

PENGARUH PENAMBAHAN SERAT SERABUT KELAPA 1,5% PANJANG SERAT 3 CM TERHADAP MUTU GENTENG BETON SERAT PADA 5 VARIASI DIMENSI

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INTISARI

Pembangunan sarana dan prasarana fisik, terutama perumahan ataupun gedung tentu membutuhkan penutup atap. Genteng beton merupakan salah satu alternatif yang dapat digunakan sebagai penutup atap selain sirap, seng, asbes dan masih banyak lagi macam penutup atap yang lain. Di daerah tertentu, yang pada umumnya penutup atap menggunakan sirap, saat ini diperlukan adanya bahan alternatif penutup atap pengganti sirap. Hal ini dilakukan mengingat persediaan bahan baku untuk pembuatan sirap dan ketersediaan kayu untuk konstruksi semakin berkurang. Penggunaan genteng beton yang ditambah dengan serat sabut kelapa 1,5% 3 cm dan panjang genteng beton yang optimal diharapkan dapat menjadi salah satu alternatif untuk digunakan sebagai penutup atap. Persyaratan mutu yang digunakan untuk mengetahui mutu genteng beton berpedoman pada SII.0447-81 yang dikeluarkan oleh Departemen Perindustrian RI, tentang mutu dan cara uji genteng beton.

Mutu genteng beton serat dapat diketahui setelah dilakukan pengamatan dan beberapa pengujian. Pengamatan dilakukan terhadap genteng beton serat untuk mengetahui syarat mutu pandangan luar. Kekuatan lentur dapat diketahui melalui pengujian kuat lentur yang dinyatakan dalam kg. Pengujian dilakukan terhadap 10 buah genteng beton serat dalam kondisi jenuh air setelah genteng direndam selama 24 jam. Pengujian daya serap air dapat dilakukan dengan memanfaatkan genteng yang sudah pecah setelah melalui uji kekuatan lentur. Daya serap air dari masing-masing genteng yang diuji dinyatakan dalam persen. Pengujian ketahanan perembesan air terhadap genteng dilakukan dengan menggunakan 3 buah genteng beton serat. Genteng dinyatakan tidak tahan terhadap rembesan air apabila terjadi tetesan air pada bagian bawah genteng. Namun dalam hal genteng menjadi basah, tetapi tidak terjadi tetesan air, maka dapat dinyatakan bahwa genteng tahan terhadap air. Pengujian kekuatan lentur, daya serap air dan rembesan dilakukan terhadap genteng beton serat setelah umur 28 (dua puluh delapan) hari.

Hasil dari penelitian ini dapat disimpulkan bahwa penggunaan serat sabut kelapa pada genteng beton serat variasi I-V, hanya variasi I yang memenuhi syarat. Rata-rata daya serap air dan ketahanan terhadap perembesan air, genteng beton serat variasi I-V tidak memenuhi syarat. Dari pengamatan yang dilakukan, syarat pandangan luar dari genteng beton variasi I-V tidak dapat dipenuhi.

Kata kunci : Genteng beton serat, serat serabut kelapa, beban lentur, daya serap dan rembesan air.

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**EFFECT OF ADDING COCONUT FIBER WITH 1,5% IN
CONCENTRATION 3 CM IN FIBROUS LENGTH ON QUALITY OF
FIBROUS CONCRETE ROOF TILE WITH 5 DIMENSION VARIATIONS**

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ABSTRACT

The development of physical medium and prerequisite, in particularly the housing or buildings needs a roof cover. Concrete roof is one of alternatives that can be used as the roof cover in addition of shingle, zinc, asbestos and there are still more kinds of other roof cover. In certain area, of which in particularly the roof cover uses shingle, nowadays it needs the existence of alternative material as coverage to substitute shingle. It is conducted by considering the availability of raw material to make the shingle and the availability of wood in order the construction is lessen. The use of concrete roof of which is added by 1,5% coconut fiber of 3 centimeter and the length of optimal concrete roof is hoped can be one of the alternatives used as the roof cover. The conditions of quality used to know the quality of concrete roof make reference to SII.0447-81 which is established by Industrial Department of Republic of Indonesia, on quality and testing method of concrete roof.

The quality of fiber concrete roof can be known after it was conducted observation and some tests. Observation was conducted to the fiber concrete roof to find out the conditions of outer perspective quality. Refraction strengths could be known through refraction strengths test of which stated in kilogram. The test was conducted to 10 fiber concrete roofs in water saturated condition after the roof was submerged for 24 hours. The test of water absorptiveness could be conducted by making function of broken roofs after through the refraction strengths test. The water absorptiveness of each roofs being tested was stated in percent. The test of capillarity resistance of the roofs was conducted by using 3 items of fiber concrete roofs. The roofs were stated as fragile to water absorption if there was water drop beneath the roofs. However in this matter, the roofs became wet, but there was not water drop; thus it could be stated that the roofs are waterproof. The test of refraction strength stated that the water absorptiveness and capillarity was conducted to the fiber concrete roofs after had age 28 (twenty eight) days.

The result of this research can be concluded that the use of coconut fiber use in fiber concrete roof of variance I – V, only variance I fulfills the conditions. Average of water absorptiveness and resistance to water capillarity, fiber concrete roof variance I – V do not fulfill the conditions. From the conducted observation, the conditions of outer perspective of variance I – V concrete roof can not be fulfilled.

Keyword : Fibrous concrete roof, coconut fiber, bending moment, absorption and permeability.