

Assessment of Occupants' Satisfaction Level with Aesthetic Qualities of Selected Interlocking Stabilized Soil Block Houses in Southwestern Nigeria

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DOI: <https://doi.org/10.51583/IJLTEMAS.2026.150600220>

Received: 12 July 2026; Accepted: 17 July 2026; Published: 25 July 2026

ABSTRACT

Interlocking Stabilized Soil Block (ISSB) technology is gaining ground in Nigeria as a sustainable, cost-effective alternative to conventional masonry, yet its aesthetic dimension has received little empirical scrutiny. This study assesses occupant satisfaction with the aesthetic qualities of selected ISSB residential buildings in Southwestern Nigeria, drawing on structured questionnaire data from 110 respondents across three estates in Ekiti, Ogun, and Lagos states. Descriptive statistics, Pearson correlation, and multiple regression analyses were applied using SPSS. Occupants expressed strong satisfaction with the environmental harmony, natural colour, and visual distinctiveness of ISSB buildings (mean scores of 4.05, 4.00, and 3.98 respectively), while surface finishing quality (2.87) and public perception (2.95) fell within the neutral range. The grand mean of 3.65 confirms general aesthetic satisfaction. Regression analysis identified environmental harmony as the strongest predictor of overall satisfaction ($\beta = 0.298$, $p < 0.001$), and surface finishing quality as a disproportionately influential weakness ($\beta = 0.143$, $p < 0.05$). Targeted improvements in finishing technique, architectural detailing, and public awareness are recommended to consolidate and extend ISSB's aesthetic appeal in the Nigerian housing market.

Keywords: Interlocking Stabilized Soil Blocks (ISSBs), Occupant Satisfaction, Aesthetic Quality, Sustainable Housing, Earth Construction, Southwestern Nigeria

INTRODUCTION

Nigeria's housing sector has long struggled with the twin pressures of affordability and sustainability. As sandcrete block production costs continue to climb alongside cement prices, researchers and policymakers have directed growing attention toward earth-based construction technologies that draw on locally available materials. Interlocking Stabilized Soil Blocks (ISSBs) — produced by compressing lateritic soil with a small cement fraction into precisely dimensioned interlocking units — have emerged as one of the most studied alternatives. Their appeal is well-founded: reduced construction cost, lower embodied energy, improved thermal performance, minimal mortar requirement, and compatibility with local labour skills (Ibitoye & Dare-Abel, 2022; Ibitoye et al., 2022).

Adoption across Southwestern Nigeria has been growing. Three estates now carry meaningful concentrations of ISSB buildings: Olusegun Obasanjo Estate in Ekiti State (148 units), Redemption City in Ogun State (48 units), and Amen Estate in Lagos State (122 buildings with 300 units) (Ibitoye et al., 2023). Architects increasingly acknowledge the material's merits, and studies confirm its structural and thermal advantages over sandcrete (Olaleye & Ibitoye, 2023; Bede & Uwakonye, 2026).

What the literature has not adequately addressed is the lived aesthetic experience of occupants — how residents actually feel about the way their ISSB homes look. Architectural aesthetics encompass colour, texture, form, surface quality, and visual harmony, and these qualities shape occupant pride, emotional attachment, and willingness to recommend the material to others. Ibitoye (2025) noted that while ISSB buildings have a distinctive natural appeal, finishing quality and societal perception influence broader acceptance. Closing this

empirical gap is what this study sets out to do, with findings intended to inform architects, developers, and policymakers seeking to strengthen ISSB's position in Nigeria's residential market.

LITERATURE REVIEW

Aesthetic Characteristics and Resident Satisfaction in ISSB Housing

The aesthetic appeal of ISSB structures derives primarily from the distinctive reddish-brown colouration of stabilized lateritic soil, a natural finish that requires no external plaster and gives ISSB buildings a visual identity quite unlike sandcrete construction. When quality blockwork is complemented by a varnish treatment, the freshly constructed appearance can be preserved for extended periods (Ibitoye, 2025). Precision-formed interlocking units, joined by tongue-and-groove profiles, produce clean, consistent wall surfaces that reinforce occupant perceptions of well-executed construction (Nambatya, 2015; Adedeji, 2012).

In terms of resident satisfaction broadly, research on Nigerian housing estates confirms that building type, location, and aesthetic appearance collectively account for a large share of variance in how occupants evaluate their living environments — roughly 32.55% of total satisfaction variance, according to Ibem et al. (2013). This positions visual quality not as a decorative afterthought but as a primary satisfaction driver. Ibem et al. (2013) and Jiboye (2012) further establish, from studies of Ogun State and Lagos respectively, that the physical quality of walling materials is among the strongest individual predictors of overall residential satisfaction — a finding that gives added weight to investigating how ISSB's particular surface qualities register with current occupants.

The sustainability associations of ISSB also carry aesthetic significance. In luxury developments like Amen Estate, Lagos, the choice of ISSB is linked to an aspirational, eco-conscious lifestyle — a symbolic dimension that resonates with occupants who want their housing choice to communicate environmental values (Ibitoye et al., 2023). Adejumobi et al. (2026) extend this argument culturally, observing that the material properties of ISSBs can be mobilised to express Yoruba vernacular building identity in contemporary residential design.

Challenges and Strategies for Enhancing ISSB Aesthetic Acceptance

Despite these strengths, several studies point to recurrent gaps. Surface finishing quality in functional and wet areas remains a persistent weakness; ceramic tile application in kitchens and bathrooms, selective plasterwork on feature walls, and varnish on exposed block faces are all identified by Ibitoye (2025) as appropriate remedies. Okunlola and Ibitoye (2026) note that the thermal mass of soil-based blocks delivers passive temperature regulation that enriches the overall living experience, but this benefit is undercut when poor surface treatment creates a perception of incompleteness or low quality.

Public perception poses an equally significant challenge. Ibitoye and Dare-Abel (2022) identify prevailing societal bias toward conventional masonry as one of the main barriers to ISSB adoption, arguing that awareness campaigns, demonstration projects, and professional training are needed before this cultural disposition shifts. Olaleye and Ibitoye (2023) make the complementary point that architect-level knowledge and enthusiasm for ISSB is a necessary precondition for its mainstream uptake — without informed professional advocacy, clients default to what they know.

RESEARCH METHODOLOGY

A quantitative research design was adopted. The study was conducted across three ISSB residential estates in Southwestern Nigeria: Olusegun Obasanjo Estate (Ekiti State), Redemption City (Ogun State), and Amen Estate (Lagos State). These estates were selected purposively as the most established concentrations of ISSB housing in the region. Within each estate, household respondents were selected by systematic random sampling, with questionnaire allocation proportional to the number of residential buildings per estate.

The structured questionnaire captured respondent demographics and perceptions of eight aesthetic attributes — architectural appearance, colour and natural appearance, wall texture, surface finishing quality, visual appeal, environmental harmony, uniqueness and distinctiveness, and public perception — each measured on a five-point

Likert scale ranging from Very Dissatisfied (1) to Very Satisfied (5). Overall aesthetic satisfaction was assessed through a composite item using the same scale. A total of 120 questionnaires were administered; 110 valid responses were returned, yielding an effective response rate of 91.7%.

Data were analysed in SPSS using descriptive statistics (frequency counts, percentages, mean scores) to characterise satisfaction levels, Pearson correlation to examine variable-level associations with overall satisfaction, and multiple linear regression to identify significant predictors. Mean scores were interpreted on the following scale: 1.00–1.80 (Very Dissatisfied), 1.81–2.60 (Dissatisfied), 2.61–3.40 (Neutral), 3.41–4.20 (Satisfied), 4.21–5.00 (Very Satisfied).

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

Response Rate

Table 1: Distribution and Retrieval of Questionnaires

Estate	State	Distributed	Retrieved	Valid
Olusegun Obasanjo Estate	Ekiti	56	53	52
Redemption City	Ogun	18	17	16
Amen Estate	Lagos	46	43	42
Total		120	113	110

Of 120 questionnaires administered, 110 valid responses were retrieved — an effective return rate of 91.7%, which compares well with similar Nigerian ISSB survey studies (Ibitoye et al., 2023; Olaleye & Ibitoye, 2023).

Demographic Characteristics of Respondents

Table 2: Demographic Characteristics of Respondents (n = 110)

Variable	Category	Frequency	Percentage (%)
Gender	Male	72	65.5
	Female	38	34.5
Age	18–30 years	22	20.0
	31–45 years	50	45.5
	46–60 years	30	27.3
	Above 60 years	8	7.3
Educational Level	SSCE/O'Level	15	13.6
	OND/NCE	22	20.0
	HND/B.Sc	48	43.6
	Postgraduate	25	22.7

Occupation	Civil Servant	35	31.8
	Business/Self-employed	30	27.3
	Professional	28	25.5
	Student	10	9.1
	Others	7	6.4
Duration of Residence	Less than 1 year	18	16.4
	1–3 years	42	38.2
	3–5 years	33	30.0
	Above 5 years	17	15.5

Male respondents made up 65.5% of the sample, reflecting the predominantly male-headed household composition observed across the three estates. The 31–45 age bracket was the most represented (45.5%), pointing to a middle-aged occupant base with purchasing power and considered housing choices. Nearly two-thirds (66.3%) held an HND or higher qualification, and 68.2% fell into professional or civil-servant occupational categories — a profile consistent with the middle-income character of estates like Amen Lagos. Importantly, 84.6% of respondents had lived in their ISSB homes for at least one year, giving them a grounded basis for aesthetic judgement.

Aesthetic Satisfaction: Variable-by-Variable Results

Table 3: Satisfaction with Architectural Appearance

Response	Frequency	Percentage (%)
Very Dissatisfied	4	3.6
Dissatisfied	10	9.1
Neutral	18	16.4
Satisfied	51	46.4
Very Satisfied	27	24.5
Total	110	100.0
Mean Score	3.79	Satisfied

Table 4: Satisfaction with Colour and Natural Appearance

Response	Frequency	Percentage (%)
Very Dissatisfied	3	2.7
Dissatisfied	7	6.4

Neutral	14	12.7
Satisfied	49	44.5
Very Satisfied	37	33.6
Total	110	100.0
Mean Score	4.00	Satisfied

Table 5: Satisfaction with Texture of ISSB Walls

Response	Frequency	Percentage (%)
Very Dissatisfied	5	4.5
Dissatisfied	12	10.9
Neutral	22	20.0
Satisfied	46	41.8
Very Satisfied	25	22.7
Total	110	100.0
Mean Score	3.67	Satisfied

Table 6: Satisfaction with Surface Finishing Quality

Response	Frequency	Percentage (%)
Very Dissatisfied	14	12.7
Dissatisfied	28	25.5
Neutral	35	31.8
Satisfied	24	21.8
Very Satisfied	9	8.2
Total	110	100.0
Mean Score	2.87	Neutral

Table 7: Satisfaction with Visual Appeal

Response	Frequency	Percentage (%)
Very Dissatisfied	4	3.6
Dissatisfied	11	10.0

Neutral	20	18.2
Satisfied	52	47.3
Very Satisfied	23	20.9
Total	110	100.0
Mean Score	3.72	Satisfied

Table 8: Satisfaction with Environmental Harmony

Response	Frequency	Percentage (%)
Very Dissatisfied	2	1.8
Dissatisfied	6	5.5
Neutral	14	12.7
Satisfied	51	46.4
Very Satisfied	37	33.6
Total	110	100.0
Mean Score	4.05	Satisfied

Table 9: Satisfaction with Uniqueness and Distinctiveness

Response	Frequency	Percentage (%)
Very Dissatisfied	2	1.8
Dissatisfied	8	7.3
Neutral	16	14.5
Satisfied	48	43.6
Very Satisfied	36	32.7
Total	110	100.0
Mean Score	3.98	Satisfied

Table 10: Satisfaction with Public Perception

Response	Frequency	Percentage (%)
Very Dissatisfied	12	10.9
Dissatisfied	25	22.7

Neutral	38	34.5
Satisfied	26	23.6
Very Satisfied	9	8.2
Total	110	100.0
Mean Score	2.95	Neutral

Table 11: Overall Aesthetic Satisfaction

Response	Frequency	Percentage (%)
Very Dissatisfied	3	2.7
Dissatisfied	9	8.2
Neutral	22	20.0
Satisfied	51	46.4
Very Satisfied	25	22.7
Total	110	100.0
Mean Score	3.78	Satisfied

Summary of Mean Scores

Table 12: Aesthetic Attribute Rankings by Mean Score

Rank	Aesthetic Variable	Mean Score	Satisfaction Level
1	Environmental Harmony	4.05	Satisfied
2	Colour and Natural Appearance	4.00	Satisfied
3	Uniqueness and Distinctiveness	3.98	Satisfied
4	Architectural Appearance	3.79	Satisfied
5	Overall Aesthetic Satisfaction	3.78	Satisfied
6	Visual Appeal	3.72	Satisfied
7	Texture of ISSB Walls	3.67	Satisfied
8	Public Perception	2.95	Neutral
9	Surface Finishing Quality	2.87	Neutral
	Grand Mean	3.65	Satisfied

Six of the eight attributes fell within the satisfied range. The clear outliers — surface finishing (2.87) and public perception (2.95) — both sit in neutral territory, meaning neither satisfied nor dissatisfied, a finding with practical implications discussed in Section 4.6.

Correlation Analysis

Table 13: Pearson Correlations with Overall Aesthetic Satisfaction

Aesthetic Variable	Pearson r	Significance (p)
Environmental Harmony	0.712	0.000**
Colour and Natural Appearance	0.698	0.000**
Uniqueness and Distinctiveness	0.681	0.000**
Architectural Appearance	0.653	0.000**
Visual Appeal	0.641	0.000**
Texture of ISSB Walls	0.589	0.000**
Surface Finishing Quality	0.421	0.000**
Public Perception	0.387	0.000**

** Correlation is significant at the 0.01 level (2-tailed)

All eight variables returned statistically significant positive correlations with overall satisfaction. The strongest associations were with environmental harmony ($r = 0.712$), natural colour ($r = 0.698$), and distinctiveness ($r = 0.681$) — the intrinsic material qualities of ISSB that occupants cannot easily modify. Surface finishing ($r = 0.421$) and public perception ($r = 0.387$) showed weaker but still significant correlations, indicating that they contribute to the overall picture without being its dominant colours.

Regression Analysis

Table 14: Regression Model Summary

R	R ²	Adjusted R ²	F	Sig.
0.827	0.684	0.659	27.14	0.000

Table 15: Regression Coefficients (Dependent Variable: Overall Aesthetic Satisfaction)

Variable	B	Std. Error	Beta (β)	t	p-value
(Constant)	0.412	0.218	—	1.890	0.061
Environmental Harmony	0.287	0.071	0.298	4.042	0.000
Colour and Natural Appearance	0.221	0.063	0.241	3.508	0.001
Uniqueness and Distinctiveness	0.195	0.068	0.198	2.868	0.005
Architectural Appearance	0.168	0.065	0.176	2.585	0.011

Surface Finishing Quality	0.138	0.065	0.143	2.123	0.036
Visual Appeal	0.097	0.061	0.089	1.590	0.115
Texture of ISSB Walls	0.078	0.059	0.072	1.322	0.189
Public Perception	0.071	0.058	0.065	1.224	0.224

The eight variables together explain 68.4% of the variance in overall aesthetic satisfaction ($R^2 = 0.684$, $F = 27.14$, $p < 0.001$) — a strong model fit. Five predictors reached statistical significance: environmental harmony led ($\beta = 0.298$, $p < 0.001$), followed by natural colour ($\beta = 0.241$, $p < 0.001$), uniqueness ($\beta = 0.198$, $p < 0.01$), architectural appearance ($\beta = 0.176$, $p < 0.05$), and surface finishing quality ($\beta = 0.143$, $p < 0.05$). Texture, visual appeal, and public perception did not reach significance as independent predictors. The finding that surface finishing quality is a significant regression predictor despite carrying the lowest mean satisfaction score (2.87) is particularly telling: occupants may not rate the current finishing quality highly, but how it is done matters considerably to how they feel about the building overall.

DISCUSSION OF FINDINGS

The data paint a consistent picture. ISSB housing in Southwestern Nigeria is meeting occupants' fundamental aesthetic expectations — a grand mean of 3.65 is not a marginal result, and the 69.1% combined satisfied-and-very-satisfied rating on the overall satisfaction item signals genuine positive reception. What drives that reception is equally clear: environmental harmony, natural colour, and distinctiveness top both the mean-score ranking and the regression model. These are qualities the material simply has — the earthy colouration that requires no plaster, the way a well-built ISSB wall sits visually within its landscape, the unique architectural identity that sets the building apart from sandcrete neighbours. Occupants recognise and appreciate all three, and they align with the material's ecological associations that estate developers in Lagos and Ekiti have been marketing (Ibitoye et al., 2023; Adejumbi et al., 2026).

Surface finishing is where the satisfaction picture breaks down. A mean score of 2.87 and a 38.2% combined dissatisfied-or-very-dissatisfied rate on this variable are hard to ignore, and the regression finding that it is nonetheless a significant predictor of overall satisfaction reinforces the point: every point gained in finishing quality has a measurable effect on how satisfied people are with their homes overall. This maps directly onto Ibitoye (2025), who flags finishing as ISSB's most consequential practical shortcoming and recommends selective plastering of feature walls, ceramic tiles in wet areas, and varnish treatment on exposed block faces. Those are not expensive or technically demanding interventions — they require knowledge and intention, not additional capital.

Public perception sits in similar neutral territory (mean = 2.95), reflecting the persistence of cultural bias toward conventional masonry. This is less about what occupants experience inside their homes — which is where the high harmony and distinctiveness scores come from — and more about how the wider society reads an ISSB building from the outside. Ibitoye and Dare-Abel (2022) identify this as ISSB's most stubborn adoption barrier, and the data here confirm that it has not yet been overcome. Demonstration projects, targeted awareness campaigns, and architect-led advocacy of the kind Olaleye and Ibitoye (2023) call for remain the most credible pathways for changing it.

Taken together, the findings confirm that ISSB housing's aesthetic potential is already being substantially realised — but it is not being fully realised. The ceiling on satisfaction is being set not by the material's inherent visual qualities, which score well, but by how the construction process is managed and how the material is communicated to those who have not yet lived in it.

CONCLUSION

This study set out to measure how satisfied occupants actually are with the way their ISSB homes look, and the answer is: broadly positive, but unevenly so. Across 110 residents of ISSB estates in Ekiti, Ogun, and Lagos

states, a grand mean satisfaction score of 3.65 and an overall satisfaction mean of 3.78 affirm that ISSB housing meets its occupants' aesthetic expectations. Environmental harmony, natural colour, and the distinctive visual identity of stabilized soil block construction emerged as the material's clearest aesthetic strengths, each scoring above 3.97 and each showing strong correlation with — and significant regression-based prediction of — overall satisfaction.

Surface finishing quality and public perception tell a more cautionary story. Both sat in neutral territory, and the regression model confirmed that poor finishing quality exerts an outsized drag on overall satisfaction even when all other aspects of the building are well received. These are the two areas where targeted intervention — better construction detailing, quality control in block laying, appropriate surface treatment, and sustained public awareness — can achieve the most visible improvement in occupant experience and marketability.

For architects and developers, the practical message is straightforward: ISSB's aesthetic case is already strong and largely understood by those who live in these buildings. The work that remains is to honour that case through careful finishing and to communicate it more effectively to those who have not yet had the chance to live in one.

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