

Construction & Engineering

ALERT | 29 February 2024



In this issue

SOUTH AFRICA

- Back to the future: Harnessing Building Information Modeling for Greening Retrofit Projects



For more insight into our expertise and services

Back to the future: Harnessing Building Information Modeling for Greening Retrofit Projects

Amid the international push towards sustainability and energy efficiency, retrofitting existing buildings into greener models is a crucial strategy for reducing the consumptive effect that the built environment has on its surroundings. Buildings typically account for 40% of a city's total energy usage, with electricity in the built environment accounting for nearly a quarter of South Africa's carbon emissions. Retrofitting existing structures can thus play a significant role in infusing the built industry with environmentally-sustainable solutions.

The retrofitting process entails a physical and functional refreshment of an existing building by adding new features or technologies to it. This is especially useful to monitor and improve energy consumption levels. Since 60% to 75% of a commercial building's primary energy use arises from heating, ventilation and cooling systems (HVAC), as well as poor lighting options, opting to perform necessary HVAC upgrades and substituting fluorescent tubes and halogen bulbs for LED globes is a meaningful start for a greening project.

The success of using retrofitting to reduce a building's greenhouse gas emissions and energy consumption is aptly demonstrated by the Empire State Building. This retrofit project formed part of a \$550 million

restoration programme, where more than 6,500 windows received additional layers of film to regulate heat gain and loss. Its elevator system now uses regenerative braking that recaptures electricity as the cars decelerate and reach their destinations. This feeds energy back into the building. From its automated LED lights to the refurbished steam room in the basement, the changes made to this century-old building have reduced its energy consumption by more than 40%, allowing for annual energy savings of \$4,4 million since 2010.

Within the construction framework, Building Information Modeling (BIM) could serve as a potent tool to rejuvenate older structures into more environmentally friendly models. BIM provides a digital representation of a building's physical and functional characteristics, storing its data throughout its life cycle and tracking energy usage. Its collaborative nature facilitates easy access to a building's history, enabling predictive maintenance, allowing for efficient procurement, and making subsequent greening efforts manageable by allowing for comparative views on past versus prospective energy use in the building.

South Africa's adoption of BIM standards

While many existing buildings lack BIM integration due to cost constraints and technological limitations, South Africa has initiated the national adoption of international BIM standards (known as ISO 19650). According to the Standards Act 8 of 2008, SANS 19650-3:2023 shares a parallel aim to ISO 19650: to optimise the information

Back to the future: Harnessing Building Information Modeling for Greening Retrofit Projects

CONTINUED

Chambers Global 2024 Results

Construction & Engineering

Chambers Global 2023–2024 ranked our
Construction & Engineering sector in:

Band 2: Construction.

Clive Rumsey ranked by
Chambers Global 2019–2023 in

Band 1: Construction.

Andrew van Niekerk ranked by
Chambers Global 2024 in

Band 3: Construction.

Joe Whittle ranked by
Chambers Global 2020–2024 in

Band 3: Construction.



Cliffe Dekker Hofmeyr

management of built assets using BIM. The South African Bureau of Standards (SABS) divides the SANS 19650 series into three parts, starting with an explanation of the concepts and principles of information production and management through BIM use.

Part two aims to enable a party to establish the requirements for information during an asset's delivery phase and to provide an optimal commercial and collaborative environment, in which appointed parties can produce information in an efficient way. Part two also contains the National Annex, which comprehensively demonstrates how the international standard will be adopted in South Africa.

Part three contextualises how information must be managed and exchanged during the operational phase of assets. Parts one and two have been issued, while part three is expected to be approved shortly, after public comment closed on 25 May 2023. Adopting ISO 19650 on a national level renders BIM standards more accessible.

Such regulatory development can not only result in short and long-term cost preservation for companies through effective digitised building planning, but can further extend the "*measure twice, cut once*" principle, by having companies simulate construction and operation processes virtually, thus minimising errors and environmental impacts

in the physical realm. In light of the International Finance Corporation's estimate that South Africa's green building demand will be an investment opportunity of \$7 billion by 2030, the integration of BIM standards is foundational to further fiscal development.

In conclusion, BIM must be adopted today to enable the greening and retrofitting benefits of tomorrow. South Africa's regulatory landscape in this regard is still nascent in comparison to countries like the UK and US, which have already mandated BIM to varying extents. However, with the issuing of SANS 19650 in its respective components, it is advisable for construction companies to prioritise engagement with BIM-accredited consultants. There is also a need to expand the cohort of ISO 19650-knowledgeable practitioners, for the effective implementation of the standards, industrial development and environmental stewardship.

Joe Whittle and Evangelia Goulas



OUR TEAM

For more information about our Construction & Engineering sector and services in South Africa and Eastern Africa, please contact:



Clive Rumsey

Sector Head: Construction & Engineering
Director: Dispute Resolution
T +27 (0)11 562 1924
E clive.rumsey@cdhlegal.com



Timothy Baker

Director:
Dispute Resolution
T +27 (0)21 481 6308
E timothy.baker@cdhlegal.com



Sentebale Makara

Director:
Dispute Resolution
T +27 (0)11 562 1181
E sentebale.makara@cdhlegal.com



Khaya Mantengu

Director:
Dispute Resolution
T +27 (0)11 562 1312
E khaya.mantengu@cdhlegal.com



Desmond Odhiambo

Partner | Kenya
T +254 731 086 649
+254 204 409 918
+254 710 560 114
E desmond.odhiambo@cdhlegal.com



Andrew van Niekerk

Head: Projects & Infrastructure
Director: Corporate & Commercial
T +27 (0)21 481 6491
E andrew.vanniekerk@cdhlegal.com



Joe Whittle

Director:
Dispute Resolution
T +27 (0)11 562 1138
E joe.whittle@cdhlegal.com



Christine Mugenyu

Senior Associate | Kenya
T +254 731 086 649
+254 204 409 918
+254 710 560 114
E christine.mugenyu@cdhlegal.com



Kananelo Sikhakhane

Associate:
Dispute Resolution
T +27 (0)11 562 1404
E kananelo.sikhakhane@cdhlegal.com

BBBEE STATUS: LEVEL ONE CONTRIBUTOR

Our BBBEE verification is one of several components of our transformation strategy and we continue to seek ways of improving it in a meaningful manner.

PLEASE NOTE

This information is published for general information purposes and is not intended to constitute legal advice. Specialist legal advice should always be sought in relation to any particular situation. Cliffe Dekker Hofmeyr will accept no responsibility for any actions taken or not taken on the basis of this publication.

JOHANNESBURG

1 Protea Place, Sandton, Johannesburg, 2196. Private Bag X40, Benmore, 2010, South Africa.

Dx 154 Randburg and Dx 42 Johannesburg.

T +27 (0)11 562 1000 F +27 (0)11 562 1111 E jhb@cdhlegal.com

CAPE TOWN

11 Buitengracht Street, Cape Town, 8001. PO Box 695, Cape Town, 8000, South Africa. Dx 5 Cape Town.

T +27 (0)21 481 6300 F +27 (0)21 481 6388 E ctn@cdhlegal.com

NAIROBI

Merchant Square, 3rd floor, Block D, Riverside Drive, Nairobi, Kenya. P.O. Box 22602-00505, Nairobi, Kenya.

T +254 731 086 649 | +254 204 409 918 | +254 710 560 114

E cdhkenya@cdhlegal.com

STELLENBOSCH

14 Louw Street, Stellenbosch Central, Stellenbosch, 7600.

T +27 (0)21 481 6400 E cdhstellenbosch@cdhlegal.com

©2024 13189/FEB