



**HAGS<sup>®</sup>**

# **Installations 101**

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## Canadian Installations (Canada Only)

THE INDIVIDUAL INSTALLATION INSTRUCTIONS THAT FOLLOW MAY HAVE PROTECTIVE AREAS (USE ZONES) LISTED OR SHOWN THAT ARE **NOT** CORRECT FOR CANADIAN PLAYGROUND SYSTEMS. THE PROTECTIVE AREAS LISTED OR SHOWN IN THE FOLLOWING INDIVIDUAL INSTALLATION INSTRUCTIONS ARE SUPERCEDED BY BOTH THE CSA-Z614-14 STANDARD FOR "CHILDREN'S PLAYSPACES AND EQUIPMENT" AND THE CONSTRUCTION DRAWINGS INCLUDED NEAR THE FRONT OF THIS INSTALLATION MANUAL.

ALSO, AN ADDITIONAL SIX (6) FOOT "NO-ENCROACHMENT ZONE" MUST EXTEND BEYOND THE USE ZONE FOR ALL TO-FRO SWINGS, ROTATING (TIRE) SWINGS AND SLIDE EXITS. A "NO-ENCROACHMENT ZONE" IS AN OPEN AREA BEYOND THE USE ZONE THAT DOES NOT NEED PROTECTIVE SURFACING. PLEASE REFER TO CSA-Z614-14 FOR ADDITIONAL INFORMATION ON "NO-ENCROACHMENT ZONES".

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## Installers' Manual - Installations 101

**IMPORTANT!** Out of an abundance of caution, and in order to provide optimal protection against head injuries due to falls from most playground equipment heights, we recommend that you install and maintain a minimum finished depth of twelve (12) inches of loose fill surfacing under and around playground equipment. A 12-inch finished depth should allow for some compaction and settling of loose fill surfacing that may occur between regular surfacing inspection and maintenance, and will help to prevent the occurrence of serious head injuries caused by falls to the surface. If unitary protective surfacing material is being installed, the impact attenuation of the protective surfacing should be rated to have a critical height value of at least the height of the highest accessible part of the equipment. The critical height for surfacing is to be rated in accordance with the ASTM standard, designated F-1292, A Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment. Contact the manufacturer of unitary protective surfacing materials (rubber matting or pour-in-place) for the critical height rating for their products.

### PREPARE FOR INSTALLATION

**Safety First...** Before starting construction, check with all utility companies for exact locations of underground utilities.

#### Pre-installation Checklist

- Check for underground and overhead utilities.
- Make certain that the selected site is large enough for your play system(s) and for the minimum protective area(s) in your Top View Drawing or individual installation instruction.
- It is recommended that younger children have separate areas with appropriately sized equipment to serve their developmental levels.
- Make certain that all site preparation is complete, including site leveling and debris removal.
- It is important that the sub-surface (i.e. the plane beneath the protective surfacing materials) be able to drain well, to eliminate standing water. If the sub-surface does not drain naturally, it must be tiled or sloped at 1/8" to 1/4" per foot to a "French Drain" or similar system. Larger play systems may require more than one "French Drain" to allow drainage from the center of the play area to decrease the overall slope.
- If your play system installation is to be "Community Built" by volunteers rather than professional installers, we recommend contracting the services of a professional installer to supervise the initial stages of the installation. We also recommend the formation of a committee to handle tasks such as equipment gathering, work teams and assignments, etc. Being prepared for various contingencies will avert common mistakes and save the installers valuable time and effort.

## Important Notes

- Before starting construction, check with all utility companies for exact locations of underground utilities.
- When selecting areas for play equipment, consideration should be given to soil types and subgrade characteristics.
- The purchaser and/or installing contractor will be responsible for proper installation, including proper footings. The footing sizes shown in the installation instructions are appropriate for stable, compacted soil. If the soil is not stable and compacted, or if any other environmental conditions exist (such as constantly wet soil, deep frost line, etc.) then the footing sizes may need to be increased. For example, to reduce frost heave, footing sides should be smooth, and footings may need to be deeper.
- The purchaser and/or installing contractor will be responsible for installing acceptable impact absorbing surfacing material in the playground area, which is generally recommended to be beneath all play structures, as well as a minimum of 72 inches out from the edges of all play structures. It is the purchaser's responsibility to maintain these areas properly after installation, ensuring that abnormal and unsafe compaction does not occur in these areas. It is recommended that compaction tests be made several times per year. When compaction occurs, it is recommended that the area affected be scarified or additional loose fill material be added until the area is soft and resilient.

**WARNING:** Contact burn injuries can occur when metal play surfaces are located in direct sun. To avoid the risk of such burn injuries, the United State Consumer Product Safety Commission recommends in its "Handbook for Public Playground Safety" that metal play surfaces, such as stainless-steel slides and bare or painted components, be placed/installed in shaded areas, out of direct sunlight, and steel slides facing North. The proper location of metal play surfaces must be addressed during the play area planning process.

## SUGGESTED TOOLS & EQUIPMENT FOR PLAY SYSTEM INSTALLATION

1. Concrete for footings. Refer to each component's Product Installation Guide for required amounts.
  - 2000 PSI (minimum)
  - 3000 PSI (minimum if freezing conditions exist)
2. Digging equipment for footing holes (skidsteer with post hole auger, posthole digger, spade shovels, etc.)
3. Patio blocks or gravel for every footing hole (water drainage).
4. Wheelbarrow or concrete mixer with 5-gallon bucket(s); water supply and garden hose.
5. Generator/power source; electrical gang box and extension cord(s).
6. Step ladders (6 ft. and 8 ft.)
7. String line and stakes (or transit) to aid in layout.
8. Saw horses.
9. Levels: (2) 9" magnetic torpedo levels and (1) 4' carpenter's level.
10. Metric and Imperial tape measures: (1) 25'/5m and (2) 100'/30m
11. Combination wrench set: 7/16" (11 mm), 1/2" (13 mm), 9/16" (14 mm) and 3/4" (19 mm).
12. Allen wrenches or hex keys set: 3/16" (5 mm), 7/32" (6 mm), 1/4" (7 mm) and 5/16" (8 mm).
13. Ratchet set w/Sockets and N/m Torque wrench: 5/16" (8 mm), 7/16" (11 mm), 1/2" (13 mm), 9/16" (14 mm) and 3/4" (19 mm).

14. Screwdrivers.
15. Drift pins.
16. Utility knife.
17. C-clamps, vice grips, and ratchet straps.
18. Battery powered drill and various sized drill bits: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16" and 1/2".
19. Battery powered Impact wrench (optional; use extreme caution to avoid damaging parts).
20. Hammers: standard and rubber mallet.
21. 23. Crane or Skidsteer to lift heavy parts slides into place (such as larger roofs).
22. 25. Felt tip pens (washable) for marking clamp locations.
23. Jacks, support stands, or blocks to mechanically suspend components while concrete sets.
24. Hand-held grinder.
25. 4" cut-off wheel.
26. Tap & die set: 3/8"-16.
27. Bolt cutter, 24".

## COMPOSITE STRUCTURE INSTALLATION GUIDELINES

- Make certain that all installers understand the safety information provided in this Manual. Follow the manufacturer's instructions to install components.
- Complete the Pre-Installation Check List as noted previously in this manual. Do NOT proceed with installation until all conditions are met.
- Identify all parts and thoroughly read the assembly instructions before beginning construction.
- Lay out all parts received and separate them by component. All parts have a part number on them that corresponds to the Installation Guide.
- Use small buckets, coffee cans, etc. to keep hardware pieces separated.
- Site layout is a critical part of the overall installation. Footings must be measured and marked accurately according to the footing diagram. A level and clear installation site is ideal.
- Do not leave the job site unattended. Make sure all fastening hardware are tightened appropriately.
- Rope off construction area and cover all empty holes with plywood or other suitable material.
- Good drainage around the structure and its supports is critical for protective surfacing.
- After laying out all footings and before digging holes, determine the depth of the protective surfacing you are going to install before you excavate footings. The depth of protective surfacing will affect the depth of footing.
- Refer to your playground equipment top view drawing and footing diagram to validate the equipment purchased will fit into your selected site area.
- The dimensions of Use Zones vary based upon the applicable standard for your location. Refer to the top view layout drawing for minimum use zone necessary for the equipment in your area.
- When building the structure, the recommended order of assembly is detailed in the composite installation guide: 1) posts, 2) decks, 3) bridging components that will set and square distances between decks, 4) barriers and full roofs that will add to the stability and rigidity of the structure, 5) climbers and ground based components, and 6) partial roofs and non-structural components.

- Install components in accordance with the height or dimensional values specified in the installation instructions.
- **IMPORTANT! Measurements for footing depths, deck heights, clamp heights, etc. must accommodate the protective surfacing depths. All reference height dimensions are measured from top of protective surfacing material which is installed after play system and its components have been assembled.**
- Level and plumb item and brace for concrete pour into footing(s).
- Shield components, if possible, to avoid concrete being splashed onto them.
- Start pouring the concrete at the center of the structure and work outwards.
- Pour concrete into footing holes. Only pour to within 2 in. (51 mm) of the top surface of the footing hole and slope concrete downward toward the outer edge of the footing to prevent water from standing around supports. Fill remaining portion of the hole with dirt to prevent exposed concrete in play area surfacing.
- Clean off any concrete that might have splashed onto the structure before it dries.
- Allow concrete to dry or cure for a minimum of 72 hours.
- After concrete has dried, discard any concrete that might have splashed out of footings or that might have missed the footing holes while pouring.
- Apply **ALL** warning labels, age identification labels, and playground rules label to the play equipment. Labels are to be plainly visible according to current playground equipment guidelines.
- Protective surfacing material should be installed on the day that equipment installation is completed.
- The play equipment must remain cordoned off until the protective surfacing has been completely installed.

## INDEPENDENT STRUCTURE INSTALLATION GUIDELINES

- Identify all parts and thoroughly read the assembly instructions before beginning construction.
- Site layout is a critical part of the overall installation. Footings must be measured and marked accurately according to the footing diagram. A level and clear installation site is ideal.
- Do not leave the job site unattended. Make sure all fastening hardware are tightened appropriately.
- Rope off construction area and cover all empty holes with plywood or other suitable material.
- Good drainage around the equipment and its supports is critical for protective surfacing.
- After laying out all footings and before digging holes, determine the depth of the protective surfacing you are going to install before you excavate footings. The depth of protective surfacing will affect the depth of footing.
- Assemble entire item outside of footing holes (if possible).
- Keep hardware/fasteners loose until all connections are made. Once component is fully assembled, tighten all fasteners.
- Using adequate manpower or power equipment, place assembled item into footing hole(s).
- Level and plumb assembled item and brace for concrete pour into footing(s).
- Install components in accordance with the height or dimensional values specified in the installation instructions.



- **IMPORTANT! Measurements for footing depths, deck heights, clamp heights, etc. must accommodate the protective surfacing depths. All reference height dimensions are measured from top of protective surfacing material which is installed after play system and its components have been assembled.**
- Level and plumb item and brace for concrete pour into footing(s).
- Shield components, if possible, to avoid concrete being splashed onto them.
- Start pouring the concrete at the center of the structure and work outwards.
- Pour concrete into footing holes. Only pour to within 2 in. (51 mm) of the top surface of the footing hole and slope concrete downward toward the outer edge of the footing to prevent water from standing around supports. Fill remaining portion of the hole with dirt to prevent exposed concrete in play area surfacing.
- Clean off any concrete that might have splashed onto the structure before it dries.
- Allow concrete to dry or cure for a minimum of 72 hours.
- After concrete has dried, discard any concrete that might have splashed out of footings or that might have missed the footing holes while pouring.
- Apply **ALL** warning labels, age identification labels, and playground rules label to the play equipment. Labels are to be plainly visible according to current playground equipment guidelines.
- Protective surfacing material should be installed on the day that equipment installation is completed.
- The play equipment must remain cordoned off until the protective surfacing has been completely installed.

Special Note for Swings:

- Assemble swing frame outside footing holes. Using adequate manpower or power equipment, place assembled frame into footing hole(s).
- Level and plumb frame and brace for concrete pour into footing(s).
- Pour concrete; allow a minimum of 72 hours for concrete to cure before use.
- Install protective surfacing.
- Install and adjust swing seat height (distance above top of protective surfacing) after protective surfacing has been installed.
- Swings must remain cordoned off until the protective surfacing has been completely installed.

## INSTALLATION OF MANUFACTURER'S LABEL

- Signs and labels posted near the playground area or on equipment provide important information to supervisors. This information includes the age appropriateness of the equipment, supervision recommendations, potential hazards related to equipment use, surfacing warnings, and hot surfaces warnings.
- Signs should be placed at or near the entrance of the playground area, but outside the play equipment use zone.
- Labels to be installed as instructed below.

## PLACEMENT OF WARNING AND PLAYGROUND RULES LABELS

Warning and Playground Rules labels should be placed near the access point of the playground equipment. Each label should be positioned so it is readable by a person about to use the piece of equipment and applied to a metal surface, such as a support post.

## APPLICATION OF LABELS

Prepare surface; remove any dust, oil or grim from the label location area. Ensure the area is dry. When area is both clean and dry, carefully peel off label from paper backing and place so the label lays flat with no wrinkles or tears. Apply firm pressure over the entire label to ensure proper adhesion.



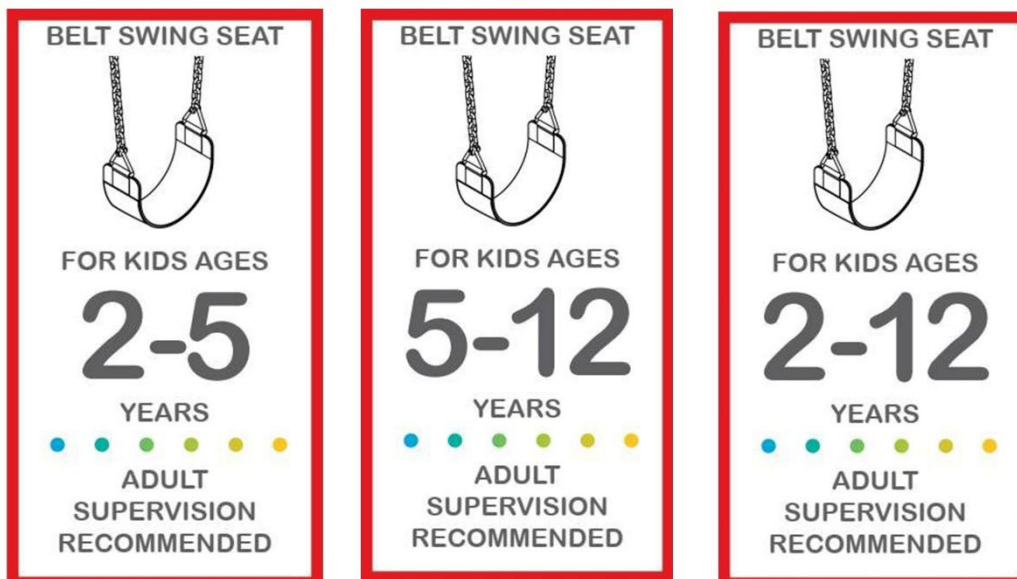
## PLACEMENT OF GENERAL AGE APPROPRIATE LABELS

Age appropriate labels should be placed near the access of the playground equipment. Each label should be positioned so it is readable by a person about to use the piece of equipment and applied to a metal surface, such as a support post. The appropriate age range of playground equipment is based on information provided by the "CPSC Handbook for Public Playground Safety" and "ASTM F1487 Public Playground Safety Standard" as well as the manufacturer's professional judgement. *(Labels are for illustrative purposes only and may differ from the actual label.)*



## PLACEMENT OF SWING AGE APPROPRIATE LABELS

Choose the correct label from the ones supplied with your swing. Place the label on a swing leg, using one label for each bay of the associated swing seat, position approximately 60 in. from top of surfacing.





## LABELS FOR CANADA

### PLACEMENT OF GENERAL AGE APPROPRIATE LABELS

Age appropriate labels should be placed near the access of the playground equipment. Each label should be positioned so it is readable by a person about to use the piece of equipment and applied to a metal surface, such as a support post.

- The appropriate age range of playground equipment is based on information provided by the "CAN/CSA-Z614 Children's Playspaces and Equipment" as well as the manufacturer's professional judgement.



## PLACEMENT OF SWING AGE APPROPRIATE LABELS

Choose the correct label from the ones supplied with your swing. Place the label on a swing leg, using one label for each bay of the associated swing seat, position approximately 60 in. from top of protective surfacing.



## POST-INSTALLATION CHECKLIST

- Inspect the installation of protective surfacing within the use zone of each play structure in accordance with the applicable standard or specifications appropriate for the fall height of each structure.
- Perform a thorough final check on the installed equipment to insure all equipment is installed as specified by manufacturer's installation instructions.
- Inspect the installation of equipment making sure there are no head entrapments or other general hazards as identified in the CPSC's "Handbook for Public Playground Safety". You can easily download the most recent version of the Handbook at the following site: <https://www.cpsc.gov/Regulations-Laws--Standards/Voluntary-Standards/Topics/Public-Playground-Equipment/>.
- Review all installation instructions for specified dimensions. Make sure dimensions called for in instructions agree with actual installation.
- Double check height dimensions. Height measurements are taken from the top of the protective surfacing material.
- Make sure all fasteners are properly tightened according to the specifications listed in your installation instructions.
- Make sure all exposed pipe ends have properly installed end caps.
- Clean dried concrete off components and any other affected surface.
- Touch-up any scratches or installation damage to powder coated finish with color matched paint.
- Allow adequate time for proper curing, both for concrete and urethane adhesive if rubber safety surfacing tiles have been installed before putting play equipment into service.
- Footings must not be exposed.
- Dispose of all packaging material properly. These materials which include large plastic bags and sheets can be a suffocation hazard. Dispose of these materials out of reach or contact of small children.

## INSTALL PROTECTIVE SURFACING

The entire area, under and around the playground equipment, must be covered with protective surfacing material. The impact attenuation of the protective surfacing should be rated to have a critical height value of at least the height of the highest accessible part of the equipment. The critical height for surfacing is to be rated in accordance with the ASTM standard, designated F-1292, *A Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment*. Contact the manufacturer of unitary surfacing materials (rubber matting) for the critical height rating for their products.

The table below is identified in the US CPSC "Handbook for Public Playground Safety".

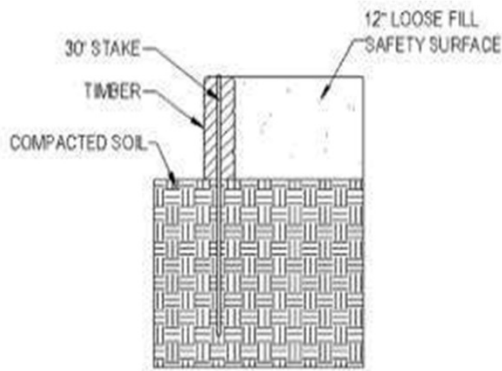
Table 2 shows the minimum required depths of loose-fill material needed based on material type and fall height. The depths shown assume the materials have been compressed due to use and weathering and are properly maintained to the given level.

Table 2. Minimum compressed loose-fill surfacing depths				
Inches	Of	(Loose-Fill Material)	Protects to	Fall Height (feet)
6*		Shredded/recycled rubber		10
9		Sand		4
9		Pea Gravel		5
9		Wood mulch (non-CCA)		7
9		Wood chips		10

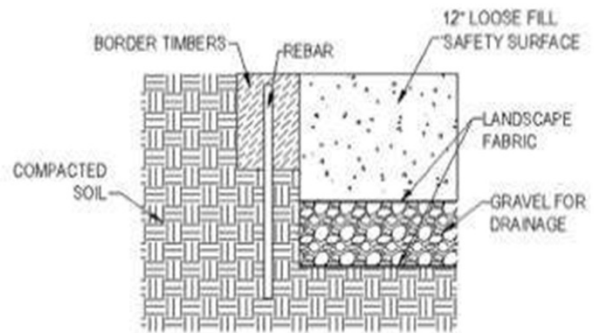
\* Shredded/recycled rubber loose-fill surfacing does not compress in the same manner as other loose-fill materials. However, care should be taken to maintain a constant depth as displacement may still occur.

## SAMPLE ILLUSTRATION OF FOR LOOSE-FILL SURFACING INSTALLATION

### ABOVE GRADE LOOSE-FILL INSTALLATION



### BELOW GRADE LOOSE-FILL INSTALLATION



## USE ZONE INFORMATION

Refer to the applicable standard for your location. The top view drawing or individual installation instruction will identify use zones and critical fall heights for the equipment.

## ASTM

The overall use zone measurements for composite play structures should extend a minimum of 72 in. from its perimeter; dimensions and configuration of the use zone are dependent upon the types of included play equipment.

- If the stationary play equipment contains a slide (or slides), the use zones of the slide (or slides) may **not** be overlapped by the use zones of adjacent play equipment.
- The use zone in front of the slide exit shall be a minimum of 72 in. and shall not exceed 96 in. The use zone shall be measured from the end of the slide and equal the vertical measurement as measured from the highest point of the sliding surface to the protective surfacing at the slide exit.

## CSA

The overall use zone measurements for play structures should extend a minimum of 1800 mm (70.9 in.) from its perimeter; dimensions and configuration of the use zone are dependent upon the types of included play equipment.

- If the stationary play equipment contains a slide (or slides), the use zones of the slide (or slides) may **not** be overlapped by the use zones of adjacent play equipment.
- A no-encroachment zone is also required for the exit of slides over 1220 mm (48 in.) in height. In addition to the use zone measurement at the runout of the slide, the no-encroachment zone will extend an additional 1800 mm (70.9 in.) and may **not** be overlapped by the use or no-encroachment zones of adjacent play equipment.
- The use zone in front of the slide exit shall be a minimum of 1800 mm (70.9 in.) and shall not exceed 2400 mm (94.5 in.). The use zone shall be measured from the end of the slide and equal the vertical measurement as measured from the highest point of the sliding surface to the protective surfacing at the slide exit.



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## CPSIA Label

### Installation Guide



**NOTE:** It is HAGS practice to supply CPSIA labels for attachment to the products on site. For composite equipment, these labels should be attached to a transfer point, 2' stairs, a deck post or HPL panel. If there is not a label supplied for your equipment, contact HAGS Customer Service Department at the number provided below. Upon receipt of the label, use this installation guide to attach it correctly.

#### APPLICATION OF CPSIA LABELS - STICKER WITH LAMINATE OVERLAY

Prepare surface; remove any dust, oil or grime from the label location area on the post. Ensure the area is dry. When area is both clean and dry, carefully peel off label from paper backing and place on flat metal surface so that it is flush and flat with no wrinkles or tears.

#### REPLACEMENT OF CPSIA APPROPRIATE LABELS

If labels should become illegible, torn or is removed it is necessary for the owner to replace the label. Replacement labels may be obtained by calling our Customer Service Department.



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ISSUE A



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