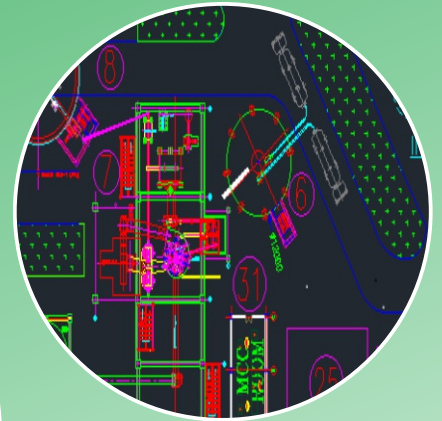
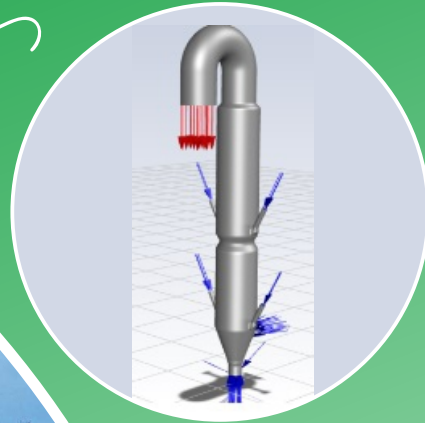


CENTRE FOR MINING, ENVIRONMENT, PLANT ENGINEERING & OPERATION



एक कदम स्वच्छता की ओर



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भारत 2023 INDIA
वसुधैव कुटुम्बकम्
ONE EARTH • ONE FAMILY • ONE FUTURE

NATIONAL COUNCIL FOR CEMENT AND BUILDING MATERIALS

Under the Administrative Control of Ministry of Commerce & Industry, Govt. of India

PROJECT ENGINEERING & SYSTEM DESIGN (PSD)

SERVICES OFFERED

▶ Project Formulation

- Project conceptualization
- Techno-Economic Feasibility Studies
- Detailed Project Report

▶ Project Implementation

- Project Management and Control.
- Inspection & Quality Assurance
- Field Supervision
- Commissioning & Plant Stabilization

▶ Project Engineering

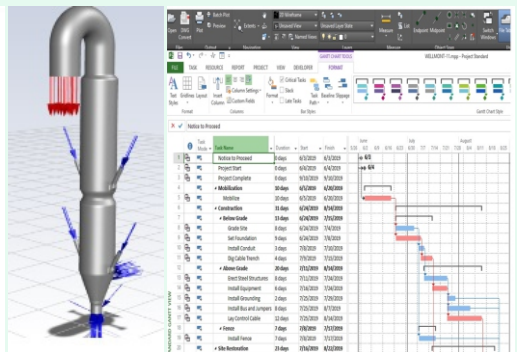
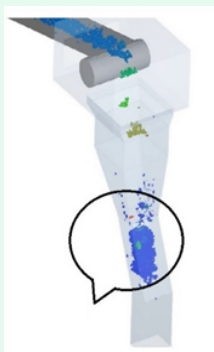
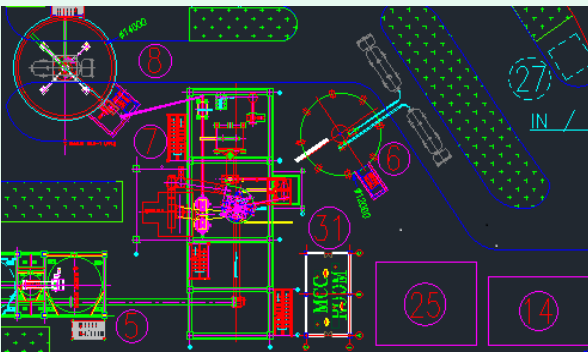
- Basic & Detailed Engineering
- Procurement Assistance
- Project Planning and Monitoring

▶ Plant Operation & Assessment

- Plant Optimization
- Capacity Balancing
- Plant Modification and Upgradation
- Plant Performance Audit & asset evaluation



SOFTWARE EXPERTISE



HIGHLIGHTS

- ▶ 100+ TEFR, Detailed Project Report and Plant Maintenance Audit Completed successfully
- ▶ Project Management Consultant for 600 tpd Greenfield Cement plant at Republic of Congo.
- ▶ Successfully completion of System design of Alternative Fuel Firing System for some of the leading cement plants in India and Oman
- ▶ Highly Qualified Engineers (Alumni's of IITs) with rich industrial experience
- ▶ State of the Art AutoCAD Lab, Simulation & Modelling Softwares, MS Project etc.

ENERGY MANAGEMENT (EMG)

SERVICES OFFERED

► At a glance

- Since 1985, more than 250 Energy Audits have been completed so far
- Empanelled with BEE to conduct Mandatory energy audits in cement plants
- Team of industry-experienced, well-qualified (Alumni of IIT/BITS/DU) and competent engineers
- Recognition of industry efforts in energy excellence through National Awards since 1987

► PAT services

- Empanelled with BEE to conduct Mandatory energy audits in cement plants
- An experienced and competent team of BEE-certified Accredited Energy auditors (AEA), Certified Energy Auditors (CEA), Certified Energy managers (CEM)
- Conducted plant baseline study under guidelines of BEE

► Energy Management Services

- Service portfolio includes compressed air audit, WHRS potential assessment study, Detailed Energy Audits, Mandatory Energy Audits, Walk through energy assessments etc.
- Executed energy audit projects outside country in Bhutan, Sultanate of Oman, Kenya, Nepal, Malaysia etc.
- State-of-the-art portable and calibrated instruments for all types of thermal & electrical energy and utility assessment

► Other Intellectual supports

- Extended industry support through publications (Guide norms, Compendium, Technical digest, newsletter), paper presentations, expert lectures, seminars, technical article submissions etc.
- Services to the industry through research projects (solar thermal calcination of phosphor gypsum, Best energy practices in cement plants).
- Close association with BEE for technology demonstration projects in cement plant

Glimpses of industry services



PROCESS OPTIMIZATION AND PRODUCTIVITY (PRP)

SERVICES OFFERED

- ▶ Long-term Productivity Enhancement Studies
- ▶ Diagnostic Studies: High PH Exit Gas Temperature, Kiln Shell Corrosion, Unstable Combustion/Burning of Fuel, Coating Formation/Build-up in Kiln System, Lump Formation in Cement Silos
- ▶ Process Optimization Studies on Ball Mills, VRM, Roller Press, Separators and Kilns
- ▶ Rational Utilization of Alternate Fuels & Improvement in Fuel Combustion Efficiency
- ▶ Use of Hazardous Combustible Wastes
 - Trial Runs
 - Factors Governing Size and Extent of Utilization
 - System for Feeding & Firing in the Kiln System
 - Techno-economic Viability

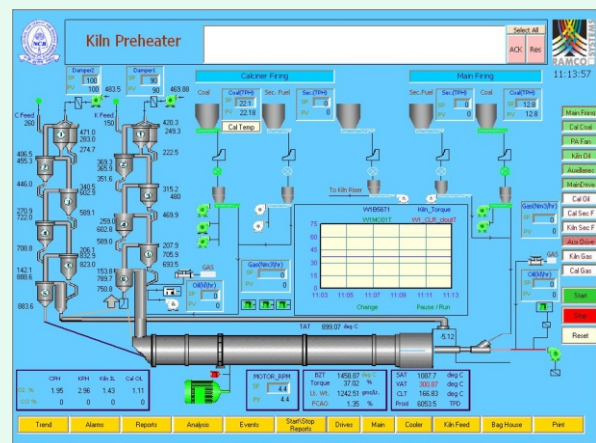
STUDIES UNDERTAKEN

- ▶ Technical Feasibility Study on use of RDF in Cement Kiln
- ▶ Techno-economics of using Waste Tyres as part Substitute of Natural Gas in Cement Kiln
- ▶ Project Management Consultancy for setting up of AFR storage and feeding system
- ▶ Techno-economic feasibility for upgradation of kiln capacity.
- ▶ Process optimization study for improvement of kiln capacity from 2800 TPD to 3000 TPD.

NEW FACILITIES ADDED

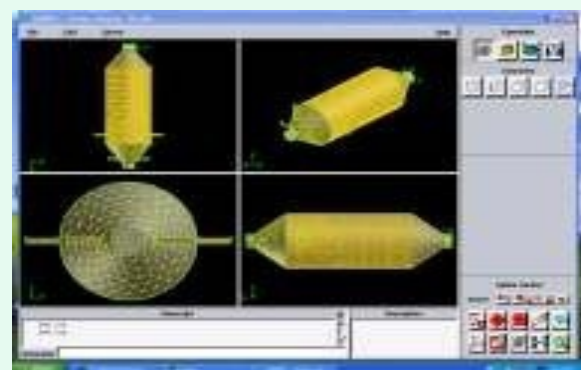
- ▶ Versatile Simulation Package
- ▶ Process optimization through simulation of:
 - Vertical roller mills for raw material, coal as well as cement grinding.
 - Roller press–ball mill systems for raw material and cement grinding.

- Separate Line Calciner (SLC) / In Line Calciner (ILC) kiln with 4/5/6 stage preheater and conventional / modern grate cooler.



COMPUTATIONAL FLUID DYNAMIC SOFTWARE

- ▶ Analysis of the Complex Flow Structures (Typical of cyclone, burner and calciner)
- ▶ Design optimization
- ▶ Assessment of the suitability of alternate fuel.



ADVANCED FUEL TECHNOLOGY (AFT)

SERVICES OFFERED

- Technical feasibility studies for utilization of alternative fuels.
- Feasibility study for gasification of waste
- Optimization of AF utilization in cement plants using Artificial Intelligence
- Characterization of Alternative Fuels
- Impact assessment of waste utilization on Kiln Operation, Product Quality and Environment
- Fuel conservation studies/audits
- Audits of green fuels usage in cement sector
- Extended industry support through publications paper presentations, expert lectures, seminars, journal article submissions etc.

RESEARCH AREAS

- Research activities related to futuristic technologies for cement industry
- Waste gasification
- Solar thermal application
- Carbon capture and utilization
- Green hydrogen

HIGHLIGHTS

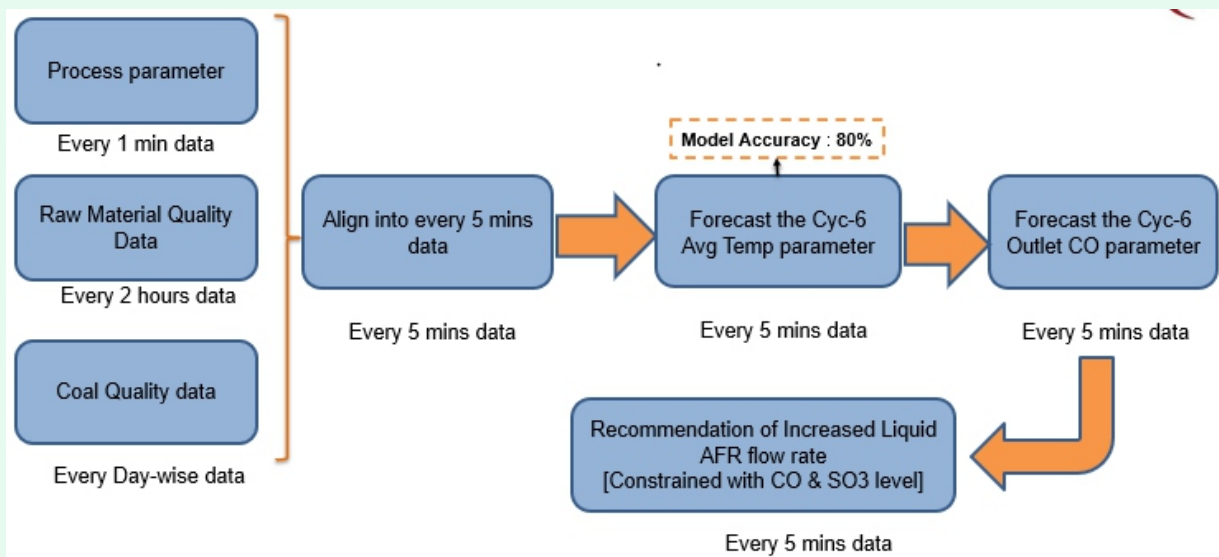
- Ongoing project for M/s J K Lakshmi Cement Ltd. to enhance TSR through liquid firing using AI models
- RDF gasification experimental runs
- RDF gasification modelling
- Waste characterization using advance techniques (Pyrolysis-Gas Chromatography / Mass Spectrometry and Macro TGA)



Tripartite agreement between NCCBM, LivNsense and J K Lakshmi Cement Ltd



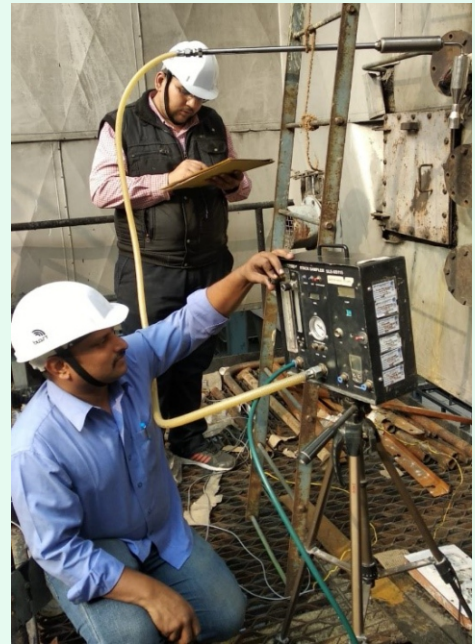
Experimental runs on downdraft gasifier



Outline of Prediction of cyclone 6 average temperature using AI model

SERVICES OFFERED

- Performance Evaluation of Air Pollution Control Equipment (APCE)
- Process Dust Measurement in Process Ducts
- Moisture Measurement in Process Ducts
- Pollution Load Assessment
- Life Cycle Assessment (LCA) studies
- Environment Monitoring (Point Source & Ambient Air)
- CO₂ Auditing
- Water Footprint Assessment
- Environment Audit
- NABL accredited air monitoring lab
- Noise & Ground Vibration studies
- Environment awareness in Indian Cement Industry – NCB has instituted National Awards for Environmental Excellence separately for integrated cement plants and grinding units, since 2000. NCB has given 38 nos National Award for Environment Excellence (NAEE) to various Cement plants and their captive mines.



EQUIPMENT AVAILABLE

- ▶ Stack Monitoring Kit
- ▶ Portable Flue Gas Analyser
- ▶ PM_{2.5} Fine Particulate Sampler
- ▶ Respirable Dust Sampler
- ▶ Micro Meteorological Monitor
- ▶ Sound Level Meter
- ▶ Blastmate Series-II



Measurement of moisture in flue gases



Trial run for SO₂ control at a cement plant



Performance assessment study of APCE at a power plant

QUALITY ASSURANCE GROUP (QAG)

TPQA for MEP & SS Works

- ✓ Pre dispatch inspections
- ✓ Independent Review and Quality Monitoring
- ✓ Periodical visits in stages of project execution
- ✓ Review test reports of materials
- ✓ Quality of workmanship
- ✓ Prepare a comprehensive Quality Assurance Report



IECC



ICC

INSTRUMENTS USED

- Fluke 3 phase power and motor analyzer
- Fluke Earth tester
- Coating thickness meter
- Solar meter
- LUX Meter
- Tachometer
- Laser distance meter
- Vernier calliper
- Screw gauge



SELECT LIST OF PROJECTS

IECC, Pragati Maidan
ICC, Dwarka
AIIMS, New Delhi
Defence Complex, KG Marg & Africa Avenue
Residential Quarters of DDA & CPWD
Various STP Projects in MCD





NCB PUBLICATIONS

NCB GUIDE NORMS FOR CEMENT PLANT OPERATIONS

**SIXTH EDITION
DECEMBER 2022**

**NATIONAL COUNCIL FOR CEMENT AND BUILDING MATERIALS
BALLABGARH, HARYANA (INDIA)**

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A GREEN SOLUTION
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**National Council for Cement
and Building Materials**

FOR FURTHER DETAILS, PLEASE CONTACT

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E-mail : ncbemeb@ncbindia.com

<p>NCB - BALLABGARH 34Km Stone, Delhi-Mathura Road (NH-2), Ballabgarh-121004, Haryana, India Phone : +91-129-2666600 E-mail : nccbm@ncbindia.com Website : www.ncbindia.com</p>	<p>NCB - HYDERABAD NCB Bhavan, Old Bombay Road, (Mehidipatnam-Gachibowli Road), Hyderabad-500104 Telangana, India Phone : +91-40-23180400/405/426/429 E-mail : ncbh@ncbindia.com, ncbcd@gmail.com</p>	<p>NCB - AHMEDABAD Smeet Bungalows, Behind Planet House-2 (PH-2), Opp. Shukan Shubh-Labh Apt, Off. Judges Bungalows Road, Bodakdev, Ahmedabad 380054, Gujarat, India Phone : +91-79-268855840 E-mail : brncb@rediffmail.com, ncbcd@gmail.com</p>	<p>NCB - BHUBANESWAR Plot 145, Zone B, IDCO Central Store, Mancheswar Industrial Estate Bhubaneswar-751010, Odisha, India Phone : +91-9999104569 E-mail : uicncbbh@ncbindia.com, uicncbbh@gmail.com Website : www.ncbindia.com</p>
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