Ready reckoner

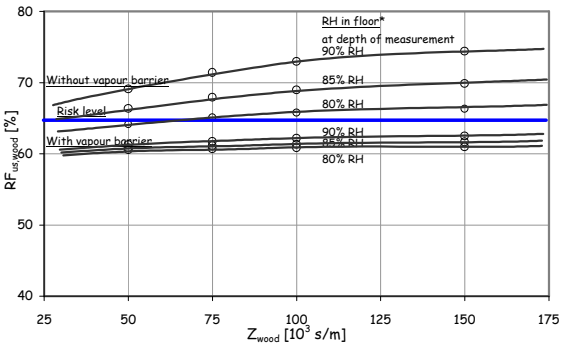
Wood floor bonded to a concrete slab

- The ready reckoner is a summary of the results of calculations regarding the redistribution of residual construction water when a wood floor is laid with or without a vapour barrier, Sjöberg 2003.
- The ready reckoner refers to Kährs wood floor, Casco Elastic 3476 and DexorBond vapour barrier.
- According to the maker of the wood floor in the project, the risk level at the underside (us) of the wood floor is 65% RH.

Bonding on normal structural concrete (w/c ratio=0.7)

- In normal indoor air, a vapour barrier is already needed at 80% RH*.
- If, however, the indoor air is ”dry”, a vapour barrier is not needed until 85% RH*.

”Normal” indoor air (60% RH)



”Dry” indoor air (40% RH)”

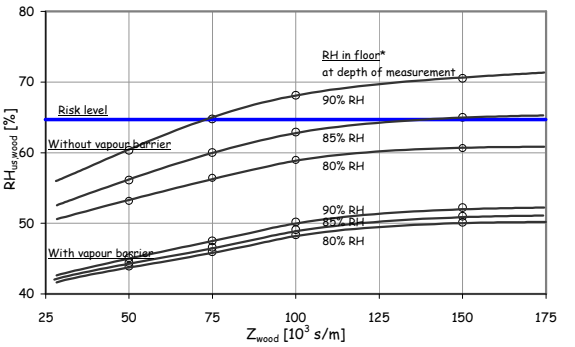
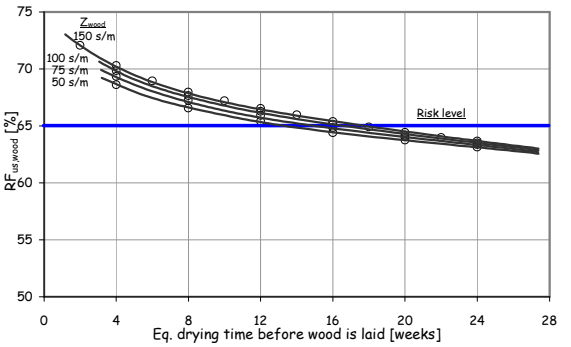


Fig. 1 & 2. Moisture status at underside of wood floor after 6 months’ redistribution of residual construction water. The maker of the wood floor states that the approx. resistance for wood floor (Z_{wood}) is $100 \cdot 10^3$ s/m

Bonding on self desiccating concrete (w/c ratio=0.4)

- In normal indoor air, the concrete surface needs to dry for up to 16 weeks.
- If, after the adhesive is applied, the indoor air is ”dry”, drying for 4 weeks is sufficient.
- These drying times apply when the drying climate before the floor is laid is 20°C and 40% RH.
- The concrete is assumed to be membrane cured for 1 month before drying begins.

”Normal” indoor air (60% RH)



”Dry” indoor air (40% RH)”

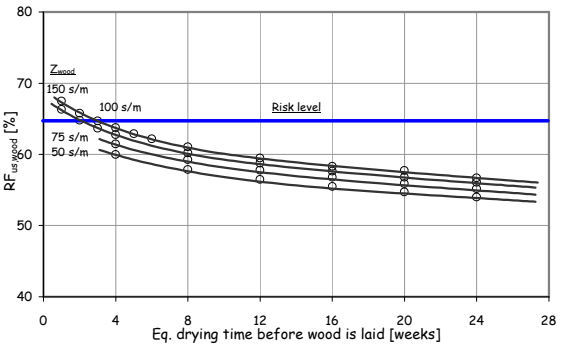


Fig. 3 & 4. Moisture status at underside of wood floor after 6 months’ redistribution of residual construction water in self desiccating concrete. The moisture status is a function of the equivalent drying time before the floor is laid in a climate with 20°C and 40% RH. The concrete had previously been membrane cured for 1 month.

Recommendations from Moisture Centre, Lund University

- Always *use a vapour barrier if you are not sure* that the above conditions are satisfied.
- Make sure that the concrete is dried *exactly* as specified above; any deviation from the conditions given may cause a large change in the redistribution of the construction water.
- Deviations may prolong the drying time or, in the worst case, may cause *drying to start again from the beginning.* For instance, the drying time has to start from the beginning if self desiccating concrete is exposed to rain.

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* Value measured in concrete slab at depth specified in www.rbk.nu (Swedish site)

Sjöberg A. 2003. *Wood floor bonded to concrete slab – theoretical calculations of moisture load from the sub floor (in Swedish).* Building Materials, Lund University, Lund. Report No TVBM-3112, 16 pp.

The report (in Swedish) can be downloaded free of charge from www.byggnadsmaterial.lth.se/e-doc.htm