**Notes and comments on fabrication of packing boxes for use in moving HPl, gaps and chambers around the production sites distributed around the world.**

Drawings in 3D format of an early design of the smaller box where the base beams have not yet been reinforced with lateral elements.



The larger RE2/3 box that has the lateral reinforcements that were later put above the longitudinal beams.



Specific notes on box assembly:

1. Only screws must be used, no nails, as the boxes need to be opened and reworked as they move around being opened and receiving damage that can be repaired.
2. Twin bars at 2 different heights should be used to retain the load and also help to compress the “pack” at its base.
3. The bars should be of the pre-stressed configuration to avoid damabge to the outer edges of the load and in addition increase the clamping load.
4. 20mm thick panels will be introduced between the clamping bars and the load.
5. HPL will have a shet of kraft between each HPL sheet.
6. The design of the base must resist shear loads imparted by the forklift as it is maneuvered into position from one side. Namely these are the loads that due to friction and inertia caused by the load will tend to shear off the base structure

Comments on failures of other designs used on the previous production phase can be found here.;

<http://project-cms-rpc-endcap.web.cern.ch/project-cms-rpc-endcap/rpc/Production/Oil%20&%20Bakelite/Packing/Packaging/PackHPLGaps.pdfAdditional>

*Types of wood to use must respect newly introduced international regulations (ISPM 15) respected by most countries*

http://www.ispm15.com/

http://www.planetpal.net/en/infos/2008-04-04-ispm15.pdf

*Although untreated wood can be combined with treated wood it must ALL be treated AND marked*

http://www.riverviewpallet.com/html/ismp\_15.html

*Non compliance comes with a high cost, risk to our materials and delay.*

http://www.woojinair.co.kr/UploadedFiles/pdsfiles/2009/07/20090717111813783/ISMP%2015%20certification%20on%20WPM%20into%20CAI%20%20EGYPT%20REF-CGO-156-07-09-1.pdf

*Recently the use of bromide as a wood treatment is no longer accepted*.

<http://www.ispm15.com/Methyl_bromide_Decision_2008_753_EC.pdf>