



Installation Method of a Combination of Brick and Drywall as Wall Covering Material

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Abstract. Walls, as one of the primary building elements, play a crucial role in terms of temperature regulation, sound insulation, and resistance to natural disasters. Therefore, selecting the right wall material can significantly contribute to achieving green building goals. In this study, two different types of wall materials were used: brick and drywall, each with its own advantages. This research aims to explore the combination of these two materials in support of the concept of green building, with an emphasis on environmental resilience. According to the observation results, it is evident that the two materials can be combined effectively. The use of a combination of brick wall material with drywall is possible, starting with the installation of a brick wall, complete with a practical ring at the end of the brick wall installation. This was followed by the installation of a frame made of mild steel, complete with couplers. The thickness of the wall covering can be adjusted as needed or equal to the thickness of the brick installation. The cover is made of 9 mm thick Calsiboard with a paint finish. The rest of the material from these two combinations is sourced more from brick wall work materials compared from drywall. Drywall work requires more skills in terms of cutting frames and calsiiboard so that it does not cause waste material.

Keywords: Brick, Drywall, Method of Work, Wall

1 Introduction

In the past, people often used bricks for wall work, but nowadays, they are more familiar with light bricks and precast panels (Rori et al., 2020). Wall materials continue to evolve in response to the demands of achieving the most effective and efficient cost, time, and quality. Nowadays, in addition to the lightweight bricks that are quite popular as wall materials, there are other material alternatives, such as drywall. When viewed from the strength of the structure, drywall is resistant to earthquakes. This is because the material components used are lightweight. Construction activities, from planning to building operations, contribute significantly to environmental damage (Jaini et al., 2025). Based on data from the World Green Building Council, buildings around the world generate at least 33% of CO₂ emissions, 17% of water supply, 25% of wood products, 30-40% of raw material consumption, and energy consumption of 40-50% of operational construction (Purwaningsih & Hermawan, 2021). The concept of green

building is a development concept where the planning and implementation of the construction process is based on contract documents to minimize the negative impact of the construction process on the environment, so that there is a balance between environmental capabilities and human life needs for current and future generations (Suriandi et al., 2022). One of the jobs in construction projects that has a large volume of work and a large amount of labor is wall work, so labor productivity must be maximized (Ajar & Dofir, 2021). Currently, the use of walls composed of natural materials, such as sand and soil, can cause long-term damage to natural ecosystems (Mubarok et al., 2019). The use of drywall, which combines a single frame or double frame system with various damper materials, has begun to be applied (Yuni et al., 2023). The combination of brick walls and drywall has the potential to provide an optimal solution in addressing these challenges. By combining the advantages of each material, it is hoped that a wall will be created that is more efficient, resistant to moisture, and more environmentally friendly. Therefore, this study aims to examine the potential combination of the two materials in supporting the concept of green building, focusing on work methods, environmental resilience, energy savings, and resource sustainability.

2 Methodology

The research employs a mixed-methods approach combining quantitative and qualitative descriptive methods. The method aims to make a systematic, factual, and accurate description of a phenomenon being investigated (Dewi et al., 2023). The data collection method involves direct observation of the work implementation, determining the type and amount of materials, tools, and labor required. Look at the method of installing walls with a combination of brick and drywall. From this observation, it is clear that the resources required are related to environmental resilience, energy conservation, and resource sustainability. The environmental resilience observed in this study is the use of environmentally friendly materials, water, and electricity. The current use of drywall is employed on interior wall partitions and exterior walls; for the outer wall, full drywall is installed. In the study, a combination of bricks was used so that bricks could limit the influence of groundwater. The use of drywall can be applied to the inner or outer walls of the building. However, the exterior of the building must pay attention to the covering material (Yuni, 2024). When viewed from the cost aspect, the use of other wall covering materials, such as bricks and red bricks, is more economical, but in terms of implementation time, the use of drywall is faster (Ajar & Dofir, 2021).

3 Result and Discussion

3.1 Result

Frame Installation. The frame installation on the outer wall is a single frame.

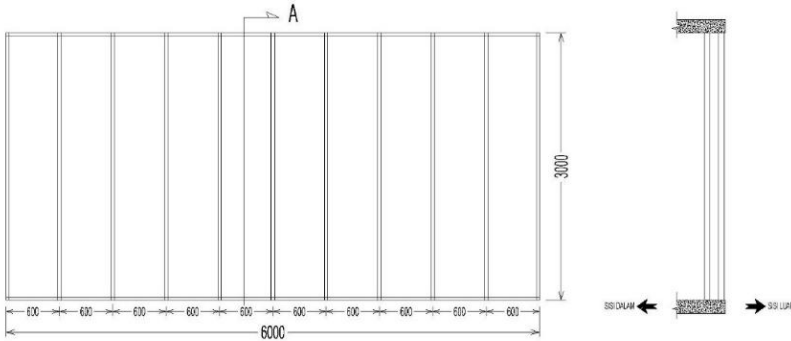


Figure 1. Drywall Frame Mounting

The components of wall frame mounting are bullet nails, hanging elbows, Metal Track 64 0.50 mm BMT @ 3m, Metal Stud 64 0.50 mm BMT @ 3m, Head track 64 0.50 mm BMT @ 3m, Screw 6 3/8, Concrete Stud 3 cm, and sealant. The first step taken when installing the frame is to install the head track and metal track. The head track is installed at the top as a connection between the frame and the concrete on top, while the metal track connects the frame with a brick turning ring. As connectors or nails, screws and concrete nails are used. After that, it is followed by the installation of studs with a distance of 600 mm and hanging according to the specified distance, in this case, with a distance of 2,400 mm. These studs are vertically mounted frame components at wall height, divided by non-joining every 2,400 mm distance.

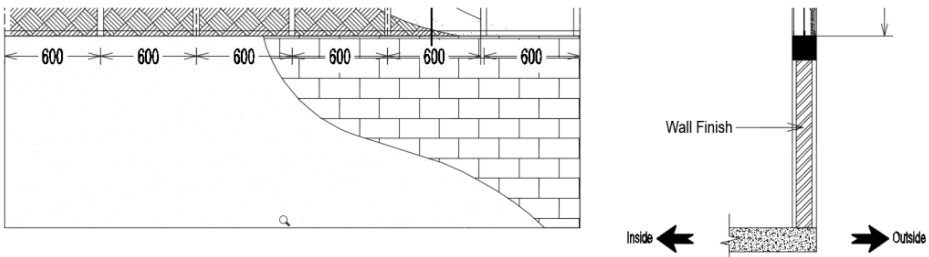


Figure 2. Stud Installation

Wall Covering Installation with Calsiboard 9 mm. Once the frame is installed, it is followed by covering the inner wall with 9 mm calsiiboard.

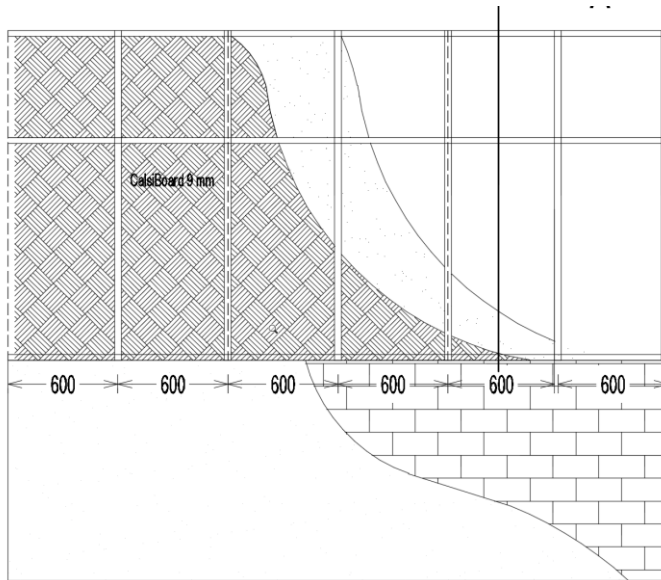


Figure 3. Installation of Calsiboard 9 mm

Installation of a 9 mm calsiboard using a coupler. The installation of the coupler should be precise to the frame until the coupler's head is flush with the surface of the gypsum board. Next, paper tape was installed on the joints. To tidy up the joints, compounding is carried out, and sanding is carried out next. After sanding is complete, the process continues with finishing work, such as painting.

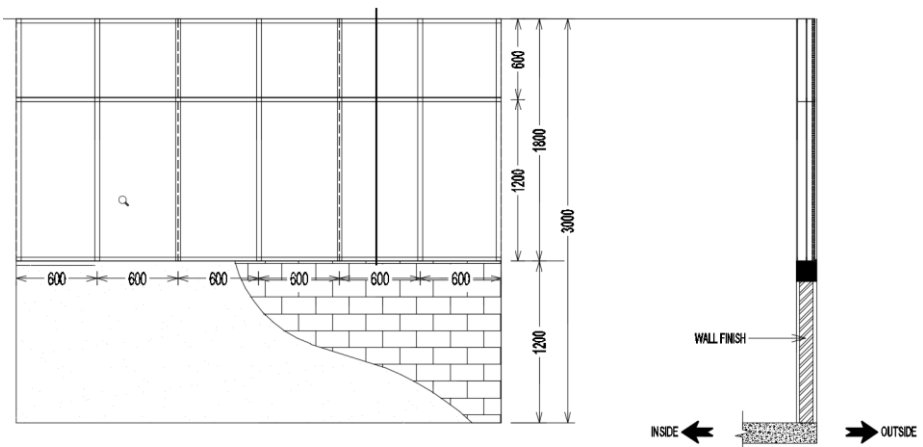


Figure 4. Front View of Calsiboard 9 mm

3.2 Discussion

Through the installation of brick and drywall walls with the above working method, the project resource needs are as follows:

Table 1. Recapitulation of Material Requirements for Brick and Drywall Wall Work

No.	Material type	Vol.	Unit
1	Brick 5 cm thick	840.00	nos
2	Cement Gresik 40 kg	12.98	pax
3	Sand tide	0.72	m ³
4	Base paint	4.80	kg
5	Paint the walls Dulux 2,5 lt exterior	12.48	kg
6	Bullet Spike	27	nos
7	Elbow Hanging	27	nos
8	Metal Track 64 0.50 mm BMT @ 3m	7.74	nos
9	Metal Stud 64 0.50 mm BMT @ 3m	28.44	nos
10	Deflection Head track 64 0.50 mm BMT @ 3m	3.78	nos
11	Screw 6 3/8	360	nos
12	Concrete Nail 3 cm	1.08	nos
13	Screw 6x1	504	nos
14	Sealent Sika	7.38	tube
15	Calsiboard 9 mm	6.25	sheet
17	Screw 6 mm x 2 inch	270	nos
18	Paper tape @ 75m	0.54	nos
19	Compound 2 in 1 @ 20 kg	0.9	nos
20	Large	0.72	nos
21	Sealent Sika	7.2	tube
22	Formwork wood (Red release)	0.02	m ³
23	Nails 10 cm	0.12	Kg
24	Concrete iron	2.92	m
25	Concrete wire RRT	0.30	Kg
26	Koral Concrete 2/3 Ex. 4 per 2.75 m ³	0.09	m ³

Based on the material needs above, and from the results of observations of the implementation in the field, the amount of waste material can be determined. The remaining construction materials are unavoidable, so it is necessary to manage them effectively (Yuni et al., 2023). The waste material above is then used for other activities

that try not to dispose of waste. Waste sand, coral, and cement materials are used to make pavement on the floor, frames and couplers are used for roof reinforcement, waste iron is used to make fence cuttings, and leftover formwork is used as firewood. Thus, no construction waste material is wasted as waste.

4 Conclusion

The use of a combination of brick wall material with drywall is possible, starting with the installation of a brick wall, complete with a practical ring at the end of the brick wall installation. This was followed by the installation of a frame made of mild steel, complete with couplers. The thickness of the wall covering can be adjusted as needed or equal to the thickness of the brick installation. The cover is made of 9 mm thick Calsiboard with a paint finish. The rest of the material from these two combinations is sourced more from brick wall work materials compared from drywall. Drywall work requires more skills in terms of cutting frames and calsiiboard so that it does not cause material damage.

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