ERRATA C260-FIBERGLASS & VINYL POOL CONSTRUCTION 12/20/2023

The following information is intended to supplement or correct information contained in the Genesis® C260 Fiberglass & Vinyl Pool Construction classroom manual. This information should be inserted and stapled into the manual for the purpose of taking examinations for Certified Builder Professional certification.

GENERAL: References in this manual to ANSI/APSP/ICC-15a American National Standard for Swimming Pool and Spa Energy Efficiency has been updated to ANSI/PHTA/ICC-15 (2021)

CHAPTER 1-GEOTECHNICAL

CHAPTER 2-STRUCTURAL ENGINEERING

CHAPTER 3-CONSTRUCTION DOCUMENTS

CHAPTER 4- FLUID MECHANICS

Page 105, amend 4.8 Energy Code Calculations – All references to ANSI/APSP/ICC-15a are replaced with ANSI/PHTA/ICC-15 (2021)

Page 105, under the paragraph **Minimum Filter Size**, amend High rate sand filter: 20 gpm/s.f. (formerly 15 gpm/s.f.). Further, the example on page 105 for a sand filter should read:

71 gpm /20 gpm/sf = 3.55 s.f.

The answer is still correct, that is, a 30-inch diameter sand filter is required.

The table on page 106 is corrected to read:

For 6 FPS, 1.50" pipe size =38 gpm (formerly 37 gpm)For 6 FPS, 2" pipe size =63 gpm (formerly 62 gpm)

CHAPTER 5- ELECTRICAL ENGINEERING

CHAPTER 6- GENERAL CONDITIONS

CHAPTER 7- LAYOUT & CONTROL

CHAPTER 8- CONCRETE SCIENCE

CHAPTER 9 - FIBERGLASS POOLS

Page 180, add to **9.5 Digging the Pool** – Granular bedding such as a 3/4 -inch and smaller crushed stone is used to cover the bottom 4-inches of the excavation so be sure to account for

this 4-inches when excavating. Do not use field sand, pea gravel or other flowable gravel because it displaces easily and will not hold true to shape and slope.

Page 181, add to **9.5 Digging the Pool** – The pool should be excavated at least 3 feet beyond the fiberglass shell to allow for wall supports during installation and for installation of plumbing fittings and pipe alongside and behind the shell.

Page 183, add to **9.7 Shell Plumbing** – The process of adding penetrations such as light niches, skimmers, returns, suction outlets, and similar devices in a fiberglass shell is called *outfitting* and can be done in the shop or on site.

Page 185, change 9.7 Setting the Pool to 9.8 Setting the Pool.

Page 186, add to new **9.8 Setting the Pool** – Improper lifting or bracing of the fiberglass pool shell can cause inward bulging of the shell walls. After it has been set, inward bulging can also be caused by backfilling ahead of the filling of the shell with water. Water levels inside the pool when backfilling should be kept within 12 inches of the backfill level to prevent this. Heavy equipment loads along the backfill area can cause inward bulging especially if the shell is improperly braced.

Outward bulging can be caused by improper filling when water elevation within the pool is allowed to exceed the backfill level by more than 12 inches at any one time.

Page 186, 9.8 Water and Backfill, change to 9.9 Water and Backfill.

Page 188, 9.9 Coping and Deck, change to 9.10 Coping and Deck.

Page 191, 9.10 Tile, change to 9.11 Tile.

Page 192, 9.11 Conclusion, change to 9.12 Conclusion.

CHAPTER 10 - VINYL LINER POOLS

Page 198, add to **10.4 Measuring and Placing** – In do-it-yourself kits it is common to have a vinyl liner prefabricated and shipped with the other pool components. This obviously puts the onus on the excavator and floor installer to meet the exact dimensions of the prefabricated liner. In general, professional pool builders make detailed measurements of the completed and backfilled walls and floors on the manufacturer's forms and submit them for fabrication. Fabrication on-demand usually takes less than a month but will be custom-made to fit the shell in which it is to be installed.

Page 200, add to **10.6 Pool Drainage** – Installation of an inspection port is advisable in all pools including fiberglass and vinyl pools. These ports serve several functions:

- (1) To monitor water levels outside the pool originating from leaks or other sources.
- (2) To prevent floating a liner or shell from naturally occurring high water levels or artificial sources such as sprinklers.
- (3) To collect water for pumping away thereby allowing emptying of the pool safely.

Page 206, add to **10.8 Shell Plumbing** – Be careful in using PVC primers and solvent weld cement around vinyl liner. Methyl ethyl ketone (MEK) is the active ingredient in solvent weld primers for PVC and can strip the color from printed vinyl liners.

CHAPTER 11- MECHANICAL SPACES

Page 215, **11.6 Sizing Equipment**, Amend high rate sand filter filtering rate in GPM per square foot to read 20 (formerly 15).

CHAPTER 12 – CONCRETE DECKS

CHAPTER 13- PRE-FILLING AND FILLING POOLS

CHAPTER 14- POOL ENCLOSURES AND COVERS

Page 244, add to **14.2 Description** – The referenced standard ANSI/APSP/ICC-8 is also contained nearly verbatim in chapter 3 of the International Swimming Pool and Spa Code (ISPSC) 2021.

CHAPTER 15- START UP, PUNCHLISTS, AND PROJECT CLOSEOUT

CHAPTER 16- ADVANCED STUDIES IN HYDRAULICS

Page 266, add to **16.5 Collector & Balancing Tanks** – Collector tanks which receive flow from a pool main drain (suction outlet fitting assembly or SOFA) are inherently safer against suction entrapment than a typical main drain because there is no *direct* suction applied to the drain cover. However, when the pump pulls down the water level in the collector tank, it creates a gradient between the pool level and the tank level, causing water to flow. To say that there is *no* suction on the main drain cover is not quite true. For this reason, the national standards for entrapment avoidance (ANSI/PHTA/ICC -7 and -16) do not recognize collector tanks as an adequate entrapment avoidance method.

CHAPTER 17- CONCLUSION

ADDITIONAL INFORMATION FROM THE LECTURE ON DESIGN IS INCLUDED IN THIS ERRATA AND MADE PART OF THE C260 COURSE MANUAL

APPENDIX 1- GENESIS POSITION STATEMENTS APPENDIX 2- CHARTS AND DESIGN AIDS

CURRENT PHTA (ANSI/APSP) CODES

The list shown in the manual is out of date.

The list of current standards is available online at <u>www.phta.org/standards-and-codes/phta-standards/purchase-or-read-phta-standards/</u>

CHAPTER 5: INTENTIONAL DESIGN¹

5.0 INTRODUCTION

DESIGN, as used in this chapter is the creative application of science and art to produce an aesthetically pleasing and, simultaneously, useful product. Design for this chapter does not include the engineering aspects of design such as structural design or hydraulic design. Instead, this chapter homes in on those special qualities that make pools and backyards outstanding.

As the title suggests, DESIGN should be intentional. Design, good and bad, is all around us. After students complete this chapter, they will have an appreciation for just how pervasive intentional design is in our environment. Let us cite some examples.

Apple produces a cell phone. You are already familiar, right? But Apple iphones sell for sometimes two times the price of their competitors! Why is that? Why can Apple command a lion's share of a huge worldwide market charging more for their product? It seems counter to all modern marketing algorithms that say we must produce and sell the cheapest product to own market share. And Apple does not even have the best track record among cell phone users. Their reliability is not at the top. Their performance and operating system is sometimes suspect according to technical reviews like CNET and PC World and yet the final recommendations from reviewers tends to be "Excellent". Their product has been released early with some 'bugs' still not accounted for! And they keep changing the charging cables! So how do they stay atop a rapidly changing market?

"Minor problems in the design are overlooked. . . in other words, when we feel good, we overlook design faults. . . Attractive things work better," this according to a 2002 article in the Online Journal of Distance Learning Administration. **Good design is good business.** People are willing to pay a lot more for things that are well designed!

Another example has to be the automotive industry. Audi, for one, spends around \$5 billion (billion with a 'B') on product research and development. And yet, sometimes the results are not so obvious in a subsequent model year. As design standards and taste change, automobiles change body style and customization as well as technology. Customers insist.

The homebuilding industry understands that the skill of their architects will make a huge impact on whether or not their new homes will sell.

Every year, new materials are introduced. New windows and doors come on the market, even the shape of the houses changes. Colors become fashionable and then, just overnight, they are replaced with more fashionable colors. But, as in

Almost every major industry in our society understands that people will pay more for well designed products. Almost every one.

the case with iphones and Audis, people are willing to pay a lot more for things that are well designed!

We could expand this list to clothing, stores, offices, and leisure spaces like theaters and outdoor spaces. Almost every major industry does this. . . except one! The swimming pool industry!

¹ From the lectures of Kate Wiseman, Sage Design, San Diego, CA.

5.1 THE POOL INDUSTRY

The more expensive a consumer purchase is, the more thought and money they expect to have been put into the design!

For many people, a swimming pool is their second most expensive purchase after their house. For most, it is more expensive even than their cars although there are exceptions. And yet, we in the industry lag behind most areas of the economy. Notice:

- We don't spend money on research and development. Sure, we research plaster and concrete but, for the most part, our product offering is pretty much what it was for the past 40 years.
- > We don't update our product.
- We don't hire design professionals with the training and education needed.
- We have 'trained' our customers to believe that design options are limited with pools. We need them to select from our limited catalog of mediocre designs.

This course and the many other design offerings by Genesis® and the Pool and Hot Tub Alliance are intent on changing the pool industry. The Genesis® concept is:

- We CAN change what we offer customers.
- DESIGN is a discipline, and it can be taught.
- It is worth the time of pool professionals to learn design.
- DESIGN IS GOOD BUSINESS.

Based on the success of the Genesis® design courses and the hundreds and soon to be thousands of students learning design, if you fail to grasp these concepts, you will be left in the dust.

5.2 INERTIA

In a price-competitive industry like ours, design lets you out of competing on cost and lets you into a whole new game, one where the other companies are offering their clients a mediocre option, and you are offering them a superior one.

Inertia in the business sense is reluctance, even resistance, to change. We convince ourselves, "Everything has gone along just fine so far. Why bother to change?" Here might be answers to that question.

Your potential clients have more resources than they did even ten years ago. With the growth of the internet and sites like Pinterest® and Houzz® clients can click away to their heart's desire. No longer are they bound by your printed brochure or pretty pictures in your office. There was a time when sales were made at your showroom. Shapes, tile, coping, and plaster were all picked from your available stock or sample collection, sometimes without you having ever been to the home. Those days are thankfully over.

Clients now look online. They see photos of fabulous pools of the rich and famous.

They travel more. They go to resorts. They see cool ideas. Designers sometimes hate when their clients leave the country for a vacation because they inevitably come home, scrap the project they started, and set new parameters!

Clients today are savvier than ever-they know what a good looking pool can be and pool builders bound by inertia will be extinct in a few years.

5.3 BIDDING WARS

The old joke in the construction industry has always been, *"I have been low bidder on my last dozen projects. I can't figure out why I'm going broke."* Then, too, there is the adage that the low bidder is the guy who made the most mistakes on his bid. We have all been there. Low bid work has been the bane of the industry. It causes unhappy clients, unsuccessful contractors and erodes confidence in the industry as a whole.

What if you could get out of the bidding wars? What if you could name your price and have clients beating down your doors?

And the interesting thing is, customers do not expect the mediocre option and the superior one to have the same price tag any more than they expect a BMW and a Hyundai to cost the same. If price drove the auto industry the way it drives much of the swimming pool market, we would all be driving Kias and Ford Fiestas.



Just as the luxury car market is not the same as the utility car market, there is a market in the swimming pool industry for stylish, custom, wellthought-out pools and run of the mill stock pools. There is indeed a market for 'run of the mill' but do not be convinced that is where your success is to be found!

5.4 AESTHETICS

"Aesthetics is a branch of philosophy concerned with the nature and appreciation of art, beauty and good taste." -University of Georgia website. *"Aesthetics is also associated with affect, or mood, emotion, and feeling. Aesthetics essentially act as the bridge between a product and the user's emotion and feeling."* Alicia David, Macon Stat College.

Did you note aesthetics is a branch of philosophy? As pool builders we should strive to make our clients feel a certain way, for example, joyful, relaxed, rejuvenated. That is our business. Aesthetics is merely the tool. What we hope to teach you in this course is WHY people respond to shapes, colors, textures, and environment. Why is it, for example, that you can take a simple rectangular pool and place it within different settings and get completely different responses.

Of course, one oft repeated answer is cost. Designed pools cost more than 'routine' pools, say the skeptical. "If I had a million dollars," they say, "I could make a pool look good." And yet, even if given a million-dollar budget their pools are blasé, unexciting, b-o-r-i-n-g. It is just not true that well designed pools must have lofty budgets. In the case studies your instructors will share, take note of how a little care in orienting a pool or accessorizing it, can make all the difference in the world with regard to 'curb appeal.' It is the difference between an adequate pool and an exceptional pool.

5.5 ACCIDENTAL VERSUS INTENTIONAL DESIGN

With every choice the pool builder makes, every feature selection, every material choice, design is being done. That is true even if the builder was not *intending* to do design. We have always done design but unfortunately, much of that design has been *accidental*. The purpose of this course is to create a mindset of INTENTIONAL DESIGN.

DESIGN is not about adding extra bells and whistles like water features, fire bowls and lighting effects. Good design is about making decisions and making them for a reason. Look at the following pools. They are all pretty basic with not much in the way of bells and whistles, but they are all good design.



Figure 1 Skip Phillips, Designer/Builder



Figure 2 Skip Phillips. Designer/Builder

What you will find in this course is that the *intentional design* is not contingent on materials, that is, the best pools are not necessarily concrete and not fiberglass. The best pools are not even necessarily large pools – some

are actually tiny. In fact, the materials used in the pool could likely be substituted with other materials and not affect the dramatic effect of the pool.



Figure 3 BIANCHI DESIGN



Figure 4 Skip Phillips, Designer/Builder

5.6 TIPS FOR INTENTIONAL DESIGN

Several simple tricks are available to builders to make their pools intentionally designed.

TIP #1: DON'T COMPLETELY SURROUND YOUR POOL WITH DECK OR HARDSCAPE. LET THE LANDSCAPE COME RIGHT UP TO THE POOL. ITS ACTUALLY OKAY, EVEN DESIREABLE, TO HAVE VEGETATION NEXT TO THE WATER.



Figure 5 Limit the deck area. Skip Phillips, Design

TIP #2: MAXIMIZE REFLECTIONS. PAY ATTENTION TO REFLECTIONS. REFLECT LANDSCAPES. REFLECT THE SKY AND CLOUDS, MOUNTAINS IN THE DISTANCE.



Figure 6 Use Reflections -Skip Phillips, Designer & Builder

TIP #3: MAKE USE OF VANISHING EDGES AND PERIMETER OVERFLOWS TO SEAMLESSLY INTEGRATE A POOL SURFACE WITH A LAKE OR OCEAN SURFACE IN THE BACKGROUND. PAY PARTICULAR ATTENTION TO THE COLOR OF THE NATURAL WATER AND TRY TO MATCH IT WITH YOUR PLASTER AND TILE FINISHES.

TIP #4: MAKE THE COPING AND DECK THE SAME MATERIAL. IT MAKES THE SPACE LOOK MORE SEAMLESS.



Figure 7 Use same coping and deck materials.

TIP #5: HIDE DRAINS, SKIMMER COVERS AND GRATES. USE A SMALL GAP AROUND THE PERIMETER TO ISOLATE THE COPING FROM THE REST OF THE DECK.

TIP #6: USE HIGH WATER LEVEL. DON'T BE BOUND TO A 6-INCH FREEBOARD. USE LESS WHEN POSSIBLE.

TIP #7: USE HIGH CONTRAST TO ACCENTUATE THE POOL. FOR EXAMPLE, A BLACK TILE OR PLASTERED POOL AGAINST A WHITE OR PALE BUILDING STRUCTURE AND DECK.



Figure 8 Use of High Contrast – Skip Phillips

TIP #8: THE KEYS TO DRAWING PEOPLE TO A SPACE ARE FIRE, FOOD AND WATER. USE ANY OR ALL OF THESE TO DRAW THE VISITOR'S EYES TIP #9: REFLECT A BEAUTIFULLY LIT HOUSE AND LANDSCAPE AT NIGHT.

TIP #10: ON RAISED BOND BEAMS, MATCH THE WALL SURFACE WITH THE POOL INTERIOR FINISH.

TIP #11: SCREEN WHAT YOU DON'T WANT TO FOCUS ON WITH LUSH LANDSCAPE.

TIP #12: LIMIT DECK TO ONLY WHERE ABSOLUTELY NECESSARY. SIZE IT FOR THE FURNISHINGS AND WALK SPACE.

TIP #13: CHANGE VENEER PRODUCTS AND COLORS AT INSIDE CORNERS AND NOT OUTSIDE CORNERS.

TIP #14: UTILIZE YOUR WATER-IN-TRANSIT DETAILS IN A NATURAL SETTING.

5.7 WORKING WITH SHAPES

Of course, pools come in all sizes and shapes and the shape you select will dictate the 'style' or concept for the pool. For example, natural or organic pools are curvilinear in shape. They have no straight walls because nature abhors a straight line. The closer any single part of the pool gets to being straight, the more forced the shape will feel when working with naturalistic shapes. Natural shapes work well with tropical lagoons, a rustic mountain lodge, or a large lot with forest borders, or anywhere where the goal is to fit into the natural surroundings.

5.7.1 Natural Shapes.

When working with natural shapes, do not use rigid manmade materials such as square pavers or facebrick but rather utilize natural stone, boulders, and flagstone. Strong geometric deck



Figure 9 - Questar Pools by Skip Phillips

edges and paver shapes will feel at odds with an organic shaped pool. Avoid sharp corners.



Figure 10 Freeform, natural, organic shape



Figure 11 Freeform pool, rectilinear deck & pavers



Figure 12 In Real Life



Figure 13 Freeform Pool with Natural Stone

At left, in Figure 10 we have a freeform pool, a very popular, often-used pool shape.

Now look what happens if we impose a rigid geometrical deck with what was supposed to be an organic shape. See Figure 11. Notice all the sharp corners on the outer edge of the deck and the sharp sidewalk departure at the bottom of the pool shape.

The organic feel of the pool in Figure 10 is lost by a poor choice of deck paver materials. Instead employ radii in deck and planter areas to mimic the natural shape of the pool.

Now look at Figure 13. The pool is surrounded by a parallel deck, also free-formed. Corners are removed where possible and the deck material is no longer rectangular pavers but fieldstone. In this case, we brought the stone over the coping to eliminate one more material and one more high-contrast band that might detract from the pool.

What else could the designer do? Of course, he or she could eliminate some of the deck and bring landscape up to the rim of the pool. The designer could offset the parallel deck so that it is wider on one side than the other, affording better seating area for chaise lounges.

5.7.2 Geometric Shapes

Geometric pools are those recognizable shapes including rectangles, squares, ovals, triangles, and polygons. Most of these shapes are not used by themselves as pool shapes, but rectangular shapes are frequently used in pools, especially where traditional, classical or modern pools are concerned. Rectangular shapes lend themselves to symmetry.

For modern pools aim for uncluttered appearances and clean lines.



Figure 14 Timeless Rectangular Shape - Skip Phillips

There is a particular style for those who like a mixture of straight lines and curving lines. We call that contemporary which was popular in the 1990's and still appeals to older clients who remember the 1990's with fondness. If this is the client's desires, seek out broad, sweeping curves paired with straight lines and not the busy, curvy lagoon pool.



Figure 15 Combining Curves and Rectangles- Skip Phillips



Figure 16 The Roman Pool

The Roman pool is actually a rectangular pool with half circles on each end. These shapes are perfect for classical architectural styles including Mediterranean Revival, French, Spanish, Italian and Greek. This pool demands symmetry in the rest of the site. Sites with little to no symmetry will not do this pool shape justice as the viewer's eyes are tugged back and forth between pool and landscape.

Be careful mixing shapes. You can get away with a Roman pool mixing curves and rectangles. And, you can get away with broad curves against straight lines of a pool. The following illustrates a poorly conceived pool shape.



Figure 17 Mixing Shapes

What can you see wrong here?

- The general shape could pass scrutiny.
- The cut out for the bench is off-center and detracts from the general shape.
- The deck is too close to the house creating a narrow landscape bed and unusable deck.
- The deck follows the shape of the pool and inherits the same problems of eccentricity.
- The pool itself is off-centered from the porch.

Had the bench been centered in the sidewall and had the entire pool been centered and a little farther away from the porch, the look would have been greatly enhanced. The high contrast coping brick simply draws attention to the shape issues. Perhaps a cantilevered concrete deck would have reduced the impact.

5.8 LOCATION

Believe it or not, the pool vessel does not have to reside in the dead center of the yard, parallel to the house and/or fence and surrounded by hardscape. Especially on large lots, avoid this presentation by moving the pool off to one side so that the balance of the property is not cut up. Even though the property is vast, there is no need to completely encompass the pool with large masses of concrete.

Sometimes a wonderful effect can be accomplished by rotating a rectangular pool to run lengthwise away from the house rather than parallel to the back porch. The longer the rectangle, the more powerful the effect. The sides of the pool, even though parallel, appear to converge in the distance. If the convergence is toward the mountains, a forest, a beach or some other natural wonder, the pool serves as a pointer. Terminate the view into landscape or into a superb vista like a body of water, a valley or mountain range. When confronted with tight spaces, avoid filling that space up with swimming pool with no regard for the living space. Leave room to walk around furniture. One trick is to determine foot traffic patterns and then put the pool wholly contained within that pattern so that traffic is not obstructed. Another is to offset the pool to one side so that instead of having two narrow decks down either side, you have one wider and utilitarian deck on one side and either narrow deck or no deck along the other side.

5.9 COLOR AND TEXTURE

With respect to color and texture, LESS is MORE. Avoid the tendency to use many different materials and many different colors in favor of limiting the color palette to two to five elements.

In many pool projects you have the opportunity to select materials and colors for these items:

- > Pool shell materials
- Pool shell color
- Pool coping color
- > Pool coping texture
- ➢ Waterline tile
- Deck color and texture
- Raised bond beam and wall colors, materials, and textures
- > Wall caps
- Spa walls exterior
- > Spa walls interiors
- ➢ Waterfall faces
- > Spa coping
- Landscape materials such as rock
- Walls and fences

Add to this the color of the house or pool house, fire pits, outdoor living spaces, and lawns and you see that pandemonium will result from sending the homeowner down to the big box lumber yard to pick out tile.

Interior designers, landscape architects, tile vendors, plaster vendors, and other experts

should be brought in to develop the project palette.

Produce a color board. Obtain samples (not photos) of materials so that the colors and textures can be displayed side by side. Recognize that samples, even samples with the same name, may vary in actual color.



Figure 18 Identical product number with identical name.

Understand what the plaster or tile will look like underwater or when wetted. This will be discussed later in this chapter.

Recognize issues with some materials. Slate can delaminate and form slivers injurious to feet. Some natural stones will deteriorate in the presence of chlorinated water. Others will show attack from salt in saline disinfected pools or aggressive waters. Soft stone will turn to mud.

Not all tile is suitable for pool and spa use. Insure that the tile being considered is suitable for submerged applications and are frostproof. There is no certification available for "swimming pool and spa tile."

5.9.1 Apparent Color

Swimming pools refract light and reflect the sky above and for that reason colors appear to change when submerged.

A pure white pool shell will appear a light blue when filled with water. Pool owners, for some reason, believe that they must impart blue into the pool by buying blue plasters, blue liners, blue fiberglass, blue paint, or blue tile. In fact, the most common color of liner sold in the vinyl liner pool industry is cobalt blue. This deep blue color when submerged becomes exceptionally blue, much deeper than any natural body of water.



Figure 19 White Pools appear as Light Blue

A gray pool color, whether from liner, fiberglass, tile, or plaster will appear a deeper bluish gray and a very modern palette is achieved.



Figure 20 Granite Gray Pool. Rivera Pools, Germany

INTENTIONAL DESIGN

Green is frequently avoided by pool contractors and homeowners fearing that green will make the pool look dirty or algae-prone. In fact, green is a very good color for pools and spas and does not make the pool look dirty.



Figure 21 Pebblesheen Irish Mist Green Plaster

A green pool finish tends to create a more natural body of water, one actually found in nature, unlike the brilliant cobalt blue pools.

The color that WILL look dirty is beige.



Figure 22 Beige Pool Shell

If a sand bottom look was the objective in this pool, it was certainly achieved.

Black is also a popular color for pools. The picture below is a Skip Phillips design and construction. Black pools are highly reflective, calling attention to the pool surface and not so much to the pool floor.



Figure 23 Black Pool Shell-Skip Phillips Design & Construction

Color Tips.

- Keep the waterline tile more or less the same color as the pool shell so that the waterline tile does not highlight, contrast and inadvertently call attention to the pool shell itself.
- Avoid bright primary colors on waterline tiles.
- Keep the waterline high to minimize exposure of the waterline tile.
- Avoid checkerboarding decks and coping with materials with high variable color such as occurs in natural stone. Hand pick the coping stone to keep the contrast under control.
- 5.10 Conclusion

"Good design is good business," stresses Kate Wiseman, Landscape Architect and Genesis[®] instructor. "You are already doing design – you just don't know it. Practice INTENTIONAL design."