scope of this study.

Note: The energy use intensity (EUI) target is equivalent to a mile per gallon target in automobiles. Energy use intensity is calculated in 1,000 BTUs per square foot per year, by type of building, such as a university building, a government office, a post office, a dormitory or a vehicle storage building. (BTU, or British thermal unit, is defined as the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit. It is roughly equal to a one therm.)

Sources:

- Utah's Division of Facilities Construction, https://dfcm.utah.gov/energy-efficiency-program/high-performance-building-standard/ at 10:25, 24:00 and elsewhere.
- Utah's Division of Facilities Construction and Management, Design Requirements, February 2, 2021, pp. 51-52. See 5.5.2 B.1 and C.4.
- ANSI/ASHRAE/IESNA Standard 90.1-2016 Section 4.2.1.1 and Appendix G.
- Nexant, *Nexant Helps Develop Utah's High Performance Building Standard*, March 18, 2021, www.prnewswire.com/news-releases/nexant-helps-develop-utahs-high-performance-building-standard-301250390.html.

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# BUILDING CODE ENERGY EFFICIENCY CONCEPTS

Building codes are complex. The same is true for the energy efficiency portion of those codes. There are at least four important concepts to understand within to fully grasp how these codes are related to air quality. It is important to understand Utah's three climate zones and the three general areas regarding efficiency: envelope, insulation and holding heat, and equipment.

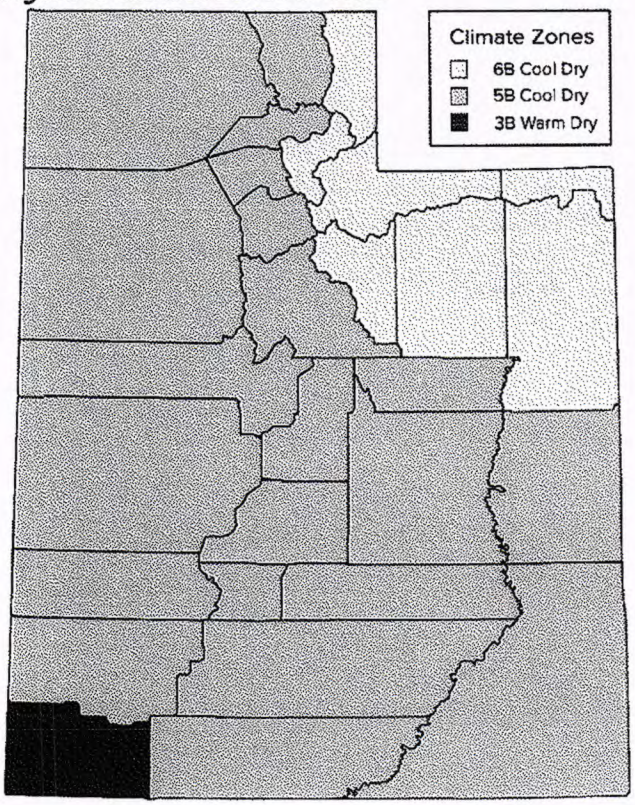
## Climate Zones

Climate zones are a categorization of each county in the U.S. from which to determine how to apply the building codes. For example, a hot and dry zone may need a different building-efficiency requirement than a cold humid one.

Utah has three zones: two that are cool and dry (6B and 5B) and one that is hot and dry (3B for Washington County in the southwest corner of the state). (See Figure 2.) The higher the number the cooler the zone, while an A is humid, a B is dry, and a C is "marine." The climate zone map was recently updated, removing Box Elder and Cache counties from the "cool dry" 6B zone to the slightly warmer "cool dry" 5B zone.[28,29]

**Building codes are specific to an area's climate; Utah has three zones.**

***Figure 2: Climate Zones in Utah***




Source: PNNL.

## Air Tightness Construction

The "tightness" of the building increases its energy efficiency, and in turn can result in a lower dependence on the furnace – decreasing air pollution emissions . A tight home is related to the construction and materials that make up the bottom floor, exterior walls and top-level ceiling, as well as the windows, doors and vents around the home.

The tightness of a home envelope is measured by air changes per hour – the number of times per hour that air enters a room and is mixed and exchanged with air from inside. This air exchange can be passive ventilation (such as through windows, doors and vents) or active ventilation (such as heating, air conditioning and mechanical ventilation systems). One air exchange does not completely replace all the air in your house, but some stays and lingers – particularly in rooms with fewer windows and those without exterior doors. When running a blower to pressurize a home, conventional homes have between four and 10 air changes per hour, while an efficient home might have 2.5 air changes per hour. It is important not to have too few air exchanges in order to maintain good air quality, but not too many air exchanges or the home will have low energy efficiency.

## Insulation and Holding Heat

While air is constantly being circulated in and out of buildings, an important part of energy efficiency is how well a home building holds heat. Insulation is an important aspect of this, as are window and doors, and the layout of a buildings' windows and doors.

Ceiling and wall insulation provide heat-holding aspects, as well as supporting the space's envelope. The basement walls and concrete slab are also important.

Heat-holding and envelope is measured by U-factor and R-value. The R-value is simply a material rating that measures the resistance of such material to heat; the higher the rating, the better it is at reducing the transfer of heat – either into the space in the summer or out of the space in the winter. U-factor is the measure of heat loss or gain based on the various construction materials used in a home; the lower number, the less heat loss or gain occurs.

## Equipment

There are several pieces of equipment that are important for the energy efficiency of a building. Perhaps the most important aspect in Utah is the home heating, ventilation and air conditioning (HVAC) system. The "tightness" of the system's ducts is also important, as are duct insulation and placement. For instance, if a HVAC system has ducts in an attic space that is hot in the summer and cold in the winter, the system will be less efficient.

In addition, water heater efficiency is important, as are other appliances. Efficiency lowers natural gas usage or electricity usage, depending on the appliance type.

Finally, lighting efficiency (75% to 100% efficiency requirement) and controls affect the overall energy efficiency of a building in terms of electricity usage.

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## SIDEBAR: HERS INDEX

The HERS Index – or Home Energy Rating System Index – is used to measure a home's energy efficiency. The lower the ratings, the less energy the home will consume. This is based on all aspects of efficiency, including the envelope, insulation and equipment. Some think of the HERS like a mile per gallon rating.

A 100 on the scale is a typical home built to the 2006 energy code. A 130 on the index would bet 30% less efficient, using 30% more energy. A 70 is a home built to the 2018 code – which is 30% more energy efficient.

"Energy Rating Index" compliance path of the IECC is very similar to giving a home a HERS Rating. The ERI a more flexible way to meet the IECC. (See the Latest Recommended Code section under Compliance Paths on page XX.)

Sources:

- Pacific Northwest National Laboratory, *Identification of RESNET HERS Index Values Corresponding to Minimal Compliance with the IECC Performance Path*, May 2014, www.energycodes.gov/sites/default/files/2019-09/HERSandIECCPerformancePath_TechnicalReport.pdf.
- ICC, 2021 International Energy Conservation Code, Chapter 4, https://codes.iccsafe.org/content/IECC2021P2/chapter-4-re-residential-energy-efficiency#IECC2021P2_RE_Ch04_SecR406.

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## UNDERSTANDING THE COSTS AND BENEFITS OF CODE UPDATES

Increasing a building's energy efficiency often comes with a higher upfront construction cost (though not always; see the PNNL Commercial Study subsection on page XX). The upfront cost is typically the key issue of debate when discussing building code updates since homes built to the newest building codes are inherently more expensive than their less-efficient counterparts. For example, higher quality appliances and windows would constitute a larger burden at the point of purchase. However, the cost savings on these efficiency improvements help pay the initial cost over time. This cost effectiveness comes from a decrease in commercial and residential utility payments.

There are several ways of looking at costs:

- Simple Payback Period: This is the number of years for energy cost savings to exceed the added building costs. This is initial cost divided by annual costs, without taking into account inflation and increases in fuel prices, resulting in the years to pay back the initial cost. Builders often look at simple payback period to estimate cost effectiveness.
- Consumer Cash Flow: This is the difference between energy costs and increased mortgage payment that include added building costs.
- Life-Cycle Cost: This is a project's 30-year cost savings, taking into account the energy savings, mortgage payment costs and tax implications. The U.S. Department of Energy uses life-cycle cost to determine whether code changes are economically justified, where a life-cycle cost of less than $0 is cost effective in that benefits exceed costs over the period.[30]

When building codes are produced, they include items packaged together (like insulation and fenestration), which may not necessarily be cost effective for each individual item, but are cost effective as a package using life-cycle cost analysis.[31]

In addition to these costs and benefits, there are other societal benefits that many stakeholders consider:

- Air quality: The heart of efficiency, energy code changes aim for lower energy use. Lower energy use results in lower emissions.
- Employment: Energy efficiency can generate jobs. This includes a direct employment increase for the efficient construction of new homes. Also, researchers include the indirect employment created from a reduction in energy costs, which savings may stimulate the economy in other ways. The Utah Foundation's 2021 report *Going for the Green: How Utah Can Thrive in the New Climate Economy* explored these issues in depth.[32]

## Arguments for Updating Codes

Support for efficient building practices come from several areas. Environmental groups support the adoption of current codes to manage air pollution and greenhouse gas emissions.[33] But they also tout the ancillary benefits of lower utility payments for residents and the economic benefit.

Business groups may also support current code adoption. As part of their public policy priorities agenda, the Salt Lake Chamber states that they "support targeted building standards that are more energy-efficient and improve air quality" as part of a broader effort to improve Utah's air quality.[34]

Finally, as part of the state's 2014 *Utah Energy Efficiency & Conservation Plan: Preparing for Utah's Energy Future*, a state Building Team Committee provided several energy efficiency and conservation recommendations, including that the state "adopt current and future energy codes."[35]

## Arguments Against Updating Codes

The Utah Home Builders Association suggests that new homes are not the problem, since they are responsible for only a small proportion of emissions. The Association suggests instead targeting older homes with retrofits. They are also concerned about the increased cost of new homes over the past decade, suggesting that it would be improper to add additional cost from energy efficiencies.[36] Builders also fear of overreach in the code, such as requiring specific appliances.

Some have suggested that improvements pit sustainability against affordability. Instead, they suggest that the government should incentivize builders to become more efficient, either through state incentives or by providing utilities with greater flexibility. They also suggest focusing on programs designed to retrofit older homes that suffer from the greatest inefficiencies.

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### Sidebar: Weatherization

Utah receives federal Weatherization Assistance Program funding from the Department of Energy to install energy efficiency retrofits to lower-income Utahns households (up to 200% of the federal poverty level). Over its 45-year lifetime, the program has weatherized 52,413 units serving an estimated 157,239 individuals.

Most recently, the federal government allocated $31.7 million to Utah over five years in the Infrastructure Investment and Jobs Act that Congress passed in the fall of 2021. The Utah Office of Housing and Community Development allocates $7-8 million per year to sub-grantees.

Approximately 75 full-time sub-grantees – trained through the Intermountain Weatherization Training Center – weatherize Utahns homes. Homeowners receive the Weatherization upgrades at no cost, while renters' landlords may need pay a portion of the costs. Participating households average nearly 35% in savings, or approximately $583 per year, after the completion of weatherization improvements.

Weatherization is a big deal in terms of air quality. When looking at the inventory of housing in Utah, only about 15% were built within the past decade. About half of homes were built before 1990. These, particularly those built before 1960, are relatively very inefficient. Homes built before 1960 were originally built with an estimated HERS of 300 – or three-times less efficient than homes built to IECC 2006. Though some of these would have already been retrofitted with better insulation, windows, doors, and other energy efficiency measures, and nearly all would have some newer, more-efficient heating systems and water heaters than were originally installed.

Source: Utah Office of Energy Development, Utah Energy and Innovation Plan, https://energy.utah.gov/plan/.

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## THE LATEST RECOMMENDED CODE

The main energy efficiency code for discussion by the Uniform Building Code Commission and the Utah Legislature is the IECC 2021. The IECC 2021 seeks to "regulate the design and construction of buildings for the effective use and conservation of energy over the useful life of each building."[37]

There are six major differences between Utah's current code – the residential 2015 IECC, as amended – and the 2021 IECC.[38]

***Compliance Paths.*** The ICC revised the IECC to clarify and name the four compliance paths: Prescriptive, Total Building Performance, Energy Rating Index, and Tropical Climate Region.[39] For Utah, only the first three are appliable.

The prescriptive path might be considered simpler since a build follows the code guidance for each part of the building process. This path simply requires builders to meet the minimum standard of each of the energy-efficiency measures, such at a minimum amount of wall insulation or a maximum amount of heat exchange through installed windows.

Each of the performance paths require either an energy rater or modelling software. For instance, using REM/Rate (not to be confused with REScheck), a builder needs to meet an Energy Rating Index – which is like the HERS score – where 100 is equal to a 2006 IECC and 0 is a net-zero home.[40] Performance and ERI paths allow for more builder flexibility in findings more cost-effective ways to achieve the same level of performance as the prescriptive path.[41] The performance paths are similar to the REScheck method allowed in current Utah Code, though the 2021 IECC performance paths do not allow for the REScheck tradeoff loophole which allows for builders to upgrade mechanical systems in exchange for less-than-code thermal envelope and insulation measures.

With the 2021 IECC, where there are numerous energy-efficient prescriptive path changes, there are also Total Building Performance and Energy Rating Index compliance path changes, such as reducing the ERI target scores.[42] In addition, the 2021 IECC places a cap on the amount of available onsite renewable energy that can be applied to support the performance path targets.[43]

***Energy Efficiency Packages.*** Second, there is a new "Additional Energy Efficiency Package Options" section in the 2021 IECC. This gives credit to builders for using common high-efficiency strategies.[44] The four options are:

- HVAC option – requires an efficient furnace and air conditioner and/or an efficient heat pump (for combined heating and cooling).
- Water heater option – requires an efficient water heater.
- Envelope and ventilation option – requires 3.0 air exchanges per hour with an efficient ventilation system.
- Duct option – requires efficient ductwork, such as insuring that 100% of the ducts are placed within the thermal envelope.

***Envelope and insulation.*** Third, there are efficiency gains in prescriptive path related to the thermal envelope. These gains include the following:

- Window and door efficiency (fenestration U-factor) was improved for climate zone 3. Further, the minimum window and door efficiency of an area was improved in all climate zones, along with the addition of a maximum solar heat gain in climate zone 5.[45]
- Ceiling insulation was increased in each of Utah's climate zones.[46]
- The energy efficiency of wood frame insulations increased in Utah's climate zone 5.[47]
- The energy efficiency and depth of slab edge insulation were increased in climate zones 5, and slab edge insulation is now required in climate zone 3.[48]
- A whole house pressure test and field verification are required for a lower air leakage rate.[49]

The 2021 code provides builders with more insulation options, such as the allowance for all interior insulation or a mix of interior and exterior insulation.

**The new code sees several building envelope improvements.**

***Figure 3: Insulation and Minimum R-Values and Fenestration Requirements for the 2021 IECC, and changes from the 2018 IECC***

| Climate zone | Fenestration U-factors | Skylight U-factor | Fenestration SHGC* | Ceiling R-value | Frame wall R-value | Mass wall R-value | Floor R-value | Basement wall R-value* | Slab R-value and depth | Crawl space wall R-value |
|---|---|---|---|---|---|---|---|---|---|---|
| 3B (Washington Co.) | ~~0.32~~ 0.30 | 0.55 | 0.25 | ~~38~~ 49 | 20 | 8/13 | 19 | 5/13 | ~~0~~ 10, 2ft | 5/13 |
| 5B (most of Utah) | 0.30 | 0.55 | ~~NR~~ 0.40 | ~~49~~ 60 | ~~20~~ 20+5 | 13/17 | 30 | 15/19 | ~~10, 2ft~~ 10, 4ft | 15/19 |
| 6B (northern Utah) | 0.30 | 0.55 | NR | ~~49~~ 60 | 20+5 | 15/20 | 30 | 15/19 | 10, 4ft | 15/19 |

* Solar Heat Gain Co-efficient.

Source: ICF.

***Ducts.*** Fourth, there are efficiency gains in the prescriptive provisions related to HVAC ducting.[50] Ducts account for a large decrease in home efficiency. Duct testing is now required for ducts in conditioned space; the duct testing exemption for ducts in conditions space was removed.[51] In addition, the code

lowers duct leakage rate, it requires mechanical ventilation systems to be tested and verified, and requires improvements in fan efficacy for ventilation fans and air handlers.[52]

***Net Zero Guidance.*** Fifth, the new code includes a voluntary Zero Energy appendix to support zero energy residential construction.[53]

***Lighting.*** Finally, there are efficiency gains in prescriptive path for lighting, though these are not related to the local air quality considerations discussed in this report.[54]

It is important to note that most of these updates to the 2021 IECC – even if adopted by the Utah Legislature – would not be applicable to much of the new construction in Utah. The 2021 IECC has many energy efficiency improvements over what is required under Utah's REScheck compliance path. (See the sidebar on page XX.) But given the Utah Code allowance for using REScheck – which may remain in Utah Code – many builders in the state would likely continue using REScheck as their preferred code compliance method. This would result in newly constructed homes that are not built to the energy efficiency standards laid out in the 2021 IECC.

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## SIDEBAR: Electric Buildings

One approach to reducing local building emissions is to use electricity instead of natural gas furnaces and water heaters.

Utah Clean Energy submitted an electric-ready amendment of the 2021 IECC to the Uniform Building Code Commission. This would have required that all new residential low-rise multifamily homes include the ability easily swap out all natural gas appliances, as well as suppling garages with the necessary electrical outlets needed to quickly charge electric vehicles. Utah Clean Energy suggests that providing buildings with electric readiness up front is much less expensive than retrofitting buildings later. During 2022, after receiving a positive recommendation from Utah's Mechanical Advisory Committee, Utah's Uniform Building Code Commission voted to "table" the proposal over a concern about it making policy decisions and members' general opposition to government mandates.

Moving beyond this electric-ready approach, at least one Utah developer is building 100% electric apartments, many of which are affordable to households earning between 25% and 80% of the area median income. Further, the Redevelopment Agency of Salt Lake City now requires new construction projects funded at $900,000 or more to be completely electric.

But are electric buildings cost-effective? It depends. An analysis of 20-year total cost of ownership (capital and operating costs) of buildings at the University of Utah found that residential buildings would cost about 30% less (due to capital costs) while academic, laboratory and hospital buildings would be similar (from a savings of 1% to a premium of 5%).

Another study looked at the economics of new residential construction throughout Utah compares all-electric with the typical electric and natural gas configuration in all three of Utah's climate zones. Over a 15-year life-cycle cost period, the combined upfront costs and energy bills are estimated to be lower for low-rise multi-family and single-family homes in all climate zones. The savings were greater for multi-family units. It is important to note that the comparison was for 80% efficiency natural gas furnaces, while many builders are using higher efficiency units – 90% or greater.

It will be interesting to see in the coming years whether upgrades in electric and changes in consumer preferences drive a move toward all-electric.

Sources:

- Salt Lake City, SLCgreen blog, *Salt Lake City RDA Passes Aggressive Air Pollution Reduction Policy for new RDA-funded Buildings*, December 15, 2021, https://slcgreenblog.com/2021/12/15/rda-sustainability-policy/. And Redevelopment Agency of Salt Lake City, Sustainable Development Policy, https://slcrda.com/wp-content/uploads/2021/12/Sustainable-Development-Policy-FINAL.pdf.
- PointEnergy Innovations, *Final Report: University of Utah Low Emissions Feasibility Study*, February 28, 2020.
- Energy+Environmental Economics, *The Economics of All-Electric New Construction in Utah An evaluation of residential new construction costs and energy bill impacts for single-family and low-rise multifamily properties across the state*, February 2022, www.ethree.com/wp-content/uploads/2022/02/Economics-of-All-Electric-New-Construction-in-Utah-02.2022.pdf.

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# COST AND BENEFITS OF THE LATEST RECOMMENDED CODE

## Studies Overview

This report explores five studies for commercial and residential cost/benefit tradeoffs of updating to the newest building code standard:

- Cost-Effectiveness of ANSI/ASHRAE/IES Standard 90.1-2019 for Utah – PNNL
- IECC Code Comparison Study – Nexant
- Cost-Effectiveness of the 2021 IECC for Residential Buildings in Utah – PNNL
- 2021 IECC Residential Cost Effectiveness Analysis – Home Innovation Research Labs
- 2021 IECC Residential Cost Effectiveness Analysis – ICF

The first three studies compare current Utah code with the most recent energy efficient standard. The first of them focuses on commercial buildings while the second two focus on residential buildings.

The final two are national studies of the updates from the 2018 residential IECC and the 2021 residential IECC. While national in scope, these studies help inform the discussion by providing a more granular assessment of the building code changes on a cost/benefit basis. It is important to note that the two nationally focused studies (the Labs and ICF studies) do not take into account the Utah's amendments to the 2015 IECC or the modest energy efficiency improvements in the 2018 IECC. Further, none of the studies' analyses are based on the commonly used REScheck compliance method.[55] As such, all understate the energy-efficiency improvements and commensurate air quality improvements that would occur in Utah under the 2021 IECC.

## Studies' Findings Overview

The PNNL study of Utah commercial buildings shows clear improvement in efficiency – and commensurate air quality – as well as cost savings, both in initial construction savings and utility savings. While the initial construction result seems counterintuitive, the envelope efficiency costs are lower than the saving gained from a decrease in HVAC costs.

Residential changes show mixed results across the four studies included in this report. Three show substantial cost savings, while one does not. However, the latter seems to have methodological errors. (See the sidebar on page XX.)

All the studies show the air quality benefit of 2021 IECC adoption – either directly or implicitly – through the decreased use of natural gas from energy-efficiency improvements.

## PNNL Commercial Study

The U.S. Department of Energy commissioned the Pacific Northwest National Laboratory to perform a commercial study, released in July 2021, to look at the life-cycle cost savings and simple payback for each of Utah's climate zones.[56] It compared Utah's current ASHRAE Standard 90.1-2016 to the newest Standard 90.1-2019.

The report shows an average life-cycle cost savings of $3.51 per square foot for publicly owned buildings and $3.07 per square foot for privately owned buildings. This savings is the result of a decrease in average construction costs of $1.068 per square foot and an annual utility savings of $0.042 per square foot.

The decrease in construction costs is due in part to a change in lighting requirements, but the big savings comes from heating, ventilating and air conditioning (HVAC) changes.[57] Due to the improved building envelope and other measures, smaller HVAC systems are required to maintain heating and cooling. The estimated cost savings from these HVAC systems is greater than the amounts spent on improving the building envelope.

The cost of a small hotel was estimated to see an increase in construction costs per square foot, though mid-rise apartments saw a small savings and offices, retail space and schools saw a large savings. As a result, the simple payback was immediate for all buildings in all climate zones except for small hotels, which averaged a simple payback of 9.6 years.[58]

The report shows that nearly all of the savings in emissions are from natural gas usage reduction – the portion pertaining to local air quality.[59] These improvements resulted in an estimated savings in energy costs and emissions, as shown in Figure 4, with a reduction of nitrogen oxide emissions by over five tons in the first year – as well as sulfur oxide emission reductions.

In addition, this study included an estimated economic benefit in terms of an increase in employment under the updated code. The study points to two benefits: 1) a reduction in utility bills, with savings to be spent elsewhere, and 2) lower construction costs, resulting in an increase in construction-related activities elsewhere. (See Figure 4.)

**Commercial code updates result in significant benefits.**

***Figure 4: Societal Benefits of Standard 90.1-2019***

| Utah's Statewide Impact | First Year | 30 Years Cumulative |
|---|---|---|
| Energy cost savings* | $608,200 | $263,000,000 |
| Air emissions reduction (metric tons) | | |
| Nitrogen oxides (NOx) | 5.3 | 3,748 |
| Sulfur oxides (SOx) | 3.4 | 2,377 |
| Carbon dioxide (CO2) | 7,603 | 5,352,000 |
| Employment | | |
| Jobs from reduction in utility bills | 57 | 1,809 |

| | | |
|---|---|---|
| Jobs from increase in construct activities | 160 | 5,092 |

* 2020 dollars.

Source: PNNL.

## PNNL Residential Study

The U.S. Department of Energy commissioned the Pacific Northwest National Laboratory to perform a residential study, released in July 2021, to look at life-cycle cost savings and simple payback for each of Utah's climate zones. It compared Utah's current code with the 2021 IECC.

The report showed a life-cycle (30-year) cost savings for the average Utah home of $5,783 by following the 2021 IECC, ranging from $3,671 to $5,902 depending on the climate zone. Simple payback averaged 10.9 years. (See Figure 5.)

**Residential code updates result in significant savings, with an 11-year payback in Utah.**

***Figure 5: Report Overview of Cost Savings and Payback***

| Climate Zone | Life-Cycle Cost Savings | Simple Payback |
|---|---|---|
| 3B (Washington County) | $3,671 | 10.6 years |
| 5B (most of Utah) | $5,902 | 11.1 years |
| 6B (northern Utah) | $5,739 | 7.7 years |
| State average | $5,783 | 10.9 years |

Source: PNNL.

[USE CLIMATE ZONE MAPS]

PNNL notes that there is a small incremental cost for each of the code change improvements. These costs result in an estimated energy cost savings in natural gas and electricity of $325 per year, or between $224 and $332 depending upon the Utah climate zone. This results in a state average energy use reduction of 16.4%. (See Figure 6.)

**Utah residential code updates show energy cost savings on average of $325 per year, or about 16%.**

***Figure 6: Total First Year Energy Cost Savings, Utah***

| Climate Zone | Energy Cost Savings | Energy Cost Savings |
|---|---|---|
| 3B (Washington County) | $224 | 12.5% |
| 5B (most of Utah) | $332 | 16.7% |
| 6B (northern Utah) | $228 | 14.7% |
| State average* | $325 | 16.4% |

* State average is weighted by population in each climate zone.

Source: PNNL. (Table 13)

This study shows that updating the building code would create a positive cash flow for homebuyers in three years on average after accounting for increased down payment and mortgage costs minus annual energy savings – though Utahns in climate zone 6B would see a positive cash flow in two years.

Like PNNL's commercial study, the report shows that most of the savings in emissions are from natural gas usage reduction.[60] These improvements resulted in an estimated savings in energy costs by type of energy usage – about a one-quarter decrease in heating costs and about one-half decrease in water heating. (See Figure 7.)

**Heating and other systems show significant energy cost savings under residential code updates.**

***Figure 7: Percent Savings by Fuel Type and System Type***

| | Natural Gas | | Electricity | | | | | |
|---|---|---|---|---|---|---|---|---|
| Climate Zone | Heating | Water heating | Cooling | Lighting | Fans | Vents | Other | Total |
| 3B (Washington Co.) | 24% | 53% | 13% | 13% | 16% | 50% | 1% | 13% |
| 5B (most of Utah) | 32% | 50% | 12% | 13% | 19% | 50% | 1% | 17% |
| 6B (northern Utah) | 25% | 49% | 9% | 13% | 11% | 50% | 1% | 15% |

Source: PNNL. [Table 11, 12] Utah Foundation calculations.

The Utah Foundation used the PNNL data to calculate the reduction in natural gas usage overall and extrapolated the equivalent decrease in emissions. This works out to a one-third decrease in each new Utah home's emissions, from 32% in climate zones 3B and 6B to a decrease of 37% in climate zone 5B. (See Figure 8.)

**Homeowners with homes built to 2021 standards could expect to see a one-third decrease in natural gas usage and commensurate local emissions reductions.**

***Figure 8: Percent Decrease in Natural Gas Usage – and Local Emissions Reduction***

| Climate Zone | Decrease |
|---|---|
| 3B (Washington County) | 32% |
| 5B (most of Utah) | 37% |
| 6B (northern Utah) | 32% |

Note: For homes with natural gas usage for heating and water heating, only.
Source: PNNL. Utah Foundation calculations.

The report showed a reduction in nitrogen oxide emissions of nearly 14 tons in the first year. In addition, this study included an estimated economy benefit in terms of an increase in employment under the updated code. The study points to two benefits: 1) a reduction in utility bills, with savings to be spent elsewhere, and 2) lower construction costs (due to energy efficient building savings), resulting in an increase in construction-related activities. (See Figure 9.)

**Utah residential code updates show substantial savings and benefits over time.**

***Figure 9: Societal Benefits of IECC 2021***

| Utah's Statewide Impact | First Year | 30 Years Cumulative |
|---|---|---|
| Energy cost savings* | $2,208,000 | $771,800,000 |
| Air emissions reduction (metric tons) | | |
| Nitrogen oxides (NOx) | 13.7 | 6,666 |
| Carbon dioxide (CO2) | 18,740 | 9,141,000 |
| Employment | | |
| Jobs from reduction in utility bills | 118 | 3,355 |
| Jobs from increase in construct activities | 470 | 13,350 |

* 2020 dollars.

Source: PNNL.

## Nexant Study

In July 2021, Nexant released a study looking at the difference between Utah's current code and the IECC 2021 for Utah's climate zone 5 (which is the vast majority of homes in the state).[61] Unlike the PNNL residential study, the Nexant study included a comparison using two compliances paths: the prescriptive (as was used in the PNNL study) and the Energy Rating Index performance path. The study compares each to the 2015 prescriptive path.

The study found a natural gas savings of 11.5% for the 2021 prescriptive path and 25.0% for the ERI performance path. The study found an electricity savings of 4.7% over the 2021 prescriptive path and 10.3% over the performance path. This results in a total utility savings of $96 and $206, respectively, per year, for most Utah homeowners.

**Updating the Utah building code would result utilities savings from HVAC systems and lighting.**

***Figure 10: Utility Cost Savings of Shift from IECC 2015 to IECC 2021***

| | Current Utah code - prescriptive | IECC 2021 - prescriptive | | IECC 2021 - ERI | |
|---|---|---|---|---|---|
| | Cost | Cost | Savings | Cost | Savings |
| Heating | $365 | $297 | 19% | $271 | 26% |
| Cooling | $151 | $148 | 2% | $126 | 17% |
| Ducts | $152 | $152 | 0% | $90 | 41% |
| Lighting | $564 | $539 | 4% | $539 | 4% |
| Total | $1,232 | $1,136 | 8% | $1,026 | 17% |

Source: Nexant.

This results in a life-cycle cost savings of $3,435 for the prescriptive path and $7,435 for the performance path over a 30-year mortgage.

**Utah homeowners could see a life-cycle cost savings of up to nearly $7,500 under the 2021 building code.**

***Figure 11: Life-Cycle Cost Savings of Shift from IECC 2015 to IECC 2021***

| Code | Savings |
|---|---|
| Current Utah code - prescriptive | - |
| IECC 2021 - prescriptive | $3,435 |
| IECC 2021 - ERI | $7,435 |

Source: Nexant.

The study shows that the percentage savings in natural gas costs leads to a similar emissions reduction: between 7.1% and 15.0% in nitrogen oxide decrease depending upon the path (prescriptive or ERI performance approach).

**Nitrogen oxide emissions decrease by up to 15% under the 2021 code**

***Figure 12: Emissions Reduction of Shift from IECC 2015 to IECC 2021, Prescriptive and Performance/ERI Paths***

| | Current Utah code - prescriptive | IECC 2021 - prescriptive | | IECC 2021 - ERI | |
|---|---|---|---|---|---|
| | Emissions | Emissions | Savings | Emissions | Savings |
| Nitrogen oxides* | 29 | 27 | 7% | 25 | 15% |
| Sulfur dioxide* | 8 | 7 | 5% | 7 | 10% |
| Carbon dioxide** | 10 | 9 | 8% | 9 | 16% |

* Pounds per year.

** Tons per year.

Source: Nexant.

Similarly, the report looked at the future decrease in CO2 emissions over 10 years. The report estimates a savings of 0.6 million tons of CO2 with the 2021 prescriptive path and over 1.2 million tons with the 2021 performance path.[62]

## 2021 IECC Residential Cost Effectiveness Analysis – Home Innovation Research Labs

The National Association of Homebuilders commissioned Home Innovation Research Labs (formerly NAHB Research) to conduct a cost analysis of the 2021 IECC.[63] The Labs study looked at energy use savings and simple payback using the prescriptive compliance option. It compared the 2018 IECC with the 2021 IECC.

The Labs study found that:

- Incremental construction cost ranges from $6,548 to $9,301 depending on the additional efficiency package option selected for compliance.
- Energy use cost savings ranges from 6.4% to 11.6% depending on the additional efficiency package option selected for compliance.

- Simple payback for complying with the 2021 IECC ranges from 32 years to 67 years.

These findings have been disputed for methodological issues.[64] See the sidebar on this page.

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## Sidebar: Checking the Math of the Home Innovation Research Labs Study

ICF – a global consulting and digital services company – "checked the math" of the Home Innovation Research Labs study. It did this by mirroring the report, though ICF added a life-cycle cost savings whereas Labs relied only on a simple payback approach. Afterwards, ICF – in a separate comparison report – showed numerous concerns and issues with the Home Innovation Research Labs report.

First, the Labs report stated that it applied a gross profit margin of 19% to all costs. That is higher than historical average. Furthermore, the Labs analysis instead applied a 24% margin – not the stated 19%. ICF used the historical average of 17.5% for its study.

Additionally, the ICF study revised six code changes to $0 in incremental cost. These totaled $2,376 in the Labs report. ICF determined the six code changes to be "administrative with negligible incremental effort," "already met in practice based on existing code requirements or market conditions," and "clarifications to exiting requirements, not new requirements."

ICF also revised cost estimates. The ICF estimates were often lower than the Labs' – and in-line with estimates from a national Pacific Northwest National Laboratory residential study. The Labs report was often two-to-three times higher than other estimates.

IFC also found several other methodological issues.*

Given these apparent flaws, the ICF report appears to be more reliable.

* Other issues with the methodology are: simplistic economic metrics; costs included for code changes that save energy but not modeled; outlier energy saving estimates; weighting factors and permutations; annual energy use/costs errors; dimmer quantity error; duct option analysis omits some foundation types; misleading cost effectiveness of additional efficiency package options.

Source: ICF, Comparison of 2021 IECC Residential Cost Effectiveness Analyses, 2022, https://energyefficientcodes.org/wp-content/uploads/2022/05/ICF-2021-IECC-Cost-effectiveness-Analysis.pdf.

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## 2021 IECC Residential Cost Effectiveness Analysis - ICF

The IFC study looked at life-cycle cost savings and simple payback for each of the climate zones. Like the Labs report, it compared the 2018 IECC with the 2021 IECC.[65]

The ICF report used six representative climate zones. This Utah Foundation study is only reporting three – those most similar to Utah's three climate zones.[66]

The study shows each change from the 2018 IECC to the 2021 IECC by the expected cost. Envelope costs account for much of the initial cost increase, while the changes to duct and ventilation tests and the lighting changes are under $100 for each climate zone. (See Figure 13.)

**Most of the costs under IECC 2021 are from the thermal envelope and the efficiency package options – all of which affect local emissions.**

***Figure 13: Incremental Construction Costs for 2021 IECC (Compared to 2018 IECC), Summary***

| Code Update | 3B (Washington Co.) | 5B (most of Utah) | 6B (northern Utah) |
|---|---|---|---|
| Thermal envelope | | | |
| Ceiling insulation | $233 | $204 | $204 |
| Slab insulation | $709 | n/a | n/a |
| Wall continuous insulation | n/a | $2,680 | n/a |
| Window U-factor | $67 | n/a | n/a |
| Total thermal envelope | $1,009 | $2,884 | $204 |
| Duct and ventilation tests | $31 | $78 | $78 |
| Lighting | $33 | $42 | $42 |
| Total, without additional efficiency package options | $1,073 | $3,004 | $324 |
| Efficiency package options* | | | |
| HVAC option | $2,567 | $1,143 | $1,143 |
| Water heater option | $1,178 | $549 | $549 |
| Ventilation option | $1,707 | $1,707 | $1,707 |
| Duct option | $2,545 | n/a** | n/a** |

* Efficiency package options without thermal envelope, duct and ventilation tests, and lighting.

** The duct option is not applicable for homes with basements, such as the model homes for climate zones 5B and 6B.

Source: ICF.

There are significant energy savings – and commensurate local emissions reductions – relative to the 2018 IECC. For the thermal envelope, efficiency improvements are small in climate zone 6, but are around 5% in Utah's other zones. The savings from the efficiency packages varies widely, with the HVAC package providing over 8% savings in climate zones 5 and 6, while the water heater option provides nearly an 8% savings in climate zone 3. (See Figure 14.)

**The thermal envelope and some of the efficiency packages show significant efficiency improvements.**

***Figure 14: Energy Cost Savings (Compared to 2018 IECC), Summary***

| Code Update | 3B (Washington Co.) | 5B (most of Utah) | 6B (northern Utah) |
|---|---|---|---|
| Thermal envelope | | | |
| Ceiling insulation | 0.6% | 0.5% | 0.6% |
| Slab insulation | 4.5% | 1.6% | n/a |
| Wall continuous insulation | n/a | 2.7% | n/a |
| Window U-factor | 0.4% | n/a | n/a |
| Total thermal envelope | 5.5% | 4.8% | 0.6% |
| Efficiency package options* | | | |
| HVAC option | 6.4% | 8.3% | 8.5% |

| | | | |
|---|---|---|---|
| Water heater option | 7.8% | 1.5% | 1.2% |
| Ventilation option | 0.7% | 1.6% | 2.5% |
| Duct option | 4.1% | n/a | n/a |

* Energy cost savings of additional efficiency package options relative to 2021 without packages

Source: ICF.

The individual code changes vary widely in terms of simple payback. Slab insulation and the water heater option have a simple payback of eight years in climate zone 3, while the HVAC option has a simple payback of only six years for climate zones 5 and 6. (See Figure 15.) It should be noted that the ICC provides the IECC recommendations as a package, so while one code recommendation may have a long simple payback period, when combined with other options, the payback becomes acceptable in terms of ICC and U.S. Department of Energy combined cost/benefit analyses.

**Simple payback varies widely by type of 2021 code change.**

**Figure 15: Simple Payback of 2021 IECC, in Years**

| Code Update | 3B (Washington Co.) | 5B (most of Utah) | 6B (northern Utah) |
|---|---|---|---|
| Thermal envelope | | | |
| Ceiling insulation | 20 | 19 | 15 |
| Slab insulation | 8 | 20 | n/a |
| Wall continuous insulation | n/a | 43 | n/a |
| Window U-factor | 9 | n/a | n/a |
| Efficiency package options | | | |
| HVAC option | 21 | 6 | 6 |
| Water heater option | 8 | 18 | 21 |
| Ventilation option | 135 | 61 | 30 |
| Duct option | 31 | n/a | n/a |

Source: ICF.

ICF determined that the 2021 IECC is cost effective in all climate zones under the life-cycle cost method compared to the 2018 IECC. The study also shows that each climate zone has multiple cost-effective compliance options. ICF also points out that following the 2021 IECC in practices would likely be even more cost-effective because a) this analysis uses the prescriptive path while "builders may be able to find more cost-effective ways to achieve the same level of performance" using the Total Building Performance Option or the Energy Rating Index Option, and b) ICF's cost estimates are likely low since it used only publicly available cost sources while builders are likely to receive lower prices when buying in bulk.

In Utah, the improvements without energy efficiency options are cost-effective in all climate zones, and all of the efficiency package options are cost-effective in all zones except the ventilation option in CZ5. (See Figure 16.)

**Nearly all improvements under the code are cost-effective.**

***Figure 16: Life-Cycle Cost of 2021 IECC Improvements (Compared to 2018 IECC)***

| Code Update | 3B (Washington Co.) | 5B (most of Utah) | 6B (northern Utah) |
|---|---|---|---|
| Without additional efficiency package options | $2,784 | $691 | $1758 |
| HVAC option | $1,711 | $3,300 | $4,796 |
| Water heater option | $4,790 | $550 | $1,508 |
| Ventilation option | $49 | -$1,680 | $9 |
| Duct option | $2,959 | n/a | n/a |

Source: ICF [Table 11b – comparison Powerpoint]

This IECC study does not directly look at the decrease in air emissions in moving from the 2018 IECC to the 2021 IECC. However, with the thermal envelope and the efficiency package options reduction in energy usage, one would expect a commensurate savings in emissions. (See Figure 17.)

**As with cost savings, most 2021 changes would likely result in significant efficiency improvements and commensurate emissions reductions.**

***Figure 17: Estimated Air Quality Benefit (Compared to 2018 IECC)***

| Code Update | 3B (Washington Co.) | 5B (most of Utah) | 6B (northern Utah) |
|---|---|---|---|
| Thermal envelope | | | |
| Ceiling insulation | >1% | >1% | >1% |
| Slab insulation | 5% | 2% | n/a |
| Wall continuous insulation | n/a | 3% | n/a |
| Window U-factor | >1% | n/a | n/a |
| Total thermal envelope | 6% | 5% | >1% |
| Efficiency package options* | | | |
| HVAC option | 6% | 8% | 9% |
| Water heater option | 8% | 2% | 1% |
| Ventilation option | >1% | 2% | 3% |
| Duct option | 4% | n/a | n/a |

* Energy cost savings of additional efficiency package options relative to 2021 without packages

Source: ICF. Utah Foundation.

## THE COST AND BENEFITS – AN EXAMPLE

Using data and methodology from the Pacific Northwest National Laboratory, the Utah Foundation looked at the cost of upgrading from Utah's current building efficiency code to the 2021 IECC. For a $600,000 home, the total construction costs would increase by between 0.4% and 0.7%, depending upon the climate zone. (See Figure 18.) These changes would result in an out-of-pocket increase to a new homebuyer of between $287 and $474 (amortized over a 30-year mortgage; see other particulars in the notes to Figure 18.)

**Utah construction costs would increase under one percent under the 2021 code, with an out-of-pocket cost of under $500.**

***Figure 18: Total 2021 IECC Estimated Costs***

| Climate Zone | Total construction cost* | Incremental down payment and other first costs | Total construction cost on $600K home |
|---|---|---|---|
| 3B (Washington County) | $3,089 | $306 | 0.5% |
| 5B (most of Utah) | $4,291 | $474 | 0.7% |
| 6B (northern Utah) | $2,559 | $287 | 0.4% |

* 5B and 6B are for heated basement homes. 3B is for a slab home; a 3B heated basement home would be less.

Note: Mortgage interest 3%; loan term 30 years; loan fees 1%; down payment 12%; property tax 0.6%. See PNNL report for additional methodology.

Source: PNNL and the Utah Foundation.

These same homebuyers would see an annual cash flow savings of between $109 and $252. (See Figure 19.) As noted previously in Figure 8, these homes would see a decrease in natural gas usage – and a commensurate decrease in the homes' direct emissions – of about one-third.

**Utah homebuyers would recoup their out-of-pocket cost in two to three years from annual cash flow savings under the 2021 code, with a sharp decrease in the home's local emissions.**

***Figure 19: Annual Cash Flow Savings and Local Emissions Reduction, IECC 2021***

| | Costs | | | Benefits | | |
|---|---|---|---|---|---|---|
| Climate Zone | Annual mortgage increase (A) | Annual expenses* (B) | Annual costs (A + B) | Annual energy cost savings (C) | Annual cash flow savings (C – (A + B)) | Estimated decrease in local emissions |
| 3B (Washington County) | $106 | $16 | $122 | $231 | $109 | 32% |
| 5B (most of Utah) | $64 | $26 | $90 | $342 | $252 | 37% |
| 6B (northern Utah) | $99 | $15 | $114 | $297 | $183 | 32% |

* Cost of mortgage interest deductions, mortgage insurance, and property taxes.

Note: Mortgage interest 3%; loan term 30 years; loan fees 1%; down payment 12%; property tax 0.6%. See PNNL report for additional methodology.

Source: PNNL.

## COMMISSION RECOMMENDATIONS TO THE LEGISLATURE

The Utah Mechanical Advisory Committee reviewed proposed amendments to the model IECC code through June of 2022. The Committee suggested numerous amendments to the Uniform Building Code Commission. Three might be considered the most significant.

The Committee did not accept the increased ceiling insulation per the 2021 IECC.[67] Instead, it recommended that the state stay with Utah 2015 as amended. While this is not a step in the right direction in terms of heating efficiency, the consequences are potentially less far-reaching than other types of changes; it is easy to increase ceiling insulation at a later date, particularly when compared with wall insulation and most other envelope improvements.

However, the Committee also rejected the 2021 IECC energy efficiency recommendations related to the frame wall insulation and the home slab insulation and depth, opting to stay with the 2015 IECC recommendations.

The committee received suggestions that would have reduced the energy efficiency to less than what the current code yields, such as reducing the requirement of wood frame wall insulation in climate zone 3. The Committee rejected these recommendations.

Under the Energy Rating Index, the Committee proposed an Index target that is less efficient than the 2021 IECC. (See Figure 20.)

**The recommended ERI performance path falls short of the 2021 code guidance.**

***Figure 20: Maximum Energy Rating Index, 2021 IECC and Mechanical Advisory Committee Recommendation***

| Climate Zone | 2021 IECC | Committee recommendation |
|---|---|---|
| 3B (Washington County) | 51 | 57 |
| 5B (most of Utah) | 55 | 61 |
| 6B (northern Utah) | 54 | 61 |

Source: IECC and the Utah Mechanical Advisory Committee.

Perhaps most importantly, the Committee included the REScheck allowance used in current Utah Code. In discussing this, they noted that the mechanical systems trade-off using the Utah 2012 REScheck creates a loophole that allows the installation of a poorly insulated and less efficient building envelope. This was due not to the Committee's own preferences, but to a political expectation that the Utah Legislature will want to keep the current loophole.

However, the Committee suggested (and Uniform Building Code Commission agreed) that if the Utah Legislature wants to retain this loophole in Utah code, it should be amended from a 5% efficiency improvement beyond the 2012 REScheck to:

- 8% efficiency improvement beginning July 1, 2023,
- 10% efficiency improvement beginning July 1, 2025, and
- 12% efficiency improvement beginning July 1, 2027.[68]

The Uniform Building Code Commission accepted most of the Committee's amendments, then made further amendments to the model IECC code.[69]

The energy efficiency building code adoption process in Utah is not free of political considerations. The Uniform Building Code Commission used to decide on whether Utah would follow the model code. In 2010, the Legislature changed it into an advisory body that sends the model code with recommendations to the Legislature for consideration. With that as the arrangement, the Commission's job should be to send the Legislature its best recommendations on what form the new code should take and let the Legislature make its own amendments, with accountability to voters. However, while the Mechanical Advisory Committee and the full Commission did consider the costs and benefits of code particulars, they also included the REScheck "loophole" out of deference to the presumed expectations of the Legislature. This seems to short-circuit the decision-making process by moving a political decision into the advisory phase. Similar questions recently arose within the Commission structure. The Mechanical Advisory Committee is a responsive body that discusses code amendments provided by advocacy and lobbying groups for the purpose of advising the full Commission. However, in June 2022, a lobbying group went directly to the full Commission seeking amendments to portions of the IECC model code before the Mechanical Advisory Committee presented its recommendations. The Utah Foundation has been told that this is not standard procedure, raising questions about the influence of special interests.

One last note. The REScheck "loophole" creates transparency issues. While, on the surface, Utah can claim credit for bringing its code up to the latest standard, in reality the loophole is used with such frequency as to undermine any code update.

## COMPLIANCE ISSUES

A change to the energy efficiency requirements in Utah's building codes could result in a moderate improvement in air quality, given the decrease in emissions. But what if the codes are not enforced?

The Utah Legislature created the Uniform Building Codes Training Fund to see uniform enforcement of the code around the state.[70] As part of the Fund, the state provides builders and code officials with enforcement trainings.[71] The state's *Building Talks: Utah's Energy Code Training Program*, is one such program. The state partners with Dominion Energy and Rocky Mountain Power to provide builders and code officials with energy efficiency education.

But more might be done. Utah's 2014 Building Team Committee cited a need to "increase understanding and enforcement of [the] current energy code"[72] through the efforts of the Office of Energy Development, ICC Chapters and AIA Utah. They also recommended support from the Division of Occupational and Professional Licensing, the Utah Home Builders Association and ASHRAE Utah.

A study from the Department of Energy sought to understand compliance in two states – one of which was Utah. The Institute for Market Transformation performed the Utah Residential Energy Code Field Study. It collected data from a random sampling of 127 new-construction homes in 35 cities across nine counties during 2020.[73]

The study found that builders' (and building inspectors') practices showed strong code compliance for lighting and envelope tightness. Nearly all of the homes exceeded the code requirement for high efficiency lighting – such as LED lights. Further, most homes had an envelope tightness of that was better than the code requirement of 3.5 air changes per hour, with an average of just over 3.0 air changes per hour.

Two areas where many homes were not in compliance were with insulation and duct tightness – both of which are a focus of the 2021 IECC. With ceiling insulation, the average was just under R-40. While Washington County code requires R-38 and most of the state requires R-49. When considering the U-factor of installed insulation, the performance average is 0.031, which falls outside of the requirement for Washington County's 0.030 and 0.026 for the rest of the state. The U-factor looks at how the insulation is installed, suggesting that not only is more insulation needed (under the R-value), but it needs to be installed better. With exterior wall insulation, the R-value was acceptable on average, though the U-factor for many homes was less than required, again meaning that insulation needs better installation to improve efficiency. Finally, outside the envelope duct tightness is better than Utah code requires – about 4.6 cubic feet per minute per 100 square feet of space as opposed to 7.0 cubic feet per minute under code. However, interior duct tightness is far leakier, at 11.1 cubic feet per minute.

The study found that full compliance with Utah's energy code at the time the study was conducted (the 2015 IECC, as amended) would help customers cut energy bills by $1.3 million each year, with a savings of 17,000 metrics tons of carbon emissions annually. As the study used Pacific Northwest National Laboratory's methodology, this could be roughly translated into a nitrogen oxide reduction of more than 10 tons per year.

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## SIDE BAR: OTHER PROGRAMS FOR CLEANER BUILDING

### C-PACE

Utah is one of 30 states with a commercial property assessed clean energy (C-PACE) program. This financing program "authorizes local governments to offer commercial, multifamily and industrial property owners a way to access private-sector financing for energy efficiency, renewable energy, and water conservation improvements to their buildings."

Sustainable Real Estate Solutions, Inc., administers Utah's program, working directly with local governments to finance and construct efficient buildings. C-PACE has financed $91 million in Utah's public buildings.

### Utilities

ThermWise® is a suite of seven customer-focused programs (Home Energy Plan, Energy Comparison Report, Appliance Rebates, Builder Rebates, Business Rebates, Weatherization Rebates, and Low-Income Efficiency) which aim to reduce natural gas usage in Utah homes and businesses. These programs are designed and offered by Dominion Energy, first becoming available to residents of the state beginning in 2007.

Over the fifteen-year history of the ThermWise® programs, customer participation rates and natural gas saving results have been some of the strongest in the nation. As of the end of 2021, nearly 48% of Utahns had participated in at least one of the ThermWise® rebate programs. In terms of natural gas savings, Dominion Energy estimates that the equivalent usage of over 129,000 homes (using 80 dekatherms of natural gas per year) is saved annually because of the ThermWise® programs. For instance, the program offers a $800 rebate for a dual-fuel (electric heat pump and natural gas furance) heating system. Non-Dominion Energy customers should contact their local gas provider for energy efficiency programs and incentives.

Through its Wattsmart program, Rocky Mountain Power provides cash incentives and discounts for energy upgrades. Services and incentives are available for homes and businesses. Non-Rocky Mountain Power customers should contact their local electric provider for energy efficiency programs and incentives.

Of the U.S. Department of Energy funded compliance-study participants, 57% reported participating in at least one utility energy efficiency program, while 21% reported participating in both an electricity and natural gas efficiency rebate program.

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## Sidebar: Other Legislation Toward Cleaner – or Dirtier – Buildings

During the 2016 General Session, the Utah Legislature followed prompting from Utah's Air Quality Board to pass an ultra-low NOx water heater requirement. The lower nitrogen oxide emissions can result in better air quality year-round – from less particulate matter to lower ozone levels. The 2016 Utah Legislature passed House Bill 250 and House Bill 316 to enable the rule requiring ultra-low NOx hot water heaters for replacement and new construction as of July 1, 2018.

The 2020 Utah Legislature passed House Bill 235, Voluntary Home Energy Information Pilot Program. The program directs the Utah Office of Energy Development to design a home energy information pilot program and a home energy performance score system. Through the Office's Home Energy Information Advisory Committee, the program will aim to encourage household energy efficiency using an educational approach and a home energy scorecard which compares Utahns energy performance to similar homes – much like a Dominion Energy efficiency program.

The 2022 Utah Legislature passed Senate Bill 188, Energy Efficient Amendments, to encourage energy efficiency though a low-income assistance program for utility customers earning 200% of the federal poverty level. The aim is to reduce air pollutants from homes. The program will work through electric and gas utilities to provide bill payment assistance, energy efficient appliances, replacement of wood-burning appliances or fireplaces with efficient alternatives, or other energy efficiency improvements. The program is financed through a surcharge on retail customers' monthly utility bills.

Perhaps stepping in the wrong direction, the 2022 Utah Legislature passed House Bill 39, which could undermine the current building code requirement that aims to ensure heating and air conditioning equipment is correctly sized. The allowance could result in technicians putting in HVAC units that are too

big or too small. When heating and cooling systems are not sized appropriately, they may operate less efficiency.

Sources:

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- Utah Senate Bill 188, 2022 General Session, https://le.utah.gov/~2022/bills/sbillint/SB0188S02.pdf.
- Utah House Bill 39, 2022 General Session, https://le.utah.gov/~2022/bills/static/HB0039.html.
- Utah Mechanical Advisory Committee meeting, April 12, 2022, www.utah.gov/pmn/files/835249.mp3.

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# CONCLUSION

During the last decade, Utah was the fastest growing state in the Union. With new residents come new buildings with new emissions, making growth a challenge for air quality. But it also represents a unique opportunity. Over 12% of Utah's homes have been built since 2010 – a far greater proportion than the U.S. average. With a robust pace in new residential and commercial construction expected to continue, the state can use this moment to build in a manner that reduces each structure's pollution emissions. The payoff is long-term, with many of these buildings maintaining reduced emissions far into the future.

Residences and commercial buildings' air and water heating account for between 6% and 7% of winter inversion emissions on the Wasatch Front, where most Utahns reside. While percentages for natural gas combustion represent a small portion of the Wasatch Front pollution problem, there are multiple contributors, such as on-highway gasoline vehicles, on-highway diesel vehicles, off-highway diesel vehicles, solvents, and forest-fire smoke. And winter woodsmoke is not far behind natural gas combustion. In short, addressing air quality requires that Utah address multiple individual contributing sources with separate solutions in order to make a meaningful combined impact. When it comes to the fuel combustion slices of the pie, building code upgrades offer policymakers significant potential leverage.

For Utahns living off the Wasatch Front, these emissions are a much smaller proportion of local emissions. Given the regional variations in air quality issues related to area source emissions, the State might explore whether relevant variations in building codes are appropriate.

The 2021 energy efficiency building codes are set for review by the Utah Legislature for adoption, rejection or amendment during the 2023 General Session. The main arguments for updating the energy efficiency standards in the building code include: lower utility costs for residents, better air quality and an increase in Utah employment to provide new features for residences. The main points of opposition include: new homes are only a small part of the problem, home costs are too high already, and the government is getting too specific in its building mandates.

A study of updating the Utah commercial code suggests a substantial savings in energy costs and commensurate emissions reduction – and for most buildings a decrease per square foot in initial construction costs due primarily to the need for a smaller heating and air conditioning systems. Studies of

updating Utah residential code show life-cycle cost savings that appear to justify a full implementation of the 2021 code.

This report suggests that each home built to the 2021 code would see emissions related to natural gas usage decrease by about one-third compared to homes built to the current code.

The cost of implementing the 2021 energy efficiency standards would be between 0.4% and 0.7% of a new $600,000 home (under $5,000). In terms of household cash flow, initial costs would be recouped within two or three years. These homes would see a one-third reduction in local emissions – and a larger reduction during winter months.

In adopting the 2021 code, policymakers should consider the propriety of a standing loophole in Utah's approach to energy efficiency codes that is used with such frequency that it undermines any code update. It also creates transparency issues.

Along those lines, it should be noted that the independence of Utah's Uniform Building Code Commission has diminished since the 2000s. Observers say that energy efficiency code adoption that affects air quality has become a much more political process.

When it comes to air quality, building codes offer policymakers real leverage in making a direct, meaningful impact far into the future. As the 2021 code moves through the process toward adoption, a careful consideration of the costs and benefits both financially and for public health is well-warranted.

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[58] M. Tyler, et al., Op. Cit. See Table 6.

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[68] Ibid.

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WESTERN RESOURCE ADVOCATES

PROTECTING THE WEST'S LAND, AIR, AND WATER

December 14, 2021

Chairman Thomas Peterson
Uniform Building Code Commission
160 East 300 South
Salt Lake City, Utah 84111

RE: Western Resource Advocates Supports Incorporating Electric Readiness Provisions into the 2021 International Energy Conservation Code

Chairman Peterson and Members of the Uniform Building Code Commission:

On behalf of Western Resource Advocates (WRA), I am writing to express our support for Utah Clean Energy's and Salt Lake City's joint application to amend the residential 2021 International Energy Conservation Code (IECC) to include electric-ready provisions. WRA is a 501c3 non-profit organization that works to address climate change and its impacts to sustain the environment, economy, and people of the West. Our team of policy experts, scientists, economists, and attorneys has a 30-year history of working with policymakers, regulators, and other organizations in Utah and six other states.

Adopting the proposed electric-ready provisions will enable more electrified, pollution-free buildings in Utah. Electrification involves replacing fossil fuels with clean, renewable electricity in a way that reduces climate-heating greenhouse gas emissions. Electrified buildings can lower energy costs, allow for more efficient use of the electric grid, and improve indoor air quality. Electric-ready provisions that enable electrification of space and water heating in homes and businesses build on critical progress utilities have made in decarbonizing the electricity sector. As the electric grid becomes less reliant on fossil fuels, electricity becomes a cleaner option compared with gas, and the climate benefits of switching to electricity increase and compound.

Several Western states have committed to sweeping use of clean energy resources for electricity generation. Most electric utilities in the West have committed to reduce emissions by at least 80% by 2030. PacifiCorp, which serves roughly 80% of Utahns, says they are on track to reduce emissions from their electricity generation fleet 74% by 2030. Decarbonizing the electricity sector will enable greater emissions reductions in other areas, like transportation and buildings.

While they have significant pollution reduction benefits, electric appliances can also be cheaper to own than gas appliances, especially in new homes. In addition to the analysis provided to the Commission by Utah Clean Energy, a recent analysis by the Southwest Energy Efficiency Project shows that for new homes in Colorado, an all-electric home can save almost $4,000 in upfront costs while reducing annual heating costs, compared with using gas heating and cooking appliances. For homes in warmer climates such as in Arizona and Nevada, the economics of heat pumps compare even more favorably. The economics of electric appliances are likely to continue to improve as the cost of installing and operating these appliances is expected to decline in the years ahead.


Arizona
1429 North First Street
Suite 100
Phoenix, AZ 85004

Colorado - Boulder
2260 Baseline Road
Suite 200
Boulder, CO 80302

Colorado - Denver
1536 Wynkoop Street
Suite 210
Denver, CO 80202

Nevada
550 W. Musser Street
Suite G
Carson City, NV 89703

New Mexico
409 E. Palace Avenue
Unit 2
Santa Fe, NM 87501

Utah
307 West 200 South
Suite 2000
Salt Lake City, UT 84101

With widespread electrification coupled with utility programs, electric appliances can also benefit the electric grid, since they can be powered at different times of day and their demand for electricity can be reduced at peak times, often in response to financial incentives. Electric water heaters can provide a form of thermal storage—the water in storage tanks can be heated during times of low electricity demand or abundant renewable generation supply, in order to meet customers' hot water needs without using additional electricity during peak demand periods. In Arizona, a 2018 pilot project with Arizona Public Service successfully used a resource management system to heat water and charge batteries during periods of high solar electricity generation, reducing strains on the electrical grid at peak demand times.

Efficient electric appliances like air-source heat pumps and heat pump water heaters can help minimize additional load on the grid from buildings that use electricity for heating, cooling, and cooking. Investing in comprehensive energy efficiency measures in tandem with electric appliances can reduce demands on the grid and make energy systems more resilient. These steps go hand in hand with comprehensive utility planning to help ensure the grid is prepared to continue meeting electricity needs even in extreme weather.

Pollution-free homes and buildings can also have substantial public health benefits. A recent study found that gas stoves can emit nitrogen dioxide at levels that exceed EPA outdoor standards—at times, those levels reached more than 250% over the allowable standard, increasing the risk of childhood asthma and other respiratory problems. Electric-ready buildings can enable use of electric systems and cooktops and help reduce this health risk.

Electric-ready buildings can also be beneficial for the electrification of the transportation sector, which is another key component of improving Utah's air quality and addressing climate change. As electric vehicle adoption grows and clean cars make up a greater proportion of vehicles on Utah's roads, as much as 80% of EV charging is expected to take place at people's homes. Retrofitting homes for electrification can be time-consuming and prohibitively expensive, so the proposed electric-ready energy code amendment will help ensure new buildings are ready for future installations of at-home EV chargers, high-efficiency heat pumps, and electric ranges/ovens, and dryers.

Electric-readiness provisions will enable more Utahns to power their homes and businesses with increasingly clean and cost-effective electricity. In addition to reducing utility bills and cutting down on indoor air pollution, these electric-ready provisions will help Utah address outdoor "area source" air pollution while our communities continue to grow. According to the Utah Division of Air Quality, these area source emissions (from homes and businesses) are projected to become the largest source of local air pollution in just a matter of years. Because buildings last such a long time, reducing their emissions will have a positive impact that can span generations.

Additionally, because the combustion of fossil gas in homes and buildings is a significant source of the greenhouse gas pollution that causes climate change, these provisions can help decrease harmful pollution from this sector and help dozens of Utah communities achieve their ambitious goals to reduce climate-warming emissions.

We encourage you to approve the request to amend the residential 2021 International Energy Conservation Code, currently being reviewed for adoption in Utah, to include electric-ready provisions. Thank you for your consideration and please feel free to contact me if you have any additional questions or concerns.

Sincerely,

Nick Schou
Utah Government Affairs Manager
Western Resource Advocates
307 West 200 South, Suite 2000
Salt Lake City, Utah 84101
385-235-6008
nick.schou@westernresources.org

HUNTSMAN

BUILDING SOLUTIONS

Testimony – Stephen Wieroniey
Uniform Building Code Commission – Public Hearing
August 10, 2022

RE: Uniform Building Code Commission meeting, public hearing on building code amendments and Appeals Board hearing

Huntsman Building Solutions (HBS) is supportive of Utah's Uniform Building Code Commission efforts to update the state's energy efficiency standards for residential buildings. Huntsman Building Solutions is a division of the Huntsman Corporation – a specialty chemical company headquartered in The Woodlands, Texas. The company employs 9,000 people across the globe and has annual revenue around $8 billion.

In 2018, and 2019, Huntsman invested $700 million to purchase three spray foam manufacturers to form Huntsman Building Solutions. Huntsman Building Solutions is the leading producer of spray polyurethane foam in North America, Europe and Asia.

Improving the energy efficiency standards for the built environment lowers greenhouse gas emissions, improves local air quality, and saves homeowners money. Spray foam insulation is the most efficient insulation on the market. This is because spray foam functions as an insulation and an air barrier, while other traditional products function only as insulation. R-values for spray foam insulation range from 3.6 to 7.4, depending on product type, significantly outperforming competitive products.

HBS is supportive of the Commission's proposed amendments that impact the building envelope, including the proposals for Table R402.1.2 and R402.1.3, sections R402.4.1, and R402.4.1.3. HBS is encouraged to see the Commission proposing to move to a 3.0 ACH50 testing requirement in 2025. We believe the phase in approach creates a practical pathway for builders to comply with the requirement.

HBS would like the Commission to reconsider the requirements of the 2021 IECC for ducts and mechanical ventilation in the proposals for sections R403.3.1, R403.3.5, and R403.6.3. We strongly encourage the Commission to require testing of mechanical ventilation systems as the state moves to a lower airtightness requirement.

Finally, HBS would like to propose to create a new prescriptive R-value for insulation in unvented attics (Section R806.5 in IRC). Unvented attics are a more modern solution that allow mechanical equipment to function in semi or passively conditioned space. Unvented attics are roughly the same temperature as the occupied space in the home, which allows the mechanical equipment to function in a less extreme environment. Additionally, any duct leakage that occurs in the attic will not be lost to unconditioned space, which occurs in a traditional vented attic. Alabama and Georgia have adopted a similar requirement due to the flexibility it provides builders to meet new energy efficiency requirements. We would like to setup a meeting with the Commission to discuss this concept in more detail.

Again, thank you for your time and efforts to increase the energy efficiency of residential buildings in Utah.

10003 Woodloch Forest Drive, The Woodlands, Texas 77380
Tel: 281.719.6000 800.123.4567
www.huntsmanbuildingsolutions.com

SPENCER J. COX
*Governor*

DEIDRE M. HENDERSON
*Lieutenant Governor*

# Office of Consumer Services

UTAH DEPARTMENT OF COMMERCE

MARGARET W. BUSSE
*Executive Director*

MICHELE BECK
*Director*

**To: Universal Building Code Commission From: Utah Office of Consumer Services Date: June 8, 2022 Re: Energy Code Policy Statement**

The Office of Consumer Services (OCS) is Utah's advocate for residential and small commercial customers of public utilities. The OCS supports adoption and enforcement of updated energy codes for new homes and buildings.

Improving the energy efficiency of new homes and commercial buildings by building to updated energy codes provides benefits to home and business owners as well as Utah's public utility ratepayers.

**Updated Energy Codes Benefit Home and Business Owners**

Individual homeowners and business owners benefit because annual utility bills are lowered and the future need to retrofit a home or commercial building is avoided. Retrofits are difficult for homeowners to budget, can be technically challenging since many systems in the house are not accessible after construction is complete, and have a total cost that is much higher than when these efficiency measures are included in initial construction.

**Updated Energy Codes Benefit Utility Ratepayers**

Utah has a growing economy and an even greater growing demand for energy. Since current utility infrastructure is being fully utilized, additional demand often requires expensive infrastructure upgrades and new generating resources which leads to higher utility rates. Using energy as efficiently as possible helps to minimize the need for additional resources, which in turn helps to mitigate increasing costs and other impacts from expanding energy resources. Also, building to updated energy codes helps maximize the use of energy efficiency programs paid for in utility rates. Rather than using those funds to bring recent construction up to higher standards, those funds can have greater impact by retrofitting older building stock. Thus, advancing building codes help to promote long-term efficient use of energy systems in multiple ways.

Utah Department of Commerce | Office of Consumer Services
Heber M. Wells Building • 160 East 300 South • P.O. Box 146782, Salt Lake City, UT 84114-6741 www.ocs.utah.gov
• telephone (801) 530-6674




Uniform Building Code Commission
Division of Occupational & Professional Licensing
Heber M. Wells Building
160 East 300 South
Salt Lake City, UT 84111

May 19, 2022

Dear Commission,

The Utah Association of Energy Users (UAE) represents 34 large energy users in the State of Utah and is made up of a diverse group of companies, including universities, hospitals, retail, mining, steel, natural gas and oil developers, and others. **As strong proponents of cost-effective energy efficiency and conservation in Utah, UAE supports the adoption of the most up-to-date building energy codes for Utah.**

I understand that the Uniform Building Code Commission (UBCC) and its Advisory Committees are currently undertaking a formal review of the 2021 International Energy Conservation Code (IECC). Adoption of the full, unamended 2021 IECC would result in significant and cost-effective energy cost savings while also making wise use of ratepayer funded utility efficiency rebate programs in Utah.

For residential construction, the 2021 IECC represents a 16.4% increase in building efficiency statewide.[1] Given that Utah is on a six-year adoption cycle for residential construction our code is already three years out of date, and we recommend taking action now.

Regarding the commercial energy code, adopting the latest energy code will provide an annual energy cost savings of $0.042 per square foot on average across the state. In addition, it will reduce statewide CO2 emissions by 5.4 MMT (30 years cumulative), equivalent to the CO2 emissions of 1,164,000 cars driven for one year—all while adding hundreds of well-paying jobs to our economy.[2]

For decades Utah has prided itself on low energy costs as an economic development tool. Now as we see unprecedented growth in Utah, we need to ensure the long-term economic

[1] Source: Cost-Effectiveness of the 2021 IECC for Residential Buildings in Utah (July 2021). Available at: https://www.energycodes.gov/sites/default/files/2021-07/UtahResidentialCostEffectiveness_2021_0.pdf

[2] Source: Cost-Effectiveness of ANSI/ASHRAE/IES Standard 90.1-2019 for Utah (July 2021). Available at: https://www.energycodes.gov/sites/default/files/2021-07/Cost-effectiveness_of_ASHRAE_Standard_90-1-2019-Utah.pdf

viability of our state. Requiring that the most up-to-date energy code is used for new homes and commercial buildings slows the increase in energy costs and reduces our demand for natural gas. This translates to reduced building emissions and supporting low energy rates in Utah.

Although UAE members are industrial energy users, failing to adopt the updated energy code in Utah virtually ensures that energy consumption from new homes and commercial buildings is higher than necessary, which *all utility ratepayers* will pay for in two ways: (1) through higher energy rates as Rocky Mountain Power either generates or purchases the additional power required (particularly at expensive peak hours); and (2) through the subsidy of utility energy efficiency programs to retrofit these homes with efficiency upgrades *after the fact*.

As this Commission will provide its recommendation to Utah lawmakers during the Legislature's Interim Session this summer to be debated during the upcoming 2023 General Legislative Session, UAE urges the Commission to recommend adoption of both the residential and commercial 2021 IECC and ASHRAE 90.1-2019 without any weakening amendments.

Thank you for considering these comments.

Sincerely,

Kelly J Francone

Kelly Francone
Executive Director
Utah Association of Energy Users
www.utahenergyusers.org

August 4, 2022

To: Uniform Building Code Commission (UBCC)

From: Jennifer Eden, MS

I am writing to encourage the UBCC to adopt the entire 2021 IECC. These building codes require that buildings be built more efficiently which means that they will use less resources throughout the lifecycle of each new building. Studies have shown that the relatively low additional upfront cost is quickly recovered (in about 3 years) in reduced year by year energy savings. This makes these homes less expensive to live in, while being less impactful on our environment and our energy needs. Furthermore, energy efficiency is the most effective, long-term means to reduce our reliance on external energy sources.

Finally, housing costs have become very high in Utah. Month by month energy cost savings are a way to reduce costs for our residents as more and more buildings are built to the 2021 IECC.

Thank you for your support,

Jennifer Eden
801-647-6139
4597 Park Hill Drive
Millcreek, UT 84124
jennreden@gmail.com

**Sharon Smalley <ssmalley@utah.gov>**

# Written Comment for the August 10th UBCC Meeting

1 message

**Jeff Krause** <jkrauseslc@gmail.com> Sun, Aug 7, 2022 at 5:45 PM
To: ssmalley@utah.gov

I am writing in about my support of the 2021 IECC Building Codes that the UBCC is holding public hearings on August 10th. Living in Utah, air quality and overall sustainability is top of mind. Most people don't realize that buildings account for 29% of greenhouse gas emissions in the US. The 2021 IECC Building Codes are up for review and potential adoption; these newly updated codes are 17% more efficient than the 2015 codes and will save consumers money right away and over time. I am planning to build a house here in the next few years, and I am hoping that these codes are approved and moved forward.

Thanks!

Jeff Krause

jkrauseslc@gmail.com
440-724-2720

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Emily Horton** <em.c.horton@gmail.com>
Reply-To: Emily Horton <em.c.horton@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Fri, Aug 5, 2022 at 6:42 AM

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Emily Horton
351 S Goshen St
Salt Lake City, UT 84104

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Alessandro Rigolon** <alessandro.rigolon@gmail.com> Mon, Aug 8, 2022 at 3:19 PM
Reply-To: Alessandro Rigolon <alessandro.rigolon@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Alessandro Rigolon
2000 Texas St
Salt Lake City, UT 84108

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Gregory Macfarlane** <gregmacfarlane@gmail.com> Mon, Aug 8, 2022 at 3:25 PM
Reply-To: Gregory Macfarlane <gregmacfarlane@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Gregory Macfarlane
2197 Silverado Drive
Springville, UT 84663




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Matt Sadauckas** <matthewsadauckas@gmail.com> Mon, Aug 8, 2022 at 3:32 PM
Reply-To: Matt Sadauckas <matthewsadauckas@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Matt Sadauckas
207 South 600 East
Salt Lake City, UT 84102




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Flannery Mack** <flannery.mack@gmail.com> Mon, Aug 8, 2022 at 3:56 PM
Reply-To: Flannery Mack <flannery.mack@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Flannery Mack
1384 Thornton Avenue East
Salt Lake City, UT 84105




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**n burns** <nick@vanburns.com> Mon, Aug 8, 2022 at 4:25 PM
Reply-To: n burns <nick@vanburns.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

PLEASE adopt the 2021 International Energy Conservation Code (IECC) code.

The Uniform Building Code Commission will take preventative measures to
* lower emissions from the building sector,
* reduce energy burdens for consumers, and
* lower yearly utility bills.

PLEASE, as someone retired from a career in construction, I urge you to go forward with the adoption of the IECC building code.

thank you-

Sincerely,
n burns
6056 park ln s
park city, UT 84098




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Spencer Bagley** <orangefish@gmail.com> Mon, Aug 8, 2022 at 5:46 PM
Reply-To: Spencer Bagley <orangefish@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Spencer Bagley
3554 Terra Sol Dr
Salt Lake City, UT 84115

**Sharon Smalley <ssmalley@utah.gov>**

# UT Building Code Update

1 message

**Miranda Menzies** <menzies.miranda@gmail.com> Mon, Aug 8, 2022 at 6:40 PM
To: ssmalley@utah.gov, sduncombe@utah.gov, twpeterson@utah.gov

I am writing in support of changes you will be considering to the UT building code which improve energy efficiency, and reduce the amount of energy that is wasted. In particular, air tightness testing (blower door testing), which demonstrates that the builder has done a good job, and prescriptive changes which increase the amount of insulation required.

We have experienced first hand for 10 years the benefits of a high efficiency home - which has greatly reduced our monthly living costs in our retirement. Every month of lower costs leaves us more money to use for groceries, healthcare, or our grandchildren.

As the cost of energy is rising, and there is pressure on builders to cut corners for speed and cost reduction, it is even more critical to make sure that the homes that are being built will save UT families money in the decades to come. Families in all groups in our communities deserve to have these improvements that can only be made to happen by tightening the building codes, and making buildings more efficient.

UT needs to be a leader here, and move forward from the outdated standards the builders have been using.

Sincerely,
Miranda Menzies
3807 N Elk Ridge Trail
Eden, Utah 84310

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Carrie Marsh** <carrieannmarsh@gmail.com> Mon, Aug 8, 2022 at 7:25 PM
Reply-To: Carrie Marsh <carrieannmarsh@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Carrie Marsh
3879 South 775 West
Bountiful, UT 84010

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Dylan Munn** <dbmunn93@gmail.com> Mon, Aug 8, 2022 at 7:57 PM
Reply-To: Dylan Munn <dbmunn93@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Dylan Munn
1381 S Green St
Salt Lake City, UT 84105




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Paul Gonzalez** <Officialmeisei@gmail.com> Thu, Aug 4, 2022 at 1:27 PM
Reply-To: Paul Gonzalez <Officialmeisei@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Paul Gonzalez
5997 S Scorpio Dr
Kearns, UT 84118

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Katie Goeckeritz** <katiegoeckeritz19@gmail.com> Tue, Aug 9, 2022 at 10:01 AM
Reply-To: Katie Goeckeritz <katiegoeckeritz19@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Katie Goeckeritz
525 S Navajo St
SLC, UT 84104




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Sunny Strasburg** <sunnystrasburg@gmail.com> Tue, Aug 9, 2022 at 10:04 AM
Reply-To: Sunny Strasburg <sunnystrasburg@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Sunny Strasburg
321 S 1200 E
Salt Lake city, UT 84102

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Yukio Kachi** <y.kachi@utah.edu> Tue, Aug 9, 2022 at 10:04 AM
Reply-To: Yukio Kachi <y.kachi@utah.edu>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Yukio Kachi
1278 E 1300 S
Salt Lake City, UT 84105




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Brenda Ruthizer** <skirollfly@comcast.net> Tue, Aug 9, 2022 at 10:08 AM
Reply-To: Brenda Ruthizer <skirollfly@comcast.net>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

I will be attending the Aug 10th meeting virtually.

Sincerely,
Brenda Ruthizer
4848 S Pinnacle Pl
Salt Lake City, UT 84124

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Lan Vo** <hoa.lanvo@gmail.com> Tue, Aug 9, 2022 at 10:10 AM
Reply-To: Lan Vo <hoa.lanvo@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Lan Vo
3089 e 3100 s
Salt Lake City, UT 84109




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Timothy Chenette** <chenettet@gmail.com> Tue, Aug 9, 2022 at 10:10 AM
Reply-To: Timothy Chenette <chenettet@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

I'm a Utah resident and I am writing to support the adoption of the 2021 International Energy Conservation Code. I am building a house right now and it's become clear to me, as I do my research, that effective insulation is the most important thing any of us can do to have a long-term impact on energy usage/prices, air quality, and climate change.

I urge you to go forward with the adoption of the IECC building code. Thank you!

Sincerely,
Timothy Chenette
319 N 200 E
Logan, UT 84321

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Sean Slack** <seandslack@gmail.com> Tue, Aug 9, 2022 at 10:10 AM
Reply-To: Sean Slack <seandslack@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Sean Slack
963 E Logan Ave
SLC, UT 84105

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Ana Hardy** <ANACRUZHARDY@gmail.com> Tue, Aug 9, 2022 at 10:10 AM
Reply-To: Ana Hardy <ANACRUZHARDY@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Ana Hardy
350 W PIERPONT AVE
SLC, UT 84101

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Jake Wilhelmsen** <jakewilhelmsen@gmail.com> Tue, Aug 9, 2022 at 10:12 AM
Reply-To: Jake Wilhelmsen <jakewilhelmsen@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Jake Wilhelmsen
711 6th Ave
Salt Lake City, UT 84103

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**stewart soleman** <stewart.soleman@gmail.com>
Reply-To: stewart soleman <stewart.soleman@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Tue, Aug 9, 2022 at 10:14 AM

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
stewart soleman
1444 Emery
Salt Lake City, UT 84104




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Brandi Williams** <blwill22@gmail.com> Tue, Aug 9, 2022 at 10:16 AM
Reply-To: Brandi Williams <blwill22@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

I have lived in Utah for 21 years and during that time I have seen significant growth. Despite this growth, we have been able to keep emissions from increasing proportionately. This is due in part to efforts to reduce emissions from vehicles, the highest source of pollution in our state. However, with the projected population growth, we are seeing new apartment buildings and homes being built everywhere we look. I think it is essential that we do everything we can to make sure those buildings don't become a huge source of pollution. We should ensure that they are built to the highest energy efficiency standards possible to protect our air quality and our health while at the same time, saving consumers money on their utility bills. One way that we can do that is by adopting the 2021 International Energy Conservation Code (IECC) code into our building codes and I urge the Uniform Building Code Commission to take that step at their August 10th meeting.

Sincerely,
Brandi Williams
4970 S. Westmoor Rd
Holladay, UT 84117

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Adam fohrman** <adamfohrman@gmail.com> Tue, Aug 9, 2022 at 10:16 AM
Reply-To: Adam fohrman <adamfohrman@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Adam fohrman
438 N 1100 W
Salt Lake City, UT 84116




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Hanna Saltzman** <hanna.saltzman@gmail.com> Tue, Aug 9, 2022 at 10:21 AM
Reply-To: Hanna Saltzman <hanna.saltzman@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Hanna Saltzman
367 E 1st Ave
Salt Lake City, UT 84103

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**DANIEL OMALLEY** <danielwolf.om@gmail.com> Tue, Aug 9, 2022 at 10:23 AM
Reply-To: DANIEL OMALLEY <danielwolf.om@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
DANIEL OMALLEY
1033 Cambria Dr
North Salt Lake, UT 84054

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Noah Miterko** <noah.miterko@westernalum.org> Tue, Aug 9, 2022 at 10:23 AM
Reply-To: Noah Miterko <noah.miterko@westernalum.org>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Noah Miterko
1660 Major Street #34
Salt Lake City, UT 84115




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Quintin Lodge** <ql@quintinlodge.com> Tue, Aug 9, 2022 at 10:32 AM
Reply-To: Quintin Lodge <ql@quintinlodge.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Quintin Lodge
3384 S 2910 E
Salt Lake City, UT 84109




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Gordon Robson** <gwrobson@gmail.com> Tue, Aug 9, 2022 at 10:38 AM
Reply-To: Gordon Robson <gwrobson@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a North Ogden Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, especially along the Wasatch Front, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards.

Currently, it has been documented the main contributor to our air quality issues in populated areas is linked to vehicle source emissions. But that is expected to change to area source emissions which would include future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code. Thank You

Sincerely,
Gordon Robson
797 E 2450 N
North Ogden, UT 84414

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Brandon Hentkowski** <bhentkowski5@gmail.com> Tue, Aug 9, 2022 at 10:40 AM
Reply-To: Brandon Hentkowski <bhentkowski5@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Brandon Hentkowski
2254 Wilson Avenue South
Salt Lake City, UT 84108

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Lindsay Northrop** <lgtnorthrop@gmail.com> Tue, Aug 9, 2022 at 10:43 AM
Reply-To: Lindsay Northrop <lgtnorthrop@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Please take this relevant concern into your careful consideration.

Sincerely,
Lindsay Northrop
670 N Grenoble St
Salt Lake City, UT 84116

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**MARGIE SCHLOESSER** <margieschloesser@gmail.com> Tue, Aug 9, 2022 at 10:47 AM
Reply-To: MARGIE SCHLOESSER <margieschloesser@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
MARGIE SCHLOESSER
3263 AMERICAN SADDLER DR
PARK CITY, UT 84060

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Terry Huff** <thuff47@gmail.com>
Reply-To: Terry Huff <thuff47@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Tue, Aug 9, 2022 at 10:48 AM

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Terry Huff
3954 S Olympic Way
Salt Lake City, UT 84124




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Catherine Babcook** <c.babcook@gmail.com> Tue, Aug 9, 2022 at 11:00 AM
Reply-To: Catherine Babcook <c.babcook@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Catherine Babcook
1000 N East Capitol Blvd
Salt Lake City, UT 84103

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Emma Marshall** <ekm328@gmail.com> Tue, Aug 9, 2022 at 11:08 AM
Reply-To: Emma Marshall <ekm328@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Emma Marshall
1380 S Lincoln st
Salt Lake City, UT 84105

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Heidrun Kubiessa** <kubikubiessa@gmail.com> Tue, Aug 9, 2022 at 11:14 AM
Reply-To: Heidrun Kubiessa <kubikubiessa@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Heidrun Kubiessa
2402 Bramble Way
Salt Lake City, UT 84117

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Martin Stensaas** <martinerikstensaas@gmail.com> Tue, Aug 9, 2022 at 12:12 PM
Reply-To: Martin Stensaas <martinerikstensaas@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Martin Stensaas
321 S 1200 E
Salt Lake City, UT 84102

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Emily Sharp** <emsharp@gmail.com> Tue, Aug 9, 2022 at 12:28 PM
Reply-To: Emily Sharp <emsharp@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Emily Sharp
1234 N 1300 W
Salt Lake City, UT 84116

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**SarahAnn Whitbeck** <sawhitbe@gmail.com> Tue, Aug 9, 2022 at 1:02 PM
Reply-To: SarahAnn Whitbeck <sawhitbe@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
SarahAnn Whitbeck
1182 E Hudson Ave
Salt Lake City, UT 84106

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Gabrielle LeBeau** <gabylebeau@hotmail.com> Tue, Aug 9, 2022 at 1:36 PM
Reply-To: Gabrielle LeBeau <gabylebeau@hotmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Gabrielle LeBeau
181 North 200 West
Logan, UT 84321




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Jake Flanigan** <jakeflanigan@gmail.com> Tue, Aug 9, 2022 at 1:49 PM
Reply-To: Jake Flanigan <jakeflanigan@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Jake Flanigan
5730 S 675 E
Murray, UT 84107

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**James O'Malley** <ojim22@gmail.com> Tue, Aug 9, 2022 at 2:23 PM
Reply-To: James O'Malley <ojim22@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
James O'Malley
971 Cutter Lane
Park City, UT 84098




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Brent Tucker** <bntucker@comcast.net>
Reply-To: Brent Tucker <bntucker@comcast.net>
To: Sharon Smalley <ssmalley@utah.gov>

Tue, Aug 9, 2022 at 2:23 PM

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Brent Tucker
2231 E Lonsdale Dr
Salt Lake City, UT 84121




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Nancy Tucker** <bntucker2@comcast.net> Tue, Aug 9, 2022 at 2:23 PM
Reply-To: Nancy Tucker <bntucker2@comcast.net>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Nancy Tucker
2231 E Lonsdale Dr
Salt Lake City, UT 84121

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Paul Zuckerman** <p-zuckerman@comcast.net> Tue, Aug 9, 2022 at 2:24 PM
Reply-To: Paul Zuckerman <p-zuckerman@comcast.net>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

Hello Ms. Smalley,

I am a resident of Salt Lake City. The threats to the air that I breathe make my family question our ability to stay here in Utah. Toxic dust off the lake, emissions from the Inland Port, the prospect of dust from a proposed quarry in Parleys Canyon, and uncontrolled growth make me wonder if my home value will drop someday as more prospective buyers decide to go elsewhere.
We are still a relatively young state. We still have the opportunity to it grow right by ensuring that all new construction meets the state of the science codes for energy (and water) conservation.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Paul Zuckerman
Salt Lake City

Sincerely,
Paul Zuckerman
1105 E 1ST AVE
SALT LAKE CITY, UT 84103

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Skylar Elliott Casey** <sky.eli.casey@gmail.com> Tue, Aug 9, 2022 at 2:34 PM
Reply-To: Skylar Elliott Casey <sky.eli.casey@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

I'm a Utah resident that stand with HEAL Utah and their request to adopt to more sustainable building codes. All levels of government must do their part to help electrify and decarbonize our economy. As our state continues to grow in population, we have the opportunity to make sure the most up-to-date sustainability and energy efficiency standards are used on our buildings. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

I'm a renter in the Salt Lake Valley. It is unfortunate I have no control over whether I get my heating from natural gas or control over my appliances. There are so many existing technologies that could be adopted to reduce emissions from our built environment.

This is why I support adopting the 2021 International Energy Conservation Code (IECC) code. The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Skylar Elliott Casey
1984 E Sylvan Ave
Salt Lake City, UT 84108

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**George Gutierrez** <sknybizz@gmail.com> Tue, Aug 9, 2022 at 2:46 PM
Reply-To: George Gutierrez <sknybizz@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
George Gutierrez
4604 W 5295 S
Kearns, UT 84118

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Kelly Holland** <kelly@placecollab.com>
Reply-To: Kelly Holland <kelly@placecollab.com>
To: Sharon Smalley <ssmalley@utah.gov>

Tue, Aug 9, 2022 at 3:11 PM

Dear Sharon Smalley,

As a Utah resident and Licensed Architect, I am concerned about the ongoing environmental threats that we are currently facing; including drought and poor air quality. I understand that we cannot turn all of our existing building into regenerative structures overnight. However, addressing new and future construction is low-hanging fruit that will help us meet long-term demands on buildings and the environment. incrementally improving the building code is one of the tools in the toolbox to prove we are good stewards of the beautiful lands we live, play, and work in.

Without action, I believe we will begin to lose residents to neighboring states that are addressing environmental issues, as air quality is a common complaint among many residents of the Wasatch front.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Kelly Holland
167 E Harvard Ave
Salt lake City, UT 84111




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Peter Dowd** <pierredowd@gmail.com> Tue, Aug 9, 2022 at 3:15 PM
Reply-To: Peter Dowd <pierredowd@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Peter Dowd
889 Orchard Drive
River Heights, UT 84321

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Susan Banks** <susan.banks@gmail.com>
Reply-To: Susan Banks <susan.banks@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Tue, Aug 9, 2022 at 4:14 PM

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Susan Banks
5352 S CASTLECREEK DR
SALT LAKE CITY, UT 84117

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Jason Nguyen** <gofightnguyen@outlook.com> Tue, Aug 9, 2022 at 4:48 PM
Reply-To: Jason Nguyen <gofightnguyen@outlook.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Jason Nguyen
14493 S Triton Quest Way
Draper, UT 84020

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Julia Gershkoff** <Juliagershkoff22@gmail.com>
Reply-To: Julia Gershkoff <Juliagershkoff22@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Tue, Aug 9, 2022 at 5:02 PM

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Julia Gershkoff
1735 E Fort Douglas Circle
Salt Lake City, UT 84103

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Courtney Nelson** <courtneynelson@live.com>
Reply-To: Courtney Nelson <courtneynelson@live.com>
To: Sharon Smalley <ssmalley@utah.gov>

Tue, Aug 9, 2022 at 6:16 PM

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Courtney Nelson
1592 s 1100 e
Salt Lake City, UT 84106

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Alexis Lee** <a.pearl.lee@gmail.com>
Reply-To: Alexis Lee <a.pearl.lee@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Tue, Aug 9, 2022 at 6:20 PM

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Alexis Lee
1532 E. Westminster Ave
Salt Lake City, UT 84105

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Meaghan Kennedy** <meaghankarakennedy@gmail.com>
Reply-To: Meaghan Kennedy <meaghankarakennedy@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Tue, Aug 9, 2022 at 6:50 PM

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Meaghan Kennedy
369 E Oakland Ave
Salt Lake City, UT 84115

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Scott Williams** <sdwilli@gmail.com>
Reply-To: Scott Williams <sdwilli@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Tue, Aug 9, 2022 at 7:47 PM

Dear Sharon Smalley,

I'm writing to urge you to adopt the most current IECC building codes.

Currently, the main contributor to our air quality issues in populated areas is vehicle source emissions but it is expected to change to area source emissions very soon, including emissions from buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission can lower emissions from homes and businesses, and lower yearly utility bills for consumers.

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without taking this action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards.

Sincerely,
Scott Williams
316 K Street
Salt Lake City, UT 84103

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Richard Middleton** <richard.pontifex@gmail.com> Tue, Aug 9, 2022 at 7:47 PM
Reply-To: Richard Middleton <richard.pontifex@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

I am English, but have lived in the United States for almost 50 years and in Utah for almost 20. I am amazed that, with our extreme climate (which unfortunately seems destined to get even worse), there should even be a debate about whether higher insulation standards should be adopted. Of course they should! Obviously there will be a higher up-front cost, but it will translate into a very small increase in mortgage payments, and that increase should be offset or more than offset by a reduction in utility bills. And, incidentally, properly-insulated houses are much more comfortable to live in, and owners need not worry about the cost and disruption of possible future retrofitting as utility costs increase. Builders and developers may complain that they will have to raise prices, but it will be a level playing field affecting all of them equally and they should point to future cost savings rather than dwelling on initial costs.

But they are not the only people who should have a voice when city- or state-wide standards are being considered. Lower-standard insulation unavoidably translates into greater energy usage, and that in turn translate into greater greenhouse gas emissions (because Utah is not going to be a green energy state in the immediate future) and to "heat island" effects in urban areas, which drive up everyone's energy usage and have deleterious effects on people's health. Governments have a civic responsibility to take a holistic view when taking decisions on standards, and not to listen to the noisiest lobby that stands to profit from less rigorous requirements.

For these reasons I believe that the Uniform Building Code Commission should adopt the 2021 International Energy Conservation Code (IECC) code. I urge you to take this step, which will benefit all of us

Yours sincerely,

Richard Middleton

Sincerely,
Richard Middleton
331 N Main St
Salt Lake City, UT 84103

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Angela Wambach** <alw9214@rit.edu> Tue, Aug 9, 2022 at 8:35 PM
Reply-To: Angela Wambach <alw9214@rit.edu>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Angela Wambach
6822 S Greenfield Way
Salt Lake City, UT 84121




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Jim Yehle** <jry@xmission.com> Tue, Aug 9, 2022 at 9:13 PM
Reply-To: Jim Yehle <jry@xmission.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

(I won't be able to attend in person, since I need to work then. I'm a resident of SLC.)

Sincerely,
Jim Yehle
2807 E Sherwood Dr
Salt Lake City, UT 84108

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Carol Walters** <caroljwalters@gmail.com>
Reply-To: Carol Walters <caroljwalters@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Tue, Aug 9, 2022 at 9:36 PM

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Carol Walters
849 N 400 E
Springville, UT 84663

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Kenzi Joko** <kenzi.joko@gmail.com>
Reply-To: Kenzi Joko <kenzi.joko@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Tue, Aug 9, 2022 at 9:44 PM

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Kenzi Joko
2095 E Castle Hill Ave
Salt Lake City, UT 84121




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Suzanne Kanatsiz** <skanatsizstudio@gmail.com> Tue, Aug 9, 2022 at 9:54 PM
Reply-To: Suzanne Kanatsiz <skanatsizstudio@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

We need the IECC code to keep our state competitive and economically strong. As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Suzanne Kanatsiz
2147 Pierce Ave.
Ogden, UT 84401

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Angela Mastaloudis** <mastaloudis@ucsbalum.net> Tue, Aug 9, 2022 at 10:27 PM
Reply-To: Angela Mastaloudis <mastaloudis@ucsbalum.net>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Angela Mastaloudis
4865 S. Wander Ln
SLC, UT 84117




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**COURTNEY MARDEN** <ELFMAN_DANNY@hotmail.com>
Reply-To: COURTNEY MARDEN <ELFMAN_DANNY@hotmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Tue, Aug 9, 2022 at 10:34 PM

Dear Sharon Smalley,

As a Utah resident of 25 years and a nurse practitioner, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we must ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code. Thank you for your time.

Sincerely,
COURTNEY MARDEN
946 MURDOCK DR
AMERICAN FORK, UT 84003

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Elizabeth Watson** <e.f.watson135@gmail.com>
Reply-To: Elizabeth Watson <e.f.watson135@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Wed, Aug 10, 2022 at 1:51 AM

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Elizabeth Watson
1884 S 900 E
Salt Lake City, UT 84105

**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Hilary Coon** <hilarycoon42@gmail.com>
Reply-To: Hilary Coon <hilarycoon42@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Wed, Aug 10, 2022 at 7:18 AM

Dear Sharon Smalley,

I am in support of adopting the IECC. This building code makes logical sense. We have for far too long ignored the impact of policies that favor rampant growth at the expense of future health and well-being of our communities. Of course our new buildings should be as sustainable and efficient as possible. How do developers envision our communities in the future? T
he small up front cost of this will play out in the long term to benefit all of us. While developers may wish to maximize their immediate profits with no thought as to how this greed will affect our futures, this is an untenable position for those of us who have made this place our home.
I wish also to mention that statements to the effect that the small up-front cost in building efficiently will price lower income individuals out of new homes rings hollow. These costs are truly a tiny fraction of new homes. These statements falsely allow developers to appear that they care about the individuals in their communities. We have seen you and your greed, and we know otherwise. We are not fools.
I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Hilary Coon
2807 E Sherwood
Salt Lake, UT 84108




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Paul Gonzalez** <Officialmeisei@gmail.com> Thu, Aug 4, 2022 at 1:27 PM
Reply-To: Paul Gonzalez <Officialmeisei@gmail.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Paul Gonzalez
5997 S Scorpio Dr
Kearns, UT 84118




**Sharon Smalley <ssmalley@utah.gov>**

# August 10th Uniform Building Code Commission meeting public comment

1 message

**Jett Cruz** <hettcruz117@outlook.com> Wed, Aug 10, 2022 at 9:14 AM
Reply-To: Jett Cruz <hettcruz117@outlook.com>
To: Sharon Smalley <ssmalley@utah.gov>

Dear Sharon Smalley,

As a Utah resident, I am concerned about the ongoing environmental threats we will continue to face without preventative action. As our state continues to grow in population, we will need to ensure that future developments are being planned out with the most up-to-date sustainability and energy efficiency standards. Currently, the main contributor to our air quality issues in populated areas is linked to vehicle source emissions but is expected to change to area source emissions, including future buildings and commercial developments.

By adopting the 2021 International Energy Conservation Code (IECC) code, The Uniform Building Code Commission will take preventative measures to lower emissions from the building sector, reduce energy burdens for consumers, and lower yearly utility bills. I urge you to go forward with the adoption of the IECC building code.

Sincerely,
Jett Cruz
148 N 200 E
Pleasant Grove, UT 84062

# Title 15A. State Construction and Fire Codes Act

## Chapter 1 General Chapter

## Part 1

## General Provisions

General Note: The Home Builders Association thanks the UBCC and all the supporting advisory committees for their work and willingness to let us participate. We have some concerns with the decision-making paradigm driving the code adoption process in Utah. The state legislature has provided a clear message on how they think building codes should be handled. Some things are stated directly in statute, like cost analysis should be completed as part of all code changes, and amendments to residential sections of the commercial codes should be applied to the IRC. Others are less direct and come in the form of past amendment approvals.

In past years, the code commission has proposed specific code changes that have been debated and rejected at the legislative level. This code cycle, the electrical advisory committee and UBCC have opted to present the same changes that were recently rejected by the legislature. The HBA feels it is irresponsible to ignore past decisions without new and compelling evidence demonstrating a need for change.

The legislature has specifically asked that changes to the building code be accompanied with a cost analysis. The HBA feels this is a critical step, because some codes provide minimal benefit but have high costs, while others provide significant benefit with minimal cost. Especially now with skyrocketing housing costs, we need a process that weighs the benefit against the cost.

The UBCC has decided on a procedure that makes changes and then considers the cost breakdown as a separate task to be done after the fact. This year the commission ran out of time and that task has not been done. The HBA believes the costs should be done in conjunction with the amendment so they can add content to the discussion. This year's conversations included energy conservation, impacts to air quality, improvement for future generations, reductions of utility fees, safety and more, but none of these items were tempered with actual costs of the proposals.

The HBA authored a number of amendments. These amendments included cost impact analysis that were in large part ignored and changes to the HBA's proposed amendments were passed with no consideration of cost impacts. Some discussions included a statement that the Pacific Northwest National Laboratory (PNNL) conducted a study demonstrating that full adoption of the 2021 energy code has a positive impact for homeowners. This study causes us some concern because the legislature has asked for more detail so we can assess specific areas that are most beneficial and avoid high expense in low result areas. The HBA also questions the validity of the PNNL findings since they are the research arm for the Department of Energy, and together they function as an advocacy group rather than non-bias researchers. It appears they have a predetermined agenda with research designed and conducted to support the agenda rather than

data driven outcomes. It is the HBA's position that without proper cost analysis and full discussion of impacts to homebuyers the process is incomplete and should not move forward.

The Home Builders Association agrees with the international Code Council and the Utah State Legislature that building codes should be a minimum standard. The proposed energy standards are well above the minimum standard and move housing out of reach for many people. According to a study conducted by the University of Utah, more than half of Utah's households are unable to afford the median single-family home. Adding thousands of dollars in up front costs for items that will take hundreds of years to pay back and eliminate incentive programs is not moving in the right direction.

The Home Builders Association believes as a state and as an industry we should be constantly moving forward. We should work tirelessly to find effective strategies to lower costs and help people find a path to purchase safe, sturdy and efficient homes at a reasonable price. It is our belief that additional cost saving amendments need to be considered to avoid moving backwards.

**15A-1-101 Titles.**
(1) This title is known as the "State Construction and Fire Codes Act."
(2) This chapter is known as "General Chapter."

Enacted by Chapter 14, 2011 General Session

**15A-1-102 Definitions.**
As used in this title:
(1) "Board" means the Utah Fire Prevention Board created in Section 53-7-203.
(2) "Division" means the Division of Occupational and Professional Licensing created in Section 58-1-103, except as provided in:
(a) Part 4, State Fire Code Administration Act; and
(b) Chapter 5, State Fire Code Act.
(3) "State Construction Code" means the State Construction Code adopted by:
(a)Chapter 2, Adoption of State Construction Code;
(b)Chapter 2a, Tall Wood Buildings of Mass Timber Construction Incorporated as Part of State Construction Code;
(c)Chapter 3, Statewide Amendments Incorporated as Part of State Construction Code;
(d)Chapter 4, Local Amendments Incorporated as Part of State Construction Code; and
(e)Chapter 6, Additional Construction Requirements.
(4) "State Fire Code" means the State Fire Code adopted by Chapter 5, State Fire Code Act.
(5) "Utah Code" means the Utah Code Annotated (1953), as amended.

Amended by Chapter 43, 2020 General Session

**15A-1-103 Formatting powers.**
(1) As part of the division's compliance with Section 15A-1-205, the division may modify the format of the State Construction Code to provide accessibility to users of the State Construction Code.

Enacted by Chapter 14, 2011 General Session

**15A-3-102 Amendments to Chapters 1 through 3 of IBC.**

In IBC section 202 **Approved Agency.** An established and recognized agency that is regularly engaged in conducting tests, furnishing inspection services, or furnishing product certification, ~~and~~ or has been approved by the building official.

The building industry is rapidly changing with new products and assembles becoming available all the time. The building official is an expert in evaluating installed products to insure they meet the specifications of a manufacture or design professional. It would be unfair to expect a building official to become experts in all aspects of design. Engineers are highly educated and heavily insured and the best equipped to assume these responsibilities. The construction process runs smoothly when each player performs their work flawlessly and relies on others to do the same.

**Approved Sources**. An independent person, firm or corporation ~~approved by the building official,~~ who is competent and experienced in the application of engineering principles and materials, methods, or systems analyses

Same as approved agency

(1) IBC, Section 106, is deleted.

(2) In IBC, Section 110, a new section is added as follows: " ~~110.3.5.1~~ 110.3.13, Weather-resistant exterior wall envelope. An inspection shall be made of the weather-resistant exterior wall envelope as required by Section 1404.2, and flashing as required by Section 1404.4 to prevent water from entering the weather-resistive barrier."

(3)IBC, Section 115.1, is deleted and replaced with the following: "115.1 Authority. Whenever the building official finds any work regulated by this code being performed in a manner either contrary to the provisions of this code or other pertinent laws or ordinances or is dangerous or unsafe, the building official is authorized to stop work."

(4) In IBC, Section 202, the following definition is added for Ambulatory Surgical Center: "AMBULATORY SURGICAL CENTER. A building or portion of a building licensed by the Utah Department of Health and Human Services where procedures are performed that may render patients incapable of self preservation where care is less than 24 hours. See Utah Administrative Code R432-13."

(5) In IBC, Section 202, the following definition is added for Assisted Living Facility, Residential Treatment and Support: "ASSISTED LIVING FACILITY, RESIDENTIAL TREATMENT AND SUPPORT: ~~See Residential Treatment/Support Assisted Living Facility, Type I Assisted Living Facility, and Type II Assisted Living Facility.~~ "A residential facility that provides a group living environment for four or more residents licensed by the Utah Department of Health and Human Services and provides a protected living arrangement for ambulatory, non-restrained persons who are capable of achieving mobility sufficient to exit the facility without the physical assistance of another person.

ASSISTED LIVING FACILITY, TYPE I. A residential facility licensed by the Utah Department of Health and Human Services that provides a protected living arrangement, assistance with activities of daily living and social care to two or more ambulatory, non-restrained person who are capable of mobility sufficient to exit the facility without the assistance of another person.

ASSISTED LIVING FACILITY, TYPE II. A residential facility licensed by the Utah Department of Health and Human Services that provides an array of coordinated supportive personal and health care services to two or more residents who are:

(i) Physically disabled but able to direct his or her own care; or

429.5.1 Heating equipment in spaces occupied by children shall be provided with partitions, screens, or other means to protect children from hot surfaces and open flames.

429.5.2 A fire escape plan shall be completed and posted in a conspicuous place. All staff shall be trained on the fire escape plan and procedure."

~~(8)~~(12)In IBC, Section 504.4, a new section is added as follows: "504.4.1 Group I-2 Assisted Living Facilities. Notwithstanding the allowable number of stories permitted by Table 504.4 Group I-2 Assisted Living Facilities of type VA, construction shall be allowed on each level of a two-story building when all of the following apply:

1. The total combined area of both stories does not exceed the total allowable area for a one story, above grade plane building equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
2. All other provisions that apply in Section 407 have been provided."

~~(9)~~(13)A new IBC, Section 504.5, is added as follows: "504.5 Group 1-2 Secured areas in Assisted Living Facilities. In Type IIIB, IV, and V construction, all areas for the use and care of residents required to be secured shall be located on the level of exit discharge with door operations in compliance with Section ~~1010.1.9.7, as amended~~ 1010.2.14."

Amended by Chapter 243, 2020 General Session
Amended by Chapter 441, 2020 General Session

**15A-3-104 Amendments to Chapters 7 through 9 of IBC.**

~~(1) In IBC, Section 704.13.2, the following sentence is added to the end of the section: "An individual spraying fire-resistant materials may obtain a certificate that demonstrates that the individual has undergone training on how to spray fire-resistant materials to manufacturer's specifications."~~

**703.5 Marking and Identification.** Where there is an accessible concealed floor, floor-ceiling or attic space, fire walls fire barriers, fire partitions, smoke barriers and smoke partitions or any other wall require to have protected opening on penetration shall be effectively and permanently identified ~~with signs or stenciling~~ in the concealed space.

The intent of this section is to provide notice to future workers that may need to penetrate a fire wall. The requirement for a sign or stenciling does nothing more than add cost. Having them permanently and effectively identified meets the intent of the code.

~~(2)~~(1)IBC, Section (F) 902.1, is deleted and replaced with the following: "(F) 902.1 Pump and riser room size. Fire pump rooms and automatic sprinkler system riser rooms shall be designed with adequate space for all installed equipment necessary for the installation and to provide sufficient working ~~space~~ room around the stationary equipment. Clearances around equipment to elements of permanent construction, including other installed equipment and appliances, shall be sufficient to allow inspection, service, repair or replacement without removing such elements of permanent construction or disabling the function of a required fire-resistance-rated assembly ~~in accordance with manufacturer requirements~~ and not less than the following minimum elements:

~~902.1.5~~ 902.1.1 A minimum clear and unobstructed distance of 12-inches shall be provided from the installed equipment to the elements of permanent construction.

~~902.1.6~~ 902.1.2 A minimum clear and unobstructed distance of 12-inches shall be provided between all other installed equipment and appliances.

(2) In IBC, Chapter 35, the referenced standard ICCA117.1-09, Section 606.2, Exception 1 is modified to include the following sentence at the end of the exception:
"The minimum clear floor space shall be centered on the sink assembly."

Amended by Chapter 199, 2021 General Session

## Part 2
## Statewide Amendments to International Residential Code

**15A-3-201 General provision.**

(1) The amendments in this part are adopted as amendments to the IRC to be applicable statewide.

(2) The statewide amendments to the following which may be applied to detached one- and two family dwellings and multiple single-family dwellings shall be applicable to the corresponding provisions of the IRC:

(a) IBC under Part 1, Statewide Amendments to International Building Code;
(b) IPC under Part 3, Statewide Amendments to International Plumbing Code;
(c) IMC under Part 4, Statewide Amendments to International Mechanical Code;
(d) IFGC under Part 5, Statewide Amendments to International Fuel Gas Code;
(e) NEC under Part 6, Statewide Amendments to National Electrical Code; and
(f) IECC under Part 7, Statewide Amendments to International Energy Conservation Code.

Amended by Chapter 189, 2014 General Session

**15A-3-202 Amendments to Chapters 1 through 5 of IRC.**

(1) In IRC, Section R101.2, the words "where provided with an automatic sprinkler system complying with Section P2904" are deleted.

~~(1)~~(2)In IRC, Section R102, a new Section R102.7.2 is added as follows: "R102.7.2 Physical change for bedroom window egress. A structure whose egress window in an existing bedroom is smaller than required by this code, and that complied with the construction code in effect at the time that the bedroom was finished, is not required to undergo a physical change to conform to this code if the change would compromise the structural integrity of the structure or could not be completed in accordance with other applicable requirements of this code, including setback and window well requirements."

(3) In IRC, Section R105.2 number 10. Is deleted and replaced with the following: 10. Decks that are not more than 30 inches (762 mm) above grade at any point and not requiring guardrails, that do not serve the exit door required by Section R311.4..

~~(2)~~(4)In IRC, Section R108.3, the following sentence is added at the end of the section: "The building official shall not request proprietary information."

~~(3)~~(5)In IRC, Section 109:

(a) A new IRC, Section ~~109.1.5~~ R109.1.5.2, is added as follows: "R109.1.5.2 Weather-resistant exterior wall envelope inspections. An inspection shall be made of the weather-resistant exterior wall envelope as required by Section R703.1 and flashings as required by Section ~~R703.8~~ R703.4 to prevent water from entering the weather-resistive barrier."

(b) In IRC109.1.5 Strike this section

The code details specific required inspections, followed by this section, giving the building official authority to add any inspection they wish. This amendment would remove that authority. It will standardize inspections across the state and approve new inspection requirements through the code adoption process so all stakeholders can participate in the discussion to ensure the inspections are needed and bring value to homeowners. Unnecessary inspections add cost, increase inspector's workload and delay projects. All inspections should be carefully evaluated before implementation.

~~(b)The remaining sections are renumbered as follows: R109.1.6 Other inspections; R109.1.6.1 Fire- and smoke-resistance-rated construction inspection; R109.1.6.2 Reinforced masonry, insulating concrete form (ICF) and conventionally formed concrete wall inspection; and R109.1.7 Final inspection.~~

~~(4)IRC, Section R114.1, is deleted and replaced with the following: "R114.1 Notice to owner. Upon notice from the building official that work on any building or structure is being prosecuted contrary to the provisions of this code or other pertinent laws or ordinances or in an unsafe and dangerous manner, such work shall be immediately stopped. The stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's agent or to the person doing the work; and shall state the conditions under which work will be permitted to resume."~~

In IRC section R202, **Approved Agency.** An established and recognized agency that is regularly engaged in conducting tests, furnishing inspection services, or furnishing product certification, ~~and~~ or has been approved by the building official.

(Same statement as IBC 202)-The building industry is rapidly changing with new products and assembles becoming available all the time. The building official is an expert in evaluating installed products to insure they meet the specifications of a manufacture or design professional. It would be unfair to expect a building official to become an expert in all aspects of design. Engineers are highly educated and heavily insured and the best equipped to assume these responsibilities. The construction process runs smoothly when each player performs there work flawlessly and relies on others to do the same.

**Approved Sources**. An independent person, firm or corporation ~~approved by the building official,~~ who is competent and experienced in the application of engineering principles and materials, methods, or systems analyses

Same as approved agency,

~~(5)~~(6) In IRC, Section R202, the following definition is added: "ACCESSORY DWELLING UNIT: A habitable living unit created within the existing footprint of a primary owner-occupied single-family dwelling."

~~(6)~~(7) In IRC, Section R202, the following definition is added: "CERTIFIED BACKFLOW PREVENTER ASSEMBLY TESTER: A person who has shown competence to test Backflow prevention assemblies to the satisfaction of the authority having jurisdiction under Utah Code, Subsection 19-4-104(4)."

~~(7)~~(8) In IRC, Section R202, the definition of "Cross Connection" is deleted and replaced with the following: "CROSS CONNECTION. Any physical connection or potential connection or arrangement between two otherwise separate piping systems, one of which contains potable water and the other either water of unknown or questionable safety or steam, gas, or

anchor bolts may be placed with a minimum of two bolts per plate section located not less than 4 inches (102 mm) from each end of each plate section at interior bearing walls, interior braced wall lines, and at all exterior walls."

~~(32)~~(30) In IRC, Section R404.1, a new exception is added as follows: "Exception: As an alternative to complying with Sections R404.1 through R404.1.5.3, concrete and masonry foundation walls may be designed in accordance with IBC Sections 1807.1.5 and 1807.1.6 as amended in Section 1807.1.6.4 and Table 1807.1.6.4 under these rules."

~~(33)~~(31) In IRC, Section R405.1, a ~~new~~ second exception is added as follows: "Exception: When a geotechnical report has been provided for the property, a drainage system is not required unless the drainage system is required as a condition of the geotechnical report. The ~~geological~~ geotechnical report shall make a recommendation regarding a drainage system."

(32) In IRC, Section R506.2.3, the words "10-mil (0.010 inch; 0.25 mm) are deleted and replaced with 6-mil (0.006 inch; .152 mm) and the words "conforming to ASTM E17545 Class A requirements" are deleted.

In IRC, section R609.4.1 strike the section

Garage door manufacturers provide and apply this labeling. This section of code is unnecessary, providing no new value, but giving one more insignificant item for an inspector to spend time on during a final and one more item that will hold up closing and move in dates for homeowners.

Amended by Chapter 28, 2022General Session

**15A-3-203 Amendments to Chapters 6 through 15 of IRC.**

(1) In IRC, Section N1101.5 (R103.2), all words after the words "herein governed." are deleted and replaced with the following: "Construction documents required for building permits shall include ~~all documentation required to be submitted in order to issue a building permit~~ only those items specified in 10-5-132(8) of the state building code."

(2) In IRC, Section N1101.12 (R303.3), all wording after the first sentence is deleted.

(3) In IRC, Section N1101.13 (R401.2), add a second Exception as follows:

2. "Exception: A project complies if the project demonstrates compliance, using the software RES Check 2012 Utah Energy Conservation Code, of:

~~(a) on or after January 1, 2017, and before January 1, 2019, "3 percent better than code";~~

~~(b)~~(a) (on or ~~after January 1, 2019, and before January 1, 2021, "4 percent better than code"; and~~ after January 1, 2021, "5 percent better than code."

~~(b) on or after July 1, 2023, "8 percent better than code."~~

~~(c) on or after January 1, 2025, "10 percent better than code, and"~~

~~(d) on or after January 1, 2027, "12 percent better than code""~~

In the past the state has tried implementing automatic efficiency increases. This approach has been difficult at best and highly ineffective in many spots. This approach demands extensive training to get the tens of thousands of inspectors and contractors trained to meet constantly changing expectations adding cost and confusion. It also gradually erodes above code incentives. There is no cost analysis for this amendment, so costs to consumers and the cost to implement is completely unknown. Actual cost information is required by law and critical to make sound decisions.

In IRC and IEEC sections N1101.13.5 R (401.13.5) strike the section

This section of the code does not meet the intent of a minimum code and adds significant cost. Depending on the additional strategy, type of fuel, and climate zone, the cost could be as high as $8,196 and pay back time as long as 240 years. A full cost break down of each additional item has been provided with the HBA's original amendment proposal.

In IRC and IEEC sections N1101.14 and (R401.3) In the first sentence delete the word Shall and replace with May

In N1101.14 paragraph 7 and (R 401.14) paragraph 7. Delete the words "and the compliance path used".

There is no justification or reason for requiring this information to be tracked and permanently affixed in order to deliver a home that has been inspected and certified to meet the current building codes, and provide required levels of safety, efficiency, and habitability. Preparing this document will take time and produce a cost. Inspecting it will also take time and produce a cost. No cost break down has been provided so it is impossible to weigh the value verses the cost. This information is required by law, and critical to make sound decisions.

(4) In IRC, Table N1102.1.2 (R402.1.2), in the column titled CEILING U-FACTOR, the following changes are made:

(a) in the row for climate zone 3, "0.026" is deleted and replaced with "0.030".

(b) in the row for climate zone 5, "0.024" is deleted and replaced with "0.026".

(5) In IRC, Table N1102.1.2 (R402.1.2), in the column titled WOOD FRAME WALL U-FACTOR, the following changes are made:

(a)in the row for climate zone 3, .060 is deleted and replaced with.084

(b) in the rows for climate zones 5 and 6 .045 is deleted and replaced with.060,

(6) In IRC, Table N1102.1.2 and (R 402.1.2), in the column titled BASEMENT WALL U_FACTOR, in the row for climante zone 5, 0.050 is deleted and replaced with .059

The cost benefit of the proposed code is not reasonable to force these changes on to Utah home buyers. Depending on climate zone and specific section of the table, the costs associated with these codes are as high as $4970 and a simple pay back as long as 122 years. A full breakdown of the costs is included in the HBA's original amendment proposal.

~~(4)~~(5)In IRC, Table N1102.~~2~~ 3(R402.1.~~23~~), in the column titled MASS WALL R-VALUE, a new footnote j is added as follows: "j. Log walls complying with ICC400 and with a minimum average wall thickness of 5 inches or greater shall be permitted in Zones 5 through 8 when overall window glazing has a .31 U-factor or lower, minimum heating equipment efficiency is 90 AFUE (gas) or 84 AFUE (oil), and all other component requirements are met."

(6) In IRC, Table N1102.1.3 (R402.1.3), the following changes are made:

(a) In the column titled CEILING R –VALUE, in the row for climate zone 3, the "49" is deleted and replaced with "38" and in the row for climate zone 5 and the row for climate zone 6, the "60" is deleted and replaced with "49".

(c) In the column titled WOOD FRAME WALL R-VALUE The following changes are made:

(1) in the row for climate zone 3, "20 + 5 or 13 + 5 10ci 0 +15" is deleted and replace with "13"

(2) In the row for climant zone 5 and the row fore climante xone 6, 20 + 5ci or 13 + 10ci is deleted and Replace with ~~20 or 13+5 10ci~~ "20 or 13+5ci"

(c ) In the column titled BASEMENT WALL R_VALUE, in the row for climate zone 5, 15ci or 19 or 13+5ci is deleted and replace with "10ci or 13"

(c) In the column titled SLAB R-VALUE & DEPTH. in the row for climate zone 3, the "10ci, 2 ft" is deleted and replaced with "10ci, 1 ft" and in the row for climate zone 5 the "10ci, 4 ft" is deleted and replaced with "10ci. 2 ft".

In climate zone 5 it will increase the cost of a home by $4,970 with a simple pay back time of 78 years. Climate zone 6 is a little less, but in both cases, this is not a reasonable requirement to place on homeowners There is not a full cost analysis for this amendment so the cost to consumers, and the cost to implement, is completely unknown. This information is required by law, and critical to make sound decisions.

(7) In IRC, Section N1102.1.5 (R402.1.5) the following is added at the end: Compliance with this section may be shown by demonstrating a result, using the software RESCheck 2012 Utah Energy Conservation Code of:

(a) ~~after January 1, 2021~~, "5 percent better than code." Which shall satisfy the requirements of N1102.1,N1102.2 and N1102.3

~~(b) on or after July 1, 2023, "8 percent better than code."~~

~~(c) on or after January 1, 2025, "10 percent better than code, and"~~

~~(d) on or after January 1, 2027, "12 percent better than code""~~

In the past, the state has tried implementing automatic efficiency increases. This approach has been difficult at best and highly ineffective in many spots. This approach demands extensive training to get the tens of thousands of inspectors and contractors trained to meet constantly changing expectations adding cost and confusion. It also gradually erodes above code incentives used to encourage homeowners to voluntarily move to higher efficiency levels. There is no cost analysis for this amendment so the cost to consumers, and the cost to implement, is completely unknown. This information is required by law, and critical to make sound decisions.

(8) In IRC, Section N1102.2.1 (R402.2.1), in the last sentence, the words "and the Total UA alternative in Section N1102.1.5" are deleted.

(9) In IRC , Section N1102.2.9.1 (R402.2.9.1), the following is added at the end, "or lowered from top of slab 4 inches when a 4 inch thermal break material, such as but not limited to felt or asphalt impregnated fiber board, with a minimum thickness of ¼ inch is installed at the upper 4" of slab."

(10) In IRC, Section N1102.3.3 (R402.3.3), the last sentence is deleted.

(11) In IRC Section N1102.3.4 (R402.3.4), the last sentence is deleted.

(5) In IRC, Section N1102.4.1 (R402.4.1), in the first sentence, the words "or N1102.4.1.2 are inserted following N1102.4.1.1"

~~(6)~~(12)In IRC, Section N1102.4.1.1 (R402.4.1.1), the last sentence is deleted and replace with the following: "~~Where required by the code official,~~ the builder shall certify compliance with criteria indicated in Table N1102.4.1.1 (R402.4.1.1) ~~for items which are not readily visible during regularly scheduled inspections by submitting photographs or third party inspections.~~

Building contractors are licensed professionals with heavy penalties for unprofessional or unlawful acts. They are trained and competent to perform the simple task detailed in the tables mentioned

and face penalties if they fail. The items pose no life safety risks to home buyers. Additional inspections or record keeping, and explanations to building inspectors has a financial impact. There is no cost analysis for this amendment so the cost to consumers, and the cost to implement, is completely unknown. This information is required by law, and critical to make sound decisions.

(13) In IRC, Table N1102.4.1.1 (R402.4.1.1), on the row for "Rim joists" in the column for "AIR BARRIER CRITERIA", the word "exterior" is deleted in the first sentence."

(14) In IRC, Table N1102.4.1.1 (R402.4.1.1), on the row for "Electrical/phone box on exterior wall" in the column for "AIR BARRIER CRITERIA", the last sentence is deleted and replaced with the following sentence: "Alternatively, closed cell foam, caulking, or gaskets shall be used or air seal boxes shall be installed."

~~(7)~~(15) In IRC, Section N1102.4.1.2 (R402.4.1.2), the following changes are made:

(a) In the first sentence:

(i) "The building or dwelling unit" is deleted and replaced with "A single-family dwelling";

(ii) after January 1, 2019, replace the word "five" with "3.5"; after July 1, 2023, replace 3.5 with 3.25 and after July 1, 2025, replace 3.25 with 3.0 and

(iii) ~~the words "in Climate Zones 1 and 2, and three air changes per hour in Climate Zones 3 through 8" are deleted.~~

(b) The following sentence is inserted after the first sentence: "A multi-family dwelling and townhouse shall be tested and verified as having an air leakage rate of not exceeding five air changes per hour."

(c) In the ~~third~~ fourth sentence, the word "third" is deleted.

(d) The following sentence is inserted after the ~~third~~ fourth sentence: "The following parties shall be approved to conduct testing: Parties certified by BPI or RESNET, or licensed contractors who have completed training provided by Blower Door Test equipment manufacturers or other comparable training."

(e) In IRC, Section N1102.4.1.2 (R402.4.1.2), ~~the word "third" is deleted and~~ in the exception, the words, "Where required by the code official, an approved third party independent from the installer shall inspect both air barrier and insulation installation criteria" are deleted.

(f) The last sentence is deleted.

(16) In IRC, Section N1102.4.1.3 (R402.4.1.3), in the first sentence, the words "5.0 air changes per hour in Climate Zones 0,1and 2, and 3.0 air changes per hour in Climate zones 3 through 8," are deleted and replaced with "4.0 air changes per hour.". ~~the following: N1102.4.1.3 (R402.4.1.3) Leakage rate. Where complying with Section N1101.13.1 (R401.2.1), the building or dwelling unit shall have an air leakage rate not exceeding 4.0 air changes per hour after July 1, 2023 not exceeding 3.25 air changes per hour and after July 1, 2025 not exceeding 3.0 air changes per hour when tested in accordance with Section N1102.4.1.2 (R402.4.1.2).~~ Town homes shall have an air leakage rate not exceeding 5.0 air changes per hour when tested in accordance with Section N 1102.4.1.2 (R402.4.1.2).

In the past the state has tried implementing automatic efficiency increases. This approach has been difficult at best and highly ineffective in many spots. This approach demands extensive training to get the tens of thousands of inspectors and contractors trained to meet constantly changing expectations adding cost and confusion. It also gradually erodes above code incentives used to encourage homeowners to voluntarily move to higher efficiency levels. There is no cost

analysis for this amendment so the cost to consumers, and the cost to implement, is completely unknown. This information is critical to make sound decisions. If this amendment stands and requires all homes to meet or exceed 3 air changes per hour, it will certainly have a significant cost. There is no cost analysis for this amendment so the cost to consumers, and the cost to implement, is completely unknown. This information is required by law, and critical to make sound decisions.

(17) In IRC, Section N1102.4.6 (R402.4.6) the first sentence and second sentences are deleted and the words "where air sealed boxes are used to limit air leakage between conditioned and unconditioned spaces, they shall comply with the following"

(18) IRC, Section N1103.3.1 (R403.3.1) is deleted and replaced with the following: "R1103.3.1 (R403.3.1) Ducts located outside conditioned space. Supply and return ducts in attics shall be insulated to a minimum of R-8 where 3 inches (76.2 mm) in diameter and greater and R-6 where less than 3 inches (76.2 mm) in diameter. Supply and return ducts in other portions of the building shall be insulated to a minimum of R-6 where 3 inches (76.2 mm) in diameter or greater and R-4.2 where less than 3 inches (76.2 mm) in diameter. Exception: Ducts or portions there located completely inside the building thermal envelope.

~~(8)~~(19)In IRC, Section N1103.3.~~3~~5(R403.3.~~3~~5):

(a) the second exception for duct air leakage testing is deleted and replaced with

(b) the exception for duct air leakage is replaced:

(g) ~~on or after January 1, 2017, and before January 1, 2019, with the following: "Exception: The duct air leakage test is not required for systems with all air handlers and at least 65% of all ducts (measured by length) located entirely within the building thermal envelope.";~~

(h) ~~on or after January 1, 2019, and before January 1, 2021, with the following: "Exception: The duct air leakage test is not required for systems with all air handlers and at least 75% of all ducts (measured by length) located entirely within the building thermal envelope.";~~ ~~and~~

(i) ~~on or after January 1, 2021, with the following:~~ "Exception: The duct air leakage test is not required for systems with all air handlers and at least 80% of all ducts (measured by length) located entirely within the building thermal envelope."The following parties shall be approved to conduct testing:

~~(9)~~(20)In IRC, Section N1103.3.~~3~~5 (R403.3.~~3~~5), the following is added after the exception: "The following parties shall be approved to conduct testing: Parties certified by BPI or RESNET, or licensed contractors who have completed either training provided by Duct Test equipment manufacturers or other comparable training."

(10)In IRC, Section N1103.3.4 (R403.3.4):

(a) in Subsection 1, the number 4 is changed to 8, the number 113.3 is changed to 170, the number 3 is changed to 6, the number 85 is changed to 114.6; and

(b) in Subsection 2:

~~(i) on or after January 1, 2017, and before January 1, 2019, the number 4 is changed to 8 and the number 113.3 is changed to 226.5;~~

~~(ii) on or after January 1, 2019, and before January 1, 2021, the number 4 is changed to 7 and the number 113.3 is changed to 198.2; and~~

~~(iii)~~ ~~(i) on or after January 1, 2021,~~ the number 4 is changed to 6 and the number 113.3 is changed to 169.9.

(b) in subsection 3 at the end of the first sentence add the words "a duct leakage test is not required" and delete the last sentence.

~~(11)~~(21)In IRC, Section N1103.3.~~5~~7 (R403.3.~~5~~7), the words "or plenums" are deleted.

(22) In IRC, Section N1103.5.1.1 (R403.5.1.1), the words "Where installed" are added at the beginning of the paragraph.

In IRC and IEEC sections N1103.3.6 (R403.3.6) in subsection 1 delete 4.0 and replace with "8.0", delete 113.3 and replace with "70" and delete 3.0 and replace with "6.0" In subsecton 2 delete 4.0 and replace with "6.0" subsection 3 at the end of the first sentence add the words "a duct leakage test is not required." And delete the last sentence.

~~(12)~~(23)In IRC, Section N1103.5.~~3~~2 (R403.5.~~3~~2), Subsection 5 is deleted and Subsections 6 and 7 are renumbered.

~~(13)~~(24)IRC, Section N1103.6.~~1~~2 (R403.6.~~1~~2), is deleted and replaced with the following:

"N1103.6.~~1~~2 (R403.6.~~1~~2) Whole-house mechanical ventilation system fan efficacy. Fans used to provide whole-house mechanical ventilation shall meet the efficacy requirements of Table N1103.6.~~1~~ 2(R403.6.~~1~~).

Exception: Where an air handler that is integral to tested and listed HVAC equipment is used to provide whole-house mechanical ventilation, the air handler shall be powered by an electronically commutated motor."

~~(14)~~(25)In IRC, Section N1103.6.~~1~~2 (R403.6.~~1~~2), the table is deleted and replaced with the following:

TABLE N1103.6.~~1~~2 (R403.6.~~1~~2),
MECHANICAL VENTILATION SYSTEM FAN EFFICACY

| FAN LOCATION | AIR FLOW RATE MINIMUM (CFM) | MINIMUM EFFICACY (CFM/WATT) | AIR FLOW RATE MAXIMUM (CFM) |
|---|---|---|---|
| HRV or ERV | Any | 1.2 cfm/watt | Any |
| Range hoods | Any | 2.8 cfm/watt | Any |
| In-line fan | Any | 2.8 cfm/watt | Any |
| Bathroom, utility room | 10 | 1.4 cfm/watt | <90 |
| Bathroom, utility room | 90 | 2.8 cfm/watt | Any |

(26) IRC, Section N1103.6.3 (R403.6.3) is deleted.

In IRC section N1103.7 and (R403.7) the word approved is deleted in the first sentence and the following is added after45 the word methodologies "complying with N1103.7.1"

In IRC and IEEC sections 1104.1 and (R404.1) In the first sentence delete the word "All" and replace with "not less than 75 percent of the lamps in"

For cosmetic reasons, some fixtures are equipped with lower efficiency light bulbs. Setting the standard at 75% ensures the overwhelming majority of lights are energy efficient while preserving the rights of homeowners to introduce design elements into homes. There is no cost analysis for this amendment so the cost to consumers, and the cost to implement, is completely unknown. This information is required by law, and critical to make sound decisions.

IRC section N1104.1.1 (R404.1.1) is deleted

Low-rise residential buildings should not be required to comply with complex lighting provisions of the commercial energy code that address a wide range of occupancies covered by the I-Codes. The IRC is a standalone code that was always intended to function independently of other I-codes. IRC Section R404.3 addresses Exterior Lighting Controls. There is no cost analysis for this amendment so the cost to consumers, and the cost to implement, is completely unknown. This information is required by law, and critical to make sound decisions.

(27) IRC, Section N1104.2 (R404.2) is deleted.

(28) IRC, Section N1104.3 (R404.3 is deleted.

(29) In IRC. Section N1105.2 (R405.2) In the second sentence of number 3 delete the words "approved by the code official", and the words "where applicable and readily available" are added at the end of number 3.

The code official is not an expert on annual energy cost providers. This code places an unfair burden on already over tasked inspectors. "Standard reference design" is well defined by the code and does not need additional scrutiny and time commitment from the building official.

(30) IRC, Section N1106.3 (R406.3) is deleted and replaced with the following:

N1106.3 (R406.3) Building thermal envelope. The proposed total building thermal envelope UA, which is the sum of U-factor times assembly area, shall be less than or equal to the building thermal envelope UA using the prescriptive U-factor from Table N1102.1.2 (R402.1.2) multiplied by 1.15 in accordance with Equation 11 -4. The area-weighted maximum fenestrations SHGC permitted in Climate Zones 0 through 3 shall be 0.30.

$UA_{Proposed\ design} = 1.15 \times UA_{Prescriptive\ reference\ design}$ (Equation 11-4)

(31) IRC, Section N1106.4 (R406.4) is deleted and replaced with the following:

N1106.4 (R406.4) Energy Rating Index. The energy Rating Index (ERI) shall be determined in accordance with RESNET/ICC 301 except that the ERI shall be permitted to be calculated using the minimum total air exchange rate for the rated home ($Q_{tot}$) and for the index adjustment factor in accordance with Equation 11.5.

CFM= (0.01 x total square foot area of house) + [7.5 x (number of bedrooms + 1)]

(Equation 11-5)

Energy used to recharge or refuel a vehicle used for transportation on roads that are not on the building site shall not be included in the ERI reference design or the rated design. For compliance purposes, any reduction in energy use of the rated design associated with on-site renewable energy shall not exceed 15 percent of the total energy use.

~~(15)~~(32)In IRC, Section N1106.45 (R406.45), the table is deleted and replaced with the following:

TABLE N1106.4 (R406.4)

MAXIMUM ENERGY RATING INDEX

| CLIMATE ZONE | ENERGY RATING INDEX |
|---|---|
| 3 | ~~65~~57 |
| 5 | ~~69~~61 |
| 6 | ~~68~~61 |

~~(16) In IRC, Section N1103.7 the word "approved" is deleted in the first sentence and the following is added after the word methodologies "complying with N1103.7.1"~~

comply with UAC R317-3, Design Requirements for Wastewater Collection, Treatment, and Disposal Systems and UAC R317-4, Onsite Wastewater Systems."

~~(16)~~(22)In IRC, Section P~~3103.6~~ 3101.4, the following sentence is added at the end of the paragraph: "Vents extending through the wall shall terminate not less than 12 inches from the wall with an elbow pointing downward."

~~(17)~~(23)In IRC, Section P3104.4, the following sentence is added at the end of the paragraph: "Horizontal dry vents below the flood level rim shall be permitted for floor drain and floor sink installations when installed below grade in accordance with Chapter 30, and Sections P3104.2 and P3104.3. A wall cleanout shall be provided in the vertical vent."

Amended by Chapter 28, 2022 General Session

**15A-3-206 Amendments to Chapters 36, 37, 39, and 44 and Appendix F of IRC.**

**All amendment to the Residential section of the 2020 NEC will be properly placed in the IRC**
The legislature has already ruled that these amendments are appropriate for residential construction in Utah and expect the language to transfer from NEC to IRC..

(1) In IRC, Section E3601.6.2, a new exception is added as follows: "Exception: An occupant of an accessory dwelling unit is not required to have access to the disconnect serving the dwelling unit in which they reside."

(2) In IRC 3606.5, 3606,5,1, 3605.2, 3605.3 these sections are deleted.
This same amendment was put into the NEC during the last adoption cycle. The amendment was debated and deliberately put in place. It is confusing to have competing residential codes and a public policy decision has already been made.

~~(2)In IRC, Section E3705.4.5, the following words are added after the word "assemblies": "with ungrounded conductors 10 AWG and smaller".~~

(2) IRC, Section E3901.4.2 is deleted and replaced with the following:
"E3901.4.2 Island and Peninsular Countertops and Work Spaces. Receptacle outlets, if installed to serve an island or peninsular countertop or work surface, shall be installed in accordance with E3901.4.3~~. If a receptacle outlet is not provided to serve an island or peninsular countertop or work surface, provisions shall be provided at the island or peninsula for future addition of a receptacle outlet to serve the island or peninsular countertop or work surface."~~

This section of the amendment would require a junction box of some sort be installed in the island or peninsular cabinetry just in case the homeowner wants to add plugs at a later date. The building code is not a tool designed to anticipate future homeowner decisions. This is an unnecessary expense.

(3) IRC. Section E3901.4.3 is deleted and replaced with the following: "E3901.4.3 Receptacle Outlet Location. Receptacle outlets shall be located in one or more of the following:
1. On or above, but not more than 20 inches (508 mm) above a countertop or work surface.
2. In a countertop using receptacle outlet assemblies listed for use in countertops.
3. In a work surface using receptacle outlet assemblies listed for use in work surface or listed for use in countertops.
4. Under the countertop not more than 14" from the bottom leading edge of the countertop.

This amendment makes allowance for reasonably placed outlets

Receptacle outlets rendered not readily accessible by appliances fastened in place, appliance garages, sinks, or range tops as covered in the exception to Section E3901.4.1 or appliances occupying assigned spaces shall not be considered as these required outlets.

Exception: In dwelling units designed to be accessible to persons with disabilities, receptacles shall be permitted to be installed not more than 300 mm 12 Inches) below the countertop or work surface. Receptacles installed below a countertop or work surface shall not be located where the countertop or work surface extends more than 150 mm (6 inches) beyond its support or base.

In IRC 3902.1 through 3902.12 in the first sentence of sections 3902.1, 3902.2,3902.3, 3902.4, 3902.5, 3902.6, 3902.7 3902.8, 3902.9, 3902.11, 3902.12 after the word 125-volt delete the words Through 250 volt and replace with "single phase 15 and 20 ampere"

Based on information provided during the lates NEC adoption process this amendment was approved. It is confusing to have competing residential amendments and all the arrangements made to approve the change to the NEC still stand true.

In IRC 3902.10 This section is deleted and replaced with the following: "Bathtub and shower space, receptacles shall not be installed with or directly over a bathtub or shower stall"

This mirrors the language adopted for the residential section of the NEC. It is confusing to have competing language and no new information was presented to warrant a change from the recently adopted code.

(3) ~~In IRC, Section E3901.4.5, the last sentence in the exception is deleted and replaced with the following: "Receptacles mounted below the countertop in accordance with this exception shall not be located more than 14 inches from the bottom leading edge of the countertop."~~

(4) ~~In IRC, Section E3901.9 the following exception is added:~~

~~"Exception: Receptacles or other outlets adjacent to the exterior walls of the garage, outlets adjacent to an exterior wall of the garage, or outlets in a storage room with entry from the garage may be connected to the garage branch circuit."~~

~~(5)IRC, Section E3902.16 is deleted.~~

IN IRC E3902.17 This section is deleted

This section was found in 3902.16 in the 2015 IRC. The content that was deleted during the past code cycle is exactly the same just renumbered. There is no new information to change the decision from last code cycle.

~~(6) In Section E3902.17:~~

~~(a) following the word "Exception" the number "1." is added; and~~

~~(b) at the end of the section, the following sentences are added:~~

~~"2. This section does not apply for a simple move or an extension of a branch circuit or an outlet which does not significantly increase the existing electrical load. This exception does not include changes involving remodeling or additions to a residence."~~

In section E3902.18 This section is deleted

This section was found in 3902.16 in the 2015 IRC. The content that was deleted during the past code cycle is exactly the same just renumbered. There is no new information to change the decision from last code cycle.

In section E3905.8 in the first sentence of the second paragraph the word "acceptable" is deleted and replaced with "designated"
This amendment is slightly different than the amendment made to the NEC but accomplishes the same goal. It is designed to avoid fan rated boxes to be installed where they are not needed.

~~(7)~~(4) IRC, Chapter 44 is amended by deleting the standard for "ANCE".
~~(8)~~(5) In IRC, Chapter 44, the standard for ASHRAE is amended by changing "34-2013" to "34-2019".
~~(9)~~(6) In IRC, Chapter 44, the standard for CSA is amended by changing the:
(a) standard reference number "UL/CSA/ANCE 60335-2-40 2012" to "UL/CSA/60335-2-40-2019 and
(b) title "Standard for Household and Similar Electrical Appliances. Part 2 Particular Requirements for Motor-Compressors" to "Standard for Household and Similar Electrical Appliances, Part 2-40. Requirements for Electric Heat Pumps, Air Conditioners and Dehumidifiers – 3rd Edition."
~~(10)~~(7) In IRC, Chapter 44, the standard for UL is amended by changing the:
(a) standard reference number "1995-2011" to "1995-2015"
(b) standard reference number "UL/CSA/ANCE 60335-2-40-2012" to "UL/CSA 60335-2-40-2019" and
(c) title "Standard for Household and Similar Electrical Appliances, Part 2: Particular Requirements for Motor-Compressors" to "Standard for Household and Similar Electrical Appliances, Part 2-40, Requirements for Electric Heat Pumps, Air Conditioners and Dehumidifiers-3rd Edition.
~~(11)~~(8) IRC, Chapter 44, is amended by adding the following reference standard:

| "Standard reference number | Title | Referenced in code section number |
|---|---|---|
| USC-FCCCHR 10th Edition Manual of Cross Connection Control | Foundation for Cross-Connection Control and Hydraulic Research University of Southern California Kaprielian Hall 300 Los Angeles CA 90089-2531 | Table P2902.3" |

~~(12)~~(9) In IRC, Chapter 44 is amended by adding the following reference standard" "UL 9540-20: Energy Storage systems and Equipment; R327.1, R327.2 and R327.6."
~~(13)~~(10)
(a) When passive radon controls or portions thereof are voluntarily installed, the voluntary installation shall comply with Appendix F of the IRC.
(b) An additional inspection of a voluntary installation described in Subsection (6)(a) is not required.

Amended by Chapter 28, 2022 General Session

## Part 3
## Statewide Amendments to International Plumbing Code

**15A-3-301 General provision.**

(1) The IRC provisions are adopted as the residential electrical standards applicable to residential installations under the IRC. All other installations shall comply with the adopted NEC.

(2) In NEC, Section 210.8(A), the words "through 250-volt" are deleted.

(3) In NEC, Section 210.8(A)(5), the word "Basements" is deleted and replaced with "Unfinished portions or areas of the basement not intended as habitable rooms."

(4) In NEC, Section 210.8(F), is deleted.

(5) NEC, Section 210.52(C)(2) and (3) are deleted and replaced with the following: "210.52(C)(2) Island and Peninsular Countertops and Work Surfaces. Receptacle outlets, if installed to serve an island or peninsular countertop or work surface, shall be installed in accordance with 210.52(C)(3). ~~If a receptacle outlet is not provided to serve an island or peninsular countertop or work surface, provisions shall be provided at the island or peninsula for future addition of a receptacle outlet to serve the island or peninsular countertop or work surface.~~
~~210.2(C)(3) Receptacle Outlet Location. Receptacle outlets shall be located in one or more of the following:~~
Same comments as IRC electrical section
(1) On or above, but not more than 500 mm (20 inches) above a countertop or work surface.
(2) In a countertop using receptacle assemblies listed for use in countertops.
(3) In a work surface using receptacle outlet assemblies listed for use in work surfaces or listed for use in countertops.
(4) Under the countertop not more than 14" from the bottom leading edge of the countertop. Same comment as IRC electrical section
Receptacle outlets rendered not readily accessible by appliances fastened in place, appliance garages, sinks, or range tops as covered in the exception to 210.52(C)(1), occupying assigned spaces shall not be considered as these required outlets."
Exception: In dwelling units designed to be accessible to persons with disabilities, receptacles shall be permitted to be installed not more than 300 mm 12 Inches) below the countertop or work surface. Receptacles installed below a countertop or work surface shall not be located where the countertop or work surface extends more than 150 mm (6 inches) beyond its support or base.

~~(5)~~ (6)NEC, Section 210.65, is deleted.

~~(6)~~ (7)In NEC, Section 230.67, is deleted.

~~(7)~~(8) In NEC, Section 314.27(C), is deleted and replaced with the following: "314.27(C) Boxes at Ceiling-Suspended (Paddle) Fan Outlets. Outlet boxes or outlet box systems used as the sole support of a ceiling-suspended (paddle) fan shall be listed, shall be marked by their manufacturer as suitable for this purpose, and shall not support ceiling-suspended (paddle) fans that weigh more than 32 kg (70 lb). For outlet boxes or outlet box systems designed to support ceiling-suspended (paddle) fans that weigh more than 16 kg (35 lb), the required marking shall include the maximum weight to be supported."

~~(8)~~(9) In NEC, Section 406.9(C), is deleted and replaced with the following: "406.9(C) Bathtub and Shower Space. Receptacles shall not be installed within or directly over a bathtub or shower stall."

Amended by Chapter 199, 2021 General Session

# Part 7
## Statewide Amendments to International Energy Conservation Code

**All changes made to the IRC energy section shall be incorporated into the residential section of the IECC**It is not good public policy to have competing codes, residential standards should be the same from one code publication to the other. It is also state law that all code amendments made to the NEC be applied to the IRC. (see 15A-3-201 General provision.)

**15A-3-701 General provisions.**

The following is adopted as an amendment to the IECC to be applicable statewide:

~~(1) In IECC, Section C403.11.2.3, the words "by the designer" are deleted.~~

(1) IECC, Section C405.11, is deleted and replaced with the following: "C405.11 Automatic Receptacle Control. Automatic receptacle control to be optional and decided by property owner."

(2) In IECC, Section R103.2, all words after the words "herein governed." are deleted and replaced with the following: "Construction documents required for building permits shall include ~~all documentation required to be submitted in order to issue a building permit~~ only those items specified in 10-5-132(8) of the state building code."

(3) In IECC, Section R303.3, all wording after the first sentence is deleted.

(4) In IECC, Section R401.2, a new number 4 is added as follows:

"4. Compliance may be shown by demonstrating a result, using the software RES Check 2012 Utah Energy Conservation Code, of:

~~(a) on or after January 1, 2017, and before January 1, 2019, "3 percent better than code";~~

~~(b) on or after January 1, 2019, and before January 1, 2021, "4 percent better than code";~~

~~and(c) after January 1, 2021, "~~

5 percent better than code"

(a) on or after July 1, 2023, "8 percent better than code,"

(b) on or after July 1, 2025 "10 percent better than code" and

(c) on or after July 1, 2027 12 percent better than code."

(5) IECC, Table R402.1.2, in the column titled CEILING U-FACTOR, the following changes are made:

(a) In the row for climate zone 3, "0.026" is deleted and replaced with "0.30".

(b) In the row for climate zone 5, "0.024" is deleted and replaced with "0.026".

~~(5)~~(6)In IECC, Table R402.1.3 in the column entitled MASS WALL R-VALUE, a new footnote j is added as follows:

"j. Log walls complying with ICC400 and with a minimum average wall thickness of 5 inches or greater shall be permitted in Zones 5 through 8 when overall window glazing has a .31 U-factor or lower, minimum heating equipment efficiency is, for gas, 90 AFUE, or, for oil, 84 AFUE, and all other component requirements are met."

(7) In IECC, Table R402.1.3, the following changes are made.




Sharon Smalley <ssmalley@utah.gov>

# Comment Submission for Building Code Forum

1 message

**Mary Eargle** <meargle16@gmail.com>
To: ssmalley@utah.gov

Wed, Aug 10, 2022 at 9:45 AM

My name is Mary Eargle, I am a new resident to Utah as well as an aspiring professional environmental advocate. As a new resident in Utah, I am very concerned about the long term livability of this state. I see a failure by the state to create effective long term plans to accommodate the projected 60% increase of residents. Whether it be water issues, or dealing with air quality problems, I feel that legislators are not acting fast enough to secure the future of this state. When it comes to building codes that will be in place for a long time, it is impertinent that they accommodate for the climate issues that this state is seeing. Utah is warming at a faster pace than the rest of the country due to our microclimate caused by the mountains. From this we can foresee that we will need cooling units to accommodate the onslaught of new residents, and they will be running at high power. I believe a solution to this is creating substantial incentives for developers and residents to install heat pumps in their homes. Heat pumps are huge energy savers and will take a considerable strain off of the energy systems in the summer. In addition, they work in the winter to heat homes without using gas, which will help improve our air quality. Homes are projected to surpass cars as one of the largest air polluters in Utah, and so we must be swapping gas powered appliances for electric ones. Some other incentives that I believe should be put in place are for electric stoves in place of gas ones. Not only do they pollute the air, they pollute our homes by slowly leaking methane gas. Finally I believe the issue of landscaping should be addressed in building codes. I often see lawns being overwatered in my neighborhood, or badly aimed sprinklers watering the streets. I have even seen broken sprinklers gushing water for hours until someone cares enough to come fix it. My suggestion is to promote and incentivize xeriscaping more. Thank you for considering my comments and keeping these serious issues in mind while creating your building codes.

**Public Comments to Utah's Uniform Building Code Commission regarding its Proposed Draft Title 15A Amendments Incorporating 2021 Building Code Updates**

**Submitted by Kevin Emerson, Utah Clean Energy**
**August 10, 2022**

Thank you for the opportunity to make brief remarks as part of today's public hearing.

My name is Kevin Emerson. I am the director of building efficiency and decarbonization for Utah Clean Energy. Utah Clean Energy is a non-profit, non-partisan, and solutions-oriented organization that works in partnerships to accelerate the transition to a clean energy economy.

Utah Clean Energy greatly values the UBCC process. We appreciate the UBCC staff, the members of the UBCC technical advisory committees, and the time and effort that members of the Uniform Building Code Commission give to keep Utah moving forward on building safety, quality, affordability, and energy conservation.

Utah Clean Energy supports updates to Utah's energy codes, both Utah's residential energy code and Utah's commercial energy code. We generally support the proposed recommendations for building and energy code updates that are included in the Title 15A that you are taking public comment on.

I'd like to briefly provide some context to Utah Clean Energy's recommendations.

**Why now?**

Utah is growing fast. According to the U.S. Census, Utah is the fastest growing state in the country, growing 2.5 times faster than the national average.[1] This code adoption cycle is important since the last time Utah's residential energy code was updated was in 2015. Seven years ago!

Each new building constructed in Utah has the potential to last for 50 to 100 years. Once a building is constructed, it is significantly more expensive to retrofit to achieve improved efficiency levels.

In addition, if new buildings today are built using old standards for energy conservation, Utah will see higher than necessary energy consumption and the resulting excessive demand on Utah's utility infrastructure. This excessive demand for energy can increase utility rates for all ratepayers.

Adopting the newest energy conservation standards for in new homes and buildings is an essential part of meeting Utah's energy policy, which states that *"Utah will pursue energy conservation, energy efficiency, and environmental quality"*.[2]

**The 2021 Energy Codes are Cost-effective for Utah**

Four independent analyses have been conducted for Utah, which evaluate the costs and benefits of the residential and commercial energy codes. These analyses show that **adopting the updated energy codes is cost-effective for Utah** and I request that these studies be included in the Commission's recommendation to the Utah Legislature.

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[1] See https://kutv.com/news/local/utah-is-the-fastest-growing-state-according-to-new-census-data
[2] See https://le.utah.gov/xcode/Title79/Chapter6/79-6-S301.html

- Pacific Northwest National Laboratory – Cost-Effectiveness of the 2021 IECC for Residential Buildings in Utah[3]
- Pacific Northwest National Laboratory – Cost-Effectiveness of ANSI/ASHRAE/IES Standard 90.1-2019 for Utah[4]
- Nexant (now Resource Innovations) – IECC Code Comparison Study[5]
- ICF International – Comparison of 2021 IECC Residential Cost-Effectiveness Analysis (Summary), Rev 6/22[6]

The residential studies show that the updated residential energy code results in large cost savings in a way that pays pack quickly:

- Under the unamended 2021 residential energy code the average new homeowner in Utah could expect to **save 16.4% which equates to $334 annually on their utility bills.**
- After accounting for incremental construction costs new homeowners are estimated to save around $150 each year in energy bills with positive net saving **by the third year**. Note, the incremental construction cost is estimated to be **less than 1% of the price** of a new single-family home in Utah.

When built to the newest commercial energy standard, commercial buildings in Utah are expected to see a **reduction in construction costs** due to efficiency improvements in the newest standards.

The analyses from Pacific Northwest National Laboratory show that if Utah were to adopt the newest 2021 residential and commercial energy codes without amendments, Utah would see the following statewide benefits:

- Utah families and businesses who own new buildings built to the newest energy conservation standards will save **$2.8 million each year in reduced utility bills, or $1.03 billion over thirty years**,
- Utah **would slash greenhouse gas emissions by 26,000 tons each year, or 14.5 million tons over thirty years**, and
- **Over 800 jobs would be created annually, and over 23,000 jobs created over 30 years.**

In summary, there are huge financial, economic, and environmental benefits from adopting the most recent energy codes for new homes and buildings in Utah.

**Comments about UBCC's Recommendation with Amendments**

Finally, I want to briefly speak about the specific recommendation that UBCC is taking public comment on for Title 15A.

Utah Clean Energy recognizes that the UBCC's pending recommendation to the Utah Legislature is to adopt the complete 2021 IECC for commercial buildings and a heavily amended version of the

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[3] See https://www.energycodes.gov/sites/default/files/2021-07/UtahResidentialCostEffectiveness_2021_0.pdf
[4] See https://www.energycodes.gov/sites/default/files/2021-07/Cost-effectiveness_of_ASHRAE_Standard_90-1-2019-Utah.pdf
[5] See https://utahcleanenergy.org/wp-content/uploads/sites/12/2021/08/Affordable-Energy-for-All_A-Plan-to-Expand-Energy-Efficiency-for-Low-Income-SLC-Residents_July-2017-FINAL1.pdf
[6] See https://energyefficientcodes.org/wp-content/uploads/Comparison-of-2021-IECC-Analyses-Rev-June-2022.pdf and https://energyefficientcodes.org/wp-content/uploads/Cost-Effectiveness-of-the-Residential-Provisions-of-the-2021-IECC-Rev-June-2022.pdf

residential 2021 energy code for new homes, based on weakening amendments submitted by the Utah Homebuilders Association.

Utah Clean Energy believes that an unamended version of the 2021 IECC is in the best interest of all new homebuyers and Utah's energy future.

However, we believe that the amendments that the Commission has included in the draft Title 15A document that you are considering strike a reasonable balance between building science, improvements to energy efficiency through the adoption of readily available technologies, and political necessity. The amendments that are included in the draft Title 15A will not result in all of the positive economic impacts that I stated previously, but they do represent a step forward for improved energy efficiency in new construction.

Utah Clean Energy supports the Commission's recommendation that Utah adopt the unamended 2021 IECC for commercial buildings and the version of the 2021 IECC for residential buildings as per the Commission's draft of Title 15A that was voted on during its July 13 meeting.

**One Closing Thoughts**

The energy code will only generate the estimated savings to the degree that it is implemented effectively across the state. Utah Clean Energy has been told of numerous instances of some jurisdictions failure to effectively enforce the energy code. This is a concern that deserves the attention of the UBCC. Utah jurisdictions must effectively implement the energy code for new homebuyers and commercial building owners to benefit from the cost savings potential of the 2021 IECC.

That concludes my remarks. Thank you.