



Dear CDM Registration Team,

27 November 2013

RE: Reference: Request for Review raised for the Request for Registration for the proposed project activity "Clinker Optimization in cement types production at Derba MIDROC cement Plant" (7632).

Carbon Check acknowledges the review questions and hereby presents a combined justification (PP's response and DOE response) for all each issue raised. The PDD and emission reduction spreadsheet has been revised by the PP in response to the review issues raised. Additionally the DOE Validation Report has been appropriately revised.

ISSUE 1:

The DOE shall further substantiate how it has validated the compliance of the project activity with the applicability conditions of the methodology; in particular, how it has validated that blending of cement outside the cement production plants is not a common practice in the host country through checking the production data of the cement plants. Please refer to ACM0005, version 07, page 2

PROJECT PARTICIPANT RESPONSE:

The specific applicability requirement stated in the methodology (page 2, bullet 2) is, "*The methodology is not applicable if blending of cement outside the cement production plants is a common practice in the host country (ex: localized blending in construction sites).*" The PP understands that there are only four ways to confirm this applicability requirement:

- a. To describe the technical impossibility of producing blended cement on construction site unless actually erecting blending facilities (This has been described in PDD)
- b. To visit every construction site in the host country and see if the practice is there (this is not objective and is impractical)
- c. To obtain official statistical data and supporting documents from relevant authority on all blended cement produced in the host country and identify if the information includes cement production statistics outside cement facilities (This has been described in PDD and in IRC response)
- d. To obtain official letter from the relevant authority monitoring cement conformity, that blended cement is not being or is not allowed to be produced outside cement plant facilities. (this one is remaining and has been used by another project registered in very recent past)

In fulfilment of option (d) above, the confirmation letter dated November 4, 2013 from the Ethiopian Standards Agency (ESA) of the Government of Ethiopia has been submitted to DOE confirming that producing blended cement outside cement facilities is not permitted in Ethiopia as continuous spot sampling and testing in manufacturing plants is mandatory.

DOE RESPONSE:

DOE has reviewed the Ethiopian National Cement Standard ES1177-1:2005_{/FVR/18/} the number of this standard has been revised to "CES 28" with effect from 1st October 2013. DoE has cross checked this through the following web link: <http://www.ethiostandards.org/other%20files/Compulsory%20Standards%202%20FINAL%2015.pdf> as provided by the PP for clarification on the type of cements produced in Ethiopia. As per Ethiopian National Cement Standard ES1177-1:2005_{/FVR/18/} section 9.2.1 (conformity criteria for mechanical, physical and chemical properties) which states "Conformity shall be evaluated on the basis of continual sampling using spot samples on the basis of the test results obtained on all auto control samples taken during the control



period”, thus it indicates and confirms that the blending of cement should be carried out only at Cement Manufacturing Plants from where the spot samples can be picked up during the manufacturing process.

This was further confirmed by a letter (reference number 4/2/1/11/2013) dated 4th November 2013 issued by the Ethiopian Standards Agency - The Federal Democratic Republic of Ethiopia /FVR/38/ which clearly states that due to the above conformity requirement (Ethiopian National Cement Standard ES1177-1:2005 /FVR/18/ section 9.2.1) the “production of cement outside the factory is not permitted in Ethiopia”.

Hence based on the above, the DOE confirms that the blending of cement outside the cement production plants (e.g. localized blending in construction sites) is not a common practice in the host country and the thus project activity complies with ACM0005: version 07 with specific reference to page 2 (applicability criteria bullet 2) .

ISSUE 2:

The DOE shall further explain how it has validated the appropriateness of the identified baseline scenarios, in particular the baseline scenarios of cement type CEMII/B-L and CEM IV considering that the two types of blended cement have never been produced in or imported to the host country.

In doing so, the DOE shall also explain how it has validated that the Portland cement with 95% clinker has a comparable quality of cement CEMII/ B-L & CEM IV/B, considering that the PDD (p 4) states that the lowest allowable clinker shares of CEM II/B-L and CEM IV/B are 65% and 45% respectively as per Ethiopian cement standard ES 1177 - 1:2005. Please refer to ACM0005, version 7, page 4.

DOE RESPONSE:

The above issue is twofold:

- First related to appropriateness of comparison (in terms of *comparable quality*) between a higher clinker % alternative with lower clinker % cement; and
- Second on selection of alternatives for cement type CEMII/B-L and CEM IV considering that the two types of blended cement have never been produced in or imported to the host country.

Please find below the PP and DOE response for each issue.

PROJECT PARTICIPANTS RESPONSE:

Issue: “Comparable quality” and “Lowest allowable clinker share”, in cement, is only explained by the Ethiopian cement standard, the Ethiopian building code and the cement production expertise.

From Ethiopian National Cement Standard ES1177-1:2005 ; As shown in section 7, Ethiopian standard has three requirements, i.e the Mechanical requirements, the physical requirements and the chemical requirements for assuring quality of **ALL** the five main types of cement i.e CEM I, CEMII, CEM III, CEMIV and CEM V and the subtypes. These are shown in table below:

	Compressive strength (MPa)		Initial setting Time (min)	Soundness (expansion) mm
	Early strength	Standard strength		



	2 days	7 days	28 days			
¹ 32.5N	-	16	32.5	52.5	75	10
32.5R	10					
42.5N	10		42.5	62.5	60	
42.5R	20					
52.5N	20		52.5		45	
52.5R	30					

Table 001a: Ethiopian Cement classes and physical and mechanical quality requirements

All of the cement types in Ethiopian National Cement Standard ES1177-1:2005 (i.e. CEM I to CEM V) should confirm to the above requirement. The smallest compressive strength of the mortar cube as per this standard is 32.5 MPA and should be achievable in 28 days after casting the cement concrete. The highest compressive strength of the mortar cube required by the standard is 52.5MPa and should be attained in 28 days. Each of the cement types can be manufactured to suit the specific construction requirement including when the strength is intended to be achieved. For example; a manufacturer can produce CEM II/B-L cement to a 32.5R class whereby it would achieve 10MPa strength in 2 days after casting and achieve 32.5MPa strength in 28days after casting. If early strength in 2 days is not required by consumer application, it can produce and market 32.5N class. The initial setting time describes the time in minutes after casting, which the concrete mixed using the specific cement class, would start to cure. It nearly starts within one hour as shown in above table with small deviation on both sides depending on cement class. The soundness requirement is common for all classes of cement.

In terms of ease of achieving the standard, the higher the clinker share in cement is the easier it is to get high early strength (R) and higher standard (ultimate) strength (N). However high (ultimate) compressive strength (N) is still achievable with lower clinker share (higher additive share) but requires that the additives be well dried, ground with increased fineness and hence requires increased effort and cost in conveying, drying, crushing and processing including power consumption. The ease of achieving fineness is also a factor of the type of Additive itself. Among these five common types of cement the project activity produces CEM II/B-P, CEM II/B-L and CEM IV subtypes which would fulfil the above requirement. The lowest allowable clinker share is the minimum clinker share required to be available in a particular cement type as per the standard. 65%, 65% and 45% are the minimum share requirements in CEM II/B-P, CEM II/B-L and CEM IV respectively.

From Ethiopian Building Code Standard: Ethiopian Building Code Standard, EBCS-2, STRUCTURAL USE OF CONCRETE , Chapter 2 (Grades of concrete) classify application of cement concrete based on characteristic compressive cube strength only, regardless of setting time and other requirements. The minimum

¹ Key: This lowest class achieves 7 day's compressive strength of 16 MPA, standard strength of 32.5MPa and ultimate (28days) strength of 52.5MPa.



compressive strength required as per the code is 12 MPa and the maximum compressive strength is 48MPa. (Please refer table 2.1 of the code)

Ethiopian Grades of Concrete	C5	C15	C20	C25	C30	C40	C50	C60
Compressive strength, F_{ck} in MPa	0	12	16	20	24	32	40	48

Table 001c: Characteristic compressive strength requirement of cement concrete

As shown in the above table, cement concrete products used in Ethiopian construction applications can have grades ranging from C5 to C60. C5 cement is used in lean concrete and does not require compressive strength at all but only bonding characteristics. Hence the smallest compressive strength requirement is 12MPa and the highest compressive strength requirement is 48MPa. All of the cement types (i.e. CEM I to CEM V) can achieve all of these strength requirements as described in the previous paragraphs.

DOE RESPONSE:

DOE has reviewed the Ethiopian National Cement Standard ES1177-1:2005 (CES 28" with effect from 1st October 2013)_{/FVR//18/} and found that there are five family of cements i.e CEM I, CEM II, CEM III, CEM IV & CEM V as explained in the PP's response above. Each of these is further classified into different segments according to % clinker share and type of additive used. The project activity produces Pozzolana cement CEM II/B-P and Limestone cement CEM II/B-L known under CEM II family and also produces Pozzolana cement CEM IV/B known under CEM IV family. All the above types of cement must be manufactured as per Ethiopian National Cement Standard ES1177-1:2005 (CES 28" with effect from 1st October 2013)_{/FVR 18/}.

The higher the clinker share is in cement, the easier it is to get high early strength (R) and higher standard (ultimate) strength (N). However high (ultimate) compressive strength (N) is still possible to achieve with lower clinker share (higher additive share) and hence even with high blending cement comparable quality can be produced. Based on review of the PP's response (above) and review of E Ethiopian National Cement Standard ES1177-1:2005 (CES 28" with effect from 1st October 2013)_{/FVR 18/} and chapter 02 of Ethiopian Building Code Standard _{/FVR//13/}, the DOE confirms that *Portland cement (with 95% clinker) has a comparable quality of cement type produced under the project activity i.e. CEMII/ B-L, CEM IV/B.*

ISSUE 2: Baseline Scenario

PROJECT PARTICIPANT RESPONSE:

The baseline scenario of the project activity is guided by guidance in the methodology regarding how to select alternatives and how to set benchmark blending rates. These are:

Guideline on Baseline scenario

As per "Identification of the baseline scenario" of ACM0005 V07.1.0, page 4/36; "The most plausible baseline scenario among all realistic and credible alternatives(s) is identified using Steps 2 and/or 3 of the latest approved version of the "Tool for the demonstration and assessment of Additionality"



In doing so, “project participants (PPs) shall consider all realistic and credible production scenarios **for the relevant cement type** that are consistent with current rules and regulations, including the existing practice of cement production, the proposed project activity, and **practices in other manufacturing plants in the region using similar input/raw materials, and facing similar economic, market and technical circumstances**. If only two scenarios, i.e. the existing practice of cement production and the proposed project activity, are realistic and credible alternatives, the most likely baseline scenario can be identified with the latest version of the “Tool for the demonstration and assessment of Additionality.”

Guideline on Benchmark clinker share

The methodology, instructs in page 10/36 “Note: If the average annual amount of the relevant cement type imported by the host country is more than 10% of the total production volume in the region, the weighted average mass fraction of clinker in the relevant type of imported cement shall be considered in the analysis under approach (a) and (b) above as it would have been produced in a virtual plant located in the region. For example, if there are several companies importing the relevant cement type, the weighted average mass fraction of clinker in the imported cement from each company shall be considered as it would have been produced in a virtual one plant.”

Using these guidance baseline scenario and benchmark clinker share has been established for each of the cement types of the project activity considering similar raw materials (Additives), produced in similar economic/financial circumstances and including imported cement as one virtual plant. The following baseline scenarios have been identified;

- **In case of CEM II/B-P:** This cement types uses Pumice as Additive. Continuation of the current production practice of this type of cement in manufacturing plants of other private cement project developers i.e. the continuation of production as per the current benchmark blending / clinker share practice of this cement type in other private cement plants the host country is the baseline scenario for this type of output. The lowest clinker share allowed for CEMII/B-P by national standard is 65% and the benchmark weighted average clinker share of this cement type calculated as per the guidance in Step 2.1 of the methodology for CEM II/B-P produced using similar Additives (Pumice) in similar circumstances (private plants and taking imports as virtual plant) is 87.81%. The value was stated in earlier PDD Page 30 incorrectly as 85% taking the mean than the weighted average as per the guideline.
- **In case of CEM IV/B:** This cement type uses Pumice as Additive. Since there are cement types already produced using Pumice as Additive; production of CEM II/B-P as produced by similar plants or production of Portland cement (CEM I) or import of Portland cement (CEM I), are the only remaining alternatives. Both CEM II/B-P and CEM IV/B need to use Pumice as additive. Moreover all CEM I, CEM II/B-P and CEM IV/B fulfill the quality requirement of the Ethiopian cement standard shown in Table 001a above. The lowest clinker share of Portland cement (CEM I) allowed by the national standard for production or import certification is 95%. The weighted average Clinker share calculated as per the guidance in Step 2.1 of the methodology for CEM II/B-P produced using Pumice in similar circumstances is 87.81%. Taking the alternative that provides the lowest baseline emission, the Baseline Scenario is production of CEM II/B-P at 87.81% clinker share. Please note that we have reduced the benchmark from 95% used in the previous PDD to 87.81 % now.
- **In case of CEM II/B-L:** This cement type uses Limestone as Additive. As there are no cement types already produced using Limestone as Additive in the host country, import or production of Portland



cement (CEM I) is the only reasonable alternative to the Project Participants and hence should have been the baseline scenario. Moreover CEM I fulfill the minimum quality requirements of the Ethiopian cement standard shown in Table 001a above. The lowest clinker share of Ordinary Portland cement (CEM I) allowed by the national standard for production or import certification is 95%. However PP's conservatively chose the baseline scenario to be production at the benchmark clinker share of CEM II/B-P i.e. 87.81%.

DOE RESPONSE:

For Identification of the baseline scenario" PP has referred to guidance available in ACM 0005 V07.1.0, page 4; *"The most plausible baseline scenario among all realistic and credible alternatives(s) is identified using Steps 2 and/or 3 of the latest approved version of the "Tool for the demonstration and assessment of Additionality "* Thus PP has followed the guidance in the tool which states *"project participants (PPs) shall consider all realistic and credible production scenarios for the relevant cement type that are consistent with current rules and regulations, including the existing practice of cement production, the proposed project activity, and practices in other manufacturing plants in the region using similar input/raw materials, and facing similar economic, market and technical circumstances.."*

DOE confirms that the above guidance have been followed while identifying the alternative baseline scenarios. Since the PP is a private company, only private manufacturing plants in the country using similar input/raw materials has been considered for determining alternative baseline scenarios for each type of cement. The above scenarios were validated through the cements output reports^{/03/&22/} of all manufacturers in private sector and import quantum of cement.

The following three alternative baseline scenarios has been considered for each type of BC. These alternatives are consistent with all applicable mandatory laws and regulations.

Regarding the issue raised during review as explained in the PP's response, in case of CEM II/B-L (which uses Limestone as Additive), as there are no cement types already produced using Limestone as Additive in the host country, import or production of Portland cement (CEM I) is the only reasonable alternative to the Project Participants. Checked and confirmed to be appropriate by the validation team as explained in the first fold of the review comment, CEM I fulfill the minimum quality requirements of the Ethiopian cement standard shown in Table 001a above. The lowest clinker share of Ordinary Portland cement (CEM I) allowed by the national standard for production or import certification is 95%. However the PP has conservatively chose the baseline scenario to be production at the benchmark clinker share of CEM II/B-P i.e. 87.81% and the same is confirmed to be appropriate and conservative.

Validation team further checked that issue raised was also pointed towards the alternative selection for the cement type **CEM IV/B**: This cement type uses Pumice as Additive. Since there are cement types already produced using Pumice as Additive (such as CEM II/B-P); the PP has correctly identified alternatives as production of CEM II/B-P as produced by similar plants or production of Portland cement (CEM I) or import of Portland cement (CEM I). Both CEM II/B-P and CEM IV/B need to use Pumice as additive. Moreover all CEM I, CEM II/B-P and CEM IV/B fulfill the quality requirement of the Ethiopian cement standard as explained in first part of the response.

The DOE concludes that the approved baseline methodology has been correctly applied to identify the most reasonable and conservative baseline scenario and that the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity. Carbon Check was able to



verify all the documented evidence listed above during the validation process and can confirm that all the assumptions and data used by the project participants are listed in the PDD, including their references and sources all documentation used, /18/, /19/ referred to under section 2.1 of FVR, is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD. Relevant national and/or sectorial policies and circumstances /18/, /19/, are considered and listed in the PDD.

ISSUE 3:

The DOE shall explain how it has validated the correctness and conservativeness of the baseline emissions, in particular:

- (a) Parameter BC_y , since the interpretation of parameter BC_y (Blended cement production) in the PDD is not consistent with the requirement of the applied methodology (p 7) that states that BC_y is the blended cement produced and sold in the domestic market.*
- (b) The method applied to update the parameter $B_{Blend,y}$. Since the method applied in the PDD (p 30) is not in line with the formula of option 2 specified in the applied methodology (p 10). Please refer to ACM0005, version 7, page 7 & 10.*

ISSUE 3 (a)

PROJECT PARTICIPANT RESPONSE:

The PDD on page 9 under “B2: Applicability of Methodology” states that “ Blended cement types are basically for domestic market and in any case only those domestically sold cement types will be accounted for in the project activity.” More over in the monitoring section under B 7.3 under section C of sub title “Quality assurance and quality control (QA/QC) procedures” paragraph 3 states; “The officers at head office will cross-check the amount of cement produced and monitored with the sales invoices on a quarterly basis or with the letter report to the Ministry of Industry (or any other authority in case procedure changed) on annual basis.” Under the monitoring table for “Description” of BC_y also states “BC produced and sold in the domestic market in year y (t BC_y)”. Hence the PDD sufficiently addressed this issue, additionally wherever BC_y is stated in the PDD it refers to those produced and sold in the domestic market. Moreover a foot note or consistent description has been included in the revised PDD wherever necessary.

DOE RESPONSE:

Interpretation of parameter BC_y (Blended cement production) has been made consistent in the revised PDD version 07 with the requirement of the applied methodology. The DOE confirms that PP has correctly considered the blended cement produced and sold in the domestic market and hence complies with the requirement of applied methodology (Cp p-7, ACM0005, version 07). Further changes, as required, in revised PDD has also been confirmed.

ISSUE 3 (b)

Project Participants Response:

As responded for the IRC comments, the PP has used option 2 (p-10 of the applied methodology) which requires the PP to update the benchmark annually based on an annual 2% increase in share of additive (to



account for autonomous increase of additive in the market thereby decreasing clinker share). The PP directly interprets this into mathematical application.

Example: For type CEMII/B-P; the initial year clinker share obtained through step 2.1 is, $B_{blend,1}$ is 87.81%, and this means the additives share is 12.19% (i.e 100% -87.81%). On year 2, a 2% autonomous increase in additive share results in 12.19+2% (12.19%) = 12.43%. The clinker share therefore becomes 100-12.43%=87.57% and so on until it reaches 65% within the crediting period, which is the regulatory norm limit for this type of blended cement. The annual baseline clinker share for each of the project activity cement types should have been calculated like this for each crediting year. The annual update in baseline clinker share for each cement type of the project activity needed to be calculated by the same approach.

The PP would like to highlight again here that there is a contradiction between the texts mentioned in the applied methodology and the equation provided (p-10 of the applied methodology). While the methodology as per the text requires 2% annual increase, the formula results in 5% annual increase.

However, since the issue was flagged twice in the registration process, we have adapted the formula in the revised version of the PDD to avoid any more registration delay even though it results in over conservative estimation and is not consistent with the text. The effect of the formula is that it significantly decreased the baseline of our project activity.

DOE's RESPONSE:

PP has now adopted the equation $B_{blend,y} = B_{blend,1} \times (1-0.02)^y$ in the revised spreadsheet/03/, checked and confirmed by the validation team and hence this part of issue has been addressed in the revised emission reduction spread sheet /03/ and PPD /02/.

ISSUE 4:

The DOE shall explain how it has validated the conservativeness of the ex-ante parameters, in particular the baseline benchmark of share of clinker of BC CEMII/B-L and CEM IV /B ($B_{blend,1}$). In doing so, the DOE shall explain how it has validated that the Portland cement with 95% clinker has a comparable quality of cement CEMII/ B-L & CEM IV/B. Please also note that:

(a) According to Ethiopian cement standard ES 1177 - 1:2005, the lowest allowable clinker share of CEM II/B-L is 65% and the lowest allowable clinker share of CEM IV/B is 45%.

(b) The applied methodology (p 9) states that data concerning average blending ratio, annual production and import of the relevant cement type(s) in the region shall be collected for one year prior to the start date of CDM project activity.

(c) In case relevant cement type imported by the host country is considered in determining the benchmark, the information on the clinker share of the imported cement type should be provided as specified on the cement bag or import document as per the applied methodology (p 10). Please refer to VVS version 2, paragraph 98

ISSUE 4 (a)

PROJECT PARTICIPANT RESPONSE:

As explained above in response to review issue 2.



DOE RESPONSE:

The response to the issue raised in 4(a) has been responded under responses to issue 2 above.

ISSUE 4 (b)

Project Participants Response:

The start date of the project activity is August 2009. 2008 is the year prior to the start date. Page 28 of the PDD under Step 2.1 clearly stated that data on average blending ratio, annual production and import, for year 2008 has been collected.

DOE RESPONSE:

The start date of the project activity is August 2009. 2008 is the year prior to the start date. Adequate data on average blending ratio, annual production and import for the years 2007-2009 has been procured through Environmental Protection Authority of FDRE Ethiopia /FVR 19/. Hence validation team confirms that the *data concerning average blending ratio, annual production and import of the relevant cement type(s) in the region has been collected for one year prior to the start date of CDM project activity and the project activity complies with the requirement of the applied methodology (p 9).*

ISSUE 4 (c)

Project Participants Response:

The objective and most practical way would be to get the information/confirmation on quality and quantity of imported cement is from Government Authority tasked with inspecting quality and quantity of imported goods as they are the ones who are at better position and mandate to review details of import documents. The methodology allows in page 6/36 that data can be obtained from Government agencies.

The statistics of import has been obtained from the Quality and Standards Authority of Ethiopia (Now named Ethiopian Standards Agency), which is the Authority that issues the standard and controls quantity & quality of goods including imported goods and have all the import documents in a given year. It stated in the confirmation document received from this Authority that all of the imported cement is Ordinary Portland Cement (OPC). Ethiopian cement standard also designates Portland cement as cement that should at least contain 95% clinker (Ethiopian cement standard ES 1177 - 1:2005, Page 8; Table 1). If imported OPC cement has more than 95% clinker, it is still allowed to import but for the sake of baseline emissions using 95% (least allowable clinker share in OPC) in the benchmark calculations is more conservative than using higher clinker share.

DOE RESPONSE:

Validation team has reiterated the exact text of the applied methodology (p 10) as refereed in the review raised:

"Note: If the average annual amount of the relevant cement type imported by the host country is more than 10% of the total production volume in the region, the weighted average mass fraction of clinker in the relevant type of imported cement shall be considered in the analysis under approach (a) and (b) above as it would have been produced in a virtual plant located in the region. For example, if there are several companies importing the relevant cement type, the weighted average mass fraction of clinker in the imported cement



from each company shall be considered as it would have been produced in a virtual one plant. In this case, the clinker share of the imported cement type may be obtained as specified on the cement bag or import document.

As highlighted in the text above (refer underlined text), the requirement for considering cement bag or import document for determining clinker share of imported cement is not mandatory as per the applied methodology and that is the reason "may" has been referred for this, had this been mandatory it would have referred with word "shall" or "should". Hence validation team confirms that this way (i.e. considering cement bag or import document) of establishing clinker share for imported cement is optional and PP may use other credible method to establish this requirement of the applied methodology. Accordingly PP has used government letter (type of document is also in compliance with p-6 of the applied methodology) for establishing the fact and the data on Quantity of Cement imports in Ethiopia during 2007-09 was obtained from "Quality and Standards authority of Ethiopia" through their letter dated 27/03/2009 /FVR 18/(/06 of this letter). Since only OPC cement have been imported, the clinker % has been taken as 95% as indicated in ES1177_{/18} against CEM-1 having a clinker content between 95~100%, the consideration of 95% is an appropriate and conservative assumption and hence acceptable to the validation team.

In view of the above, the DOE confirms that adequate data is available on cement types in the market. The production and import data for the year 2008 has been used for determination of baseline and the same has been presented in the PDD.

Carbon Check thus consider that the above response and revised documents adequately address the issues raised during the Request for Review. Carbon Check therefore requests that the project proceed to registration as a CDM project activity.

In case of any further query, the undersigned shall be responsible for answering and can be reached via the contact details provided below.

Kind regards

Vikash Singh

Technical Executive

Reference documents attached:

/01/ Revised Validation Report in clean and track change version

/02/ Revised PDD in clean and track change version

/03/ Revised emission reduction spread sheet.

/04/ Ethiopian National cement standard ES1177-1:2005

/05/ Confirmation letter issued by Ethiopian standards Agency- The Federal Democratic Republic of Ethiopia



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/06/ Letter from Quality and Standards authority of Ethiopia dated 27/03/2009 on import of cement

/07/ Chapter 02 of Ethiopian Building Code Standard