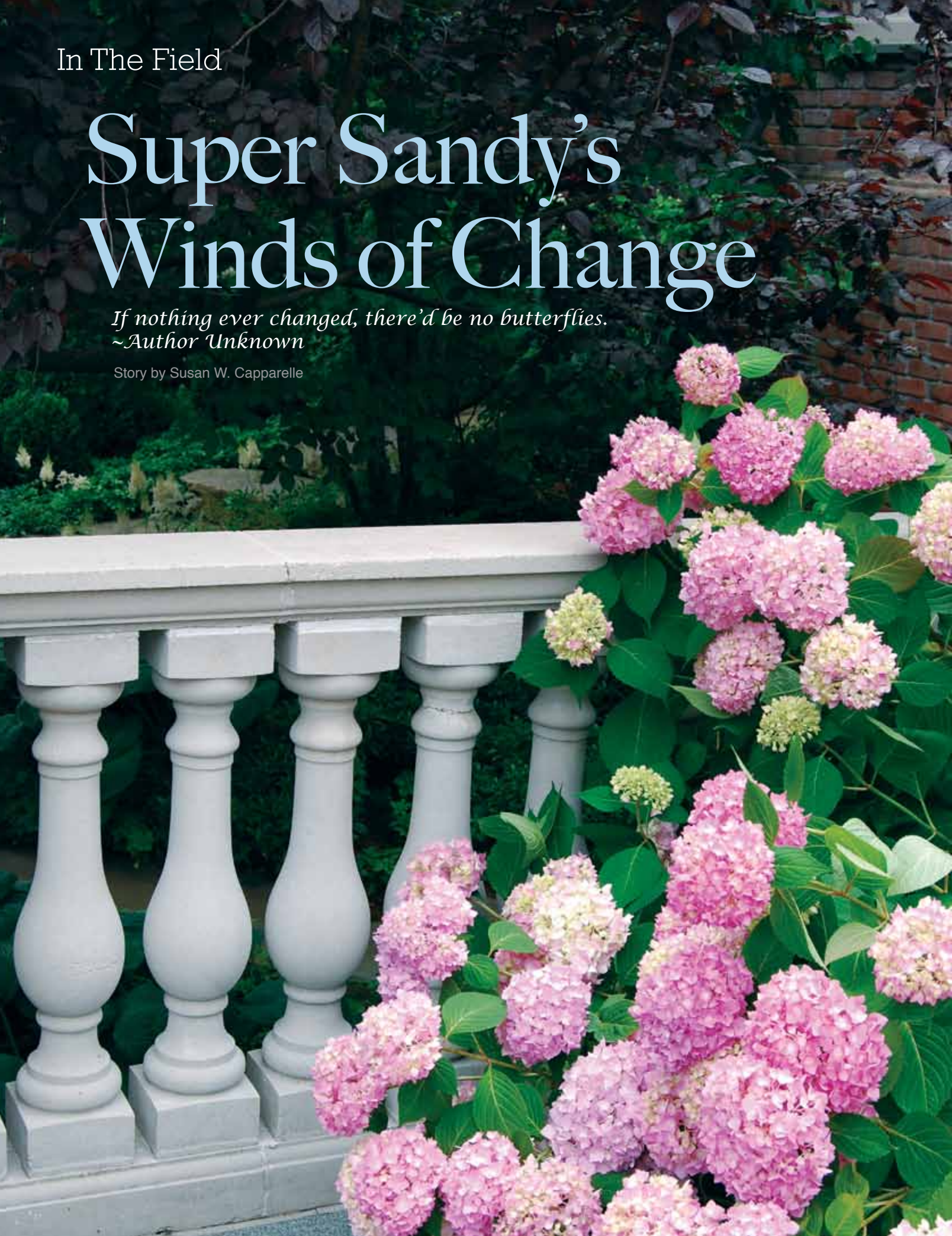
EAST COAST HOME + DESIGN

Super Sandy's Winds of Change

If nothing ever changed, there'd be no butterflies.
~Author Unknown

Story by Susan W. Capparelle



L: Post storm but before restoration. The garden right after Sandy hit. The green shoots visible here and there are native species that survived and include hydrangeas and grasses. C: In progress. Early spring 2013. The following spring Hoffman Landscapes replaced all the original ornamentals (non-salt tolerant plants), and, with the clients' agreement, added more native (salt-tolerant) blooms such as hydrangeas, roses and sedum as a base for flowers, and grasses like switch grass and fountain grass. R: After. Summer 2013. This garden is now a happy integration of salt tolerant and ornamental plantings. The owners saw the sense in reducing replacements costs, and their anxiety around future storms, by adding more salt tolerant plantings like sedums and hydrangeas. At the same time, they got to keep their ornamentals such as Shasta daisies and Nepeta. It's the best of both worlds! *photos: Hoffman Landscapes*

To stand under the guts of a Connecticut shorefront home, wrenched from its foundations, hoisted 15 feet up in the air and hanging in its entirety over your head is an eerie experience. Looking up at the exposed rooms from below, the whole foundation is now balanced precariously on stacked concrete blocks and stilts. It's easy to see that home's uprooting as emblematic of the kinds of deep change and upheaval residents on the entire shorefront will need to undergo, sooner or later, post Super Storm Sandy.

Today, more than 13 months after that devastating storm, all along Connecticut's coast in towns such as Rowayton, Greenwich, Fairfield, Westport and Milford, hundreds of homes just like this one are being raised (if not razed or sold) to accommodate FEMA's new flood plain levels, amid overwhelming scenes of reconstruction, construction, repair, and change.

Shore Life – From the Air

Take an aerial view of our coast's history and speed it up in a time-lapse film. What you will observe is the initial settler colonies dotting our shores in the 1600s, expanding and then spreading out like a web as more and more people move in. From your aerial perch you might also observe the encroaching ocean surge and rising tide levels in more recent decades. As our climate changes, the issue of rising water has come to the forefront – not just on our populated shores, but all across the state.

As recently as the late 1990s towns like Fairfield and Rowayton still had their ubiquitous seaside capes, small bungalows, seaside shacks. In many of the upscale shore communities today, however, those small dwellings are no longer there, replaced instead by heavily packed neighborhoods of large, often palatial, homes, complete with all the latest accoutrements of modern upscale living.

It is these new residents, along with those still living in homes owned for generations, who now have to deal with the repercussions of shoreline living in an era of rising waters.

Sandy's Wake

Down the twisting seaside streets of shore towns and on the beach fronts, far from main thoroughfares like I-95, there is a busy hive of construction and reconstruction activity going on.

"I saw entire streets being rebuilt and ALL houses being lifted," says

one eyewitness of a drive around Fairfield beach in November 2013. "I was surprised by exactly how much reconstruction is going on."

Drive around Rowayton and you will see entire streets where house raising is going full blast, streets where every other house is set higher than its neighbor. In Westport some owners are replacing all their landscaping while others raze and rebuild entire homes.

And everywhere there is bull dozing, back hoeing, storage PODs in yards, muddy no access roads filled with construction crews, wall building, landscape teams and bustling activity.

Connecticut shore residents must adhere to stringent new FEMA regulations as of July 2013, involving varying zones and flood elevations – based on Mean Sea Level.

"Where once a house was safe at 11 feet above sea level, it now may need to be 15 feet above sea level, or 9 feet to 10 feet higher than the grade, especially if it is in a VE zone which many homes on Rowayton point now are," says Christopher Pagliaro of Pagliaro Bartels Sajda Architects LLC. His Norwalk-based firm has raised houses in Rowayton, Fairfield and Westport post Sandy.

VE stands for "velocity", where the waters not only rise, but also are expected to hit the structure with force. Structural requirements are more stringent for velocity zones. As of July 2013, based on new FEMA regulations, Fairfield beach also became a VE zone.

In towns like Rowayton, today there are streets where one side is now a designated 15 VE zone, while the other side of the street remains in the flood plain or AE zone. (AE essentially means "rising waters." Most areas in Connecticut are in AE 12, 13, 14, 15 zones.) The result? Oftentimes, the rebuilding leads to jarring visual results.

Pagliaro's office was inundated with calls for help post Sandy. Many of them were from those people who had "watched the new construction all these years (and) were now requesting that we raise their house to comply with FEMA."

Local towns utilize the FEMA regulations in their Zoning Regulations. When a homeowner wants to comply, they can and the town usually wants to help. Towns see the benefit of working with homeowners, local architects, designers and landscapers to help preserve the scale and charm of that community.

However, there are limitations. Part of the local zoning regulations adopted from FEMA include the limitation of improvements to older homes that do not conform to the FEMA regulations, especially when the improvement plans don't call for the house to comply as part of the proposed work. In such cases, improvements are limited to 50% of the value of the structure (not the overall property). FEMA implements such restrictions to prevent having to pay for repairs time and time again. Often, homeowners struggle with the challenge to bring the structure into compliance. FEMA's position is that the question is not "if" flood damage will eventually occur, but "when". For such reasons, they want to restrict how much investment is made into a non-conforming structure.

DESIGN TIPS

Design features that can help a house weather a devastating storm include the following:

- Casement windows that seal tighter in the face of strong head winds.
- French doors that swing open outwards also seal more securely against the force of wind gusts.
- Flood vents, strategically placed in unfinished areas of a home such as the garage, control the natural ebb and flow of water without damaging the house s foundation.
- Breakaway walls (part of a list of FEMA requirements for VE zones where you cannot impede water flow) help protect the overall structure against the strength of Mother Nature.

Landscaping tips for seaside gardens:

- Put the right plant in the right spot. It will have not only the best chance to survive a heavy storm, it will also thrive in good conditions.
- Consider soil remediation. Just cleaning or replacing salt drenched soil 3 to 6 inches down can make a huge difference to the survival of plantings in your landscape after a big storm or sea surge.
- Create windbreaks with salt tolerant shrubs and trees to protect plantings less tolerant of salt and wind. This type of screening also creates a natural backdrop for your landscape design.

Sometimes, according to Ed Parker of the Old Greenwich firm Alisberg Parker Architects LLC, the extent of what can be done comes down to the age of the home (old vs. newer) and the quality of the soil (poor vs. adequate) underneath it.

"The older homes are often built on inadequate foundations to raise a house on," he says. "So if you want to keep the house you have to lift it, rip out the old foundation and then dig down further to pour a new foundation – all with the house above your head." All of which is an extensive, expensive proposition.

These facts explain why it is only now, more than 13 months on from the storm, that many homes are being lifted or fixed.

A Change in Attitude as Well as Latitude

The new FEMA regulations may be stringent but for good reason – they protect shoreline residents. They are not designed to stop water from penetrating the footprint of the structure but instead protect the structure from damage caused by water pressure as well as protect finished areas.

Ed Parker notes that those homes that adhered to FEMA regulations before Sandy hit fared very well in the storm. "There was a house we worked on at Todd's Point in Greenwich which adhered to the FEMA regs at that time and that house did not get any water on its first floor," he explains. "The water receded through the water vents, there was extensive damage on landscaping but [overall] the house did great."

With FEMA now requiring first floors be as much as 9 feet to 10 feet higher than grade, the challenge is trying to incorporate good design in line with those requirements as well as each individual town's zoning regulations.

For example, when a house is lifted to meet the new elevation regulations, its garage may become just another room in the house, calling for a new floor plan. Or the garage might stay at grade level and then the issue is what happens (design wise) between it and the newly elevated house.

"Following regulations is one thing, following them with grace is another," says Pagliaro.

One house in Rowayton had a ground level pool. After the home was raised it was no longer reachable from its former kitchen back door, now over 8 feet up in the air. The experienced design solution called for a new inside staircase down to a (floodable) mudroom/pool cabana that accesses both the pool, as well as the new below flood level garage.

Go Native Where Possible

Whether it's architectural entities, construction companies or landscaping firms, experienced players offer local residents a quick turnaround after storms like Super Storm Sandy. With hundreds of cli-

Top: After Notice the change in relationship of house to grade, especially the street level (foreground). Pagliaro Bartels Sajda Architects' solution was to create a series of aesthetically pleasing stone terraces connecting the street level to the front door. Without this, it would be a house with no relationship to grade, and a long flight of straight steps to enter the house. Center: In Progress Post Sandy the house was lifted to the minimal FEMA floor elevation requirement (above MSL – mean seal level.) The project exemplifies how the height and scale of neighborhoods will change. Bottom: Before Pagliaro Bartels Sajda Architects LLC renovated this Rowayton home under the 50% value rule 10 years ago. It took in water from Sandy.

Photo by Pagliaro Bartels Sajda Architects

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ents, Hoffman Landscapes out of Wilton, CT has seen their fair share of post storm restoration.

"We have put procedures in place to help us before, during and after major storms," says Rick King, Project Director for Hoffman's crews working by the shore. "Hoffman realizes the importance of getting life back to normal for people devastated by storm damage so our crews are geared up and ready to roll out as soon as possible."

At many of the homes King has worked on, the soil is still saturated with seawater more than 3-6 inches down. This calls for extensive irrigation to a depth of six inches to wash the soil out then applying gypsum to desalinate it. Soil remediation is another solution, which is based on the large-scale removal of tons of soil and replacing it with uncontaminated topsoil trucked in.

"There is no reason to wait for FEMA to step in to evaluate your property," he says. "An experienced landscaper should be able to evaluate the damage, then rescue and salvage whatever plantings and trees it can while offering the homeowner solutions to protect their property from future storm damage."

Looking ahead to the possibility of more storms means that, ideally, clients should consider salt tolerant plantings and native species, replacing lawns with hardscape, stone or fill and making other necessary adjustments in a changing environment. Whenever possible King encourages clients to consider native plantings that can withstand salt saturation and flooding.

"Whenever we can, we suggest to homeowners that they try some type of sustainable restoration i.e. salt tolerant plants like beach grass, bayberry, hydrangeas and sedums," says King. "We can offer them compromises too like putting back the boxwoods – but just around the house or on a higher level of a new terraced grade."

There are also those properties where putting things back the way that they were works fine, since the original plantings were appropriate for the environment.

"We have one client in Westport who had beautiful gardens right on the water with hundreds of ornamental plants that were salt tolerant – even roses which are pretty hardy." King simply replaced that original landscaping.

Landscaping is the finishing touch to reconstruction projects after a storm like Sandy. Whether it's through terraced retaining walls, layers of lawn or native plantings, landscaping works in conjunction with proper architectural design to help ease the eye, and the visitor, up to newly elevated abodes.

A New Mantra

The future holds more change and challenges for Connecticut's shore and the people who love it.

Climatologists and scientific models point to storms like Sandy and the more recent typhoon Haiyan in the Philippines becoming stronger as an ongoing trend. Many point out that even though Sandy was quite destructive, it could have been worse.

"The reality is that Sandy – as devastating as it was; as much as "The Perfect Storm" as it was described – fell between 18" and 24" short of the 100-Year Flood levels designated by FEMA when mapping (FIRM

– Flood Insurance Rate Maps)," says Pagliaro.
While the Connecticut shore remains as attractive as ever, the mantra going forward will be adapt, change but also retain. Retain the quaint, small-scale New England village feel and look, the antithesis of which has always been the Outer Banks of North Carolina, with their houses "on stilts."

Resources

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