Proceedings of International Conference on Healthcare Facilities
Website: http://thejournalish.com/ojs/index.php/ichf/index
E-ISSN: 2776-9771

Analysis Suitability of Buildings and Infrastructure Muhammadiyah Hospital Cirebon in Terms of Regulation

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I N D E X I N G
Keywords:
Buildings;
Infrastructure;
Hospital;

Kata kunci:
Bangunan;
Prasarana;
Rumah Sakit;

A B S T R A C T
This study aims to analyze the suitability of building and infrastructure standards for Muhammadiyah Hospital Cirebon in Permenkes No.3 of 2020 and strategies to fulfil it. Qualitative research with a case study approach, data collection was carried out through observation and interviews, which were compiled as a hospital development strategy. Muhammadiyah Hospital Cirebon has not filled the number of beds, the availability of ICU rooms, radiology, and blood banks. The strategy used is vertical development with three stages, namely, first the grouping of rooms based on function so that the result of the blood bank room and radiology room on the 1st floor is a plan, the fulfilment of the number of beds on the 4th floor, and the fulfilment of the ICU room on the 5th floor. The subsequent step development includes a Detailed Engineering Design (DED) by taking into account the hospital safety index. The third step is applying the concept of healing architecture that combines architectural design with the concept of patient healing. The building floor will be a plan to be 2,726 m2 with five floors, 1st floor of 482m2, 2nd to 5th floors of 561 m2. Funding for hospital development requires funds of Rp. 16,356,000,000, obtained from hospital funds, bank loans, and Lazismu cash waqf program. Keywords: building, infrastructure, hospital

Penelitian ini bertujuan untuk menganalisis kesesuaian standar bangunan dan prasarana Rumah Sakit Muhammadiyah Cirebon ditinjau dari Permenkes Nomor 3 Tahun 2020 dan strategi untuk memenuhinya. Penelitian kualitatif dengan pendekatan studi kasus, pengambilan data dilakukan melalui observasi dan wawancara yang hasilnya disusun sebagai strategi pengembangan rumah sakit. Rumah Sakit Muhammadiyah Cirebon belum memenuhi jumlah tempat tidur, ketersediaan ruang ICU, radiologi, dan bank darah. Strategi yang digunakan adalah pembangunan vertikal dengan tiga tahapan yakni, pertama pengelompokkan ruangan berdasarkan fungsi sehingga direncanakan pembangunan ruang bank darah dan ruang radiologi di lantai 1, pemenuhan jumlah tempat tidur di lantai 4, serta pemenuhan ruang ICU di lantai 5. Langkah yang kedua yakni teknis pembangunan yang mencakup Detail Engenering Design (DED) dengan memperhatikan indeks keselamatan rumah sakit, dan langkah yang ketiga penerapan konsep healing architecture yang menggabungkan desian arsitektur dengan konsep penyembuhan pasien. Lantai bangunan yang akan direncakan menjadi 2.726 m^2 dengan rincian terdiri dari 5 lantai, lantai 1 seluas 482m^2, lantai 2 sampai dengan 5 seluas 561 m^2. Pendanaan pengembangan rumah sakit memerlukan dana Rp.16.356.000.000 didapatkan dari dana milik rumah sakit, pinjaman perbankan, dan program wakaf tunai Lazismu. Kata Kunci : bangunan, prasarana, rumah sakit

Proceedings of International Conference on Healthcare Facilities
Website: http://thejournalish.com/ojs/index.php/ichf/index
E-ISSN: 2776-9771

Article history
Received : February 27, 2021
Revised : March 19, 2021
Accepted : March 29, 2021

INTRODUCTION

The metropolitan population of Cirebon Raya which includes Cirebon, Indramayu, Majalengka, and Kuningan (Ciayumajakuning) is 6,321,591. Cirebon City's total population is only 304,584 people or only 4.82%, the lowest compared to other areas, but the highest population density is 8,152.68 because of the lowest location (Bapeda Jawa Barat, 2016). In the context of improving the degree of public health, the government seeks to provide easy public access to health facilities, especially hospitals that provide complete individual health services that include curative, rehabilitative, promotive and preventive services by providing inpatient, outpatient and emergency services (Depkes, 2009).

According to WHO, the ratio between beds and the ideal population is 1: 1000, so that if you calculate the need for beds in Cirebon City, it is 304 (Organisation for Economic Co-Operation and Development, 2020). The number of beds available in Cirebon City in 2019 from 10 existing hospitals was 1,169 (Dinas Kesehatan Kota Cirebon, 2020). If you look at these data, the need for the number of beds in Cirebon City hospitals has been met. Still, in practice, patients from the Ciayumajakuning area use many health services, especially hospitals in Cirebon City, so the need for the number of beds in the hospital remains high.

Muhammadiyah Hospital, which is in the center of Cirebon, is a class D hospital with 32 beds. Based on the Minister of Health Regulation No.3 of 2020 concerning Hospital Classification and Licensing, it is stated that a class D hospital must have at least 50 beds (Kementerian Kesehatan Republik Indonesia, 2020). BPJS Kesehatan also provides requirements for an extension of the cooperation referring to the Permenkes. The Cirebon Muhammadiyah Hospital plans to develop a hospital to add buildings and infrastructure by Permenkes No.3 of 2020.

Muhammadiyah Hospital in Cirebon currently occupies an area of 716 m^2, with a less than ideal hospital layout, is in a crowded urban area with high land prices making it challenging to develop the land. So far, the condition of comfort in the hospital is not felt optimal for the patient. Hospital development must pay attention to quality and efficiency and integrate patient needs, hospital functions and designs (Singh & Lillrank, 2017). This study aims to analyze the suitability of the buildings and infrastructure standard of the Muhammadiyah Cirebon Hospital in terms of the Minister of Health Regulation Number 3 of 2020 and strategies to fulfil it.

RESEARCH METHOD

This research is qualitative research with a case study approach conducted at the Muhammadiyah Hospital Cirebon. The research object is the condition of the hospital buildings and facilities. Simultaneously, the subjects in this study were the hospital director, head of finance, hospital planning consultants, and infrastructure officers. Data were collected through field observations to hospitals and interviews. This study also uses secondary data in the form of hospital financial reports and existing hospital data. Data analysis was carried out from interviews with each respondent to formulate a strategy in hospital development.

RESULT AND DISCUSSION

The suitability of the buildings and infrastructure of the Muhammdiyah Cirebon Hospital in terms of Permenkes No.3 of 2020 seen in Table 1.

Table.1 Table of Suitability of Buildings and Infrastructure of The Muhammadiyah Cirebon Hospital in Terms of Permenkes No. 3 of 2020

Buildings and Infrastructure	Standard Permenkes No.3 of 2020	Buildings and Infrastructure Owned by The Cirebon Muhammadiyah Hospital	Conformity (Suitable/Unsuitable)
Emergency Room	+	+	Suitable
Outpatient Room	+	+	Suitable
Inpatient Room	+	+	Suitable
Number of Beds	50	32	Unsuitable
Operating Room	+	+	Suitable
HCU Room	+/-	+	Suitable
ICU Room	+	-	Unsuitable
ICCU/ICVCU Room	+/-	-	Suitable
NICU Room	+/-	-	Suitable
RICU Room	+/-	-	Suitable
PICU Room	+/-	-	Suitable
Obstetrics And Gynecology Room	+/-	+	Suitable
Radiology Room	+	-	Unsuitable
Laboratory Room	+	+	Suitable
Hospital Blood Bank Room	+	-	Unsuitable
Pharmacy Room	+	+	Suitable
Nutrition Room	+	+	Suitable
Sterilization Room	+	+	Suitable
Laundry Room	+	+	Suitable
Medical Rehabilitation Room	+/-	-	Suitable
Maintenance of Facilities and Infrastructure	+	+	Suitable
Waste Treatment Room	+	+	Suitable
Mortuary	+/-	-	Suitable
Administration and Management Room	+	+	Suitable
Medical Record Room	+	+	Suitable
Parking Space	+	+	Suitable
Ambulance	+	+	Suitable
Clean Water, Waste, and Sanitation Treatment Room	+	+	Suitable
Fire Fighting Room	+	+	Suitable
Medical Gas Room	+	+	Suitable

Source: (*Observation Result, February 2021****)***

Results of the above observations found that the Cirebon Muhammadiyah Hospital could not meet the other four standards, namely, the number of beds still below 50, the availability of ICU rooms, the availability of radiology rooms, and availability of blood bank rooms. With the

limited land owned by the hospital, the strategy that will be used is to develop the hospital vertically so that it can accommodate the space requirements required by the Minister of Health Regulation Number 2020 (S. R. Wahyuningrum et al., 2019). Hospital development for 25 to 30 years can refer to the master plan document (Reijula et al., 2017). Due to the absence of a master plan, the management of Muhammadiyah Cirebon Hospital involved a hospital development planning consultant to compile a DED with a target of 50-bed development plans and architectural, structural, mechanical, electrical, and plumbing designs for new building planning that were adjusted to the hospital's funding capacity. Muhammadiyah Cirebon Hospital's existing condition is in 716 m^2 consisting of 2 floors with details on the 1st floor. There is a outpatient room, VK room, HCU room, operating room, CSSD, pharmacy room, medical record room, and nutrition room. On the 2nd floor, there is an inpatient room and a laboratory room. In planning hospital development, spatial arrangements will affect the building's overall function (Pramono et al., 2020).

The grouping of rooms on the 1st floor is based on the function of services that are easily accessible for patients with emergency conditions. On the 2nd floor, it is focused on outpatients, while the 3rd and 4th floors are focused on inpatients. On the 5th floor, it will focus on intensive care rooms and operating rooms. The room layout design for each floor must be able to support service performance and pay attention to patient safety (S. H. Wahyuningrum & Bharoto, 2015). The construction on the 1st floor includes an emergency room, a VK room with two beds, a registration room, a pharmacy room, a medical record room, radiology, and a blood bank. On the second floor, a laboratory, six polyclinic rooms, and a nutrition room will be built. On the 3rd floor, an inpatient room will be made, namely class 1 with five beds, class 2 with 17 beds.

Previously the inpatient room was concentrated on the 2nd floor, and this was done so that it did not interfere with services on the 2nd floor during the construction process. Hospital management must protect patients who are recovering from situations that disturb the comfort and increase stress (Bingham et al., 2020). On the 4th floor, an inpatient room will be built, namely a class with two beds, a class 3 with 20 beds, and an isolation room with one bed. On the 5th floor, there will be an ICU room with three beds, two preoperative rooms, operating rooms, and two postoperative rooms with four beds, so the total number of beds is 50. The operating room's choice is located on the 5th floor. It does not have a water pipe area above the operating room, and floor height can be more efficient so that the air conditioning system is more optimal. The emergency room's distance on the 1st floor can be overcome with special access to vertical transportation. With all the complexity of these problems, it is estimated that the development process will take 25 months.

The following three stages are a follow-up to grouping rooms based on building functions. The next vertical development strategy consists of 3 technical stages, namely the first stage of pre-design, consisting of making drawings that explain the situation, site design, plans, and sections, selecting the building concept, selecting the structural sub-system used, and selecting the mechanical sub-system, electrical, plumbing (MEP). The second stage is design development consisting of making a design development drawing explaining the site design, plans, sections, and primary details, outlining the technical specifications that describe the type, type and characteristics of the materials used, and the last stage is the Detailed Engineering Design. which contains working drawings of architecture, structure and MEP. The three stages can refer to the hospital safety index issued by WHO to improve the hospital's function and safety so that it is better prepared for emergencies and disasters (Sunindijo et al., 2019).

Disasters that have occurred at Muhammadiyah Hospital are building fires with a small intensity. In addition to fulfilling the complete facilities and infrastructure, disaster management steps are needed by socializing Standard Operating Procedures and fire management simulations by all hospital staff (Sanjaya & Ulfa, 2015).

The development of the Cirebon Muhammadiyah Hospital apart from meeting the needs for beds and rooms and the building's technical details, which refers to the hospital safety index, another concept that will be applied is the healing architecture. A healing architecture concept approach that combines architectural design and patient healing patient healing (Azza & Natalia, 2019). The Cirebon Muhammadiyah Hospital changes will be included in the building extension, namely the addition of new construction that is still connected to the existing building, it requires huge funds (Indrawan et al., 2019).

The building floor area is planned to be 2,726 m2, consisting of 5 floors. 1st floor covering an area of 482m2, floors 2 to 5 covering an area of 561 m2. The construction cost per m2 is estimated at Rp. 6,000,000, so the estimated cost required is Rp. 16,356,000,000. Regarding the source of funds for the development of Muhammadiyah Cirebon Hospital, this comes from hospital funds, third party loans, and assistance from Muhammadiyah members and sympathizers. Loans from third parties, namely banks, must be calculated precisely because at the time of construction, of course, the hospital income was reduced. After all, some hospital buildings could not be used to serve patients. Judging from the hospital financial statements, the maximum amount of loans to banks that can be made is Rp. 10 Billion with a loan period of 10 years, the difference is obtained from funds owned by the hospital and assistance from Muhammadiyah members and sympathizers through the Lazismu cash waqf program.

CONCLUSION

The Muhammdiyah Hospital of Cirebon City has not been able to meet the four-building and infrastructure standards by the Minister of Health Regulation No.3 of 2020, namely the number of beds, the availability of ICU rooms, the availability of radiology rooms, and the availability of hospital blood bank rooms. The strategy used is vertical development by increasing the number of floors from 2 to 5 by involving a hospital development planning consultant to meet the building and infrastructure standards of Permenkes Number 3 of 2020. The vertical development strategy is carried out in 3 steps. The first step is grouping the rooms based on the function on each floor. The second step is technical development which includes a Detailed Engineering Design by taking into account the hospital safety index. The third step is the application of the healing architecture concept to the hospital development plan. The hospital development strategy results are that the building floor will be planned to be 2,726 m2 with five floors, one floor covering an area of 482m2, floors 2 to 5 covering 561 m2. Funding for hospital development requires funds of Rp. 16,356,000,000, obtained from hospital funds, bank loans, and your Lazismu cash waqf program. The development of a hospital that takes more than two years will undoubtedly disrupt services and reduce visits, resulting in decreased income. At the same time, the funds required are pretty significant. A more in-depth study on the financial aspect is needed to not interfere with hospital operations during the construction process.

ACKNOWLEDGMENT

The author would like to thank the Director and staff of the Muhammadiyah Hospital Cirebon.

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