



Technical Information Bulletin

August 12, 2014

## FLOOR FRAME KIT LOADING FACT SHEET

### Arrow Floor Frame Kit Loading

The Arrow floor frame kit available in several sizes to fit most Arrow sheds. There are several variables to consider when determining the load capacity of your floor inside an Arrow shed. They include the strength of the plywood flooring, and most importantly the type and condition of the base that supports the supplied floor channels.

Arrow recommends when installing the floor frame kit to use 5/8 thick, non- treated plywood sheets that are placed screwed onto the galvanized floor frames as called for in your assembly manual.

Data regarding plywood floor loads was taken from the APA's plywood design specifications, recognized by most building codes. These loads are based on dry conditions, normal duration of the load, untreated plywood and interior glue. For other conditions the loads should be appropriately adjusted, the load rating based on a percentage of the base line figures. Although these calculations will give loads which are much higher than the typical 40 pounds per square foot load rating recommended for residential floor, they do not take into account the floors performance under concentrated and impact loads in addition to uniform loads which are based on how the floor "feels" to passing foot traffic.

The type and condition of the load bearing base will directly impact the overall success of the installation. A sandy base will allow the floor channels to sink and rebound to the point that the floor material will rest directly against the soil allowing the plywood to quickly deteriorate, while loam or clay base may have enough strength to support the floor channels and increase the life of the plywood to some degree. In each case the building location, local rainfall and drainage of the surrounding area will dictate the soils moisture content. High moisture contents will allow the floor frame to settle to the point where the plywood floor is in direct contact with the base, in contrast, low moisture levels will offer a more consistent foundation for the floor frames and floor.

### CONCLUSION

In order to be able to assign a specific load rating to the Arrow floor frame system, it has to be protected from deterioration due to the elements, specifically moisture. The two recommended methods is to lift the floor above the moisture in the soil is with a concrete base or by laying down a rock sub-strait with a vapor barrier between the sub-strait and floor system. This can

be accomplished by starting with a bed consisting of 2-3 inches of grade 8 rock, lightly compacted, and topped with a 4-6 mil. poly moisture barrier.

**If the above recommendations regarding the base for the floor frame kit is adhered to a rating of 40 pounds per square foot which is consistent with the rating of most residential flooring systems is realistic and well below the ultimate load capacity of the floor materials.**

***Floor frame loading will vary --- but is always dependant on the base it is set on.***