
Cracking in Newly Constructed Houses in Mmopane, Botswana: An Exploratory Study

Gaebolae Motshabi¹, Shodolapo Oluyemi Franklin²

¹Department of Corporate Services, Ministry of Health, Gaborone, Botswana

²Department of Construction Engineering, Gaborone University College, GUC, Mmopane, Botswana

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Abstract

The present study summarizes the results of an inquiry into the major causes of cracks in newly constructed buildings in the village of Mmopane, Botswana. Due to difficulties encountered in obtaining permission to conduct a detailed inspection of the infrastructures in question, the authors resorted to the use of questionnaires. Relevant information was gathered through a collection comprising home owners, builders/contractors, tradesmen of various designations, engineers and estate agents. All the foregoing categories of people were very largely resident in Mmopane, and their responses were subsequently subjected to statistical analysis, given that the population of Mmopane as a whole is geographically dispersed. From the research survey, it was concluded that most of the cracking occurred due to human faults and the utilization of inferior materials procured from mushrooming brick moulding manufacturers. Therefore, a continuous inspection protocol is recommended during building project construction to ensure the supply of quality building materials. Additionally, the allocation of adequate finance for such projects cannot be overstated.

Keywords: causes of cracks, effect of cracks, remediation, respondents, buildings

1. Introduction

Cracks in housing infrastructures may have many causes, some of which influence only the aesthetics and appearance of the buildings. However, other effects may indicate more fundamental problems and lead to significant structural distresses or even failure if left unchecked. Inspection and investigation are always recommended in order that proper remedial measures may be undertaken with the aim of minimizing any damage or preventing the propagation and progression of cracking from becoming more serious and very costly to remediate. It is generally accepted that cracking in building infrastructures is a more challenging problem in developing as opposed to fully industrialized economies due to acute shortage of skilled and technical manpower, population explosion and pressures on the urban housing sector, as well as financial constraints, amongst others.

The present study involves issues related to cracking in residential buildings in Mmopane, a village in the Kweneng East District of Botswana, and located about 15km from the national capital; its geographical coordination is Latitude -24.56731° or $24^{\circ} 34' 2''$ South and Longitude 25.87384° or $25^{\circ} 52' 26''$ East. The residential houses in question were constructed within the last 20 years, and therefore could be termed "newly constructed" with reference to the classification of Potter (2020). The population growth of the village of Mmopane since the national census of 2011 has been remarkable, according to Basimanebotlhe (2020) and Statistics Botswana (2022). The statistics indicated that the area population grew four-fold, faster than any village in Botswana. The current investigation has delved into the root causes of cracking in Mmopane residential buildings and their effects, as well as possible remediation.

2. Literature Review

In this section, no attempt has been made to list in a systematic manner the different investigations reported by researchers in regards to the general problem of cracking in residential buildings. Due to the different circumstances, geographical location, and problems pertaining to the individual cases, the present authors consider such an exercise futile and of little meaning. Instead, recourse has been made herein to bringing out some salient features and observations of past investigators that are deemed of some relevance to the current study.

Mainmark (2024) advised that when identifying the cause, seriousness and possible solutions for cracks in a home, the type, size and location are critical. Defects in buildings occur in various forms and to different extent in all types of buildings irrespective of their age. Salleh et al. (2022) added that it was undeniable that defects might occur in the construction of buildings and these defects could be detected while the construction was still in progress. Close supervision was required when workers were performing their jobs. In addition, it was very important that a trained workforce was utilized to carry out the jobs involved from inception up to completion. The quality, cost, and time of a building construction is highly dependent on workmanship. Pathak and Rastogi (2017) opined that that workmanship and improper building maintenance will definitely cause more damages and costly repair work if left unattended. Yunusa et al. (2013) in their study on geotechnical influences on crack development asserted that different factors contribute to foundation settlement, and they include vegetation, ground water lowering, temperature changes, seepage and scouring, mining subsidence, loss of lateral support, amongst others.

Cracks can happen due to numerous factors, both external and internal to the building (ACI Comm. 224 (2007), Bureau of Indian Standards SP: 25 (1999)). These include elastic deformation when a material strains under stress, moisture changes and variation in building materials with pores, movement due to creep in building materials like concrete, brickwork and timber, cracking due to vegetation, defective plaster rendering, and shrinkage either of the plastic or dry type in building materials. The cracks may be structural, that is with reference to structural elements, attributable to defective design or workmanship or materials, and sometimes a combination of these (Swit et al., 2023). Non-structural cracks are frequently due to internally

induced stresses in building materials and generally do not endanger safety of a building, although they may look unsightly. Additionally it is possible for such cracking, on account of moisture penetration, to lead to reinforcement corrosion and result in unsafe structures.

Regarding the effects of cracks, Pathak and Rastogi (2017) stated that the magnitude of the risk caused due to cracks can be characterized in terms of its direction and dimensions, such as being horizontal, vertical, diagonal or random; severe cracks usually require immediate attention and might include some reconstruction to prevent further damage. They further emphasized that the effects of cracks on building include but are not limited to malfunctioning of windows and doors, nail popping off the ceiling, cracks in ceilings, uneven floors, and unattractive to collapsed buildings. Dhinwa Construction and Engineering Company (2024) explained that cracks can have significant impact on stability of the structure and can compromise safety of the occupants. The use of low-quality materials and improper construction methods can result in a poorly built structure that is prone to failure or damage, and this can lead to costly repairs and safety hazards, such as collapsing walls or roofs, electrical fires, or other problems

It is sometimes overlooked that, concerning remediation of cracks, expert advice from knowledgeable and experienced professionals is necessary. Swit et al. (2023) asserted that safety and serviceability are ensured by meeting the load-bearing capacity and serviceability limit states. Yunusa et al. (2013) opined that in assessing the causes of cracks in buildings it is necessary to determine their location, pattern, width, length, depth, age and whether such cracks are active or not, their severity and the methods of repair. Pise et al. (2021) suggested that cracking in concrete was an inherent characteristic which cannot be completely avoided, but rather managed and minimized. They further advised that for rehabilitation of cracks, it was critical to recognize the reasons and the varieties of cracks. Foundation cracks should not be ignored as they may indicate structural problems that lead to long-term damage. It was important that the underlying issues be first diagnosed and corrected before patching or remediation of cracking occurs, and not the other way round.

3. Methodology

Right from the start, the authors realized that a mixed methods approach combining qualitative research to gain insights into the causes and effects of structural cracks, and quantitative research to collect numerical data involving crack classifications, measurements and relative assessment of repair strategies for analysis, as suggested by Quadri et al. (2025) was practically impossible. This was because, although building cracks in Mmopane houses could be inspected visually, they could not be documented due to resistance by homeowners. Hence for the qualitative procedure adopted in this study, the target population was selected from participants whom the researchers adjudged were best placed to furnish relevant data and responses. The investigators gathered information randomly from a sample of homeowners, builders and contractors, tradesmen, consultants, material suppliers and other private organizations based in Mmopane, as shown in Table 1. The sample was representative of the larger population of the village for the purpose of conducting statistical analysis, since the population was geographically dispersed.

From a collection and in-depth study of various investigations reported in the literature on cracking in building structures, a questionnaire was developed to be utilized for a proposed survey to be conducted around Mmopane village. A total number of 45 questionnaires were distributed during the survey, and they were all returned completed. Based on the quality of the responses received, the researchers decided it was reasonable and sufficient to proceed with the analysis.

Table 1. Sample population size

S/N o.	Group	Proposed No. of Respondents	Actual No. of Respondents
1	Builders and Contractors	3	7
2	Engineers (Structural)	1	1
3	Tradesmen	(16)	(14)
	Plumbers	4	4
	Electricians	4	3
	Carpenters	4	3
	Bricklayers	4	4
4	Homeowners	10	15
5	Estate Agents / Private Organizations	2	3
6	Material Suppliers	2	5
7	Inspectors / Clerk of Works	1	0
	Total	35	45

The questionnaires consisted of four parts; the first part dwelt on general information about the respondents, where data like gender, age, level of education, position in company or organization, type of projects executed, experience in the construction industry, etc., were collected. The second section dealt with common understanding of causes and development of cracks, while the third part was about probable effects of cracks in houses. The final section addressed potential remediation of cracks, and additionally, allowed respondents to state their opinions regarding causes, effects and possible solutions and repair strategies to the problem of cracking in newly constructed houses.

4. Results and Discussion

4.1 Population Demographics by Gender

It can be seen from Table 2 that about 76% of the respondents in the survey were men, the majority of whom were in the age range 40–49 years at 38%, followed by 30–39 years at 36%. Practically 100% of the men attained higher levels of education, i.e., certificate, diploma or degree. However, the same was also true for the women. In addition, women were almost equal in home ownership with men at 47%. All the tradesmen were men. About 56% of the respondents were involved in residential building projects, either as workers or owners.

Contractors made up 16% of the population, and 11% were building material suppliers; estate agents comprised 7%, while engineers composed a paltry 2%. Table 2 indicates that participants with the highest percentage of practice or experience were of range 6–10 years at 38%, followed by range 2–5 years at 33% while those with 11 years plus experience followed at 22%. Inexperienced participants of range 1 year or below made up 7% of the population

Table 2. Summary of population demographics by gender

Description	Number	Age in Years				Level of Education				Position in the Company					Types of Projects				Experience in Years				
		21 - 29	30 - 39	40 - 49	50 & above	Certificate	Diploma	Degree	Other	Contractor	Homeowner	Engineer	Estate Agent	Tradesmen	Supplier	Civil	Residential	Industrial	Commercial	1 & below	2 - 5	6 - 10	11 & above
Male	34	6	11	13	4	17	16	1	0	7	8	1	1	14	3	10	32	7	12	3	8	15	8
Female	11	0	5	4	2	5	3	3	0	0	7	0	2	0	2	0	10	0	3	0	7	2	2
Total	45	6	16	17	6	22	19	4	0	7	15	1	3	14	5	10	42	7	15	3	15	17	10
		45				45				45					74				45				

4.2 Understanding Causes and Development of Cracks

With regards to the issue of client financial constraint leading to the use of inferior materials in construction (see Figure 1), a total of 85% of the respondents indicated that this was indeed the case; 9% were neutral and 6% disagreed. These results concur with the findings of Ali et al. (2020), who concluded that the majority of cracking occurred due to human faults, and recommended a continuous inspection during building project construction, the supply of necessary materials and the allocation of adequate finance.

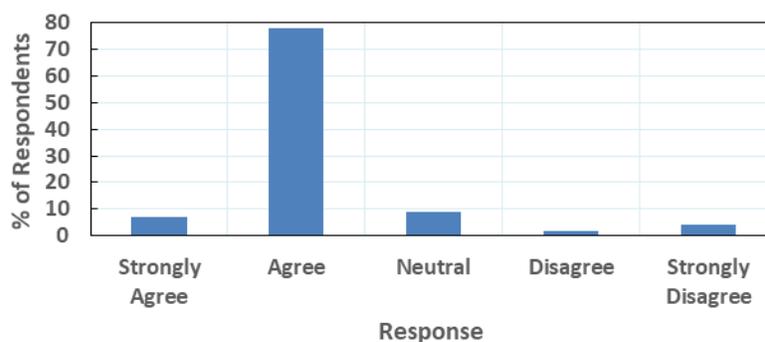


Figure 1. Client financial constraints lead to use of inferior materials

Concerning the aspect of flawed steps during construction causing cracking, Figure 2 indicates that 95% of the participants concurred that certain flawed steps, like poor concrete mixes, not following good construction practices and other irregularities, cause various types of cracks in buildings; 4% of respondents were neutral, and none showed any disagreement. Pise et al. (2021)

opined that some flawed steps during construction may cause various types of cracks to begin to emerge in structural and non-structural components of a building. They suggested that a timely identification of such cracks and adoption of preventive measures were a necessity. The findings of the study as per Figure 2 suggest that wrong construction practices like improper laying of brick courses, should be condemned as they have future negative impacts on the structure. Hence, training on good practices and basic skills should be required for builders.

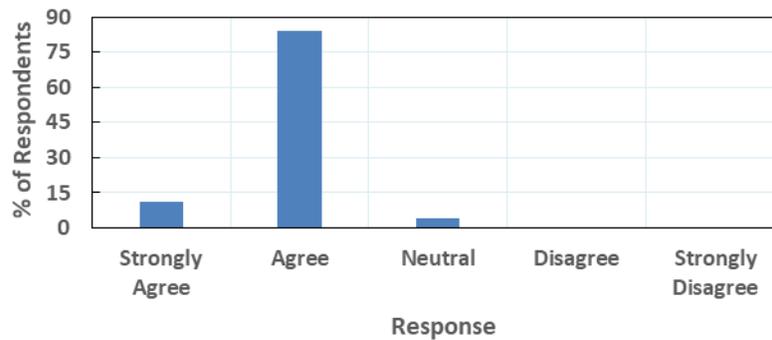


Figure 2. Flawed steps during construction lead to cracking

In relation to corrupt practices like bribery of inspectors being an indirect cause of the problem of cracking, Figure 3 indicates that 98% of participants agreed that such practices can lead to cracks in houses and 2% of the participants were neutral. Fromsa et al. (2020) noted that the level of workmanship is directly proportional to the level of quality management; they argued that lack of proper supervision on site was the primary cause of poor workmanship. Corrupt practices include lawlessness and presumption that any professional in the built environment can assume all forms responsibility without possessing the requisite skills. These anomalies listed could be minimized by providing incentives to construction workers.

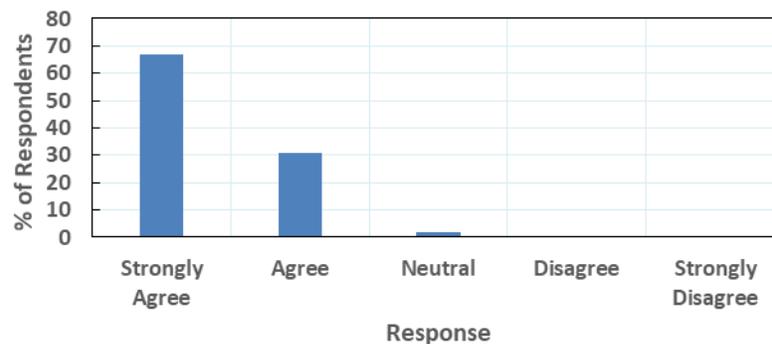


Figure 3. Corrupt practices lead to cracking

Regarding the issue of foundation settlement (see Figure 4), 84% of the respondents agreed that foundation settlement could happen due to the presence of clay shrinkable soils, e.g. black cotton soil, and poor compaction of foundations; 16% of the participants were neutral in response, but

there was no disagreement on the issue. Pathak & Rastogi (2017) reiterated that foundations could settle due to land slips, earthquakes or moisture changes due to clay shrinkable soils; cracks occur because a part of the building is displaced from its position without any change in the size of material. The Indian Standards SP: 25 (1999) also highlights that differential settlements, which result in cracking, may occur when water due to unusually heavy rains or unexpected floods get into the building's foundation. The influence of shrinkable soils in construction could be minimized by the laying of non-plastic soils like gravel or stabilization and compaction procedures.

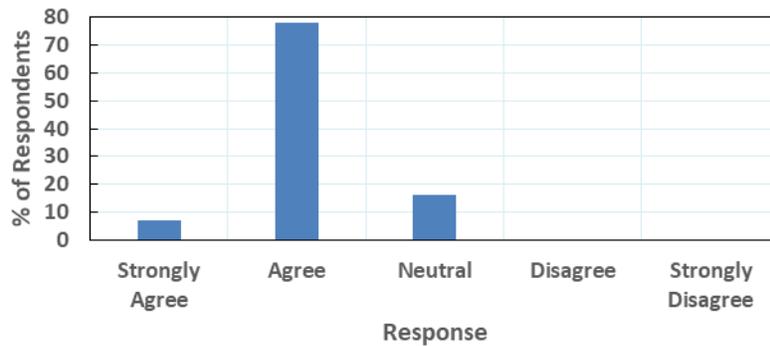


Figure 4. Foundation settlement in shrinkable clay soils lead to cracking

With respect to the occurrence of natural phenomena like earthquakes, strong winds, etc., Figure 5 reveals that 98% of the respondents agreed that natural phenomenon like earthquakes, winds, humidity, chemical action, heat and others may result in cracks in houses, and only 2% of respondents were neutral in response. Pise et al. (2021) and the Indian Standards SP: 25 (1999) agree that pressures on the building construction components can be caused by external forces due to such phenomena. Pathak and Rastogi (2017) confirm that a construction element develops cracks with time as strain exceeds its limiting value. Hence in such instances, wind breakers could be introduced, designs should incorporate seismic forces, and non-porous materials in construction may be employed to reduce the possibility of moisture absorption.

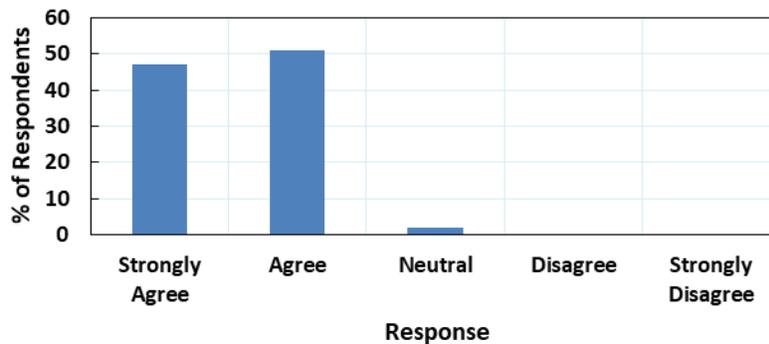


Figure 5. Natural phenomena like earthquakes and strong winds lead to cracking

Slip joints in concrete slabs and walls are a controversial topic. Figure 6 reveals that 42% of the respondents were neutral regarding the belief that slip joints were major causes of fragmentations and increase in cracks and should be avoided in construction; 38% of the respondents disagreed, while 16% agreed, and only 2% strongly agreed. Pise et al (2021) outlined that slip joints are preventive measures for elastic deformation and they need to be constructed cautiously. The Indian Standard SP: 25 (1999) advised that provision of movement joints, that is, expansion, control and slip joints are an effective method of controlling shrinkage or some other forms of cracks. Although Figure 6 results showed divergent responses from the respondents, slip joints are often considered necessary to reduce the possibility of slabs or walls cracking when contracting and expanding due to heat exchange or drying. Hence use of slip joints is not the cause of cracks, but a preventive measure.

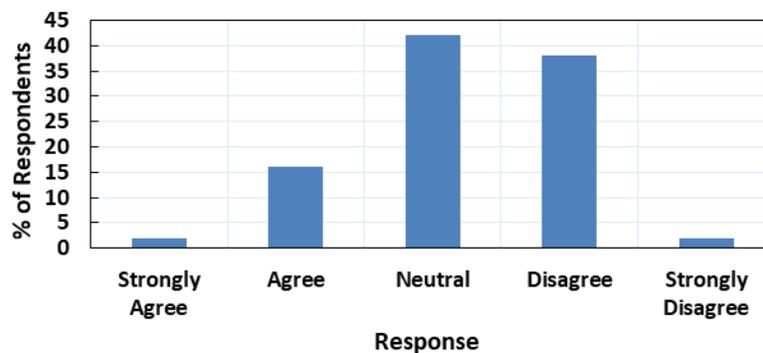


Figure 6. Slip joints in concrete slabs and walls lead to cracking

Regarding poor post-construction maintenance, Figure 7 indicates that 100% of the participants agreed that this reduces the lifespan of buildings. Pathak & Rastogi (2017) state that poor and inadequate building maintenance will definitely cause severe damages and costly repair work if left unattended. Clearly, from Figure 7, all respondents understood that it was important to take good care of buildings, by doing routine maintenance work after a certain time period. This would keep such buildings intact, extend their life span, yield better appearances and produce a heightened sense of safety.

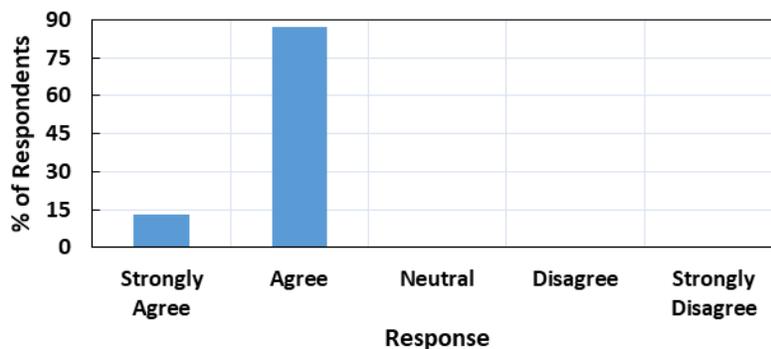


Figure 7. Poor post-construction maintenance reduces lifespan of buildings

4.3 Effects of Cracks in Newly Constructed Houses

With reference to malfunctioning of doors, windows, cracked ceilings, floors, etc., Figure 8 suggests that 100% of the participants agreed that these are the effects of cracks. Pathak and Rastogi (2017) asserted that the severeness of a wall crack could be checked by the swing of doors and windows and evaluating whether the doors are obstructed; such obstruction could be a sign of a moderate or severe foundation settlement, which would result in wall cracks. Jamming of doors, windows and visible nail popping on the surface of walls and ceilings are common inspection signs of cracks.

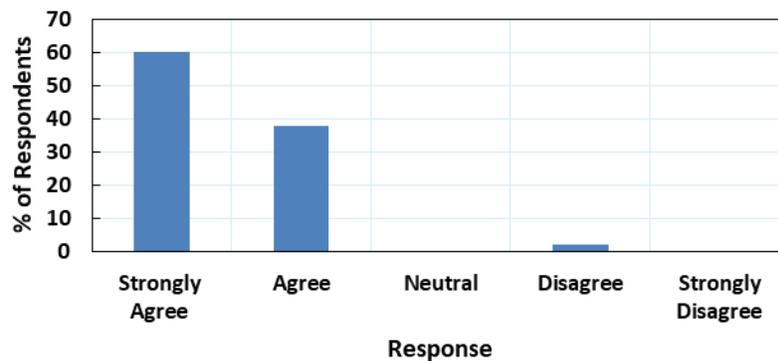


Figure 8. Malfunctioning of doors and windows, cracked ceilings, etc., are effects of cracks

Concerning devaluation of property and loss of premium, Figure 9 indicates that 98% of the participants agreed that these are associated with cracks in building, while only 2% disagreed. Ajagbe and Ojedele (2018) commented that a side effect of cracks is to negatively affect the integrity, permeability, structural and mechanical properties of buildings. From Figure 9, it appears that most respondents have good knowledge about property valuation and associated matters. This could be due to the fact that they were exposed to property markets in Mmopane and the awareness that cracks in buildings are a common deterrent to tenants and affect property rentals.

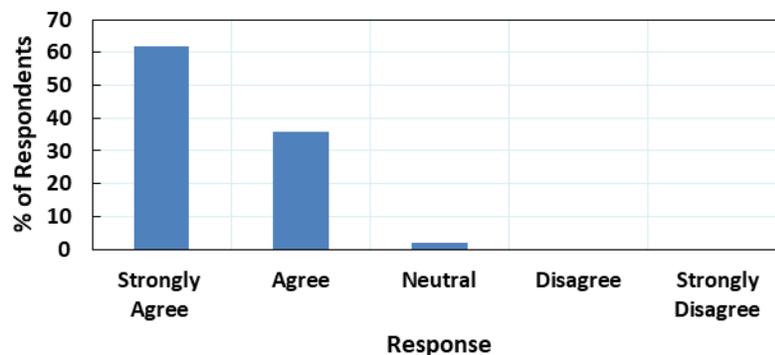


Figure 9. Devaluation of property and loss of premium are effects of cracking

In respect of costly repairs, safety hazards like collapsing walls and roofs, or potential electrical fire outbreak, being effects of cracks, Figure 10 shows that 98% of the respondents concurred while 2% of the responses were neutral. The Indian Standard SP: 25 (1999) states that such cracks may be due to moisture penetration leading to the spoiling of internal finish, thus adding to cost of maintenance. It recommends adoption of measures for the prevention or minimization of such cracks.

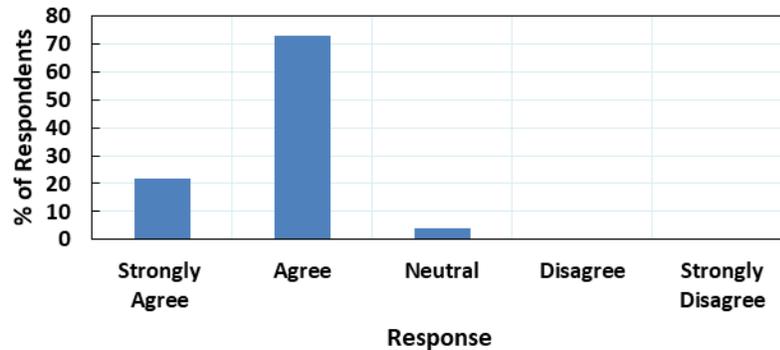


Figure 10. Safety hazards, like collapsing walls and roofs, are effects of cracks

In Figure 11, the influence of poor compaction of foundations is highlighted. About 98% of the respondents agree that this result in settlements and failures of houses due to cracking, and 4% were neutral. Pathak and Rastogi (2017) stated that poor workmanship, poor mixing of building materials, lack of curing, changes in water-cement ratio and improper compaction, will cause cracks in walls, beams and slabs. Voids beneath foundations can cause uneven settlements, leading to cracks in concrete slabs and walls.

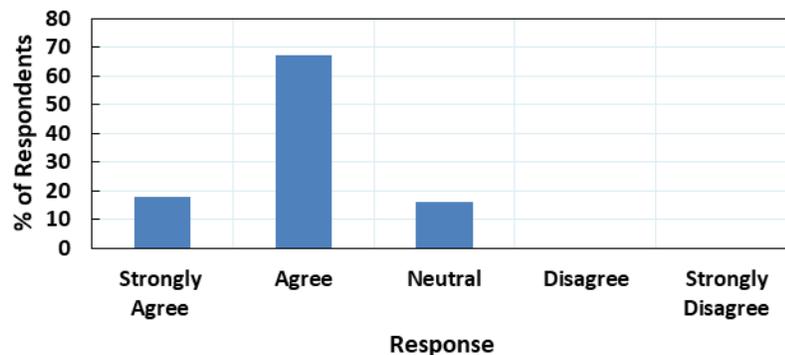


Figure 11. Poor compaction of foundations produces settlement and possible failures

Lack of technical knowledge by contractors could lead to the use of inferior materials in construction, resulting in defective projects. From Figure 12, about 85% of all respondents agreed, while 16% were neutral. Ajagbe and Ojedele (2018) opined that engineers should have a sound knowledge of causes, effects and types of cracks likely to occur from the behaviour of

construction materials or techniques, in order to suggest appropriate prevention and remedial measures. The same recommendations are made in the Indian Standard SP: 25 (1999).

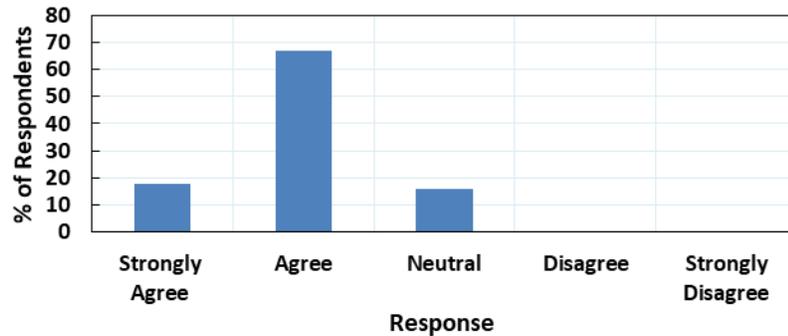


Figure 12. Lack of technical knowledge lead to use of inferior materials

From Figure 13 about 78% of the respondents indicate that non-structural cracks generally do not affect the safety of structure but instead produce unattractive appearances and create the impression of faulty construction work. However, 18% were neutral, while 4% disagreed with the proposition. These results are supported by Pathak and Rastogi (2017) and Ali et al. (2020), who opine that non-structural cracks are largely due to internally induced strains in building materials and do not endanger safety, but may look unsightly or may create the impression of faulty work. The Indian Standard SP: 25 (1999) states that in general, numerous closely spaced thin cracks are less damaging to the structure and are less objectionable from aesthetic and other considerations, compared to fewer number of wider cracks.

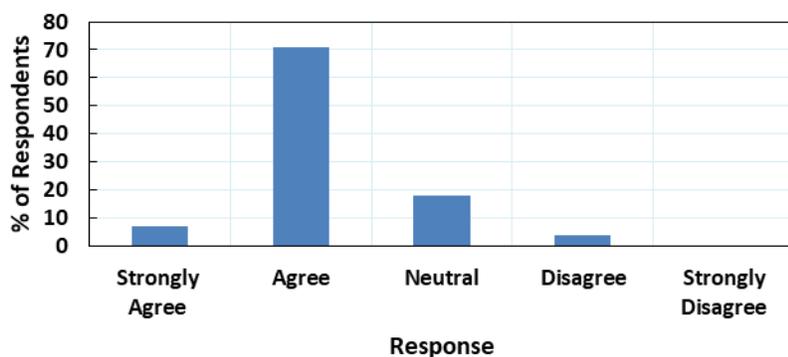


Figure 13. Non-structural cracks generally do not affect safety of structure

In regards to the question of structural cracks being the cause of building failures, Figure 14 indicates that 98% of respondents agreed while only 2% were neutral. Ali et al. (2020) assert that structural cracks mean any defects in a structural element of a building that is attributable to defective design, faulty workmanship, or defective material, and sometimes a combination of

such factors. Most respondents in the survey understood the impact of structural cracks in buildings and urgent repairs should prevent the occurrence of future collapse.

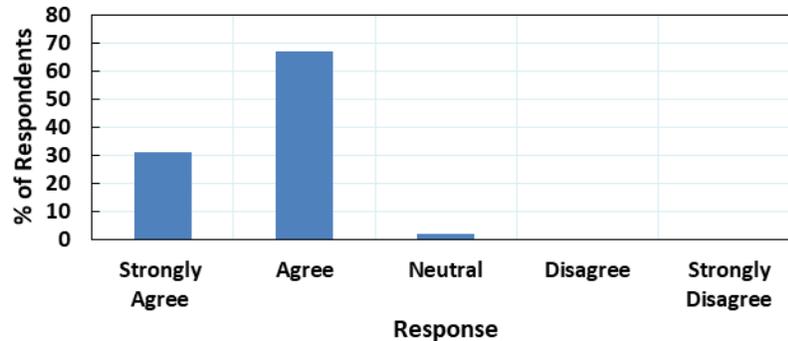


Figure 14. Structural cracks may cause building failures

4.4 Remediation of Cracks in Newly Constructed Houses

From Figure 15, with reference to the need for expert opinion, such as a structural engineer, 100% of respondents strongly agreed that this was the correct approach in order to assess cracks and recommend appropriate solutions. This is confirmed by both ACI Comm. 224 (2007) and Indian Standard SP: 25 (1999). The former states that successful long-term repair procedures should focus on the causes of the cracks as well as the cracks themselves. The latter asserts that the engineer should have a proper understanding of the various causes of cracking.

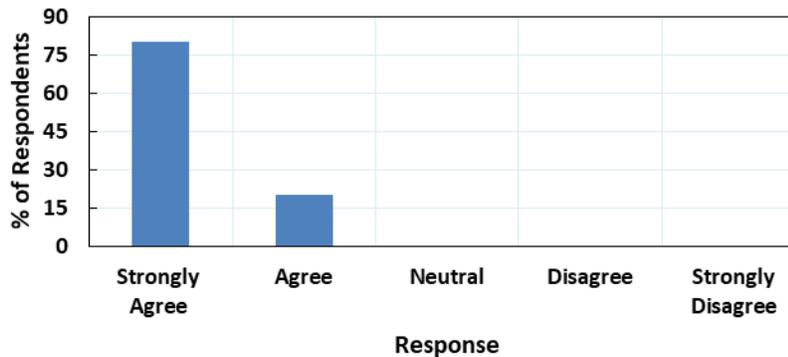


Figure 15. The need for expert opinion or advice

In regards to the question of safety and serviceability of the structure being ensured by satisfying the load bearing capacity and serviceability limit states, Figure 16 shows that 93% of the respondents agreed; however, 7% were neutral. Ali et al. (2020) assert that cracking in buildings occurs whenever the stresses in the structural elements exceed their strengths; they are inevitable consequences of the types of material used, the manner of usage and the service conditions of the building. Swit et al. (2023) emphasized that durability, safety, and serviceability were the three cornerstones of structural reliability. From Figure 16, the majority of the respondents understood

that safety of any structure to the public and users was of paramount importance at all stages of structural design life.

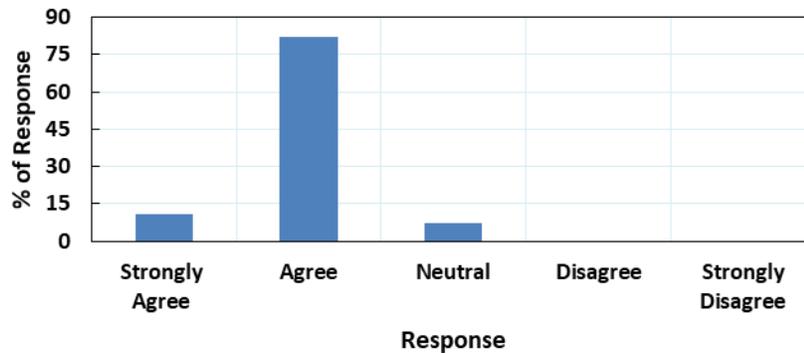


Figure 16. Need to satisfy load-bearing capacity and serviceability limit states

Regarding measures for dealing with non-structural or surface cracks, Figure 17 shows that 89% respondents concur that these do not require elaborate measures since such cracks are prevalent on the surface and as such they can be repaired easily, while 11% were neutral. Both ACI Comm. 224 (2007) and Indian Standard SP: 25 (1999) state that to prevent or minimize occurrence of cracks, it is necessary to understand basic causes of cracking and to have knowledge regarding properties of building materials. Correction of some of the cracks observed in Mmopane buildings could be expedited with cement mortar 1:4 rendering or crack filler, and then repainting of surfaces. However, every structure is subjected to various stresses and real-time environmental conditions, which may lead to different types of cracks, demanding specific rehabilitation for the serviceability of the building.

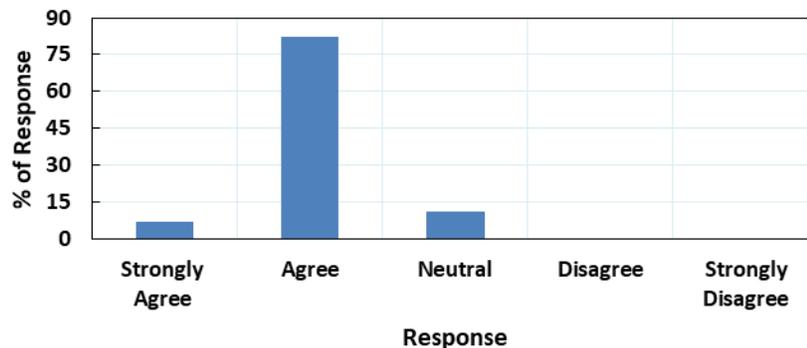


Figure 17. Non-structural cracks do not require elaborate remediation

In Figure 18, on the opinion that foundation settlement-induced cracks should not be ignored, 100% respondents agreed because these may indicate structural problems that lead to long-term damage, and expert advice should be sought. ACI Comm. 224 (2007) and Indian Standard SP: 25 (1999) caution that cracking due to foundation settlement requires detailed investigations before deciding on any steps of remedial measures. Also, to avoid settlement cracks in buildings, designs for foundations should be based on sound engineering principles and good practice. Most

respondents in the Mmopane survey appear to have satisfactory knowledge of foundation cracks. Plinth protection around the buildings in the village may help to some extent in preventing seepage of rainwater into the foundations, thereby obviating the possibility of such cracks.

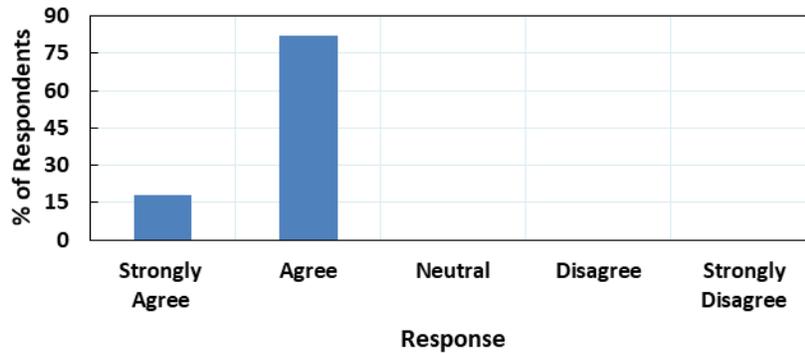


Figure 18: Foundation settlement-induced cracks should not be ignored

Concerning regular inspections and maintenance of houses by personnel with technical capacity being essential to determine residual service life of buildings, Figure 19 shows that 100% of the respondents agreed. Fromsa et al. (2020) state that strict supervision is one of the criteria of contemporary practices on the construction sector; daily supervision must be carried out by the contractors or sub-contractors to identify workmanship problems, and the remedial work must be executed with despatch. All respondents in the survey were unanimous that regular building inspection during and after construction by personnel with technical knowledge was essential for public safety. Consequently, providing training and learning for workers and proper inspection and control measures are a necessity.

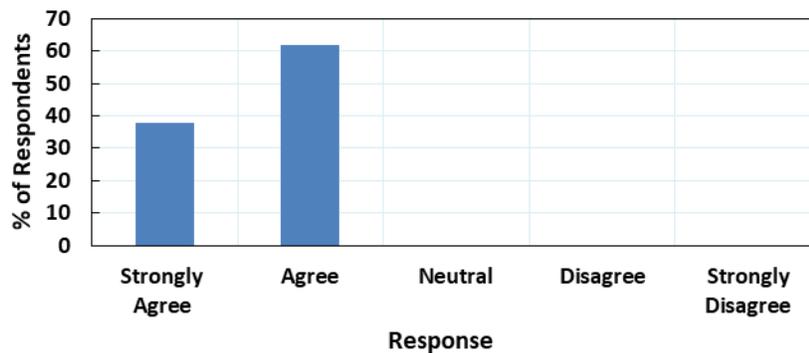


Figure 19. Residual service life of buildings is influenced by regular inspection and maintenance by technical personnel

Concerning replacement as a strategy or procedure when significant or pronounced structural cracks appear all over the external load-bearing walls, 93% of the respondents agreed, while 7% were neutral, as shown in Figure 20. Pathak and Rastogi (2017) advised that very pronounced cracks spread all over the external load bearing walls along with signs of foundation settlement, would suggest that such walls should be considered beyond repair and in need of replacement.

The loads carried by such walls should be supported on props, and the old walls demolished bit by bit and then rebuilt, either in brick wall or suitable reinforced concrete framework.

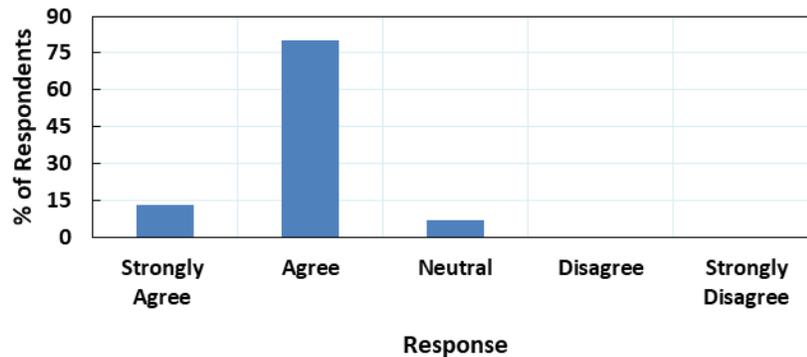


Figure 20. Significant structural cracks on external load-bearing walls demand replacement of structural elements concerned

With regards to the importance of knowing the root cause of cracks prior to proceeding with costly repair work, Figure 21 reveals that 100% of the respondents were in agreement. The Indian Standard SP: 25 (1999) advised that observing the location, shape, size, depth, behaviour and other characteristics of the cracks, and collecting information about specifications of the work, time of construction, and past history of the structure was important. Gaitanaros et al. (2010) added that early detection of cracks was a key element for preventing catastrophic failure and prolonging the life of structures. Also, such information could be used for developing cost-effective maintenance procedures, improving safety and reducing maintenance and rehabilitation costs in the long term. A successful repair or mitigation of building distress or cracks requires a careful determination of the root cause of that cracking by methods that include visual observation, coring, and non-destructive testing.

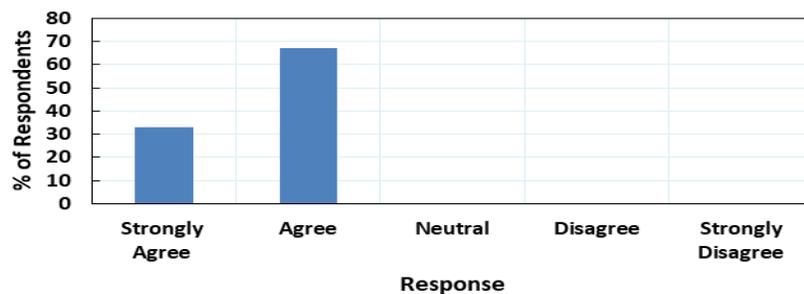


Figure 21. Understanding root cause of cracks is required prior to remediation

4.5 Structured and Open-Ended Questions with Responses

The profession of the sample group is shown in Figure 22, which should be examined in conjunction with Table 1. The survey results indicated that only 2% of the respondents were able

to add suggestions to the questionnaire on causes of cracks. They mentioned such factors as mortar and concrete mixes, the use of heavy machinery around the buildings, blasting, poor communication, noise on site and inadequate measurements to be some of the causes of cracks in buildings.



Figure 22. Profession of sample population

Regarding effects, 4% of the respondents added that major issues associated with cracks in the construction industry in Botswana could be significant or pronounced cracking and collapse of houses. With respect to possible solutions to address cracks in newly constructed houses, 4% of the respondents suggested the adherence to building regulations or practices, layering of soils, proper compaction of foundations and regular maintenance of buildings.

According to Mapeo et al. (2016), to address problems related to cracking requires education on appropriate building standards coupled with geotechnical surveys and good understanding of the influence of the long-term effects of cracks on the aesthetics and stability of buildings, plus the economic challenges to the owners. This view was corroborated by Ali et al. (2020) who added that problems could occur due to faulty structural design and detailing, specifications, or usage of building materials with voids in the form of inter-molecular space expanding on absorbing moisture and shrinking on drying. In view of all the foregoing, the current portion of the research study on account of the relatively low percentage of respondents, was deemed to be inconclusive.

5. Conclusions

The present study endeavoured to identify the major causes of cracks in buildings and their components in newly constructed houses in Mmopane village, Botswana. The inquiry also embraced the effects of such cracking and possible remediation strategies. The investigation was done via a survey involving the use of questionnaires distributed to a sample group representative of the target population. Based on the work reported herein, the following conclusions have been reached.

Firstly, cracks of little consequence and established as static require simple repair by filling or re-pointing. Secondly, it is important to ascertain carefully the causes of any major cracking before proceeding to probable remediation procedures. In addition, lack of education and training on construction materials for home owners and builders was deemed to be an important issue in regards to cracking, with respect to Mmopane houses. Furthermore, most building materials utilized were of poor quality and sourced from mushrooming local brick moulding manufacturers in the village, the rationale being that they were cheap and affordable. In consequence, a majority of the cracking that occurred may be attributed to human fault. Finally, a continuous inspection routine during building project construction, the supply of quality building materials and the allocation of adequate finance for the construction of houses are recommended.

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