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ABSTRACT

Concrete blocks are used extensively in buildings construction in Riyadh. The number of concrete block factories operating in Riyadh exceeds 42 factories with an average production capacity of 500,000 units/day. Most concrete blocks produced in Riyadh are non-load bearing as it is used

for partition and external walls of buildings. The Municipality of Riyadh has started a quality scheme for ready-mixed concrete and concrete blocks factories in Riyadh since 1416H. The quality of concrete blocks is checked by 6-12 unannounced visits annually to each factory where random samples of block production are collected. In the past three years, 810 samples have been collected with each sample consisting of 6 blocks for a total of 4,860 blocks. For each sample, the dimensions, compressive strength and absorption were measured and the results were compared with the requirements of The Saudi and American specifications.

The results of statistical analysis showed that all factories satisfy the specifications' requirements with regard to compressive strength and absorption; however, for dimensions, substantial percentage of the samples did not meet the tolerance requirements for height. The volume of internal voids constitutes 30% of block volume. The weight of size 200 between 20-26 kg per block and between 17 and 21 for size 150 mm.

١. مقدمة

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[Medallah, Musalami, 1987]

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[Amjad, Alsayed, 1995]

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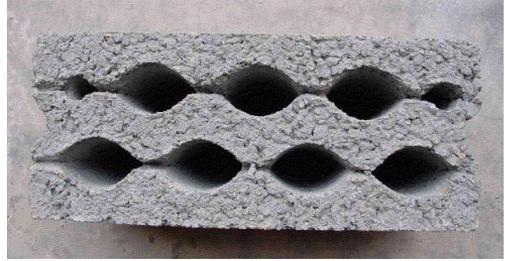
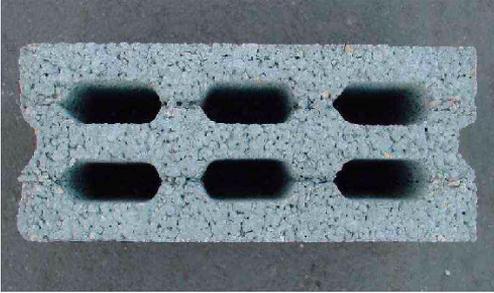
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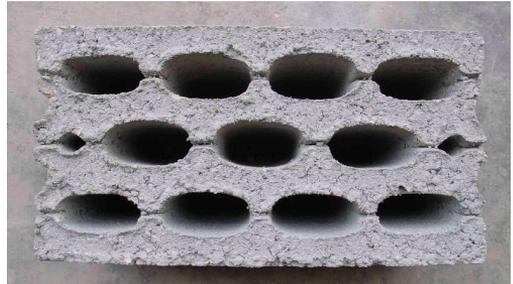
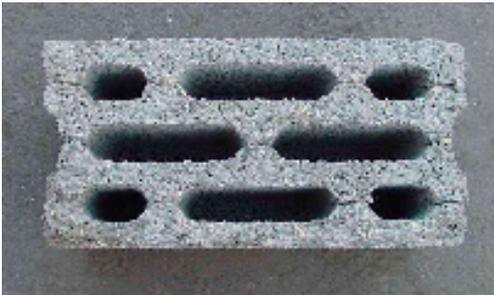
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- 3- American Society for Testing and Materials, "Standard Specification for Non-Load-Bearing Concrete Masonry Units", ASTM C 129-92.
 - 4- American Society for Testing and Materials, "Standard Methods of Sampling and Testing Concrete Masonry Units", ASTM C 140-91.
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 - 7- M. Amjad, S. Alsayed, 1995, "Strength and Elasticity of Concrete Bricks/Blocks Incorporation White and Red Sand", Proceedings of the Fourth Saudi Engineering Conference, Jeddah, Saudi Arabia.

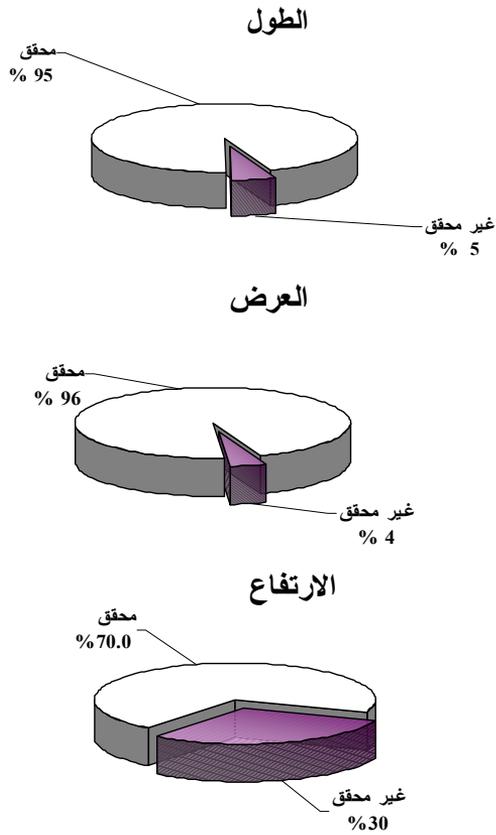


(أ) بلوك مقاس ١٥٠×٢٠٠×٤٠٠ مم

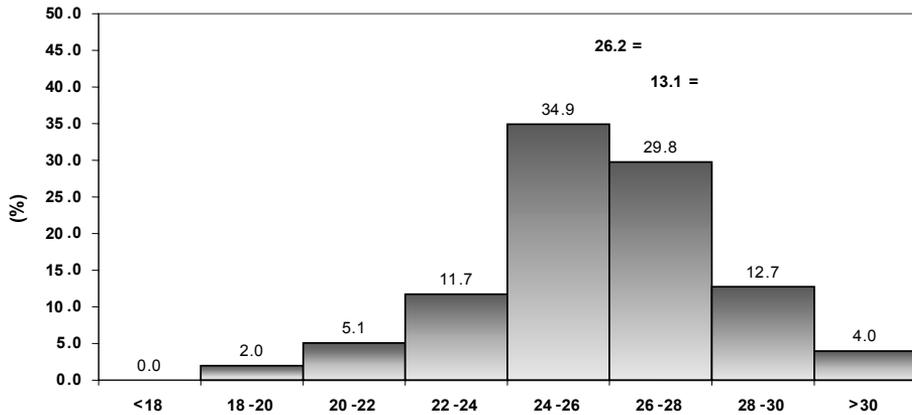


(ب) بلوك مقاس ٢٠٠×٢٠٠×٤٠٠ مم

شكل (١) أشكال و أبعاد البلوك الأكثر شيوعاً"

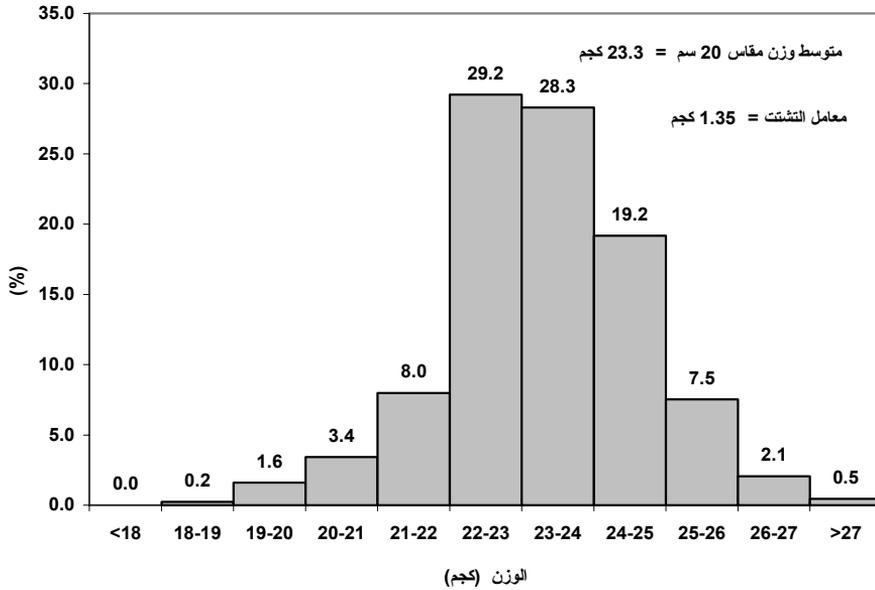


شكل (٢) تفاوت الابعاد لجميع العينات

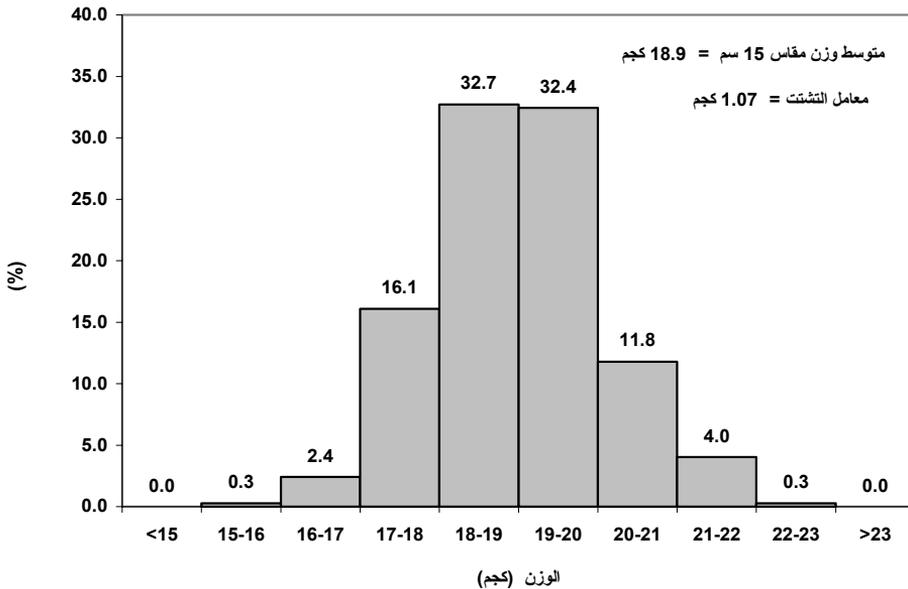


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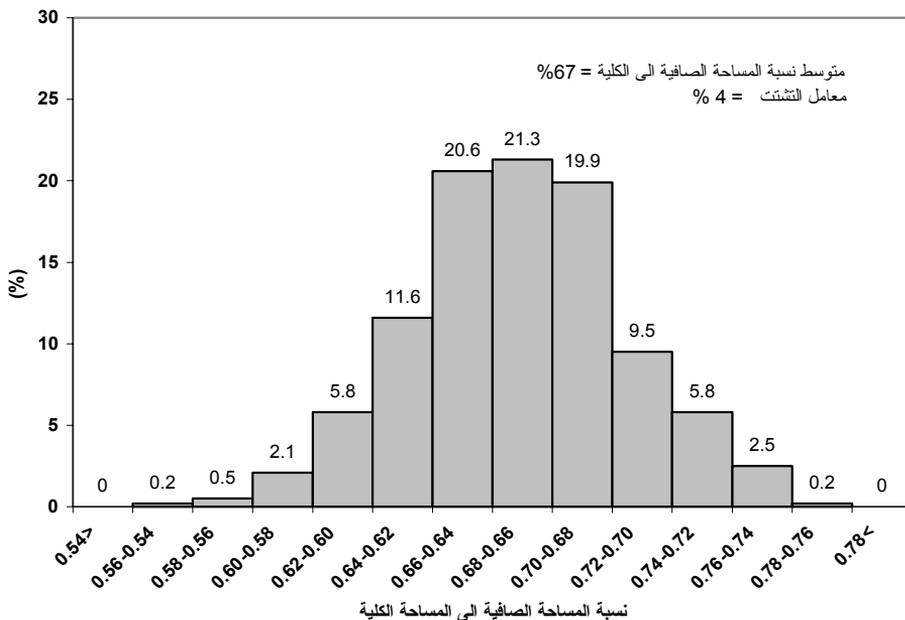
شكل (٣) قياسات سماكة القشرة لجميع العينات



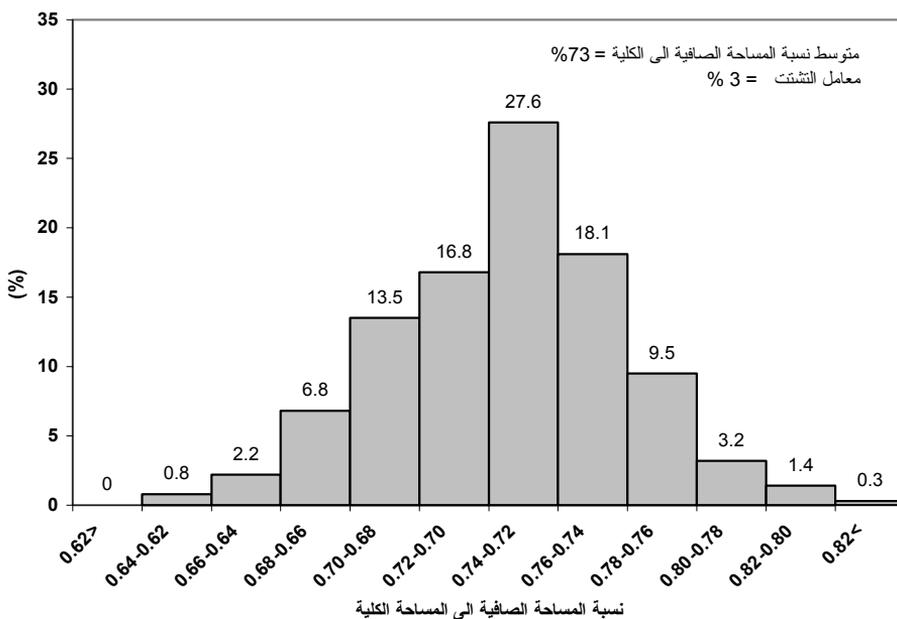
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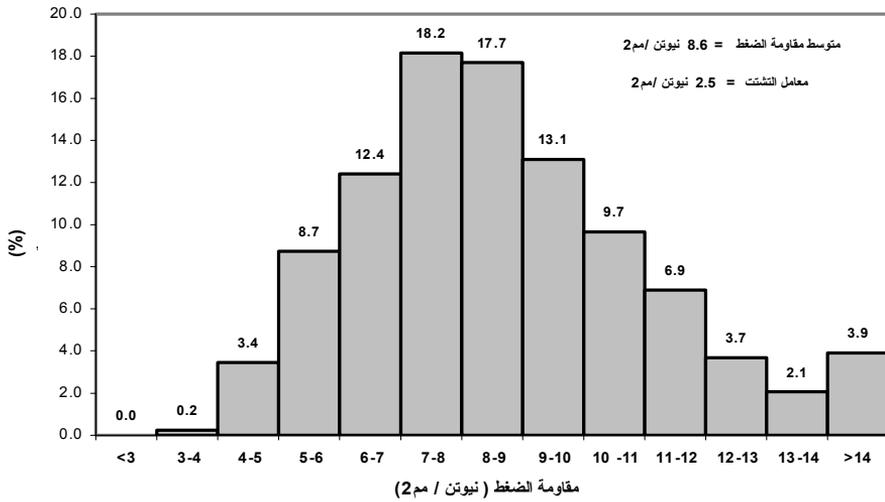
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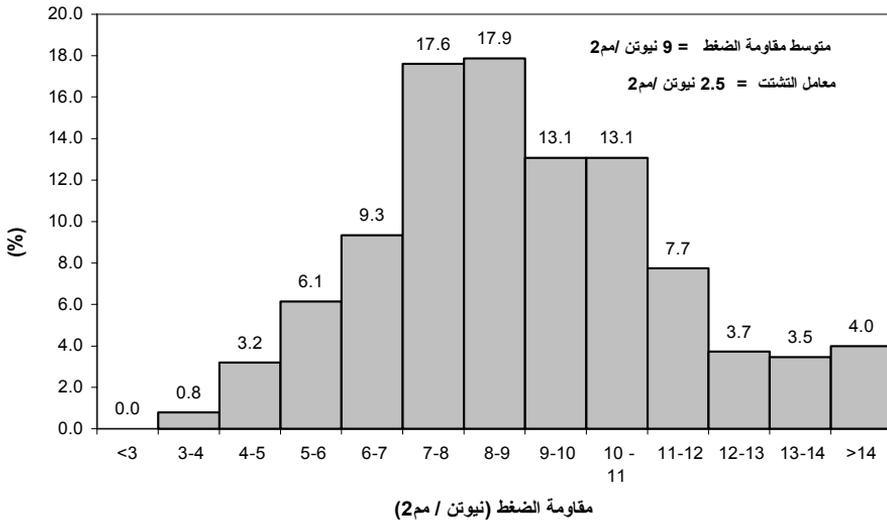
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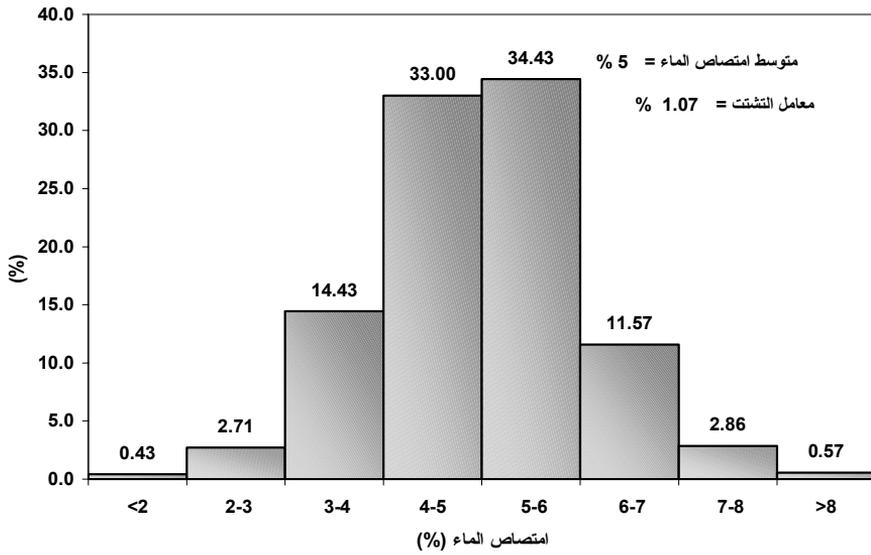
شكل (ب) نسبة المساحة الصافية للمساحة الكلية لعينات مقياس ١٥ سم



شكل (أ) نتائج اختبارات مقاومة الضغط لعينات مقاس ٢٠ سم



شكل (ب) نتائج اختبارات مقاومة الضغط لعينات مقاس ١٥ سم



شكل (٧) نتائج اختبار امتصاص الماء لجميع العينات