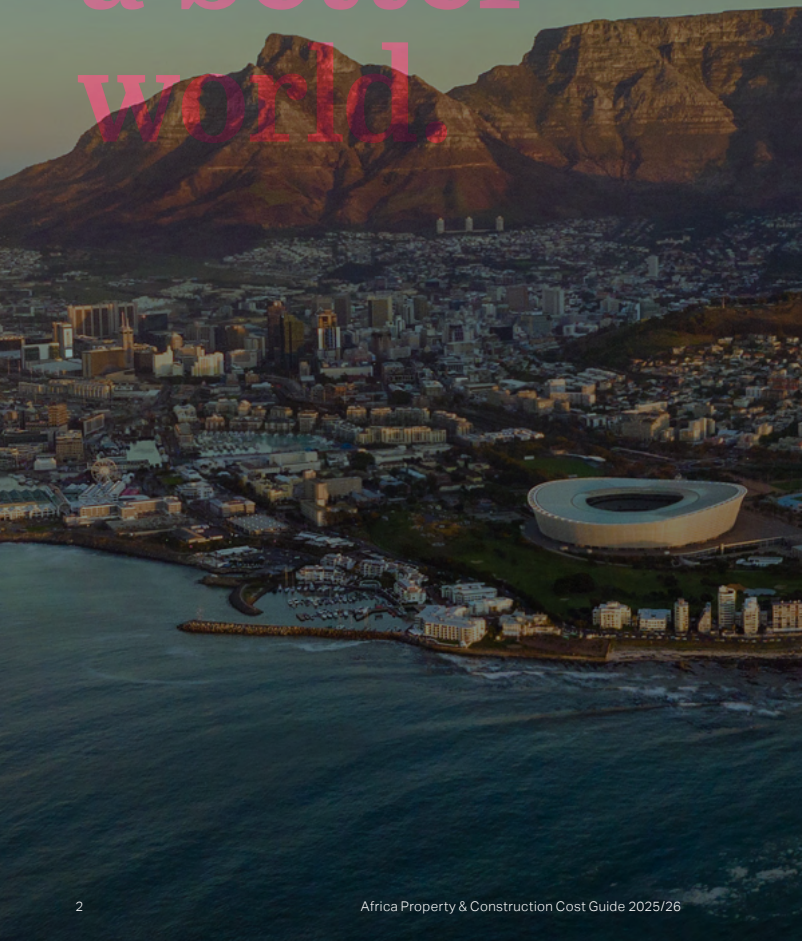
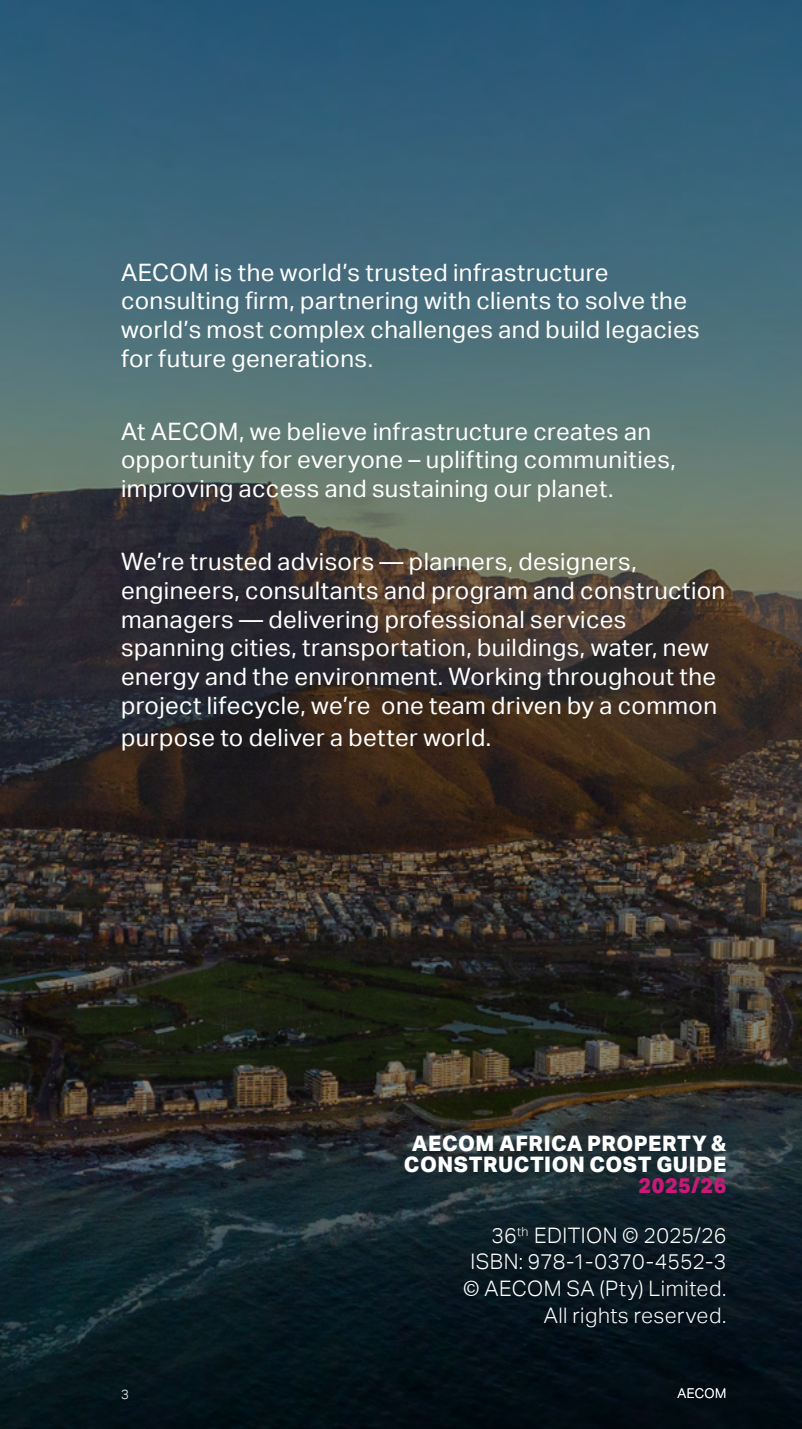


Africa Cost Guide
**Property &
Construction**

2025/26

Delivering a better world.



An aerial photograph of a coastal city, likely Cape Town, South Africa, with a dense urban area and a prominent mountain range in the background under a clear sky.

AECOM is the world's trusted infrastructure consulting firm, partnering with clients to solve the world's most complex challenges and build legacies for future generations.

At AECOM, we believe infrastructure creates an opportunity for everyone – uplifting communities, improving access and sustaining our planet.

We're trusted advisors — planners, designers, engineers, consultants and program and construction managers — delivering professional services spanning cities, transportation, buildings, water, new energy and the environment. Working throughout the project lifecycle, we're one team driven by a common purpose to deliver a better world.

**AECOM AFRICA PROPERTY &
CONSTRUCTION COST GUIDE**
2025/26

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Contents

00	Foreword	pg 6
01	Section 1 The changing landscape of Africa	pg 8
02	Section 2 Our digital transformation	pg 24
03	Section 3 Our services	pg 32
04	Section 4 South African cost data	pg 48
05	Section 5 Global sentiment and building costs	pg 64
06	Section 6 International prestigious office rental comparison	pg 82

07

Section 7

Building cost escalations

pg 86

08

Section 8

Method for measuring
rentable areas

pg 94

09

Section 9

Return on investment

pg 100

10

Section 10

Connect with us

pg 108

Articles

A1

Article 1

Motus Paarden Eiland

pg 18

A2

Article 2

Ontario Line Southern Civil,
Stations and Tunnel Project

pg 42

A portrait of Niel du Pisani, a middle-aged man with short brown hair and a grey beard, wearing a red and white checkered shirt. He is smiling slightly. The background is a light blue gradient with a large, thick, curved magenta line arching over his head.

FOREWORD

Niel du Pisani

Associate Director,
Cost Management, Africa

Welcome to our Africa Property and Construction Cost Guide 2025/26

As we continue to navigate the dynamic landscape of the African property and construction sector, AECOM remains steadfast in its role as a trusted partner, innovator, and leader. The past year has been marked by purposeful growth—driven by digital transformation, sustainability, and a stronger commitment to inclusive development.

Now in its 36th edition, the Africa Property and Construction Cost Guide is an indispensable resource for industry professionals, supporting informed decision-making across the continent.

We are pleased to reaffirm our Level 1 B-BBEE contributor status, underscoring our ongoing commitment to equity, diversity, and inclusion. These values guide how we operate, lead and contribute to building a better South Africa for all.

Our investment in digital innovation remains a cornerstone of our strategy. From advancing our 5D BIM capabilities to integrating AI-driven tools and cloud-based platforms, we are redefining how projects are conceived, designed, and delivered. These technologies empower our teams to deliver smarter, more sustainable solutions.

To support seamless collaboration across our global network and enhance project delivery, we've adopted a suite of powerful digital tools that streamline our workflows and improve efficiency. CostX enables precise quantity take-offs and BOQ production, with all data dynamically linked to project drawings—delivering a single, comprehensive file to our clients. Through Citrix, our global teams access CostX in the cloud, working seamlessly together on shared projects.

We also rely on SharePoint for secure, real-time file sharing and document management across offices, ensuring teams remain aligned regardless of location. Holobuilder brings our sites to life through 360-degree imagery mapped directly onto project drawings, offering clients and stakeholders a virtual window into construction progress and site conditions—minimising the need for travel and enhancing remote collaboration.

To further support flexible working, AECOM PCC Africa has implemented a robust remote access solution. By deploying dedicated remote computers in each office, our teams can securely connect to internal systems and applications from home, maintaining high performance without latency issues.

Our continued success is reflected not only in our digital transformation and global collaboration but also in the recognition and growth we've achieved. AECOM remains the #1 design firm in the industry, a position earned through our involvement in landmark local and international mega projects. This momentum is further underscored by our expanding team—141 new professionals joined us in FY25.

Looking ahead, we are energised by the opportunities that lie before us. With a clear focus on mentorship, sustainability, and community impact, we are committed to shaping a resilient, inclusive, and future-ready built environment.

Together with our clients and partners, we look forward to building a legacy of excellence—one that will serve generations to come.

Kind regards,

A handwritten signature in black ink, appearing to read 'Aftab Sami'. The signature is fluid and cursive, with a large initial 'A' and a long, sweeping underline.

01

The changing landscape of Africa

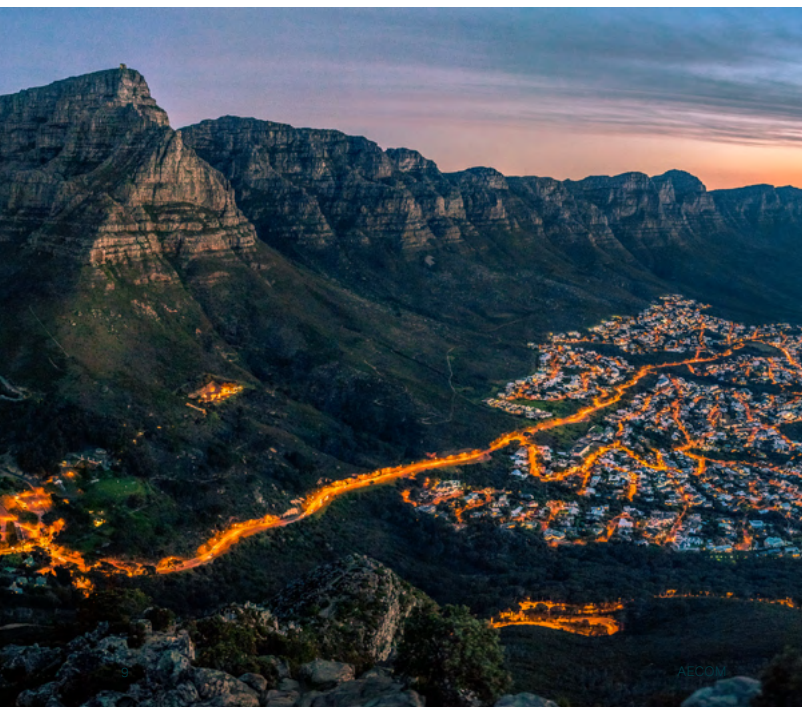


The changing landscape of Africa

We are passionate about the development of Africa and continually seek to align ourselves with initiatives that aim to bring this development to life.

We serve private and public clients, delivering technical excellence on infrastructure and program projects, whilst keeping our communities at the forefront.

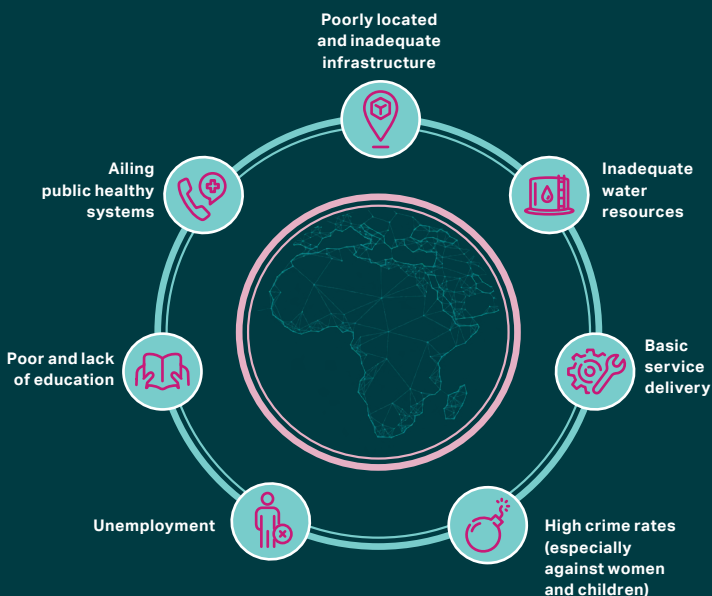
Our multidisciplinary team of award-winning engineers, planners, architects, environmental specialists, scientists, consultants, quantity surveyors (cost managers) and project and programme managers are committed to delivering projects that improve the quality of life for Africa's communities.



Improving lives

A relatively new democracy, South Africa continues to face past challenges while working to overcome new issues that will have a major impact on the socio-economic development of the country.

Key challenges facing South Africa:



A more holistic approach, considering social and economic benefits is required when making infrastructure decisions. Evidence shows that social values - health, quality of life, and inclusion - drive long-term economic growth. That is why our projects prioritise people, aiming to build a safer, more resilient South Africa ready for the future.



exxaro

GROWTHPOINT  welkomex  exxaro

Exxaro Head Office
Centurion, South Africa



Bridging the skills divide

Our strategy is aimed at facilitating the empowerment of talented individuals through university and in the workplace. We believe that by providing these opportunities, young people will realise their potential to successfully enter the built environment professions.

In 2017, AECOM established the AECOM Educational Trust to provide bursaries to young black women to further their tertiary education in the built environment.

This year, AECOM's Learning and Development department, in partnership with Skills College, launched its seventh 12-month Disabled Learnership Programme. Learnerships are intended to address the gap between education, training and the needs of the labour market. To date, AECOM has sponsored nearly 100 disabled learners on this work-based approach to learning that culminates in Business Administration NQF level two and three qualifications.

As part of our commitment to improve skills, experience and excellence in the industry, AECOM offers bursaries each year to aid full-time employees and meritorious students who are studying towards the main fields of our core business. On average, eight full-time bursaries are awarded annually to talented students from disadvantaged backgrounds.

“

Learnerships are intended to address the gap between education, training and the needs of the labour market.”

Candidacy support and mentoring programme

At AECOM, mentorship is deeply rooted in our business offering. We understand its importance and how these relationships significantly impact our more junior team members and our business.

The Candidacy support and Mentoring programme is a world-class structured programme that provides focused learning and mentorship-supporting and accelerating the candidacy journey across the built environment and other relevant professional bodies for AECOM Candidate Professionals.

It is a full lifecycle programme that will benefit everyone, whether they are graduates not registered as candidates, young candidates, or mature candidates who have been registered as candidates for more than five years.

The programme is supported by our own internal pool of mentors and an external service provider (Mentoring 4 Success).

During the programme, mentors themselves participate in substantial leadership/personal development training, encompassing relationship building, emotional intelligence, generational theory, behavioural theory, coaching skills and goal setting.

Mentors who participate will be able to make up almost their full CPD requirement and possible accreditation as a registered mentor via M4S with SABPP.

The programme is further enabled via two unique mobile knowledge mentoring applications and analytic dashboards provided exclusively by M4S under an exclusive Africa licence agreement.

The KnowledgeMentor™ and Mentoring Head Quarters app, and the MentorExcellerator™ and Career Head Quarters.

These unique technology platforms allow for M4S and AECOM to gather, monitor and report on engagement analytics critical to validating the effective impact and accelerated professional development.

The analytics also provide substantial evidence of professional development for the annual CETA grant applications and the B-BBEE verification audits.

The Candidacy support and Mentoring programme is a testament to our commitment to developing highly skilled professionals within the business.

Lakeside Office Park
Centurion, Gauteng, South Africa



Broad-Based Black Economic Empowerment (B-BBEE)

Transformation is an important factor in South Africa’s transition towards the vision of a non-discriminatory, democratic and prosperous society, as summarized in the Freedom Charter. Equity, diversity and inclusion are vital at AECOM and we know that transformation opens a path to inclusive economic growth and development.

Our B-BBEE journey continues as we set ourselves targets to continuously improve in all categories by investing in our people. We are proud to report that we have maintained our level one B-BBEE scorecard (as outlined below) in terms of the Department of Trade and the industry’s revised codes — a reaffirmation of our commitment to contributing to a better South Africa.

B-BBEE Level Status:	Level 1
Procurement Recognition Level	135%
Black Ownership	20.47%
Black Women Ownership	20.47%
Black Youth Ownership	20.47%
Scorecard Information:	
Ownership	27.00 points
Management Control	18.00 points
Skills Development	29.00 points
Enterprise and Supplier Development	27.00 points
Socio-Economic Development	5.00 points
Total	106.00 points
Empowering Supplier	Yes
Designated Group Supplier	No
Scorecard	Generic – Construction BEP Sector (10 December 2024)

Sustainable Legacies – our Environmental, Social and Governance (ESG) strategy

In ways that are both devastating and transformational, the coronavirus pandemic has highlighted weaknesses and inequities in the systems that support quality of life and prosperity in our already fragile world.

It has led us and our clients to rethink what's next, reorder priorities and accelerate changes that not only help repair what's broken, but lead to improved, lasting outcomes.

As the world's trusted infrastructure consulting firm and a leader in environmental, social and corporate governance, we are determined and well-positioned to deliver positive, impactful and sustainable legacies for our company, our communities and our planet.

Whilst working with you, we aim to deliver a better world.

Our Sustainable Legacies ESG strategy is formed around four pillars:



Embedding sustainable development and resilience across our work



Achieving net-zero carbon emissions



Improving social outcomes



Enhancing governance

#2

In Engineering News Record's
2024 top 200 environmental
firms overall

SUSTAINABILITY | 2022
Innovation Awards

Winner - Green Consultant of the Year
Sustainability Innovation Awards 2022

ScopeX™

ScopeX™ is AECOM's platform to reduce carbon across our planning, design and construction projects.

It considers embodied and operational carbon across the entire lifecycle to reduce carbon impact by at least 50 percent compared to industry norms on major projects.

To decarbonise the built-environment and support our clients to achieve their net zero agendas, we're improving the cities and communities we serve. Whether it's reducing Scope 1, 2 and 3 emissions, or supporting the development of clients' carbon strategy, ScopeX™ considers materials, site locations, logistics and construction methods to reduce and eliminate the impact of projects on the natural environment. We minimise energy use and optimise sources of renewable power to eliminate carbon emissions and meet clients' carbon goals.

The foundation of ScopeX™ is early engagement with clients. By determining what is critical for their project, we then deploy the best design solutions and digital tools to design the optimal solution for carbon reduction, all while tracking our total impact over time.

ScopeX™ includes an evolving digital platform, informed by the ongoing collection and analysis of client and project data to inform the development of future tools, and refinement of our services.

Taken together, we estimate that our ScopeX™ platform can design-out at least 84 million tons of carbon dioxide emissions from the built environment per year.

Motus Paarden Eiland

Roy Swart

Senior Quantity Surveyor, Cost Management, Africa



Motus Paarden Eiland

Redefining Automotive Retail in Cape Town, South Africa

The redevelopment of the Motus Paarden Eiland Automotive Dealership marks a pivotal moment in Cape Town's automotive landscape and exemplifies the transformative impact of integrated design and cost management. Strategically located in the vibrant industrial precinct of Paarden Eiland, the project involved the demolition of an outdated facility and the construction of a modern, multi-brand dealership precinct spanning 20,290 m². The new development will accommodate three leading automotive brands; Ford, Hyundai, and KIA within a unified, future-ready environment.

This initiative was driven by the need to respond to shifting consumer expectations and the evolving operational demands of the automotive industry. Early-stage market research revealed a clear opportunity to enhance the customer experience through modernised infrastructure, improved service delivery, and integrated sustainability features.

Each brand benefits from dedicated showroom space, advanced service facilities, and thoughtfully curated customer lounges. The development integrates sustainable design principles, including energy-efficient systems

Motus Paarden Eiland
Cape Town, South Africa



and environmentally responsible materials, aligning with broader industry goals for carbon reduction and operational resilience.

A key contributor to the project's success was the collaborative planning process, which combined data-driven insights with stakeholder engagement to shape a commercially viable and operationally efficient solution.

Appointed by Motus Holdings Limited, AECOM provided comprehensive quantity surveying and cost management services for the redevelopment of the Motus Paarden Eiland Automotive Dealership. AECOM's proactive cost control strategies, including early risk identification and value engineering, played a critical role in maintaining financial discipline throughout the project lifecycle.

The architectural vision brought a refined design sensibility that harmonised with the technical precision of the AECOM team. Their ability to translate complex requirements into a cohesive, brand-aligned spatial experience was instrumental in achieving a final product that is both functional and visually compelling.

Motus Paarden Eiland Cape Town, South Africa



This project reflects AECOM's continued investment in local talent and capability. In FY25 alone, AECOM South Africa welcomed 141 new professionals across its operations, reinforcing its commitment to delivering world-class expertise.

The Motus Paarden Eiland redevelopment stands as a model for integrated, sustainable automotive infrastructure, demonstrating the value of strategic foresight, technical excellence, and collaborative delivery.

For Motus Holdings Limited, this development is more than a dealership—it is a strategic investment in customer experience, operational efficiency, and long-term brand value. Their willingness to embrace an integrated delivery model reflects a forward-thinking mindset that is increasingly shaping the future of infrastructure development in South Africa.

By collaborating with partners such as Hodari Southern Africa, SVA Architects, AECOM has helped set a new benchmark for dealership infrastructure in the region. One that future clients may find not only compelling, but essential.



Motus Paarden Eiland
Cape Town, South Africa



Motus Paarden Eiland
Cape Town, South Africa

Ashton Arch Bridge
South Africa





Green Star South Africa

Employees across our South African business have completed the 'Green Star South Africa' accredited professional course.

Our people are well-versed in sustainable construction and are available to help clients achieve their environmental responsibilities, as well as their financial objectives in

terms of infrastructure and building development.

Green building ratings that are currently undertaken by our team of sustainability consultants include Green Star Office, Green Star Interiors, Green Star Existing Building Performance, LEED Design and Construction and LEED Interior ratings.

The Green School
Paarl, Western Cape



Image courtesy of GASS Architects

02

Our digital transformation



Innovation

Digital Project Delivery (DPD)

AECOM promotes a collaborative working environment underpinned by digital technologies.

Our focus is on implementing more efficient methods to design, procure, construct, operate and maintain built assets and infrastructure.

Our cost managers and consultants are fully aligned to standard DPD protocols and procedures. This ensures consistency and successful outcomes in our daily working practices. Our teams are committed to the development of 5D BIM through a collaborative workflow that aims to improve BIM data quality and facilitate improved digital outcomes.

These include the ongoing development of the following:

- Design/measurement coordination
- Risk/change management
- E-tendering
- Global collaborative tools
- Construction progress reporting
- 5D BIM Implementation
- Mobile connectivity to monitor site progress
- Paperless communications and reporting

Digital AECOM

Digital AECOM brings together the potential of AECOM's digital technologies to deliver a better world.

Working across the program and project lifecycle, Digital AECOM combines our leading industry knowledge with digital consulting services and products to define, develop and implement personalised – and even disruptive – solutions that accelerate our clients' digital journey and achieve better outcomes

We exist within AECOM's sphere of innovation, and expanding ecosystem of tools, systems and processes – with a team of over 2,000 digital practitioners who understand both the urgency of the challenges facing the infrastructure industry and our responsibility to respond in an impactful and enduring way.

As one of our core values, innovation drives our embrace and development of digital technologies.

From **PlanEngage**, our online platform that streamlines the planning stakeholder engagement process, to **PipeInsights**, our Artificial Intelligence (AI)/Machine Learning (ML) platform that improves the speed and accuracy of pipe inspections, we have developed user-friendly software-as-a-service (SaaS) products that provide greater connectivity between data, projects and communities.

We constantly invest in our digital capabilities to deliver faster, smarter and better. Working with agile specialists, as well as some of the world's largest software providers, our extensive technology alliances allow us to select the right options to meet our clients' needs.

Budgets and timescales involved in infrastructure projects mean few can afford to gamble when it comes to digital adoption. Achieving net zero carbon targets and circular economy ambitions add further impetus and complexity.

As digital experts and trusted advisers to the architecture, engineering and construction industries, Digital AECOM is the bridge between the digital and infrastructure worlds, equipped to create a more sustainable and equitable future, and to deliver a better world.

To learn more about Digital AECOM please visit: **digital.aecom.com**.

Spotlight on solutions

Selected digital solutions we've developed to solve today's pressing challenges:

Digital Twin – there's never been a better time for asset owners to adopt digital twins to unlock significant value, provide benefits for themselves and their customers, and safeguard their staff.

SWIFT (Sustainable Ways of Integrating Future Transportation) – examines future scenarios for regional development considering transportation's role in sustainable development patterns and the role of emerging transportation technologies, such as automated vehicles and Mobility as a Service (MaaS).

OCEAN (Operational Carbon & Energy Analysis) – gathers data for holders of large asset portfolios to understand their portfolio level performance and compare building performance against industry norms.

Transforming project delivery

Our clients count on us to think without limits. By harnessing the power of digital technology and innovation, and connecting our technical experts and visionaries around the world, we deliver tailored solutions and transformative outcomes for our clients and the communities they serve.

Using a bespoke AECOM-developed Reality Capture tool, comprising a mobile phone, 360-degree camera and cloud application, we're able to take 360-degree images of projects that are automatically uploaded and stored on a secure cloud server quickly and easily, visually documenting construction-site progress throughout a project's lifecycle.

The tool allows us to document site progress faster, with stakeholders able to view and assess the information at any time and from anywhere. The images can be easily retrieved as the application logs their location and capture times, which is in stark contrast to traditional photograph repositories that either rely on extensive tagging or renaming.

The 360-degree images provide a more ubiquitous view of projects, which would traditionally involve taking dozens of photographs at multiple locations.

- Project stakeholders to assess site progress remotely anytime and from anywhere by taking a virtual walkthrough.
- Dedicated microsite for stakeholder access to an immersive virtual site walkthrough.
- Visually documenting construction site progress through the use of 360-degree images.
- Promoting transparency across projects and enhancing trust.
- Quicker documentation of site progress.
- All information is stored on one platform, in one place.
- Health and safety concerns can be picked up and shared with the SH&E team.
- Efficient claims handling due to the ability to view an archive of project images tagged with the same GIS data.

**Department of Agriculture,
Land Reform and Rural Development**
Pretoria, South Africa



Image courtesy of
Boogertman + Partners

Building Information Modelling

The 5D BIM process

For the cost management team, our focus is on 5D BIM. This refers to the linking of cost information to a 3D model. The number "3, 4 or 5", in connection with BIM, relates to the type of information associated with the model. It refers to other dimensions, such as time (4D) or cost (5D). 2D and 3D essentially refer to CAD 2D plans and 3D models, while 5D BIM entails the intelligent linking of individual 3D CAD components to cost-related information.

The possible benefits of BIM from a cost management perspective:

Fast, reliable and accurate quantity take-off and cost estimation.

Auto computation of calculations, hence reduced calculation mistakes.

Categorised cost reporting and estimation via the use of zones/locations.

Improved visualisation of the elements for measurement and costing purposes.

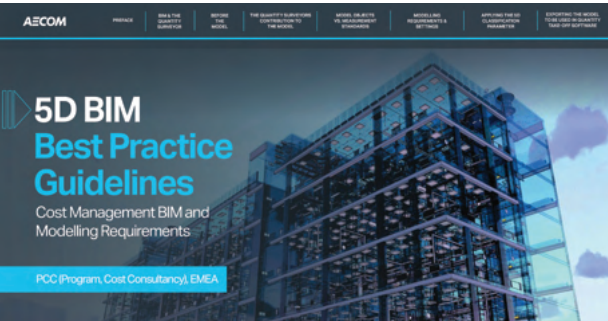
Enhanced communication and collaboration amongst the professional and project team.

Our PCC team have developed a comprehensive leadership guide for quantity surveyors, cost managers and cost estimators looking to be involved in a project utilising BIM.

The document further acts as guidance notes to the design team about modelling best practices and requirements for the quantity surveyor to be able to rely on the object data within the 3D model. The document makes recommendations based on 5D-friendly modelling practices to standardise the output of 3D models in a format that is 5D compatible.

By applying the guidance within the document, the need for manual take-off will be greatly reduced. The ultimate goal is that the development of consistent modelling best practices improves the quality and usability of model data.

“The ultimate goal is that the development of consistent modelling best practice improves the quality and usability of model data.”



Research support

Research is a key part of AECOM's aspirations to embrace complex challenges and deliver innovative outcomes.

Through our research and knowledge-creation activities—including contract research undertaken on an assignment for clients - we aim to stimulate beneficial cultural and business changes, resolve industry-specific problems, support our knowledge database and deliver cost-effective, high-quality and relevant services.

Globally, we have a tradition of supporting research collaborations, and in South Africa, we are currently pursuing a wide range of research studies with local academic and research institutions, professional bodies and the government.

Current research, nationally and internationally, centres around:

- Local, regional and international influences on construction costs and prices.
- BIM cost models.
- Sustainability and green buildings — drivers of green design, construction and operations within different building types.
- Improving infrastructure project delivery in South Africa.
- Tall, large and complex buildings — efficiencies in construction and life-cycle costing.

We have an ongoing collaboration with our international offices with specific regard to global infrastructure sentiment surveys, sector-specific research and developing global project-cost databases.

We aim to work closely with the industry on continuing educational workshops and developing relevant industry reports and publications.

03

Our services



Our services

Quantity surveying and cost management

AECOM provides comprehensive cost management services through all six stages of a project cycle, as identified by The South African Council for the Quantity Surveying Profession, Tariff of Professional Fees, Quantity Surveying Profession Act 2000 (Act 49 of 2000), which is summarised as follows:

Stage one

-  **Assisting in developing a clear project brief.**
-  **Advising on the procurement policy for the project.**
-  **Advising on other professional consultants and services required.**
-  **Advising on economic factors affecting the project.**
-  **Advising on appropriate financial design criteria.**
-  **Providing necessary information within the agreed scope of the project to the other professional consultants.**

Stage two

Agreeing on the documentation programme with the principal consultant and other professional consultants.

Reviewing and evaluating design concepts and advising on viability in conjunction with the other professional consultants.

Preparing preliminary and elemental or equivalent estimates of construction cost.

Assisting the client in preparing a financial viability report.

Auditing space allocation against the initial brief.

Providing services for which the following deliverables are applicable:

- Preliminary estimates of construction cost
- Elemental or equivalent estimates of construction cost
- Space allocation audit for the project

Stage three



Reviewing the documentation programme with the principal consultant and other professional consultants.



Reviewing and evaluating design and outline specifications, as well as exercising cost control in conjunction with the other professional consultants.



Preparing detailed estimates of construction cost.



Assisting the client in reviewing the financial viability report.



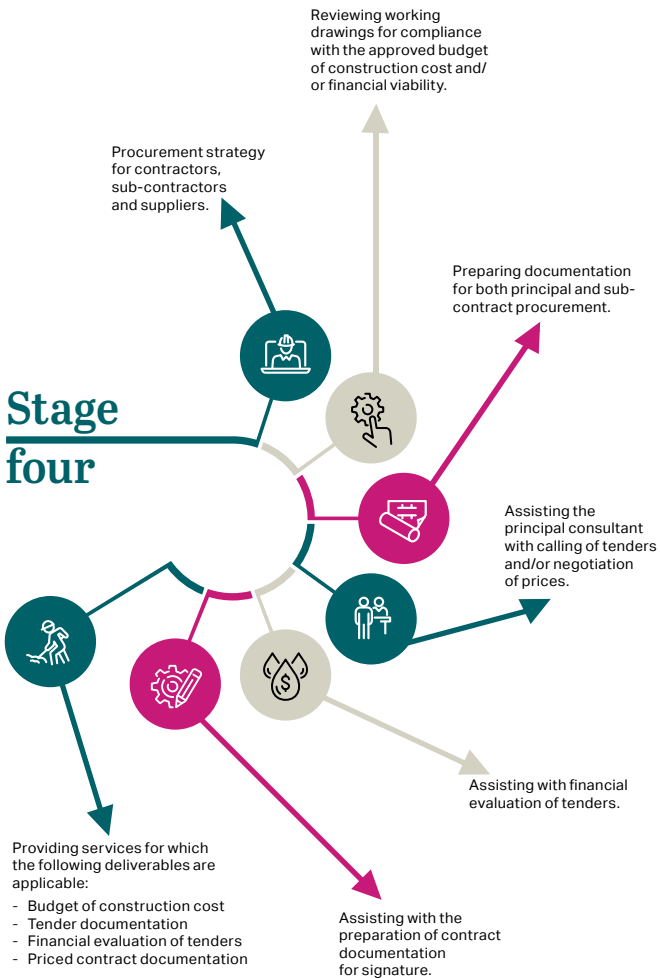
Commenting on space and accommodation allowances and preparing an area schedule.

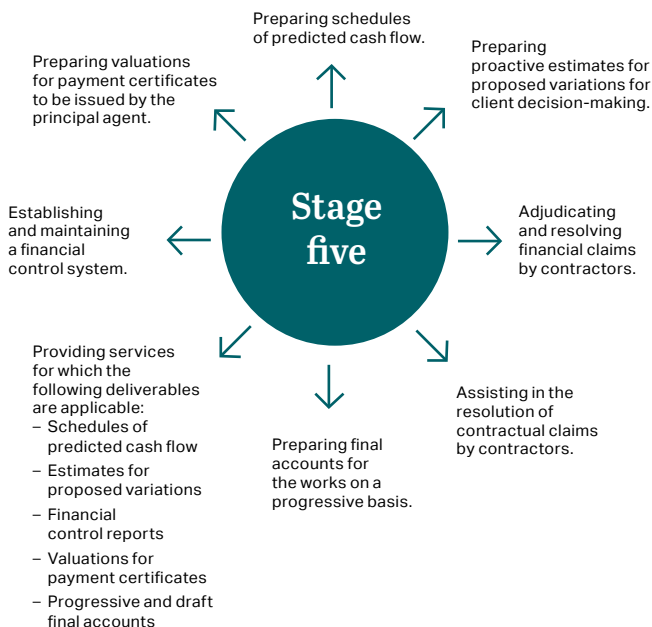


Providing services for which the following deliverables are applicable:

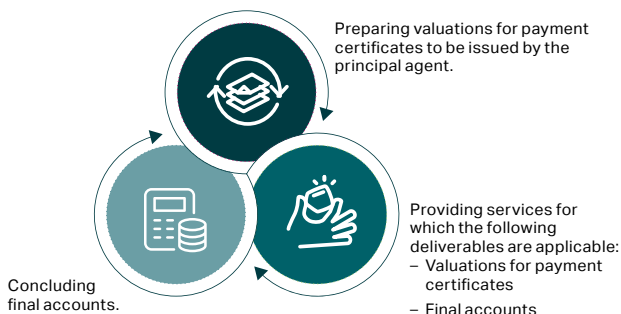
- Detailed estimates of construction cost.
- Area schedule.

Stage four





Stage six



Engineering cost management

Engineering cost management operates as a specialist service within AECOM. It comprises specialist skills and applications that enhance risk and value management techniques required by the mining, infrastructure, minerals, metallurgical and petrochemical sectors.

Our engineering cost management group includes dedicated independent teams specialising in, and responsible for the estimation, procurement, cost management and contract administration activities relating to the above-mentioned sectors.

The engineering cost management team operates throughout Africa using infrastructure support from our major local offices.

Our group employs professionally qualified quantity surveyors, cost managers, cost engineers and contract administrators. Mining, infrastructure, minerals, metallurgical and petrochemical projects typically involve high monetary value. Involving the mining and engineering cost management team early in the project cycle ensures maximum value and effective cost control.

Imposing robust financial discipline from a very early stage will positively impact a project. This includes accurate and structured estimating, timely and cost-effective procurement, accurate and up-to-date maintenance of costs to completion, the cost management of design changes and the prompt close-out of contracts. The implementation of these financial management principles will thereby deliver maximum shareholder value, as well as significantly influence project outcomes to benefit all stakeholders.

Our engineering cost management group provides much experience, expertise and independence that contributes to and complements the client's team. This is critical, particularly in the early stages of a project, when the opportunity to add value, as well as recognise and define cost, is established.

Simultaneously, formalising project principles is equally critical throughout the project, with cost management continuing through to the post-contract period and final closeout.

Project controls and support services

Areas of expertise:

- Scope and change management.
- Resource and material management.
- Project cost controls and budgeting.
- Performance and earned value.

Project success is most often measured in terms of cost, schedule and budget. An effective Project Manager will oversee these vital elements through 'control'.

Timely and accurate project information empowers the decision making process, ensuring access to the right tools and skills for planning, tracking and reporting project information. AECOM provides project controls and support services with a 'project controls by design' approach.

This concept provides a powerful, cost efficient service that satisfies the unique management and reporting needs of each individual project. Our project controls specialists deliver reliable and accurate information, allowing flexibility and scalability, based on project complexity and needs.



Scope management

AECOM utilises software platforms to apply critical path management techniques to capture and organise the fundamental elements of work scope, task durations, logic ties among tasks, and key milestones.



Resource and material management

By using resource-loaded schedules and activity sequencing to facilitate contractor involvement, this minimises work conflicts and ensures that resources, equipment, and materials are available and appropriately staged for maximum project efficiency.

Project cost controls and budgeting

AECOM uses cost-loaded schedules to integrate multiple project cost estimates and resource data to establish a budget, integrated baseline plan, and cost analysis process. This approach transforms static cost data into accurate 'time-phased' spending plans, budgets, cost forecasts, and specialty reports designed to facilitate a realistic project execution plan.

Performance and earned value measurement

AECOM establishes and facilitates a project delivery process that collects and compares actual project costs against the integrated baseline plan to obtain an objective measure of project scope, schedule, and budget performance to date using earned value methods.

Building services cost management

It's essential.

Building services, such as electrical, air-conditioning, fire protection and electronic installations, typically make up 25 to 40 percent of the total construction cost, meaning effective cost management of the building services is essential to ensure the client's budget expectations are met.

With the right expertise, the Quantity Surveyor is the best positioned to cost-manage Building Services alongside the rest of the building works, ensuring a single point of responsibility rather than fragmenting it across multiple design consultants.

Independent cost management of building services by the quantity surveyor ensures transparency and focused service, which in turn allows the building services consultants to focus on their primary design responsibility.



The most effective way to ensure that the building services are cost managed in the same way as the rest of the building works is to allocate this responsibility to the quantity surveyor.”

Our expertise

The team provide financial management and contract administration of all building services including:

- Electrical installation.
- Heating, ventilating and air-conditioning (HVAC) installations.
- Fire protection systems (sprinklers).
- Fire detection and evacuation systems.
- Electronic systems such as access control, surveillance, and structured cabling.
- Lifts and escalators.

Our services

Working in close conjunction with mechanical, electrical and fire protection consultants, our team provides a comprehensive service that covers all aspects of procurement and cost management throughout all the project stages including:

- Cost planning.
- Cost studies to compare alternative designs.



- Evaluating the design as it evolves to ensure compatibility with the cost plan.
- Procurement from tender documentation to adjudication.
- Cost management, monitoring and reporting throughout the contract.
- Valuation for progress payments.
- Settling final costs with the contractor.

Image courtesy of
Boogertman + Partners

**Department of Agriculture,
Land Reform and Rural Development**
Pretoria, South Africa

Ontario Line Southern Civil, Stations and Tunnel Project

Stacie Moorhead

Technical Director - EC Delivery Team



Ontario Line Southern Civil, Stations and Tunnel Project

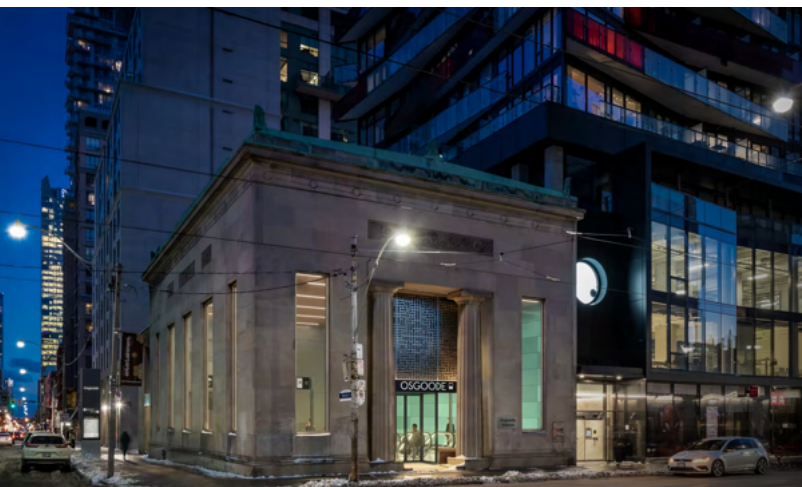
A global collaboration

Project overview

The Ontario Line Southern Civil, Stations and Tunnel Project is a key component of the broader Ontario Line initiative - a 15.6 km, 15-stop rapid transit line set to transform travel across Toronto by improving speed and connectivity between multiple neighbourhoods. VINCI Construction Grands Projets (50%) and Ferrovial Construction (50%) have joined forces to create Ontario Transit Group to deliver this design-build-finance project.

AECOM has been entrusted with developing the design of 2 underground stations and the 6.7 km of segregated guideway (including the at-grade section and tunnel) from concept to IFC level of detail in a 3D environment (BIM LOD 300).

AECOM's global network is playing a central role in supporting the AECOM Canada Team across multiple disciplines, including civils, structures, architecture, MEP, passenger modeling, TVS, change management, BIM, and quantity surveying.



Osgoode
Toronto, Canada

The quantity surveying scope is being led from South Africa, working closely with the lead office in Canada. Given the project's delivery model, the quantity surveying responsibilities will be transferred to the contractor when construction commences to take forward as the JV partner with their on-site team.

The South Africa team joined the project in 2023 to assist in the pre-contract estimating and bills of quantities for over 40 work packages covering the two underground stations, tunnel (SEM and PCTL) and associated civil infrastructure. This engagement has provided the South Africa team with invaluable experience with specialized scopes as support of excavations, TBM PCTL and SEM works – fields not typically encountered in the South African environment.

One team member, whose PhD focuses on trenchless construction, has had the unique opportunity to apply her academic research at a significant scale – an opportunity rarely available locally. We also have a specialised MEP quantity surveying team who have been able to expand their expertise on the Stations MEP works (mechanical, electrical, fire and tunnel ventilation) as well as external utilities and infrastructure works.



Two Herrenknecht TBMs
Toronto, Canada



All design information is produced in 3D by internal AECOM teams, so along with getting familiar with 3D estimating and take offs the quantity surveying team also have direct access to the design team. This integrated setup not only streamlines 3D take-offs and cost estimation but ensures a close alignment between design intent and cost documentation.

This project exemplifies the strength of AECOM's global collaboration and the value of cross-regional knowledge-sharing in delivering complex, world-class infrastructure.



Future Queen Station
Toronto, Canada



Two Herrenknecht TBMs
Toronto, Canada



04

South African cost data



South African cost data

Building cost rate influences – inherent difficulties and pitfalls

This section highlights the inherent difficulties and pitfalls that may occur when inclusive or single rates are used to establish the estimated cost of a particular building.

Construction cost estimation is complex. Comprehensive exercises based on detailed and accurate information are required to achieve reliable levels of comfort. For various reasons, however, decisions are often based on inclusive rate estimates, i.e. rate per square metre (m^2) of construction area or rate per unit in number.

The most widely used and quick method to obtain an indication of the construction cost of a building is the rate/ m^2 -on-plan method. This is often also referred to as the 'order of magnitude' method of cost estimation. It certainly is both quick and convenient, but it can be very misleading if used indiscriminately and without taking care when calculating the construction area and selecting the rate.

Cost comparisons of various buildings are often made by comparing the individual rates/ m^2 without due consideration of several factors that can affect the rate/ m^2 to a substantial degree.

Very often the cost of a building is expressed in rate/ m^2 and the unit cost is ignored if calculated at all. This rate/ m^2 is then used as the sole yardstick for the building costs.

For example, a security guard's shelter measuring 2m x 2m, consisting of brick walls with windows, one door and a simple roof construction may cost R9,000/ m^2 . When compared to the R7,000/ m^2 rate for a 200 m^2 house with plumbing, carpets, and other finishes, this rate may appear expensive. However, the unit cost of the shelter is R36,000, compared with R1.4 million for the house.

Following here, are some criteria to be considered when determining rates/ m^2 .

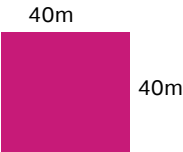
Specification

Two buildings of the same shape with identical accommodation can have vastly different rates/m², as one building may have finishes of a different standard. For example, expensive carpets in lieu of vinyl floor tiles can increase the rate by R150/m².

Wall-to-floor ratio — plan shape

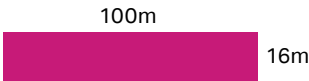
The most economical shape for a building is square. This shape requires the minimum wall length to enclose a given floor area. For example:

Case A



Area	1,600m ²
Wall length	160m
Wall height	3m
Wall area	480m ²
Wall-floor-ratio	480/1,600
Cost of external façade in terms of rate/m ² of floor area to each rate/m ² of façade area	30.0%

Case B



Area	1,600m ²
Wall length	232m
Wall height	3m
Wall area	696m ²
Wall-floor-ratio	696/1,600
Cost of external façade in terms of rate/m ² of floor area to each rate/m ² of façade area	43.5%

The rate/m² on-plan of a façade costing R800/m² on elevation in each case is:

Case A $R800 \times 30.0\% = R240/m^2$

Case B $R800 \times 43.5\% = R348/m^2$

A reader with a good knowledge of mathematics will fault the above argument correctly by stating that a circle is a geometric shape requiring the minimum wall length to enclose a given floor area. However, in very few cases, this is the most economical plan shape of a building as, due to various reasons, the cost of constructing a circular, as opposed to a straight external envelope, is generally greater than the savings in terms of the quantities required by the envelope.

Floor-to-ceiling heights

Two buildings of an identical plan, shape and area, but with different floor-to-ceiling heights will have different rates/m² due to the additional cost of walling, finishes, etc., in the building with the greater floor-to-ceiling height.

Plumbing, mechanical and electrical installations

The concentration of plumbing installations has a marked effect on the rate/m² of the building. The cost of a toilet block per square metre is much greater than that of a house containing one bathroom as the high cost of the bathroom area is spread over the less expensive remaining areas of the house.

Similarly, in commercial and industrial buildings the rate/m² will depend greatly on which air-conditioning, security systems, sprinklers, smoke-detection systems, electrical installations, acoustic treatment or other specialised installations are incorporated into the design.

Construction areas

The rate/m² for a building with large balconies or access corridors included in the construction area cannot be compared with the rate/m² for a building without similar low cost areas.

Internal subdivisions

The rate/m² for open-plan offices should not be compared directly with the rate/m² for offices with internal partitions without the relevant adjustments being made. The inclusion of partitions can increase the overall rate/m² by up to R300/m² of office area.

Parking

Should the building contain parking areas, the average rate/m² will be less than that of a building with identical accommodation, but with parking outside the building structure. For example:

Case A

Building with parking in the building area.

Offices	Plan area 600m ² /floor Construction area 3,000m ²
Offices	
Offices	
Offices	
Parking (600m ²)	Basement

Cost of building

Offices	2,400m ² @ R15,000	= R 36,000,000
Parking	600m ² @ R6,000	= R 3,600,000
Total		R 39,600,000
Average rate/m ²		R 13,200

Case B

A building with parking outside of the building area and on grade.

Offices	Plan area 600m ² /floor Construction area 2,400m ²
Offices	
Offices	
Offices	
	Parking (600m ²)

Cost of building

Offices	2,400m ² @ R15,000	= R 36,000,000
Parking	600m ² @ R 800	= R 480,000
Total		R 36,480,000
Average rate/m ²		R 15,200

Under Case B, the parking area is not included as part of the construction area for calculating the rate/m². Similarly, the rate/m² for a supermarket or shopping centre should be qualified as to whether the cost of on-site parking and ancillary site development has been included, a cost which could be in the region of R800/m² of construction area.

There are further points that need to be taken into consideration. Amongst these are site works particular to each contract, the number of storeys, floor loadings, column spans, concentration of joinery and other fittings, overall height of the building, open-atrium upper volumes, etc.

In conclusion, rates/m² must be used with circumspection. The degree of accuracy of the answers provided must be in direct proportion to the research and surveys undertaken to establish the rate for the building in question.

Approximate inclusive building cost rates

Building cost rates

This section provides a list of approximate inclusive building cost rates for various building types in South Africa. Rates are current to 1 July 2025 and, therefore, represent the average expected building cost rates for 2025. It must be emphasised that these rates are indicative only, and should be used circumspectly, as they are dependent upon several assumptions. See inclusive rate estimates herein.

The area of the building expressed in square metres is equivalent to the construction area where appropriate, as defined in Method for Measuring Floor Areas in Buildings, Second Edition (effective from 7 November 2007), published by the South African Property Owners' Association (SAPOA).

“

It must be emphasised that these rates are indicative only, and should be used circumspectly, as they are dependent upon a number of assumptions.”



Regional variations

Construction costs normally vary between the different provinces of South Africa. Costs in parts of the Western Cape and KwaZulu-Natal, specifically upper-class residential areas, for example, are generally significantly higher than in Gauteng due to the demand for this type of accommodation. However, these rates are based on data received from Gauteng, where possible.

Be mindful that cost differences between provinces at a given point in time are not constant and may vary over time due to differences in supply and demand or other factors. Specific costs for any region can be provided upon request by any AECOM office in that region.

Cape Station Student Units
Western Cape, South Africa



Building rates

Rates include the cost of appropriate building services, for example, air-conditioning, but exclude costs of site infrastructure development, parking, any future escalation, loss of interest, professional fees and value-added tax (VAT).

Offices	Rate per m ² (excl. VAT)
Low-rise office park development with standard specification	R 11,300 – R 13,900
Low-rise prestigious office park development	R 14,600 – R 21,700
High-rise tower block with standard specification	R 16,400 – R 21,700
High-rise prestigious tower block	R 21,700 – R 27,400

Office rates exclude parking and include appropriate tenant allowances incorporating carpets, wallpaper, louvre drapes, partitions, lighting, air-conditioning and electrical reticulation.

Parking	Rate per m ² (excl. VAT)
Parking on grade, including integral landscaping	R 800 – R 1,000
Structured parking	R 5,500 – R 6,100
Parking in semi-basement	R 6,100 – R 8,300
Parking in basement	R 6,500 – R 11,300

Retail	Rate per m ² (excl. VAT)
Local convenience centres (Not exceeding 5,000m ²)	R 11,100 – R 14,600
Neighbourhood centres (5,000 – 12,000m ²)	R 12,100 – R 16,100
Community centres (12,000 – 25,000m ²)	R 13,300 – R 17,100
Minor regional centres (25,000 – 50,000m ²)	R 14,100 – R 18,100
Regional centres (50,000 – 100,000m ²)	R 15,000 – R 18,100
Super regional centres (exceeding 100,000m ²)	R 16,400 – R 21,200

Super regional centres and regional centres are generally inward trading with internal malls, whereas convenience, neighbourhood and community centres are generally outward trading with no internal malls.

Retail rates include the cost of tenant requirements and specifications of national chain stores.

Retail costs vary considerably depending on the tenant mix and sizing of the various stores.

Industrial*Rate per m² (excl. VAT)*

Industrial warehouses, including office and change facilities within structure area (architect/engineer designed):

Steel frame, steel cladding and roof sheeting (light-duty)

R 5,800 – R 7,400

Steel frame, brickwork to ceiling, steel cladding above and roof sheeting (heavy-duty)

R 6,500 – R 9,300

Administration offices, ablution and change room block

R 10,500 – R 13,400

Cold storage facilities

R 19,600 – R 27,900

Residential*Rate per site (excl. VAT)*

Site services to low-cost housing stand (250–350m²)

R 71,000 – R 114,000

Rate per m² (excl. VAT)

RDP housing

R 3,400 – R 3,600

Low-cost housing

R 4,300 – R 7,400

Simple low-rise apartment block

R 10,300 – R 14,300

Duplex townhouse – economic

R 10,300 – R 14,700

Prestige apartment block

R 20,000 – R 30,000



Residential		<i>Rate per m² (excl. VAT)</i>
Private dwelling houses:		
Economic		R 7,920
Standard		R 9,850
Middle-class		R 11,830
Luxury		R 16,350
Exclusive		R 26,450
Exceptional ('super luxury')		R 38,000 – R 80,000
Out buildings	– standard	R 7,400
	– luxury	R 10,400

		<i>Rate per no. (excl. VAT)</i>
Carport (shaded)	– single	R 6,300
	– double	R 12,800
Carport (covered)	– single	R 10,000
	– double	R 19,500
Swimming pool		
Not exceeding 50 kl		R 135,000
Exceeding 50 kl and not exceeding 100 kl		R 240,000
Tennis court		
Standard		R 710,000
Floodlit		R 880,000

Student residential	<i>Rate per m² (excl. VAT)</i>
High rise tower block with standard specification	R 16,000 – R 17,500

Student residential rates include allowances for furniture, fittings and equipment (FF&E).

Hotels	<i>Rate per key (excl. VAT)</i>
Budget	R 890,000 – R 1,400,000
Mid-scale (3-star)	R 1,401,000 – R 2,100,000
Upper-scale (4-star)	R 2,101,000 – R 3,000,000
Luxury (5-star)	R 3,001,000 – R 4,000,000

Hotel rates include allowances for furniture, fittings and equipment (FF&E).

Studios	<i>Rate per m² (excl. VAT)</i>
Studios — dancing, art exhibitions, etc.	R 19,500 – R 28,000

Conference centres	<i>Rate per m² (excl. VAT)</i>
Conference centre to international standards	R 36,000 – R 46,000

Retirement centres	<i>Rate per m² (excl. VAT)</i>
Dwelling houses	
Middle-class	R 11,600
Luxury	R 16,400
Apartment block	
Middle-class	R 12,000
Luxury	R 18,600
Community centre	
Middle-class	R 15,800
Luxury	R 23,000
Frail care	R 18,600

Schools	<i>Rate per m² (excl. VAT)</i>
Primary school	R 9,300 – R 10,700
Secondary school	R 11,100 – R 11,900

Hospitals	<i>Rate per m² (excl. VAT)</i>
District hospital	R 39,000

Hospital rates exclude allowances for furniture, fittings and equipment (FF&E).

Stadiums	<i>Rate per seat (excl. VAT)</i>
Stadium to PSL standards	R 48,000 – R 74,000
Stadium to FIFA standards	R 110,000 – R 146,000
	<i>Rate per pitch (excl. VAT)</i>
Stadium pitch to FIFA standards	R 32,000,000 – R 37,000,000

Ashton Arch Bridge

South Africa



Prison	<i>Rate per inmate (excl. VAT)</i>
1,000 inmate prison	R 830,000 – R 880,000
500 inmate prison	R 855,000 – R 990,000
High/maximum security prison	R 1,300,000 – R 1,750,000

Infrastructure airport development costs

Rates exclude any future escalation, loss of interest, professional fees, VAT and ACSA direct costs.

Apron stands (incl. associated infrastructure)	<i>Rate per m² (excl. VAT)</i>
Code F Stand (85m long x 80m wide = 6,800m ²)	R 7,800
Code E Stand (80m long x 65m wide = 5,200m ²)	R 8,300
Code C Stand (56m long x 40m wide = 2,240m ²)	R 10,500

Taxi lanes (incl. associated infrastructure)	<i>Rate per m (excl. VAT)</i>
Code F taxi lane (101m wide)	R 262,000
Code E taxi lane (85m wide)	R 219,000
Code C taxi lane (49m wide)	R 130,000

Service roads	<i>Rate per m (excl. VAT)</i>
Service road (10m wide)	R 26,200
Dual carriage service road (15m wide)	R 33,000



**Taxi ways
(incl. associated infrastructure)**

Rate per m (excl. VAT)

Code F taxi way (70m wide) R 195,000

**Runways
(incl. associated infrastructure)**

Rate per m (excl. VAT)

Code F runway
(3,885m long x 60m wide = 233,100m²) R 439,000

**Parking
(excluding bulk earthworks)**

Rate per bay (excl. VAT)

Structured parking R 268,000

Basement parking R 402,000

Perimeter fencing/security gates

Rate per m (excl. VAT)

Perimeter walls with
perimeter intrusion detection (PIDS) R 12,200

Terminal buildings

Rate per m² (excl. VAT)

Terminal buildings
(excl. baggage and X-ray systems, air bridges, seating
and aircraft docking systems) R 43,000

Rate per unit (excl. VAT)

Telescopic air bridges R 16,000,000

Aircraft docking system R 2,300,000

Building services

The following rates are for building services (mechanical and electrical), which are applicable to typical building types in the categories indicated. Rates are dependent on various factors related to the design of the building and the requirements of the system.

In particular, the design, and therefore the cost of air-conditioning, can vary significantly depending on the orientation, shading, extent and type of glazing, external wall and roof construction.

Electrical installation	Rate per m ² (excl. VAT)
Offices	
Standard installation	R 1,100 – R 1,600
Sophisticated installation	R 1,600 – R 2,000
UPS, substations, standby generators to office buildings	R 750 – R 950
Residential	R 950 – R 1,600
Shopping centres	R 1,600 – R 2,050
Hotels	R 1,700 – R 2,250
Hospitals	R 2,200 – R 3,200

Electronic installation	Rate per m ² (excl. VAT)
Offices	
Standard installation	R 500 – R 750
Sophisticated installation	R 750 – R 1,100
Residential	R 450 – R 750
Shopping centres	R 1,000 – R 1,350
Hotels	R 950 – R 1,350
Hospitals	R 1,000 – R 1,500

Electronic installation includes access control, CCTV, public address, fire detection, data installation, WiFi, CATV, PABX (Private Automatic Branch Exchange) and Building Management System (BMS).

Fire protection installation (offices)	<i>Rate per m² (excl. VAT)</i>
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Sprinkler system, including hydrants and hose reels (excluding void sprinklers)	R 450 – R 600
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Air-conditioning installation	<i>Rate per m² (excl. VAT)</i>
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Ventilation to parking/service areas	R 450 – R 750
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Offices

Console units	R 1,200 – R 1,700
Console/split units	R 1,350 – R 2,150
Package units	R 2,000 – R 2,900
Central plant	R 2,450 – R 3,700

Residential–split units	R 1,350 – R 2,100
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Shopping centres

Split units	R 1,600 – R 2,200
Package units	R 2,000 – R 2,900
Evaporative cooling	R 1,250 – R 1,800

Hotels — public areas	R 2,400 – R 3,700
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Hospitals central plant	R 3,200 – R 5,000
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Hotels	<i>Rate per key (excl. VAT)</i>
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Console units	R 30,500 – R 40,500
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Split units	R 41,500 – R 62,000
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Central plant	R 83,000 – R 121,000
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Hospitals — operating theatres	R 910,000 – R 1,500,000
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05

Global sentiment and building costs



Global sentiment and building costs

Africa outlook 2025

In 2025, Africa is expected to experience accelerated economic growth, driven by factors such as easing inflation, interest rate cuts, and market reforms, according to the African Development Bank Group and the Economist Intelligence Unit. However, significant policy shifts and geopolitical tensions present risks to this recovery.

Africa's economy is projected to grow from 3.3% in 2024 to 3.9% in 2025, reaching 4% in 2026.

Africa's economy is showing resilience, supported by rising private consumption and investment as inflation eases and currencies stabilise. However, the region continues to face challenges in reducing poverty and creating jobs, particularly for its growing young population.

Sub-Saharan Africa faces uncertainty regarding changes in US foreign trade policies, development assistance, and US interest rates. Significant policy shifts, including those in trade and development assistance, could affect the region's recovery.

Countries need to prioritise sustainable development and address issues such as poverty, inequality, and climate change. Improved infrastructure is crucial for economic growth and development.

The fastest growing and most promising economies in Africa in 2025

In 2025, South Sudan, Libya, and Senegal are projected to be the fastest-growing economies in Africa, according to a report by Tech In Africa. These three countries are expected to have GDP growth rates of 27.2%, 13.7%, and 9.3%, respectively. South Sudan's growth is driven by oil production recovery, while Senegal's is attributed to its emerging oil and gas industry.

Other sources indicate that in 2025, African economies are poised to lead global growth, with numerous nations exceeding the global average. East Africa is projected to lead with a 5.9% growth rate, driven by resilient economies such as Ethiopia, Rwanda, and Tanzania.

West Africa however maintains strong growth, partly due to new oil and gas production in Senegal and Niger. Despite challenges, North Africa is expected to grow at 3.6%.

The economic outlook for South Africa in 2025

The South African economy is projected to experience modest growth in 2025, with real GDP growth estimated between 1.3% and 1.7%. While some sectors such as construction and transport are showing moderate growth, overall growth is expected to be relatively slow due to subdued demand and lingering supply-side issues. Agriculture contributes significantly to maintain overall growth.

The economic outlook for South Africa in 2026

South Africa's economic outlook for 2026 is projected to be modestly positive, with growth likely to be around 1.8%. While the economy is expected to strengthen, driven by factors such as private consumption, structural reforms and the easing of electricity shortages, challenges remain, including persistent unemployment, government debt, and vulnerabilities in the transport and energy sectors.

The IMF forecasts next year's economic growth rate for South Africa at only 1.3% year-on-year and the IMF's figure for 2026 is 1.4%. Investec forecasts economic growth at somewhat higher.

South Africa is the largest economy in Africa. It has Africa's most industrialised economy. After 30 years of ANC-dominated Rule and recent elections, a Government of National Unity has been introduced by taking hands with the opposition (DA), the IFP and smaller parties. A "New South Africa" has in fact been re-born. The previously named 'Rainbow Nation' is determined to improve on all past negative performances. Building, repair, and renovation of neglected infrastructure is a high priority resulting in good news for the built environment.

The biggest issues in Africa today

The most pressing issue in Africa today is a complex combination of interconnected problems, including food insecurity, poverty, inequality, and the impact of climate change. These challenges are exacerbated by weak governance, political instability, and a lack of access to essential services such as healthcare and education.

Despite economic growth in some countries, a significant portion of the population lives in poverty, and income inequality remains a major issue, concentrating wealth in the hands of a few.

Many African economies are heavily reliant on the export of primary commodities, making them vulnerable to global price fluctuations and hindering diversification.

High unemployment rates, especially among the youth, pose a significant challenge, contributing to social unrest and economic instability.

Africa is important to the world

Africa's mineral resources account for nearly half of the world's production of bauxite, chromite, diamonds, and palladium; more than half of its cocoa and platinum; and nearly three-quarters of its cobalt.

The largest reserves of platinum and uranium in the world are in Africa. Africa holds 65 per cent of the world's arable land and ten percent of the planet's internal renewable freshwater sources. In most African countries, natural capital accounts for between 30 percent and 50 percent of total wealth.

Is Africa booming?

Yes, Africa is experiencing significant economic growth, particularly in Sub-Saharan Africa, though there are also challenges. The continent is the second-fastest-growing region globally, with several countries achieving growth exceeding 5% in 2025. This growth is driven by factors such as increased private consumption, investments, and a decline in inflation and currency stabilisation.

The median inflation rate in the region has declined from 7.1% in 2023 to 4.5% in 2024. Currency stability has contributed to increased private consumption and investments.

A booming natural resources market is a driving force in the region, particularly in Sub-Saharan Africa. They are developing the world's largest free-trade area, creating opportunities for businesses and investors.

Africa has a young population, which is expected to be a significant factor in future economic growth.

Source:

Various recent forecasts of:

African Development Bank Group

Economist Intelligence Unit

Investec

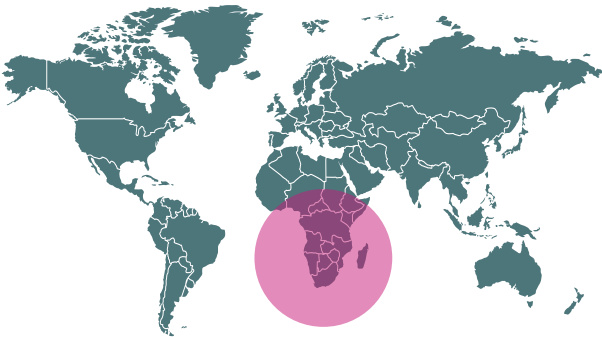
Tech In Africa

The International Monetary Fund

The New York Times

The South African Reserve Bank

The World Bank





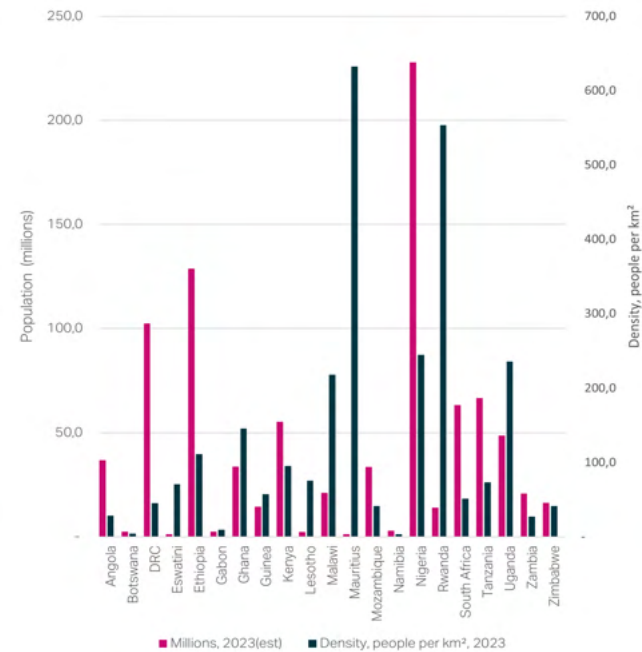
Africa in figures

Area and population

Country	Land area (000km ²)	Population		
		Millions, 2023 (est)	Average annual % population growth rate, 2020–2023	Density, people per km ² , 2023
Angola	1,246.7	36.7	3.1	28.6
Botswana	566.7	2.5	1.6	4.3
DRC	2,267.1	102.4	3.2	45.2
Eswatini	17.2	1.2	0.9	70.9
Ethiopia	1,128.6	128.7	2.6	111.1
Gabon	257.7	2.5	2.2	9.4
Ghana	227.5	33.8	1.9	145.7
Guinea	245.7	14.4	2.5	57.2
Kenya	569.1	55.3	2.0	95.3
Lesotho	30.4	2.3	1.1	75.3
Malawi	94.3	21.1	2.6	218.2
Mauritius	2.0	1.3	0.1	632.2
Mozambique	786.4	33.6	3.0	41.5
Namibia	823.3	3.0	2.5	3.5
Nigeria	910.8	227.9	2.1	245.0
Rwanda	24.7	14.0	2.2	553.3
South Africa	1,213.1	63.2	1.3	51.4
Tanzania	885.8	66.6	2.9	73.1
Uganda	200.5	48.7	2.8	236.0
Zambia	743.4	20.7	2.8	27.1
Zimbabwe	386.9	16.3	1.7	41.5

Source: World Development Indicators 2023

Population and density 2023



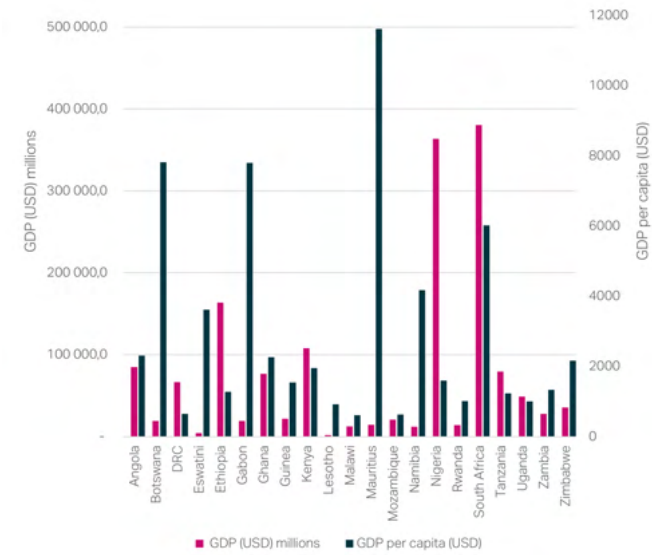
Source: World Development Indicators 2023

Gross Domestic Product (At constant 2,000 prices)

Country	GDP (USD) millions	GDP growth (annual % since 2000)	GDP per capita (USD)	Gross capital formation (% of GDP)	Inflation, consumer price (annual %)
Angola	84,824.7	1.0	2,308.2	23.8	28.2
Botswana	19,396.1	2.7	7,820.2	30.3	2.8
DRC	66,383.3	5.5	642.6	31.5	-
Eswatini	4,442.9	5.0	3,610.6	-	-
Ethiopia	163,697.9	6.5	1,272.0	22.2	-
Gabon	19,388.4	2.4	7,802.8	18.1	1.2
Ghana	76,370.4	2.9	2,260.3	10.9	22.9
Guinea	22,199.4	6.7	1,541.0	20.9	8.1
Kenya	108,038.6	5.6	1,952.3	16.4	4.5
Lesotho	2,118.0	1.8	916.3	27.2	6.1
Malawi	12,712.2	1.9	602.3	-	32.2
Mauritius	14,644.5	7.0	11,613.0	23.7	4.1
Mozambique	20,954.2	5.4	623.0	19.9	-
Namibia	12,351.0	4.2	4,168.3	27.8	4.2
Nigeria	363,846.3	2.9	1,596.6	-	-
Rwanda	14,097.8	8.2	1,010.3	23.3	1.8
South Africa	380,699.3	0.7	6,022.5	15.5	4.4
Tanzania	79,062.4	5.1	1,224.5	41.0	3.1
Uganda	48,769.0	5.3	1,002.3	22.8	3.3
Zambia	27,578.0	5.4	1,330.7	31.5	-
Zimbabwe	35,231.4	5.3	2,156.0	16.3	-

Source: World Development Indicators 2023

Gross Domestic Product 2023



Source: World Development Indicators 2023

Africa building costs

This section makes provision for the comparison of Africa's building costs, international building costs and international rental rates.

The Africa Building Cost Comparison table (Page 75), summarises the estimated building costs for different types of buildings in various locations in Africa. Rates are based on costs from 1 July 2025 and provide an indicator for the expected building cost rates during 2024. Exchange rates are based on those from 1 May 2025.

Rates include the cost of appropriate building services, such as air-conditioning and electrical, but exclude costs of site infrastructure development, parking, any future escalation, loss of interest, professional fees and VAT. These rates are of an indicative nature and therefore the qualifications dealt with elsewhere in this publication would apply.

These are estimated costs and should only be considered in the context of acceptable building standards in each relevant country. These standards, both at a technical level and pertaining to quality, do vary from country to country. Therefore, the building costs must be seen as the normal standards prevailing in each particular region and must be used circumspectly.

Cape Station South Africa



Image courtesy of
Boogertman + Partners

Building Type		Botswana Gaborone	Ghana Accra	Lesotho Maseru	Mozambique Maputo	Namibia Windhoek	Nigeria Lagos	South Africa Johannesburg	Zambia Lusaka
Residential	(US\$ / m²)								
Average Multi Unit High Rise		1,123	2,293	1,233	1,519	1,233	2,407	1,072	1,475
Luxury Unit High Rise		1,596	2,704	1,541	1,942	1,541	3,332	1,340	2,035
Individual Prestige Houses		2,400	2,589	1,603	2,091	1,603	2,934	1,394	1,992
Commercial/Retail	(US\$ / m²)								
Standard Offices High Rise		1,191	2,100	1,174	1,462	1,174	2,407	1,021	1,518
Prestige Offices High Rise		2,000	3,088	1,513	1,748	1,513	3,340	1,316	2,043
Major Shopping Centre		1,665	1,729	1,159	1,748	1,159	3,335	1,008	1,922
Industrial	(US\$ / m³)								
Light Duty Factory		1,056	1,235	407	1,002	407	1,333	354	766
Heavy Duty Factory		1,623	1,531	488	1,519	488	1,797	424	849
Hotel	(US\$ / key)								
Mid-scale (3 Star)		169,451	400,028	107,940	174,698	107,940	329,661	93,861	393,282
Luxury (5 Star)		547,038	562,097	215,848	315,030	215,848	601,989	187,694	507,720
Resort Style		610,950	714,285	Not available	624,903	Not available	730,989	Not available	533,993
Other	(US\$ / m²)								
Multi Storey Car Park		885	1,000	358	974	358	1,720	311	679
District Hospital		Not available	2,001	2,405	3,466	2,405	2,405	2,091	1,407
Primary & Secondary Schools (As at 1 May 2025)		1,531	1,294	653	1,358	653	Not available	568	985
		BWP	GHS	LSL	MZN	NAD	NGN	ZAR	ZMW
US\$1 =		13.68	13.90	18.65	63.73	18.65	1,602.69	18.65	27.97

Prices exclude land, site works, professional fees, tenant fitout and equipment. Rates exclude GST/VAT. Hotel rates include FF&E.

Global building cost comparison

The international cost data shown is converted to US Dollars to enable comparison. The building costs, for their respective asset types, are averages based on local specifications.

The actual cost of a building depends on several factors, including unique site conditions, design attributes, and applicable tariffs. For specific current and benchmarked cost data, please contact AECOM's Program Cost Consulting team for assistance in obtaining relevant and specific advice.

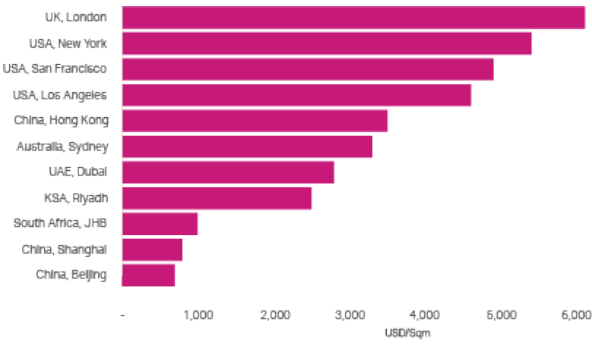
In addition, the standard for each building varies from region to region, which may have a significant impact on cost.

Costs are subject to considerable variations due to factors such as:

- Local market conditions.
- Complexity of project.
- Commodity price movements.
- Building specifications.
- Exchange rates.
- Contractors appetite for securing work.
- Contractual risk apportionment.

Residential

Average building cost for a standard multi unit high-rise



Source: AECOM

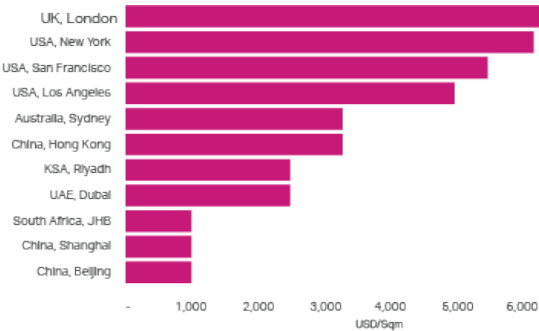
Average building costs (USD/sqm)											
Building Type	Australia Sydney	China Hong Kong	China Beijing	China Shanghai	South Africa JHB	UAE Dubai	USA Los Angeles	USA San Francisco	USA New York	UK London	KSA Riyadh
Multi Unit High Rise	3,300	3,500	800	700	1,000	2,800	4,600	4,900	5,400	6,100	2,500
Luxury Unit High Rise	4,000	4,700	1,400	1,400	1,300	3,900	6,400	6,800	7,200	9,300	3,400
Individual Prestige Houses	4,600	6,700	1,700	0	1,400	4,000	5,500	6,000	6,200	6,000	3,000
(Ave H1 2024)	AUD	HKD	CNY	CNY	ZAR	AED	USD	USD	USD	GBP	SAR
1 USD =	1.51	7.81	7.20	7.20	18.48	3.67	1.00	1.00	1.00	0.78	3.75

Note: Prices exclude land, site works, professional fees, tenant fitout and equipment. Rates exclude GST/VAT.
International costs based on Q3 2024 and exchange rates to USD as of H1 2024.
UAE / KSA costs based on Q3 2024 and exchange rate to USD as of Q3 2024.

Source: AECOM

Commercial

Average building cost for a standard office high-rise



Source: AECOM

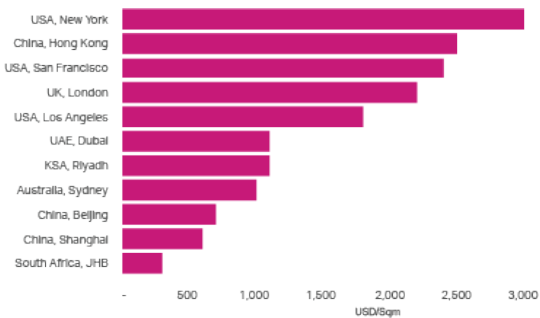
Average building costs (USD/sqm)											
Building Type	Australia Sydney	China Hong Kong	China Beijing	China Shanghai	South Africa JHB	UAE Dubai	USA Los Angeles	USA San Francisco	USA New York	UK London	KSA Riyadh
Standard Offices High Rise	3,300	3,300	1,000	1,000	1,000	2,500	5,000	5,500	6,200	6,300	2,500
Prestige Offices High Rise	4,600	4,100	1,400	1,400	1,300	3,600	5,500	6,200	6,800	6,900	3,800
Major Shopping Center (CBD)	3,000	4,600	1,300	1,200	800	2,000	4,100	4,500	4,600	5,200	2,200
(Ave H1 2024)	AUD	HKD	CNY	CNY	ZAR	AED	USD	USD	USD	GBP	SAR
1 USD =	1.51	7.81	7.20	7.20	18.48	3.67	1.00	1.00	1.00	0.78	3.75

Note: Prices exclude land, site works, professional fees, tenant fitout and equipment. Rates exclude GST/VAT. International costs based on Q3 2024 and exchange rates to USD as of H1 2024. UAE and KSA costs based on Q3 2024 and exchange rate to USD as of Q3 2024.

Source: AECOM

Industrial and other

Average building cost for a light duty factory



Source: AECOM

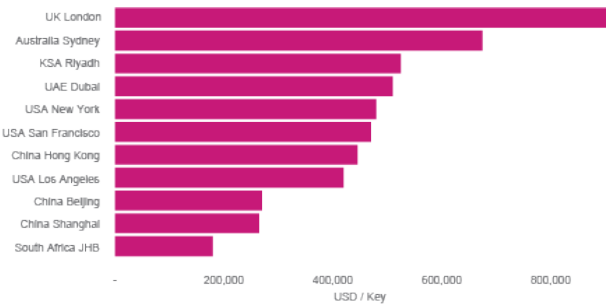
Average building costs (USD/sqm)											
Building Type	Australia Sydney	China Hong Kong	China Beijing	China Shanghai	South Africa JHB	UAE Dubai	USA Los Angeles	USA San Francisco	USA New York	UK London	KSA Riyadh
Light Duty Factory	1,000	2,500	700	600	300	1,100	1,800	2,400	3,000	2,200	1,100
Heavy Duty Factory	1,300	-	-	-	400	1,700	2,200	2,500	3,000	3,800	1,500
Multi Storey Car Park	1,200	1,900	500	500	300	900	1,700	1,800	1,800	2,200	900
District Hospital	5,000	5,500	800	1,200	2,000	3,600	9,000	9,500	10,500	8,100	2,700
Primary & Secondary Schools	2,300	2,900	-	1,000	500	2,200	5,200	5,400	5,400	4,800	1,700
(Ave H1 2024)	AUD	HKD	CNY	CNY	ZAR	AED	USD	USD	USD	GBP	SAR
1 USD =	1.51	7.81	7.20	7.20	18.48	3.67	1.00	1.00	1.00	0.78	3.75

Note: Prices exclude land, site works, professional fees, tenant fitout and equipment. Rates exclude GST/VAT.
International costs based on Q3 2024 and exchange rates to USD as of H1 2024.
UAE/KSA costs based on Q3 2024 and exchange rate to USD as of Q3 2024.

Source: AECOM

Tourism

Average building cost for a five-star luxury hotel



Source: AECOM

Average building costs (USD/key)											
Building Type	Australia Sydney	China Hong Kong	China Beijing	China Shanghai	South Africa JHB	UAE Dubai	USA Los Angeles	USA San Francisco	USA New York	UK London	KSA Riyadh
3 Star Budget	230,000	215,000	45,000	60,000	75,000	116,000	90,000	95,000	95,000	245,000	125,000
5 Star Luxury	675,000	445,000	270,000	265,000	180,000	510,000	420,000	470,000	480,000	1,405,000	525,000
Resort Style	-	-	-	-	205,000	660,000	350,000	390,000	400,000	575,000	710,000
(Ave H1 2024)	AUD	HKD	CNY	CNY	ZAR	AED	USD	USD	USD	GBP	SAR
1 USD =	1.51	7.81	7.20	7.20	18.48	3.67	1.00	1.00	1.00	0.78	3.75

Note: Prices exclude land, site works, professional fees, tenant fitout and equipment. Rates exclude GST/VAT.
International costs based on Q3 2024 and exchange rates to USD as of H1 2024.
UAE and KSA costs based on Q3 2024 and exchange rate to USD as of Q3 2024.

Source: AECOM

International exchange rate trends

In recent years, exchange rate movements have been significant as diverging economic performance has led to many major currencies experiencing significant shifts against the US Dollar. The Forex rate illustrates a country's economic stability with leading factors that can influence fluctuations and those that are constantly analysed, including:

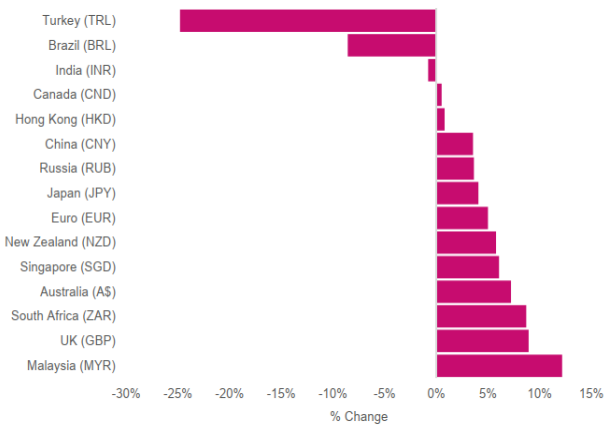
- Interest rates.
- Inflation.
- A country's current account balance.

- Government debt.
- Political stability.
- Recessions.
- Commodity markets.
- International trade.
- Geopolitical conflict.

Currency depreciation against the US Dollar translates into a relative drop in building costs when expressed in US Dollars, making these locations/ regions relatively cheaper in US Dollar terms.

Exchange rate trends

Currency movements of the US Dollar against major currencies Q3 2024 compared to Q3 2023.



Source: www.xe.com

06

International prestigious office rental comparison



International prestigious office rental comparison

Region	Country	City	USD/m ² per annum
Africa			
	Botswana	Gaborone	127
	Ghana	Accra	336
	Kenya	Nairobi	156
	Mozambique	Maputo	384
	Namibia	Windhoek	162
	Nigeria	Lagos	300
	South Africa	Cape Town	136
		Durban	115
		Johannesburg	144
	Tanzania	Dar Es Salaam	180
	Uganda	Kampala	173
	Zambia	Lusaka	227
Asia			
	China	Beijing (CBD)	1,163
		Hong Kong (Central)	1,076
		Shanghai (CBD)	1,023
	Malaysia	Kuala Lumpur (City Centre)	258
	Singapore	Singapore (CBD)	1,066
	Thailand	Bangkok (CBD)	291
Australasia			
	Australia	Melbourne (CBD)	420
		Sydney (CBD)	388
Europe			
	United Kingdom	London (City)	721
		London (West End)	1,302
		London (Canary Wharf)	517
Middle East			
	Saudi Arabia	Jeddah	319
		Riyadh	560
		Makkah	169
	United Arab Emirates	Dubai (Central Dubai)	578
		Dubai (New Dubai)	433
		Dubai (Old Dubai)	429
		Abu Dhabi	581

International prestigious office rental comparison

Region	Country	City	USD/m ² per annum
North America			
	USA	Los Angeles	624
		Miami	990
		New York (Manhattan)	1,450
		San Francisco	969
		Silicon Valley	1,356

International prestigious office rental rates are applicable as of 1 January 2025 and exclude VAT but include GST where applicable. All rentals are net effective. Rents and capital values are on a net lettable area basis and pertain to the major submarket in each city.

**Department of Agriculture,
Land Reform and Rural Development,
Pretoria, South Africa**



07

Building cost escalations



Building cost escalations

Building cost

The meaning of 'building cost' depends on the application and context. A building contractor, for example, may refer to it as the cost of labour, material, plant, fuel and supervision. In contrast, a developer may refer to either the tender price from the contractor or the ultimate cost of the project, which could include professional fees, plan approval fees, escalation, loss of interest etc.

For the purpose of this document, building cost shall be deemed to mean the tender price (or negotiated price) submitted by the building contractor.

Escalation rate

There seem to be two popular methods for calculating and expressing percentage annual increases, the average rate and the year-on-year rate. The average rate has no real use in calculating escalation and is of general interest only. The year-on-year rate should be used in escalation calculations, taking cognisance of actual project programmes.

The average rate compares the indices for each month (or quarter) of the year with those of the corresponding months (or quarters) of the preceding year. The average of these is then calculated and then quoted as the average annual increase for that year.

The year-on-year rate compares the January (or December) index with the index for the corresponding month of the previous year and reflects the increase over that year.

There may be a significant difference in the two rates in question. For example, in 2021 the year-on-year rate (January 2020 to January 2021) of the building cost inflation in South Africa was only 2.4 percent, while the average annual rate (comparing monthly indices) was 3.6 percent.

Calculation of estimated escalation of construction contracts

Pre-contract

Construction cost changes are on an ongoing basis for various reasons. Provision should therefore be made for changes in tender prices during the date of the estimate to the expected tender date. Adding the estimated current building cost to the total equals the anticipated tender amount.

This is calculated by multiplying the estimated current building cost by the average estimated monthly percentage increase and by the number of months from date of estimate to tender date.

Contract price adjustment

Provision is made for escalation in building costs during the contract period. The Contract Price Adjustment Provisions (CPAP) formula provides for 85 percent of the contract amount to be subject to escalation adjustment with the remaining 15 percent fixed. Furthermore, a factor must be introduced to take account of the cash flow payments during the construction period and 0.6 is often acceptable if a short method of calculation is employed.



The Contract Price Adjustment Provisions (CPAP) formula provides for 85 percent of the contract amount to be subject to escalation adjustment with the remaining 15 percent fixed.”

The total escalation during the contract period is therefore calculated by multiplying the anticipated tender amount by 0.85 and 0.6. After this, it is then calculated by the estimated monthly percentage increase as indicated by the relevant indices in the CPAP formula, and by the contract period expressed in months.

Tender price escalation

The annual year-on-year increase in building costs (i.e. tender prices) are based on the indices published by the Bureau for Economic Research (BER), University of Stellenbosch (January to January of each year), and for CPAP formula (Work Group 181 Commercial/Industrial buildings). It is published by Statistics South Africa (P0151), and is as follows:

Cost indices applicable to the building industry

YEAR	BER		CPAP		TMI
	Index (Jan=100)	Year-on-Year Increase	Index (Jan=100)	Year-on-Year Increase	
2020	100.0		100.0		1.00
2021	102.4	+2.4%	106.0	+6.0%	0.97
2022	108.1	+5.6%	120.9	+14.1%	0.89
2023	119.1	+10.1%	128.4	+6.2%	0.93
2024	136.7	+14.8%	135.1	+5.2%	1.01
2025	145.7	+6.6%	137.8	+2.0%	1.06
2026	150.9	+3.6%	144.0	+4.5%	1.05
2027	158.0	+4.7%	150.7	+4.6%	1.05
2028	166.9	+5.6%	157.3	+4.4%	1.06
2029	176.7	+5.9%	164.2	+4.4%	1.08

The average annual increases indicated by the BER publications are the average of the quarterly increases for that particular year and will not correspond to the above year-on-year increase.

The difference between tender price escalation and escalation according to the indices incorporated in the CPAP formula for any one period may be attributed to the market factor, which incorporates the contractor's markup, productivity, availability of materials, etc.

This forecast is based on information provided by the Bureau for Economic Research, Stellenbosch University.

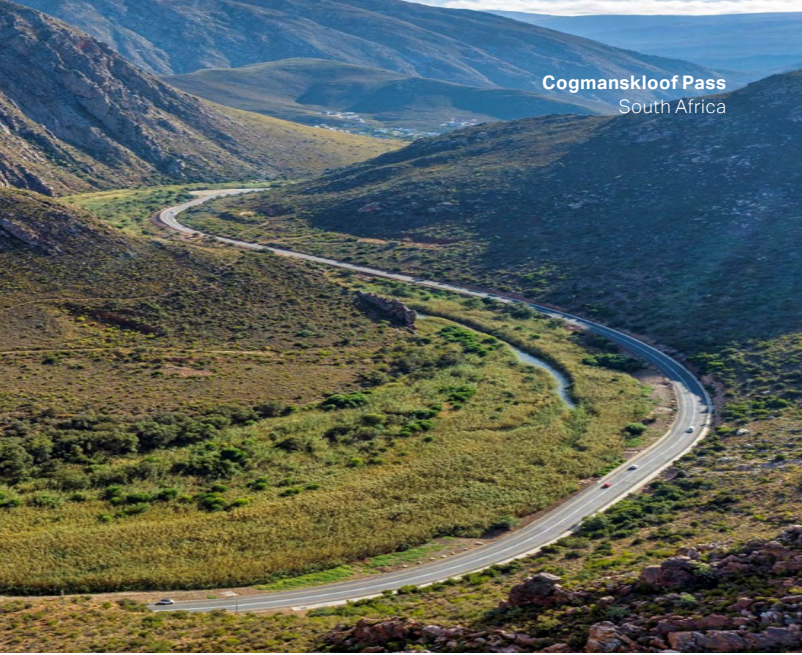


Tender climate

The column marked TMI (Tender Market Indicator) indicates the tender climate. The building cost index, as published by the BER, is based on tender prices and has been deflated by the index for CPAP Work Group 181, which is based on the cost of labour and materials. The result is that the movement of tender prices (excluding the influence of market costs of labour and material), indicates the competitiveness of tendering. It represents a comparison, or rate of change, of BER and CPAP indices.

When the TMI (see graph on page 95) shows a downward gradient, this indicates a favourable tender market, i.e. the next point is numerically less, resulting from the calculation of BER divided by CPAP. This indicates that the increase in BER (tender index) is less than the increase in the CPAP index. Therefore, there is a favourable tender market from the viewpoint of the employer.

Alternatively, if the graph has an upward gradient, the increase in BER is greater than the increase in CPAP indices. This indicates an unfavourable tender market from the viewpoint of the employer. Therefore, it would be prudent to recommend negotiation as opposed to tendering.



This tendency is also apparent on the cost indices graph (see page 95). When the two lines (CPAP and BER) converge, i.e. CPAP is decreasing and BER is increasing, you should negotiate. When the two lines diverge, i.e. CPAP is increasing and BER is decreasing, proceed to tender instead.

Base dates: To allow for the comparison of indices, a factor has been introduced resulting in an equal base for both BER and CPAP indices (i.e. January 2020 = 100).

Unique large-scale projects

Building cost estimation become more complex when unique circumstances prevail. For example, when a FIFA World Cup, Olympic Games or similar events take place in a particular country, many new construction works and associated infrastructure projects are awarded.

Projects of such magnitude can only be constructed by major contractors possessing the required expertise and resources. Often the unit costs of these projects are significantly higher than originally anticipated. Contractors at this level have little competition. Based on a favourable supply and demand, they price costs accordingly, resulting in client cost overruns and severe pressure on budgets.

Value-added tax (VAT)

As the majority of developers are registered vendors in the property industry, any VAT on commercial property development is fully recoverable. Therefore, to reflect the net development cost, VAT should be excluded. Should the gross cost (i.e. after VAT inclusion) be required, then VAT at the ruling rate (currently 15 percent) should be added.

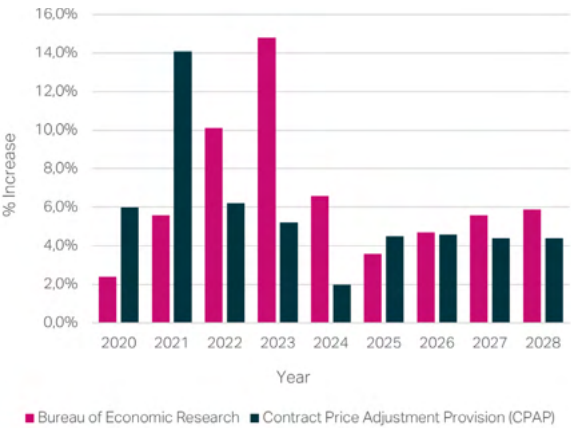
“

As the majority of developers are registered vendors in the property industry, any VAT on commercial property development is fully recoverable.”

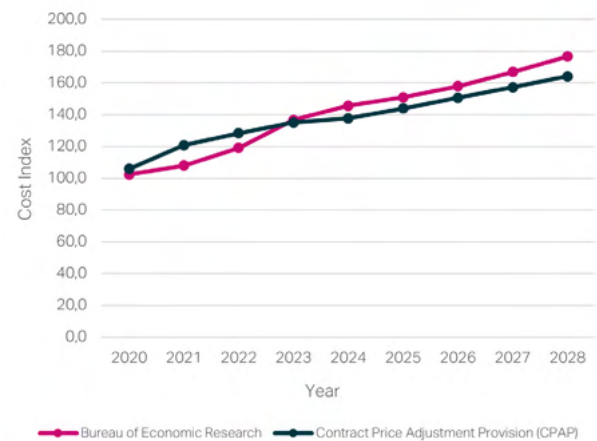
Awareness must be made of the effect that VAT has on cash flow over a period of time. This will vary according to the payment period of the individual vendor. However, in all cases, it will add to the capital cost of the project to the extent of interest on outstanding VAT for the VAT cycle of the vendor.

Graphs: BER and CPAP

January to January building cost percentage change

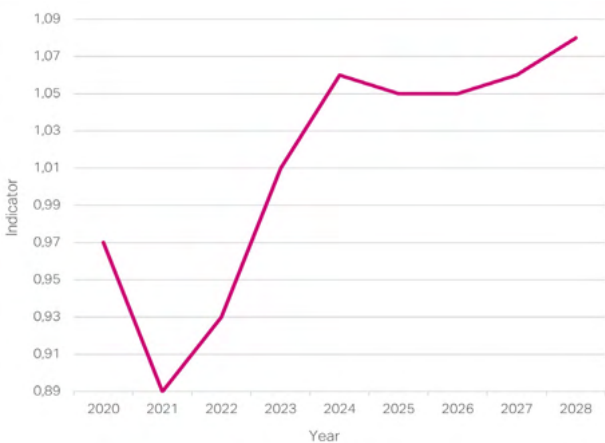


January building cost indices



Tender market indicator

BER deflated by CPAP



This graph gives an indication of the tender climate. It is the result of the relationship between BER and CPAP. Refer to the section on tender climate, page 90.

08

Method for measuring rentable areas



Method for measuring rentable areas

South African Property Owners Association (SAPOA) methods

In the past, many landlords and developers have derived methods for calculating the rentable areas of buildings.

The most common method is recommended by SAPOA, entitled 'Method for Measuring Floor Areas in Buildings', Second Edition (effective from 7 November 2007). This replaces the previous SAPOA recommendation in 'Method for Measuring Floor Areas in Commercial and Industrial Buildings' (updated August 1991). However, it must be noted that the latest edition is approved for use from 7 November 2007 and should not be applied retrospectively.

With kind permission from SAPOA, and without detracting from the original publication, we have summarised and simplified its definitions for clarity, and included our own commentary on the use of rentable areas.

The document provides separate methods for measuring floor areas of:

- Offices of all types.
- Retail developments, including malls, stand-alone, strip and value centres/warehouses.
- Industrial developments, including factories, warehouses, mini-units, trading warehouses, multi-storey, etc.
- Residential buildings, including houses, flats/apartments, townhouses, cluster houses, etc.



The most common method is recommended by SAPOA.”

For all office types, the following definitions and explanations are applicable:

The basis

The basis used in calculating the rentable area is the measurement of usable area, together with the common and supplementary area, as determined at each level. Unless otherwise indicated, the unit of measurement is square metres (m²).

Area definitions

Construction area

The construction area is the entire covered built area. This is the sum of the areas measured at each floor level over any external walls to the external finished surface.

Only the lowest levels of the atria are included, and all openings on other levels to form the atria are to be excluded.

Rentable area

The rentable area is the total area of the building enclosed by the dominant face, adjusted by deducting major vertical penetrations. No deduction is made for columns.

The intended use is determined by the revenue-producing area of a building. This comprises the rentable area, supplementary area and parking. It is also used by those analysing the economic potential of a building.

- The rentable area has a minimum floor-to-ceiling height of 1.5 metres.
- The rentable area comprises usable area, plus common area.
- The rentable area excludes the supplementary area.
- This may produce additional revenue.

Usable area

The usable area is the area capable of exclusive occupation by the tenant. This includes the total area of the building enclosed by the dominant face, adjusted by deducting all common area and major vertical penetrations. No deduction is made for columns.

It is intended to be the essential part of the rentable area, and the basis for the apportioning common area.

Common area

The common area is an area that the tenant has access to and/or use of. It is still considered part of the rentable area. The primary common area of the building is apportioned to tenancies pro-rata to the usable area of that tenancy.

The secondary common area is apportioned only to tenancies that it services.

The common area has two components:

- The primary common area comprises all rentable area on a given floor that is not usable area. Together with remote common areas that comprise entrance foyers, plant and service rooms, or any other portion of rentable area not located on the given floor.
- The secondary common area comprises areas beyond the primary common area, giving access to multiple tenancies. Accordingly, this may vary over the life of a multiple tenancy building.

Supplementary area

The supplementary area is any additional revenue-producing component that falls outside of the defined rentable area.

Supplementary areas need not be weatherproof.

For example, it comprises storerooms, balconies, terraces, patios, access/service passages, signage/advertising areas and parking areas demarcated for tenant use. Parking bays shall be given in number.

General definitions

Atrium

An atrium is a weatherproof interior space, accessible and capable of use by the tenant at the lowest level. Voids in floors above the atrium space are not included in the rentable area.

Entrance foyer

An entrance foyer is a portion of remote common area, including associated adjacent rooms and lobby. Lift area, lobby and entrance foyers that occur together with parking floors (not adjacent to office areas) comprise remote common area.

Major vertical penetrations

Major vertical penetrations, stairs and landings, lift shafts, flues, pipe shafts, vertical ducts, and their enclosing walls, exceeding 0.5m² in area, are deducted from the rentable area.

Remote service areas and plant rooms

Remote refuse rooms, electrical sub-stations, transformer rooms, central air-conditioning plant rooms and lift motor rooms are included in the primary common area.

Storage areas

Dedicated storage areas within the usable area are included as usable area.

Dedicated storage areas are listed separately as supplementary areas.

Retail, industrial, residential and other developments

Similar provisions have been made for measuring the floor areas of retail, industrial and residential buildings. For detailed information, it is suggested that the relevant sections of the said document be studied carefully.

The above method is designed to accommodate the practical measurement of most building types. However, certain building types such as hotels, leisure and sport centres, petrol stations, hospitals, law courts, and retirement villages may only utilise the underlying principles of this method.

In general

Developers and financiers are constantly attempting to either reduce building costs or increase rental levels to achieve higher returns. When these parameters are exhausted, it becomes incumbent on the architects and designers to design more efficiently. One must, therefore, understand the complete SAPOA 'Method for Measuring Floor Areas in Buildings', Second Edition, and implement the various facets of the definitions to achieve higher efficiencies between the various areas.

The initial return is more sensitive to an increase in rental income (which can be affected by increasing the rental area) than the corresponding percentage reduction in construction costs.

Once again, the above has been published as a quick guideline only, and should not be used in preference to the SAPOA publication, which is far more comprehensive and detailed.

We acknowledge and thank SAPOA for permission to use extracts from this publication.

09

Return on investment



Return on investment

Criteria to be employed

There are two distinct criteria generally used for evaluating the financial viability of a property investment, namely:

- The initial return.
- The cash flow analysis.

The initial return

The initial return is based on the net income during the first year of the development's operation. The return is expressed as a percentage per annum of the anticipated capital investment.

Escalation in both construction cost and cost of capital are both considered to incorporate the time value of money.

The major advantage of employing the initial return method is that expenses and income do not have to be escalated too far into the future. Therefore, these are relatively accurate and easily understood in today's monetary terms. The fact that the first year of operation may have a higher vacancy factor than subsequent years should be ignored when the initial return is calculated in order to reflect long-term potential more accurately.

The initial return should be qualified as follows:

- All expenses and income have been escalated to the construction completion date.
- Interim income received prior to the construction completion date has been deducted from the capital investment after adjusting for operating expenses and cost of capital.
- The returns are expressed as percentages of the escalated capital investment and do not take into account loans, loan repayments or interest charges on loans.

The calculated returns are for the first complete year of operation only and do not cater for the following:

- When the project may not reach full maturity during the first year of operation.
- Vacancies.
- Recoupment of capital during the income-bearing period of the investment or realisation value of the investment at the end of the investment period.
- Income tax.

Cash flow analysis over a predetermined period

In the cash flow method, the income and expenditure cash flow over the economic lifespan of the investment is taken into account. Usually an Internal Rate of Return (IRR) and/or a Net Present Value (NPV) is employed to evaluate the financial viability.

The NPV (discounted cash flow) method determines the sum of all cash flows (inflows, outflows and initial investment) and discount to present values at the project's cost of capital. With a positive NPV, the project can be accepted, but it should be rejected if the NPV is negative.

The IRR is the rate of interest that equates the present value of the expected future net income with the present value of the cost of the investment. The NPV would therefore be exactly zero if the IRR is used as the discount rate. The IRR of an investment is generally used by institutional investors, as it is a comparative indication of the profitability of alternative investment options.

A weakness of the IRR calculation is its implicit assumption that all cash flows are reinvested at the project's own IRR. The Modified Internal Rate of Return (MIRR) overcomes this by assuming that cash flows are reinvested at the cost of capital rate (or any other given rate), and may be calculated in addition. As the cost of the capital rate is normally determined at a lower rate than the IRR, it can be assumed that the MIRR calculation will always render a lower result.

The assumptions on which the cash flow return is based upon must be listed. These should include the assumed investment period (e.g. 20 years after the construction completion date), that income has been taken into account at the beginning of each month, and expenditure at the end of each month, the terminal value, and escalation in rental and operating expenses over the investment period, etc.

It is suggested that, where applicable, a comprehensive financial viability analysis should incorporate both the initial return and the cash flow method of evaluation. It is significant to note that there is a close relationship between the initial return and the IRR. However, this is to be applied with care by an experienced analyst.

Example:

Total capital expenditure (investment)		R 100,000,000
Rental in first year (net income)		R 10,500,000
Initial return in first year		10.50%
Escalation in net rental income		9.00% per annum
Net cash flow		
Year 0		-100,000,000
Year 1		10,500,000
Year 2		11,445,000
Year 3		12,475,050
Year 4		13,597,805
Year 5		14,821,607
Year 6		16,155,552
Year 7		17,609,551
Year 8		19,194,411
Year 9		20,921,908
Year 10		22,804,879
Year 11		24,857,319
Year 12		27,094,477
Year 13		29,532,980
Year 14		32,190,948
Year 15		35,088,134
Year 16		38,246,066
Year 17		41,688,212
Year 18		45,440,151
Year 19		49,529,764
Year 20 (+ terminal value)	53,987,443 560,441,075	614,428,518

The IRR with a 9.00 percent annual escalation in rental is 19.50 percent.



The terminal value is subjective. In this example, it has been assumed as the capitalised value of the anticipated rental in Year 21 (i.e. $R53,987,443 + 9.00\% = R58,846,313$) capitalised at the initial yield, i.e. 10.50 percent.

Should the terminal value be assumed to be nil (this is unlikely as the land parcel will always have a value), the IRR drops to 16.92 percent.

As a rule of thumb, the calculation of the approximate IRR of an investment is that it is equal to the sum of the initial return plus the escalation rate (assumed to be constant over the investment period). Providing that the terminal value is calculated, as in the given example, i.e. the capitalised value of the anticipated rental in the year after disposal, assuming a capitalisation rate equal to the initial return.



In the given example, the initial return is 10.50 percent, the escalation rate is 9.00 percent, and the approximate IRR is the sum of the two, i.e. 19.50 percent.

Where Green Star South Africa ratings are a requirement, cash flow analysis over longer periods of time have become essential. Capital expenses are normally higher due to investment in 'green' technology and more expensive methods employed. Therefore, the long-term effect on the operation and maintenance of buildings due to better energy efficiency should be demonstrated to building owners and tenants in order to determine the viability scientifically.

Residual land value

The formula

The calculation of the residual land value for a predetermined rate of return, i.e. what a developer can afford to pay for a parcel of land, would be given a specified return for a particular development.

The formula is determined as follows:

Return	=	$\frac{\text{Net Annual Income}}{\text{Total Capital Outlay (TCO)}}$
	=	$\frac{\text{Net Annual Income}}{y + x}$
		(Where 'y' = TCO, excluding land value and its corresponding loss of interest and 'x' = land value and its corresponding loss of interest)
Therefore x	=	$\frac{\text{Net Annual Income}}{\text{Return}} - y$
Now x	=	Land Value + Loss of Interest
	=	Future Value of Land

Therefore, to obtain the present land value, i.e. land value excluding its corresponding loss of interest, simply discount 'x' at the interest rate and period used in the previous TCO calculations.

Example:

What price should be paid for land to obtain a return of 10.00 percent p.a. with a net annual income of R6 million and the following capital outlay?

Estimated escalated building cost	R 38,150,000
Professional fees	R 5,725,000
Legal and plan approval fees	R 45,000
Interim rates on ground during construction period	R 265,000
Loss of interest and/or bond interest at 10.5% p.a. compounded monthly over a 15-month construction period	R 3,180,000
Total capital outlay excluding land cost (y)	R 47,365,000
$x = \frac{\text{Net Annual Income} - y}{\text{Return}}$	
$= \frac{\text{R6,000,000} - \text{R47,365,000}}{0.10}$	
$= \text{R12,635,000}$	
Therefore land value is R12,635,000 discounted at 10.5% p.a. over	
15 months = R11,087,204	(say) R 11 million

The above residual value is very sensitive to changes of the required rate of return. This is otherwise known as the capitalisation rate (CAP rate). Consideration should be given carefully, taking into account the risk profile of the proposed development.

10

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