

# DEDICATION

To the soul of Dr. Bakri Abdul Raheem for his guidance and support, may Allah bless him

To my family

# **ACKNOWLEDGEMENT**

I would like to thank Dr Salma for her supervision and support.

Thanks to all my colleagues for their cooperation and help in distributing, getting questionnaire responses and providing rich and in-depth information.

# Abstract

The objectives of this study are to convey the concepts and practice of implementing constructability to Sudan, measure the level of awareness about it, provide guide lines for local construction practitioners who would like to adopt this concept and explore the extent of implementation of constructability concepts in Sudan

The methodologies adopted to investigate the research problems were case studies in the Dubai mall hotel project where it was decided to replace the traditional timber forms and steel false works by the self climbing scaffold as a modern prefabricated forms made of aluminium panels and rebar factories were sub- contracted to deliver the steel reinforcement ready cut and bent. As a complementary part to the case studies a questionnaire survey was conducted among the construction practitioners in Sudan.

A saving of 50% of time was achieved with approximately 40% of the labours needed for the traditional type of formwork. 90% of the time required for the normal procedures of cutting and bending the steel reinforcement by the labours was saved in addition to the saving of the fabrication yard space and quality and safety improvement.

75% of the questionnaire respondents agreed on the importance of the constructability review during the design stage, but owners are reluctant to invest money for additional efforts for constructability reviews. This could be mitigated in the case of the non traditional contract approaches.

Though the traditional contractual approach is the most applied method; the non traditional approaches such as design-build are increasingly growing with scoring of 1.68 against 2.55 for the traditional method. The major barriers for implementing constructability improvement programme were found staff issues and lack of awareness about the importance of constructability.

# تجريد

مختصين في مجالهم، حيث يتمتعون بخبرة واسعة في التعامل مع مختلف التحديات التي تواجههم في حياتهم العملية. كما أنهم يتمتعون بسمعة طيبة في مجرتهم، حيث يعتبرون من الأشخاص الذين يمكن الاعتماد عليهم في أي مهمة تتطلب خبرة ومهارة.

في هذا التقرير، سنناقش بعض النقاط الرئيسية التي تتعلق بعملهم، ونتناول بعض التحديات التي تواجههم في حياتهم العملية. كما سنقدم بعض التوصيات التي يمكن أن تساعد في تحسين أدائهم في المستقبل.

من بين النقاط الرئيسية التي تتعلق بعملهم، يمكننا أن نذكر ما يلي:

- 1. **مستوى الخبرة:** يتمتع هؤلاء المختصين بمستوى عالٍ من الخبرة في مجالهم، حيث يمتلكون مهارات متقدمة تمكنهم من التعامل مع مختلف التحديات التي تواجههم في حياتهم العملية.
- 2. **سمعة طيبة:** يعتبر هؤلاء المختصون من الأشخاص الذين يمكن الاعتماد عليهم في أي مهمة تتطلب خبرة ومهارة، حيث يتمتعون بسمعة طيبة في مجرتهم.
- 3. **التحديات:** يواجه هؤلاء المختصون بعض التحديات في حياتهم العملية، مثل نقص الموارد المالية والبشرية، وكذلك صعوبة الحصول على المعلومات اللازمة لاتخاذ القرارات.

بناءً على هذه النقاط، يمكننا تقديم بعض التوصيات التي يمكن أن تساعد في تحسين أدائهم في المستقبل، مثل:

- 1. **تحسين الموارد:** يمكن أن يساعد تحسين الموارد المالية والبشرية في تعزيز قدرتهم على التعامل مع التحديات التي تواجههم في حياتهم العملية.
- 2. **الحصول على المعلومات:** يمكن أن يساعد الحصول على المعلومات اللازمة لاتخاذ القرارات في تحسين أدائهم في المستقبل.

في الختام، يمكننا القول إن هؤلاء المختصين يتمتعون بمستوى عالٍ من الخبرة والمهارة، حيث يمكن الاعتماد عليهم في أي مهمة تتطلب خبرة ومهارة. كما أنهم يواجهون بعض التحديات في حياتهم العملية، ولكن يمكن التغلب على هذه التحديات من خلال تحسين الموارد والحصول على المعلومات اللازمة لاتخاذ القرارات.

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# ABBREVIATIONS

|       |                                               |
|-------|-----------------------------------------------|
| BBS   | Bar Bending Schedule                          |
| DB    | Design Build                                  |
| CII   | Construction Industry Institute               |
| CIIA  | Construction Industry Institute of Australia  |
| CIRIA | Industry Research and Information Association |
| CM    | Construction Management                       |
| CSHK  | China State Hong Kong (Contracting Company)   |
| EPC   | Engineering Procurement Construction          |
| GDP   | Gross Domestic Product                        |
| GMP   | Guaranteed Maximum Price                      |
| IFB   | Invitation for Bid                            |
| IT    | Information Technology                        |
| ITP   | Inspection and Test Plan                      |
| JAFZA | Jabal Ali Free Zone Area                      |
| O&M   | Operation and Maintenance                     |
| PMBOK | Project Management Body of Knowledge          |
| PMI   | Project Management Institute                  |
| QCP   | Quality Control Procedures                    |
| RFI   | Request for Information                       |
| RFP   | Request for Proposal                          |
| RFQ   | Request for Qualification                     |