Floors for Vegetable Wash, Pack & Storage Areas

Introduction
It is easy to ignore the thing beneath our feet, but floors are an important part of produce wash and pack areas that deserve special attention. They can impact efficiency, ergonomics, employee health, worker fatigue, personnel safety, and produce safety. There are also a number of design features involved with these seemingly simple structures that should be considered\(^1\),\(^2\).

No two wash-pack areas are the same. Every farm has different needs driven by different crops, scales of production, layout, existing infrastructure, and management approaches. Smaller market farms may have a very simple, open packshed design consisting of “four sticks and a lid” used primarily during the summer months. The floor of these structures could be anything: a dirt floor, grass, or gravel surface. If you choose to have a dirt floor, consider laying down weed mat or landscape fabric to create a tidy work environment. It is helpful to consider drainage, specifically providing intentional drains from wash tanks and sinks that direct outflow away from the work area, production areas and bodies of water. The intent is to keep the surface underfoot relatively dry and free of standing water, prevent cross-contamination between drainage water and production areas and to prevent nutrient loading in bodies of water.

Larger farms and those engaged in season extension and winter markets may find benefit from an improved floor, permanent roof and walls. When scaling up, consider the benefits of an enclosed packshed which can provide:

- Protection from the elements as you work further into the shoulder seasons. Cooler working environment in the summer for you, your crew, the produce, and your equipment or warmer (if heated) in the fall, winter, and spring.
- Cleaner environment for handling produce and storing containers. An enclosed space is more “cleanable” as it has doors and windows to keep dust, bugs, birds and other wildlife away from you and your produce.

There are several different key elements to a floor that you need to take into consideration when designing your new packshed.

Key Design Features

Solid Surface
The main purpose of a floor is to have a solid, level place to work on. A floor needs to provide a good working surface for you to comfortably stand on, roll carts, and move equipment. The floor needs to be stable and sturdy enough to support these activities.

Smooth, but Not Slippery
Smooth floor surface enhances cleanability, but it is important to make a distinction between smooth and slippery. This is a delicate balance, especially when the floor surface it is wet. Your floors most likely will get wet since the space is used as wash and pack space. The intent is to avoid having a floor that turns into a dangerous surface where personnel can slip and fall.

Intentional Water Movement
When designing a wash pack area, consider where the water is going to go once it gets on the floor if it even has to hit the floor. Plan for intentional drains from dunk tanks, spray tables, wash tubs, sinks, or wash lines to prevent standing water.
water on the floor. Standing water is a personnel hazard and introduces a produce safety risk as well.

Pitch
One way that water removal can be accomplished passively is to pitch the floor. Plan on ¼” per foot (2%) to create a surface that will drain easily without requiring a need to push the water off with a squeegee, adding one more chore. Keep in mind more pitch isn’t always better, much steeper than 2% and it will feel like you are working on a ramp all day.

Doorways / Thresholds / Ramps
Specific attention should be given to doorways and other floor transitions. Doors may require thresholds for proper sealing (e.g., cooler doors). These thresholds should be well sealed below (between the threshold and floor) to prevent water intrusion and harborage. Additionally, the thresholds may need to provide a gradual transition for hand trucks and other rolling equipment. Sliding or roll-up doors may be preferred since they generally do not require thresholds for sealing, but rather are sealed with a gasket attached to the door.

Types of Floors
There are several different types of floor surfaces to consider.

Decking
Decking offers a sturdy, durable, smooth, but open surface for water on the floor. Standing water is a personnel hazard and introduces a produce safety risk as well.

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allowing flow through for drainage. This may be a simple and cost-effective improvement for an outside wash/pack area currently on bare ground or gravel. Decking is not ideal if product is moved with rolling carts, dollies or pallet jacks. Bare wood should be avoided as decking. Consider composite decking materials or plan to seal the wood with stain or paint.

**Plywood**

Plywood provides a more continuous, smooth option when compared to decking. This material is less durable when exposed to weather so providing a roof or other cover should be considered. Plywood offers a smooth surface which will make rolling product cartons, tools and equipment easier. Plywood can also be helpful when trying to covering up and level existing uneven floors. Plywood, inherently, has seams and they can require maintenance to keep watertight. It can also be challenging to clean unless it is sealed.

**Paving Blocks or Patio Blocks**

Paving blocks offer a pervious surface that is more solid underfoot than bare ground or gravel. This may be an option for an outside wash/pack area that is used seasonally or is undercover.

**Asphalt or Pavement**

Asphalt is a sturdy, waterproof, non-slip, seamless material that may be an option for some wash/pack areas. It may also already exist as a driveway, etc. Installation can be challenging and expensive, and it is not an ideal material for an indoor environment. A coarse-textured surface creates a cleaning challenge, but a fine, smooth surface is possible to achieve.

**Bare Concrete**

A concrete slab provides a durable, continuous, smooth surface good for moving heavy bins, equipment, or fork trucks. It can be smooth yet not slippery, not overly porous for cleanability, can be pitched for drainage, can be installed indoors. On the other hand, when unsealed, concrete can absorb moisture, is prone to staining, can be expensive, and once poured it is not easy to modify.

**Concrete Finishing**

The finishing of a concrete slab can include several steps that may improve the surface. “**Screeding**” is drawing a straight-edge over the top of the floor while the concrete is just poured to either level it or to achieve the intended pitch (e.g. to drains). “**Floating**” with trowels smooths the top surface and reduces porosity. You can stop here if you’ve reached your desired surface finish or continue troweling as the concrete finishes setting to get a smoother finish. After floating, you could choose to “brush” the floor which can be done to improve traction instead of troweling. “**Polishing**” is another finishing option but may not be a good choice for a wash and pack area due to the slippery nature of this surface finish.

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**Sealed Concrete**

Sealed concrete offers all the benefits of bare concrete plus improved cleanability. It is low maintenance, very durable, seamless, provides texture for a non-slip surface, and provides a continuous smooth surface for easy cleanability. This approach resists staining or adsorption of oils, salts, and water.

**Options for Sealing Concrete**

There are many options for coating and sealing concrete including different types of paint, epoxy or rubberized coatings. Many of these can be found at your local building supply or hardware store and can be installed yourself. Floor preparation is important to achieve a durable seal. This includes cleaning (washing), etching (or sanding), and finally application of the sealant by either spraying or rolling. There are contractors out there that specialize in this as well if you want to outsource this task.
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References


