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EMERGENCY RESILIENCE: GRAB AND GO, HOME, AND CHILD CARE

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Keywords: emergency preparedness, resilience, storms, home safety, shelter-in-place, evacuation, child care providers

According to NOAA's National Centers for Environmental Information, since 1980 the U.S. has experienced 241 weather and climate disasters that had damages of $1 billion or greater (Smith, 2019). In 2018, there were 14 individual disaster events that each totaled over one billion dollars in damage. Weather-related emergencies come in many forms, including hurricanes, tornadoes, wildfires, winter storms, and flooding. In all cases, it is important to create a plan before a disaster strikes. Businesses are required by most states to have an emergency plan. There are no such requirements for individuals and families, so it is important to provide education. Extension has been offering emergency planning programs for many years, with the greatest impacts after a situation hits a community. In this presentation, the authors discuss three different types of programs to engage communities in planning before an emergency strikes. These include preparing an emergency kit, preparing one's home, and developing communication plans for families as well as child care providers, especially those providing in-home child care.

Preparing a "grab & go" box is an essential part of emergency preparation. Natural disasters can strike suddenly, so taking time now to assemble important documentation and items in a box that is safe and ready to go at a moment's notice can save a lot of time and frustration in the event of an emergency. This program provides participants with recommendations on what goes in a grab and go box, what should be secured in a safe deposit box, and what to store as digital files. A home inventory, home insurance, deeds and titles are some of the most important documents to secure. When people decide to "shelter in place" at home, it is important to make sure your home and all the household members, including infants, youth, seniors, people with disabilities, and pets, are well prepared in advance of storms and have developed a communication plan. Critical strategies for being prepared involve keeping your home structure and adjacent property in good repair year-round, familiarity with your insurance coverage, awareness of local past weather events and their impacts, predicted weather conditions and impacts, knowing how to access local resources, resource gathering, and home safety planning, in anticipation of a power outage.

A large number of children are cared for in private homes as well as centers. Young children respond to emergencies differently than adults, because their brains are still developing and they have limited ability to understand what is happening around them, which may lead to stress, fear, and anxiety (American Academy of Pediatrics, 2015). Researchers have found that increasing resilience before a traumatic event helps children cope and reduces lasting negative effects. A program was developed to educate child care providers about creating a workable emergency preparation, management, and response plan that focuses on communication with parents, children, and child care staff before, during, and after the emergency. This information is useful for families as well as child care providers. The presenters will discuss best practices for communicating with children.

Acknowledgement
These projects were funded in part by the U.S. Department of Agriculture National Institute of Food and Agriculture and the U.S. Department of Housing and Urban Development Office of Lead Hazard Control and Healthy Homes under the Healthy Homes Partnership Grant, and the U.S. Department of Agriculture National Institute of Food and Agriculture Special Needs Competitive Grants Program, Housing and Environmental Health.

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USING HOUSEHOLD BUDGETARY CONSTRAINTS TO EXPLORE NEGATIVE-INTERACTION BEHAVIORS

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Keywords: family communications; family relationships; decision-making; *Decision-Ade*

Background

Occupants in coastal southeast U.S. homes are experiencing stressors due to natural disasters and are challenged to respond healthfully. Communication practices among these occupants regarding how strategically to distribute finances to protect their property in preparation for natural disasters can determine whether they return home to make repairs or return to a destroyed home. This affects how they will cope with the aftermath of natural disaster events.

The *Decision-Ade* strategy was chosen for this study because it uses two highly reliable variables to analyze the strategic distribution of household finances. Though *Decision-Ade* originated within the energy-efficiency discipline, it can help to understand the associations between variables identified in this study and how they can be used to decrease *Negative-interaction behaviors*, that is, counterproductive behaviors between home occupants. As a result, professionals who work with households can be informed about how to optimize the benefits of research and programming to better assist those households toward functioning with healthier relationships.

Objectives

This study explored the usefulness, versatility, and generalizability of the *Decision-Ade* strategy to understand how home occupants displaying *Negative-interaction* behaviors address two related factors: *Communication Practices and Engagement Practices* (how they communicate and interact with one another), by segmenting them along the two *Decision-Ade* dimensions of *Household Budgetary Constraints* and *Utility-bill Botheredness.*

Methods

A survey was distributed via the Internet in the southeast U.S. The participants (*n*=1,943) were then segmented along the two aforementioned *Decision-Ade* dimensions. Those scoring highest along both the *Household Budgetary Constraints* and *Utility-bill Botheredness* dimensions were categorized as the most bothered segment and labeled "*Bothereds*." *Bothereds* were compared with those scoring lowest on the two dimensions and were categorized as the least bothered participants and labeled "*non-Bothereds*."

Results

Bothereds were unique in their views compared to *non-Bothereds* (see Table 1). The two segments were compared on each of the four items comprising the *Negative-interaction* scale to determine whether *Bothereds* experienced the *Negative-interaction* behaviors in their home more frequently than *non-Bothereds*. Results for each of the four items were all significantly different between *Bothereds* and *non-Bothereds*, clearly demonstrating that *Bothereds* experienced the presence of *Negative-interaction* behaviors in their home more frequently than *non-Bothereds.*

Conclusions

This study showed that *Negative-interaction* behaviors occurred more frequently in the homes of *Bothereds* than *non-Bothereds*. Interestingly, some of the *Bothereds* self-reported living in households where *Negative-interaction* behaviors occurred more frequently than other *Bothereds* yet reported having better *Communication Practices and Engagement Practices*. This appears to show conflicting views on the part of this sub-segment of *Bothereds*. How can this be? One suggestion is that the *Negative-interaction* segment might be composed of more argumentative-prone relationships, yet tolerant enough to make up and get along quite well. However, the next natural disaster stressor could render the households' relationships in a vulnerable situation.

In sum, a specific segment of home-occupant respondents in the coastal southeast U.S. is highly bothered by its financial situation, which is significantly related to its communication practices in the home. Understanding these two factors that create an unproductive effect in the way in which this segment of home occupants prepares its homes for natural disasters can assist professionals in working with these households.

Acknowledgement

This study was partially supported by the USDA National Institute of Food and Agriculture, Hatch project number 1009782.

Table 1. Comparison of negative-interaction behavior items of *Bothereds* (*n*=284) and *non-Bothereds* (*n*=240).

Negative interaction items	*non-Bothereds* Mean (SD)	Bothereds Mean (SD)	t-statistic	p-value	Do *Bothereds* experience the behavior more than non-Bothereds?
Little arguments escalate into ugly fights with accusations, criticisms, name-calling, or bringing up past hurts.	3.18 (2.45)	5.42 (3.22)	-8.817	.000	Yes
When we argue, one of us becomes defensive and withdraws...that is, does not want to talk about it anymore, or leaves the scene.	4.60 (2.55)	6.49 2.87)	-7.919	000	Yes
We often criticize or belittle each other's opinions, feelings, or desires.	3.14 (2.25)	4.96 (3.13)	-7.553	.000	Yes
We seem to view each other's words or actions more negatively than we mean them to be.	3.95 (2.36)	5.83 (2.81)	-8.218	.000	Yes

TRACKING THE OUTCOMES OF STRESSOR MOVES POST-HOUSING CRISIS

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Keywords: foreclosure, eviction, recent movers, housing satisfaction, affordability

The housing crisis of 2007-2012 provided stressful environments for many people. Because of plunging values and unsteady mortgage situations, many homeowners either moved from an unstable housing situation or remained in housing that became "underwater" due to rapid equity loss. Still others chose to abandon the homeownership experience altogether and become renters. This shift in tenure has created an environment whereby many people have abandoned the concept of homeownership as the preferred housing choice and embraced the concept of renting (Florida, 2016). Meanwhile, it is unclear what sort of effect a move of this nature and under such circumstances would have on the family/household well-being.

This particular research examines those households that made some sort of change in their housing situations during the housing crisis. It incorporates the 2013 version of the American Housing Survey ("AHS"), which is the optimal data set to use given that a) it occurred at the nexus between the crisis and the recovery period, and b) it incorporates a subset of households who are identified as recent movers. This comprises a total of 13,259 survey respondents. Within this recent mover group, we will further identify the households that have recently moved because of some form of "stressor" event.[1] The total number of stressor moves that we have identified within the data set appears to be 579 households, or 4.37% of recent movers. During our analysis, we will check to see whether there was a significant difference in various measures of well-being to determine whether the move caused additional hardship within the household. These particular hardships include such things as higher unaffordability, lower residential satisfaction, and neighborhood satisfaction. The affordability component will be measured through the use of various affordability measures that have been used among housing and financial counseling practitioners and within academia (Jewkes and Delgadillo, 2010; Stone, 2010). The residential and neighborhood satisfaction variables are already captured within the AHS data set as a relative measure compared to the household's previous residential location.

The models to be employed within this particular research are a series of multinomial logistic regression models. The dependent variables will be the three hardship variables mentioned above. A set of independent variables will be consistent across all three models, incorporating (but not limited to) such control variables as household or family income, race/ethnicity, and housing and neighborhood quality. In addition, we will also add the experimental variable of the stressor event as a dummy variable. Finally, wherever possible, we will incorporate a pair of "change in tenure" variables (change from owner to renter, and vice versa) to see if such a change caused either hardship or satisfaction among the three dependent variables. While we are conditioned to believe that a stressor move would create a propensity to make a bad subsequent housing decision, the possibility does exist that the housing crisis allowed these households to escape from a bad situation and that possibly even moving from a homeowner to a renter helped improve both their affordability and satisfaction outcomes.

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[1] We have identified such occurrences as being disaster loss, eviction, foreclosure, some form of government action, or previous owner move back situation.

RESIDENTIAL PROPERTY MANAGEMENT: IMMERSIVE LEARNING ACTIVITIES TO CELEBRATE 20 YEARS

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Keywords: housing education, immersive learning, residential property management

Introduction

The Residential Property Management (RPM) Program at Ball State University officially began in Spring 1999, at the request of leaders of the Indiana Apartment Association who saw a need for a larger and better-educated talent pool. A 20th Anniversary Celebration was recently held, with RPM student projects displayed during the celebration. This presentation reports on the students' involvement in planning, creating, and displaying their projects as part of the celebration, as well as the student learning outcomes associated with the projects. An evaluation of the projects and suggestions for future RPM celebrations will also be shared.

Course Structure and Activities

PMGT 400 *Housing and Society* is a required immersive learning course in the Residential Property Management curriculum. Students in the course engage with one or more university partners and/or community partners to address an issue related to the property management industry. The project in Spring 2019 was the 20th Anniversary Celebration of the Residential Property Management Program. Funding for the immersive learning activities was supported through a grant from the Ball State University Miller College of Business.

The structure of this course allowed for a great deal of flexibility in meeting course objectives. No exams and limited lectures were used in the course; instead, primary learning activities included students working in groups to complete a variety of projects:

- Timeline banner and brochure on the evolution of apartments and renting
- Timeline banner, brochure, and slideshow on the evolution of the profession of property management
- Timeline brochure that incorporated several aspects of the evolution of the RPM Program (curriculum, advisory board, student organization), as well as individual brochures and infographics on each of these topics
- Banner showing the logos of each of the 50+ companies and organizations that have been members of the RPM Advisory Board since its inception
- LinkedIn group to connect with and stay connected with RPM alumni
- Facebook page to share memories of the RPM Program with alumni and others involved in the program throughout the 20-year history
- Slideshow to showcase selected RPM alumni and upcoming graduates of the program
- Fundraising campaign to support future RPM Immersive Learning activities
- Slideshow to showcase RPM immersive learning activities
- Map showing the location of RPM alumni
- Interactive board for attendees to share their thoughts on the future of housing, property management, and the RPM Program

The course culminated in a display of all of these projects as part of the RPM Program 20th Anniversary Celebration. Over a two-day period, a variety of individuals viewed the work of the students, including

RPM alumni, other RPM students, current and former university faculty, university staff and administrators, RPM advisory board members, and other housing professionals.

Summary/Conclusion
Students self-reported their learning outcomes on an evaluation form, which was also discussed with the entire class. Learning outcomes included increased knowledge related to property management, as well as increased skills related to communication, technology, teamwork, time management, leadership, and more. The projects were evaluated by the students, by the instructor, and by the attendees of the event. These project reflections will be shared during the presentation.

Acknowledgement
In addition to the group leaders listed as student authors, credit is extended to all students, faculty, and staff participating in the activities of PMGT 400 *Housing and Society* in Spring 2019.

DESIGNING URBAN CO-LIVING FACILITIES FOR A SHARING ECONOMY

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Keywords: design, co-living, urban housing, shared spaces

Urban housing is on the rise and a new typology of housing known as co-living is emerging across the United States. In many major cities, young professionals are choosing co-living, allowing them to avoid high property expenses and long-term leases (Bloomfield, 2016). With an increase in single-person households (U. S. Census Bureau, n.d.), developers are building co-living housing with many shared accommodations and services. Co-living facilities cater to mostly young, single, jet-setting professionals, providing private bedrooms with shared spaces such as kitchens, lounges, and work areas (Parsi, 2017). With a rise in co-living facilities, the issue becomes how do we design shared accommodations and services to meet the desires of millennials? Co-living developers have speculated about the wants of the market and tested ideas since this is a new housing typology (Parsi, 2017). This study compares the design characteristics and co-living costs of multiple co-living facilities across the United States to offer design strategies that will guide co-living developers and appeal to their target client.

There are many design characteristics to explore when comparing co-living facilities. Co-living is similar to dorm-like buildings where tenants rent private bedrooms and share public spaces (Molla, 2019). The typical shared spaces include kitchens, workspaces, and a lounge, but other co-living facilities may also offer fully furnished apartments, event spaces, a professional-grade kitchen, spa, reading rooms and more. The amenities provided may dictate the costs associated with the co-living facility so it is important to know your target demographic and understand what types of spaces will be needed. For example, millennials are more likely to order in rather than cook a meal so the benefits of sharing a kitchen may outweigh the costs of owning an underutilized kitchen (Q Series, UBS Evidence Lab 2018).

A comparison of on-line plans from major-co-living companies including Common, Ollie, WeLive, and Startcity will offer potential pitfalls and successes of existing co-living facilities across the United States. In addition, this study will compare the amenities and costs of each facility to inform developers and guide their design strategies. In the next few years, the United States is expected to see three times as many co-living units available (Molla, 2019). A comparison of capacity will also be evaluated among the co-living facilities. These comparisons will elaborate on the successful design strategies and the allure of co-living.

Lifestyle trends will continue to change. Cities will increase in size which will in turn increase housing costs, making co-living units more appealing to many young professionals. Co-living is just another example of our sharing economy. The target client will find these communal kitchens, workspaces, and outdoor spaces to be practical for their busy lifestyle and the design profession must stay current with these facilities that are shaping our society and the world.

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THE MARIJUANA MOVEMENT: INDOOR AIR QUALITY IN THE HOME

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Keywords: healthy homes, marijuana, indoor air quality

The recreational use of marijuana for adults 21 and over is now legal in 10 states plus Washington, DC. Marijuana use for designated medical purposes is also legal in 33 other states. However, marijuana consumption in any form remains illegal at the federal level (Business Insider, 2019). With the legalization of marijuana popularizing in nearly every state, researchers in numerous fields are closely monitoring its effects from physical, social, and psychological standpoints. As a healthy homes educator and researcher, several questions also come to mind regarding its second and third-hand effects in the home environment on those who are non-smokers, particularly children. As individuals begin to grow limited quantities of marijuana, mold and moisture in the home may also become problematic.

Secondhand Marijuana Smoke

Secondhand marijuana smoke includes tetrahydrocannabinol (THC). THC is the chemical that causes the psychological effects of using marijuana. When smoked, marijuana also contains cancer-causing ingredients such as those found in tobacco. However, there are many unknown factors about how secondhand smoke influences chronic conditions such as heart and lung disease and cancer (Centers for Disease Control, 2019). Depending on the length of one's exposure to marijuana smoke and access to increased ventilation, secondhand marijuana smoke may also have a psychoactive effect in non-smokers. It may also cause THC to show up in their bloodstream if a drug test were performed for employment or sports related activities. One study revealed that non-smokers reported a "contact high" and exhibited minor impairments in their motor skills when they confined to an environment with individuals smoking marijuana with high levels of THC (National Institute of Drug Abuse, 2019).

Marijuana Production and Mold Growth
Mold thrives in wet or moist environments. It can grow both outside and inside on any surface such as walls, ceilings, furniture, and clothes. Mold is especially problematic when it begins to effect the health of those occupying a home, particularly those individuals who may experience an asthma attack because of a mold allergy (Everyone Deserves a Safe and Healthy Home, 2016). In January 2017, The Denver Post reported about a couple who purchased a Colorado home they later discovered was utilized as a marijuana grow house. After occupying the home, the new owners uncovered mold growing throughout various areas of the interior. Denver police estimate that one in every 10 homes is being utilized to grow marijuana in the city and they are seeing more and more homes left with costly damages as a result.

The Role of the Healthy Homes Professional
As marijuana use becomes mainstream and its legalization popularized, professionals will need to discuss the potential first and secondhand health effects of marijuana use with clients. They will also need to consider the health effects if they choose to grow and smoke marijuana in their home environment. In addition, those individuals purchasing a home also need to be educated about the importance of home inspections by a qualified professional and how to investigate whether a home was utilized for growing marijuana.

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BATHROOMS: FROM MINIMAL NEED TO TEMPLES OF ARTIFICE

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Keywords: bathrooms, healthy homes, accessible design

Consumers around the world use the safety and security of the home to prepare themselves for daily activity and evening rest. Much of this activity occurs in the bathroom. In the U.S., bathrooms have surpassed meeting minimal needs and have become a temple of artifice. This reflects a divide in household wealth and ability. How are those with lower incomes and those with specific physical limitations served by current standards of bathroom design? How are educators and homebuilders addressing bathroom design trends? Using a historical construct, this abstract places the bathroom into a modern context. The modern representation views germane issues through a paradigm of luxury and space, but this representation seeks to reframe the debate for future relevance. This discussion will lead to the future research that will focus on bathroom design as a social issue.

Goal of the Presentation
The goal of the presentation is to present the current situation of bathroom design in American culture,

and discuss factors that have the most impact. As part of this, the role of the bathroom in the selection of the home reflects larger societal issues. Class, race, age, and physical ability influences home purchase and major renovation decisions. Media has exacerbated this problem by showcasing television shows that purport to establish new norms. A new perspective needs to be illuminated to focus the discussion.

Why this is an Issue in the Field

Proper sanitation is always important to health, welfare, and safety (Centers for Disease Control and Prevention and U.S. Department of Housing and Urban Development, 2006; Rosen, 2015). Complete plumbing facilities are defined as hot and cold piped water, a bathtub or shower, and a flush toilet (US Census Bureau, 2011). Demographic changes in the American population are evolving quickly and will change the role of the home bathroom by necessity. As the Baby Boomer population moves into full retirement, the utility of standards such as universal design will become more self-evident. As millennial home buyers enter the market with significant amounts of student debt, economies of space and construction need to be incorporated into various rooms of our home. Issues of finance, health, privacy and mobility will force us to rethink standards of size and use.

Methods

This literature review will position bathrooms in a healthy housing context. The history of the bathroom forms the foundation for the presentation. Emphasis will be placed on health and safety provisions that dramatically improve health, welfare, and social mores. The review will document the impetus for complete plumbing and culminate in a discussion of current spaces that surpass basic needs, yet fail to meet others. The review will frame research and design trends to illustrate salient issues, such as bathroom technologies that lead to unnecessary expense. Finally, a look to the future will examine standards of accessibility that can be incorporated with aesthetic success.

Implications

This discussion will lead to research on bathroom design as a social issue. The future for bathroom design should reflect the evolving American family. This effort represents the first component. Bathrooms are important to housing professionals as they are located in nearly every home. Bath design can be more empathetic and evidence-based without surpassing consumer budget constraints.

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HOUSING IN BORNEO: COLOR PALETTE CASE STUDY

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Keywords: cultural village, color

Tourism is growing worldwide (McNulty & Koff, 2014) as travelers seek cultural learning experiences. Cultural villages present replicas of fading or lost societies (McNulty & Koff, 2014) and replicate native housing in style and color; helping to document identities (Lenclos & Lenclos, 2004). This case study presents a method of documenting color that can be used in both classroom and research settings. Both educators and researchers may use the tools as they see fit.

Objectives

The goal is to provide a method for documenting housing color palettes. Since data are collected in the field, the tool has to be inexpensive, durable, and small enough to fit in luggage. One such tool is the Sherwin-Williams Colorsnap Palette guide (Sherwin-Williams, 2015). The purpose is to provide housing educators and researchers a simple means of collecting color data in the field.

Methodology

Educators visited a Borneo cultural village and photographed housing materials, finishes, and textiles. Images form the project dataset.

- Step 1: Data were color-matched to Sherwin-Williams Colorsnap Palette guide paint chips.
- Step 2: Educators used the online Sherwin Williams Snap It tool (Sherwin-Williams Company, 2015) to match data to paint colors.
- Step 3: Sherwin-Williams colors were cross-referenced to matches in Munsell Color Space, noted by hue, value, and chroma. Using the ColorMunki tool (ColorMunki, 2008), digital snippets of Sherwin-Williams color chips were compared to digital Munsell color sheets (see Figure 1).

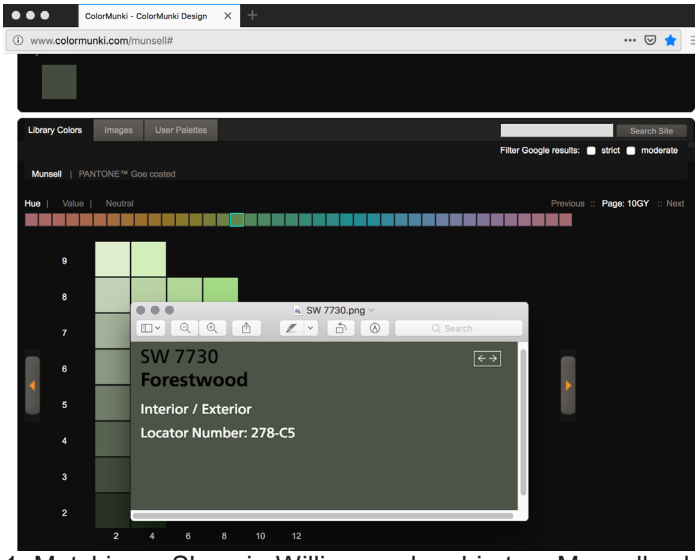


Figure 1. Matching a Sherwin-Williams color chip to a Munsell color chip.

Results

The sample consisted of 12 colors of building materials, finishes, and textiles found in six different housing units. Table 1 provides information about data. Note that Munsell color notation is written as hue/value/chroma (Xrite, Inc., 2019). Hue refers to color. Value refers to lightness of the color, ranging from black (0) to white (10). Chroma is saturation, ranging from weak to vivid. Neutral is zero. For example, Image A is noted as follows: 10 GY/3/2.

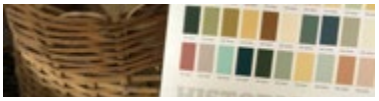
- Hue: 10 GY green-yellow
- Value: 3
- Chroma: 2

Materials consisted of yellow-red and red hues; dark values; and weak chroma. Finishes consisted of green-yellow, red, blue, yellow-red hues; medium and dark value; and weak to medium chroma. Finally, textiles consisted of reds, yellow-red, and green hues; light and medium values; weak, medium and strong chroma.

Conclusions and Implications

Color is important to housing professionals. The Sherwin-Williams Colorsnap Palette guide provided educators a relatively simple and portable means of identifying color in the field. The free guide was found relatively easy for the educators to use and transport. After field studies, educators can translate the Sherwin-Williams color to Munsell using free online technologies. Further, these tools are accessible by anyone with a computer and internet connection. Resultant color palettes can add to the understanding of the built environment, finishes, and textiles and may be used during field studies in the future –both for research projects and for housing color coursework.

Table 1. Borneo Cultural Village Housing Component Color Palette

			Sherwin Williams		Munsell	
ID	Image	Component	Chip	Identifier	Chip	Notation
A		finish		SW 7730		10 GY/3/2
B		finish		SW 2839		10R 3/8
C		textile		SW 6383		10YR 6/8
D		textile		SW 6608		7.5R 4/10
E		material		SW 0045		7.5YR 4/6
F		finish		SW 6229		7.5B 3/2

LIGHTING IN LOW-INCOME HOUSING COMMUNITY OF OLDER ADULTS

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Keywords: older adults, lighting, low-income housing, daily living, vision

Purpose/Rationale

San Marcos Housing Authority's (SMHA, Texas) goal is to assist the low-income older residents to live independently in the public housing system delaying dependence on assisted living/nursing homes. With age, vision is impaired due to eye diseases (NEI, 2019) and physiological changes (Schieber, 2006). To compensate for age related visual impairment, glare free high illuminances are recommended by Illuminating Engineering Society (IES, 2016). The purpose of this study is to assess the visual lighting (quality/quantity) that are present in the independently-living elderly homes operated by SMHA and identify the lighting adequacy or inadequacy that affect resident safety and everyday living. Specific questions addressed in this study are: 1) Is the current SMHA home lighting meeting the industry standards as recommended by the Illuminating Engineering Society (IES 2016)? 2) How do the older residents rate the ability to conduct *daily living activities* based on their home lighting conditions?

Methods and Procedures

Sixty independently living older adults in a housing community operated by the SMHA, were identified. Thirty residents aged 54-84 participated in the study. Researchers visited each participants' home and measured light levels using a light meter in all areas of the home and also surveyed/interviewed residents regarding coping behaviors and ability to complete daily living activities such as telephone use, food preparation, housekeeping, laundry, managing medication, and handling finances based on their home lighting conditions.

Results

The average light levels measured within the residential units were: dining – 446 lux, kitchen – 923 lux, living – 613 lux, bathroom – 698 lux and shower – 108 lux. Preliminary results indicate that the light levels within the public housing are high, exceeding IES standards except in the shower area which was below the recommended 200 lux. The ability to perform daily living activities under the existing lighting conditions was rated on a scale of 1 (very difficult) to 10 (very easy), with most items receiving a favorable overall mean score of 7.7. The ability to write checks and read (handling finances) received the lowest mean rating of 6.8. Thirty-seven percent of the residents rated this 5 or below indicating it was difficult. Forty percent of residents reported that in the past 3 years, they have fallen in their current home due to tripping over 'something' in the living room, getting out of bed, and too much glare.

Implications and Conclusions

Lighting in all areas of the homes consisted of ceiling surface mounted 24" X 48" fluorescent fixtures with 2 to 4 lamps located in the middle of the room which were controlled by an on/off toggle switch on the wall. This type of lighting is typical of educational/institutional settings but not recommended for a home environment. Excessive bright light and the inability to control the amount of light were the two common complaints from residents. Recommendations to create a safe, homelike atmosphere through light fixture and lamp selections and better light controls with resident safety and satisfaction in mind have been shared with the SMHA officials and the residents. The researcher is currently working with the SMHA officials to fund the recommended renovations of the facility to meet the visual needs of the residents.

Acknowledgement

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TWENTY YEARS OF HOUSING DISCRIMINATION COMPLAINTS IN MISSISSIPPI

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Keywords: housing discrimination, Fair Housing Act

The Fair Housing Act (FHA) prohibits housing discrimination based on race, religion, national origin, sex, familial status, and disability (Schwartz, 2006). However, decades after its passing, blatant and surreptitious discrimination still occurs. The three most common discrimination complaints reported in 2017 were based on disability, race, and familial status (NFHA, 2018). Nationally, tens of thousands of complaints are reported each year (NFHA, 2018) yet, it is estimated that an additional 4 million complaints go unreported each year (NFHA, 2015).

Empirical research, although limited, has demonstrated that housing discrimination persists in Mississippi. Evidence exists for discrimination in mortgage lending (Ezeala-Harris & Glover, 2008; Green-Pimentel, 2017, Western Economic Services (WES), 2014) and factors identified as barriers to enforcing fair housing have been found; these include a limited understanding of the FHA and infrastructure for enforcement (WES, 2014). Even though all cases of housing discrimination are not formally reported, a number of cases do get media attention. In recent years, cases of housing discrimination in Mississippi, have been featured in local, state, and national media.

The purpose of this research was to examine housing discrimination in Mississippi as reported in newspapers accessible online over the last 20 years. The objectives of this study were to examine the:

1) types of discrimination reported
2) characteristics of the individual/group being discriminated against (which include race, gender, SES (income, education, employment), and housing status)
3) advocates who bring the case forward
4) punishment(s) for the accused
5) affect of the discrimination on the victims
6) influence these cases/articles had on the public's understanding of and/or action taken regarding housing discrimination in Mississippi.

Methods

Mississippi newspapers with free online access were searched for housing discrimination articles dated January 1, 1998 to December 31, 2018. The search was conducted using EBSCOhost, Google News, and the newspaper websites. These were searched until saturation was reached. The same process was conducted using the 5 largest daily US Newspapers. Twelve state and 3 national newspapers reported at least 1 applicable article. This resulted in 23 articles on 14 different housing discrimination cases. Data were organized using Excel for the variables identified in the objectives (stated above) and a content analysis was performed.

Results

The 14 cases were based on race (11), disability (2), and familial status (1). Eight cases occurred in the rental market; these findings are consistent with national data (NFHA, 2018). One case involved an individual and 13 cases involved groups or couples. Cases included blatant and subtle acts of

discrimination and occurred in both rural and urban areas. Details regarding these cases, as well as solutions and positive actions taken by residents/advocates as a result of these cases, will be shared in the presentation. Implications and conclusions regarding the violation of fair housing in Mississippi and those affected by such violations will also be shared in the presentation.

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INTERCULTURAL LEARNING WITH A SHIPPING CONTAINER HOME PROJECT

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Keywords: intercultural learning; diversity; inclusion; residential environments

Intercultural learning refers to developing ability and obtaining knowledge to understand culture and interact with people from diverse cultures (Landis, Bennett, & Bennett, 2003). To develop cultural awareness, students have to understand their own culture and reflect on their own bias. This presentation shares an experience developing a class project to provide intercultural learning environments in a design studio class.

Purpose

The learning objective of the project was to identify and solve the design problems concerning to the residences for people from a variety of cultural and socio-economic backgrounds in designing a 40 foot shipping container home for Hispanic families. For this hypothetical project, a description of Mexican family living in the US and Mexico border areas was given and students could use maximum two shipping containers.

Process

Class activities were organized in pre-design bias training, pre-design research, and design development. For the bias training, we collaborated with the university equity and accessibility team and developed a training package for students. After a two-hour workshop, students submitted a reflection essay about their cultural sensitivity. In the pre-design research phase, students summarized research articles on shipping containers, watched documentary films related to Mexican culture, and interviewed Hispanic students. Their interview questions included activities around home and preferences on color, material,

and style. After the interview, students shared their interview experience and presented a key design concept which reflected with cultural aspects. Finally, at the design development phase, students produced a design process board and received feedback from design professionals.

Outcome and Implications
The outcomes of students' work included the applications of design elements and principles in their design and the usage of activity spaces. Color and pattern were frequently used to highlight cultural aspects. After the completion of project, openness to diversity was measured. To reflect other culture, self-awareness of their own culture was important. In our oral presentation, we will share the class materials used for the diversity training, students' cultural reflection/perception, and design outcomes.

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ARE KITCHENS AND DINING ROOMS ON THE VERGE OF EXTINCTION?

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Keywords: interiors, housing, residential, homes, residences, kitchens, dining, future

Homes are in a constant state of evolution. While design is a powerful thing, it does not change our habits. Homes reflect the way we live and society has become increasingly busy. Today, families are cooking less at home and consumption of food prepared outside the home is rising (Robson, Crosby & Stark, 2015). Research indicates an expeditious growth in food ordering applications. In fact, between 2013 and 2016, money spent on home food preparation grew less than two percent, while money spent on food prepared elsewhere grew more than 20 percent (Tierney, 2018). Could kitchens and formal dining rooms be a thing of the past? According to a 2018 UBS Evidence Lab report entitled *Is the Kitchen Dead,* this is a plausible future scenario. This study explores the 20th century evolution of the kitchen and dining room within the home, key issues behind changing eating and dining habits, and offers home design strategies to support our evolving lifestyle.

In the 1920s, homes were designed with a functional kitchen and an all-purpose dining room. By the 1950s, the eat-in kitchen was added for convenience and the dining room was used for daily family meals. During the 1970s, homes added an adjacent eating nook to the kitchen and dining rooms were relegated to formal meals. By the 1990s, stools at an eating bar joined the variety of eating spaces within the home.

Time is a factor in changing habits that are affecting home floor plans. Life is becoming busier, with time becoming one of our most valuable commodities. Homeowners are grasping for ways to keep balance between work, family, and friends, leaving less time available for shopping, preparing, and cooking food at home. Research shows average cooking time of one meal to be around one hour, including preparation and clean-up (UBS, 2018). Planning or shopping for a meal would add an additional 45 minutes to this time.

Another key issue affecting changes in home plans is the availability of home food delivery services. Food delivery sales are at $35 billion and anticipated to increase to $365 by 2030 (UBS, 2018). Mobile phone applications for food delivery are in the top 40 of downloads and the continual evolution of technology is bringing delivered meals down in price and increasing their appeal. Some food industry advances include

robots preparing food and drones making deliveries. UBS (2018) predicts that by 2030 50% of tasks in fast-food restaurants will be automated, doubling productivity of a human.

Strategies such as creating space saving designs, multi-functional spaces, and planning ahead are just some of the ways that home design can support evolving lifestyles. At the same time, there is a social and moral obligation to educate clients regarding these changes and the effect on families. Overall, creating mindful designs that are conscious and aware of current and developing trends and how they affect cooking and dining habits, as well as family dynamics within the home.

We can all debate the positives and negatives on the subject. "Sometimes changes are for the better and sometimes they are for the worse; but the thing about change, is you cannot stop it" (Villegas, 2013, p13). Either way, home kitchens are decreasing in size and dining areas are changing. Both could soon disappear. The time needed to cook home meals, rise of food ordering applications, along with their decreasing prices, and other technological advances are contributing factors to this change that make ordering food elsewhere more appealing.

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THE CIRCUMSTANCES AND CONSEQUENCES OF FALLS AMONG THE OLDEST OLD IN AN INDEPENDENT LIVING COMMUNITY

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Keywords: falling, fall history, oldest old, independent living

Background and Purpose

Falls and fall-related injuries represent a major health and safety problem in that older adults are especially vulnerable to severe injuries from falls due to prevalent physical and cognitive limitations typically associated with aging (Iwarsson, Horstmann, Carlsson, Oswald, & Wahl, 2009). Understanding environmental and behavioral circumstances and consequences of falls from quantitative and qualitative perspectives provides valuable insights to understand the relationship between the physical environment and older adults' fall risk. This paper aims to investigate the circumstances and consequences of falls among the oldest old in a senior living community.

Methodology

Using a sequential explanatory strategy of a mixed-methods approach, this research includes both a retrospective analysis of fall reports (N=771) and resident interviews (N=14) of their fall experiences. This research is conducted in a senior retirement community located in North Florida and fall history reports were recorded in six different independent living buildings. A quantitative analysis examined 771 falls

reports of residents who aged 80 and more over four years. Fall history data included fall location, socio-demographic information about the faller (age and gender), the severity of the incident injury, and the time of the incident. Qualitative data about fall-related activities and behaviors, and perceived causes of falls were gathered in face-to-face resident interviews between March and July 2016, using a semi-structured questionnaire.

Findings

The quantitative analysis showed most fall accidents occurred in the morning (43.1%) and afternoon (37.7%). As a result of the fall, three types of injury severity were reported. More than of falls (56.2%) required no medical treatment while less than half of falls (43.8%) required minor medical treatment (22.3%) and hospitalization (21.5%). Regarding the location of the fall, almost three-quarters (75%) of falls occurred inside the home: 336 in living/kitchen (43.6%), 142 in the bedroom (18.4%), and 98 in the bathroom (12.7%). One hundred ninety-five falls (25.3%) were in common areas including corridors, lobby, and common restaurants. A chi-squared test of independence indicated that falls in the bathroom were more likely associated with hospitalization compared to falls in other locations. Also, fall accidents were more likely to happen in the bedroom and bathroom at mid night compared to all other times of the day. The qualitative analysis identified three types of fall-related activity (transfer, ambulation, standing) nd five behavioral factors surrounding fall incidents (transferring, slipping, misjudged behavior, tripping, health issue).

Conclusions and Implications

Combining this quantitative analysis with qualitative interviews demonstrated multifaceted relationships between falls and location, injury severity, time of day, types of movement preceding falls, and residents' perceptions of their fall experience. Given that this research sample primarily encompassed older adults over the age of 80 years, these results are particularly useful for gauging fall circumstances and intervention strategies for an age group most at risk for severe consequences of falls. Research findings can help healthcare professionals, designers and architects gain a better understanding of the demographic, behavioral and environmental circumstances surrounding fall incidents in senior retirement developments.

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RESIDENTIAL ENVIRONMENT PERCEPTIONS BY TENURE TYPE AMONG URBAN LOW-INCOME OLDER ADULTS

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Key Words: residential environment, tenure type, urban older adults

Tenure type (ownership and rental) and age are likely to interact in relation to residential satisfaction (Whiteford & Morris, 1986). When considering that renters generally have more cost burdens than homeowners across all income levels (Joint Center for Housing Studies of Harvard University, 2011; Jones, 2016), residential environment perceptions may vary between owners and renters. With a qualitative phenomenological approach, this study explores residential environment perceptions of low-income older adults by tenure type. In this study, the sample is limited to those who live in urban areas, and residential environment refers to neighborhood and city environments.

In-home and personal interviews were conducted with 55 low-income elderly households who were 62 years and older in an urban city in North Carolina (30 homeowners and 25 renters). Most (*n*=53) had income lower than $25,000. The interview included open-ended questions: “what do you like most/least about your neighborhood?” and “what do you like most/least about your city?” Interview responses were tape-recorded and transcribed for content analysis (Berelson, 1971). The responses were summarized by keyword topics and compared by tenure status of the elderly households as follows:

Keyword topics most favored for their neighborhood environment: Homeowners responded their most favored neighborhood features were friendly and nice friends and neighbors, followed by quiet environment, church, diversity of people, convenient access to grocery shopping, and safe environment. Renters responded their most favored features were convenient location, followed by quiet and peaceful environment, safety, walkability, nice neighbors, and good management.

Keyword topics least favored for their neighborhood environment: Homeowners addressed their least favored neighborhood features were unfriendly neighbors, followed by noise, safety issues, less maintenance, and inconvenient access to grocery shopping. Renters addressed their least favored features were insufficient safety control, followed by poor location, noise, and limited walkability.

Keyword topics most favored for their city environment: Homeowners responded their most favored city features were convenience (e.g., education, shopping, entertainment, transportation, and hospital), followed by hometown, diversity of people, quiet environment, church, and slow pace of the city. Renters responded their most favored features were convenience, followed by nice people, families in the same city, size of the city, and their hometown.

Keyword topics least favored for their city environment: Homeowners responded their least favored city features were crime and safety concerns, followed by no friends in the city, inefficient city administration by city council, high living expenses, lack of housing, and job insecurity. Renters responded their least favored features were poor transportation, followed by limited senior services and insufficient safety control.

This qualitative research is meaningful to understand urban low-income older adults’ perceptions of their residential environments by the tenure type, owning and renting. When considering most elderly homeowners and renters were long-term residents, planning to age at home or communities; influential

factors (i.e., keywords) identified in this study may provide researchers, educators and decision makers with information on how to better support urban low-income older adults aging in place. The results will lead to future policy implications and/or programs for the aging cohort.

Acknowledgement

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THE INVISIBLE THREAT: A STUDY OF RE-ZONING, PUBLIC INVESTMENTS, AND GENTRIFICATION

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Keywords: gentrification, displacement, sustainable development, zoning, up-zoning, rent gap theory, urban development, trail-oriented development

This study investigates the influence zoning regulations have on the occurrence of gentrification and displacement in the City of Atlanta. The City of Atlanta is experiencing major transformations as a result of the sustainable rehabilitation project known as the Atlanta Beltline. The Atlanta BeltLine is one of the largest, wide-range urban redevelopment projects in the country (The Atlanta BeltLine, 2015).

Like the city of Atlanta, many urban cities across the United States are experiencing a structural facelift, as many neighborhoods are being revitalized and rehabilitated. Amenities like parks and greenspace, trendy upscale restaurants, and high-end condos, are being introduced, drawing new higher income residents to neighborhoods that were once forgotten. Unfortunately, these revitalization efforts often come at the expense of the current residents, who often are priced out of the communities they once called home (Aka, 2010; Freeman & Braconi, 2004; Freeman, 2007; Immergluck, 2009; Immergluck & Balan, 2018; Zuk et al., 2018). This phenomenon of neighborhood revitalization and the major changes to the local demographic composition is referred to as gentrification. Although often debated, most researchers define gentrification as the transformation of usually urban neighborhoods from low income to high income, generally causing the displacement of long-time residents and businesses (Kennedy & Leonard, 2001; Zuk et al., 2018).

In addition to the demographic and socioeconomic changes of gentrification, major physical, structural, and land use transformations have also occurred as a result of a processes called up-zoning. Up-zoning is the practice of changing a zoning classification from a less intensive classification to a more intensive, high density, high-value generating classification (Bartke & Lamb, 1978). Although up-zoning can help in the regeneration of urban spaces, like many revitalization efforts, these changes can ultimately make it difficult and sometimes impossible for original residents to remain in their neighborhoods.

Using Neil Smith's (1979) supply-based Rent Gap Theory and Sustainable Development Theory, this study investigates the influence zoning regulations have on the occurrence of gentrification and displacement, in the city of Atlanta between the years 2000 and 2017. This study employs the use of quantitative methods in the form of both spatial and empirical analysis of census tract data to explore the occurrence of gentrification and displacement vulnerability, and its connection with re-zoning and up-zoning practices.

The results of the study concluded that gentrification is occurring in multiple neighborhoods in the City of Atlanta. Although 37.9 percent of the studied census tracts were in the mid to late stages of gentrification, 57.8 of the city had residents with characteristics that were more susceptible to displacement. The occurrence of gentrification and the vulnerability to displacement were especially prominent in areas in and near the Atlanta Beltline. Rezoning and potential up-zoning was also associated with gentrification on the city of Atlanta. Seventy-six percent of the tracts in mid stages of gentrification and 59.4 percent of the tracts in the late stages of gentrification were also re-zoned or up-zoned. Although the city of Atlanta is implementing a sustainable re-development project, it is evident that gentrification and displacement is unavoidable. The local government is rezoning and in some cases up-zoning many areas of the city, potentially driving gentrification and displacement vulnerability to an all-time high.

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SUSTAINABILITY IN HOUSING: IS WATER THE NEW ENERGY?

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Keywords: water, sustainable housing, teaching

The theme of the 2018 National Capitol Region Symposium of the American Water Resources Association was Resilient Solutions for Water Management in Urban Environments. The introduction to this theme challenged participants to consider their "Goals and Expectations for Quality of Life Criteria in Urban Environments" (Younos, 2018). The comparison was made between 20th and 21st century criteria. With respect to residential environments, Younos suggested that in the 20th century, our focus was "affordable housing and buildings" while in the current century, the goal/expectation was "waste/energy efficient housing and buildings".

Was this an "a-ha" moment? Or does this suggest that housing educators are on the leading edge of preparing students to play a key role in the future?

Water and a Class in Sustainable Housing

In winter 2015/2016, lead in the water in Flint, Michigan was prominent in the media (Sanburn, 2016), and on the Virginia Tech campus (Adams & Tuel, 2016). The immediacy and controversy of Flint, Michigan's water crisis offered opportunities to rethink the relevance and importance of water issues and their applicability to housing sustainability. As a result, the curriculum emphasis in a housing course on environmental issues needed to shift. A cross-disciplinary course, *Housing: Energy and the Environment*, had always included lead and water as core content. Previously, however, energy was a major focus. The focus for water was primarily safety and quality standards plus water treatment systems found in single and multifamily housing. In 2008, as a benchmark, only one 75 minute class (out of 30) was devoted exclusively to water issues.

In the spring 2017 semester, specific water-related content encompassed six classes in the 30 class semester. One class was devoted specifically to a review and analysis of the Flint, Michigan, water crisis. Content and learning activities were issue driven, including international water issues. Topics included: water quality, conservation, rights, and privatization; gray water; storm water management; and watersheds. In the spring 2018 semester, specific learning activities related to the Cape Town, South Africa water crisis were added.

In the 2018-2019 academic year, the course will be in the University's new general education core as a social science course. Water issues content will be further integrated into the overall course, as reflected in the new course title*: Environmental and Sustainability Issues in Housing.* Students will learn social science theory relevant to the study of housing, such as Housing Adjustment Theory, Diffusion of Innovation, Theory of Human Motivation, and Family Systems Theory, and apply one or more of these theoretical perspectives in the study of water-related sustainability issues. For example, a household with contaminated well water, possibly from nearby fracking activity, could be evaluated. Class teams might analyze different responses by the household as predicted by applying different theories, and present their analyses to the class. These theoretical results could then be compared to an actual case study.

The presentation will highlight teaching and learning activities for water-related content of the current and newly revised course.

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INCLUSIVE COMMUNITIES FOR DIVERSE CONSUMERS: MULTICULTURAL DESIGN COMPETITION

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Keywords: multicultural, diverse, student design competition

Background

Sometimes a great idea results in a great plan…then things go awry! However, as this abstract presents, all is not necessarily lost and goals can be achieved.

Building on the success of two previous *year of study* projects, the Apparel, Housing and Resource Management Department (AHRM) at Virginia Tech (VT), proposed a year of study on diverse, multicultural consumers as addressed by all program areas of the department. Planned activities included expert guest speakers, a multicultural design competition, and targeted activities in classes across the department curriculums.

The project was grant-funded, but at approximately 50% of the planned budget. A rethinking of the project was required. This abstract particularly addresses the design competition and its successful outcomes within a limited budget.

Multicultural Design Competition

The multicultural design competition targeted Residential Environments and Design (RED) majors. Three residential design classes (2018-2019 academic year), participated with class assignments targeted to understanding the potential unique and/or diverse needs of multicultural clients. Multicultural was defined as identified by factors such as lifestyle, religion, ethnicity, race, rituals, or recent immigration. Assignments included design programming, material and product selections, and designing of residential spaces, especially kitchens. There were 45 student enrollments in the three design classes, although some students were enrolled in more than one class.

Alumni Participation

Five alumni, professionally employed in residential design, participated in activities related to the design competition, including speaking to classes, mentoring students and helping to select the outstanding projects. Support from the companies of these designers also helped with the budget! While on campus, the designers shared meals and conversation with students and faculty. Students noted that the informal time with the designers was especially inspiring.

Student Awards

Projects from 13 students were selected as finalists. These projects were displayed in the design competition exhibit in the VT Wallace Hall Gallery, publicized and open to the university. During the exhibit people could vote for the best project, which was to receive the “People’s Choice Award”. The final day of the exhibit coincided with the AHRM Department awards ceremony held in a space adjacent to the Gallery, increasing viewing of the projects. The 13 students with displayed projects received certificates at the awards ceremony.

A special awards ceremony, held during a studio class, recognized top projects selected by the alumni designers and faculty as well as the “People’s Choice”. Prizes (design and drawing supplies) were presented by one of the alumni designers.

Evaluation
A brief survey of students, following the awards presentation, was conducted to help ascertain the educational value of the Multicultural Design Competition. Preliminary results of the student survey (27 respondents) showed that participating in a design competition, possibly winning a prize, and the opportunity to have their projects displayed in the Gallery were strong motivators. Examples of projects and additional analysis of survey results will be part of the conference presentation.

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EXPLORING THE UNSUSTAINABLE CONSEQUENCES OF DOWNSIZING TO A TINY HOME

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Keywords: tiny home, small living, ecological footprint, environmental impact

New homes in America generally have the largest average floor space compared to any other country in the world, with the average size of a home being about 2,400 square feet (Mitchell, 2014; US Census Bureau, 2017; Vail, 2016). There are many detrimental environmental impacts of larger homes, including loss of land (both farmland and environmentally fragile lands), greater air pollution and energy consumption, and ecosystem fragmentation which leads to reduced diversity of species and other negative impacts (Johnson, 2001; Parrott, 1997). This current building practice can have major negative implications for the environment.

To offset the environmental impacts of conventional homes, many have downsized to tiny homes to seek a more sustainable lifestyle. A tiny home is a small, efficient space, typically under 400 square feet that enables homeowners to live a more sustainable, less expensive, and minimalist lifestyle (Small House Society, 2014; Vail, 2016; Williams, 2014). These homes can be mobile or on a fixed foundation. There is currently very little academic attention on tiny homes, and very few studies exist that have critically examined them as an effective housing solution for those who wish to downsize. However, existing literature in the tiny home field, including literature analyses and personal narratives, suggests that individuals who downsize will experience a significantly decreased environmental impact (Anson, 2014; Bozorg & Miller, 2014; Vail, 2016). A review of this literature resulted in a hypothesis that while one's overall environmental impact is lower, there are sometimes unintended, unsustainable consequences of downsizing to a tiny home such as eating out more often, driving longer distances, and relying on others for storage (Anson, 2014; Murphy, 2014; Williams, 2014). Identifying unsustainable consequences of downsizing to a tiny home will enable individuals who are considering downsizing to a tiny home to be aware of potentially preventable unsustainable elements of small living and be able to account for those when making decisions regarding their downsizing and tiny home designs.

To discover some of these unintended consequences, we interviewed a dozen individuals who have lived in a tiny home for a year or more. These individuals were recruited at both a tiny home conference held in Charlotte, North Carolina, and online through various tiny house groups. Individuals were given no compensation to participate in this research and participated voluntarily. Individuals were asked to take an online survey about their day-to-day sustainable behaviors and were invited to be interviewed by phone as a follow-up to their online responses. In these interviews, the researcher inquired about any potential unsustainable consequences of downsizing to a tiny home. Among the interview responses, there were a variety of responses, including, "My travel has increased because of living tiny; I have to live

outside of city limits to be legal, and therefore I'm driving more often. So, I am spending more time in the car," and "I just don't have the room to recycle now. I don't have the room for containers to hold everything until I can go take it to the recycling facility".

From these interviews, we created an inventory of unintended, unsustainable consequences that were mentioned throughout the interviews. Three of the most common consequences included longer commuting distances due to living in more rural settings, buying more things in small packages that take up less room but use more packaging than bulk items, and recycling less due to lack of storage and curbside recycling services. Our preliminary review shows that while one's overall environmental impact will likely be lower after downsizing to a tiny home, there are often tradeoffs such as increased travel or improper waste disposal. Downsizing to a tiny home will likely decrease one's environmental impact in terms of housing, but not necessarily every component of one's environmental impact. Revealing these unsustainable, unintended consequences could be vital to those who wish to downsize while comprehensively reducing their environmental impact. Identifying and designing ways to mitigate these consequences could help with the longevity of tiny homes as a sustainable housing solution and help advocates of the tiny house movement to understand the measured impacts of downsizing on one's environmental impact.

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DO QUALIFIED ALLOCATION PLANS INFLUENCE ACCESS TO HIGH-PERFORMING SCHOOLS?

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Keywords: LIHTC; school quality

The effects of attending a high-quality school are often strongest for children in low-income households, those who move from a low-quality school to a high-quality one, and those who are young. While residential choices of households are often constrained, there are programs that may facilitate a move, for example the Housing Choice Voucher (HCV) program on the demand side and the Low Income Housing Tax Credit (LIHTC) program on the supply side.

We focus on the LIHTC program which, however, has vast differences among states. We analyze variation among LIHTC allocation policies as outlined in state qualified action plans (QAP) and their impacts on the siting patterns of LIHTC properties in proximity to high-performing schools. We focus on 37 states and control for factors relevant to the development location decisions, using Census-based population characteristics and LIHTC property attributes. Our goal is to analyze differences among states and to determine the effectiveness of LIHTC QAP allocation policies in motivating developers to site their developments near high-performing schools.

QAPs typically use points when awarding tax credits competitively. We focus on points awarded for (1) access to high quality schools, (2) access to any schools, and (3) location in areas with attributes expected to correlate strongly with high-quality schools. We use descriptive statistics and multi-level linear modeling. Our dependent variable is the School Proficiency Index, a number between 1 and 100 which measures school quality at the block group level, calculated by the U.S. Department of Housing and Urban Development. The Index is a function of (a) the proportion of 4^{th} grade students proficient in reading and mathematics on state exams, based on the Great Schools Database and (b) school enrollment based on the Common Core of Data. HUD calculated attendance area zones either based on the School Attendance Boundary Information System (SABINS) or based on within-district proximity matches of up to the three closest schools within 1.5 miles of the centroid of the respective block group.

Our independent variables are neighborhood characteristics, LIHTC property characteristics, and QAP points. In regards to neighborhood characteristics, we utilize median household income; median property value; percent of housing units that are occupied, all provided in the American Community Survey (ACS) at the block group level. In regards to LIHTC property characteristics, we utilize the number of units within the LIHTC property and the percent of units within the LIHTC property designated for low-income residents (also known as the qualifying ratio); all provided in the LIHTC Database at the property level. Finally, we also utilize three QAP points, all developed by us based on QAPs at the state level. First, we use QAP School Quality Points, i.e., the percent of total points outlined in the QAP that incentivize the placement of a development in proximity to a high-quality school. Second, we utilize QAP School Access Points, i.e., the percent of total points outlined in the QAP that incentivize the placement of a development in close proximity to a K-12 school. Third, we use QAP School Proxy Points, i.e., the percent of total points outlined in the QAP based on incentives that may proxy or indirectly result in units placed near a public K-12 school.

Based on 2013/2014 LIHTC data, we find a significant and positive effect on location in catchment areas of high-performing schools. We plan on expanding the LIHTC data set. We discuss the ability of current allocation policy to influence developer actions, provide policy recommendations, and the need for further research.

IS BIGGER BETTER? COMMUNITY AFFORDABLE HOUSING NEEDS AND LOCAL CAPACITY

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Keywords: affordable housing, local government capacity, small towns

The focus on housing issues in the United States is largely directed towards large, urban cities, yet the majority of communities are relatively small in population-size. Over three-quarters of the 19,519 municipal governments in the U.S. have populations of 2,500 or less; nearly half (47%) have populations of less than 1,000 (United States Census Bureau, 2012). Local municipal governments range in size and location along the rural-urban continuum, yet typically have similar powers and perform the same functions (National League of Cities, 2019). Local governments are responsible for identifying housing needs and developing appropriate programs to address those needs, which are typically supported through a variety of external resources from state and federal programs that foster access to affordable housing for low-income households (Landis & McClure, 2010). Navigating these programs is complicated and often requires local governments to strengthen capacity to be competitive (Handley, 2005). Larger population communities and those located within metropolitan areas may be better equipped to foster local capacity and identify resources. However, local governments of small population communities may be more efficient and better able to understand citizens' needs due to their proximity (Avellaneda & Gomes, 2014).

The study examines local capacity to address local housing needs by examining the questions: "How does the capacity to address rental housing needs differ by location (metro/nonmetro) and community population size?". To examine this question, we use a unique dataset from a statewide survey of elected officials and city staff from one Southeastern state conducted to gather information on housing needs and the resources and programs used to address housing at the municipal level. The survey process followed a method established by Dillman et al. (2014), which includes tailored messages and repeated personal contacts, to enhance the response rate. The survey instrument was first distributed directly to participants through a personalized email message and an individual link to a Qualtrics web-based survey using a database provided by the state municipal association. After multiple follow-up attempts, we received a response from 311 communities in the sample, which represents a community response rate of 58.5%. This research includes a subset of 211 responses from community representatives who identified a need for more rental and owner-occupied housing affordable to low- and moderate-income households in their community.

For our analysis, we divided the respondent communities into two categories – 1) metro/nonmetro location, based on the USDA Rural-Urban Continuum Codes, and 2) population size of 2500 or fewer and communities with populations exceeding 2,500. The use of population size above and below 2,500 was selected based on U.S. Census definitions that employs a population of 2,500 as a minimum threshold for several place definitions. We used a series of measures from the survey items to examine capacity. These items include the use of local resource/tools and state and federal funding programs that are designed to identify housing needs and increase access to or the supply of affordable housing. The local resources and tools measures include formal housing networks or planning groups, dedicated community development staff, housing needs assessments, and land bank authorities. External financial resources include the use of federal and state housing funds including Community Development Block Grants (CDBG), HOME funds, tax credits for housing development (LIHTC), USDA Housing Programs.

Our findings suggest that, among communities with a desire to increase their stock of affordable housing, population size is a more important factor than location when considering use of community development tools, resources and funding programs,. There was a significant difference in all of the variables by population size. The finding that smaller communities have less capacity to address housing supply issues is conceptually intuitive and thus not surprising. However, all of the respondents indicated an increase in the affordable housing supply was needed. These findings suggest that these communities

may not have the capacity to bring about change in their affordable housing supply. While small population communities may lack the funds to hire staff dedicated to housing and community development issues, they may be able to form local housing team or housing network, a preliminary step in the community development process that is linked to changing local housing inventory (Cook et al. 2009). Our findings regarding metro/nonmetro location were mixed. Metro communities were more likely have a formal housing group or network and land bank authority, than non-metro area communities though only a very small portion of communities in the sample used these resources. A larger portion of non-metro communities used CDBG and USDA funding programs, though only the USDA funding variable was significant. The findings of the study suggest that small population communities in both metropolitan and non-metropolitan areas in this state would benefit from capacity-building technical assistance. Further research is needed to better understand the barriers for small-towns interested in developing affordable housing.

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AGING IN PLACE ALONE: EXPLORING PERSEVERANCE WITHIN LONG-OCCUPIED FAMILY HOMES

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Keywords: aging in place, older adult housing policy, log-occupied family home, attachment to home, elderly perseverance, elderly resilience, agency of elders

Supporting sustained existence within one's long-occupied family home remains a critical housing issue for policy makers, care providers, and the design community. Applied research on aging in place investigates a wide range of perspectives from public policy to home modifications (Golant, 2015). Practical modification strategies can be successful in supporting greater independence, and related research findings report corresponding trauma reduction. While efforts towards identifying best practices for extending elders' independence and reducing risk of injury while remaining at home are effective, there is a need for greater understanding of the adaptations initiated by the oldest old themselves in their quest to remain at home until end-of-life. Oldest old are defined as those adults aged 85 or over (Fonda & Herzog, 2004; Soldo, Hurd, Rodgers, & Wallace, 1997).

The purpose of this study was to explore the lived experiences of the oldest old who—despite advanced age and sometimes debilitating physical declines—chose to remain in their long-occupied family homes in their last years. Ten older people aged 88 to 100 years (mean = 94.5) living alone following widowhood participated in this qualitative mixed-methods study. Open-ended questions explored two areas: participants' personal adaptations utilized to accommodate for diminished capabilities , and issues of place attachment and relocation aversion. Interviews were audio-recorded using a hand-held digital recorder and later transcribed. Additionally, all areas of participants' homes were observed and photographed. Time spent with each participant ranged from four and a half to ten hours (mean = 5.5 hours), over three to seven sessions (mean = 4.5). Participants' residential locations were geographically diverse: mid-western towns with populations below 3000, mid-western cities with populations between 40 to 70 thousand, and suburban locations bordering large cities. Interview and photographic data were manually sorted, coded, and analyzed for thematic content. Strengths of this study include advanced age and limitations include the small sample size.

Findings indicate strong attachment to home, a resoluteness in avoiding relocation to group housing, perseverance through loneliness and reduced circumstances, and the use of coping behaviors and adaptations to accommodate for physical decline. Strong resilience and determination in reaction to specific challenges was observed. Only one participant had interacted with an aging in place specialist and the home modification suggestions made had not been implemented. The purposeful resolve and resilience of the participants—rather than home modification/intervention strategies—was found to be the most pervasive factor allowing these oldest-old to remain at home. Some adaptive behaviors were active—such as relying on others within their personal sphere—while others involved in-action—such as tolerating unkempt conditions and deferred maintenance of their homes.

A significant implication of this study is participants' use of the process of selective optimization and compensation—a person's discriminating use of internal and external resources to optimize adjustment—rather than relying on prescriptive solutions (Baltes & Baltes, 1990). Striving to remain at home, they made personal, often sacrificial, modifications and accepted the entailed consequences. The effective adaptive mechanisms and personal resilience findings highlight the need for policy makers, researchers, and service providers to further engage in the lived experience of the oldest old in guiding the process of establishing programs and services (Carver, Beamish, Phillips, & Villeneuve, 2018).

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SUSTAINABILITY OF RESIDENTIAL ENVIRONMENTAL INTERVENTIONS AND HEALTH OUTCOMES CHANGES

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Keywords: healthy homes, asthma, housing, environmental health

Research has documented that housing conditions can negatively impact the health of residents, particularly vulnerable populations (Northridge, 2010). Asthma has many known indoor environmental triggers including dust, pests, smoke and pets, as evidenced by approximately 7.1 million children (U.S. EPA, 2013) and 18 million adults (CDC, 2014) of the U.S. population who have asthma. We conducted three U.S. Housing and Urban Development (HUD)-funded multifaceted home environmental intervention projects with children and older adults in diverse low-income households. Our results provide significant evidence that these interventions work to improve environmental quality and health of children and older adults with asthma over a one-year follow-up period (Turcotte et al. 2014, 2018, 2019). We received HUD funding for a fourth study to evaluate the sustainability of improved environmental conditions and health outcomes by reenrolling participants from these three studies. We evaluated the hypothesis that the improved health outcomes and environmental conditions resulting from multi-trigger, multifaceted healthy homes interventions will decline over time for children and older adults with asthma.

Methodology and Procedures

Health assessment includes collecting data on respiratory health outcomes before and after healthy homes intervention (questionnaires on symptoms, quality of life, medication use, and doctor/ER/hospital visits). Environmental assessment includes evaluation of asthma trigger activities (ATAs) and exposures before and after healthy homes intervention (questionnaire, home survey). Assessments were conducted in English, Khmer and Spanish. Major analysis includes health effects on medication use, wheeze, asthma attacks, doctor and ER visits and hospitalizations and asthma scale assessment on emotional/physical health, physical/social activity. The comparison of baseline to follow-up change in health and environmental data was done using a paired sample t-test. All statistical analysis was done using SAS (Version 9.2) or Stata (Version 11) statistical software.

Results

Results for the fourth follow-up study with older adults show significant reduction in environmental improvements and health outcomes since final assessment of the intervention. Data collection is ongoing with asthmatic children, but we anticipate similar results. We will describe the results from the initial

intervention studies and the change from the end of the initial intervention to baseline assessment of the follow-up study several years later.

Conclusions and Implications

The findings suggest that improved health outcome change and reduction in home asthma triggers from culturally/linguistically appropriate, multifaceted home interventions are not sustainable without additional follow-up interventions. The study suggests that additional "booster interventions" are necessary to sustain the health outcome improvements and home asthma triggers reductions resulting from a low cost comprehensive home environmental intervention with our study population of children and older adults with asthma. Consequently, policymakers should provide more funding to support additional studies or pilot projects that include "booster interventions" and to sustain changes in housing conditions to further evaluate health outcome changes to children and older adults with asthma**.**

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MEETING HOUSING NEEDS OF RESIDENTS IN A CHANGING URBAN NEIGHBORHOOD

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Keywords: community development, aging, housing needs

The purpose of this project was to inform community-level strategies to accommodate housing needs of residents in one of the oldest urban neighborhoods in Saint Paul, Minnesota, The neighborhood is experiencing new, young adults moving in and a desire by existing residents, particularly those who are old, to stay in the neighborhood. Both longer term and newer residents worry that gentrification may occur as demand for living in the city increases. The neighborhood community organization, the Fort Road Federation (FRF), partnered with the researcher to understand the housing needs of residents. The project assessed differences and similarities among the residents, comparing and contrasting their housing needs to ensure the stability of the neighborhood.

An invasion-succession or a life-cycle model can characterize neighborhood change and are associated with the study of gentrification. Gentrification can be measured by changes in social class and race (Schwirian, 1983) resulting in the displacement of current residents (invasion-succession). However, traditional measures of gentrification may mask the ecological change of neighborhoods when younger but same class households move in and/or there is "incumbent upgrading," that is, reinvestment in the neighborhood by long-term residents (life-cycle) (Moos, 2016; Schwirian, 1983).

A survey instrument was developed in electronic and paper format with the paper format in Somali, Spanish, Hmong, and English. Quantitative questions included respondent demographic and housing characteristics, and community attributes of importance to them. Open-ended questions included what respondents valued most and least of their current homes and what they needed to remain in their homes and/or in the neighborhood. The invitation to complete the survey was posted on neighborhood Facebook pages and the FRF's website, advertised in the local community newspaper, and emailed to residents on the FRF's listserve. Flyers were posted in places of worship, health clinics, the community center, etc. Print copies were available at the local community center and at the FRF's annual meeting.

The survey was open from April through June 2018 and 255 individuals responded. One respondent did not indicate an age, so was removed from the analyses. The sample (n=254) was divided into five subsets: those aged 18-34 (n=47), 35-44 (n=63), 45-54 (n=48), 55-64 (n=46), and those aged 55 years of age and older (n=50). Quantitative data were analyzed using chi-square analysis and analysis of variance. Open-ended questions were analyzed qualitatively by identifying response themes for each question.

Comparing the five age groups, the average number of persons per household ranged from 2.4 for respondents under 35 years, to 3.21, 2.73, 2.13, and 1.56, respectively. The average number of years that respondents had lived in their current home, was slightly less than the number of years they had lived in West 7th, indicating that they had moved within the neighborhood. The years in West 7th ranged from 2.40 years for respondents under 35 years of age, to 8.37, 17.79, 19.07, and 19.64, respectively. Younger households had higher incomes than older households and were more likely to live in a single family home. Both groups reported that they had sufficient income to meet their needs, were satisfied with their homes, and wanted to stay in their home and neighborhood in the future. Attributes that were important to both groups when making decisions about housing were affordability, safety, walkability, and proximity to parks/nature. Attributes more important to older respondents than to the younger respondents were ease of living in their homes, access to services, low noise levels, and opportunities for volunteering. Younger respondents indicated that community amenities and being close to their job were more important than for older residents. To stay in their homes, both groups indicated affordability and financial help, home improvements, maintenance and upkeep were important. The difference between younger respondents and older was that younger respondents needed access to knowledge and skills, while older residents needed home modifications to make their homes accessible.

In summary, the neighborhood is attracting new and younger residents and the needs of both the younger- and older-aged residents should be accommodated to avoid involuntary displacement. Findings from the project are informing the housing chapter of the neighborhood's comprehensive plan. Additionally, recommendations for community-level strategies to respond to needs of residents are being developed in conjunction with the FRF.

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2007-2008 Marilyn Bruin
2008-2009 Jorge Atiles
2009-2010 Ann Ziebarth
2010-2011 Ken Tremblay
2011-2012 Christine Cook
2012-2013 Sarah Kirby
2013-2014 Martha Keel
2014-2015 Andrew Carswell
2015-2016 Michael Goldschmidt
2016-2017 Pamela Turner
2018-2019 Gina Peek

Conference Locations & Dates

Conferences held prior to formal organization

1946 Urbana, IL: April 1-4, 1946
1948 West Lafayette, IN: October 17-19, 1948
1957 Urbana, IL: October 9-12, 1957
1958 Ames, IA: October 22-25, 1958
1959 Stillwater, OK: October 7-10, 1959
1960 Ithaca, NY: October 12-15, 1960
1961 Manhattan, KS: October 11-14, 1961
1962 Minneapolis, MN: October 18-20, 1962
1963 University Park, PA: October 30- November 2, 1963
1964 East Lansing, MI: October 14-17, 1964
1965 Columbia, MO: November 3-6, 1965

American Association of Housing Educators (AAHE)

1966 Urbana-Champaign, IL: October 26-29, 1966
1967 Lafayette, IN: October 11-14, 1967
1968 Athens, GA: October 27-29, 1968
1969 Davis, CA: October 15-17, 1969
1970 Lincoln, NE: October 14-16, 1970
1971 Blacksburg, VA: October 17-20, 1971
1972 Dallas, TX: October 10-13, 1972
1973 Madison, WI: October 10-13, 1973
1974 Boston, MA: October 29-November 2, 1974
1975 Fort Collins, CO: October 7-11, 1975
1976 Columbus, OH: October 12-16, 1976
1977 Tucson, AZ: October 19-21, 1977
1978 Minneapolis, MN: October 11-14, 1978
1979 College Station, TX: October 16-19, 1979
1980 University Park, PA: October 6-8, 1980
1981 San Francisco, CA: October 6-10, 1981
1982 Knoxville, TN: August 10-12, 1982
1983 Lincoln, NE: October 4-7, 1983
1984 Washington, DC: August 8-10, 1984
1985 Ames, IA: October 15-18, 1985
1986 Santa Fe, NM: October 14-17, 1986
1987 Newport, RI: November 2-7, 1987
1988 Corvallis, OR: October 11-14, 1988
1989 Greensboro, NC: October 24-27, 1989
1990 Columbia, MO: October 16-19, 1990
1991 Durham, NH: October 15-18, 1991
1992 Winnipeg, Manitoba Canada: September 16-19, 1992
1993 Columbus, OH: October 6-9, 1993
1994 Atlanta, GA: October 18-21, 1994
1995 Salt Lake City, UT: October 11-14, 1995
1996 Manhattan, KS: October 16-19, 1996
1997 New Orleans, LA: October 22-25, 1997
1998 33rd International Housing Conference, Seoul, South Korea: August 5-8, 1998
1999 Orlando, FL: October 18-23, 1999
2000 Stone Mountain, GA: November 15-18, 2000
2001 Big Sky, MT: July 22-July 25, 2001
2002 Minneapolis, MN: October 23-26, 2002

Housing Education and Research Association (HERA)

2003 Washington, DC (held in conjunction with AAFCS): June 28-30, 2003
2004 Chicago, IL: October 20-23, 2004
2005 Denver, CO: October 4-7, 2005
2006 Ithaca, NY: October 8-11, 2006
2007 Charlotte, NC: October 23-26, 2007
2008 Indianapolis, IN: October 7-10, 2008
2009 Santa Fe, NM: November 1-4, 2009
2010 Portland, OR: November 3-6, 2010
2011 Baton Rouge, LA: October 12-15, 2011
2012 Roanoke, VA: October 28-31, 2012
2013 Tulsa, OK: October 27-30, 2013
2014 Kansas City, MO: October 5-8, 2014
2015 Springfield, IL: October 11-15, 2015
2016 Jacksonville, FL: October 23-26, 2016
2017 Lowell, MA: October 8-11, 2017
2018 Savanah, GA: October 7-10, 2018
2019 Austin, TX: November 10-13, 2019