ATTACHMENT

- Photo of taking sand and gravel materials in the batching plan of PT. Waskita Gresik

- Photo Collectiing of coconut fiber material

- Photo Drying coconut fiber. Before carrying out the process of burning the coconut fiber that has been collected, it must be dried in the sun so that the combustion process is easier to burn, because the coconut fiber material collected still contains a little water (in a slightly wet state).

- Photo of an iron barrel as a burning vessel. In the iron barrel, before carrying out the combustion process, first make a hole in the middle of the iron barrel and also give a rather large hole as a place to light the fire.

- Photo of inserting coconut fiber into the barrel.

- Photo of the process of burning coconut fiber Try to put it in the burning iron barrel so that it is more compacted, because so that the burning process can continue for a long time so that the flame can spread from the bottom up.

- Photo of the process of burning coconut fiber. In the process of burning coconut fiber, keep the embers stable so that if a fire appears, it must be extinguished immediately by fanning it so that the combustion process works effectively.

- Photo of the process of burning coconut fiber. After the fire smoke appears, close the barrel of the combustion container 3/4 of the way so that not much air enters the iron barrel because it can cause the ash produced from the combustion process to fly out.

- Photo of burning coconut fiber. This is how it looks from the results of the burning process that has been carried out which will be continued to the process of filtering coconut fiber ash.

- Photo of coconut fiber ash screening process. Before carrying out the screening process for coconut fiber ash, make sure the coconut fiber ash to be filtered is cold because if it is still slightly hot it can damage the filter. For the cooling process of burnt coconut fiber, leave it for at least 12 hours.

- Photo of the mortar mold used

- Photo of the rojokan tool used to corner mortar molds

- Photo of a mortar dough mixer using a cake mixer

- Photo of scales used to measure mortar materials

- The first process in making mortar is to measure it using a scale with a weight according to SNI 03-6825-2002 weighing 500 grams. After weighing 500 grams, put the cement into the mortar mixture container.

- After that, the process of measuring sand weighing 1350 grams was continued according to SNI 03-6825-2002. After the sand has been measured weighing 1350 grams, put it into the mortar mixture container, then stir the cement and sand ingredients until they are thoroughly mixed so that when water is added, the cement and sand ingredients are mixed.

- Next, the third process is the process of measuring 242 grams of water according to SNI 03-6825-2002. After measuring the water weighing 242 grams, put it into the dough container which already contains a mixture of cement and sand materials. Then stir a little manually by hand.

- After that proceed to the process of mixing the mortar dough using a mixer machine (here the author uses a cake mixer). Do this process for about 10 minutes so that all the ingredients or dough ingredients are mixed evenly

- After the process of mixing the mortar dough is complete, continue the testing process for the Workability test by using a pipe with a size of approximately 9-10 cm and a height of 15 cm. then put the dough into the pipe by adding the mortar mixture 1/3 of the first and then hitting it up to 12 times then adding it again up to 2/3 of the part, then shaking it again 12 times, continue to add it until it fills the top of the pipe. At the end of the process there is no need to do the rojokan process anymore, just flatten the top. After that lift the paralon simultaneously.

- Next, do the process of measuring the diameter horizontally and vertically to find out the Workability of the mortar, if the diameter size exceeds 12 cm, repeat the process of making the mortar from the beginning because if it exceeds the size of 12 cm, the mortar will have too much water.

- The next process is the process of inserting the mortar mixture into the mortar mold. The method of inserting it is the same as the method of inserting it into the pipe during the test for Workability, namely by inserting 1/3 of it first and then rolling it into the mold, then inserting it again until 2/3 of the mold is then rolled again, then adding the mixture again until it is full of the top of the mortar mold. Don't forget to flatten or smooth the top of the mortar mold containing the dough. In order for the mortar during the drying process to dry in perfect condition, hit the side of the mortar mold several times.

- The following is the result of mortar that has dried and just been removed from the mortar mold. Do the process as above until all the percentage of coconut fiber ash has been made.

- After the process of removing the mortar from the mortar mold, do the immersion process using tap water from the laboratory for 7 days, 14 days and 28 days of immersion. Don't forget to mark the mortar that will be soaked in advance in the form of writing on the side of the mortar so that you can easily find out which mortar has entered the process of being removed from curing. Tips when marking it is better to use metal paint/wood paint because if you only use markers (board stationery) it can easily get lost in the mortar with soaking for more than 14 days.

- To test the absorption test, do the drying process using an oven after the curing process. Put the mortar into the oven within 1 x 24 hour brackets so that the oven process is optimal. Because the oven in the laboratory cannot be turned on when left home, the baking process is carried out for 2 x 12 hours.

- The last is the compressive strength testing process. Before carrying out the compressive strength testing process, prepare approximately 3 liters of hydraulic oil in advance because if the engine lacks oil pressure it can cause damage. In testing the compressive strength of mortar, it should be noted not to just do a direct compressive strength test, but place the mortar on the flat side of the mortar facing upwards to be pressed. Because the mortar's uneven cross-sectional area can affect the compressive strength of the mortar.

- The following is an example of a photo of the portland cement used, Gresik type 2 cement (PCC).

- The following is an example of mortar results that have been tested for compressive strength using pressure in the laboratory

- This is the result from XRF Test about the contain of coconut fiber ash in Laboratory of Universitas Malang (UM)

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Sample ident
E 190

Application	<Standardless>
Sequence	1 of 1
Measurement time	24-mrt-2023 13:14:10
Position	12

Compound	SiO2	P2O5	SO3	Cl	K2O	TiO2	MnO	Fe2O3	CuO	ZnO	Br	Rb2O
Conc	8,5	2,7	1,4	20,0	62,1	0,098	0,14	3,03	0,11	0,18	0,11	0,24
Unit	%	%	%	%	%	%	%	%	%	%	%	%

Compound	MoO3	Re2O7
Conc	1	0,2
Unit	%	%

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Sample ident
E 190

Application	<Standardless>
Sequence	1 of 1
Measurement time	24-mrt-2023 13:14:10
Position	12

Compound	Si	P	S	Cl	K	Ti	Mn	Fe	Cu	Zn	Br	Rb	Mo	Re
Conc	4,4	1,3	0,52	23,5	65,1	0,077	0,13	2,81	0,12	0,20	0,14	0,30	1,3	0,2
Unit	%	%	%	%	%	%	%	%	%	%	%	%	%	%