

# PERENCANAAN UTILITAS GEDUNG KULIAH BERSAMA UNIVERSITAS SAMUDRA

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## ABSTRAK

Utilitas bangunan adalah suatu kelengkapan fasilitas bangunan yang digunakan untuk menunjang tercapainya unsur-unsur kenyamanan, kesehatan, keselamatan, kemudian komunikasi dan mobilitas dalam bangunan. Rencana pembangunan gedung Kuliah Bersama Universitas Samudra diharapkan dapat menjadi sarana pendidikan bagi Mahasiswa/i Universitas Samudra untuk meningkatkan cara belajar dan penelitian yang efektif dengan didukung fasilitas yang lebih lengkap. Tujuan yang ingin dicapai pada penelitian ini adalah menganalisis kebutuhan utilitas pada gedung Kuliah Bersama Universitas Samudra dan merencanakan konsep utilitas pada gedung Kuliah Bersama Universitas Samudra, ini berupa penanggulangan bahaya kebakaran, mekanikal (instalasi air), pengkondisian udara AC (*air conditioner*), dan elektrikal (Instalasi listrik). Dimana perencanaan ini sebagai mengacu pada standart yang berlaku seperti Standart Nasional Indonesia (SNI). Berdasarkan hasil penelitian yang dilakukan, didapat bahwa penanggulangan bahaya kebakaran untuk jumlah kepala *Sprinkler* 698 buah dengan jenis *Fire Sprinkler Head Pendent Tyco Ty-B 57°C*, *hydrant* pilar 3 buah dengan jenis *Hydrant Pillar Two Way Firefix*, *hydrant box* 9 buah dengan jenis *Hooseki Fire Hydrant Box Indoor Type B*, APAR 100 buah dengan tipe C (APAR *Powder* 6 Kg *Hooseki*) dan kebutuhan air penanggulangan bahaya kebakarann sebanyak 2.034,30 m<sup>3</sup>. Utilitas mekanikal (instalasi air) didapat jumlah penghuni 499 orang dengan kebutuhan air bersih yang sebanyak 47,904 m<sup>3</sup>/hari, pembuangan air kotor sebanyak 38,32 m<sup>3</sup>/hari dan pembuangan air hujan sebanyak 18.063,50 liter/menit dengan pipa diameter 4" sebanyak 42 titik. Utilitas pengkondisian udara bahwa kebutuhan AC (*air Conditioner*) sebanyak 149 Unit yang terdiri dari AC ½ pk = 2 unit, ¾ pk = 5 unit, 1 pk = 44 unit, 1 ½ pk = 72 unit dan 2 pk = 26 unit dengan total daya 155.422 Watt, menggunakan jenis AC Daikin Multi-S Tipe MKC70SVM4. Utilitas elektrikal (instalasi listrik) pada Gedung Kuliah Bersama Universitas Samudra bahwa kebutuhan listrik sebesar 244.706 VA menggunakan pengaman MCCB 3 fasa 300 ampere.

**Kata kunci:** kebakaran, mekanikal, pengkondisian udara, dan elektrikal

# UTILITY PLANNING OF SAMUDRA UNIVERSITY JOINT LECTURE BUILDING

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## ABSTRACT

Building utilities is a complete building facility used to support the achievement of elements of comfort, health, safety, then communication and mobility in buildings. The construction plan of the Samudra University Joint Lecture building is expected to be an educational facility for Samudra University students to improve effective learning and research methods supported by more complete facilities. The objectives to be achieved in this research are to analyze the utility needs of the Samudra University Joint Lecture building and to plan the utility concept of the Samudra University Joint Lecture building, in the form of fire hazard mitigation, mechanical (water installation), air conditioning (air conditioner), and electrical (electrical installation). Where this planning refers to applicable standards such as the Indonesian National Standard (SNI). Based on the results of the research conducted, it was found that fire hazard management for the number of Sprinkler heads 698 pieces with the type of Fire Sprinkler Head Pendent Tyco Ty-B 57 ° C, hydrant pillar 3 pieces with the type of Hydrant Pillar Two Way Firefix, hydrant box 9 bauh with the type of Hooseki Fire Hydrant Box Indoor Type B, APAR 100 pieces with type C (APAR Powder 6 Kg Hooseki) and the need for fire hazard management water as much as 2,034.30 m<sup>3</sup>. Mechanical utilities (water installation) obtained the number of occupants 499 people with clean water needs as much as 47.904 m<sup>3</sup> / day, dirty water disposal as much as 38.32 m<sup>3</sup> / day and rainwater disposal as much as 18,063.50 liters / minute with a 4 "diameter pipe as many as 42 points. Air conditioning utilities that require 149 units of AC (air conditioner) consisting of AC ½ pk = 2 units, ¾ pk = 5 units, 1 pk = 44 units, 1 ½ pk = 72 units and 2 pk = 26 units with a total power of 155,422 Watts, using the type of AC Daikin Multi-S Type MKC70SVM4. Electrical utilities (electrical installations) in the Samudra University Joint Lecture Building that the electricity demand is 244,706 VA using a 3-phase 300 ampere MCCB safety.

**Keywords:** *fire, mechanical, air conditioning, and electrical*