

IV. CONCLUSIONS

It is possible to produce lightweight fired clay bricks by incorporate not more than 5% (by weight) of reed crumbs to the clay soil satisfying the compressive strength and water absorption requirements for grade NW of bricks (used for partitions) according to for ASTM Standard C62 [14]. The incorporation of (5%,15%, and 25%) of reed crumbs cause decrease in the bulk density of the reference samples by (7.9,20.1,30.9) ,(8.8,22.67,34.45) and (12.74,25.90,41.9) when they burned at (800,900,1000)^oC respectively. A slight decrease in bulk densities values between (0.69,1.64,3.86,5.82)% occurs when the burning temperature rise from 800^oC to 900^oC for clay bricks samples with (0%,5%,15%, and 25%) of reed crumbs and A slight decrease also in bulk densities values (2.4,2.2,9.6) % for samples with (5%,15%, and 25%) of reed crumbs. The addition of (5%, 15%, and 25%) of reed crumbs causes a significant increase in water absorption. The percentage of increase in water absorption values of the mixes contain of (5%,15%, and 25%) reed crumbs samples are (23.82,47.86,59.62) % ,(22.8,47.13,59.53) % and (29.02,51.22,62.3) % compared to reference samples without reed crumbs when the degree of burning temperature (800,900,1000)^oC respectively. A slight increase in the values of water absorption is found with the increase in the degree of burning temperature from 800^oC to 900^oC and then to 1000^oC. It is discovered a significant decreasing in compressive strength with adding reed crumbs to the soil used for the manufacture of clay bricks samples. The percentage of decreasing in compressive strength values of clay bricks samples with (5%,15%,25%) reed crumbs when it burned at (800,900,1000)^oC were (23.89,40.26,65.50)%, (25.02,43.06,69.93)% and (30.06,49,75.23)% compared to reference samples burned at the same temperature respectively. Rising burning temperature from 800^oC to 900^oC and then to 1000^oC causes a slight decrease in compressive strength. The percentages of decrease in compressive strength for clay bricks samples burned in (800)^oC were (1.35, 2.80, 5.96, 13.99) % compared to the same clay bricks samples but burned in (900)^oC. While the percentages of decrease in compressive strength for clay bricks samples burned in (900)^o,

C were (2.46,6.34,13.87)% compared to the same clay bricks samples but burned in (1000)^oC. The produce lightweight fired clay bricks could be manufactured in the same factories of production of ordinary bricks without the need to new machines, since the steps of this kind of bricks are the same for the ordinary one, and there are no needs to add any chemical materials.

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