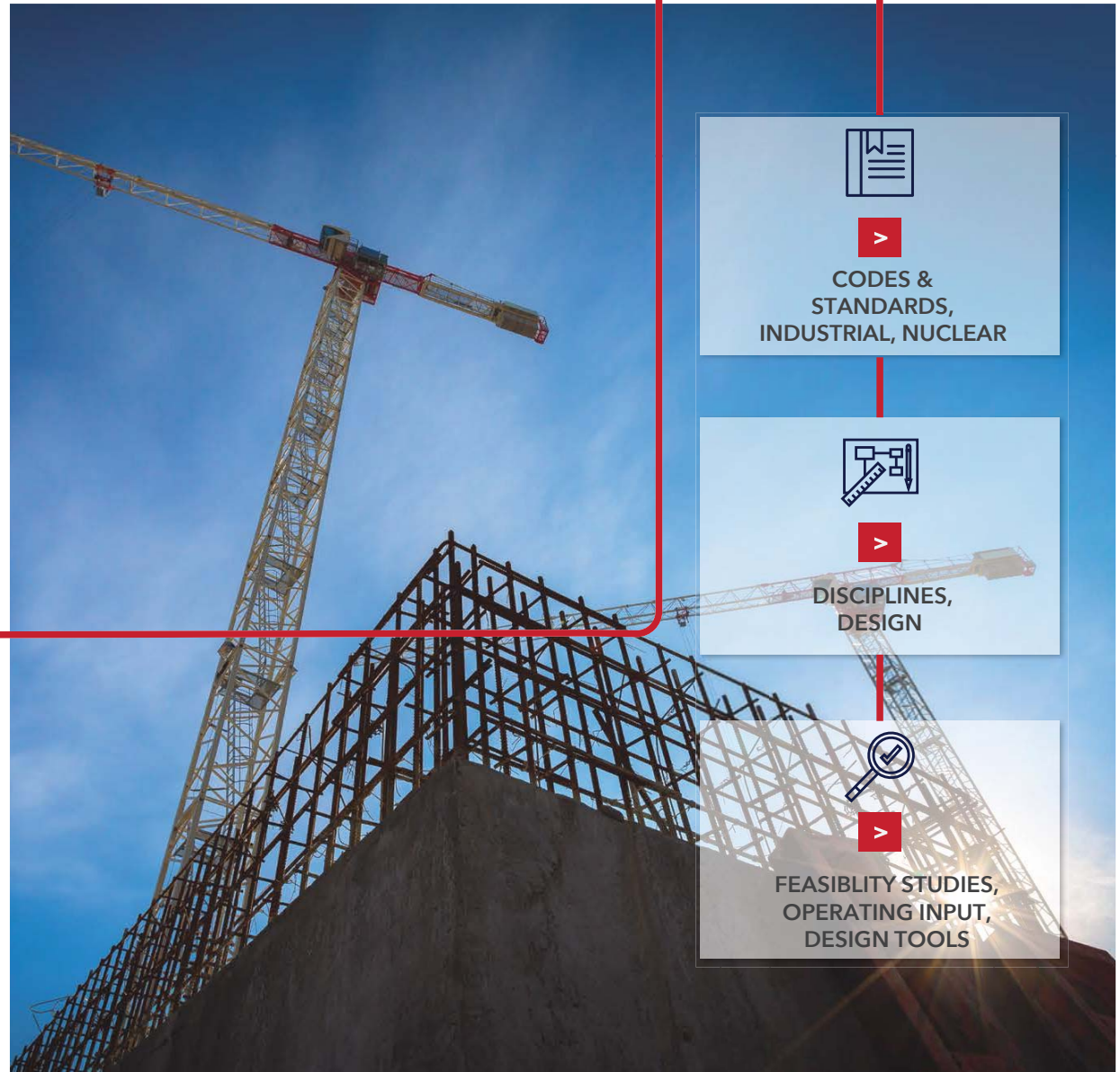




ENGINEERING

Engineering is at the core of Lesedi's capabilities and forms the major foundation of our business. Lesedi's experienced design teams produce designs from concept/feasibility studies through to full detail design packages for greenfield or plant modification projects.

Lesedi has a long history in the nuclear industry, implementing well over 150 plant modifications at Koeberg Nuclear Power Plant, as well as extensive experience in the industrial space in various industries including power generation, oil & gas, mining, and pharmaceutical.

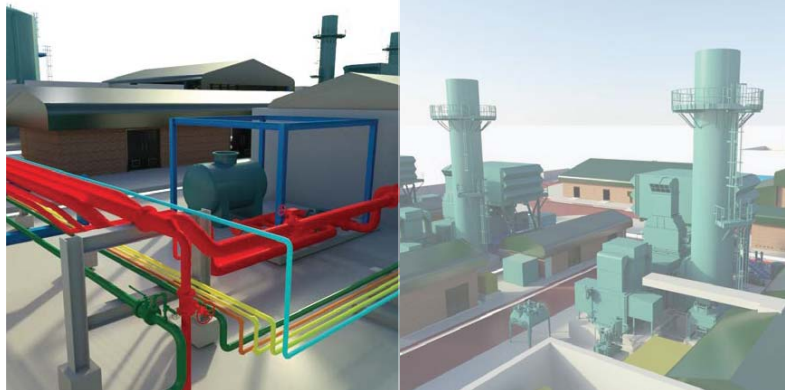




ENGINEERING

FULL SUITE OF ENGINEERING DISCIPLINES IN-HOUSE

- Mechanical
- Electrical
- Civil
- Structural
- Control & Instrumentation
- Process
- Chemical



DESIGN

Typical design work undertaken includes:

- Plant modifications for Koeberg Nuclear Power Station
- Design of the Balance of Plant for the OCGT (open cycle gas turbine)
- Design of Balance of Plant systems for 14 x 150 MW OCGTs
- Design of 18 Low Pressure Services systems for the Balance of Plant at the 4800MW Medupi coal-fired power station
- The provision of drawings from Drawing Office with full 3D draughting capability
- Design of Balance of Plant systems for biomass projects
- Performing functional, process, civil, structural, mechanical electrical, and control and instrumentation designs
- Sizing systems and equipment
- Producing layouts of plant and equipment
- Selecting appropriate material
- Conducting safety studies
- Conventional safety (in line with ISO 45001)
- Environmental safety (in line with ISO 14001)
- Nuclear safety (safety evaluations and justifications derived from 10 CFR 50.59)
- Generating test and commissioning procedures
- Generating technical specifications
- Managing configuration control
- Providing licensing support for submissions to the National Nuclear Regulator





ENGINEERING

DESIGN TOOLS

Our engineers use various software packages in the execution of their designs, including:

- Thermoflex for design and simulation of thermal power systems
- AVEVA 3D for engineering, diagrams, electrical, instrumentation, etc.
- MicroStation V8.i and XM CAD Package
- MicroStation Plant Space Design - 3D Modelling Package
- Applied Flow Technology (AFT):
 - AFT Impulse: Transient Analysis (fluids)
 - AFT Fathom: Incompressible Fluid Analysis
 - AFT Arrow: Compressible Fluid Analysis
- Caesar II Pipe Street Analysis
- Prokon Structural Analysis Software including Seismic
- ETAP Electrical Power System Design
- BISMALC 7 Heating and Cooling Load Calculations
- ASHRAE Psychometric Software: BRICSCAD 3D Drafting Tool, AVEVA Integrated Plant Design Tool, SteamTab Thermodynamic Properties Tool



FEASIBILITY STUDIES

- Studying technical solutions to plant problems
- Performing cost benefit analysis simulations to evaluate the most cost-effective solutions



OPERATING INPUT

- Updating operating procedures in support of modifications
- Providing operator training
- Updating technical operating specifications
- Providing static and dynamic testing and commissioning input for plant modifications





ENGINEERING

Lesedi's experienced design teams produce designs from concept/feasibility studies through to full detail design packages for greenfield or plant modification projects. We also provide EPCM services in various industries.

Lesedi has a long history in the nuclear industry implementing well over 150 plant modifications at Koeberg Nuclear Power Plant, as well as extensive experience in the industrial space in various industries including power generation, oil & gas, mining, and pharmaceutical.

We have highly skilled and experienced engineers in the following disciplines:

- Mechanical
- Electrical
- Civil
- Structural
- Process
- Control & Instrumentation
- Fire
- Drawing Office



CODES & STANDARDS

Our engineers are fully conversant with codes and standards applicable to the various industries where we operate, including:

- ASME
- SANS
- ASIB
- NFPA



RECENT PROJECTS

INDUSTRIAL:

- Gas1/OCGT BOP
- Medupi
- FCC
- Engen

[CLICK TO VIEW PROJECT REFERENCES](#)

NUCLEAR:

- Replacement of the plant radiation monitoring systems
- Replacement of the fire detection systems in the containment building
- Steam generator replacement, supporting the OEM Framatome for installation activities as well as packaging the engineering studies for submission to the client
- PTR tank replacement

