

MHLAZ's DIVISIONS



Ken Anderson
President

Other than occasional photos and mentions of our industry divisions, there has, to the best of my knowledge, never been an article written about their value to the association. Currently we have five Divisions: Phoenix, Tucson, Northwest (Kingman/Bullhead), Southwest (Yuma), and the White Mountains. Each has a Division President and most have other officers. Meetings take place from every two months to one Division that meets once per year. Attendance varies by Division and includes manufacturers, retailers, installers, lenders, title companies and suppliers. On many occasions the DFB&LS or the local IGA are also in attendance.

An agenda is developed in advance with the Division President's input. Topics will vary from local installation issues, changes in enforcement of installations to discussions of local transportation issues, possible future home shows and charitable outreach. While many other States have either eliminated or downsized their regional coverage because of economic factors, Arizona has continued to grow our Divisions with the resurgence of Yuma. Yuma alone has added four new members to our roster recently.

Some of the reasons they are so valuable is because many new ideas originate at our Divisions. Did you know that home shows at one time were all totally driven by our Divisions? Phoenix, Tucson, Northwest and Yuma all had large public home shows. Each of our Divisions are today looking for opportunities to participate in future home shows. Our Divisions are also self funded from proceeds retained from previous home shows.

When it came time to request sales staffing for the 2014 State Fair home, many of our Divisions stepped up to fill the schedule with licensed sales people. At our White Mountain Division meeting last year, one of our installers raised a question about water pressure testing that forced a change from HUD.

Much of what your Association has accomplished with ADOT came from the concerns the Northwest and White Mountain Divisions had about road closures due to construction with no consideration of shipment of our homes at an affordable price. The Tucson Division developed a relationship with Pima County Flood Plain to include our industry in future meetings to soften the blow of new FEMA standards. The Yuma Division has started an effort with Senator McCain to offer some reforms to allow Canadian buyers the opportunity to finance homes in the US and to improve the banking relationships between the two countries.



Photo from a recent Phoenix Division Meeting

(Continued on Page 2)

MHIAZ's DIVISIONS *(Continued)*

Each of our Divisions are also active politically. During election cycles you will find many involved in grassroots candidate fundraising or otherwise helping their candidate get elected. On many occasions local candidates are invited to attend our Division meeting to present their platform and receive questions from our members.

All of the Associations Charity activity has started at our Divisions. One outstanding outreach was started in Tucson by member Sue Burtzloff Gibbs, with Boxing for Troops. Every year since 2008, Sue and her parents and other Division members collect donations from MHIAZ members and others and put together care packages to send to Arizona Troops serving overseas at the holidays. Another was providing various necessities for the elderly in Mesa. This was driven by Brian Brastad and the Phoenix Division. Each Division has a seat on our Board of Directors where reports are made and recommendations expressed. The officers of each are otherwise active within the Association with most attending our annual meetings.

Our current Division leaders are as follows: **Phoenix:** Kory Beickel, President & Board Representative; Ron Armstrong, Vice President; Brian Brastad, Treasurer; and Patricia Durkin, Secretary. **Tucson:** Scott Townsend, President & Board Representative; John Casserly, Treasurer; and Venise Gomez, Secretary. **Northwest:** Shane Willson, President; Frank Geraci, Treasurer; Julie Lackey; and Rick Gastineau, Board Representative. **Southwest:** Michael Bryant, President; Debra Green, Treasurer; Jan Esch, Secretary & Board Representative. **White Mountains:** Wayne Harder, President.

I personally thank them for their continued leadership and commitment to make our Association stronger.

MHIAZ Leadership

Executive Committee

Cody Pearce, Chairman
Jim Breen, Vice Chairman
Norman Ball, Treasurer
David Roe, Jr., Secretary
Joshua Wendt, Past Chairman

Board of Directors

Norman Ball
Kory Beickel
Rick Boles
Brian Brastad
Jim Breen
Jan Esch
Rick Gastineau
Ky Ghosh
Terry Gleeson
Cody Pearce
Scott Roberts
David H. Roe, Jr.
David Stone
Scott Townsend
Joshua Wendt

Division Presidents

Shane Willson, Northwest
Kory Beickel, Phoenix
Michael Bryant, Southwest
Scott Townsend, Tucson
Wayne Harder, White Mountain

Gov't & Zoning Committee

Norman Ball, Chairman
Brian Brastad
Terry Gleeson
Cody Pearce
David H. Roe, Jr.

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In This Issue...

Featured Leader: Jan Esch	Page 3	MHCC Holds Productive Meeting	Page 8
Frankie Johnson in Memoriam	Page 3	Federal Data Confirms Need	Page 9
HUD Final Rule	Page 4	Palm Harbor Builds Fortified Home	Page 11
Duty to Serve Expanding	Page 6	ORNL & Clayton Build 3D Home/Car	Page 12
Updates from the DFBLS	Page 7	Political Action in 2016	Page 14
New MH Charity Launched	Page 7	Calendar of Events	Page 14

FEATURED LEADER: JAN ESCH

SOUTHWEST DIVISION MEMBER TO THE BOARD



Jan Esch
Southwest
Division

Jan Esch is owner of Blue Diamond Home and RV in Yuma and Lakeside, Arizona. Jan was recently elected to serve as the Board Representative for the Southwest Division. Jan previously served as Secretary of the Division and was instrumental in many of the Division's Home Shows/Parade of Homes.

I entered the manufactured housing industry in 1991 to help my father with his "retirement" business, Second Home Park Model Sales. My husband Dan and I took it over in 1993 when my father passed away. We started a second location in Lakeside, AZ in 1995 and changed our name to Blue Diamond Home & RV.

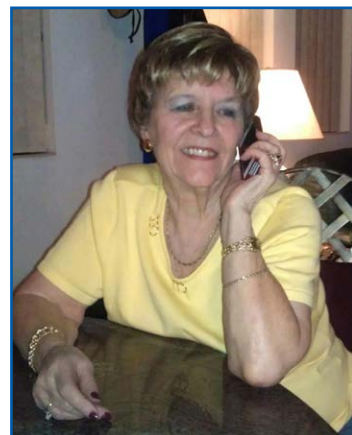
Prior to joining this industry I was the corporate videographer for a fortune 500 company in the San Francisco area working on sales, marketing and training tapes. I also did a couple of stints in commercial television in front and behind the camera.

My degree is from Oregon State University. I enjoy the arts and music and currently take Ceramics at our local Community College. I am very interested in native cultures both here and in South America. I am a member of Fort Yuma Rotary. Dan and I have one son who is attending U of A.

FRANKIE JOHNSON IN MEMORIAM

It is with deep regret that we inform you of the passing of Frankie Johnson of Cardinal Homes. Frankie was recently awarded the Ruth C. Kaseman Award at our Annual Convention this past June. Frankie served the manufactured housing industry tirelessly helped the association and her fellow industry members make great strides in Arizona.

Frankie served on our Board of Directors as Treasurer for several years. Frankie also organized and ran 9 consecutive Home Shows throughout the Valley, even going to far as to provide meals for the participating retailers and others. She also led a task force to develop a legal purchase contract for retailers and brokers for the entire industry, where much of the language is still in use today. Frankie received the Chairman's Award three times during her service to our Association, more than any other member.



Frankie Johnson

Frankie was always an advocate of the Brokers Council. After completing her service on the Board of MHIAZ, she continued to support her broker group by conducting her own training, particularly for the escrow law that began a few years ago. She continued to support her Phoenix Division by attending meetings, participating in discussions and helping with the task at hand.

Frankie will be deeply missed by all her knew her.

HUD FINAL RULE - ON-SITE COMPLETION OF CONSTRUCTION OF MANUFACTURED HOMES

September 8th's Federal Register contains the final HUD Rule establishing new procedures that permit manufacturers to complete the construction of manufactured homes on-site rather than in the factory, without obtaining advance approval from HUD (24 CFR Part 3282 Subpart M).

The rule, first proposed in 2010, and will eliminate the need for costly time-consuming approval under the current Alternative Construction (AC) process for most on-site work that is required to complete construction of a manufactured home. Notably, this rule does not apply to attached garages, as HUD expects to address this subject in future rulemaking.

The rule establishes new requirements for manufacturers to inspect and approve on-site work that previously has not been required.

A final on-site inspection by the manufacturer's IPIA or his/her agent will be required prior to occupancy. MHI's comments on the proposed rule MHI opposed 100 per cent IPIA inspections. We recommended that the on-site process should be considered an extension of the factory inspection process, thus the site work should be treated as yet another "stage of production" whereby each unit is inspected in at least one stage of its production.

The final rule is effective on March 7, 2016.

Significant provisions of the final rule are summarized below. Please don't hesitate to reach out if you have questions.

Aspects of construction that may be approved to be completed on site:

- Completion of roof dormers;
- Addition of stucco, brick or other siding that is subject to damage in transit;
- Retailer changes to the home on-site, when the home is taken out of compliance with the Construction and Safety Standards and then is brought back into compliance with the standards;
- Site installed appliances that are listed or certified for use in manufactured homes;
- Hinged roof and eave construction unless exempted as installation by the Manufactured Home Installation Standards. Notably, as recommended by MHI, the final rule now allows peak flip and peak cap construction in which the roof pitch of the hinged roof is less than 7:12, when located in Wind Zone I, to be deemed part of the installation standards (24 CFR Part 3285) and not subject to the requirements of this final rule;
- Components or parts that are shipped loose with the home and that will be installed on-site, unless exempted as installation by the installation standards;
- Other construction such as roof extensions (dormers), site-installed windows in roofs, removable or open floor sections for basement stairs, and sidewall bay windows.



(Continued on Page 5)

HUD FINAL RULE - ON-SITE COMPLETION OF CONSTRUCTION OF MH *(Continued)*

Major Requirements Applicable to Completion of Construction:

Manufacturers must obtain DAPIA approval of any aspect of construction to be completed on-site. Quality Assurance Manuals must contain provision for on-site completion of construction (3282.603 and 604).

Manufacturers must provide instructions for completing the work on -site and a copy of an inspection checklist to the IPIA for monitoring and inspection (3282.603)

Manufacturer may certify and label a manufactured home that is substantially completed in the factory even though some aspects of the construction will be completed on-site. In response to MHI's recommendation, no separate "green" label will be required as proposed in the 2010 proposed rule. Instead, the label's serial number will contain the letters SC in the prefix or suffix (3282.605).

A Consumer Information Notice informing the prospective purchaser that the home requires on-site work must be shipped with the home (3282.605 and 606).

The manufacturer is responsible for adequacy of the on-site work and must prepare a final inspection report and provide it to the IPIA within 5 days of completion of the report. The final report must contain a certification by the manufacturer that the home meets the Standards (3282.605)

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The IPIA or the IPIA's agent must conduct a final inspection of the on-site work, and approve the manufacturer's final on-site inspection report before the home may be occupied.

Upon receipt of an approval by the IPIA of the final inspection report the manufacturer has five days to provide a copy of the approved inspection report to the consumer, retailer and any entity other than the manufacturer that performed the on-site construction work (3282.605).

A PDF copy of the Final Rule for On Site Completion of Construction of Manufactured Homes can be found online at: <http://www.gpo.gov/fdsys/pkg/FR-2015-09-08/pdf/2015-21774.pdf>

##

DUTY TO SERVE - EXPANDING THE AVAILABILITY OF CREDIT FOR CHATTEL LOANS

In addition to the important changes to the Dodd-Frank Act that are necessary to increase financing for manufactured home loans, MHI continues to advocate that Fannie Mae and Freddie Mac (GSEs) develop a secondary market for chattel loans. The GSEs currently purchase loans for real property manufactured homes (where the land is pledged as collateral), but not chattel loans.



Since chattel loans constitute a majority of the manufactured home loans being made, this gap is significant. The creation of a secondary market for chattel loans would be a step in the right direction to adding liquidity for credit for those seeking to purchase manufactured homes.

In 2008, Congress passed a law, the Housing and Economic Recovery Act (HERA), requiring Fannie Mae and Freddie Mac to develop loan products and flexible underwriting guidelines to facilitate a secondary market for manufactured housing.



Even though this “Duty-to-Serve” statute requires the GSEs to consider purchasing chattel loans, since 2008 this requirement has not been implemented. However, the Federal Housing Finance Agency (FHFA) is reported to be on the verge of issuing rules to implement this requirement.

Guidance from FHFA would provide the impetus for the GSEs to do the work to develop sound loan products for chattel loans. Under the statute, once the rules are finalized, FHFA would evaluate annually compliance of each Enterprise and rate their performance, taking into consideration (1) the development of loan products; (2) more flexible underwriting standards; (3) innovative approaches to providing financing; (4) extent of outreach to qualified loan sellers; and (5) the volume of loans purchased (except that FHFA may not establish quantitative targets or evaluate compliance solely based on loan purchase volume).

MHI continues to encourage the FHFA to use this statutory requirement to have GSEs create a secondary market for chattel loans. We are working to show that this can be done in manner that is both financially sound and beneficial to consumers seeking to purchase manufactured homes.

It will take some time for the GSEs to get comfortable with securitizing chattel loans, but as they do they will become an important new source of financing for homeowners buying manufactured homes.

##



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UPDATES FROM THE DFBLS

NEW STAFF



Yvonne
Caratachea

Yvonne Caratachea joined the Department recently to expand the IPIA Inspection Team. This addition was part of our planning to 1) support increasing production volumes, and 2) succession planning to prepare for future retirement of IPIA inspectors

Yvonne brings several years of experience working in a HUD manufactured facility in Arizona. That knowledge and experience will be valuable as she learns the inspection processes.

Stephen Briggs was hired by Department of Financial Institutions as Legislative Liaison and special projects to be shared 50/50 through an agreement with DFBLS.



Stephen
Briggs

Stephen is a political and legislative professional. His legislative experience includes work as a business liaison for U.S. Congressman Paul Gosar's Arizona Office, and as legislative assistance for U.S. Congressman J.D. Hayworth's Washington, DC Office.

PROCESS IMPROVEMENTS

A recent change to the process of submitting manufactured home permits through a web portal was implemented at the end of July 2015. This electronic submittal process allows for on-line payment and has made the review and approval process for issuing permits quicker. Next steps are for the Office of Manufactured Housing will be submitting plan review applications, payment and plans through a web portal. The goal is an improved customer experience.

NEW MH CHARITY LAUNCHED

MHGives, the new manufactured housing industry charity, is designed to bring together people with business skills and expertise to make a difference in the lives of children around the world. This will be done by partnering businesses and orphan care.

The goal will be to help orphanages and schools learn to be self-sustaining by establishing micro-businesses as well as training students with real job skills. Also, since providing affordable housing is what this industry is best at, MHGives will be working on programs to provide homes for orphaned children. MHGives is still in the development phase and would love advice and input from those in the industry.



MHGives

To find out how you can get in on the ground floor with them or to see ways to get involved, visit their website www.MHGives.org, sign up for their newsletter, like them on Facebook, email them at mhgives@gmail.com, follow them on LinkedIn, or call them at 800-984-2050.

MHCC HOLDS PRODUCTIVE MEETING

The National Manufactured Housing Consensus Committee (MHCC) met for three full days last month in Washington D.C., and made a number of recommendations to the HUD Code, including a new standard for multifamily (1-3) units. The MHCC rejected a proposal offered by a staff person at the International Code Council (ICC) to require fire sprinklers in HUD-Code Homes.

The MHCC received a status report on pending regulations:

- The Recreational Vehicle Exemption rule is completed and in Departmental clearance at HUD, with a proposed rule expected by the end of the year.
- After years of languishing, two comprehensive packages of updates to the standards are planned for publication as proposed rules in 2015 and 2016.
- The Department of Energy's (DOE's) proposed energy efficiency standards for manufactured housing are being finalized and sent to the Office of Management and Budget and tentatively scheduled for publication by the end of the year.
- EPA's proposed rule of 2013 to establish formaldehyde emissions standards for all wood products is expected to be published as a final rule in early 2016. HUD will then have 6 months to incorporate them into the HUD Code. The regulations will likely parallel those that have been in place by the State of California for several years. However, the rule will likely differ for companies who fabricate components in their factories. As a result of successful legislative efforts by MHI, homes produced after a specified "date of manufacture" would be subject to the new emissions requirement.

In public comments during the meeting, MHI staff expressed concern about HUD's policy regarding attached garages. MHI (and MHCC) believes that HUD is acting beyond its authority to require alternative construction on certain attached garage designs. MHI asked the MHCC to continue to work on the issue and develop an alternative that will be acceptable to industry as well as HUD and the State Administrative Agencies.

HUD recognized the MHCC members who will be rolling off the committee as of December with certificates of appreciation. Two MHI members were recognized: Manuel Santana, Director of Engineering, Cavco Industries, and former MHI member David Tompos, President of NTA, Inc. Both served tirelessly for two three-year terms, working between meetings, in numerous conference calls with the MHI TAC and other MHCC members, to develop updates and improvements to the HUD-Code. Their reasoned arguments and professional advice persuaded opponents and resulted in numerous majority votes in support of industry positions. Thanks also went to Michael Wade of Cavalier Homes, who ended a six year term last December, and was equally persuasive and active on behalf of the industry.

HUD welcomed the following new members: John Weldy, Director of Engineering, CMH Manufacturing, Inc.; Joseph Anderson, President and CEO, Timberland Mobile Housing L.L.C.; and Dominic Frisina, Vice President, RoMar Homes, Inc. Both Mr. Anderson and Mr. Frisina are active in their respective State Manufactured Housing Associations, Texas and Pennsylvania.

The next meeting of the MHCC will take place in January, in conjunction with the Louisville Show. The show will provide an opportunity for members of the MHCC to see what great homes we produce and for many industry members to attend the MHCC meeting.

[Click here](#) to view a complete MHI summary of the meeting. More information about the MHCC, including a complete list of members and all the Log Items that were considered at the meeting can be found [here](#).

FEDERAL DATA CONFIRMS THE NEED FOR THE PRESERVING ACCESS TO MH ACT

This week, the Federal Financial Institutions Examination Council released 2014 Home Mortgage Disclosure Act (HMDA) data, which provides information about home lending at more than 7,000 financial institutions and covers almost 10 million mortgage applications and 6 million originations.



The data confirms what we have been telling policymakers in Washington, DC, all year - that manufactured home lenders are simply not making HOEPA loans. The reason is simple; because HOEPA rules calculate costs as a percentage of loan amount, smaller loan sizes - like loans for manufactured homes - violate points and fee caps, and subject them to increased liability and burdensome rules.

Those who have spoken in opposition to our legislation have been arguing that consumers will lose these HOEPA high-cost protections should our legislation pass. This data conclusively rebuts this argument - it shows lenders simply are not making loans with the "high-cost" HOEPA designation. As a result, many manufactured housing lenders have left the market - and consumers have suffered.

The data shows that lenders made such loans before the Dodd-Frank Act rules went into effect, and they did not make them after. A report from the Fed on the 2014 HMDA data described the decline in manufactured home loans as: "a precipitous drop in the number of loans originated in 2014 at the HOEPA price threshold, whereas, for 2013 - before the new threshold rules took effect - no such discontinuity was evident. This pattern suggests that *HOEPA discouraged lending above the price thresholds. . . .*"

The data clearly demonstrates that regulations implemented as a result of the Dodd-Frank Act have become a barrier to the financing needed by potential homebuyers to purchase manufactured homes. Many retirees, veterans, and working families that own or want to buy a manufactured home are unable to find financing because federal rules have caused some lenders to stop making manufactured housing loans completely and caused other lenders to curtail the loan products they offer. Existing manufactured homeowners are harmed as their home values suffer due to the inability of potential buyers to obtain financing; owners are being forced to sell to buyers for cash at a fraction of the home's market value. These federal government policies are destroying family net worth and harming the ability of credit-worthy families to achieve the American dream of homeownership.

The Preserving Access to Manufactured Housing Act will restore financing options for manufactured home buyers, without weakening any of the core consumer protections in place for those purchasing manufactured housing. The bill maintains federal oversight of manufactured housing lending and maintains core consumer protections against predatory lending practices, including ability to repay requirements.

Representatives and Senators Need to Hear from You about the Preserving Access to Manufactured Housing Act (H.R. 650/S. 682)

Thank you for calling on your Representatives and Senators throughout the year to tell them about the importance of the Preserving Access to Manufactured Housing Act (H.R. 650/S. 682). As your team in Washington, we can

(Continued on Page 10)

FEDERAL DATA CONFIRMS THE NEED FOR THE PRESERVING ACCESS TO MH ACT *(Continued)*

tell you that your phone calls, letters, and personal visits have been extremely effective. Your representatives in Congress appreciate hearing from you because you know first-hand the impacts of the Dodd-Frank Act on consumers. You have already told them that many lenders have stopped making manufactured home loans since the loans are now considered "high-cost" under the Home Ownership and Equity Protection Act (HOEPA) rules. Now is the time to reach out again, to tell your Senators and Representatives that the federal numbers back up what you have been telling them all along - that the true harm to consumers of manufactured housing is due to the current federal regulations. Tell them that based on your knowledge and experience, you can report to them that because financing for manufactured housing is unavailable, consumers living in, and those seeking to purchase, a manufactured home are harmed. Your stories are about real people back home, and you now have federal data to support what you have been telling them.

Our progress so far demonstrates that your voice is absolutely critical. H.R. 650 has passed in the U.S. House of Representatives and the language from S. 682 is included in a larger financial regulatory relief package that was passed by both the Senate Banking Committee (S. 1484) and the Senate Appropriations Committee. As Congress hears from constituents across a range of high profile issues during the fall season, we must keep up the drumbeat of support for passage of the Preserving Access to Manufactured Housing Act. You can make the difference for ensuring manufactured housing language is included in the final list of financial regulatory reforms that will be sent to the President's desk.

Please contact your Representatives and Senators and tell them how important passage of the Preserving Access to Manufactured Housing Act is to their constituents. Even if you have reached out before, it is time to follow up again. This is an absolutely critical time, and you can make the difference.

- **Send an email to your Senators and Representative.** Click [here](#) to send an email. The email has already been drafted for you. All you have to do is insert your home address and click send. The message will be sent to both of your Senators and your House Representative.
- **Call Your Representative.** Call the Capitol Switchboard at (202) 224-3121 and ask to be directed to your Representative. If you are not sure who represents you in Congress, tell the operator the zip code where you live and they will connect you to the correct office. Ask that your Representative support the Preserving Access to Manufactured Housing Act (H.R. 650/S. 682). Tell them that manufactured housing is a critical resource for working families across the country. This bill has already passed the House, but let them know enactment of this legislation is critically needed because it alleviates the regulatory burdens that have impeded consumers' ability to purchase manufactured housing.
- **Call Your Senators.** Call the Capitol Switchboard at (202) 224-3121 and ask to be directed to your Senator. (You need to call twice to communicate with each of your Senators). Ask that your Senator cosponsor S. 682, the Preserving Access to Manufactured Housing Act, to provide relief from the regulatory barriers that have hampered the market. Tell them that manufactured housing is a critical resource for working families across the country. Let them know this bill is critically needed because it alleviates the regulatory burdens that have impeded consumers' ability to purchase manufactured housing.

Thank you for taking the time to support manufactured housing!

PALM HARBOR HOMES BUILDS FIRST HURRICANE-RESISTANT MODULAR HOME

The Insurance Institute for Business & Home Safety (IBHS) and Palm Harbor Homes announced today Palm Harbor's manufacturing facility in Plant City, Florida has earned a FORTIFIED Home™ – Hurricane manufacturing plant certification to construct and deliver the first-ever FORTIFIED Home labeled and disaster resistant modular homes in hurricane-prone regions.



The facility is the first factory in the country to receive a FORTIFIED Home – Hurricane certification to produce modular homes. The first three homes have been produced and shipped to South Florida where they will be permanently located. Palm Harbor plans to introduce FORTIFIED Home standards this year with the introduction of the Discovery Florida line of homes and to promote it in all its modular designs.



“By using our FORTIFIED Home – Hurricane building standards, Palm Harbor Homes is raising the bar for the modular home industry. Offering homeowners safer, stronger homes in hurricane-prone areas will significantly reduce their risk of property damage and provide them peace of mind,” said Fred Malik, IBHS FORTIFIED programs manager. “It’s not a matter of if there will be another hurricane to hit the coast, but when. Homeowners and communities must be prepared when Mother Nature strikes.”

For more than 30 years, Palm Harbor Homes has delivered quality, value, and lasting customer satisfaction in beautiful and affordable homes. The company has earned a reputation as an innovator in design, construction and marketing of manufactured and modular homes.

“We are very proud to be the first U.S. manufacturing plant to attain the FORTIFIED certification,” said Mark Kelly, Vice President Sales and Marketing at Palm Harbor Homes. This is consistent with the plant’s history of cutting edge home building. Our homes have a strong history of weathering extreme storms and now we will be the first to offer homeowners in hurricane-prone areas the option to purchase a stronger modular home that will be more disaster resistant. It was an easy decision for us to adopt IBHS’s FORTIFIED Home – Hurricane standards for our modular home manufacturing process.”

Manufactured and modular homes earning the FORTIFIED Home label stand above other homes because they must meet stringent resilient construction requirements set by IBHS based on their extensive building engineering research. The better performance and superior quality built into every FORTIFIED factory built home is inspected by an IBHS certified independent inspector to ensure it meets FORTIFIED Home resilient construction guidelines. Modular homes earning a FORTIFIED Home designation requires the home to be inspected and labeled at the plant as well as inspected in the field by a FORTIFIED Evaluator.

The FORTIFIED Home – Hurricane program is the national standard for resilient construction and provides a uniform, voluntary, superior set of standards to help make homes safer, stronger and more resistant to hurricanes by adding system-specific upgrades to minimum code requirements. IBHS created the program, which is available for both new and existing homes, using its years of scientific laboratory and field research.

More information on FORTIFIED modular homes can be found in the FORTIFIED Home – Hurricane: Manufactured and Modular Home Guidelines brochure. Additional information on FORTIFIED is available [here](#).

ORNL & CLAYTON HOMES ARE 3D PRINTING A HOME & CAR THAT SHARE ENERGY

By Brian Krassenstein, August 18, 2015

After two years of covering news related to the 3D printing industry, it's very seldom that I get overly excited about a particular story or a project. With that said, after a thirty minute conversation with Roderick Jackson, Head of Building Envelope Systems Research at Oak Ridge National Laboratory (ORNL), I came away thoroughly excited about a project that they are working on and set to unveil in late September.

Most of you are likely familiar with the work that ORNL has been doing within the additive manufacturing space. In fact, the world's first 3D printed car by Local Motors relied heavily on the advanced manufacturing techniques and material science pioneered at the ORNL facilities. In particular the laboratory uses a 3D printer called BAAM, which they teamed up with Cincinnati Inc. to construct. BAAM, and its more recently unveiled larger version, can print giant structures very rapidly. In fact, the latest machine is able to output up to 100 pounds of material every hour and print objects as large as 20 x 12 x 6 feet in size.

So what exactly is it that has me so excited? How about an integrated approach to electricity generation, storage, and consumption via a 3D printed energy-efficient home along with a new 3D printed car which systematically work together to share energy wirelessly?

BAAM 3D Printer

ORNL has partnered with the largest manufacturer of manufactured housing and modular homes in the United States, Clayton Homes, along with the American architectural firm Skidmore, Owings & Merrill (SOM) and has been working on this Additive Manufacturing Integrated Energy (AMIE) project since it was first conceptualized back in October of last year.

"We gave them [Clayton Homes and SOM] the tools, we worked with them and we developed this building design that fully demonstrates what happens when you remove the constraints, and allow construction practices to come into the 21st century," Jackson explained to 3DPrint.com. "So now we are not running into the corners, where sticks and boards are constraints, but we can put curves where we want curves to be and we can put material where we want material. When we see structure is needed we can add material, so now we can reduce the overall material needed to build."

There have been several groups and companies we've covered over the last couple of years who are working on methods of printing homes and buildings. However, this project strays wildly from them all. For one, both the home and the vehicle will be printed out of a carbon fiber-reinforced polymer material similar to that which was used in Local Motors' 3D printed Strati car last year. Additionally, the home will have a bi-directional energy relationship with the 3D printed car.

(Continued on Page 13)



ORNL & CLAYTON HOMES ARE 3D PRINTING A HOME & CAR THAT SHARE ENERGY *(CONTINUED)*

“We will have a vehicle that not only is able to draw power from the building but is able to share power with the building. Now when the building needs power it [the vehicle] can provide that with its on-board natural gas generator and when the battery is low in the car, the building can charge the car. It’s a bi-direction flow of energy,” Jackson explained.



Not only that but all this will happen wirelessly via a coupling between a special pad and the vehicle. The vehicle would run on electricity, but is a hybrid with a natural gas generator. This generator would extend the vehicle’s range while it can also be used to provide wireless power to the home when it’s parked beside it. At the same time the home, which utilizes a 3.2 kW solar photovoltaic system, and features integrated low-cost vacuum insulated panels, would be able to charge the vehicle with its excess energy. The entire platform features an automatic control system to optimize the flow of energy between the car, the battery, solar panels and the grid, and its design uses advanced building control and power management strategies.

“What we are trying to do is actually start the discussion on what if we did a radical version of 3D printing a building, and what if we used additive manufacturing to look at the integrations of the vehicle and the building and the grid, which optimizes resources for all,” Jackson told us. “If you are going to use additive manufacturing to do the kinds of things that you can already do in building today you’ve kind of missed the mark. We want to use additive manufacturing to do things we can not do in building today.”

Through the use of 3D printing, the project has been incredibly efficient allowing those working on it to quickly discuss, print, and integrate upon ideas. In fact, Jackson tells us that over the course of a single week they have been able to reduce both the time and the material required for this project by a staggering 40%.

At this time the home is currently under construction. It is being printed in several large sections and then assembled within the Clayton Homes facility. At the EERE Industry Day on September 23 ORNL, along with Clayton Homes, will be unveiling this awesome platform, one which we will certainly be covering again soon. The future of home building lies in energy efficiencies and working with the latest technologies to reduce the carbon footprint of both homes and vehicles alike, as well as save their users money over the long run. Certainly this integrated platform will act as a springboard for future concepts within home construction, energy conservation and car manufacturing.

Let us know your thoughts on this awesome project by ORNL, Clayton Homes, and SO&M. Could this be the future of energy efficiency? Discuss in the 3D Printing Energy Sharing Home and Car forum thread on 3DPB.com.

Reprinted from <http://3dprint.com/89393/ornl-clayton-homes-3d-print/>

POLITICAL ACTION IN 2016

Every day, elected officials make decisions that affect your future. Shouldn't you be a part of the process? The MHIA Independent Expenditures Committee (MHIA-IE) raises and contributes funds to support local and legislative candidates who actively listen to our concerns and support our industry's state and national goals. The MHIA-IE provides an opportunity for individuals such as yourself to participate in a cohesive effort to elect leaders on all levels of government within the State of Arizona. This collective effort helps ensure support for the future growth of our industry.

As you may recall, our efforts in the 2014 mid-term elections were very successful in creating and solidifying relationships with several State Legislators, with 6 out of 7 candidates backed winning their elections.

With the 2016 elections looming just around the corner, your Board of Directors and Independent Expenditures Committee have made a commitment to establish a strong fund for the upcoming election year. By contributing to the MHIA-IE, you will make the association and the industry more powerful and therefore, more effective, giving your industry a political advantage.

Your contribution gives the industry political influence against groups who are in opposition to our mission and supports candidates who are in leadership positions and who can favorably affect issues impacting the manufactured housing industry.

Contributions to the MHIA-IE may be in the form of personal or corporate funds. Please help us to make a difference in 2016 by sending your contributions to: Manufactured Housing Industry of Arizona, 4525 South Lakeshore Drive, #105, Tempe, AZ 85282. Thank you in advance for your support!



CALENDAR OF EVENTS

NOVEMBER

- 4th Tucson Division Meeting**, 6:30 pm
Olive Garden at The Tucson Mall
Scott Townsend, Division President
stownsend@westernamericanhousing.com
- 10th Northwest Division Meeting**, 6:00 pm
Calico's Restaurant, 418 W Bealle, Kingman
Shane Willson, Division President
prestigehomes@citlink.net

NOVEMBER (cont)

- 17th Phoenix Division Meeting**, 12:00 pm
MHIAZ Office, Tempe
Kory Beickel, Division President
kbeickel@countryplacemortgage.com
- 18th Southwest Division Meeting**, 12:00 pm
Da Boyz Italian Restaurant, Yuma
Michael Bryant, Division President
mike@pacesettercountry.com

Visit our website www.azhousing.org for an archive of past newsletters, shipment reports and other information!

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