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Comparing greenhouse gas emissions of precast in-situ and conventional construction methods

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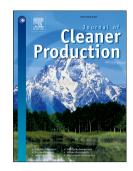
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2	Comparing greenhouse gas emissions of precast in-situ and conventional
3	construction methods
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16	Abstract
17	Precast in-situ construction is gaining popularity among construction practitioners in China for its
18	efficient system and its ability to reduce construction waste. However, there has been little to no
19	empirical evidence that elucidates the greenhouse gas (GHG) emissions from this method. In an effort
20	to address this knowledge gap, this paper establishes a systems boundary for the measurement of GHG
21	emissions for precast in-situ construction. Employing a quantitative model, the GHG emissions of
22	precast in-situ is determined and compared with conventional construction method. Results show that
23	the precast in-situ construction produces less GHG emissions than the conventional method. Embodied
24	GHG of building materials is found to be the main GHG emitter in both precast in-situ and conventional
25	construction methods. Furthermore, four factors are identified that positively contributes towards
26	reduced emissions: (i) embodied GHG emissions of building materials, (ii) transportation of building
27	materials, (iii) resource consumption of equipment and techniques and (iv) transportation of waste and

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