

Chapter 5. Maximizing Spaces and Resources
- Building a Rooftop Putting Green

“Golf is about how well you accept, respond to, and score with your misses much more than it is a game of your perfect shots.”

- Dr. Bob Rotella



Have you ever thought about what your dream house would look like? For Dr. Chris Chang, the answer lies in maximizing all available spaces and turning them into something that can be enjoyed. For example, most Taiwanese households have a rooftop deck; however, apart from hosting a water tank, very few people actually make use of them, let alone know how to have fun with them.

When it comes to making the best use of your rooftop space, the single most crucial key (and we cannot emphasize this more in this lifestyle series - see also Chapters 2 and 3 on building a rooftop garden and a rooftop aviary) is waterproofing and drainage. Dr. Chang always says “no over-retention of water means no leaking!” (不積水，就不漏水!) This is especially true when designing a golf green with artificial turf, as there are no plants to help absorb any excessive moisture in the base structure. Therefore, instead of the regular one layer, two layers of drainage trays (10cm thick in total) were used in addition to coats of waterproofing for extra draining ability and air circulation at the bottom.

Next, to create various terrains to accommodate 5 different putting holes, it was important that the base formation was not subject to any changes due to depletion from heavy rain or strong winds. The base mixture of gravel and sand had to be compressed as much as possible using a water compactor. As its name suggests, a water compactor relies on water to achieve the desired density and strength; however, once emptied the tool can still be carried and moved around with ease. It took the construction team one whole day just to make sure the base had been completely compacted! Then, it was time to plant some greens, or, to be more exact, artificial greens!

A special technique was used to keep the artificial turf in place. Once the turf patches had been paved over the base structure, fine sand was scattered all over the turf (Fig. 1). The whole area was brushed through with a bristle brush so the fine sand could spread more evenly, and another round of the compaction procedure was carried out to push the sand from the surface to the interface between the turf and the base mixture, securing the foundation of the turf and locking the two layers together. No adhesive was needed!

On the side of the putting green, a taller deck has been designed for chipping practice, as well as for occasional social events. This area connects two roofs, the current roof under discussion with a putting green and the roof with a wildlife garden (previously introduced in Chapter 2) hosting Dr. Chang's quails, as well as some newly arrived geese and Japanese bantam chickens. The turf here has been divided into two parts (Fig. 2). Around the edges, the turf patches



Fig. 1: Instead of any adhesive, fine sand was used to secure the turf patches in place. Fine sand is pushed to the interface between the artificial turf and the base structure to lock the two layers together.



Fig. 2: On the side deck, artificial turf with longer grass was chosen, for one to provide a more realistic floor for chipping practice, and for another to create a relaxed atmosphere during social or family gatherings.

have been glued to the bullet-proof glass underneath; at the center, two large turf patches have been simply laid on top of the glass as removable grassy 'curtains'. When closed, the turf curtains protect the glass during chipping practice, as well as providing comfort and a relaxed atmosphere when family and friends gather for a casual brunch or supper. When the grassy curtains are drawn back, natural sunlight is allowed to shine through the bullet-proof glass, under which is an enormous aviary that cleverly makes use of the space between the Changs' two houses (Fig. 3). The aviary not only further links the two houses together with built-in stairs and bridges, it also provides bird-lovers like Dr. Chang with a calming yet thought-provoking environment to either sit back and relax or sit tight to work.

What does your dream home look like? Perhaps now you have a different answer. Maximizing available spaces and resources demands that we stay inside the box while thinking outside of the box, which in

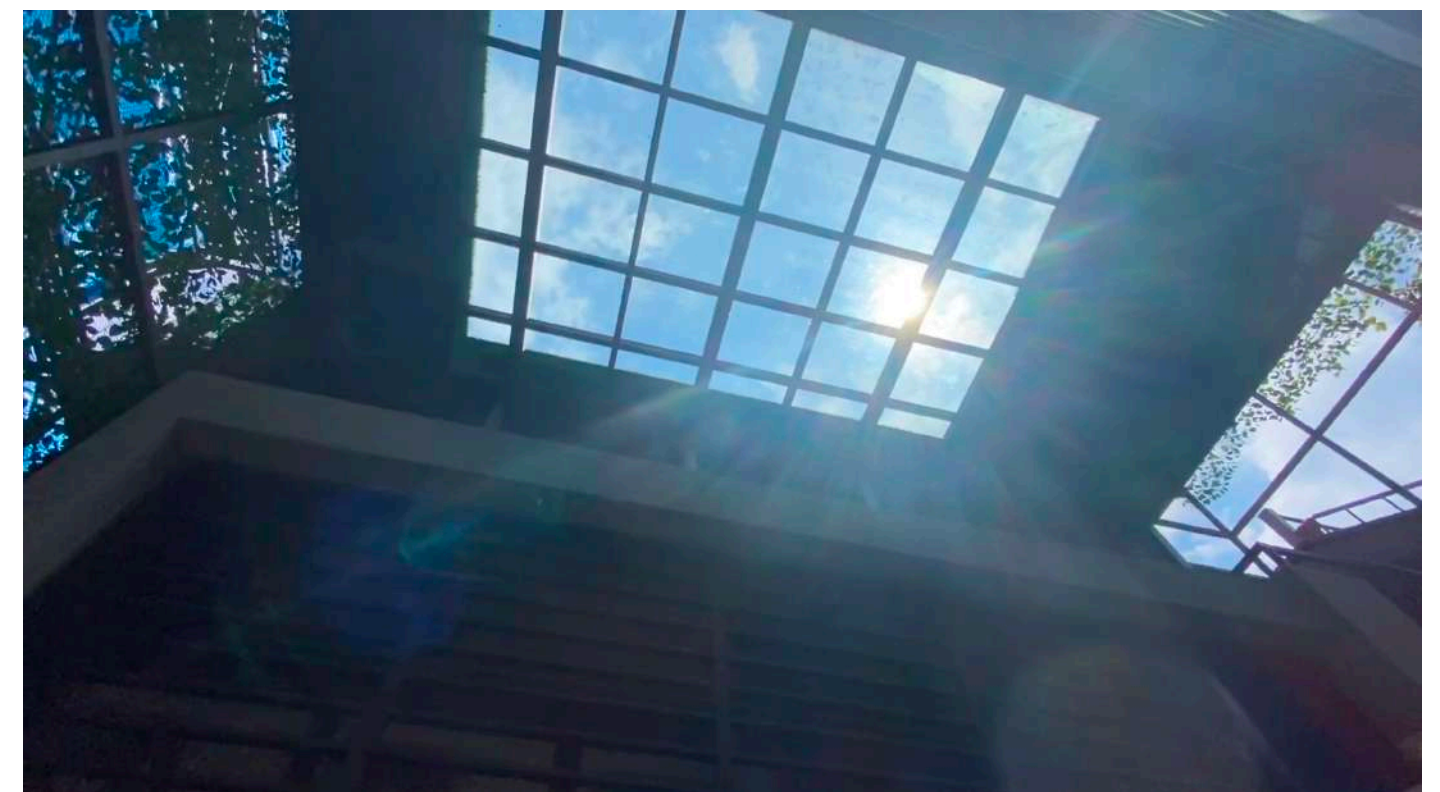


Fig. 3: Below the side deck is actually an enormous aviary which connects the Chang's two houses together. When the removable turfs are folded up, natural sunlight is allowed through the bullet-proof glass underneath.



Fig. 4: Apart from its functional purpose, the golf green is a perfect venue for casual gatherings where family and friends enjoy some golf practices while snacking on some light meals. The atmosphere is especially relaxing at dawn!

itself sounds very much like Orthodontics, does it not? With a certain set of tools and mechanics, doctors maximize the combined effect of each factor to treat various types of cases. Neither Orthodontics nor space-designing is a matter of reaching perfection, but something that requires us work with what we have and constantly respond to all changes, both predictable and unpredictable.

When re-reading the quote at the beginning this article, it could be construed that golf may also be a very similar type of game. Ever wondered why Dr. Chang has so many different interests? :)

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Fig. 5: The Chang family are the biggest fans of their new rooftop golf green! Having breakfast up on the side deck is one of their favorite ways to start a day.



Fig. 6: Much like orthodontics and space-designing, golf is a game of responding to all changes, both predictable and unpredictable. Therefore, accumulation of experience is as crucial as, if not more important than, natural gift.



Fig. 7: From a bird's eye view, the structure linking the two roofs are clearly shown. At the top of the photograph is the wildlife garden rooftop, the bottom half is the newly built artificial putting green, and the section in-between is securely connected by a layer of bullet-proof glass, supported by solid metal pillars underneath.

Along with built-in bridges and stairs, the whole design allows easy access not only to the rooftops, but also throughout the indoor spaces in the Chang's two houses, whichever house one is in and wherever in the houses one is at.



Fig. 9: With living greens and vivid flowers thriving in the surroundings, the artificial turf seems very much brought to life.

Fig. 8: The rooftops are not merely for the human residents to enjoy. An abundant amount of space and designs are preserved for the Chang's feathered companions to have their own fun, too!



