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## Layout & Planning

# Harmonizing Function and Beauty at Shofuso

by Asher Browne

One of the hallmarks of the sukiya tradition is the harmonization of function and beauty. A functional space, like a walking path, is not only easy to use but also a treat for the eyes and a pleasant experience. As simple as this seems, only the experienced garden builder really knows how much effort is put into blending function and beauty.

## Shofuso in Philadelphia

Originally built in Japan and assembled in New York City as part of a 1954 exhibition at MOMA, Shofuso's house was meant to showcase traditional Japanese architectural styles. When it was moved to its present location in Philadelphia in 1957, a garden and surrounding walls were constructed and it was opened to the public.

The original garden layout was conceived by Tansai Sano, a garden builder from Kyoto. While much of the basic

## Where's Waldo?

*(left) This section of Shofuso's garden was visually confused.*

*The narrow, poorly-built pathways were borderline dangerous, and there were no easy-to-use pathways connecting the house (A), the pond-side terrace (C), and the teahouse annex (F).*



Asher Browne has been Shofuso's Japanese garden consultant for the past decade.



BEFORE

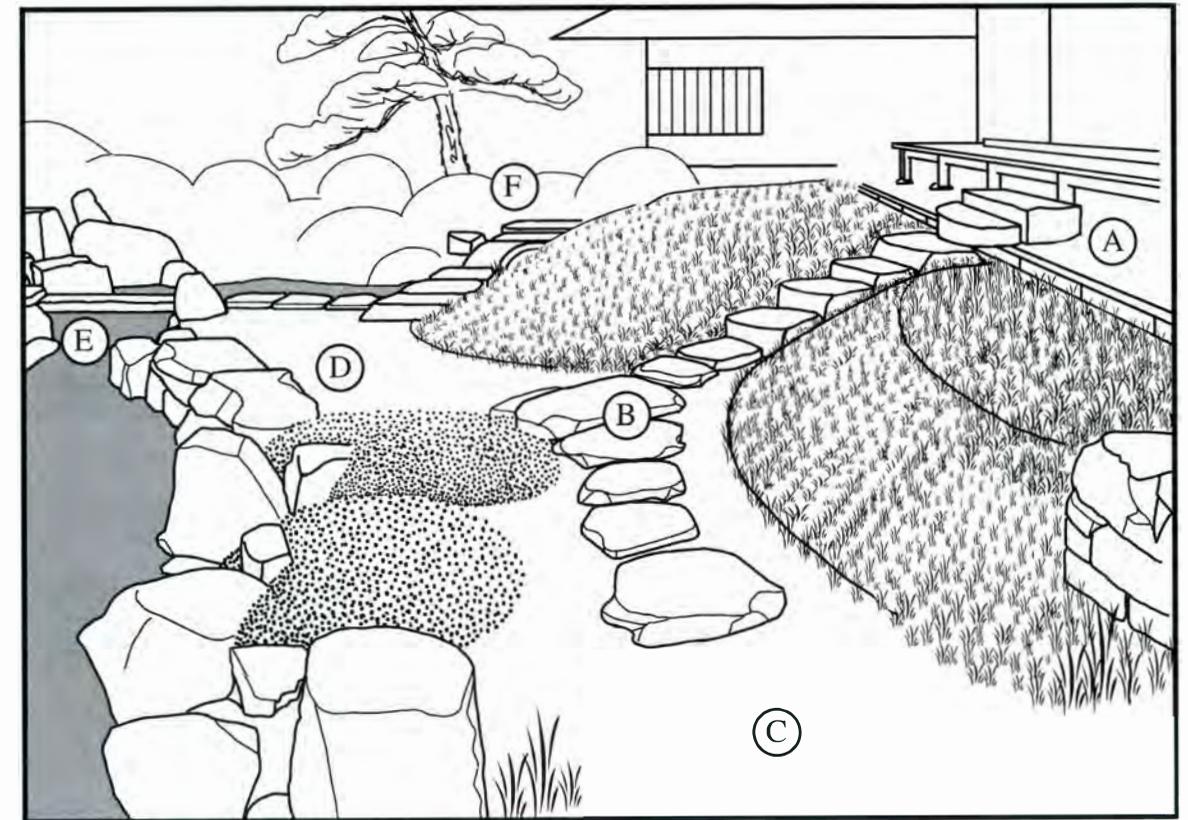
form remains today, there are areas of the garden that were never fully executed. Other areas are in need of repair and reworking to meet the needs of ever-growing visitation. One such area was a stepping stone path beside the pond's feeder stream.

## The Primary Problems

Although there are many different types of stepping stone pathways, all of them need to have stones that are stable and

easy to walk on. This means that each stone should have enough bulk, and be set deep enough, so that they do not move or shift. One problem at Shofuso has been that many of the stepping stones were too thin - at least in this stream-side area. It's a serious issue in a public garden with a large volume of foot traffic.

A second problem was the narrowness of the pathways. Even though the general flow of visitors is encouraged to go



*(above) Shofuso's "Side Path" upgrades include a new shoe removal stone (A) and a safe stairway down to a junction stone (B) that connects the pond-side terrace (C) with a brand new "hai-seki" viewing area (D) beside the stream. Upgrades also include new bridge foundations (E), and an improved pathway (F) up to the teahouse annex.*

in one circular direction, it is not appropriate to try to stop guests from walking back and forth or against the flow. If the path is too narrow, you end up with traffic jams and people stepping on ground-covers to get by or to allow others to pass.

The “Side Path,” which is the nickname we began using to refer to this area at Shofuso, also had a third concern: lack of clarity. One may say that the purpose of a Japanese garden is to provide a serene and beautiful environment in which to relax and refresh oneself. Ironic as it may seem, the garden builder goes to great lengths to orchestrate harmony between materials and layout so that the viewer can appreciate the “simplicity.” Any layout or placement that doesn’t make sense to the viewer, or confuses them, will degrade the experience.

In the case of stepping stone paths, it should be very clear where to walk. At one section of the Side Path area there was a confusing line of low boulders in a bed of liriopie ground cover that looked vaguely like stepping stones. Many visitors would use this as a short cut to get across the area faster.

### Layout of the Side Path

The biggest garden feature at Shofuso is the pond, which is fed by a natural stream originating outside the site and running from the southwest corner of the garden and into the pond. This stream forms the boundary of our “Side Path” project. The other boundaries are the

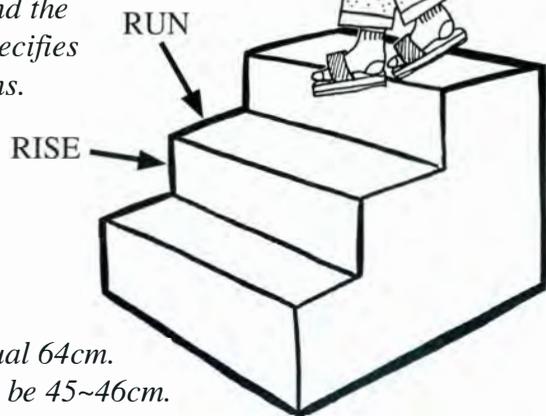


## Stair Layout

*Stairways are among the most dangerous spots in a house or garden. When correctly laid out, stairs match the size of the typical human body and the typical human stride. But when done incorrectly they feel unsafe or uncomfortable.*

*Key stair dimensions are the “rise” and the “run” (see diagram). Every building code specifies minimums and maximums for these dimensions. 18cm is an ideal riser height. 27cm is a typical tread width. Additionally, comfortable stairways always run at a slope of 30~35 degrees.*

- Here are two good rules of thumb for planning stairways in your house or garden:*
- (1) The sum of 2 risers and 1 tread should equal 64cm.*
- (2) The sum of one riser and one tread should be 45~46cm.*



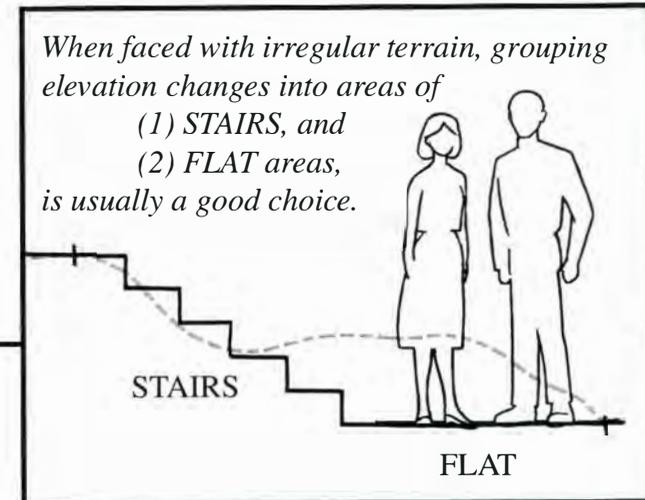
house’s veranda, a second, smaller stream in front of the tea garden that drains into the main stream, and the southeast corner of the house. The dimensions are roughly 8 x 8 meters, which seems small for a public garden space, but there is a lot going on within those confines.

The Side Path is primarily a walking area, to get from the front of the house to either the bridge that crosses the main stream, or the bridge that crosses to the tea garden. That alone translates into three entry/exit points, and a fourth entry point is the short path down from the shoe-removal stone at the base of the veranda. This is not such a big deal if we are speaking strictly in terms of function, but that

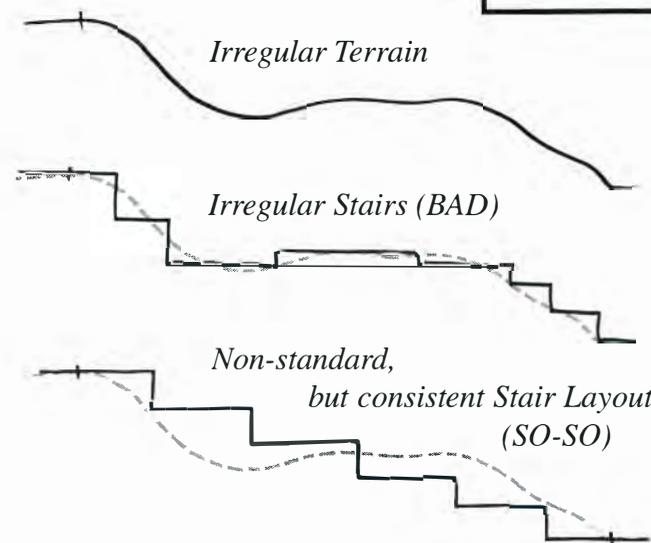
function must be seamlessly meshed with beauty. Walking over the paths is a physical act, but it also needs to be an enjoyable stroll in a beautiful setting.

### Elevation

The site also features an elevation change of 1.4m from the house down to the stream. Besides striving for visual clarity in the path layout, we also wanted to make it safe



## Grouping Stairs



*Sukiya-style gardens usually feature ample amounts of organic-looking irregular terrain. This is a good thing. So are gently winding paths that are easy to walk on. Stairways, however, are a different story, and function/safety demands extra emphasis. In this example (left) the “irregular” stairs are a terrible idea, and it doesn’t matter how beautiful or charming they look. The non-standard stairway is not a particularly good option, either.*

and easy to ascend and descend the elevation in this area. One problem with the old pathway was the seemingly random rise and fall of the stepping stones, making the visitor unsure of what would come next. Therefore, the new concept was to group the elevation changes - the steps - in a few locations and make the rest of the pathway level. This would allow the visitor to easily read the path, making for a more relaxing experience.

## Solutions

To address the issues mentioned above, we knew we'd be exchanging the existing stepping stones for heftier ones that could be set deeper in the ground. We also planned on wider paths in general, and making the non-path areas more clearly off limits to foot traffic by planting shrubs to guide visitors. Also, there would be no

low, flat boulders that could be mistaken for stepping stones.

Since the goal of this project was to address problematic areas and improve visitor experience, part of the planning involved soliciting daily observations and thoughts of senior Shofuso staff such as Associate Director Derek Finn. This was an important step because only the staff has observed the curious things that some visitors might do: where they might walk or stand, or what seemingly obvious rules of garden etiquette they might break. This evaluation process is something like a garden builder running a new waterfall for the first time and seeing how the water actually flows over rocks. It is not always as imagined!

## The Visitor Experience

In addition to improving problematic

aspects of the Side Path, we decided to expand what Shofuso had to offer by shifting the main path to run along the stream, and to widen that area so that visitors could linger there with enough room for others to pass. This concept was really a combination of three thoughts: (1) To increase use of the stream area, which ought to be a spot to enjoy running water, (2) To create places to congregate, and (3) To create spaces along confined pathways for visitors to pass each other.

## The View From Inside

A major principle of sukiya environments is an integrated home/garden space that allows the garden to be viewed from inside the house. In the case of Shofuso's Side Path, this was also a point of consideration, but it was downplayed.

One reason is that this area is more of a pathway than a display garden. The front of the house is where the main viewing experience is, featuring the pond and island. On the side of the house there is just one window and it is not usually open. Additionally, the ground slopes away from the house on this side, making it hard to see any garden elements (see JOJG #113). The opposite side of the stream rises again into a berm, and that location is optimal for rock and plant arrangements, but that area was outside the scope of this project.

## Planning & Materials

The project needed to be completed during the winter off-season. Due to this poten-

tially small window of time a plan was developed well beforehand. Concepts were sketched out to show layouts and problem solutions, and also to get a rough count on materials. In this case, that meant stepping stones, steps, and - if available - *hai-seki* viewing stones for use along the stream.

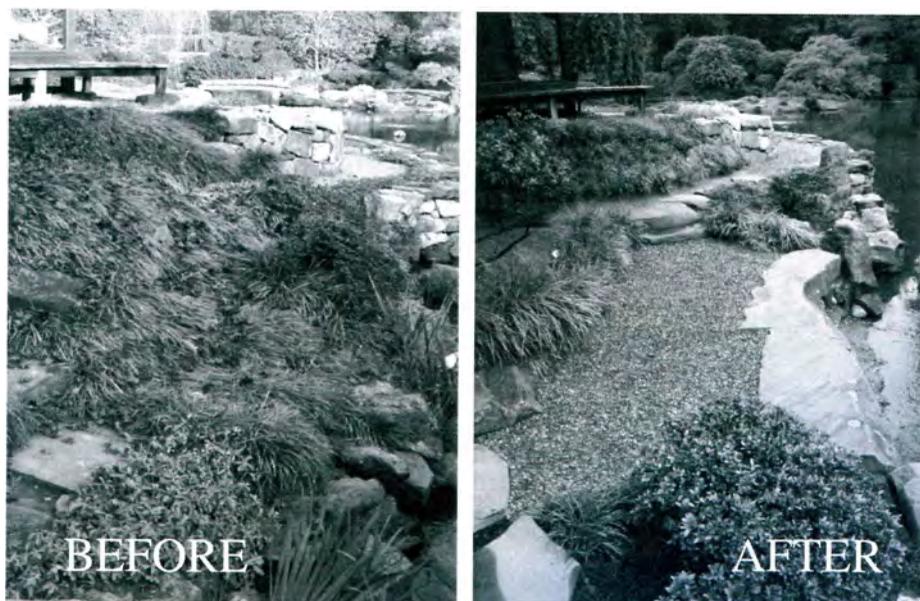
Finding quality materials for a sukiya-style garden is often a project all by itself. Of course, Home Depot doesn't sell everything. Luckily, we already knew of a good source of blue stone boulders and stepping stones at a quarry deep in the mountains of Pennsylvania. Not only did they have the materials, but owners were kind enough to allow us to select individual pieces, which they later pulled out, palletized, and delivered to the site.

## Finding the Key Pieces

On most projects it seems like the key defining elements, whether they be primary boulders or specimen trees, are always the hardest to find. That's why it wasn't surprising that it took a little longer to locate the large shoe removal stone (see JOJG #64) for this project.

In Japanese, shoe removal stones are called *kutsu-nugi-ishi*. At Shofuso the previous stone was a nice, somewhat flat boulder. But it was a little too uneven, a little too low, and a little too short to be effective. As we searched for the new stone, those were common disqualifying marks against many of the candidates we came across.

Locating a stone with enough



*(left) We made the stream-side area more useful, with wider, clearer paths (that were safe). We also created a place where visitors could stand and view the stream.*

height was the main challenge. The height of the veranda is about 55cm, so we were searching for a rectangular stone that was uniformly flat, long, and at least 30cm tall so that it could be set 25~30cm below the veranda. Eventually, we found a unique piece that was reclaimed from Pennsylvania's old Gravity Railroad where it was used as a foundation stone.

There are also times when a trip to the stone yard or quarry results in an unexpected find - an interesting piece that you feel you must find a home for because of its unique character. We came across a long, flat piece of blue stone that had a weather-worn curve along one side, and we selected it to be part of a viewing platform along the bank of the stream.

Once the stone material was set for delivery, and the doors of Shofuso closed for the season, the project got underway.

### Site Preparation

The grounds of Shofuso, like many Japanese gardens, offer one particular challenge to construction projects: accessibility. Because the gardens are enclosed by walls and fences, with no access or service road to the Side Path area, using a skid steer or excavator was immediately ruled out.

This meant that all the site preparation - including removing previous stepping stones, shrubs and ground-covers, as well as any topsoil in the re-grading process - had to be hauled out the old fashioned way: by hand. This phase was

completed by former head gardener Francheska Snyder and her assistant. Stepping stones and small boulders were piled in other locations in the garden, and plant material was moved and stored out of the way. Some rough re-grading was done and topsoil wheeled out of the site. Boulders or rock material that were too large to move with a tree cart were left for the next phase.

### Crane Day

Because of the lack of accessibility, the most viable solution to moving heavy material in and out was to use a crane. Although not cheap, hiring a crane and operator for a day allowed us to do an immense amount of work, especially since everything was planned out ahead of time.

First, larger boulders that had been there previously, but were deemed unnecessary for the new, streamlined layout, were slung up and hoisted out with the crane. These were set outside the garden fence and moved into a storage area with a skidsteer that was on hand.

After all such material had been removed, we used the crane to set some stream edging which was somewhat dilapidated and needed to be reworked to allow for a *hai-seki*



viewing area for visitors. The boulders we used were from the previous arrangement, and because of the length that we would get out of two long viewing stones that we purchased, we felt we had plenty of boulders to work with. This made it unnecessary to buy additional edging rocks. Also, in order to move freely and to work from a standing position

within the stream, the volume of water was decreased and channeled along the opposite side to give us drier conditions.

Finally, before bringing in the heaviest of the new materials with the crane, the stone bridge spanning the main stream was taken off its uneven base, also in need of repair, and moved to the side. Then, finally, all of the heavy stones - the shoe-removal stone, long *hai-seki* viewing stones for the stream, the over-sized stepping stones, and all of the other stepping stones - were moved in and placed close to where they would be set. Thus the space



(above) Prior to this project there was no way to go from point C (pondside) to point E (the bridge) without having to “go over the mountain” on treacherous paths suitable for mountain goats. This project fixed all that. It directly connected points C and E with a new stream-side viewing area, and the unsafe paths were upgraded or eliminated.



(right) New rock material being staged throughout the work site.

that had just been emptied of old stone was again filled with newer, better, stones.

## Stone Setting

With the one-day crane rental finished, the various stones were now moved into place by hand using iron bars. When necessary some were set with a tripod and chain hoist. We re-set the stone bridge over the main stream on a new foundation but at the same height above the stream as before. Also, we determined that the entire lower area along the stream would be level with this bridge, and as wide as possible, so that visitors could stand on the viewing stones along the stream and others could pass behind them. Finishing the stream edging and setting the viewing stones was the next task. Once this was completed, we moved on to the shoe-removal stone.

## Old School

The kutsu-nugi ishi was probably the heaviest single stone, but because of its location under the eaves, we could not move

it into place with the crane. The crane cable holding the stone would have hit the roof. Normally a stone of this size could be set and even moved incrementally with a tripod and chain hoist, but because of the proximity to the veranda, this was also out of the question. So instead, we used a more traditional method.

Laying down two timbers to act as rails, we put two 12cm diameter round logs on the “rails” and then had the crane set the shoe-removal stone on those. The plan was to roll the large stone on the rails and into place, pushing it from behind and using a third round log to put under the front of the stone as it moved along.

Once the kutsu-nugi ishi was placed, we proceeded to build a set of steps down to a level area. There the path meets an over-sized stepping stone that serves as a junction stone; it’s where the three main paths intersect. The Japanese name for this type of stone is *fumiwake-ishi* (see *JOJG* #92). The main point about them is that they need to be twice as wide as regular stones. From this particular junction stone a visitor can step down to a wide area behind the stream’s viewing stones.

The last section of path to be built was from the bridge spanning

(left) Shoe removal stones being “rolled” into position next to the engawa.



(right) Large stepping stones (B) positioned at the intersection of three or more paths are called “junction stones.”

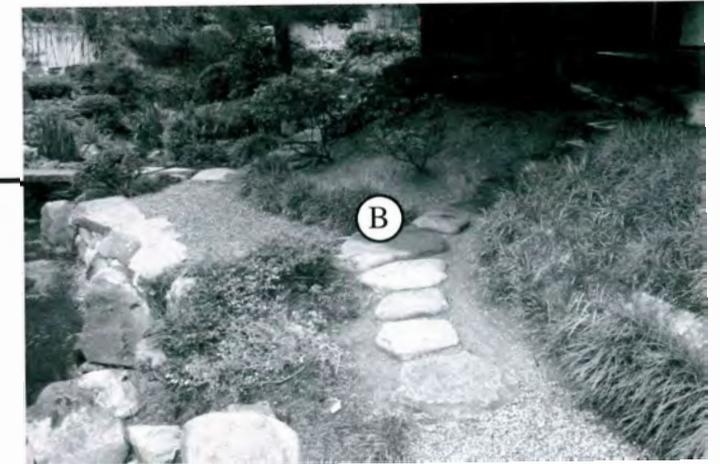
the main stream, up to another, smaller, stone bridge crossing the tea garden stream. This bridge was also re-set, and given a new foundation. With the same line of reasoning in mind, we set two steps in the middle of this path to handle the elevation change, and kept all of the other stepping stones level.

Before doing the final grading of the area, we finished re-setting edging rocks in the tea garden stream, and we added final touches in the main stream. Then, all excess stone material was cleared.

## Re-grading & Planting

All in all, more topsoil came out of the garden than new materials went in. This was because there was an effort to expand and level off paths. Many wheelbarrows full of topsoil and muck from the stream were removed as clean-up and re-grading continued during the winter.

By the time March arrived the Side Path was ready for planting. We employed a simple scheme of ground covers, including moss, dwarf mondo grass, and liriopse, and also of shrubs like azaleas, and Japanese holly. These plants were transplanted from other, over-crowded parts of the garden. It saved some money, but it also allowed us to aesthetically match existing



plantings. New shrubs, full and round, have less character than mature plants, which often have non-symmetrical shapes. As mentioned before, one purpose of the shrub placement was to help keep visitors on the path. Another was to keep the path area from appearing too flat and boring.

## Conclusion

This Side Path project illustrates that one of the most overlooked qualities of the Japanese gardening tradition may be the aspect of meshing function and beauty. Even a modest walking path - with a carefully considered layout, selection of quality material, and skilled stone and plant placement - can be much more than just a way to get from Point A to Point B. As we see here, there are many layers of thought and planning that go into blending function and beauty. In the end, what garden builders strive for is a to create a relaxing, beautiful environment where visitors can enjoy the “simplicity” of it all.