Installation, Maintenance & Inspection

Installation

General

All required information should be compiled prior to installation. Information necessary for the installation will include, for example; position on site, space requirements, anchoring depth, choice of ground surface material, assembly instructions, possible need of a machine for excavation, unloading truck or other assistance during installation program. Depending on the vehicle access to the chosen site, different installation solutions at different costs may be required.

Assembly of all types of equipment/facilities shall always be done using the provided assembly instructions from the supplier.

Excavations/fillings

Prior to finalising the final position for the equipment, an assessment of the existing site should be completed. This will include checking for;

- Ensure there are no cables or other services that are in the ground where excavation will be required.
- Ensure there are no overhead cables, mast or similar that could restrict the height of the facility or its access.
- Ensure any existing trees or other natural features are protected, where required.
- Ensure any existing site gradients will not affect any requirements for equipment ground clearances or its use.
- Ensure the existing soil does not contain any contaminates that could create a hazard to users of the facility or those installing.
- Ensure a suitable assessment of the existing soil materials is carried out.
- Where required, suitable site drainage may also need to be provided.
- Backfill shall be made in such a way that there is no risk for subsidence.
- Correct backfill material shall be selected, depending on the material chosen for the impact attenuating surface, where this is required.

Safety

The public must be prevented access to the installation area (please see local or national Code of Practice and safety regulations) until any work on the facility is completed and installation inspection is complete. It also includes the areas of the facility that are to be provided with special surfaces.

Cast in place

All concrete work must be performed by personnel with the appropriate competence and in the right way.

Surface

All equipment must be provided with a suitable surface, which will vary depending on the requirements according to each type of equipment. In particular, for play equipment products, the material shall in most of cases have some impact attenuation, which reduces the risk of head injury resulting from falls. Specific material selection should be based on the functional and standard requirements. Different surface options will require different levels of ongoing maintenance, which must be understood and planned for, prior to selecting.

Requirements regarding user and supervisor accessibility of the equipment shall always be considered. For more information, please see CEN/TR 16467.

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Installation inspection

After completion of the installation and landscaping a 'Post Installation Inspection' for safety, function and to confirm correct assembly, should be carried out. Any significant deficiencies should be corrected before the equipment is made available for use.

Assembly instructions shall be retained and safely filed in accordance with the Operational Plan.

Inspection and Maintenance

The Operational Plan will need to include a schedule for Inspection and Maintenance and who has the 'Maintainer' responsibility. Different requirements will be applicable for different types of product/facility, which should be advised by the equipment suppliers. In general, those products of a dynamic nature will likely require a higher level of maintenance, including the periodic replacement of consumable parts. A robust Inspection and Maintenance program will not only help sustain the safety of provided facilities, but also ensure any wear or damage is repaired promptly in accordance with product warranty requirements.

It is generally recommended that three levels of inspection are planned for;

- Visual inspection (daily or weekly depending on user frequency, and risk of vandalism)
- Operational recorded inspection (at least four times per year depending on user frequency, risk of vandalism and weather conditions)
- Annual inspection by a competent person. For more information on competence required for playground inspection, see CEN/TR 17207.

The supplier of the products/facilities should always provide an Inspection and Maintenance document that will form the basis for the Operational Plan. However, this may need to be modified, based on local factors such as user frequency, risk for vandalism or weather conditions.

Maintenance & Inspection

General

The structure should be inspected and maintained in accordance with the recommendations as detailed in EN-1176-Part-7: Guidance on installation, inspection, maintenance and operation for playground equipment.

If any part of the equipment is found to be unsafe during an inspection, and that part cannot be repaired or replaced immediately, the equipment unit or part(s) concerned should be secured against use. This may involve immobilisation or removal from site.

Important note: The frequency of inspection will vary with the type of equipment or materials used and other factors (e.g. heavy use, levels of vandalism, coastal location, air pollution, age of equipment etc...)

Routine Visual Inspection

Overview

A routine visual inspection enables the identification of obvious hazards that can result from vandal¬ism, use or weather conditions (e.g. broken parts).

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A daily routine visual inspection is recommended especially for playground equipment that has heavy use and/or is subject to vandalism should include the inspection of the following as a minimum:

- General equipment and surface cleanliness
- Equipment ground clearances are maintained
- *Foundations not exposed, loose in the ground or cracked
- Parts not missing or damaged
- Surface finishes not damaged, rusting, deteriorating and are free from sharp edges.
- Connections and bolts are present, secure and tight
- Bearings are free running with no unexpected movement or noises.
- Safety surface (if installed) not compacted, damaged or contaminated
- Framework/structure shows no signs of fatigue/cracking.
- Ropes are not excessively worn showing their internal steel wires.
- No finger traps have opened anywhere in the structure between 8mm and 25mm.
- Site is clear of objects and rubbish within the fall zone of the net.
- Plastic items are not broken, loose, cracked, deformed or have any signs of embrittlement due to UV light.
- Rubber membrane panels are secure and show not signs of excess ware or cracking.
- Surfaces are free from contamination that can cause the user to lose their balance.
- Manufacturer Labels are present and legible.
- No water is accumulated within the equipment and that all drain holes are open.
- Where applicable, the rope is correctly tensioned (e.g. Activity Net)

*Within the corner box chambers, foundations and steelwork should not be cracked loose in the ground or exposed. Inspect the stainless-steel mast at finished ground level for cracks or deformation in the single structural support.

Tension the Rope – E.g. Activity Nets

Periodic checks on tension will help assist in the durability of the product. It is recommended that subsequent checks on tension should be carried out at monthly intervals and adjusted as required.

After initial tension is complete, the net will stretch approximately 1% over the first two weeks of use. Following this initial period, the net needs to be fully tensioned by releasing the locking nuts and tightening the turnbuckles.

Inspection of Specific Components

Rope Components

1. Ensure that the ropes are smooth all along and are not frayed, deformed or have any visible metal cord.
2. That all fixings are tight and have no protruding sharp edges.
3. Rope end fixings are replaced when the link cross section reaches a size of 70% of its original size compared to a non-wearing surface. All parts should be checked, including; Connections to framework, swaged eye terminals attached to the rope ends,
4. Surface finishes not damaged, rusting or deteriorating
5. Connections and bolts are secure and tight
6. Rope tension is maintained using the Rigging Screws and locknuts are secure. (E.g. Activity net)

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Chain

1. The chains are not twisted.
2. Chains are replaced when the chain link cross section reaches a size of 70% of its original size on any link compared to a non-wearing surface. All chain parts should be checked, including; end fixings, split links, end chain links, main chain links, swivels and rivets.

Tensioner/Rigging Screw

1. Thread is free from excessive ware or damage.
2. An equal amount of thread to the body of the tensioner is fixed inside the body of the turnbuckle.
3. The tensioner is secured with the locknuts.

Safety Wire

Where applicable, ensure the safety wire is looped between the secure structure and thimble of the rope in the case of failure to the components.

The safety cable should cable tied secure to prevent trip hazards or probe failures around the play activity.

Shackles

Shackles are to be replaced when the link cross section reaches a size of 70% of its original size on any link compared to a non-wearing surface.

a. Shackle pins have no steps or cracks in them.
b. Ensure that Roll pins are inserted and firmly in position.

Wooden items

1. All wooden items (logs etc.) are not broken and have no sharp edges or splinters.

Note: All wooden items are prone to expansion and contraction that may cause temporary splits. This will depend on climate and temperature variance. Any cracks should be monitored to ensure they do not grow sufficiently or compromise structural strength.

2. All components where repetitive wear does occur (e.g. decks, steps, walkways) has more than 70% left of its original thickness.

3. Give a detailed check of all timber parts to confirm if any rot/degradation is present that could compromise its structural capacity.

-- Special attention shall be given to dynamic items like cable ways, swing frames, and those that rely on one post for their stability.

-- The recommended inspection method for identifying early signs of degradation in timber is the use of a small diameter (approx. 3-4mm dia) steel rod with a rounded point. Attempting to insert the device a number of times at evenly spaced points around the outer face of the post, in the accessible zone where moisture and oxygen combine in their optimum, in areas under the highest levels of structural load. The probe shall not easily enter the timber when pushing and there shall be no sign of softness, when compared with a fresh timber part. Any cracks in the timber can also lead to rot establishing from the inside.

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-- Care should be taken to not disturb material in the post potentially leading to future acceleration of degradation. Small pockets of rot do not necessarily mean the post will fail catastrophically in the near future and any suggested action should be considered carefully by the inspector depending on the amount and extent of degradation.

-- For structural wooden parts going direct into ground, care should be taken to ensure the inspection method and probing is carried out in the zones of the post at the greatest risk of degradation. For loose-fill surfacing at or below ground level but above the concrete foundation by temporarily scraping back the loose-fill material. For synthetic surfacing directly at or just above/below surface level. If the ground is prone to retaining water or flooding, then extra attention also needs to be taken.

-- For larger sections of timber intended to offer greater structural stability or timbers raising concern, more sophisticated test methods such as digital resi-drill inspections are available if considered necessary.

-- If any concern occurs please contact a local timber expert or contact Tayplay for further advice. Where necessary products must be taken out of use, until a further investigation has been completed.

Steel items

Give a detailed check of all steel parts to confirm if any corrosion/degradation is present that could compromise its structural capacity. The recommended inspection method for identifying early signs of corrosion in steel is visual observation and the use of a small diameter (approx. 3-4mm dia) steel rod with a rounded point. Attempting to insert the device a number of times at evenly spaced points around the outer face of the post in the accessible zone where moisture and oxygen combine in their optimum, in areas under the highest levels of structural load. The probe shall not easily enter the steel when pushing and there shall be no sign of softness. If areas where the surface coating is broken, are detected, special attention should be given as there is a higher risk of corrosion.

-- For structural steel parts going direct into the ground care should be taken to ensure the inspection method and probing is carried out in the zones of the post at the greatest risk of corrosion. For loose-fill surfacing at or below ground level but above the concrete foundation by temporarily scraping back the loose-fill material. For synthetic surfacing directly at or just above/below surface level. If the ground is prone to retaining water or flooding, then extra attention also needs to be taken.

-- Special attention shall be given to dynamic items, and those that rely on one post for their stability.

-- For those steel sections intended to offer greater structural stability or those raising concern, more sophisticated test methods such as 'eddy current' tests are available if considered necessary.

If any concern occurs, please contact a local structural steel expert or contact Tayplay for further advice.

Where necessary products must be taken out of use, until a further investigation has been completed.

Rubber steps and disks

1. Not broken and secured to posts.

2. Not slippery.

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Cone Climber Bearing & Speed Restrictor

Periodically, it is advised to remove the mast and net for a detailed internal inspection of the speed restrictor. A detailed view of the components can be found in your installation instructions.

Please ensure the locking nut and bolts are secure, the housing moves freely and the 4mm brake pads are not excessively worn. For a breakdown on the bearing and restrictor, please contact: info@tayplay.com.

Maintenance Procedure

Overview

Whilst any maintenance is carried out the equipment must be secured against use and the public warned of any risks associated with the work.

Any parts replaced must be Tayplay original spare parts or comply with Tayplay specifications. See installation instructions for part numbers, part identification and method of disassembly and assembly.

Clean all equipment once a year unless the provision is within 1500m of the sea in which case it should be carried out every three months. To remove dirt, mould, contamination, salt deposits etc. with mild detergent solution (do not use strong solvents or solutions containing chlorinated hydrocarbons, esters, ketones or abrasive cleaners or polish) using a soft cloth, sponge or brush. Special attention given to walk areas, handrails, wooden items and horizontal surfaces. As required, please clean surfaces with a suitable graffiti remover.

Powder Coated Finish

Periodically, our products should be inspected for mechanical damage, and we recommend that the powder-coated finish to steel components be cleaned with a mild detergent solution and soft cloth. This should generally be carried out at least once a year, unless the provision is within one 1500m of the sea in which case it should be carried out every three months. Any identified breaks or scratches in coating surface, should be made good within a month:

- any bare metal should be thoroughly abraded with a fine grade sand paper to remove any corrosion.
- clean area with a non-aggressive solvent.

Please contact your Tayplay representative for further advice.

Avoid any refurbishment work in direct sun or in temperature less than +10 degrees. Particular attention should be paid to the areas adjacent to stainless steel components where corrosion on bare steel would be accelerated.

Galvanized Steel Components

Any damage or scratches in the coating surface identified should be made good within a month:

- any bare metal should be thoroughly abraded with a fine grade sand paper to remove any corrosion.
- clean area with a non-aggressive solvent.
- then immediately repaint using a suitable cold galvanizing application.

Avoid any refurbishment work in direct sun or in temperature less than +10 degrees.

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Wooden Items

The timber parts should have any sharp edges or splinters removed. Any cracks should be monitored to ensure they do not grow sufficiently to be a finger trap or cause rot.

To keep a good look and extend the life of timber parts it is also important to keep them clean, free of contamination and review the surface treatment. However, we recommend that wooden items or treatments are checked to ensure their suitability for use on children's playground equipment.
For wearing components (e.g. decks, steps, walkways) having less than 70% left of its original thickness, shall be replaced.

a. Hardwood
It is recommended that the hardwood items should be treated if required with a drying wood oil < 30% dryness. Ensure that all excess oil is removed prior to putting the equipment back into use. This is particularly important on step treads to ensure they are not slippery.

b. Softwood
Maintenance is critical to keep the look and function of the wood. The intervals will depend on use, place of installation, vandalism etc.

Before maintaining the product, you need to judge the status of the surface treatment. If there are minor mechanical damage and a solid surface layer, please use Wood stain – 'Glaze system' (transparent). If there are severe damages to the wood or the surface layer, a 'Solid colour' (opaque) wood stain must be used.

Make sure the surface is clean and free from any loose material or paint cracking.

Do not work in direct sunlight or at temperatures below +10°C.

1. Clean the old surface or damaged area thoroughly with pre-paint cleaner. Rinse carefully with water. Clean between the boards wherever necessary so that moisture run-off will be effective.

2. Let it dry until the moisture content is not above 18%.

3. Scrape or sand the damaged (dis-coloured) areas to remove loose paint and then apply two coats of oil primer. Or treat the entire surface. Let it dry between applications.

4. Leave to dry for at least 4 hours at a temp. of +10°C or above.

5. Then apply two coats of solid colour woodstain to the damaged areas. It may be necessary to apply a final coat to the entire surface. Let it dry between applications.

6. Leave to dry for at least 4 hours at a temp. of +10°C or above.

Although the pigments of our solid colour wood stains have been specially developed to match our transparent woodstain shades, slight differences may arise, as it is technically impossible to guarantee a 100% match at all times.

Please contact your Tayplay representative for further advice.

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Rope components

Small cuts in the outer braided layer can be re-sealed by melting the frayed ends with a small naked flame. If done immediately it will stop the plastic filaments from unwinding further. With small amounts of wear the life of the net can be extended with the use of suitable external grade heavy duty tape. This must be securely applied to prevent the introduction of entrapment areas.

For more extensive fatigue or breaks in the rope, the net will need removed and replaced.

Bushes, bearings and swivels

If any noise or squeaking occurs or if it does not run smoothly, please apply universal grease or silicon spray.

Make sure any over spill is entirely cleaned off.

If motion is still an issue or if the bush, bearing or swivel has worn out, replacement will be necessary. As a guide we recommend more than 0.5mm movement within component would require replacement.

Plastic components

All Tayplay plastic products are UV stabilised to provide a long trouble-free life. However, after extended UV exposure some colour fading and material embrittlement can be expected. This will vary depending on the location and orientation of the products, but after a period of 10 years in normal environments, all products should be regularly checked for signs of embrittlement and replaced as required.

Dynamic items and equipment where stability relies on a single structural support.

For Dynamic items of equipment or for equipment where stability relies on a single structural support for stability, it is recommended that they are scheduled for replacement after a maximum period of 15 years for structural steel and 10 years for timber. This is particularly important for these structures that are subject to fluctuating loads as fatigue to can occur over time, depending on the level of use and abuse.

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