



August 15, 2022  
Ref 2150/2010/001

**JAMES HARDIE PHILIPPINES, INC.**

Brgy. San Isidro, Cabuyao, Laguna

Attention : **MR. WARREN PAUL ENCISO**  
Assistant Product Manager

Subject : **STRUCTURAL ANALYSIS, INVESTIGATION AND DESIGN OF  
LOAD CAPACITY OF 16mm THK HARDIEFLEX FLOORING  
FOR USE IN RESIDENTIAL BUILDINGS**

Dear Sir:

This is to certify that our Company, GIBMA Engineering Services, was engaged by James Hardie Philippines, Inc. to conduct the above subject work in accordance with the current National Structural Code of the Philippines 2015, (Volume 1) 7<sup>th</sup> Edition and other applicable Standards used in structural engineering practice.

Our work consisted of first evaluating the maximum distributed Live Load that the 16mm thk HardieFlex Flooring Boards can safely carry in saturated condition and with the joist at 400mm spacing. We then designed the minimum steel supports that can safely carry the floor system from 2 meters up to 6 meters, with increments of 0.5 meter.

The analyses were based on the material properties provided to us by the Client and other design criteria listed in the submitted computations.

In view thereof, we would like to certify that the maximum permissible Live Load that the flooring system can safely carry is 7.54 KPa.

We would like to certify further that based on the load considerations of total Dead Load of 2420 Pa and Live Load of 1900 Pa in the designs, the following are the recommended minimum sizes of steel supports of the flooring system for residential use:

Clear Span (m)	Recommended Minimum Size of Joist (mm)	Recommended Minimum Size of Bridging (mm)
2.00	LC 65 x 30 x 15 x 1.2	LC 65 x 30 x 15 x 1.2
2.50	LC 90 x 45 x 15 x 1.2	LC 65 x 30 x 15 x 1.2
3.00	LC 100 x 50 x 15 x 1.2	LC 90 x 45 x 15 x 1.2
3.50	LC 125 x 50 x 15 x 1.4	LC 100 x 50 x 15 x 1.2
4.00	LC 125 x 50 x 15 x 1.8	LC 125 x 50 x 15 x 1.4
4.50	LC 150 x 50 x 18 x 1.8	LC 125 x 50 x 15 x 1.8
5.00	LC 175 x 50 x 20 x 1.8	LC 150 x 50 x 18 x 1.8
5.50	LC 175 x 50 x 20 x 2.3	LC 175 x 50 x 20 x 1.8
6.00	LC 175 x 50 x 20 x 2.6	LC 175 x 50 x 20 x 2.3



# GIBMA Engineering Services

Design - Construction - Project Management - Surveys

This certification is being issued for whatever legal purpose it may serve.

This is also issued in the fulfillment of the requirements of the above stated work.

Very truly yours,

  
**GILBERT B. MAGBUTAY, F.PICE, F.ASEP**

Civil/ Structural Engineer

PRC Reg. No. 55251

PICE Structural Eng'g. Specialist No. 75

PTR No. 7870319

Issued on Jan. 3, 2022

Issued at Pasig City