Corobrik and the Environment

October 2008

GREEN BUILDING COUNCIL SA
MEMBER ORGANISATION

COROBRIK®

COMMITMENT.

Corobrik is committed to a holistic approach to environmental sustainability where all the activities in the business are based on sound environmental practices. At operational level, the greater use of cleaner burning fuels, more effective use of energy and the employment of technological innovations able to achieve incremental reductions in Corobrik's carbon footprint at time of manufacture and during delivery of its products to site is a key objective.

GEARED TOWARDS SUSTAINABLE DEVELOPMENT.

#:01

FACT:

COROBRIK MANAGES IT'S QUARRYING & MANUFACTURING PROCESSES WITHIN A SUSTAINABLE DEVELOPMENT FRAMEWORK.

Midrand Quarry after

#:02

FACT:

QUARRYING & MANUFACTURING OPERATIONS ARE LOCATED IN RURAL & SEMI - RURAL AREAS, THUS PROVIDING LONG TERM EMPLOYMENT OPPORTUNITIES TO NEIGHBOURING COMMUNITIES.

#:03

FACT:

SOCIAL & LABOUR PLANS WITHIN THE FRAMEWORK OF THE NEW ORDER MINING RIGHTS ARE IN PLACE FOR ALL COROBRIK OPERATIONS.

#:04

FACT:

QUARRYING & MANUFACTURING OPERATIONS ARE UNDERTAKEN WITHIN THE PARAMETERS & REQUIREMENTS OF AN APPROVED ENVIRONMENTAL MANAGEMENT PLAN FOR EACH QUARRY AND MANUFACTURING PROCESS.

#:05

FACT:

CONCURRENT REHABILITATION OF ALL QUARRIES DURING ANNUAL QUARRYING OPERATIONS ENSURES THAT FUTURE REHABILITATION LIABILITIES ARE KEPT TO A MINIMUM.

#:06

FACT:

AT THE END OF THE LIFETIME OF THE QUARRY, THE ENVIRONMENTAL MANAGEMENT PLAN PROVIDES FOR THE FINAL REHABILITATION & RE-USE OF THE WORKED OUT QUARRY AS A NATURE RESERVE SURROUNDING A POLLUTION FREE DAM, RECREATIONAL AREA, LANDFILL SITE OR COMMERCIAL / RESIDENTIAL DEVELOPMENT.

Midrand Quarry before

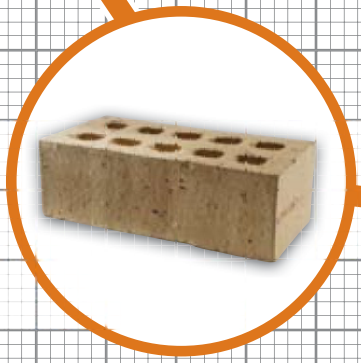
COROBRIK®

INNOVATIONS TO ACHIEVE INCREMENTAL REDUCTION IN GREENHOUSE GAS EMISSIONS.

RESEARCH BY CSIR BOUTEK CONFIRM COROBRIK'S BURNT CLAY BRICKS HAVE LOW EMBODIED ENERGY COMMENSURATE WITH BEST INTERNATIONAL STANDARDS.

MODERN CONTINUOUS KILN FIRING TECHNOLOGY AND BEST INTERNATIONAL MANUFACTURING PRACTICES AND CUTTING EDGE FIRING SYSTEMS.

NEW EXTRUSION TECHNOLOGY AND CORE HOLE CONFIGURATION EMPLOYED BY COROBRIK REDUCES ENERGY USAGE FOR DRYING AND FIRING.



COROBRIK'S LIGHTER 10 CORE HOLE BRICKS AFFORD OPPORTUNITY TO TRANSPORT MORE BRICKS PER DELIVERY VEHICLE THEREBY REDUCING DIESEL CONSUMPTION PER 1,000 BRICKS DELIVERED AND LOWERING CO_2 EMISSIONS.

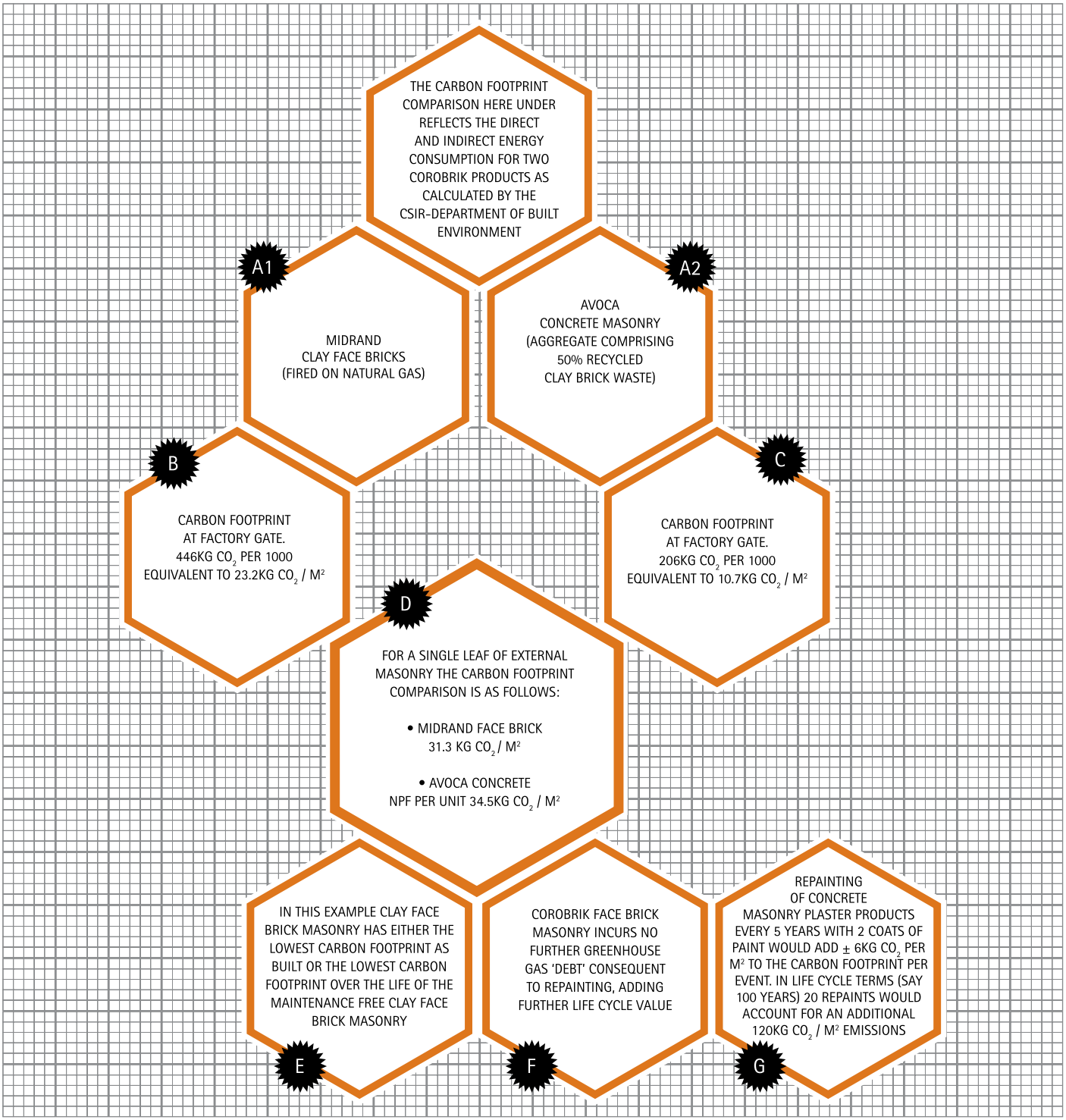
Nature will thank you

COMMITTED TO CLEANER BURNING FUELS.

- For each giga joule of energy, natural gas releases just 48 kg's of CO_2 compared to 97 kg's of CO_2 omitted from coal.
- Between 1996 – 2007 Corobrik Avoca, Springs, Midrand and Rietvlei factories converted from coal or producer gas to natural gas for the firing of kilns.
- In 2005 Lawley factory registered its Fuel Switch Project with the United Nations Clean Development Mechanism. On 13 June 2008 Corobrik received its first certificate of Certified Emissions Reductions (CER) confirming emissions reduced cleaner equivalent to 17 500 kg of CO_2 per annum.
- In 2008 Driefontein factory switched from producer gas to natural gas firing. Application has been made to the United Nations Clean Development Mechanism for this project to be registered as a clean air project.
- As of 2008 Corobrik has 6 major factories being fired on natural gas. Further factory conversions will be undertaken depending on availability of natural gas at factory gate. In this regard Corobrik is exploring supply possibilities with SASOL.

Lawley Factory

CLAY FACE BRICK'S ECO BALANCE.



Nature will thank you

CLAY FACE BRICK'S ECO BALANCE.

KG CO_2 / M^2 **31.3**

MATERIAL

SINGLE SKIN FACE BRICK (MIDRAND FACTORY - MODERN TUNNEL KILN)

KG CO_2 / M^2 **41.9**

MATERIAL

SINGLE SKIN FACE BRICK (LAWLEY FACTORY - TRANSVERSE ARCH KILN)

KG CO_2 / M^2 **50.1**

MATERIAL

CAST CONCRETE (106mm)

KG CO_2 / M^2 **66**

MATERIAL

VITREOUS CERAMIC TILES TO PLASTERED BRICKWORK

KG CO_2 / M^2 **92**

MATERIAL

4mm ALUMINIUM CLADDING

Above values are based on calculations at factory gate. Non Corobrik values taken from "Inventory of Carbon & Energy" by Prof. Hammond and Craig Jones, Department of Mechanical Engineering, University of Bath, UK 2006

COROBRIK®

CLAY FACE BRICK – A TRULY ENVIRONMENTALLY FRIENDLY BUILDING MATERIAL.

- **Corobrik clay face bricks have low embodied energy at factory gate.**

- **Clay face brick do not detract from indoor air quality**
  Being inert, clay bricks do not release volatile organic compounds associated with other finishes.

- **Clay face bricks are fully recyclable**
  Demolished bricks can be reused either as face bricks or pavers and/ or recycled as aggregate for concrete materials manufacture and / or as a decorative ground cover.

- **Clay face bricks positively impact on environmental safety**
  - Clay face bricks are non-combustible having class leading fire resistance characteristics,
  - Clay face brick masonry has exceptional structural integrity providing protection against catastrophic weather events and man induced interventions.

- **Clay face bricks afford high degrees of visual comfort**
  Clay face brick is an organic vitrified ceramic material typically recognised for its aesthetic contribution to the built environment. No other walling material has yet been able to demonstrate the same ability as clay brick to add warmth, character and human scale to an equally broad spectrum of architecture over an equal period of time as clay brick has been able to do

- **Clay facebrick walls contribute positively to acoustic comfort**
  Clay face bricks provide acoustic insulation to habitable space of 44 dB for a single skin and 48 dB for double skin walling. Clay brick masonry keeps noise from outside environments to a minimum and optimize the quietness of habitable space.

- **Clay Face Bricks extreme durability affords a maintenance free lifecycle**
  Over a building's life (say 100 years) savings on painting will afford emission reductions of 120 kg of CO_2/M^2

- **Clay face bricks help moderate internal temperatures.**
  Clay face bricks have a high thermal mass, a property that naturally slows temperature movements through the walling envelope moderating internal habitable spaces minimising energy usage for artificial heating and cooling.

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