

DAFTAR PUSTAKA

- " *Standar Nasional Indonesia Metode uji kekuatan tarik belah spesimen beton silinder Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens*. (2004). www.bsn.go.id
- sni-03-1968-1990*. (n.d.).
- SNI-2847-2019 Persyaratan beton struktural untuk bangunan gedung dan penjelasan*. (n.d.).
- beton bertulang*. (n.d.).
- SNI-2847-2019-Persyaratan-Beton-Struktural-Untuk-Bangunan-Gedung-1*. (n.d.).
- sni-03-1970-2008*. (n.d.).
- Alwesabi, E. A. H., Abu Bakar, B. H., Alshaikh, I. M. H., Abadel, A. A., Alghamdi, H., & Wasim, M. (2022). An experimental study of compressive toughness of Steel–Polypropylene hybrid Fibre-Reinforced concrete. *Structures*, 37, 379–388. <https://doi.org/10.1016/j.istruc.2022.01.025>
- Baradaran-Nasiri, A., & Nematzadeh, M. (2017). The effect of elevated temperatures on the mechanical properties of concrete with fine recycled refractory brick aggregate and aluminate cement. *Construction and Building Materials*, 147, 865–875. <https://doi.org/10.1016/j.conbuildmat.2017.04.138>
- Barman, M., Ghabchi, R., Singh, D., Zaman, M., & Commuri, S. (2018). An alternative analysis of indirect tensile test results for evaluating fatigue characteristics of asphalt mixes. *Construction and Building Materials*, 166, 204–213. <https://doi.org/10.1016/j.conbuildmat.2018.01.049>
- Cachim, P. B. (2009). Mechanical properties of brick aggregate concrete. *Construction and Building Materials*, 23(3), 1292–1297. <https://doi.org/10.1016/j.conbuildmat.2008.07.023>
- Cara uji kadar air total agregat dengan pengeringan ICS 93.020 Badan Standardisasi Nasional*. (2011). www.bsn.go.id
- Caronge, M. A., Tjaronge, M. W., Hamada, H., & Irmawaty, R. (2017). Effect of water curing duration on strength behaviour of portland composite cement (PCC) mortar. *IOP Conference Series: Materials Science and Engineering*, 271(1). <https://doi.org/10.1088/1757-899X/271/1/012018>

- Ghosh, S., & Samanta, A. K. (2023). Utilization of recycled refractory brick as fine aggregate on various properties of sustainable concrete. *Materials Today: Proceedings*. <https://doi.org/10.1016/j.matpr.2023.03.712>
- Hchemi, S., Khattab, M., & Benzetta, H. (2022). The effects of recycled brick and water/cement ratios on the physical and mechanical performance of recycled aggregates concrete. *Innovative Infrastructure Solutions*, 7(4). <https://doi.org/10.1007/s41062-022-00868-y>
- Horckmans, L., Nielsen, P., Dierckx, P., & Ducastel, A. (2019). Recycling of refractory bricks used in basic steelmaking: A review. In *Resources, Conservation and Recycling* (Vol. 140, pp. 297–304). Elsevier B.V. <https://doi.org/10.1016/j.resconrec.2018.09.025>
- Irmawaty, R., Caronge, M. A., Tjaronge, M. W., Abdurrahman, M. A., & Ahmad, S. B. (2023). Compressive strength and corrosion behavior of steel bars embedded in concrete produced with ferronickel slag aggregate and fly ash: an experimental study. *Innovative Infrastructure Solutions*, 8(7). <https://doi.org/10.1007/s41062-023-01162-1>
- Katz, A. (2003). Properties of concrete made with recycled aggregate from partially hydrated old concrete. *Cement and Concrete Research*, 33(5), 703–711. [https://doi.org/10.1016/S0008-8846\(02\)01033-5](https://doi.org/10.1016/S0008-8846(02)01033-5)
- Kavas, T., & Karasu, B. (2006). *Utilization of Refractory Brick Wastes in Concrete Production as Aggregates The improvement of ceramic body properties View project The Utilization of Borax Wastes View project*. <https://www.researchgate.net/publication/258900379>
- Khattab, M., Hachemi, S., & Al Ajlouni, M. F. (2021). Evaluating the physical and mechanical properties of concrete prepared with recycled refractory brick aggregates after elevated temperatures' exposure. *Construction and Building Materials*, 311. <https://doi.org/10.1016/j.conbuildmat.2021.125351>
- Khattab, M., Hachemi, S., Fawzi, M., & Ajlouni, A. (n.d.). *The Use of Recycled Aggregate From Waste Refractory Brick For The Future Of Sustainable Concrete*.
- Liu, X., Wu, J., Zhao, X., Yan, P., & Ji, W. (2021). Effect of brick waste content on mechanical properties of mixed recycled concrete. *Construction and Building Materials*, 292. <https://doi.org/10.1016/j.conbuildmat.2021.123320>
- Mansyur, Tjaronge, M. W., Irmawaty, R., & Amiruddin, A. A. (2022). Early Age of Volume Weight, Indirect Tensile Strength and Tensile Elastic Modulus of Foam Concrete Containing Blended Cement. *IOP Conference Series: Earth*

and Environmental Science, 1117(1). <https://doi.org/10.1088/1755-1315/1117/1/012025>

- Meddah, M. S., Zitouni, S., & Belâabes, S. (2010). Effect of content and particle size distribution of coarse aggregate on the compressive strength of concrete. *Construction and Building Materials*, 24(4), 505–512. <https://doi.org/10.1016/j.conbuildmat.2009.10.009>
- Modarres, A. (2013). Investigating the toughness and fatigue behavior of conventional and SBS modified asphalt mixes. *Construction and Building Materials*, 47, 218–222. <https://doi.org/10.1016/j.conbuildmat.2013.05.044>
- Mohammed, T. U., Hasnat, A., Awal, M. A., & Bosunia, S. Z. (2015). Recycling of Brick Aggregate Concrete as Coarse Aggregate. *Journal of Materials in Civil Engineering*, 27(7). [https://doi.org/10.1061/\(asce\)mt.1943-5533.0001043](https://doi.org/10.1061/(asce)mt.1943-5533.0001043)
- Nematzadeh, M., & Baradaran-Nasiri, A. (2018). Residual Properties of Concrete Containing Recycled Refractory Brick Aggregate at Elevated Temperatures. *Journal of Materials in Civil Engineering*, 30(1). [https://doi.org/10.1061/\(asce\)mt.1943-5533.0002125](https://doi.org/10.1061/(asce)mt.1943-5533.0002125)
- Nepomuceno, M. C. S., Isidoro, R. A. S., & Catarino, J. P. G. (2018). Mechanical performance evaluation of concrete made with recycled ceramic coarse aggregates from industrial brick waste. *Construction and Building Materials*, 165, 284–294. <https://doi.org/10.1016/j.conbuildmat.2018.01.052>
- Omary, S., Ghorbel, E., & Wardeh, G. (2016). Relationships between recycled concrete aggregates characteristics and recycled aggregates concretes properties. *Construction and Building Materials*, 108, 163–174. <https://doi.org/10.1016/j.conbuildmat.2016.01.042>
- Safi, B., Saidi, M., Aboutaleb, D., & Maallem, M. (2013). The use of plastic waste as fine aggregate in the self-compacting mortars: Effect on physical and mechanical properties. *Construction and Building Materials*, 43, 436–442. <https://doi.org/10.1016/j.conbuildmat.2013.02.049>
- Saidi, M., Safi, B., Bouali, K., Benmounah, A., & Samar, M. (2015). Nos. 5/6. In *Int. J. Microstructure and Materials Properties* (Vol. 10, Issue 6).
- Sinha, S., Ghosh, S., & Samanta, A. K. (2023). Influence of waste refractory brick on the destructive and non-destructive properties of sustainable eco-friendly concrete. *Materials Today: Proceedings*. <https://doi.org/10.1016/j.matpr.2023.03.508>

Standar Nasional Indonesia. (2016a). www.bsn.go.id

Standar Nasional Indonesia. (2016b). www.bsn.go.id

Standar Nasional Indonesia Cara uji berat jenis dan penyerapan air agregat halus. (n.d.).

Standar Nasional Indonesia Cara uji keausan agregat dengan mesin abrasi Los Angeles. (n.d.).

Standar Nasional Indonesia Cara uji slump beton ICS 91.100.30 Badan Standardisasi Nasional. (n.d.).

Standar Nasional Indonesia Semen portland ICS 91.100.10 Badan Standardisasi Nasional. (n.d.).

Standar Nasional Indonesia Semen portland komposit. (2014). www.bsn.go.id

Standard Specification for Concrete Aggregates 1. (n.d.).


Standardisasi, B., & Bsn, N. (n.d.). *Standar Nasional Indonesia Tata cara pembuatan rencana campuran beton normal.*

Velosa, A. L., & Cachim, P. B. (2009). Hydraulic-lime based concrete: Strength development using a pozzolanic addition and different curing conditions. *Construction and Building Materials*, 23(5), 2107–2111. <https://doi.org/10.1016/j.conbuildmat.2008.08.013>

Zeghad, M., Mitterpach, J., Safi, B., Amrane, B., & Saidi, M. (2017a). Reuse of refractory brick wastes (RBW) as a supplementary cementitious material in a concrete. *Periodica Polytechnica Civil Engineering*, 61(1), 75–80. <https://doi.org/10.3311/PPci.8194>

Zeghad, M., Mitterpach, J., Safi, B., Amrane, B., & Saidi, M. (2017b). Reuse of refractory brick wastes (RBW) as a supplementary cementitious material in a concrete. *Periodica Polytechnica Civil Engineering*, 61(1), 75–80. <https://doi.org/10.3311/PPci.8194>

LAMPIRAN


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Persiapan material



Pengujian karakteristik material



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Pengujian karakteristik material




Penimbangan material yang akan digunakan (Air, semen, agregat kasar (batu pecah dan limbah batu bata tahan api), agregat halus)



Pencampuran material menggunakan *mixer* berkapasitas 75 liter.

1. Pertama, agregat limbah batu bata tahan api, batu pecah, pasir dan semen dimasukkan ke dalam mixer dan dicampur selama 60 detik.



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2. Selanjutnya, air ditambahkan secara bertahap ke dalam mixer, dan pencampuran dilanjutkan selama 120 detik.
3. Kemudian, campuran beton diaduk secara manual agar bahan – bahan yang menempel pada bagian bawah dan dinding mixer tercampur rata.
4. Pencampuran menggunakan mixer dilanjutkan selama 60 detik hingga diperoleh kombinasi campuran beton segar yang merata.




Pengujian slump beton dengan target nilai desain slump yaitu 20 ± 2 cm



Memasukkan campuran ke ke dalam cetakan silinder besi berdiameter 100 mm dan tinggi 200 mm, lalu dipadatkan selama 60 detik menggunakan mesin vibrator.



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Selanjutnya, campuran beton didiamkan selama 24 jam sebelum cetakan dibuka.




Proses perawatan (*curing*) benda uji beton semua variasi di *curing* menggunakan air pada suhu 20°C selama 28 hari.



Pengujian kuat tarik beton



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Hasil beton yang telah diuji

