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[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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[\[PDF \(551K\)\]](#) [\[References\]](#)

Field Measurement of Indoor Air Quality in Newly Constructed Houses according to the Revised Building Standard Law in Japan I. Field measurement of concentration of carbonyl compounds in indoor air

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Abstract: Indoor air quality of the wooden houses newly built according to the revised Building Standard Law was surveyed in Shizuoka and Aichi prefecture, 2004. Air concentrations of carbonyl compounds were measured in 20 living rooms and bedrooms of 10 houses of a natural type, furnished with natural materials, such as solid wood for floor and wall panels, and 18 rooms of 9 houses of a general type, furnished with artificial materials such as bonded wood materials for floors and polyvinyl covering for walls and ceilings. Average formaldehyde air concentration was $79\mu\text{g}/\text{m}^3$. The formaldehyde concentration of 70% of the rooms was above the guideline value in the 2000 survey. However, it was reduced to 20% in this survey. Formaldehyde concentration above the guideline value was measured in a few rooms just after completion of construction although it was apparent that the revision of the Building Standard Law did lead to a decrease of formaldehyde concentration. There was no difference in concentration between natural type and general type rooms. Average acetaldehyde concentration was $227\mu\text{g}/\text{m}^3$ and about 89% of the rooms were above the guideline value ($48\mu\text{g}/\text{m}^3$) for air concentration. Acetaldehyde air concentration of general type houses and bedrooms was higher than that of

natural type houses and living rooms. It was suggested that natural furnish materials lowered acetaldehyde air concentration.

Keywords: indoor air quality, formaldehyde, acetaldehyde, Building Standard Law, wooden houses

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