

Grounding and Shielding
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Here is the good and the bad for cable grounding and shielding for a typical LIGO application. Don't forget, a shield-to-shield contact between two separate cables is also undesirable. Avoid the red stuff shown in Figure 2.

Page 2 of this document has a handy checklist for verifying proper grounding.

Figure 1

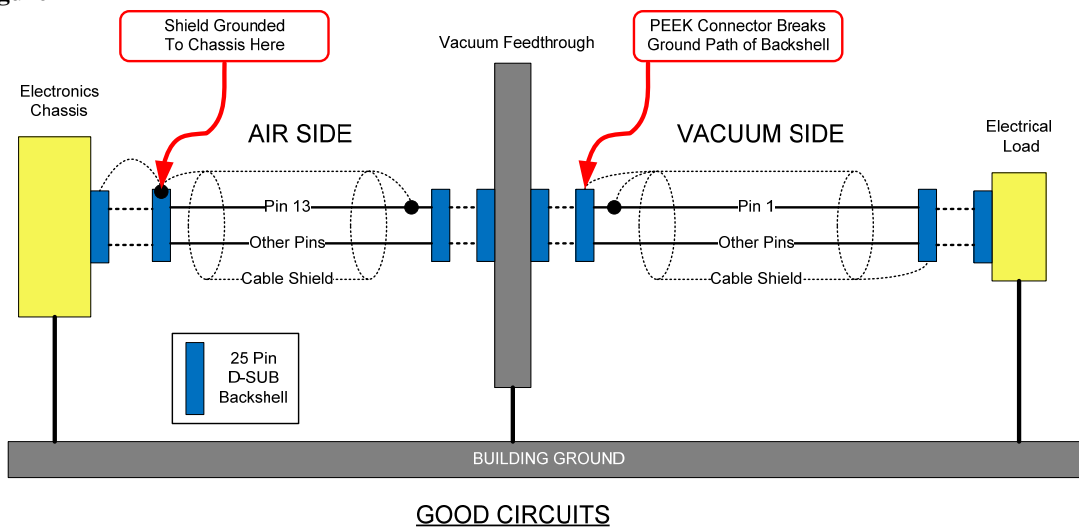
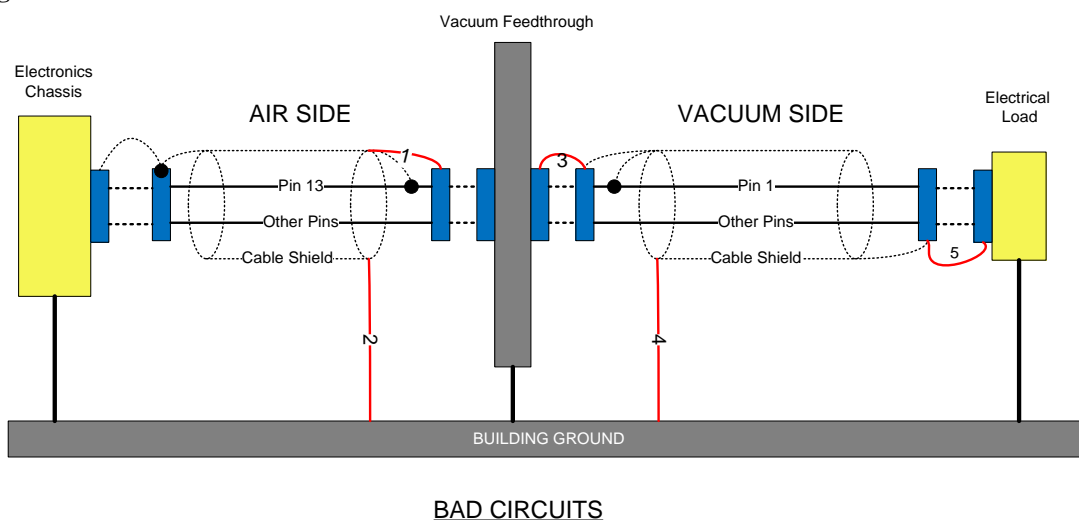


Figure 2



Here is a checklist for verifying proper grounding and shielding connections in air, and in vacuum. The underlined numbers refer to the undesirable red connections shown in. Remember, for a fully cabled system, all cable shields will be connected to ground at one point in the system. The purpose of the following checks is to verify that there is only one ground connection per cable.

CASE 1, system fully cabled up both in-vacuum and in-air

1. At the electronics chassis end, unplug the D-sub cable under test. Using an ohmmeter, verify there is continuity between pin 13 and the cable backshell, and no connection between the electronics chassis, (or building ground) and the cable backshell.
2. If this check is ok, then you are done.

CASE 2, system only in-vacuum cables installed

1. At the airside vacuum feedthrough, verify there is no connection between pin13 and the vacuum tank.
2. If this check is ok, then you are done.

These checks are specific to proper grounding of a 25 pin D-sub connection – the most common type of electrical connection to the in-vacuum world. For other types of connections, the principle of only one ground point per cable is still applicable, but the pin numbers and physical details will differ.