

# THE ULTIMATE GUIDE

— TO —

# FLOORING

VAN CONVERSIONS & SMALL RV's

By Van Williams  
[CargoVanConversion.com](http://CargoVanConversion.com)



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## THE ULTIMATE GUIDE TO FLOORING

Guide for Van Conversion and small RV owners.

### INTRODUCTION

***Creating a (sub)floor as part of the conversion of a cargo van is a fairly straightforward process. Yet many construction types and materials have to be chosen in advance, to head off any unexpected complications that can influence the integrity of the entire project.***

The first line of attack in a van conversion is often the installation of a (sub)floor system; the base of the vehicle, that has to support most of the interior modifications. In an RV the floor performs different functions and before tackling this project, you should stand still and decide which



Floor in a converted cargo van

features to put in and then research the available materials you'll be using to complete your floor.

Many of your future additions, such as cabinets, bed(s) and/or sofa, are partly or completely attached to the floor and you have to make sure the attachments are fastened securely. To prevent ANY movement and to withstand these highly directional forces in case of an accident, using bolts to anchor the floor to the body of the van is the preferred method.

## Materials

Frequently, plywood is the preferred material of choice. Particle board and MDF should be avoided, as they are more prone to collect moisture. Different wooden floor materials use various amounts of glue to hold the material together and as glue is heavier than the wood it holds, the weight of the sheets can vary tremendously. MDF can weigh up to 65% more than regular plywood and with an average of three 4 x 8 sheets per van, that can add 75 unnecessary pounds to your conversion. With weight restrictions always looming in the background, every effort should be made to promote lighter versions of the same product.



*The thickness of the plywood also plays a big role in determining its weight and where  $\frac{1}{4}$  and  $\frac{3}{4}$  inch is unwanted under most circumstances, one can consider the commonly available sheets of between  $\frac{11}{32}$  and  $\frac{1}{2}$  inch as optimum thicknesses.*

## Floor Type

Consider raised floors and underfloor storage, when you design your van interior.

### Raised Floors

Entire or partly raised floors add an immense amount of storage space in a vehicle that is well-known to be lacking in storage capacity. The new Ram ProMaster is very suited for this purpose, as its already low cargo floor can easily be raised a few inches, to make a seamless connection with the elevated cabin floor.



shallow storage <sup>1</sup>



## Underfloor Storage

Another way to create extra space is to extend the interior to the area below the floor. These storage boxes extend through the subfloor, wherever space is available and are often used for battery storage, especially in the case of Lithium batteries, which don't need frequent access.

## Insulation

### Sound Insulation

Cargo vans are notoriously noisy, especially when compared to ordinary passenger vehicles. I think that the new European styled vans have a decent amount of sound absorbing materials included, yet dependent on your own preferences, you may find it essential to improve on that with well-known products like Dynamat. My personal inclination is, that with a vehicle designed to be generally used as a parked RV, sound insulation is less important. If you are an audiophile and frequently on the road, your requirements may differ. Always remember that all the floor, wall and ceiling materials, that are still to be applied, will add their own sound reducing properties to the van too. The most likely places for additional soundproofing are the wheel wells.

### Thermal Insulation

Protection against heat & cold are increasingly important when you camp regularly with your van. While less essential at the floor level, some thermal insulation should be applied, together with the plywood sheets. PolyIso ("Polyisocyanurate") boards should be your first choice as they have some of the highest R-values available. This "[Floor Insulation](#)" article from 2011 shows my evolving views on insulation materials.

A point of concern with the medium high roofs in the Ford Transit is, that while they offer a standing height interior for average sized people, adding much floor and ceiling material will reduce substantially, the opportunity to stand straight up inside the van. In these cases, a moderate application of materials is preferred. This also applies to all the low roof vans that are currently on the road.

## Floor Vents

As part over your overall insulation and ventilation plans, you should also consider inclusion of one or more floor vents (a more detailed evaluation can be found in [“Are Floor Vents The Solution For A Hot Problem?”](#)). A vent opening below your fridge may reduce its energy consumption and therefore your capability to extend your off-grid stay and another vent at the opposite end of where your roof vent is installed, may increase natural ventilation inside the van substantially.



floor vent

## Hardware

Prepare the flooring for any hardware you plan to install. Bolting a chair or bike stand would involve a sturdy angle iron and bolts through the floor. Always use stainless steel hardware and spray some undercoating over the exposed bolts on the underside of the vehicle.

## Floor Covering

Floor materials can roughly be divided in hard and soft surfaces. Carpet is soft, lush and warm to the feet, but a hassle to clean in such a small and high use area. A better solution is a hard-surfaced material, which are easy to clean; a broom and 2 minutes of your time, are all you need for a clean floor.

- **Rubber**

Some versions of the new vans come standard with a vinyl floor covering. They are one-piece and already fit the van. A cheap and practical solution and well-suited for utilitarian vans.

- **Vinyl**

Cheap and easy DIY material; some types are very durable.

- **Cork**

Feels great to walk on and provides some additional insulation.

- **Laminates**

Again cheap and easy DIY material; durable but somewhat heavy.

- **Hardwood**

Luxurious, yet laborious and fairly expensive.

- **Ceramic Tile**

Great material, but too heavy for use in an RV.



hardwood floor

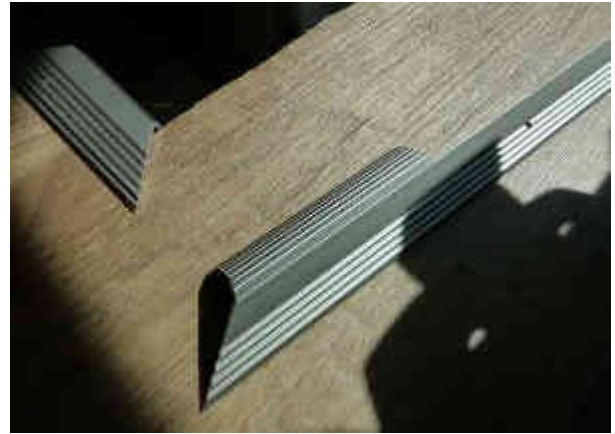
Most lighter materials should be applied wall-to-wall throughout the van with the cabinets installed on top. This makes for an easier and more professional looking installation. The weight of laminates and hardwood should restrict its use to the walking surface itself, making the application a lot more difficult and labor intensive. Read more about it in [“Is Any Floor Material Good Enough?”](#).



## Trim

Special attention should be given to the final finish and side trim of the floor. The cabin transition and the rear & side door areas can be finished with a variety of materials.

Metal stair nosing is quite suitable at the side doors, while handmade hardwood end boards do a good job at the other locations.



metal stair nosing



hardwood end board

## Installation

Fill the lower portions of the corrugated floor with wood or insulation strips and cover them with a full sheet of Polyiso. Use spray glue to prevent them from moving. I would refrain from pulling electrical lines or pipes across the floor, as they are very difficult to repair in the future. Use cardboard forms to lay out and cut the sheets of insulation and plywood. If at all possible, remove the OEM tie down rings and use its bolt holes to attach the plywood to the floor. Additional bolts used to attach the plywood, should be stainless steel and covered by a rubberized

undercoating where they touch the underside of the van.

Predrill the holes for any drain hoses and fit the floor vents. Apply a layer of varnish to the plywood before installation as an additional layer of protection against moisture and use a sealant to seal the perimeter and the seams of the plywood. Read more about this subject in "[Subfloor Installation](#)".

Now you created a solid base for the van conversion you dreamed of.

Van Williams is the editor of the Cargo Van Conversion website.  
He can be reached at:

[van@cargovanconversion.com](mailto:van@cargovanconversion.com)

## ONLINE PROJECTS

For all online projects, go to:

► [cargovanconversion.com/woodworking](http://cargovanconversion.com/woodworking)

Follow the progress of a hands-on cargo van conversion project online at:

► [cargovanconversion.com](http://cargovanconversion.com)

Sources:

<sup>1</sup> [beaconboats.co.uk](http://beaconboats.co.uk)

## Thank You For Your Attention!

I thank you for reading this guide from start to finish.

Thanks again, and I'll see you online...

*Van Williams*

Van Williams  
CargoVanConversion.com

P.S.

I'd appreciate it if you shared this guide with anyone you think could benefit from it. You can send them to [cargovanconversion.com](http://cargovanconversion.com)

Or just forward this PDF directly through to them via email. Thanks again!

## Disclaimer (And Reality Check!)

*The above information is for entertainment purposes only. I'm not an expert in any of these subjects, so please, verify any installations with the appropriate specialists.*

*I have 30 years of experience in the outdoors and a wealth of practical knowledge about campers and RV's, but every situation is different and in need of its own solution.*

*I hope the included information will help you get started, because there is no gain without trying.*

*Set a realistic goal and **Go!***