



General Questions

1. How do I get an idea of the current State-of-the-Art in the Driving Range Industry?

If you can't visit one of our many fully automated ranges, start by joining the Golf Range Association of America (GRRAA), phone number (212) 865-0050, e-mail RangeAssoc@aol.com. Included in your membership is their bi-monthly magazine, "Golf Range" or subscribe to Golf Range Times Magazine, a publication of Forecast Golf Group, phone number (804) 360-3158; e-mail dmcominc@aol.com. Both publications feature very good articles featuring the latest facilities and profiling the latest equipment and services available. Extensive advertising in both publications provides numerous supplier companies, additional contacts for consultants as well as contractors.

2. I'm just getting started, how much land does a range require?

There is no single answer to this question. The range teeing and landing area are a function of the number of stations and station layout (single or multilevel, straight or curved) and the depth of the landing area. Conventional grass ranges vary from 4 acres to 18 acres, while golf domes can be designed for as little as 1.5 acres. This does not include any land area for the pro-shop, putting green, parking, easements, etc.

3. Can you provide some guidance on the cost of developing and building a driving range?

This is a very broad question. There are ranges in the US that have been completed from start to finish for less than \$200,000 and there are many that have cost in excess of \$2,000,000. As you might expect the sales potential closely tracks the project development costs. The final answer is controlled by many factors including: materials used for construction, local labor and materials costs, soil conditions, range size design and layout, type of structures to be included, city or county special requirements, utility hook-up or stand by charges, artificial or real grass landing area, mat or grass teeing area, amenities included (eg. heated/cooled hitting stalls, tee-up system, etc), netting and pole height requirements, lighting requirements and many others. Construction costs, development budgets and considerations handbooks can be purchased from the GRRAA, Forecast Golf and the National Golf Foundation (NGF). These books are guidelines based on actual range projects built in the US. Many organizations offer consulting services to assist you in developing a budget for your planned range. Range Planners, Inc., Forecast Golf Group and several regional architect firms specialize in these services. RAS has designed many projects throughout the US, Canada and several foreign countries. We have worked with wood, concrete and steel, pre-cast concrete and even cast-in-place concrete for building tee deck structures. We pioneered the use of tension fabric and canvas for shade cover on tee decks. Using a company to assist you with your range design that primarily manufactures golf range equipment will produce a design that meets their needs and includes their equipment, it may or may not be the best or most economical design or even based on practical operating experience. No matter whom you select to help you, check their references and past projects. If you can, visit any projects they give as a reference. It is very expensive to have someone learn how to build a driving range on your nickel.



4. Should I plan on netting and poles? And how high do I need to go?

This is a site specific question. If the range is in the middle of the farm belt, is sufficiently large and there are no safety hazards on either side (or at the rear), then you probably don't need netting and poles. However, this is almost never the case. In 5 years we have not worked on a range project that did not have some netting requirement. Since good sites have high land cost it is almost a universal rule that you will need some netting, especially in metropolitan ranges. You may have a street or parking lot on one side or even other business or residential structures. In this case netting is essential. To contain all golf balls in your range, the ball flight graphs from Wilson and Spalding show a maximum height of 110' for all clubs (9 iron to driver). Most people don't understand this and think only short clubs have high flights. Even a driver hit ball can go 110 feet high, it just happens much further out from the tee line (180 to 200) yards. Since increased netting height is a major cost for poles, most ranges compromise their pole/netting height and design other safety factors in to help contain balls. These include tee line nets designed to force you to hit the ball out straight, baffled netting systems designed to reduce the poles by angled overlap, etc.

5. Should I use wood or metal poles? How do I deal with ice and snow on the nets?

It is more a choice between cost and height than wood or metal. Wood is usually only useable to a height of about 60-70 feet above ground. Even at these heights wood poles of 100 feet are required. In many areas of the country it is difficult to find the proper class of wood pole in this size and it may be just as expensive as metal. Metal has a longer life expectancy and is the clear winner above 75 feet. It also has the added feature of the ability to be extended to greater height if required. This is not practical with wood poles. Metal poles can usually be set at a greater spacing than wood poles, hence requiring fewer poles. When nets are in climates with freezing rain, snow and sleet, water can freeze solid in the openings causing the nets to act like sails on a boat. When this occurs it can mean the nets and the poles are coming down in the wind. To avoid this problem there are two major solutions. The Japanese have developed a system based on cable winches attached to the bottom of the poles designed to raise and lower the nets. A control panel uses wind sensor data to decide if the wind is too strong (and cold) and lowers the nets automatically to avoid damage. It is very expensive and not 100% fool proof. To accomplish the same safety factor for less money by sacrificing your nets, you can design the net pole system with tear-away clips to hold the nets to the steel cables. If the loading calculations are properly done than the nets will tear away from the pole without causing any damage (except to the nets and tear away hooks). This will not be affected by icing on the nets since the clips release at a set force, they will just release at lower wind speed if the nets are iced over. Several of the pole providers can perform these design calculations.

6. Can a range be run truly unattended? I've heard of Domes that want to do this.

This question most often comes up with golf Domes. Insurance will play a big role in the



decision to operate a range without human supervision. However, many ranges often want to be open (at least a part of the day) with only one employee who has several tasks to do including picking the range. In this case a prepaid card dispenser (vending machine) is very useful. We offer these in 2,3 and 4 card denomination units that will accept cash or credit cards (phone line required). They can be wall, counter or podium mounted and fill in for your sales people or act as a second sales point during busy periods. They allow conventional ranges to operate both before and after the pro-shop or sales location is manned for increased revenue without increased labor costs.

7. Is there a recommended size for a tee deck structure and hitting station.

There are some standards in use but they are not cut in stone. We have varied hitting station sizes from 2.5m x 4.75m (8'-2" x 15'-6") to 12' x 22'. These dimensions include the walkway behind the actual hitting station. Ideally for our system and a good large walkway behind we recommend 10' x 20' (3.1m x 6.2m) for each station. Floor to floor separation heights should be between 10' and 12' feet, depending on the design of the floor (roof) structure and how the lights, heaters, etc will be mounted and located. Building a deck design with a curve (like Skokie Golf Park in Chicago or CrackerJax in Scottsdale, AZ) is more expensive than a straight or 3-segment deck (where the two ends are canted in toward the center of the range) like Desert Pines, Las Vegas or Heartland Golf Park in Long Island.

8. What can Range Automation Systems provide for me?

RAS is a design/build manufacturer and installer of automated tee-up and ball wash/dry, storage and delivery systems. Prior to a contract we will provide sample drawings (usually from a completed project) to give our customers an idea of dimensions and specific requirements. Usually we provide standard details to an architect to include in his design so our equipment can easily be added. These include hitting station layouts (right hand, left hand and dual right/left hitting stations), dimensions for ball room (ball wash/storage), overall tee deck dimensions, ceiling heights, roof lines, safety netting and overhangs, etc. We have also developed a computer program that uses empirical and site specific data to calculate the sales increase to your range if it is fully automated (uses pre-paid card tee-up machines) vs. selling buckets.

9. If we purchase one of your systems what is included?

In addition to the highest quality products in the industry designed to maximize your revenues, we provide our customers complete CAD construction drawings that are based on their final range design. These drawings are for the installation of our equipment and cover all the necessary electrical, plumbing and communications issues. Our systems come with all necessary materials and equipment and our installation crew handles the actual installation of the



equipment. We are not concrete or electrical contractors so the actual electrical wire and conduit to feed power to our equipment and the concrete work is not included. We attend your construction meetings and provide inspections to answer any questions the contractors may have about the integration of our products into your range. We have often helped the local architect with the initial layout for the tee-deck and even suggested materials and cost savings methods based on our extensive experience. After installation we train your people on the operation and maintenance of the equipment and the use of the Windows based software operations and management tools. Of course the systems are covered by a full year warranty.

10. Would you provide me with a complete set of drawings for my range before I sign up to buy the equipment?

Yes, based on your initial concept layout. We will charge you \$1,500 (50 stations or less) or \$2,000 (over 50 stations). This charge will be credited at the time you sign a contract to purchase one of our systems. Keep in mind the drawings may change based on further design revisions by you or your architect.

11. What kind of Sales figures do these fully automated ranges produce?

As for metropolitan ranges, our leader is in New York at over \$2.5MM USD/yr, however they can charge 16-23 cents/ball. Other major market ranges around the U.S. charge from 7-12 cents per ball and generate annual sales of \$700,000 to \$1.3MM. These figures are revenue from golf ball sales only, no pro shop, restaurant sales or vending machines, etc. A more useful way to look at this data is in terms of dollar sales per hitting station per year ("\$/s/yr"). The average \$/s/yr for ranges in the US is approx. \$5,000. Top metro ranges in the USA report substantially more revenue per station per year but few if any approach the average numbers our automated ranges produce of \$15K-25K/per station/year in sales. Usually we find that our systems increase sales by about 25-35% over previous bucket levels at facilities we convert.

12. How is it your systems can produce so much more sales than say a Ball Dispenser using a debit card?

There are several reasons for this. First, the customer goes right to the station, inserts their pre-paid card and begins hitting. They never have to bend over to tee the ball. They never have to carry a bucket or fetch balls from a remote location (or leave their clubs unattended). Within 4 seconds after the ball is hit, another appears on the tee at the same height it was previously set to ready to be hit. In short, each customer hits more balls in less time. Most customers can't even tell you, after a brief period of time, how many balls they hit without looking at the control tower display. With a bucket system you always have a visual cue as to how many you hit and how many are left, and you pace yourself. Essentially, customers using our tee-up machines hit more



balls per visit and that equates to greater sales. Visit any of our automated ranges and test this yourself. The average at our ranges are 160-175 balls/hour/station (when the range is at capacity). Bucket operated ranges rarely exceed 125-130 balls/hour/station. Even during slack periods of time your customers will hit an average of 100 balls or more compared to bucket ranges where 70 is the norm. Of course there is also the benefit that you can now offer your regular customers pre-paid cards in denominations as high as \$100 or more, which greatly increases your daily sales while promoting customer loyalty.

13. How do I sell pre-paid membership cards, especially \$100 cards?

Most of our ranges sell membership cards. Starting at \$20, \$40 and \$60, \$100 and \$250. The actual amount of value (encoded) on the card can vary based on the owner's desires. Major metro ranges often start at a \$20 card with \$20 in value and bonus the customer for larger purchases. Commonly used values are \$20 for \$22 value, \$40 for \$46 value, \$50 for \$60 value and \$100 for \$125-130 value. This system is based on a 10%, 15%, 20% and 25-30% bonus structure for purchases. Note that by bonusing your customers for a larger purchase they are getting the benefit of a discount off your price per ball or price for time rental. Regular customers recognize this added value and will, with little encouragement, purchase the larger denomination cards.

14. What is the difference in your Eagle Star and NorthStar 4 system configurations?

Both system configurations provide the same tee-up machine, rear ball dispenser as well as machine room equipment. The differences are in the system control via communications with a PC. The NorthStar 4 system uses a kiosk at each bay with a color touchscreen and RF card reader. This allows the golfer to pick a desired bay and either enter the membership card or pin number at any bay.

The Eagle Star configuration requires the golfer to check in at a front desk and be assigned a bay. The customer then goes to the assigned bay and starts the session for the amount paid. Membership cards are also used with this system however there is only one card reader at the front desk.

15. Can I use my own ball washer with your system?

The short answer is yes. However you will not be happy with the results and it will most likely cost you more for the system installation. Our equipment is designed to integrate in speed of operation and in physical dimension. The entry and exit heights of you current washer may not match our elevators or presoak tank. A different manufacturer's washer will not provide dry balls and wet balls will cause maintenance problems with the feeder, conveyor systems and tee-up machines. Real answer is probably not.



16. What are the capabilities of your Range Management Software and do I need it?

The Range Management Software (RMS) program is a comprehensive package designed to allow your range to automatically start its operations. The program collects sales data hourly (including number of customers, money collected, balls hit and utilization percentage by station), offers flexibility in station operation (price per ball, time rental mode, or free play for special events) and tracks system errors or equipment problems. You are provided with numerous card denomination usage and sales reports, which can be beneficial in determining effectiveness of promotions and even help you better optimize your labor schedule. Because it is Windows PC based the interface is familiar and the program is easy to use, just point and click. Once your range is set up everything is automatic. Prices or modes of operation can change at preset times 7 days a week as you require. There is even an option for special holiday pricing and hours. Stations can be grouped in up to 4 groups so prices or modes of operation can vary by group (e.g. 1st floor is price per ball, 2nd floor is time rental mode). A history of all data is kept on your PC's hard disk for future comparison and analysis. You must have the Mark II or III configuration to use the RMS program.

17. Are special mats required for use with your Tee-up machines? If so Why?

The tee height on our machines is adjustable to a maximum of 78mm above the concrete. Most mats are made from foam backing and synthetic nylon grass facing. The thickness can vary from manufacturer to manufacturer. If a mat is 1 ¼ inch thick then the maximum height for the ball is 46mm or 1.82 inches. You don't want to go much less than this or golfers (especially beginning golfers) will have a hard time hitting the ball. The ball tees up below grade and rises through a 2 ½ inch round hole in the mat. Most mat manufacturers do not design their mats for use after a large hole is cut into it. The glue joint is not strong enough and after a short period of time golfers hitting 7-9 irons and wedges off a low tee (which they will do) will rip the synthetic turf off the foam backing. We have found two manufacturers that can provide a conventional mat to withstand these additional requirements, Southwest Synthetic Turf and Wittek Golf. Additionally, Fiberbuilt builds a hard rubber tile system mat that works quite well. This tile mat is somewhat taller than nylon/foam mats so you give up a small amount of tee-height, however they have two advantages, they wear much longer than nylon turf and you can replace 1 tile (1 sq. ft) at a time. Both systems work quite well. The hitting mats (sometimes called shot mats) are usually ordered in 18"-20" widths by 5 feet.

18. I have heard it takes a lot of golf balls to operate an automated range with your tee-up machines, is this true?

Yes and no. Most of our ranges exceed \$1,000,000 in ball sales per year. This means these are larger than average ranges to start with. This sales figure equates to an average of over 27,000 balls hit per day. In reality the daily number of balls hit will be much higher on weekends and holidays (often double or more). We recommend using a minimum of 1,000 balls per station and prefer 1,500 to 2,000. There are several reasons for this. If you have rainy days it is hard to pick efficiently, but many covered ranges still do great business when it rains. If you have a busy



Weekend day and it starts to rain late for a full day you must continue to operate on your remaining inventory. This means you really should have a two-day supply. With more balls you can pick less frequently and this means less wear on your grass, range balls and picking equipment. Balls will last longer (since they are hit less frequent) so there is no higher cost for starting with a larger inventory and you will often receive better prices on balls for a larger order. Our system is designed to hold 600 balls per tee station, and up to 150,000 more in the main stock box and wash/dry equipment and elevators/conveyors. For 60 stations a good starting point would be 90,000 to 120,000 balls.

19. Your system uses a conveyor instead of a blower to move balls. Isn't there a lot of maintenance on conveyors?

Our conventional conveyors are maintenance free. The balls move quickly and silently through this conveyor to their destinations at each tee station. There is limited scheduled maintenance. The ball delivery rate is 3-4 times higher than a loud blower system. Blower systems cannot handle a large number of destination points such as 50 tee stations. They excel at moving balls quickly to just a few locations, such as ball vending machines.