

＜FEM解析プログラムの適用例＞

日本建築学会技術報告集、第22巻、50号の掲載論文より

デッキプレートスラブにおける振動応答予測に関する検討

—鉄骨造デッキプレートスラブの振動および床衝撃音に関する数値解析的研究 その2—

STUDY ON PREDICTION OF VIBRATION RESPONSE OF DECK PLATE SLABS

—NUMERICAL ANALYSIS ON VIBRATION AND FLOOR IMPACT SOUND OF DECK PLATE SLABS IN STEEL STRUCTURE BUILDINGS PART 2—

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キーワード：
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Keywords:
Steel structure, Deck plate slab, Floor vibration, Finite element method

Aiming to establish a floor impact sound prediction method for deck plate slabs in steel structure buildings, a response analysis of floor vibration by the finite element method with coupling of in-plane and bending displacement was verified. First, damping constants of the actual deck plate slabs were measured. Then, using the measured damping constants, a vibration response analysis which modeled the cross-sectional composition of deck plate slabs and steel H-beams was conducted. The analysis of the vibration response to the standard heavy impact source showed good correspondence with the measurement.

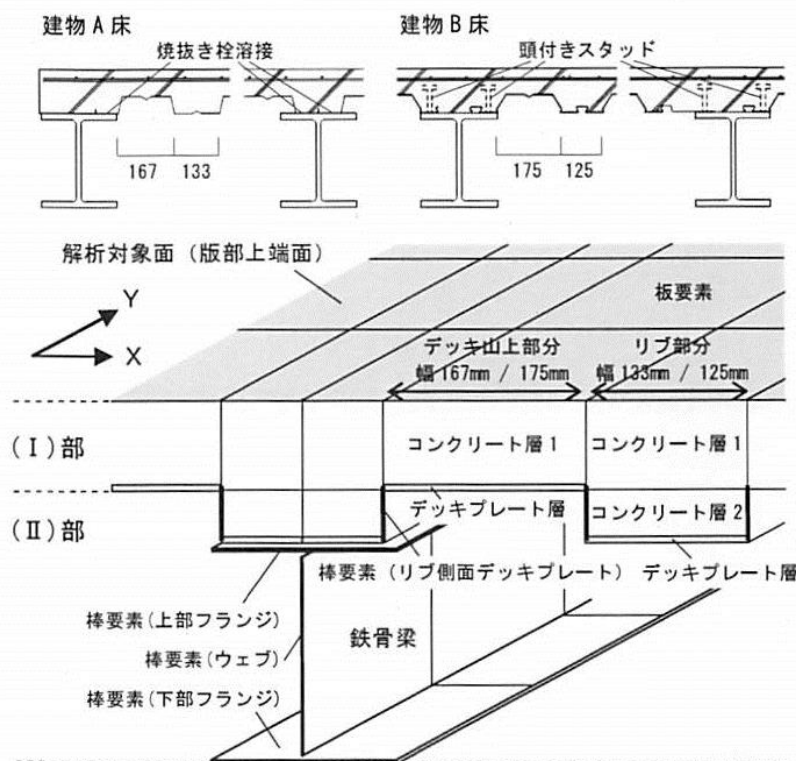


図5 デッキプレートスラブおよび鉄骨梁の解析モデル

*このような断面構成の解析も可能です。

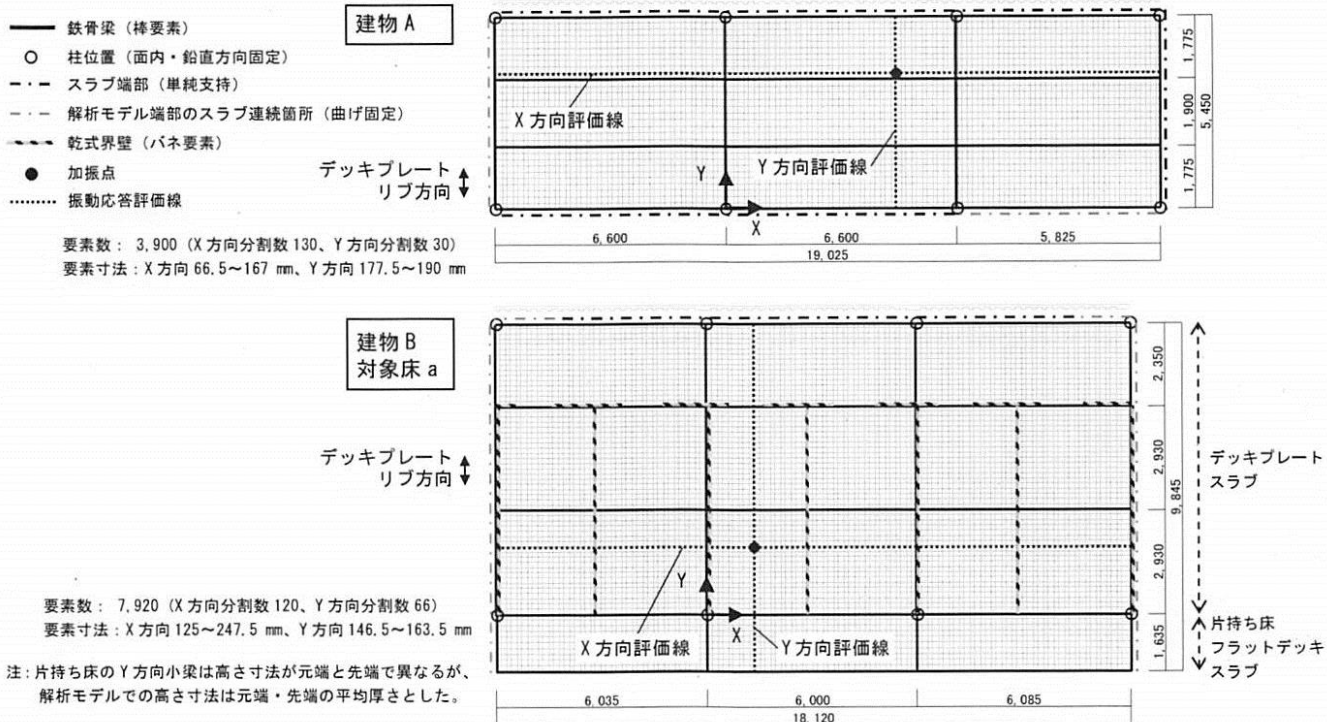


図6 解析モデル条件

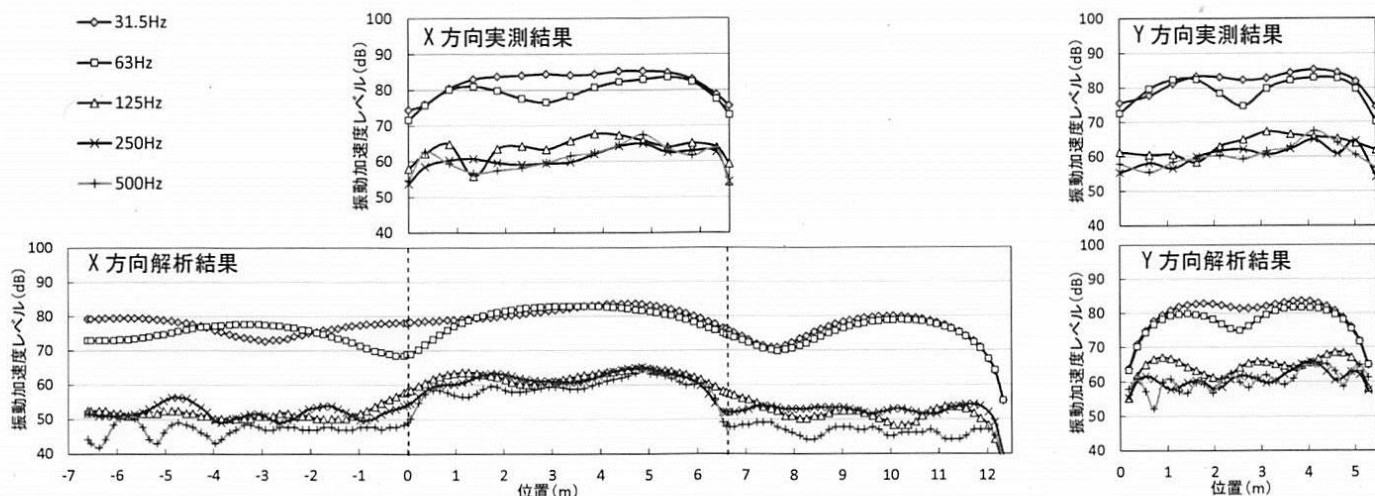


図7 建物A 対象床 振動応答分布 実測と解析の対応

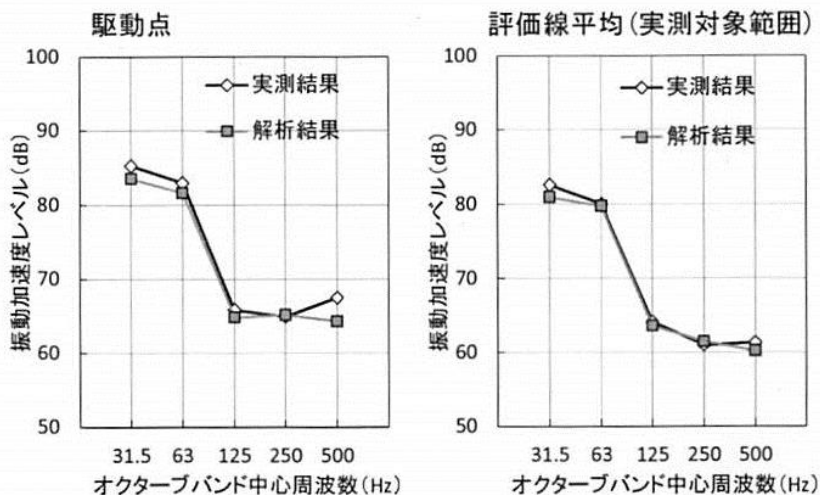


図8 建物A 対象床 振動応答周波数特性 実測と解析の対応

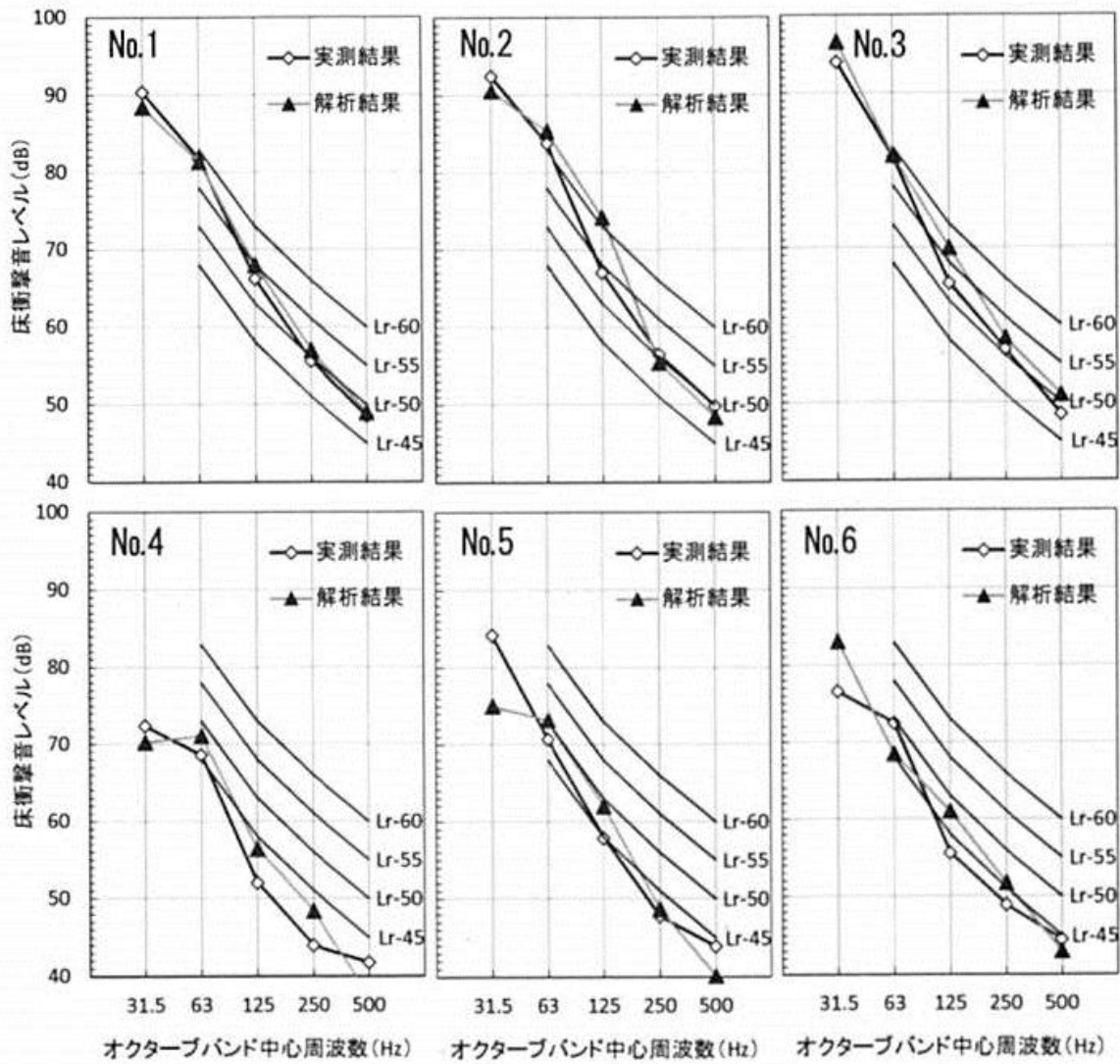


図 1 1 重量床衝撃音の実測結果と解析結果の対応