

ザンビア共和国  
穀物倉庫建設計画  
基本設計調査報告書  
別冊

# ザンビア共和国建築資料集

昭和62年12月

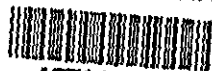
国際協力事業団

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# ザンビア共和国建築資料集

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昭和62年12月

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建設事情

## 1. 建設一般事情

ザンビア国に於ては、イギリスの植民地時代に培われた建設技術があり、首都のルサカを始め、キトエ、ウンドラ等主要都市には一応のレベルの近代建築が建設され、ルサカでは数十階建の高層建築もみられる。構造は、鉄筋コンクリート造、煉瓦造の建物が多く、鉄骨造は倉庫、工場を除き、ほとんど見られない。

構造的には、鉄骨造は一般的ではなく、鉄骨ファブrikエーターも小規模のものしかないので、主架構の重量大型鉄骨、その他加工能力を必要とするものについては現地の製作実績は少ない。

工事施工体制としては、ザンビア国ではかなりの施工能力をもつ建設業者が相当数あるので、これらの建設業者をサブコントラクターとして使用したほうが、日本業者の直営方式より、はるかに経済的であり、工期面でも有利である。

又、今回建設候補地である、カロモ、カビリ・ムボシでは、鉄道線路引込線の建設を予定しているが、レール敷設に要する資材は、全てZambia Railwayより購入しなければならない。工事は民間建設業者でもよい。Zambia Railwayの事務所は、中部州カブエにある。

本建設計画におけるザンビア国のカウンターパートであるNAMBには、セクションとして、Engineering Departmentがあり、NAMBの事務所及び倉庫等の建家についての設計を行い、さらに民間業者に工事発注をし、監理まで行っている。本プロジェクトにおいても、前2回のプロジェクトと同様に、法的に必要な諸手続については、NAMBに依頼することになっている。

なお、資料-1に、ザンビア国における建設工事施工統計を、Monthly Digest of Statisticsより添付する。

## 2. 建設関係法規・建設規準

建設法規としてはLocal Government, Chapter 480 of the Law of Zambia (略称 CAP 480)のうちLocal Government Regulations 及び、各地区のMunicipal By-Laws が適用される。

建設予定地では、開発許可申請を各地区のPlanning Authorityに提出し、許可を受けなければならない。建設許可申請は、各地区のPlanning Authorityに提出する事になるが、政府関係の建物の場合、単に手続上の問題のみであり、申請内容は資料-2の申

請用紙による。

設計及び施工は原則として、BS規準で行なわれているが、ザンビア独自のものとして

- 1 General Specification, Interim Metric Edition, Director of Buildings, Building Department, Ministry of Works and Supply.
- 2 Standard Specification for Roads and Bridges, Road Department.
- 3 CES Code ZS 016 1975, Code of Basic Data for the Design of Building, Loading, Dead and Imposed Loads.

等がある。

その他、ザンビア規格協会により、セメント、スレート、コンクリートブロック等若干の規格が制定されている。

又、レール敷設に関しては、Black Bookと呼ばれるZambia Railwaysの規準を示したMaintenance Instruction for Permanent Wayによる。従って、レールを敷設する場合には、Zambia Railwayに許可申請をする必要があり、申請図面として、レール勾配、曲率、レールと建家の位置及び建築限界を記入したものを提出しなければならない。

### 3. 建設関係機関及び業者

ザンビア国における建設関係機関及び業者は、ザンビア大学獣医学部建設計画建設事情資料集—昭和58年6月—において述べられており、これに前2回及び今回の調査によって得られた情報を補足してまとめたものを、資料—3として添付する。

### 4. 建設労務者

ザンビア国における建設部門の就業人口は、全体の労働力の中で占める割合が高く、建設労務者人口は、比較的安定している。

職種も比較的多く、技術レベルにより、各職種毎に、Class 1～3の等級に分かれている。しかしながら、熟練工であるClass 1レベルの労務者は少なく、又、現地労務者の能率は低く、日本の1/3～1/5と言われている。

### 5. 建設資材

ザンビア国内では、セメント、砂、煉瓦、コンクリートブロック、スレート等の基礎資材が生産されており、その他の建設資材は一般的に輸入に頼っている。基礎資材につ

いては、外貨不足、生産設備の破損等のために、しばしば生産が中断されることがある。

スレートは、ルサカ市郊外に、大きな工場がある。煉瓦については、ルサカとチンゴラに大きな工場があり、市場に供給されている。ルサカの煉瓦は品質にむらが多く、恒久的な建築物にスレートをを使用する場合には、品質的に安定しているチンゴラの製品を使用したほうがよい。

スレート、煉瓦等については、隣国のジンバブエにおいても生産されており、ザンビア国内へ輸入されている。

鋼材は国内では生産されておらず、鉄骨、鉄筋及び鋼製建具等の素材は、主として南ア、ジンバブエからの輸入に頼っている。又、アルミドア、アルミウインドー等のアルミ製品及びステンレス製品はザンビア国内では、入手不可能である。

その他建設資材として、エクспанション材、防塵仕上材、トランス、分電盤等は、ヨーロッパより、蛍光灯は、南ア、ジンバブエ製のものが輸入されており、国内での調達も可能である。

## 6. 労務・資材価格

ザンビアでは建設資材は売手市場であり、材料メーカーは、カタログ、価格表等を用意していない場合が多い。総合単価価格表も、各Cost Estimatorが、実績を踏まえて整理したものがある程度である。

建設資材及び建設労務者は、殆ど都市部でのみ調達され、地方には材料持ち込み、労務者泊まり込みの施工となるため、今回の計画のように地方に分散する場合には、材料輸送費、労務費の割増を加算する必要がある。

建設資材のPrice Listを資料-4に、又、労務費を、資料-5に添付する。統計資料として、Monthly Digest of Statisticsより、建設資材のPrice Index を、資料-6として添付する。

## 7. 水道・電力事情

主要都市では、ほとんど水不足の心配はないが、水質は硬質で石灰分含有量が乾期には非常に多くなる。乾期の水圧はルサカ市内でも地区によって甚だしく低圧になる所もある。水道の供給は、各都市の自治体が行っている。又、ザンビアには、公共ガス供給システムはなく、ガスシリンダーを利用している。



電力の統計資料、及び、エネルギーコストを、資料-7に、水道のコスト資料を、資料-8に添付する。

## 8. 輸送事情

ザンビア国への主要輸送手段には、タンザニアのダルエスサラーム港よりタンザン鉄道によるルート、又はタンザンハイウェイを利用するルート、及び南アのダーバン、ケープタウン、ポートエリザベス等の諸港よりジンバブエ経由の陸路輸送ルートの3つがある。従来のアンゴラ及びモザンビーク経由のルートは両国の政情不安のため使用できない。日本からの輸送は、ダルエスサラーム港までは海上輸送で、ダルエスサラーム港からは、トラック輸送より比較的安定しているタンザン鉄道利用が有力となる。ダルエスサラーム港においては、荷揚げに時間がかかるため、港での陸揚げ及び鉄道までの積み込みを、十分管理する必要がある。

添付資料

CONSTRUCTION

TABLE 17 (a)—CONSTRUCTION OUTPUT OF PRIVATE CONTRACTORS  
(K'million)

	Total	Buildings	Civil Engineering	Type of work		Undertaken for	
				New	Repairs	Government	Owners
1970 ... ..	93.2	56.8	36.4	84.8	8.4	50.8	42.4
1971 ... ..	128.1	64.5	63.6	118.8	8.9	68.8	59.3
1972 ... ..	146.3	84.7	61.6	137.8	8.5	64.8	81.5
1973 ... ..	141.2	69.2	72.0	128.4	12.8	54.2	87.0
1974 ... ..	170.8	66.5	104.3	159.3	11.6	75.6	95.3
1975 ... ..	216.8	92.3	124.5	208.4	8.4	110.1	105.7
1976 ... ..	161.1	42.7	114.9	146.3	15.3	79.1	82.5
1977 ... ..	156.3	47.3	109.0	149.4	6.9	78.3	78.0
1978 ... ..	150.0	34.0	116.0	143.7	6.3	66.8	83.2
1979 ... ..	133.0	76.5	56.5	128.2	4.8	87.0	46.0
1980 ... ..	182.2	90.2	92.0	170.9	11.3	120.6	61.6
1981 ... ..	143.1	46.2	93.9	136.9	6.2	53.5	89.6
1982 ... ..	153.9	74.2	79.7	147.2	6.7	49.5	104.4
1983* .. ..	162.9	116.0	46.9	159.6	3.3	51.3	111.6
1984* .. ..	200.3	147.3	53.0	190.2	10.1	43.8	156.5
1982 1st Quarter ... ..	45.4	34.0	11.4	44.1	1.3	7.8	37.6
2nd Quarter ... ..	55.1	10.6	44.5	53.5	1.6	34.9	20.2
3rd Quarter ... ..	24.1	14.0	10.1	21.3	2.8	3.2	20.9
4th Quarter ... ..	29.3	15.6	13.7	28.3	1.0	3.6	25.7
1983* 1st Quarter .. ..	19.9	13.2	6.7	19.4	0.5	7.1	12.8
2nd Quarter .. ..	50.7	33.7	17.0	50.2	0.5	7.9	42.8
3rd Quarter .. ..	49.9	41.8	8.1	48.7	1.2	8.1	41.8
4th Quarter .. ..	42.4	27.3	15.1	41.3	1.1	28.2	14.2
1984* 1st Quarter .. ..	44.1	29.6	14.5	39.2	4.9	12.4	31.7
2nd Quarter .. ..	55.5	37.2	18.3	53.4	2.1	14.7	40.85
3rd Quarter .. ..	70.6	58.4	12.2	68.8	1.8	10.7	59.9
4th Quarter .. ..	30.1	22.1	8.0	68.8	1.3	6.0	24.1
1985* 1st Quarter .. ..	25.7	18.9	6.8	24.5	1.2	5.3	20.4
2nd Quarter .. ..	25.3	18.6	6.7	24.1	1.2	5.2	20.1

† Excluding TAZARA.

\* Provisional.

TABLE 17 (b)—VALUE OF CONSTRUCTION WORK IN PORTFOLIO BY THIRTY-FIVE MAJOR CONTRACTORS

As at:	Value (K'million)			Representing work for:†		
	Total	Buildings	Civil Engineering	Average	Buildings	Civil Engineering
1974 ... ..	79.2	37.5	41.6	51 weeks	60 weeks	45 weeks
1975 ... ..	95.1	46.4	48.7	51 weeks	53 weeks	50 weeks
1976 ... ..	82.7	43.1	39.6	50 weeks	54 weeks	46 weeks
1977 ... ..	68.0	27.7	40.8	31 weeks	37 weeks	28 weeks
1978 ... ..	66.0	26.6	39.4	36 weeks	63 weeks	28 weeks
1979 ... ..	36.2	19.7	16.5	16 weeks	37 weeks	10 weeks
1980 ... ..	34.9	19.1	15.7	37 weeks	42 weeks	31 weeks
1981 ... ..	24.7	4.0	20.8	58 weeks	25 weeks	90 weeks
1982 ... ..	20.2	14.0	6.2	18 weeks	51 weeks	7 weeks
1983* .. ..	44.3	37.3	7.1	33 weeks	47 weeks	16 weeks
1984* .. ..	28.4	18.5	9.9	25 weeks	27 weeks	22 weeks
1981 31st March ... ..	29.9	4.2	25.7	106 weeks	27 weeks	206 weeks
30th June ... ..	28.2	4.9	23.3	59 weeks	28 weeks	78 weeks
30th September ... ..	20.6	3.4	17.2	34 weeks	26 weeks	35 weeks
31st December ... ..	20.3	3.3	17.0	34 weeks	18 weeks	41 weeks
1982 31st March .. ..	22.7	15.2	7.5	12 weeks	33 weeks	5 weeks
30th June .. ..	20.6	13.8	6.8	20 weeks	66 weeks	8 weeks
30th September .. ..	21.2	13.8	7.4	23 weeks	54 weeks	11 weeks
31st December .. ..	16.2	13.1	3.1	18 weeks	52 weeks	5 weeks
1983* 31st March .. ..	36.8	30.8	6.0	35 weeks	74 weeks	9 weeks
30th June .. ..	39.9	32.8	7.1	23 weeks	30 weeks	11 weeks
30th September .. ..	52.6	46.3	6.3	31 weeks	32 weeks	23 weeks
31st December .. ..	48.1	39.2	8.9	43 weeks	53 weeks	23 weeks
1984* 31st March .. ..	36.0	22.1	13.9	25 weeks	23 weeks	28 weeks
30th June .. ..	35.0	22.8	12.0	31 weeks	36 weeks	25 weeks
30th September .. ..	21.5	12.7	8.8	22 weeks	22 weeks	22 weeks
31st December .. ..	21.2	16.3	4.9	22 weeks	26 weeks	15 weeks

The thirty-five companies included carry out approximately half of all construction work in Zambia. Large civil works like hydro-electrical schemes and railway constructions have been excluded.

† Based on activity-level of the preceding quarter.

\* Provisional.

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**THE TOWN AND COUNTRY PLANNING ACT**  
**APPLICATION FOR PERMISSION TO DEVELOP**  
*(Paragraph 8. The Town and Country Planning Development Order)*

To the.....  
*(Insert name and address of the planning authority)*

I/We hereby apply for permission to develop as described in this application and on the attached plans and drawings.

Date..... *Signature of Applicant or Agent*.....  
If signed by Agent state:  
*Name*.....  
*Address*.....  
*Profession*.....

1. If an application in principle has previously been submitted state the registered number of the application.	
2. State whether subdivision is involved and if so whether permission has been applied for and give registered number of the application.	
3. (a) Stand, Lot or Farm No.    ..    ..    ..    ..	(a) .....
(b) Road, District and Town .. .. .	(b) .....
4. Applicant's name and address .. .. .	
5. Owner's name and address .. .. .	
6. If applicant is not the owner, state interest in the land, e.g. leasee, prospective purchaser, etc., and whether the consent of the owner to this application has been obtained.	
7. Describe briefly the proposed development including the purposes for which land and/or buildings are to be used.	
8. State the purpose for which land and/or buildings are now used. If not now used, the purpose for which and date on which they were last used.	
9. State whether the construction of a new, or alteration of an existing, means of access to or from a road is involved.	

<p>10. If the proposed development consists only of a change of use and does not involve building operations state the exact nature of such change.</p>	<p>.....  .....  .....</p>
<p>11. If the site abuts on a road junction, give details and height of any proposed walls, fences, etc., fronting thereon.</p>	<p>.....  .....  .....</p>
<p>12. State method of—  (a) water supply .. .. .  (b) sewage disposal .. .. .  (c) surface water disposal .. .. .  (d) refuse disposal .. .. .</p>	<p>(a) .....  (b) .....  (c) .....  (d) .....</p>
<p>13. Give details of any relevant easements affecting the proposals.</p>	<p>.....  .....</p>
<p>14. State the—  (a) area of land affected .. .. .  (b) area of buildings .. .. .  (c) percentage of site covered—  (i) by existing buildings .. .. .  (ii) by proposed buildings. .. .. .</p>	<p>(a) .....  (b) .....  (i) .....  (ii) .....</p>
<p>15. State the materials to be used for—  (a) external walls .. .. .  (b) roof .. .. .</p>	<p>(a) .....  (b) .....</p>
<p>16. If the building is to be used for more than one purpose state the floor area and nature of each use.</p>	<p>Ground Floor .....  First Floor.....  Second Floor.....  Third Floor.....  Fourth Floor, etc.....</p>
<p>17. If the building is to be used wholly or partly for commercial or industrial purposes state—  (a) the nature of the proposed use or uses .. .. .  (b) the provision to be made for loading and unloading of vehicles.  If for industrial use—  (c) the type of process to be carried on .. .. .  (d) the nature and means of disposal of trade refuse or trade effluent.  (e) whether it is proposed to conduct retail or wholesale sales on the premises.</p>	<p>(a) .....  (b) .....  (c) .....  (d) .....  (e) .....</p>
<p>18. Except in the case of a dwelling-house state what facilities for parking of vehicles are to be provided.</p>	<p>.....  .....</p>

## SUBMISSION OF PLANS

1. All plans and drawings to be signed on every sheet by the applicant or his agent and to be drawn in permanent ink or reproduced in a clear and intelligible manner on suitable material, one copy to be on linen or other equally durable material.
2. This form, duly completed, and all plans and drawings to be submitted in duplicate unless otherwise directed.

### PLANS AND DRAWINGS REQUIRED

**SITE PLAN:** To an appropriate scale sufficient to identify the site showing the land to which this application relates edged red and any adjoining land in the same ownership edged blue.

**BLOCK PLAN:** To scale of not less than 1:500, showing—

- (a) the boundaries of the land and any adjoining stand and any road fronting or adjoining those stands and its name and width;
- (b) the position of any existing or proposed building on the land;
- (c) the position of any existing or proposed boreholes, septic tanks, cesspits or cess-pools, drains or sewers or other sewage disposal plant on the land;
- (d) the position, width and gradient of any existing or proposed means of access to any road from the land;
- (e) in the case of commercial development the height of any canopy, window head or parapet on the proposed building and on any adjoining building in relation to the pavement or road level.

**BUILDING PLANS:** To a scale of not less than 1:100, showing—

- (a) the plan of each floor and the proposed use of each floor;
- (b) the elevation of all sides of the building;
- (c) the levels of the land and the ground floor in relation to the level of any adjoining or adjacent road.

### NOTES

1. This application is for permission under the Town and Country Planning Act and does not absolve the applicant from obtaining any other consent under any law, by-law, regulation, State lease agreement, etc., that may be required.
2. The planning authority reserves the right to require any further information or additional copies of plans and drawings as it may consider necessary.

資料 - 3 建設関係機関及び業者リスト

(1) 建設関係機関

1. STANDARD INSTITUTE OF ZAMBIA  
P.O. Box 50259  
LUSAKA Telephone No. 251062
  
2. ZAMBIA INSTITUTE OF ARCHITECTS  
P.O. Box 34730  
LUSAKA Telephone No. 211456
  
3. ZAMBIA ELECTRICITY SUPPLY CORPORATION LIMITED  
P.O. Box 33304  
LUSAKA Telephone No. 213177
  - a. Distribution and Supply Division (Connections)  
P.O. Box 30040  
LUSAKA Telephone No. 213177
  
  - b. Engineering Services Division  
(Planning and Construction)  
P.O. Box 33304  
LUSAKA Telephone No. 213177
  
4. LUSAKA URBAN DISTRICT COUNCIL  
City Engineers Department  
P.O. Box 30251  
LUSAKA Telephone No. 218660
  
5. CHIEF FIRE OFFICER  
P.O. Box 32734  
LUSAKA Telephone No. 251371

(2) 建築設計事務所・コンサルタントエンジニア・積算事務所

CONSULTANT ARCHITECTS

<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE NO.</u>
1. Anderson and Anderson	P.O. Box 30263 LUSAKA	217244
2. Architrave Limited	P.O. Box 30684 LUSAKA	213368
3. Erhard Lorenz Associates	P.O. Box 50079 LUSAKA	250021
4. Montgomerie Oldfield Kirby Denn	P.O. Box 30721 LUSAKA	216537
5. Steward Neil Malenga & Associates	P.O. Box 31106 LUSAKA	216609
6. Peover & Cameron-Smith	P.O. Box 70762 NDOLA	2433
7. Pringle (Zambia) Limited	P.O. Box 33672 LUSAKA	212105
8. Topham Ravensdale Associates	P.O. Box 22193 KITWE	212730
9. Watkins Gray International/Zambia	P.O. Box 31073 LUSAKA	211529



CONSULTANT ENGINEERS

<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE NO.</u>
1. Nicholas O'Dwyer and Partners	P.O. Box 30160 LUSAKA	211183 214460
2. ZMCK Consulting Engineers	P.O. Box 32226 LUSAKA	214491
3. John Burrow and Partners	P.O. Box 31923 LUSAKA	211877
4. Ove, Arup and Partners	P.O. Box UNKNOWN	211254 212386
5. Fintech Consultants Limited	P.O. Box 31290 LUSAKA	218279
6. O'Dwyer, Nicholas and Partners	P.O. Box 30160 LUSAKA	211183
7. E. G. Petit and Partners	LUSAKA	216848
8. United Consulting Company Limited	P.O. Box 32432 LUSAKA	214032
9. Colquhoun, Brian, Hugh O'Donnel and Partners	P.O. Box 31943 LUSAKA	214525

CONSULTANT QUANTITY SURVEYORS

<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE NO.</u>
1. Adam Hod and Partners	P.O. Box 30610 LUSAKA	212433
2. Mwitumwa and Associates	P.O. Box 30614 LUSAKA	211120
3. Northcrofts and Tunaley	P.O. Box 30391 LUSAKA	211525
4. Peter Richard and Partners	P.O. Box 32518 LUSAKA	215852
5. J. W. Robertson	P.O. Box 75032 NDOLA	3939 3339

(3) 建設業者・電気工事業者・設備工事業者

BULDING CONTRACTORS

<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE NO.</u>
1. Lewis Construction Company (Z) Limited	P.O. Box 32056 LUSAKA	218376
2. Minestone (ZAMBIA) Ltd.	P.O. Box 21870 LUSAKA	215712
3. Minestone (Z) Limited	P.O. Box 20354 KITWE	215922
4. Zambia Engineering and Contracting Company Limited (ZECCO)	P.O. Box 30306 LUSAKA	216966
5. Delkins Limited	P.O. Box 20621 KITWE	212411

<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE NO.</u>
6. Amlew Boart Zambia Limited	P.O. Box 21851 KITWE	213622
7. Apollo Enterprises Limited	P.O. Box 32299 LUSAKA	213355
8. Burton Construction Ltd.	P.O. Box 31344 LUSAKA	214320
9. Brunelli Construction Co., Ltd.	P.O. Box LUSAKA	215796
10. Velos Enterprises Ltd.	P.O. Box 33667 LUSAKA	213374
11. Lendour and Burton Construction Limited	P.O. Box 31344 LUSAKA	214320 219437
12. Copperbelt Civil Engineering Company Limited	P.O. Box 34516 LUSAKA	214038 213198
13. C. T. Hughes Limited	Crompton Road, Industrial Area, P.O. Box 70753 NDOLA	3148
14. Wade Adams Construction Limited	P.O. Box 35330 LUSAKA	215633 215712

ROAD CONSTRUCTION

	<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE NO.</u>
1.	ROADMIX	P.O. Box 31836 Lusaka	215846
2.	NEMESIS	P.O. Box 34592 Lusaka	217350
3.	MURPHY	P.O. Box 30172 Lusaka	218910

ELECTRICAL CONTRACTORS

	<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE NO.</u>
1.	Behrens Limited	P.O. Box 30473 LUSAKA	213412
2.	Drake & Gorham (Z) Limited	P.O. Box 31776 LUSAKA	212523
3.	Electrical Maintenance Lusaka Limited (EML LTD)	P.O. Box 31189 LUSAKA	211955
4.	ZECCO Limited	P.O. Box 30306 LUSAKA	216966
5.	UNIGLO Limited	P.O. Box 34051 LUSAKA	211177

PLUMBING CONTRACTORS

	<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE NO.</u>
1.	A. W. Dewar & Partners Limited	P.O. Box 32011 LUSAKA	217380
2.	Drake and Gorham (Z) Limited	P.O. Box 31776 LUSAKA	212523

(4) 建築関係下請工事業者

WATERPROOFING CONTRACTORS

<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE NO.</u>
1. Trinidad Asphalt Company (Z) Limited	P.O. Box 32421 30938 LUSAKA	21794

CEILING CONTRACTORS

<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE NO.</u>
1. Bailey's Roofing (Z) Limited Roofing and Ceilings Specialists	P.O. Box 30792 LUSAKA	218730
2. Roofing and Ceilings Shade Control Sep		
3. Shade Control Specialists Limited	P.O. Box 32948 LUSAKA	211218 211234
4. Shonga Steel Limited	P.O. Box 30977 LUSAKA	217156
5. Illuminated Ceiling Limited	P.O. Box 33131 LUSAKA	217782

STEEL FABRICATIONS CONTRACTORS

<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE NO.</u>
1. Steel Fabrications Limited	P.O. Box 30355 LUSAKA	216745
2. All-Metal Engineering Limited	P.O. Box 31273 LUSAKA	215261

<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE NO.</u>
3. Alro Engineering Limited	P.O. Box 32739 LUSAKA	214793

(5) 建設資材メーカー及び扱い業者

SUPPLIERS (BUILDING MATERIALS)

<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE NO.</u>
1. Brick and Tile Manufacture Limited (Red Briks)	P.O. Box 30338 LUSAKA	718120
2. Shonga Steel Limited (Reinforcement)	P.O. Box 30977 LUSAKA	217885
3. Zambia Steel and Building Supplies Limited	P.O. Box 31509 LUSAKA	211040
a. Timber	-	217433
b. Doors	-	218916
c. Glass	-	213356
d. Steel	-	212544
e. Hardware	-	216998
4. Lusaka Engineering Co., Ltd. (LENCO)	P.O. Box 33455 LUSAKA	217979
a. Steel door & window frames		
b. Electric hot water Geysers		
c. Welded wire mesh products		
5. T.A.P. Building Products Limited	P.O. Box 31522 LUSAKA	211705
a. Asbestos Roofing Sheets etc.		
b. Asbestos pipes		
c. Asbestos plain sheets		
d. T.A.P Boards		

	<u>NAME</u>	<u>ADDRESS</u>	<u>TELEPHONE NO.</u>
6.	CEMENT:		
	CHILANGA CEMENT (Sale Supplier in Lusaka)	P.O. Box 99 Chilanga	278417
7.	STONES:		
	CRUSHED STONE SALES LTD.	P.O. Box 31388 Lusaka	212906
	JAMES DAKA		217726
8.	SAND & STONE:		
	LEKRAF ENTERPRISES LTD.	P.O. Box 32138 LUSAKA	213353
	SALIM ORIENTAL QUARRIES & CONCRETE BLOC LTD.		211214
9.	BRICKS:		
	LUSAKA BUILDING & TRANSPORT CO., LTD.		216507

BRICK AND TILE MANUFACTURERS LTD.

Telephone  
Head Office: 217233/215493  
Sales Office: 215846/213504  
Brick Fields: 748120

P.O. Box 31808,  
LUSAKA.  
REPUBLIC OF ZAMBIA

PRICE LIST WITH EFFECT FROM 21ST APRIL, 1987

<u>Type</u>	<u>Size</u>	<u>Price per 1000 Ex-Brick Fields</u>
<u>Common Bricks</u>		
Metric	190mm x 90mm x 90mm	K690
Imperial	9" x 4½" x 3"	K690
<u>Facing Bricks</u>		
Metric Selected	190mm x 90mm x 90mm	K890
Metric Rustics	190mm x 90mm x 90mm	K890
Imperial Selected	9" x 4½" x 3"	K890
Imperial Rustics	9" x 4½" x 3"	K890
Bull Nosed Bricks	190mm x 90mm x 90mm	K890
<u>Special Bricks</u>		
Paviors (Full Face)	190mm x 90mm x 45mm	K620
Paviors (Half Face)	190mm x 90mm x 45mm	K620
Rustics (Half Face)	190mm x 90mm x 45mm	K620

- a) The Company does not deliver the products to the customers.
- b) Priorities shall be given to customers with cash orders in excess of 40,000 Bricks.
- c) The above prices shall be subject to change without any prior notice regardless of collections.
- d) Prices ruling on the date of collection shall be applied in all cases.
- e) The collection of products shall signify the inspection and acceptance of the products by the Client at Brick fields.
- f) The supply of products is subject to availability of the products and prior sales. In case of dispute regarding quality the Company may accept the liability to the extent limited to the replacement costs of the products supplied at our works only.
- g) Advance payments shall be treated as deposits and shall not bind the Company to the price prevailing at the time of advance payment.
- h) The collection of products from the Brick fields shall be mornings only from 8.00 hrs to 12.00 hrs Monday to Friday.



LEKRAF ENTERPRISES LIMITED

SCHEDULE OF PRICES FOR CONCRETE BLOCKS

ALL PRICES QUOTED ARE PER 100 BLOCKS

(EFFECTIVE 20/4/87)

	4" (±10 cms)	6" (±15 cms)	8" (±20 cms)
COLLECTICN - Lekraf Depot	K 165.00	K 210.00	K 265.00
1. <u>CENTRAL AREA</u> : City Centre, Kanyama, Chibolya, Chinila, Light Industrial, Emmasdale, Thornpark, Northmead, Maluba, Kapila, Longacres, Embassy Triangle, Luberra, Kabwata, Kanwala Misisi. <u>MAKENI</u> : Chawama, Monty's Bar, John Laing, Kilimanjaro.	K 200.00	K 245.00	K 300.00
2. <u>AREA TWO</u> : Garden Hotel, Heavy Industrial, Emmasdale Ext., Chaisa, Garden, Olympia, Showgrounds, Mass Media, City Airport, Ridgeway East, Sibala, Andrew's Motel, Bar-B-Q.	K 210.00	K 255.00	K 310.00
3. <u>AREA THREE</u> : Matoso, Ind. Stadium, Mandevu, Marapodi, Roma, Kaiundu, University, Kalingalinga, Woodlands, Chilenje, Copper Chalice, Makeni Police, Chilanga.	K 220.00	K 265.00	K 320.00
4. <u>AREA FOUR</u> : Chunga, Lilanda, George, Chipata, Chudleigh, Kaunda Square, Chainama Hills Hospital, Mutendere, Ibex Hill, Cemetery, Bauleni, Woodlands Ext., Munda Wanga.	K 230.00	K 275.00	K 330.00
5. <u>AREA FIVE</u> : Chambor Valley, Chelston, Avondale, Lusaka West.	K 240.00	K 285.00	K 340.00
6. <u>AREA SIX</u> : International Airport, Daka Quarry, Barn Motel.	K 250.00	K 295.00	K 350.00
7. <u>AREA SEVEN</u> : Kafue Area--Along main Rd.	K 230.00	K 325.00	K 380.00

CEMENT: Collected at Depot: K21.50 per pocket. (Delivery rates on request)

- PLEASE NOTE:
1. ALL DELIVERIES TO AREAS NOT ON THIS SCHEDULE WILL BE SUBJECT TO PRIOR QUOTATION.
  2. DELIVERY ORDERS FOR LESS THAN 400 BLOCKS NOT ACCEPTED.
  3. AS THE BASIC RAW MATERIALS OF CEMENT AND STONE ARE NOT OUR OWN PRODUCTS, RATES SHOWN ON THIS LIST ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

/sm.

LEKRAF ENTERPRISES LIMITED

SCHEDULE OF PRICES FOR CRUSHED STONE, CONCRETE SAND & BUILDING SAND

(ALL QUOTED DELIVERY PRICES ARE FOR A MINIMUM QUANTITY OF 5M<sup>3</sup>)  
(EFFECTIVE 20/4/1987)

	CRUSHED STONE PER M <sup>3</sup>	CONCRETE SAND PER M <sup>3</sup>	BUILDING SAND PER M <sup>3</sup>
	PER 7M <sup>3</sup>	PER 7M <sup>3</sup>	PER 7M <sup>3</sup>

COLLECTION-Lekraf Depot

84.00

90.00

-

-

644.00

1. CENTRAL AREA: City Centre, Kanyama  
Chibolya, Chinika, Light Industrial,  
Emmasdale, Thornpark, Northmead,  
Maluba, Kapila, Longacres, Embassy  
Triangle, Luburma, Kabwata, Kamwala,  
Misisi.

MAKENI: Chawama, Monty's Bar, John  
Laing, Kilimanjaro.

2. AREA TWO: Garden Hotel, Heavy Indus-  
trial, Emmasdale Exl., Chaisa,  
Garden, Olymoia. Showgrounds, Mass-  
Media, City Airport, Ridgeway East,  
Libala, Andrew's Motel, Bar-B-Q.

3. AREA THREE: Matero, Ind. Stadium,  
Mandevu, Marapodi, Roma, Kalundu,  
University, Kalingalinga, Woodlands,  
Chilenje, Copper Chalice, Makeni  
Police, Chilanga.

4. AREA FOUR: Chunga, Lilanda, George,  
Chipata, Chudleigh, Kaunda Square,  
Chainama Hills Hospital, Mutendere,  
Ibex Hill, Cemetery, Bauleni, Wood-  
lands Ext., Munda Wanga.

	<u>CRUSHED STONE</u>		<u>CONCRETE SAND</u>		<u>BUILDING SAND</u>	
	<u>PER M<sup>3</sup></u>	<u>PER 7M<sup>3</sup></u>	<u>PER M<sup>3</sup></u>	<u>PER 7M<sup>3</sup></u>	<u>PER M<sup>3</sup></u>	<u>PER 7M<sup>3</sup></u>
<u>5. AREA FIVE:</u> Chamba Valley, Cheliston, Avondale, Lusaka West.	170.00	1190.00	130.00	910.00	124.00	868.00
<u>6. AREA SIX:</u> International Airport, Daka Quarry, Barn Motel.	178.00	1246.00	138.00	966.00	132.00	924.00
<u>7. AREA SEVEN:</u> Kafue Area- Along main road.	202.00	1414.00	162.00	1134.00	156.00	1092.00

- PLEASE NOTE: -
1. ANY MATERIAL OR PROCESS NOT LISTED WILL BE SUBJECT TO SPECIAL QUOTATION.
  2. ALL DELIVERIES TO AREAS NOT ON THIS SCHEDULE WILL BE SUBJECT TO PRIOR QUOTATION.
  3. QUALITY & QUANTITY OF SUPPLY CANNOT BE GUARANTEED DURING RAIN-SEASON PERIOD.
  4. ONE FULL WORKING DAY'S NOTICE REQUIRED FOR COMMENCEMENT OF DELIVERY OF ORDERS.
  5. ABOVE RATES ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

.....

LENRAF ENTERPRISES LIMITED  
20/04/1987.

sm.

## Price List

The following are current Ex Chilanga and Ndola Works prices:—

### ZAMCEM

### ZAMCRETE:—

Bagged Cement	Price	Price
By road per 50 Kg pocket	K17.50	K19.65
Per ton	350.00	393.00
By rail per 50 Kg pocket	18.00	20.15
Per ton	360.00	403.00
<b>Bulk (Loose) Cement</b>		
By road per ton	305.00	348 00
By rail per ton	310 00	353 00

5% SALES TAX TO BE IMPOSED ON SALES VALUE

Year	Metric Tons
1970.....	378 000
1971.....	428 000
1972/73 (15 months period).....	578 000
1973/74.....	411 000
1974/75.....	488 000
1975/76.....	437 000
1976/77.....	357 000
1977/78.....	308 000
1978/79.....	277 000
1979/80.....	292 000
1980/81.....	315 000
1981/82.....	319 000
1982/83.....	304 000
1983/84.....	292 000
1984/85.....	291 000
1986/87.....	346 000

EXPORTS:—		1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
		M/Ton	M/Ton	M/Ton	M/Ton	M/Ton	M/Ton
		53.000	47.000	31.000	36.000	44.000	43.000
Distribu- tion	Country	%	%	%	%	%	%
	Burundi	52.40	65.37	85.93	83.99	69.88	87.80
	Botswana	0.14	—	—	—	—	—
	Malawi	35.65	30.95	5.83	—	19.70	4.70
	Rwanda	6.18	—	1.62	23.03	6.38	—
	Tanzania	1.13	0.83	23.93	8.03	2.38	—
	Zaire	4.52	2.85	2.89	4.95	1.70	7.50
		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

3. Hours of Work

The normal hours of work for any working week shall not exceed forty-five. Provided that an employee shall not be required to work continuously for more than five and one half hours without a break of not less than thirty minutes. The time of the break shall be at the discretion of and fixed by the employer so that alterations in times do not take place unless thirty days notice has been given. Employees shall be notified of the time by means of a notice displayed in a prominent position.

The period of the break shall not be regarded as working time.

4. Overtime

Where an employee has worked for more than forty-five hours in any working week the hours worked in excess of forty-five shall be paid at the rate of ordinary full pay for that time plus half of ordinary full pay for that time, provided that in the case of an employee who is absent from work through illness and who produces a valid medical certificate or in the case of an employee who is absent from work with the permission of his employer the hours which such employee would normally have worked during the shift or shifts when he was absent from work shall be included in the time worked when calculating overtime.

Provided that when the normal working week as fixed by the Management of the employer is less than forty-five hours then the provisions of the above paragraph shall apply to all hours worked in excess of such normal working week.

Where the hours worked by an employee in any one day extend past midnight into the following day then the hours worked past midnight shall be paid at the rate of ordinary full pay for that time plus ordinary full pay for that time.

All hours worked on a Sunday or on Christmas or New Year's Day shall be paid at the rate of ordinary full pay for that time plus ordinary full pay for that time.

All hours on a public holiday as defined in section 5 of this Agreement shall be paid at the rate of ordinary full pay for that time plus ordinary full pay for that time in addition to the pay due to the employee in terms of section 6 of this Agreement.

The provisions of these paragraphs shall not apply in the case of a watchman.

The hours to be paid as overtime shall be determined at the conclusion of each working week.

5. Public Holidays

The following shall be paid holidays:

New Year's Day, Good Friday, Labour Day, Africa Freedom Day, the first Monday in July (Heroes Day), the day following the first Monday in July (Unity Day), Independence Day and Christmas Day, for which days the employee shall be regarded in terms of this Agreement as having worked his normal working day on condition that the employee is available for work for his employer on the next preceding working day and on the next following working day.

Payment in respect of the above holidays shall be made at the current basic rate of the employee concerned.

6. Classification and Wages

The minimum rate of wages (inclusive of any amount paid in respect of rations) which shall be paid to any person employed in the industry shall be in accordance with the following table:

	1st August, 1986	1st August, 1987
	per hour K n	per hour K n
Watchman .. .. .	1.14	1.23

Whose hours of attendance shall be at the demand of his employer during hours outside the normal working hours of his employer, provided that a watchman working more than fifty-six hours in any seven consecutive days and on a Sunday shall be paid overtime at the rate of ordinary full pay for that time plus half of

ordinary full pay for that time for hours worked in excess of fifty-six hours. Provided also that in the case of a watchman who is absent from work through illness and who produces a valid medical certificate or in the case of a watchman who is absent from work with the permission of his employer, the hours which such watchman would normally have worked during the shift or shifts when he was absent from work shall be included in the time worked when calculating overtime.

All hours worked by a watchman on a paid public holiday as defined in section 5 of this Agreement shall be paid at the rate of ordinary full pay for that time plus ordinary full pay for that time.

	1st August, 1986 per hour K n	1st August, 1987 per hour K n
Workman (Including Refuse Collector)	1.26	1.40
Sumi-skilled worker .. .. . Any person employed as a charge-hand (captain of workmen) or operator (person operating a mechanical device such as a concrete mixer, hoist and/or vanette or pick-up driver).	1.27	1.41
Learner .. .. . Any person over the age of 21 years engaged in a trade as defined by the term skilled worker and employed under supervision for the purpose of becoming skilled in that trade:	1.27	1.41
Provided that no person shall be employed as a learner with one employer after completing twelve calendar months' continuous service.		
Licensed Driver .. .. . Recommended that consideration be given to the responsibility of the job when paying wages in excess of the minimum rate.	1.37	1.51
Skilled Worker, Class III: A person who has successfully taken a Grade I Trade Test approved by the Joint Council and who is in possession of a Class III Trade Test Certificate issued by the Council:		
Painter/Glazier .. .. .	1.37	1.51
Bricklayer/Plasterer .. .. .	1.38	1.52
Signwriter .. .. .	1.38	1.52
Woodworking Machinist .. .. .	1.38	1.52
Plumber, Sheetmetal Worker .. .. .	1.38	1.52
Carpenter and Joiner .. .. .	1.38	1.52
Cabinet Maker .. .. .	1.38	1.52
Electrical Wireman .. .. .	1.38	1.52
Skilled Worker, Class II: A person who has successfully taken a Grade II Trade Test approved by the Joint Council and who is in possession of a Class II Trade Test Certificate issued by the Council:		
Painter/Glazier .. .. .	1.40	1.54
Bricklayer/Plasterer .. .. .	1.42	1.56
Signwriter .. .. .	1.42	1.56
Woodworking Machinist .. .. .	1.42	1.56
Carpenter and Joiner .. .. .	1.46	1.60
Cabinet Maker .. .. .	1.46	1.60
Electrical Wireman .. .. .	1.46	1.60
Plumber, Sheetmetal Worker .. .. .	1.48	1.60

**Skilled Worker, Class I:**

A person who has successfully taken a Grade III Trade Test approved by the Joint Council and who is in possession of a Class I Trade Test Certificate issued by the Council:

	1st August, 1986 per hour K n	1st August, 1987 per hour K n
Painter/Glazier .. ..	1.50	1.64
Bricklayer/Plasterer .. ..	1.52	1.66
Signwriter .. ..	1.52	1.66
Woodworking Machinist .. ..	1.52	1.66
Plumber, Sheetmetal Worker .. ..	1.57	1.71
Carpenter and Joiner .. ..	1.57	1.71
Cabinet Maker .. ..	1.57	1.71
Electrical Wireman .. ..	1.57	1.71

Security Officer/Policeman .. ..  
Being a person who has undergone formal training in police work

	1st August, 1986 per shift K n	1st August, 1987 per shift K n
	9.83	10.00

Welder/Fitter .. ..  
Minimum of one year's experience in the trade.

	1st August, 1986 per hour K n	1st August, 1987 per hour K n
	1.38	1.52

Welder/Fitter .. ..  
Minimum of two years' experience in the trade.

	1.46	1.60
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Steel Fixer I .. ..  
With less than one year's experience in the trade.

	1.28	1.42
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Steel Fixer II .. ..  
Minimum of two years' experience in the trade and with a basic knowledge of making drawings from schedules.

	1.36	1.52
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Operatives using or operating any of the following power driven plant:

- Operative—Class IV (semi-skilled workman):
- Compressors
- Crushers
- Dumpers (up to and including 1 cu yd capacity)
- Mixers
- Power driven tools
- Rollers (up to and including 2 tons)
- Winches (Other than piling winches)

	1.27	1.41
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Operative—Class III .. ..

- Cranes
- Derrick
- Dumpers (over 1 cu yd capacity)
- Lorries
- Mechanical Spreaders
- Rollers (over 2 tons)
- Small Tractors and attachment up to approximately 50 HP
- Winches (piling)
- Excavators up to approximately 50 HP

	1.31	1.45
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Operative—Class II .. ..

- Dumpers (Euclid or similar)
- Earthmoving tractors and attachments
- Graders
- Excavators and Loading Shovels in excess of 50 HP and up to 1 cu yd capacity
- Trenches

	1.35	1.52
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Operative—Class I .. ..

- Excavators and Loading Shovels in excess of 1 cu yd capacity and an operator of major mechanical plant

	1.62	1.76
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designated by his employer and and who, when a trade test and Trade Test Certificates are approved by the Joint Council, has passed such test and is in possession of the appropriate Trade Test Certificate.

**OPEN PIT WORKERS**

	1st August, 1986 per hour K n	1st August, 1987 per hour K n
Section Boss .. ..	2.02	2.16
Operative—Class II Grade A .. .. Shovels more than 4 yd Cranes more than 20 ton Loaders more than 5 yd	1.79	1.93
Operative—Class II Grade B .. .. Bulldozers/Pushers more than 150 HP Scrapers more than 20 yd or 30 ton Dumpers more than 20 yd or 30 ton Graders Loaders more than 2 yd Cranes more than 10 ton Blasthole drills more than 4 inch diameter Shovels less than 4 yd Water-cart of more than 30 ton Compactors of more than 20 ton	1.60	1.71
Operative—Class II Grade C .. .. Bulldozers less than 150 HP Scrapers less than 20 yd or 30 ton Dumpers less than 20 yd or 30 ton Loaders less than 2 yd Cranes more than 5 ton Water-carts more than 2000 gal Wagon drills 4 inch diameter or less	1.50	1.50
Licensed Blaster .. ..	1.52	1.66
Drivers (general purpose vehicles) .. ..	1.44	1.58
Pumpman (static installation) .. ..	1.44	1.58
Learner Blaster .. ..	1.40	1.51
Artisan Helper .. ..	1.31	1.45
Tally Checker—Spotters .. ..	1.31	1.45
Graders .. ..	1.31	1.45
Banksman .. ..	1.31	1.45
Workman .. ..	1.27	1.41

Provided that there shall be no difference in the wages of open pit workers working on the surface or in the open pit.

**UNDERGROUND WORKERS**

Section Boss .. ..	2.02	2.16
Ganger .. ..	1.56	1.70
Assistant Ganger .. ..	1.56	1.70
Artisans .. ..	1.54	1.68
Grouting Operator .. ..	1.49	1.63
Crew Boss I .. ..	1.49	1.63
Crew Boss II .. ..	1.45	1.57
Loader Driver .. ..	1.45	1.59
Loco Driver .. ..	1.45	1.59
Hoist driver .. ..	1.52	1.66
Machineman .. ..	1.44	1.58
Banksman .. ..	1.39	1.53
Spannerman .. ..	1.36	1.50
Artisan Leading Hand .. ..	1.39	1.53
Lashers .. ..	1.33	1.47
Stago Hand .. ..	1.33	1.47
Grouting Helper .. ..	1.33	1.47
Artisan Helper .. ..	1.33	1.47
Changehouse Man .. ..	1.31	1.45
Bank Helper .. ..	1.31	1.45
Batching Plant Helper .. ..	1.31	1.45
Sanitation .. ..	1.31	1.45
Messenger .. ..	1.31	1.45
Cleaner .. ..	1.31	1.45

Provided that nothing in this Agreement shall prevent the Union and individual employers from negotiating rates of pay and conditions of service in respect of specialised items of equipment not recorded in this Agreement.

**CLERICAL WORKERS**

	1st August, 1986 per month K n	1st August, 1987 per month K n
Book-keeper .. .. . with the ability to take books up to trial balance.	541.00	571.00
Secretarial—Shorthand/Typist .. With the ability of 80 words per minute shorthand and 40 words per minute typing.	421.00	451.00
Audio Typist .. .. . With the ability of 35 words per per minute typing.	321.00	351.00
Copy Typist .. .. . With the ability of 34 words per per minute typing.	301.00	331.00
Accounts Clerk .. .. . With the ability to meet the requirements of the job.	341.00	371.00
Ledger Clerk .. .. . With the ability to meet the requirements of the job	341.00	371.00
	1st August, 1986 per hour K n	1st August, 1987 per hour K n
General Clerks I .. .. . Site Clerks Timekeepers; Stores Clerks; Sales Clerks; Wages Clerks (with the ability to meet the requirements of the job)	1.47 or 300.00 per month	1.61 or 330.00
	1st August, 1986 per hour K n	1st August, 1987 per hour K n
General Clerks II .. .. . Receptionist; Telephonist; Filing Clerks (with the ability to meet the requirements of the job)	1.39 or 291.00 per month	1.53 or 321.00

Provided that no person covered by this Agreement and already receiving wages in excess of the wages laid down in this Agreement shall suffer any reduction of wages or conditions enjoyed by him prior to the signing of this Agreement.

Provided further that any person covered by this Agreement and receiving wages in excess of the wages laid down in this Agreement shall on the last August, 1986, have his wages increased by an amount equivalent to the amount of the increase in the minimum wages of the job in which he is classified so that the same differential is maintained. Similarly any person covered by this Agreement and receiving wages in excess of the wages laid down in this Agreement shall on the 1st August, 1987, have his wages increased by an amount equivalent to the amount of the increase in the minimum wages of the job in which he is classified so that the same differential is maintained.

**7. Shift Work**

Where work is carried out at night by a separate gang or gangs of men from those working during normal day-time hours, men so working shall be paid at the rate of ordinary full pay plus a shift differential calculated on the basis of the following schedule:

Workman:	
Operative—Class IV ..	} 10 per cent of the man's basic hourly rate of pay
Operative—Class III ..	
Operative—Class II ..	
Operative—Class I ..	
Leaner:	
Skilled Worker—Class III	}
Skilled Worker—Class II ..	
Skilled Worker—Class I ..	

Provided that the shift differential shall be deemed to be a conditions payment and shall not be enhanced when calculating overtime payments. Normal overtime provisions to apply for hours worked in excess of forty-eight per week.

The long-standing custom in the industry that irregular hours have on occasion to be worked, is reaffirmed, and therefore the shift differential shall be paid only when the gang or gangs in question have worked those irregular hours for a continuous period of six months. No retrospective payments shall be made.

**8. Tool Allowance**

Any skilled worker who is engaged in an occupation requiring the use of hand tools shall be paid in consideration for using his own hand tools an allowance as follows:

Bricklayer/Plasterer—K22 per month.

Carpenter/Joiner, Plant Mechanics, Plumbers, Electricians—K30 per month.

Provided that the allowance shall be paid only when the skilled worker is in possession of a set of those tools prescribed by the Joint Council and described hereunder as being appropriate to his occupation and when the set is found to be complete and in good condition on inspection by his employer:

**Bricklayer/Plasterer:**

Bolster, brick .. .. .	1
Chisel, cold cut, 15 cm .. .. .	1
Chisel, cold cut, 25 cm .. .. .	1
Hammer, brick .. .. .	1
Hammer, masonry, 2 kg .. .. .	1
Level, plumbing, 1.2 m .. .. .	1
Lines, brick .. .. .	2
Rule, boxwood, 90 cm .. .. .	1
Line pins .. .. .	4
Trowel, brick, 27 cm .. .. .	1
Trowel, gauging .. .. .	1
Trowel, mastic .. .. .	1
Trowel, plaster .. .. .	1

**Carpenter/Joiner:**

Brace, ratchet .. .. .	1
Bits, set, 0.6 cm-2.5 cm .. .. .	1
Bits, nail or gauge, 0.3 cm-0.6 cm .. .. .	1
Chisel, cold cut, 1.5 cm .. .. .	1
Chisel, firmer, 0.6 cm-2.5 cm .. .. .	1
Hammer, claw .. .. .	1
G clamps .. .. .	2
Punch, nail .. .. .	1
Plane, jack .. .. .	1
Rule, boxwood, 90 cm .. .. .	1
Saw, hand, cross-cut .. .. .	1
Saw, panel or tonon .. .. .	1
Screwdriver 30 cm .. .. .	1
Screwdriver, 15 cm .. .. .	1
Square, try, carpenter, 15 cm .. .. .	1

**Plant Mechanics:**

Whitworth set spanners .. .. .	1
Whitworth ring spanners .. .. .	1
SAE set spanners .. .. .	1
SAE ring spanners .. .. .	1
Shifting wrench, 30 cm .. .. .	1
Hammer .. .. .	1
Cold chisel .. .. .	1
Pliers .. .. .	1
Screwdriver .. .. .	1

**Plumbers:**

Running rope (asbestos) .. .. .	1
Set caulking tools (4) .. .. .	1
Set stocks and dies, 1.25 cm-1.8 cm .. .. .	1
Monkey wrenches, 30 cm and 38 cm .. .. .	2
Shifting spanners, 23 cm and 30 cm .. .. .	2
Pliers (expanding) .. .. .	1
Basin spanner (cranked) .. .. .	1
Hacksaw .. .. .	1
Expanding tool, 2.5 cm .. .. .	1
Expanding tool, 1.69 cm .. .. .	1
Bending spring, 2.5 cm .. .. .	1
Measure, 7.62 m .. .. .	1
Bending spring, 1.8 cm .. .. .	1
Rat tail file .. .. .	1
Flat file .. .. .	1
Rasp .. .. .	1
Bossing mallet .. .. .	1
Bossing stick (flat) .. .. .	1
Bossing stick (round) .. .. .	1
Pair tin snippers, 30 cm .. .. .	1
Pair tin snippers, bent .. .. .	1
Pair dividers .. .. .	1
Stool square, 23 cm .. .. .	1
Soldering irons .. .. .	2

PRICES

TABLE 47 (a)—PRICE INDEX OF BUILDING MATERIALS, DECEMBER 31st, 1974=100 (COMMODITY GROUPINGS)

	All items	Quarry and sandpits products	Timber, wood and pulp products	Paint and allied products	Other chemical products	Cement	Clay bricks	Concrete blocks and bricks	Other non-metallic mineral products	Reinforcing steel and products	Structural metal products	Fabricated metal products	Electrical products
Weight	1,000	.072	.093	.039	.065	103	.046	.029	.092	.140	061.	.116	.144
1973 ... ..	104.2	103.8	102.7	111.5	102.0	100.1	117.2	102.7	109.7	101.2	100.9	103.6	104.6
1974 ... ..	125.3	118.2	117.4	123.1	113.7	150.6	136.2	117.2	145.6	110.2	131.2	121.5	124.2
1977 ... ..	141.5	134.1	130.8	133.2	123.6	159.8	153.4	130.8	172.3	122.8	137.6	154.7	137.0
1978 ... ..	165.3	156.6	135.4	172.4	129.6	249.3	164.7	171.6	195.2	134.0	153.3	178.6	147.1
1979 ... ..	188.8	178.6	160.1	215.0	154.5	320.5	184.2	180.2	203.0	166.3	157.7	193.6	161.1
1980 ... ..	205.5	182.3	164.0	233.3	165.0	382.9	193.1	200.8	221.3	149.5	152.1	220.7	176.9
1981 ... ..	230.7	193.8	159.6	246.6	162.9	433.5	196.1	218.9	266.8	178.9	236.4	263.0	216.4
1982 ... ..	269.4	246.2	174.9	286.8	173.0	504.6	208.6	244.9	324.1	207.2	255.9	290.4	241.8
1983 ... ..	300.3	253.7	224.1	317.8	211.7	672.5	185.2	252.8	347.2	243.3	292.5	316.4	275.3
1984 ... ..	342.3	296.2	238.8	361.9	244.0	652.2	189.4	267.5	407.6	226.5	355.0	395.8	302.4
1981 June ... ..	235.5	187.8	171.0	236.5	178.4	435.5	195.6	216.9	261.8	175.9	234.3	265.4	217.3
September ...	238.2	203.1	156.7	256.4	162.4	441.0	197.7	220.9	280.4	182.2	220.9	267.3	220.1
December ...	223.3	202.8	151.9	258.4	162.6	441.0	197.7	223.1	280.0	182.2	220.7	267.7	220.3
†1982 March ...	230.0	232.1	163.5	269.1	157.2	468.1	203.3	234.5	303.9	181.8	245.2	268.1	233.8
June ... ..	239.2	264.1	174.0	282.3	165.8	577.1	204.7	235.9	318.9	184.2	259.1	272.0	244.2
September ...	274.0	241.1	176.8	293.2	193.4	520.1	213.2	247.8	340.4	226.5	268.0	286.0	244.7
December ...	277.1	232.5	181.3	297.4	182.6	511.5	213.2	247.8	335.1	226.8	254.9	316.8	245.6
†1983 March ..	286.3	243.1	243.1	314.0	199.5	550.3	191.8	239.1	349.4	236.5	262.2	271.2	260.2
June .. ..	292.4	243.1	243.1	314.0	209.2	563.1	186.3	239.1	364.0	235.6	280.3	277.5	272.6
September ...	326.2	265.6	201.5	314.6	218.6	715.8	186.3	256.5	387.7	250.4	294.1	356.2	284.2
December ...	328.3	231.1	201.6	328.7	219.6	715.9	186.3	266.5	387.7	250.8	293.5	360.8	283.2
1984 March ..	335.0	291.6	209.7	338.6	226.2	757.9	191.9	274.5	347.8	258.3	302.3	371.6	291.7
June .. ..	337.0	293.3	211.0	340.6	227.6	762.4	193.0	276.1	349.9	259.8	304.1	373.8	293.4
September ...	345.5	299.9	261.7	379.6	233.8	535.7	186.3	259.6	480.3	275.8	405.0	409.1	314.2
December ...	351.7	299.9	272.7	389.0	233.2	532.6	186.3	259.6	452.4	276.1	407.4	428.6	314.2

TABLE 47 (b)—PRICE INDEX OF BUILDING MATERIALS, DECEMBER 31st, 1974=100 (PROVINCIAL GROUPINGS)

	All Zambia	Copperbelt Province	Central Province*	Southern Province	Northern Province	Western Province	Eastern Province	North-Western Province	Lusaka Province
Weight	1,000	600	200	80	40	20	30	15	15
1975 ... ..	104.2	104.2	103.2	102.9	105.5	105.6	105.4	105.5	105.7
1976 ... ..	125.3	125.6	124.7	121.9	124.2	123.1	120.6	125.8	125.8
1977 ... ..	142.0	144.0	144.1	145.4	124.0	116.9	133.2	132.3	127.8
1978 ... ..	165.3	169.3	167.0	178.2	128.2	128.1	136.5	131.4	131.1
1979 ... ..	188.8	201.6	177.7	186.4	132.9	144.7	160.7	131.7	162.6
1980 ... ..	205.5	218.8	205.2	179.5	141.5	180.5	168.2	126.8	175.1
1981 ... ..	230.9	248.3	238.1	212.1	141.3	163.6	185.0	120.2	192.0
1982 ... ..	255.1	264.1	267.3	253.1	151.6	162.4	192.3	117.4	225.5
1983 ... ..	308.3	332.9	303.9	302.8	162.2	177.5	220.1	107.8	260.7
1984 ... ..	342.3	366.0	427.4	371.5	171.3	181.1	244.0	109.6	266.3
1981 June ... ..	235.5	251.8	242.2	221.1	142.7	168.2	182.7	130.3	193.4
September ...	238.2	248.0	242.6	214.7	141.3	169.4	188.6	130.3	197.6
December ...	223.3	246.7	242.9	214.4	141.3	169.4	189.6	130.3	197.6
†1982 March ...	230.0	234.5	245.2	233.6	149.6	163.1	175.6	127.0	200.5
June ... ..	239.2	235.9	267.3	253.2	149.3	161.5	184.2	127.0	230.7
September ...	274.0	291.3	281.9	257.4	153.8	162.5	203.2	107.8	235.3
December ...	277.1	294.7	274.9	268.2	153.8	162.5	206.3	107.8	235.3
†1983 March ..	286.3	306.8	286.9	280.9	155.4	177.3	214.2	107.8	235.5
June .. ..	293.9	312.3	298.8	285.5	155.4	177.3	214.2	107.8	235.5
September ...	326.2	355.1	313.9	321.3	168.8	177.8	225.1	107.8	285.8
December ...	328.3	357.5	315.8	323.4	168.8	177.8	226.9	107.8	285.8
1984 March ..	335.0	368.3	325.3	333.1	173.9	183.1	233.7	111.0	294.4
June .. ..	337.0	370.4	322.2	335.1	174.9	184.2	235.1	111.7	296.2
September ...	345.5	358.8	362.0	407.7	168.1	178.5	252.5	107.8	237.2
December ...	351.7	366.5	367.9	410.2	168.1	178.5	254.5	107.8	237.2

\*Including Lusaka Province.  
†Provisional.



ELECTRICITY

TABLE 16 (a)—SUPPLY OF ELECTRICITY  
(Mill. Kw)

Year/Month	Total Supply to Consumers in Zambia (1)	Zambia Electricity Supply Corp. Ltd		Other Suppliers	Other Imports	Exports
		Supplied to Copperbelt Power Co. Ltd	Supplied to Other Areas			
		1=2+3+4+5-6	2			
1974 ... ..	5,508.2	4,574.3	893.6	644.4	—	604.0
1975 ... ..	5,539.4	4,419.8	899.6	536.0	3.8	369.8
1976 ... ..	5,805.6	4,443.1	879.2	421.0	12.0	52.4
1977 ... ..	5,645.2	4,364.3	861.1	398.3	4.9	23.4
1978 ... ..	5,628.6	4,102.1	1,218.0	306.8	3.1	1.4
1979 ... ..	5,687.1	3,936.9	1,510.9	236.1	15.6	12.4
1980 ... ..	5,828.3	4,039.1	1,548.2	242.7	8.5	10.4
1981 ... ..	6,244.0	4,264.6	1,709.5	272.5	7.6	13.1
1982 ... ..	6,344.0	4,253.3	1,849.4	236.2	15.9	10.8
1983 .. ..	6,443.9	4,297.8	1,906.5	239.0	5.7	5.5
1984 .. ..	6,404.5	4,255.2	1,927.7	219.1	9.5	7.4
1985 .. ..	6,302.5	4,141.4	1,936.9	220.0	8.9	5.8
1985 July .. ..	549.1	350.0	180.8	16.7	1.6	—
August .. ..	549.3	356.6	176.2	17.7	—	1.2
September .. ..	525.8	343.8	163.9	17.6	—	0.5
October .. ..	525.2	342.9	165.8	18.7	—	2.2
November .. ..	489.2	332.4	134.6	18.9	3.3	—
December .. ..	506.7	343.7	144.1	17.0	1.9	—
1986 January .. ..	528.7	355.0	153.6	19.7	0.4	—
February .. ..	482.1	323.9	142.9	15.8	—	0.5

TABLE 16 (b)—PRODUCTION OF ELECTRICITY IN ZAMBIA  
(Mill. Kwh)

Year/Month	Total Production (2)	Copperbelt Power Company Ltd	Zambia Electricity Supply Corporation Ltd			Kariba North Bank Co. Ltd	Other
			Victoria Falls	Kafue Gorge	Other		
			1=2+3+4+5+6+7	2	3		
1974 ... ..	5,972.7	232.4	879.7	4,584.6	49.7	—	226.3
1975 ... ..	6,191.3	246.0	843.9	4,813.1	53.2	—	236.0
1976 ... ..	7,046.2	137.0	825.3	4,737.1	65.4	1,078.8	203.1
1977 ... ..	8,682.7	129.4	750.5	4,266.5	69.8	2,828.7	184.1
1978 ... ..	7,883.2	102.7	613.2	4,053.3	82.1	2,828.7	204.2
1979 ... ..	8,772.2	54.9	609.5	4,109.8	83.1	3,731.7	181.2
1980 ... ..	9,221.4	73.6	463.7	4,398.1	83.0	4,033.9	139.4
1981 ... ..	9,792.8	60.3	551.3	4,924.5	91.5	3,952.7	272.6
1982 ... ..	10,580.7	23.5	718.8	5,703.2	95.1	3,827.4	212.7
1983 ... ..	10,071.8	31.1	774.1	5,074.7	98.5	3,885.5	207.9
1984 .. ..	9,805.8	39.1	741.1	4,912.2	96.1	3,837.1	180.0
1985 .. ..	10,060.7	22.1	683.9	5,342.8	50.2	3,709.7	183.7
1985 July .. ..	906.0	0.3	42.9	518.4	9.1	318.9	16.4
August .. ..	907.8	0.6	65.9	509.7	9.1	306.3	17.1
September .. ..	842.5	0.5	60.6	422.8	9.1	332.4	17.1
October .. ..	845.1	2.5	48.0	432.4	9.1	336.9	16.2
November .. ..	803.9	2.9	46.6	396.1	9.1	333.2	16.0
December .. ..	783.8	2.8	51.7	394.0	9.1	312.0	14.2
1986 January .. ..	809.8	2.7	66.7	445.4	9.1	268.9	17.0
February .. ..	764.3	0.1	63.0	445.4	8.4	231.7	15.7

(1) Power losses of approximately 4 per cent are experienced between Kariba or Kafue Gorge and the Copperbelt.  
(2) Excluding works consumption.

ZAMBIA ELECTRICITY SUPPLY CORPORATION LIMITEDINCREASE OF ELECTRICITY TARIFFS

In accordance with Section 12 of the Electricity Act, Chapter 811 of the Laws of Zambia, notice is hereby given that Electricity Bills commencing from 1ST AUGUST 1986 will be computed on the basis of fixed, maximum demand and energy charges as given below. The bills based on the new charges should therefore be received by consumers in September/October 1986.

ENERGY TARIFF L AND E

<u>Tariff - L</u>	A	B	C	D	E	F	G	H	I	J	K	L
Load Limiter Rating: Amperes	1	1.5	2	2.5	3	5	6	7	7.5	10	12.5	15
Monthly Charges - Kwacha:	4.6	5.4	6.3	8.5	7.7	11.1	14.8	16.1	17.5	21.7	25.9	29.4
<u>Tariff E1 - Restricted to 5 Amperes single phase:</u>										Fixed monthly charge:	2.50 Kwacha	
										Unit charge:	7.00 Ngwee	
<u>Tariff E2 - Restricted to 15 Amperes single phase:</u>										Fixed monthly charge:	4.90 Kwacha	
										Unit charge:	7.00 Ngwee	
* <u>Tariff E3 - Domestic Only: Unrestricted single phase and up to 15 kVA three phase:</u>										Fixed monthly charge:	15.00 Kwacha	
										Unit charge:	7.00 Ngwee	(07)
<u>Tariff E4 - Commercial Only: Unrestricted single phase and up to 15 kVA three phase:</u>										Fixed monthly charge:	55.00 Kwacha	
										Unit charge:	7.80 Ngwee	

MAXIMUM DEMAND TARIFF D

<u>Tariff D1 - Maximum Demand less than 300 kVA:</u>	Fixed monthly charge:	70.00 Kwacha
	M.D. charge per kVA per month :	11.87 Kwacha
	Unit charge:	5.30 Ngwee
<u>Tariff D2 - Maximum Demand from 300 to 2000 kVA:</u>	Fixed monthly charge:	1,225.00 Kwacha
	M.D. charge per kVA per month :	10.62 Kwacha
	Unit charge:	4.10 Ngwee
<u>Tariff D3 - Maximum Demand over 2000 kVA:</u>	Fixed monthly charge:	13,250.00 Kwacha
	M.D. charge per kVA per month :	9.08 Kwacha
	Unit charge:	2.70 Ngwee

Surcharges on isolated networks: Tariffs E3, E4, and D will attract surcharges as follows:

- the 20% surcharge on isolated networks fed from hydroelectric sources remains unchanged.
- the 150% surcharge on isolated networks fed from diesel power stations remain unchanged.

* <u>Security Deposits:</u>	(a) Restricted supply (maximum 5 Amperes)	30.00 Kwacha
	(b) Restricted supply (over 5 Amperes)	50.00 Kwacha
	(c) <u>Unrestricted Domestic</u>	<u>200.00 Kwacha</u>
	(d) Other consumers (excluding M.D. consumers)	500.00 Kwacha

\* Reconnection Charge: 85.00 Kwacha

\* Government Sales Tax: 15 per cent

Existing consumers will be unaffected by the new deposit rates. However, in the event of a default to settle bills resulting in a disconnection, change in the load or shift from one premises to another, the new rates shall apply.

R G MITI  
GENERAL MANAGER

DATE: 18th June 1986

LUSAKA URBAN DISTRICT COUNCILWATER AND SEWERAGE DEPARTMENT

The following charges have been approved by the Government and are effective from the dates shown below:

A. WATER TARIFF-MONTHLY CHARGES (WITH EFFECT FROM 1ST APRIL 1986)

<u>Tariff 1: Commercial and Industrial Consumers</u>	K N
Up to 15,999 Litres per 1000 Litres	14.00
16,000 99,999 Litres per 1000 Litres	00.95
100,000 169,999 Litres per 1000 Litres	01.20
170,000 239,999 Litres per 1000 Litres	01.50
240,000 279,999 Litres per 1000 Litres	02.10
280,000 Litres and over per 1000 Litres	03.00

TARIFF 2: HIGH DENSITY RESIDENCES WITH INDIVIDUAL TAPS

Up to 14,999 Litres	03.00
15,000 19,999 Litres per 1000 Litres	00.33
20,000 24,999 Litres per 1000 Litres	00.45
25,000 Litres and over, per 1000 Litres	00.60

TARIFF 3: HIGH DENSITY RESIDENCES WITH COMMUNAL TAPS

Up to 19,999 Litres	02.00
20,000 Litres and over per 1000 Litres	00.30

TARIFF 4: LOW DENSITY RESIDENCES AND SPECIAL CONNECTIONS

Up to 19,999 Litres	13.00
20,000 39,999 Litres per 1000 Litres	00.70
40,000 59,999 Litres per 1000 Litres	00.90
60,000 79,999 Litres per 1000 Litres	01.10
80,000 Litres and over per 1000 Litres	01.40

B. WATER CONNECTION CHARGE(FROM 1ST APRIL 1986)

All connections to be charged out at cost.

C. WATER RECONNECTION FEES (WITH EFFECT FROM 1ST APRIL 1986)

All areas (other than HPU areas and site and services with communal taps) 60.00

Additional penalty where a supply is disconnected due to misuse of water 300.00

D. METER INSPECTION FEE (WITH EFFECT FROM 1ST APRIL 1986)

Standard Fee (to be refunded if the meter is found to be faulty) 40.00

2/..

E: WATER DEPOSITS (WITH EFFECT FROM 1ST APRIL 1986)

Industrial and Commercial Consumers and Special Connections	1,000.00
Low Density Residences	150.00
High Density Residences with individual taps	40.00
Site and Service Plots	04.00

F. SEWERAGE TARIFF MONTHLY CHARGES (WITH EFFECT FROM 1ST APRIL 1986)

Tariff A: Council and other low cost houses	03.00
Tariff B: Other Residential Properties	13.00

DIRECTOR OF WATER SERVICES

HOW TO CALCULATE NEW WATER CHARGES W/E/F 1/4/86

TARIFF 1	oooL	K
000-15,999	15	14.00
16,000-99,999	84 (at 95)	79.80 (at .95)
100,000-169,999	70	84.00 (at 1.20)
170,000-239,999	70	105.00 (at 1.50)
240,000-279,999	40	84.00 (at 2.10)
280,000 and over		<u>84.00 (at 3.00)</u>
	<u>279</u>	<u>366.80</u>
TARIFF 2		
0-14,999	14	
15,000-19,999	5	1.65 (at .33)
20,000-24,999	5	2.25 (at .45)
25,000 and over		<u>2.25 (at .60)</u>
	<u>24</u>	3.90
TARIFF 3		
0-19,999	19	2.00
20,000-and over		<u>2.00 (at .30)</u>
	<u>19</u>	2.00
TARIFF 4		
0-19,999	19	13.00
20,000-39,999	20	14.00 (at .70)
40,000-59,999	20	18.00 (at .90)
60,000-79,999	20	22.00 (at 1.10)
80,000- and over		<u>22.00 (at 1.40)</u>
	<u>79</u>	67.00
TARIFF 5	OOOL	K
0-14,999	14	3.00
15,000-19,999	5	1.65 (at .33)
20,000-24,999	5	2.25 (at .45)
25,000 and over		<u>2.25 (at .60)</u>
	<u>24</u>	6.90

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