

IGF COURSE CONDITIONING STANDARDS

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Maison du Sport International – Avenue de Rhodanie 54 – 1007 Lausanne – Switzerland

Tel: +41 21 623 12 12

www.igfgolf.org



Preface

A successful Olympic Golf Competition is not only defined by the athletes' skills, but also by exceptional course conditions. To produce the latter, it is essential to have a well-designed golf course with up-to-date infrastructure, a comprehensive agronomic plan, and a venue maintenance staff able to manage all aspects of the preparation. Important also is the unwavering support of the host venue who must provide the resources and support to complete the task at hand according to the terms found in the Venue Use Agreement signed by the event venue and the Organising Committee for the Olympic Games (OCOG).

The following document details the IGF Course Conditioning Standards that must be rigorously followed during all stages of the Olympic competition preparation. With these standards in place and with the favor of Mother Nature, hosting an extraordinary event should be well within reach.

Paul Vermeulen IGF Agronomist





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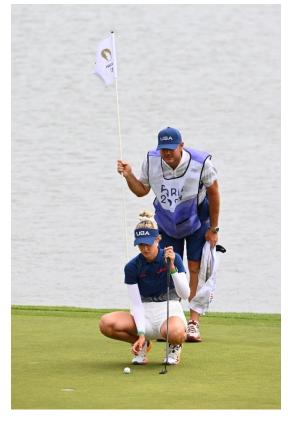


1.PUTTING GREENS

Design and Engineering

- From a design and engineering perspective, two critical points must be accounted for at every Olympic Golf course: good surface and subsurface drainage.
- Without both working in tandem to evacuate excess water from putting greens, standing water and saturated ground conditions can adversely affect the timely completion and overall quality of the competition.
 - Good surface drainage is characterized by water sheeting off the putting surface in multiple directions without pooling or forming concentrated narrow streams. Further, pooling water should not be prevalent in adjacent closely mown areas.
 - Good subsurface drainage is characterized by soils with high saturated hydraulic conductivity rates that release excess water into a below-ground piping system with unrestricted exit points.
 - Ideally, all greens should be constructed with a consistent, well-drained soil and drainage system meeting the 2018 version of the <u>USGA</u> <u>Recommendations For A Method of Putting Green</u> Construction.
- Greens that do not provide firm, uniform playing conditions, do not support healthy turfgrass conditions year-round, and do not drain well enough to prevent standing water and saturated soil conditions should be considered immediate candidates for renovation.

For additional information on green construction and design, refer to Course Design and Competition Standards at the end of this document.



One common thread among successful major tournament venues is that they are well-maintained throughout the entire calendar year. This approach is especially important for putting greens as it avoids the need for extraordinary measures during final competition preparations and keeps a proficient staff in place capable of providing high-quality playing conditions.



To achieve a high standard for putting green conditions during a professional competition, the following elements must be fully considered while developing Olympic course preparations:

Growing Environment

- All putting greens and surrounding closely mown areas should have unhindered air circulation and full sunlight exposure to support healthy turfgrass conditions year-round.
- In certain situations, the use of portable or permanent fans may be necessary to maintain air circulation but must not be relied upon during competition rounds.

Mechanical Systems

- Subsurface systems that mechanically alter soil moisture and/or temperature to support healthy turfgrass conditions are becoming increasingly popular.
- IGF Agronomist shall be included in the daily decision to operate subsurface mechanical systems when they can affect playing conditions.

Moisture Management

- The use of calibrated soil moisture meters will be necessary to assist in determining exact watering requirements.
- Adequate staffing for hand watering putting greens during each morning and afternoon maintenance shift will



also be necessary to uniformly achieve the target firmness readings set by the IGF Agronomist.

- Advance staff training will be needed to develop a proficiency for recognizing areas that dry out prematurely and consequently require additional watering to avoid permanent wilt.
- IGF Agronomist shall be included in daily irrigation decisions that affect playing conditions during the Olympic competition.

Mowing

- The use of walk-behind green mowers is considered a standard for the Olympic golf competition.
- In unique situations, the use of riding green mowers may be approved by the IGF Agronomist.
- The mowing height shall be determined cooperatively by the course superintendent and IGF Agronomist with a focus on maintaining consistent greenspeed readings during the Olympic golf competition.
- During the Olympic golf competition, maintenance operations should be capable of double mowing putting greens during morning and afternoon maintenance shifts.



- All putting green mowing should be completed in less than two hours, which typically requires 10-12 walkbehind green mowers, along with a compliment of utility vehicles and mower trailers.
- It is important to note that after each maintenance shift, the green mowers must be serviced by a qualified technician to ensure optimal cut quality.
- Further, the use of plastic turning boards or other protective materials are typically required to protect the collars and green edges from excessive wear caused by frequent turning.

Turfgrass

- A well-adapted turfgrass species and variety, capable of enduring a rigorous maintenance routine throughout the Olympic golf competition, should be uniformly present on all putting greens.
- The turf should be free of invasive weeds and other grasses that would disrupt the appearance and playing condition of the course.
- Hosting events at certain times of the year may require annual overseeding due to warm-season grass dormancy.

Greenspeed

- A consistent greenspeed without large fluctuations during competition must be maintained.
- As directed by IGF Technical Delegate in charge of the competition, the greenspeed target will be tailored
 to match the putting green architecture and prevailing weather conditions. Courses with pronounced
 putting green undulations and/or those in windy locations will have proportionally lower greenspeed
 targets.
- It is important to note that the greenspeed target can be changed in real-time based on the competition weather forecast.
- Two USGA Stimpmeters shall be provided by the host facility.





Rolling

- Putting greens normally require rolling during the Olympic golf competition to achieve greenspeed and ball roll quality objectives.
- Typically, 2-3 riding rollers or 10-12 walk-behind rollers are required, along with utility vehicles and roller trailers, and in some cases, protective turning boards.



Organic Matter Management

- The firmness of putting greens during the Olympic competition is of great importance, and maintaining the desired measurements relies on effective control of organic matter, commonly known as thatch, in the upper soil profile.
- Organic matter content should be monitored by annual laboratory testing.
- Avoiding excessive organic matter accumulation typically requires completing two or more significant
 cultivation practices annually, such as core aeration. While these practices may temporarily disrupt the
 surface, their completion must not be compromised as the benefits they provide cannot be replicated by
 alternative methods.
- To ensure full recovery, any cultivation practices that might impact the quality of putting surfaces during the Olympic competition must be scheduled well in advance and approved by the IGF Agronomist.





Topdressing

- IGF events demand a rigorous and precise sand topdressing program to achieve consistently smooth putting surfaces and help manage organic matter accumulation.
- It is essential to schedule the final topdressing application no later than 1 week prior to first official training day to ensure that no sand residue remains on the putting surface during practice rounds and competition.
- To fully evaluate the impact of topdressing from one year to the next, a comprehensive log of topdressing applications, including the quantity of sand used, should be meticulously maintained.
- A current topdressing sand test report is to be made available upon request for review with the IGF Agronomist.

Surface Grain Control

- To ensure uniform ball roll during the Olympic competition, the presence of uncut, horizontal grass blades, known as surface grain, should be controlled to the extent possible.
- This standard requires a combination of brushing and/or minimally disruptive vertical mowing, also referred to as grooming, throughout the year and during final competition preparations.



Integrated Turf and Pest Management

The IGF strongly advocates for the responsible management of turfgrass in golf and specifically for venues that are hosting IGF events.

Key principles include:

- Selection of turfgrasses that are most suited to local climate and soil conditions, including with highest durability, drought, pest, disease and wear tolerance
- A central focus on ensuring optimal plant health through carefully applied cultural, mechanical and other non-chemical practices, and including soil structure and plant nutrition optimisation
- Regular course scouting, and the establishment of thresholds for playing quality and acceptable levels
 of turfgrass weed, pest and disease damage for different areas of the course
- Careful selection of chemical and biological treatments to minimize risks
- Application of all best practices for chemical application, and associated human and environmental protection
- Constant tracking and recording of turf conditioning, weather patterns, soil and plant tissue analysis and inputs to inform continual improvement.

Fertility Management

- A well-balanced fertility program is necessary to optimize turfgrass health and performance on putting greens throughout the year, and particularly during competition.
- This program should encompass all macro-and micronutrients essential for normal growth.
- The application rate and timing of nutrients should be determined by monitoring daily turfgrass performance and annual soil testing to confirm pH and nutrient presence.
- Fertilizer use records, soil test results, and an annual fertilizer application schedule should be made available upon request for review with the IGF Agronomist. The course superintendent and IGF Agronomist should cooperatively determine the annual nutrient amounts.

Growth Regulator Application

- To achieve the required greenspeed and reduce daily greenspeed loss during competition, the application of plant growth regulators (PGRs) is typically necessary.
- Additionally, depending on the chosen product, PGRs can help prevent the development of Poa annua seedheads, leading to smoother ball roll.
- The rate and timing of PGR applications are best determined using a growing degree day model and recording daily clipping volume.
- The course superintendent and IGF Agronomist should cooperatively determine PGR applications during
 final competition preparations including all applications from two weeks before first official training day
 and during competition weeks. The final PGR application should be completed no later than 1 day before
 first official training day to avoid conflict with key competition activities with exceptions for weather and/or
 pest outbreaks.



 Furthermore, careful due diligence should be used to prevent over-regulation and loss of greenspeed control.

Fungicide, Insecticide, and Nematicide Applications

- Combating regional fungi and pests capable of disrupting uniform putting green conditions during competition may require preventative applications of fungicides, insecticides, and nematicides.
- To ensure comprehensive protection, a thorough list of fungi and pests should be compiled by reviewing course records and seeking input from industry specialists and the IGF Agronomist.
- The final product application should be completed no later than 1 day before first official training day to avoid conflict with key competition week activities with exceptions for weather and/or pest outbreaks.

Herbicide Application

- It is crucial to control broadleaf and grassy weeds requiring postemergence herbicides at least 12 weeks before the first official training day to allow sufficient time for complete turf recovery.
- Further, preemergence herbicide applications may be required well in advance to prevent weeds from impacting uniform putting green conditions during competition.
- To ensure comprehensive control, a thorough list of weeds should be compiled by reviewing course records and seeking input from industry specialists and the IGF Agronomist.

Wetting Agent Application

- The application of wetting agents is generally required to minimize localized dry spots and ensure uniform moisture levels in the soil.
- Given wetting agent applications often require significant post-application irrigation to facilitate the movement of the active ingredient into the underlying soil, the final application should be scheduled no later than 1 week before the first official training day.
- This allows ample time for the putting greens to dry adequately before the first official training day.
- The course superintendent and IGF Agronomist should cooperatively determine the wetting agent application schedule.

Data Collection

- During the training period and competition, a log of morning and afternoon greenspeed, firmness, and soil moisture measurements must be kept.
- To ensure accuracy, at least two volunteers or support staff are required to independently gather greenspeed and firmness data on each nine.
- Green irrigators assigned to each nine can collect soil moisture data when feasible.
- It is strongly advisable to collect data in the months leading up to competition and review it periodically.



Hole Locations

- Two weeks before the start of the Exclusive Use period, the placement of daily hole locations must be tailored to safeguard competition weeks hole locations.
- At the start of the Exclusive Use period, old hole plugs must be replaced or leveled with the surrounding surface.
- On courses where the nursery green does not closely match regulation putting green turf, a corner of the chipping green may provide the most closely matched plugs for use on the regulation greens.
- On warm-season putting greens, when changing holes, old hole plugs should be oriented to match the direction of the turf's grain.
- For courses hosting events in the shoulder seasons, reducing the frequency of hole changing during the winter months should be implemented to minimize putting surface scarring.





2.COLLARS & APPROACHES

Design and Engineering

Refer to Course Design and Competition Standards at the end of this document.

Growing Environment

 All putting green approaches and surrounds should have unhindered air circulation and full sunlight exposure to support healthy turfgrass conditions year-round.

Turfgrass

- A well-adapted turfgrass species and variety, capable of enduring a rigorous maintenance routine throughout the Olympic competition, should be uniformly present on all collars and approaches.
- The turf should be free of invasive weeds and other grasses that would disrupt the appearance and playing condition of the course. Hosting events at certain times of the year may require annual overseeding.

Moisture Management

- To match the firmness of the putting greens, supplemental hand watering will likely be required during the Olympic competition.
- Advance staff training will be needed to develop a proficiency for recognizing areas of the collars and approaches that dry out prematurely and consequently require additional watering to avoid permanent wilting.
- Monitoring soil moisture with moisture meters may not be practical due to varying soil types.
- In the weeks leading up to the competition weeks, the overhead irrigation system should be monitored daily for up/down percentage adjustments needed to minimize excessively wet/dry areas.
- IGF Agronomist shall be included in daily irrigation decisions that affect playing conditions during the Olympic competition.

Mowing

- The use of walk-behind collar and approach mowers is considered standard for competition preparations and competition weeks at the Olympic Games.
- In unique situations, the use of riding triplex mowers may be approved by the IGF Agronomist.
- Typically, 2 walk-behind collar mowers and 4-6 walk-behind approach mowers are needed during the Olympic competition.
- A daily mowing frequency should begin 1-2 days before first official training day and continue through the competition weeks.
- On competition days when morning mowing is not needed, dew removal will be required.



- The collar and approach mowing heights shall be finalized in consultation with the IGF Agronomist with
 a focus on maintaining a clear, crisp boundary around the putting surface and consistent playing
 conditions during the competition.
- If no collar exists but is required for the competition, a minimum of 10 weeks of reliable growing weather will be required to develop a defined boundary around the putting surface.
- The use of plastic turning boards is typically required to protect the collars and green edges from excessive wear caused by frequent turning.
- Additionally, avoid excessive mower turning at the collar/approach interface and the fairway/approach interface to limit excess traffic wear.
- Should turfgrass show weak conditioning, additional fertility may be required in this zone.

Irrigation System Components

- All irrigation heads, valve boxes, and quick couplers should be level with the surrounding terrain and edged to provide clear definition with the surrounding turf to optimize system performance, minimize play interference, and maintain an orderly course appearance.
- To maintain optimal soil moisture levels, the use of adjustable, individually controlled sprinklers is required.

The following management programs should reflect a high conditioning standard that is in line with previous statements:

- Organic Matter Management
- Topdressing
- Surface Grain Control
- Fertility Management
- Growth Regulation
- Fungicide, Insecticide, and Nematicide Applications
- Herbicide Application
- Wetting Agent Application



3.TEES

Design and Engineering

Refer to Golf Course Design and Competition Standards at the end of this document.

Growing Environment

- All teeing grounds should have sufficient air circulation and ample sunlight exposure to support healthy turfgrass conditions year-round.
- The tees should be free of tree root invasion.



Surface Condition

- A visibly level teeing ground is required across the entirety of the professional teeing areas, including edges and corners.
- On par-3 and short par-4 tees where excessive divoting and mounding occurs, resurfacing by laser leveling is periodically required.



Turfgrass

- A well-adapted turfgrass species and variety, capable of enduring a rigorous maintenance routine throughout competition weeks, should be uniformly present on all tees.
- The turf should be free of invasive weeds and other grasses that would disrupt the appearance and playing condition of the course.
- Hosting events at certain times of the year may require annual overseeding.

Moisture Management

- During competition weeks, tees should be watered to achieve firm conditions.
- Good plant health should be managed with a combination of overhead irrigation, wetting agent applications, and hand watering as needed to prevent excessive localized dry spot development.
- IGF Agronomist shall be included in daily irrigation decisions that affect playing conditions during competition weeks.

Mowing

- The use of walk-behind tee mowers is considered standard for competition preparations and competition weeks at the Olympic Games. In unique situations, the use of riding triplex mowers may be approved by the IGF Agronomist.
- During competition weeks, a least 4 walk-behind tee mowers are needed to mow all the professional tees in less than 2 hours and well ahead of morning course setup by the IGF referees.
- On competition days when morning mowing is not needed, dew removal will be required.
- A daily mowing frequency should begin 1-2 days before first official training day and continue through competition weeks.
- The tee mowing height shall be finalized in consultation with the IGF Agronomist with a focus on maintaining consistent playing conditions during the competition.

Divot Protection

- Professional teeing areas on all par-3 and short par-4
 holes where iron shots are played during the competition
 must be closed for regular play well in advance of the Olympic golf competition to ensure divot-free conditions at the start of competition.
- The IGF Agronomist will determine the necessary closure period and identify specific tees that will be used during competition weeks.





• During competition weeks, divot filling on all tees is suspended to accommodate tee marker rotation in a confined area.

Irrigation System Components

- All irrigation heads, valve boxes, and quick couplers should be level with the surrounding terrain and edged to provide clear definition with the surrounding turf to optimize system performance, minimize play interference, and maintain an orderly course appearance.
- Irrigation heads located in professional teeing grounds should be relocated.

The following management programs should reflect a high conditioning standard that is in line with previous statements:

- Organic Matter Management
- Topdressing
- Surface Grain Control
- Fertility Management
- Growth Regulation
- Fungicide, Insecticide, and Nematicide Applications
- Herbicide Application
- Wetting Agent Application





4. FAIRWAYS

Design and Engineering

Refer to Course Design and Competition Standards at the end of this document.

Growing Environment

- All fairways should have sufficient air circulation and ample sunlight exposure to support healthy turfgrass conditions year-round.
- The fairway edges should be free of tree root invasion and heavy shade patterns that thin turfgrass density.

Turfgrass

- A well-adapted turfgrass species and variety, capable of enduring a rigorous maintenance routine throughout competition weeks, should be uniformly present on all fairways.
- The turf should be free of invasive weeds and other grasses that would disrupt the appearance and playing condition of the course.
- Hosting events at certain times of the year may require annual overseeding.

Moisture Management

- During the Olympic competition, fairways should be watered to achieve firm conditions with a focus on maintaining good plant health across all 18 holes.
- This can be achieved through a combination of overhead irrigation, wetting agent applications, and hand watering as needed to prevent excessive localized dry spot development.
- Ideally, the fairways would dry down naturally during official training period and competition days, achieving peak firmness short of permanent wilt on the final day. Superintendents and irrigation technicians should practice programming the irrigation system to achieve these conditions well in advance of an event.
- Typically, 6-8 staff members should be scheduled to hand water fairways during the two competition week afternoon shifts. IGF Agronomist shall be included in daily irrigation decisions that affect playing conditions during the Olympic competition.

Mowing

- The use of lightweight fairway mowers with either 3 or 5 cutting heads is considered standard for competition preparations and competition weeks at the Olympic Games.
- Typically, 8-10 triplex or five-plex fairway mowers are needed to mow all 18 holes and the practice tee in less than 2.5 hours and well ahead of morning course setup by the IGF referees.
- Clipping dispersion with special netting/weighted rope and blowing may be needed after the fairways are moved and before the first tee time.



- On competition days when morning mowing is not needed, or when dew reforms ahead of play, dew removal will be required. A daily mowing frequency should begin 1-2 days before first official training day and continue through competition weeks.
- The fairway mowing height shall be finalized in consultation with the IGF Agronomist with a focus on maintaining consistent playing conditions during the competition. Repetitive mowing routines that create a pronounced grain and negatively affect fairway playing conditions are not permitted.
- A striping mowing routine used to enhance course aesthetics should be set no earlier than the first official training day.



Divot Protection

- Extra efforts should be made to fill (and seed if needed) divots on a regular basis.
- Isolated areas with excessive divoting must be protected well in advance of the Olympic competition, especially when in a potential professional landing zone.
- These areas may require signage as well as roping and staking, netting, or other protective measures to
 achieve good results. In some cases, the use of small artificial turf mats may be needed during periods
 of slow or inactive turfgrass growth.
- Divot repair leading up to competition weeks should be scheduled frequently.
- Divot repair during competition weeks must be completed daily during the afternoon shift.
- Divot filling materials shall be a mixture of sand, soil, and finely-ground organic matter and should not contain seed. Adding green color to the divot mix is an acceptable practice.





Irrigation System Components

- All irrigation heads, valve boxes, quick couplers and drain inlets should be level with the surrounding terrain to optimize system performance, minimize play interference, and maintain an orderly course appearance.
- All irrigation components and drain inlets located in the fairways and intermediate rough area should be neatly trimmed prior to competition weeks so they are easily identified by athletes and caddies.
- All irrigation heads must be tagged with accurate yardage to the center of the green.

Areas of Disturbance

- All fairways should be clear of ground under repair (GUR) during the Olympic competition.
- This requires the completion of improvement projects, such as mowing line adjustments, drainage
 installation etc., well in advance of competition to ensure areas of disturbance are covered with fully
 established, mature turf with no visible sod seams.

Drainage

• Special attention should be given to improving surface and subsurface drainage where needed, with particular attention given to landing zones to prevent casual water from interrupting play.



The following management programs should reflect a high conditioning standard that is in line with previous statements:

- Organic Matter Management
- Topdressing
- Surface Grain Control
- Fertility Management
- Growth Regulation
- Fungicide, Insecticide, and Nematicide Applications
- Herbicide Application
- Wetting Agent Application



5.ROUGH

Design and Engineering

Refer to Golf Course Design and Competition Standards at the end of this document.

Turfgrass

- A well-adapted turfgrass species and variety, capable of enduring a rigorous maintenance routine throughout competition weeks, should be uniformly present in all rough areas.
- The turf should be free of invasive weeds and other grasses that would disrupt the appearance and playing condition of the course.
- Hosting events at certain times of the year may require annual overseeding.

Moisture Management

- During competition weeks, it is crucial to avoid overly wet or overly dry playing conditions.
- IGF Agronomist shall be included in daily irrigation decisions that affect playing conditions during competition weeks.

Mowing

- Typically, the entire rough requires mowing in coordination with course roping and staking during the week preceding the first official training day.
- It is also necessary to have ample manpower and equipment to mow the rough inside the ropes during competition weeks, should conditions warrant.
- Mowing inside the ropes typically requires 4 or more riding rotary mowers of varying sizes to complete
 mowing operations in a timely manner.
- During the final weeks of the Olympic competition preparations, mowers should routinely mow rough in opposing directions to produce a consistent and upright stand that provides a uniform course appearance and playing condition.





Intermediate Rough

- If the rough height during competition weeks will be 2 inches or above, player walkways and a 0.750" to 1.25" tall intermediate rough around each fairway and green are typically required.
- The IGF Agronomist will provide details on the required rough mowing scheme and a timetable for establishing new mowing heights and boundaries.

Drainage

• After heavy rainfall, surface and subsurface drainage should be sufficient to allow play to resume without standing water in the shortest time possible.





6.BUNKERS

Design and Engineering

Refer to Golf Course Design and Competition Standards at the end of this document.

Sand

- A homogeneous sand free of rocks and loose impediments that meets industry specifications is required.
- The USGA provides a list of registered laboratories capable of measuring a sand's physical properties, including particle size distribution, particle shape, color, degree of crusting, angle of repose, saturated hydraulic conductivity, and firmness.
- The physical properties of bunker sand are critically important, especially its firmness, which affects how well it resists buried lies on sloped faces.
- Bunker sand test results should be available for review with the IGF Agronomist.





Condition

- The appearance and playing condition of the bunkers should be consistent throughout the course and practice areas.
- High-faced bunkers should be constructed to resist erosion during heavy rainfall, and all bunkers must drain freely to ensure there is no standing water during competition.

Uniformity

- A uniform sand depth of 4 or more inches throughout the bunker floors is required and should be checked no later than 7 days prior to the first official training day.
- All fabric and hard-surface liners should be covered with enough sand to prevent interference of play.
- Steep bunker faces require a compacted sand to prevent buried lies and adequately cover liner materials.
- After heavy rains, sand should be redistributed to maintain consistent depths and recompacted if necessary.
- Tamping, rolling, and/or hand watering to firm these areas may be necessary.
- All major inputs of new sand must be in place at least 8 weeks prior to competition weeks to ensure compaction and firmness.

Edge

- The bunker edges must be clearly defined to determine if a ball in play is in or out of the hazard.
- Sodding well in advance may be necessary to reestablish edges that are damaged by heavy traffic at entry and exit points.
- Boards or other materials used for bunker edge stabilization should be removed during or prior to the week preceding the first official training day.

Raking

- Bunkers require daily maintenance during competition weeks, as directed by the IGF Agronomist.
- Raking should be completed in a manner that prevents deep ridges and creates a consistent playing surface free of tracks and footprints.
- Raking can be accomplished via hand and/or mechanical means.
- The staffing requirement during competition weeks will be dependent on the number and size of bunkers and typically ranges from 12-24 so that all raking can be completed in 2 hours or less.

On-Course Rakes

- The standard on-course bunker rake on the IGF consists of a plastic-molded rake with uniformly spaced teeth at length not to exceed one inch.
- Alternative rakes must be approved by the IGF Agronomist.
- A minimum of one rake per bunker is required, while larger bunkers require two to three.



• All rake heads and rake handles should be in like-new condition.

Rake Placement

- During competition weeks, rakes shall be placed with handles in line with play and rake heads toward the green.
- They shall be 4 6 ft. outside the bunkers and in a flat area on the non-play side of the course that will least likely affect play.
- In select areas where steep banks are problematic, bunker rakes may be placed on the fairway side for ease of use.



7.PRACTICE AREA

Design and Size Requirements

Refer to Golf Course Design and Competition Standards at the end of this document.

Turfgrass

- Turfgrass species and varieties that match each area of the course should be uniformly present in all practice areas.
- The turfgrass species and variety on the practice tee(s) should typically match the fairway turfgrass.
- Hosting events at certain times of the year may require annual overseeding.



Mowing

- The practice tee mowing height should match the fairway mowing height and be finalized in consultation with the IGF Agronomist to ensure consistent playing conditions.
- On competition days when morning mowing is not needed or dew reforms ahead of practice, dew removal will be required.
- Daily mowing frequency should begin 1-2 days before first official training day and continue through competition weeks.



Conditioning

- All practice areas shall be maintained to the same standards as the competition golf course, with emphasis on greenspeed.
- This may require adjusting maintenance practices based on athlete use as competition weeks progress.

Divot Protection

- A portion of the practice tee must be closed for regular play well in advance of the event to ensure divotfree conditions at the start of the Olympic competition.
- The IGF Agronomist will assist with the selection of this area, generally covering the entire width and an area approximately 60 feet deep nearest the rear of the practice tee deck.





8. PLAY RESTRICTIONS

The following recommendations aim to preserve playing conditions, ensure uninterrupted competition preparation, and optimize the maintenance staff's workload.

Course Closure for Olympic golf competition final preparation

- Complete course closure no later than 14 days prior to first official training day is necessary for final competition operational preparedness.
- The start of the Venue Exclusive Use should be defined accordingly between the OCOG and the Host Venue.

Cart Restrictions

- Starting at least two weeks prior to the week leading up to the start of the Exclusive Venue Use periods, carts should be restricted to paths only.
- This minimizes traffic wear-and-tear on playing surfaces, preserving turf quality and ensuring consistent playing conditions.
- For courses that undergo annual overseeding, cart restrictions may be needed from the overseeding period until the event.

Continuous Path System

- To protect turf areas, courses must have an acceptable continuous path system capable of supporting unimpeded vehicular traffic flow leading up to and during the event.
- For courses without a continuous path, the IGF Agronomist and the host venue shall mutually agree on a method to restrict cart traffic on the competition course.

Rounds Played

- It is recommended that the host venue institutes a daily limit of 100 rounds in the week leading up to the start of the Exclusive Venue Use period, alternating daily play between a 1-tee start and a 10-tee start.
- This rotation helps distribute traffic evenly across the course, reducing wear-and-tear on specific areas.
- It also allows the maintenance staff to focus on specific projects and allocate resources more efficiently.
- For courses with extended tee time hours, consider blocking the tee sheet for one hour, typically during midday hours (e.g., 11:00 a.m. to 12:00 p.m.), to allow maintenance staff to safely work on necessary tasks without interrupting play.



9. TREES, LANDSCAPE, AND WATER FEATURES

Trees

- Tree maintenance on the golf course should prioritize tree health, safety, and creating a visually appealing landscape for fans and the television audience.
- Course personnel and/or a certified arborist should be consulted to determine proper care and pruning based on the tree species and condition.
- At the discretion of the IGF Technical Delegate, the removal of interfering tree limbs may be necessary.
- Tree pruning may also be required to accommodate competition infrastructure.
- Leading up to the Olympic competition, declining trees should be considered for immediate removal.
- On evergreen trees, limbs that touch the ground should be pruned to prevent interference with play.

Landscape

- The clubhouse and course landscape should be meticulously maintained to present a well manicured appearance.
- Regular mowing, edging, weeding, and fertilization should be carried out as part of final competition preparations to ensure turf areas are healthy and visually appealing.
- IGF Technical Delegate may recommend the removal of on-course landscaping that could potentially interfere with competition.

Water Features

• Lakes and ponds should be professionally maintained, and unwanted odors and aquatic weeds should be eliminated to ensure water features are well presented to onsite fans and the television audience.





10. IRRIGATION SYSTEM

- The irrigation system should be fully automatic, equipped with individual head control and isolated coverage for greens, tees, fairways, and rough.
- New systems should be professionally designed by an independent engineer and installed by a reputable golf course builder.
- GPS-based as-builts should be available for precise course maintenance and competition setup.
- Additionally, quick couplers at tees, greens, bunkers, and fairway landing zones are needed for hand watering during competition weeks.
- Irrigation system maintenance is crucial to ensure that all areas of the course can be maintained in accordance with all IGF conditioning standards.
- At least one trained irrigation technician must be present on-site during competition hours, equipped to make minor repairs without undue delay of the competition.
- The maintenance staff is responsible for locating and marking all irrigation system components and utilities prior to the installation of all competition infrastructure.





11. COURSE MARKING

The Olympic golf competition requires that the golf course be properly marked. This will be done by the assigned IGF referee during the week preceding the first official training day. In preparation for marking, the following items need to be addressed:

- Discontinue all course marking to include all penalty areas, drop zones, and ground under repair, for a minimum of 8 weeks prior to the competition weeks, or longer given dormant turf conditions. Do not mark hard surface such as rocks, cart paths, wooden bridge materials, etc.
- Maintain the area between each boundary stake to permit clear line-of-sight.
- Complete all mowing and trimming prior to the painting of penalty areas during the week preceding the
 first official training day. These areas should also be blown to minimize interference from clippings and
 other loose debris. Final preparations should be coordinated with the IGF Agronomist to ensure all
 activities are complete well ahead of course marking by the IGF referee.
- New or like-new penalty area stakes and paint are to be provided through the OCOG Sport Equipment Procurement process or by the host venue, if specified in the Venue Use Agreement.



12. STAFFING

- Staffing numbers for courses hosting an Olympic golf competition should account for year-round agronomic maintenance and the requirements of the competition weeks.
- This ensures that the course is maintained in good condition throughout the year and that all IGF conditioning standards can be met during the Olympic competition.

Year-Round Staffing

- Year-round staffing refers to the number of individuals required to maintain the golf course in good agronomic condition throughout the year.
- The year-round staffing level should be determined based on factors such as the size and architectural complexity of the course and the specific maintenance requirements thereof.
- It is essential to have a well-rounded team of experienced individuals, including senior and assistant superintendents, equipment and irrigation technicians, and full-and-part-time team members, to effectively manage the course's maintenance needs.
- Depending on the year-round staffing numbers allocated to the Olympic Golf competition preparation and agronomic plan to be implemented, additional maintenance staff may be needed 3-6 months before the Games or earlier based on the local context and needs. The related-costs (e.g. salaries and potentially other contextual/logistical expenses such as accommodation) are the responsibility of the OCOG.

Games-time Staffing

- The host venue is responsible for providing the total number of Games-time staff needed to meet the IGF conditioning standards during the Olympic competition.
- To accomplish the Games-time Maintenance Plan and high-quality conditioning standards, the existing venue maintenance staff will need to be increased by approx. 40 to 70 additional skilled support maintenance staff for a duration of approx. 2 to 4 weeks, to be confirmed depending on the local context.
- The total number of maintenance staff for Games time (existing + additional staff) present at any one time is generally between 70/80 and 90/100 staff depending on the local context.
- It needs to be noted that rotations among some of the additional staff may be needed (eg, some individuals doing the 1st week only and being replaced by other individuals for the 2nd week of competition)
- The Games-time staffing level should be determined based on factors such as time of year, course size, completion of tasks in a short time frame, and individual competition requirements.
- This additional staff is typically recruited from other golf clubs who agree to secondee one or more of their staff for the Olympic Golf competition without any financial remuneration.
- An IGF Agronomist will be available to assist with tabulating the number of Games-time staff.
- Great attention needs to be given to this essential group in terms of service provisions and proper budget allocated by the OCOG.
- The following costs are the responsibility of the OCOG:
 - travel to the host city (for the additional staff)
 - accommodation (for the additional staff / depending on the local context, accommodation may also be needed for some of the club's existing staff members)



- daily transportation to/from the venue and accommodation (for the additional staff)
- accreditations (for both existing and additional staff)
- daily meals at the venue (for both existing and additional staff)
- uniforms (for both existing and additional staff)

Typical year-round and Games-time staffing is summarized in the table below.

Year-Round Staffing		Games-time Staffing	
Golf Course Superintendent	1	Golf Course Superintendent	1
Assistant Superintendents	2	Assistant Superintendents	2
Assistant in Training (Intern)	2	Assistant in Training (Intern)	2
Equipment Manager	1	Equipment Manager	1
Equipment Technician	1	Equipment Technician	1
		Equipment Technician, skill support	1
		staff	
Irrigation Technician	1	Irrigation Technician 1	
		Irrigation Technician, skilled	1
		support staff	
Pesticide Application Technician	1	Pesticide Application Technician	1
Landscape Manager	1	Landscape Manager	1
Office Coordinator	1	Office Coordinator	1
Full-Time Team Members	15 – 22	Full-Time Team Members	15 – 22
Skilled Support Staff	0	Skilled Support Staff	45 – 55
Total	26 - 33	Total	73 - 90





13. EQUIPMENT INVENTORY

- All golf course maintenance equipment should be maintained in safe operating condition and scheduled for replacement based on normal life expectancy.
- The inventory should be in good year-round condition.
- During the Exclusive Venue Use period, additional mowers and transportation vehicles may be needed.
- Any additional costs related to additional materials and equipment are the responsibility of the OCOG or as per the terms found in the Venue Use Agreement signed by the host venue and the OCOG.
- All equipment shall have sufficient lighting to operate in the early mornings or late evenings.

Typical year-round and Games-time inventory is summarized in the table below:

Year-Round Inventory		Games-time Inventory	
Green mower, walk-behind	8	Green mower, walk-behind	10-12
Collar, tee and approach mower, walk-behind	6-8	Collar, tee and approach mower, walk-behind	6-8
Green mower, triplex	2	Green mower, triplex	3-4
Collar, tee and approach mower, triplex	4	Collar, tee and approach mower, triplex	4
Fairway mower, triplex	4-6	Fairway mower, triplex	8–10
Fairway mower, 5-plex	3-5	Fairway mower, 5-plex	7-8
Practice tee mower, triplex or 5-plex	1	Practice tee mower, triplex or 5-plex	1-2
Intermediate rough mower, triplex reel or rotary-deck	1	Intermediate rough mower, triplex reel or rotary-deck	2
Rough mower, mid-size rotary	2	Rough mower, mid-size rotary	2
Rough mower, large rotary	2	Rough mower, large rotary	2
Green roller, riding	2	Green roller riding	2–3
Green roller, hand	2	Green roller, hand	10-12
Bunker rake	2	Bunker rake	2
Large blower	2	Large blower	4
Green aerifier	2	Green aerifier	2
Fairway aerifier	1	Fairway aerifier	1
Green topdresser	2	Green topdresser	2
Fairway topdresser	1	Fairway topdresser	1
Green and tee sprayer	1	Green and tee sprayer	1
Fairway sprayer	2	Fairway sprayer	2
Heavy-duty truckster	3	Heavy-duty truckster	3
Light-duty truckster or utility cart	12-15	Light-duty truckster or utility cart	12-15
Golf cart	3-4	Golf cart	6-8
Golf cart, 4-6 seat	0-1	Golf cart, 4-6 seat	2-4
Utility tractor	2	Utility tractor	2
Front-end loader	1	Front-end loader	1
Reel grinder	1	Reel grinder	1
Bed-knife grinder	1	Bed-knife grinder	1



14. COURSE MAINTENANCE FACILITY

- The golf course maintenance facility is integral to the success of the Olympic golf competition and serves as the base of operations.
- The maintenance building(s) should establish a professional tone that carries across the entire property during competition weeks.
- The following is a list of important elements that should be accounted for regardless of the maintenance facility's vintage:
 - Separate office area for managerial staff and administrative duties.
 - Well-organized work area fully compliant with national/local health and safety standards.
 - Maintenance Staff Briefing Area (up to 100 pax) to be provided by the OCOG. Eg. temporary tent
 with ample space to conduct meetings with all Games-time maintenance staff prior to morning and
 afternoon shifts, to eat breakfast and lunch, etc., equipped with relevant FF&E (tables, chairs, sofas,
 TV, fridges, etc).
 - Covered storage for equipment inventory.
 - Isolated equipment wash area.
 - Isolated pesticide storage building with indoor mixing and loading facility.
 - Storage bins appropriately sized with one covered area for dry topdressing storage.
 - Paved maintenance yard with concrete skirting around all buildings.
 - o Equipment service area equipped with hydraulic lift(s), reel and bed knife grinder, etc.
 - Proper lighting for equipment set-up before sunrise.
 - Electric and Wi-Fi service capable of supporting the additional need for competition operations and increased dependence on vehicle charging.



15. COURSE DESIGN AND COMPETITION STANDARDS

□ COURSE	E DESIGN
Parcel	 Size (usable, developable acreage) ✓ Minimal Topography – 175 or more acres ✓ Moderate Topography – 200 or more acres ✓ Steep Topography – not conducive to competition golf Individual Hole Width – minimum 350 feet wide, ideally 400' wide Routing ✓ Core golf course preferred with ideally returning nines due to 1 and 10 tee starts ✓ Minimum 18 holes with a short game practice area and practice facility ✓ Green-to-tee walks to ideally not exceed 75 yds Length (actual distance is subject to change based upon altitude, topographic, and climatic conditions) ✓ Recommended not to exceed 7500 yds as a par 72 ✓ Recommended not to exceed 7300 yds as a par 71 ✓ Recommended not to exceed 7200 yds as a par 70 ✓ Par 3's - Shall vary between 140 yds and 240 yds ✓ Par 4's - Shall vary between 290 yds and 520 yds ✓ Par 5's – Shall vary between 550 yds and 675 yds
Greens	 □ Construction – Ideally all greens built with consistent, well drained foundation meeting the 2018 USGA Recommendations For A Method of Putting Green Construction. □ Size – 3.5+ acres of total surface area that includes practice putting and chipping green. Minimum size 3,500 sf and average size +/- 5,500 sf. □ Surface – Ideally greens with moderate contours that have 8-10 nonoverlapping hole locations throughout, and minimum of 5 tournament week hole locations with 2.25% max slope and ideally 1.5% - 1.75% slope for higher greenspeeds with firm conditions. Each pin location to have +/- 450 sf with no slope greater than 2.50%. Slopes shall ideally not exceed 8%.
Tees	 □ Construction – All tees built level with consistent, well drained foundation ideally meeting USGA specifications. □ Drainage –Competition tees ideally "V" subgrade with 4" minimum rootzone mix, 4" perforated pipe, with 1% finish grade. Intercept drainage and/or proper surface drainage may be needed to divert water around tees wedged into slopes. Practice tee to have 4" perforated pipe herringbone pattern on 15' spacing on a 1% subgrade with a 6" rootzone mix and 1% finish grade. □ Size – 4+ acres of total surface area including practice tees with 1,500+ ft2 par-3 competition specific teeing areas across multiple tees and 1,200+ ft2 par-4-&-5 competition specific teeing areas. Each par-4 and par-5 competition tee shall be a minimum of 7 yds wide and 10 yds in length with the longer holes having 15-20 yds in length for a variety in setup. Each par-3 competition tee shall be a minimum of 12 yards wide to be able to separate the tee in half with two 6-yard-wide teeing grounds. The depth is dependent upon topography but also determined by allowing for enough rotation front to back or back to front for recuperation for a



	minimum of 1,620 ft2. Each tee shall facilitate 4 competition rounds and a few practice rounds.
Fairways	 Construction – Ideally all fairways and approaches built with laboratory tested and recommended sand-cap material overlaying complete drainage system network (actual depth TBD by water-release curve test). Size – Ideally 24 – 27+ yard widths that vary based on design strategy, topography and prevailing wind directions and built to provide strong, year-round conditions. Ultimately, the fairway widths should provide strategy and variety based upon hole length and topography.
Bunkers	 Construction – Subgrade ideally engineered with erosion resistant, non-degradable liner system. Size – Recommended maximum 1.5+acres of total surface area based on design strategy. Sand - Meets industry specifications and approval by IGF Agronomy department.
Practice Area	 Tee – Competition teeing area minimum 60' deep x 300' wide for full field events, with full turf coverage and enough space to accommodate play leading into the event. Putting Green – 10,000⁺ ft² minimum with 18 competition specific hole locations throughout. Chipping Green – 4,000⁺ ft² minimum with 3+ hole locations and 15,000⁺ ft² of closely mown area minimum and 2⁺ bunkers. Locations – Ideally, the practice putting green should be in close proximity to both the 1st and 10th tees.
Irrigation	☐ New systems should be professionally designed by an independent engineer and installed by a reputable golf course builder.
Cart Paths	□ Cart Paths - minimum 8' wide with 10' wide at tees and greens with curb, 12'-16' wide for major spectator movement and competition traffic areas, paved surface, constructed to support heavy competition equipment setup.
Nurseries	□ Nursery Green – 10,000 sf □ Fairway/Tee Nursery – 20,000 sf



16. IGF COURSE STANDARDS CHECKLIST

This checklist covers the key areas outlined in the document to ensure that all IGF Course Conditioning Standards are met.

1	. P	uttin	q G	reens
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	Design and Engineering : Check for good surface and subsurface drainage, and refer to Course Design and Competition Standards.		
	Growing Environment : Ensure unhindered air circulation and full sunlight exposure.		
	Mechanical Systems: Verify the operation of subsurface mechanical systems.		
	Moisture Management : Use calibrated soil moisture meters and ensure adequate staffing for hand watering.		
	Mowing : Confirm the use of walk-behind green mowers and check mowing height.		
	Turfgrass: Ensure the presence of well-adapted turfgrass species.		
	Greenspeed: Maintain consistent greenspeed as directed by IGF Technical Delegate.		
	Rolling: Verify the use of rolling to achieve greenspeed and ball roll quality.		
	Organic Matter Management: Check for effective control of organic matter.		
	Topdressing: Ensure a rigorous sand topdressing program.		
	Surface Grain Control: Control the presence of uncut, horizontal grass blades.		
	Fertility Management: Implement a well-balanced fertility program.		
	Growth Regulator Application: Apply plant growth regulators as needed.		
	Fungicide, Insecticide, and Nematicide Applications: Ensure preventative applications.		
	Herbicide Application: Control broadleaf and grassy weeds.		
	Wetting Agent Application: Apply wetting agents to minimize localized dry spots.		
	Data Collection: Keep a log of greenspeed, firmness, and soil moisture measurements.		
	Hole Locations: Ensure proper placement and maintenance of hole locations.		
Collars & Approaches			
	Design and Engineering: Refer to Course Design and Competition Standards.		

2.



3.

4.

LF F	EDERATION
	Growing Environment : Ensure unhindered air circulation and full sunlight exposure.
	Turfgrass: Ensure the presence of well-adapted turfgrass species.
	Moisture Management: Check for supplemental hand watering and monitor soil moisture.
	Mowing: Confirm the use of walk-behind mowers and check mowing height.
	Irrigation System Components : Ensure irrigation heads, valve boxes, and quick couplers are level and edged.
Tee	es
	Design and Engineering: Refer to Golf Course Design and Competition Standards.
	Growing Environment : Ensure sufficient air circulation and ample sunlight exposure.
	Surface Condition: Check for a visibly level teeing ground.
	Turfgrass: Ensure the presence of well-adapted turfgrass species.
	Moisture Management: Water tees to achieve firm conditions.
	Mowing : Confirm the use of walk-behind tee mowers and check mowing height.
	Divot Protection : Ensure divot-free conditions on professional teeing areas.
	Irrigation System Components : Ensure irrigation heads, valve boxes, and quick couplers are level and edged.
Fai	rways
	Design and Engineering: Refer to Course Design and Competition Standards.
	Growing Environment : Ensure sufficient air circulation and ample sunlight exposure.
	Turfgrass: Ensure the presence of well-adapted turfgrass species.
	Moisture Management: Water fairways to achieve firm conditions.
	Mowing : Confirm the use of lightweight fairway mowers and check mowing height.
	Divot Protection : Ensure regular divot repair and protection of high-traffic areas.
	Irrigation System Components : Ensure irrigation heads, valve boxes, quick couplers, and drain inlets are level and trimmed.
	Areas of Disturbance: Ensure fairways are clear of ground under repair.
	Drainage: Improve surface and subsurface drainage where needed.



	Design and Engineering : Refer to Golf Course Design and Competition Standards.
	Turfgrass: Ensure the presence of well-adapted turfgrass species.
	Moisture Management: Avoid overly wet or dry conditions.
	Mowing: Ensure timely mowing of rough areas.
	Intermediate Rough: Establish intermediate rough around fairways and greens.
	Drainage: Ensure sufficient drainage to prevent standing water.
6. Bu	nkers
	Design and Engineering: Refer to Golf Course Design and Competition Standards.
	Sand: Ensure homogeneous sand free of rocks and loose impediments.
	Condition: Maintain consistent appearance and playing condition.
	Uniformity: Check for uniform sand depth and coverage of liners.
	Edge: Ensure clearly defined bunker edges.
	Raking: Ensure daily maintenance and proper raking.
	On-Course Rakes: Use approved rakes and ensure proper placement.
7. Pra	actice Area
	Design and Size Requirements: Refer to Golf Course Design and Competition Standards.
	Turfgrass: Ensure the presence of matching turfgrass species.
	Mowing: Match practice tee mowing height to fairway height.
	Conditioning : Maintain practice areas to the same standards as the competition course.
	Divot Protection: Ensure divot-free conditions on practice tees.
8. Pla	y Restrictions
	Closure: Implement course closure no later than 14 days prior to first official training day.
	Cart Restrictions: Restrict carts to paths only in advance of competition.
	Continuous Path System: Ensure an acceptable continuous path system.



Rounds Played: Limit daily rounds and alternate tee starts. 9. Trees, Landscape, and Water Features ☐ **Trees**: Prioritize tree health, safety, and visual appeal. □ Landscape: Ensure well-maintained clubhouse and on-course landscape. ■ Water Features: Ensure well-maintained lakes and ponds. 10. Irrigation System □ **System Requirements**: Ensure a fully automatic system with individual head control. Maintenance: Ensure proper maintenance and availability of a trained irrigation technician. 11. Course Marking □ **Preparation**: Discontinue course marking 8 weeks prior to competition weeks. ☐ **Maintenance**: Maintain clear line-of-sight between boundary stakes. ☐ **Final Preparations**: Coordinate with the IGF Agronomist for final preparations. 12. Staffing ☐ Year-Round Staffing: Ensure adequate staffing for year-round maintenance. ☐ Games-time Staffing: Ensure additional staffing for Games time. 13. Equipment Inventory ☐ **Year-Round Inventory**: Maintain equipment in safe operating condition. ☐ Games-time Inventory: Acquire additional equipment for Games time. 14. Course Maintenance Facility Facility Requirements: Ensure a professional and well-organized maintenance facility. 15. Course Design and Competition Standards □ **Design Requirements**: Ensure compliance with design and tournament standards.