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MEMORANDUM OF DISCUSSIONS BETWEEN
THE JAPANESE PRELIMINARY DESIGN STUDY TEAM
FOR THE ELECTRONICS SERVICE AND TRAINING
CENTER (ESTC) OF THE ROYAL SCIENTIFIC
SOCIETY (RSS) IN THE HASHEMITE KINGDOM OF
JORDAN AND THE HEAD OF ESTC

AMMAN, DECEMBER 6 - 25, 1978

On the way of enhancing the fruitful cooperation between the Government of Japan and the Government of the Hashemite Kingdom of Jordan, and further to the request submitted by the Government of the Hashemite Kingdom of Jordan through the Royal Scientific Society (hereinafter referred to as RSS) to the Japanese Government for the financing of a building for the Electronics Service and Training Center (hereinafter referred to as ESTC) at RSS, the Japanese Preliminary Design Study Team for the ESTC building (hereinafter referred to as the Team) headed by Mr. Isuke Hattori, Special Assistant to Director, Administration Division, Radio Regulatory Bureau, Ministry of Posts and Telecommunications in Japan, visited RSS in the period from December 6 until December 25, 1978 for the purpose of discussing and working out the preliminary design study for the ESTC building project (hereinafter referred to as the Project).

During the visit of the Team to the Hashemite Kingdom of Jordan, extensive meetings were held at the Electronics Engineering Department of RSS between the members of the Team and the Head of ESTC, Dr. Awn Rifai. In these meetings, the issues related to the Project were discussed and agreed upon in principle.

As a result of the discussions, the Team agreed to recommend to the Government of Japan the matters included in the document attached herewith.

Amman, December 23, 1978.

Mr. Isuke Hattori,
Head of the Japanese
Preliminary Design Study Team.

Dr. Albert Butros,
Director General,
Royal Scientific Society.

THE ATTACHED DOCUMENT

I. Cooperation between Japan and Jordan

The Government of Japan and the Government of Jordan are to cooperate in the building project for ESTC. The terms of implementing this project are outlined in the following sections. The main issues discussed during the meetings at RSS were:

- System of Japanese grant aid for developing countries.
- Schedule of implementation of the Project.
- The basic plan for the Project.
- Measures to be taken by both sides.

II. Schedule of Implementation of the Project

The Project will be implemented according to the following schedule:

- Draft of preliminary design report and confirmation by RSS;
in Amman. February 1979
- Submission of final report to RSS; by mail. March 1979
- Negotiations and signing of the Exchange of Notes;
between Japanese Embassy in Amman and representatives
of the Government of Jordan. May 1979
- Contract on consulting services; between RSS and Japanese firm. June 1979
- Contract on construction work; between RSS and Japanese firm. October 1979
- Completion of construction work. February 1981.

III. Basic Plan for ESTC Building

The building will be constructed on the site indicated by the boundaries shown on the map attached as Appendix A. This site has an area of approximately 3800 m². The building will comprise of two storeys. The floor space allocation is shown in the list given below and in the drawing attached as Appendix B. RSS will provide the land necessary for the construction of the building, cleared of any existing trees. The accessibility to the construction area through the existing/planned roads near the site will be secured by RSS.

The following is the floor space allocation:

Space name	Area m ²
Maintenance laboratory	180
Testing laboratory	180
Standards and Calibration laboratory	180
Vibration testing room	50
Stockroom	110
Equipment storage	65
Standards library	72
Offices	468
Custodian	25
Blueprinting room	25
Photocopy, telex, computer terminal, stationery	40
Equipment receiving and delivery	40
Conference room	80
Classrooms	108
Lecture hall	101
Building equipment room	95
Kitchenette	20
Air handling unit room	25
Others (entrance, lavatories, corridors, circulation, . . .)	523
Approximate total area	2,387

IV. Other Facilities Related to the Project

The following items will be included in the Project:

a) Furniture

The furniture to be supplied will be decided after the preliminary design in Japan of ESTC building.

b) Heating system

Hot water radiator type heating system will be installed in every room except for the Standards and Calibration laboratory. Heat source will be centralized regionally for ESTC building, independent of other buildings in RSS.

c) Air conditioning system

Air conditioning system will be installed in the following rooms:

- Maintenance laboratory
- Testing laboratory
- Standards and Calibration laboratory
- Conference room

The necessary air conditioning in the Standards and Calibration laboratory will be designed to have temperature and humidity control as required by Japanese experts in connection with the supply of the electronic equipment.

d) Electric power distribution system

A power distribution system of three phases, four lines, plus an earth line will be installed in the building. The rated voltage will be 220/230 volts single phase, 380/400 volts 3-phase, frequency 50 Hz. RSS will lead the appropriate trunk line into the switchgear of the sub-main switchboard which will be installed in the building under the grant aid. Automatic voltage regulators will be installed in the following rooms:

Maintenance laboratory

Testing laboratory

Standards and Calibration laboratory

Battery operated emergency lighting will also be installed as required.

e) Water supply

The appropriate water supply facilities will be installed in the building. RSS will install the necessary and adequate water supply line as far as the established boundary line, and provide a hand hole and a stop-valve at the end. Water tanks will be installed on the roof as required.

f) Telephone conduit system

The telephone conduit system will be installed under the grant aid in addition to the telephone sets required.

g) Earthing

A proper electric earthing system will be constructed as required by the equipment to be housed in the building, and by the building equipment included in this grant aid. The earthing will be of 10 ohms and 100 ohms in resistance value.

h) Exterior work

Exterior work, such as roads, pavements, paths, car park, and others within the established boundaries of the land will be constructed under the grant aid.

i) Water and electricity for construction

Water and electricity facilities for use during the construction work will be provided by RSS up to the boundaries of the site. The cost of water and electricity consumed will be borne by the Japanese contractors.

j) Future expansion

The structural design of the building will be in such a manner as to allow future expansion in the vertical direction of one more storey.

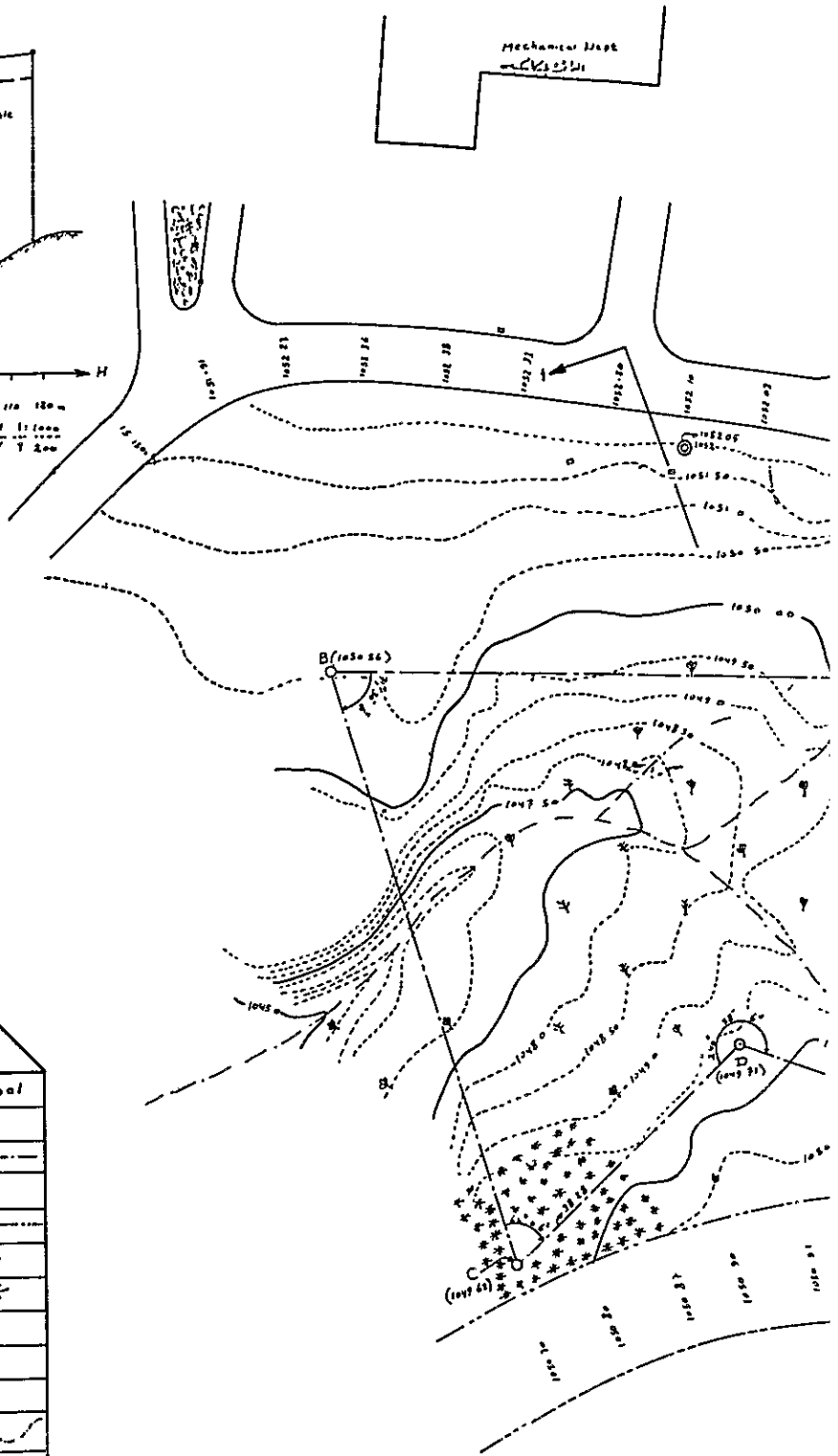
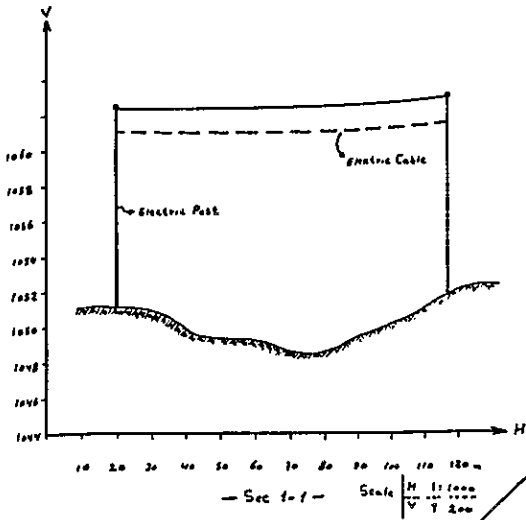
k) Miscellaneous items

Miscellaneous items such as a proper ventilation system, a proper sewage system, lighting, false ceiling, drinking fountains, fire extinguishers and alarms, . . . are included in the Project.

V. Mutual Consultation

Any matters arising from or in connection with the project will be decided by mutual consultation between the Government of Japan and the Royal Scientific Society.

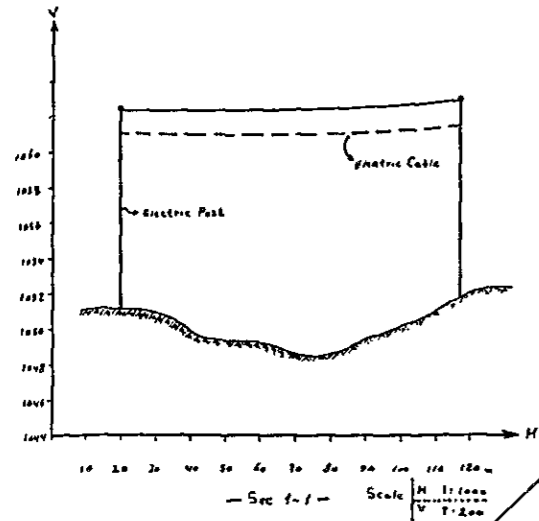
* Attached: Appendices A and B.



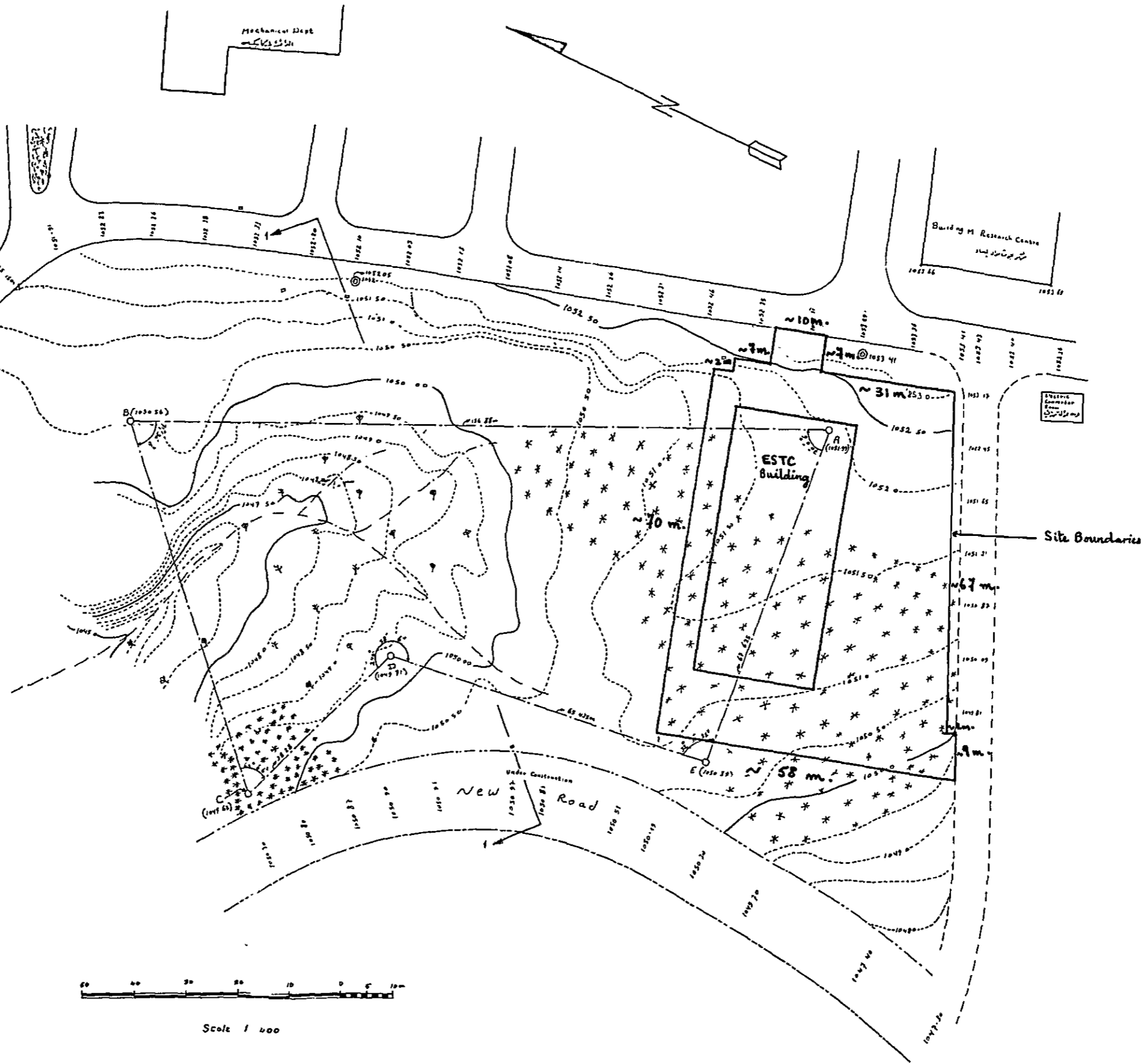
LEGEND	
Name	Symbol
Traverse Point	○
Traverse Line	---
Reference Point	⊙
Under Construction Road	----
High Pressure Electric Post	○
Pine Trees (0.5-1.5m height)	✱
Pine Trees (1-2.5m height)	✱
Trees of different types	✱
Olive Trees	φ
Valley Line	~
Base Contour Line	---
Main Contour Line	—



Scale 1/400



LEGEND	
Name	Symbol
Traverse Point	o
Traverse Line	---
Reference Point	⊙
Under Construction Road	- - - -
High Pressure Electric Post	⊕
Pine Trees (0.5 - 1.5m height)	*
Pine Trees (1.5 - 2.5m height)	* (with vertical line)
Trees of Different Types	⌘
Olive Trees	⊙
Valley Line	~ ~ ~ ~
Base Contour Line	⋯ ⋯ ⋯
Main Contour Line	— — —



PROJECT TITLE
ELECTRONICS SERVICES CENTER

SHEET TITLE
TOPOGRAPHIC PLAN

DRAWN		PROJ. ENG.	
CHECKED		ENGR. ME.	
APPR.		SCALE	
INCH	NAME	DATE	SIGN.
STR.			
ELEC.			
REC.			

2

4

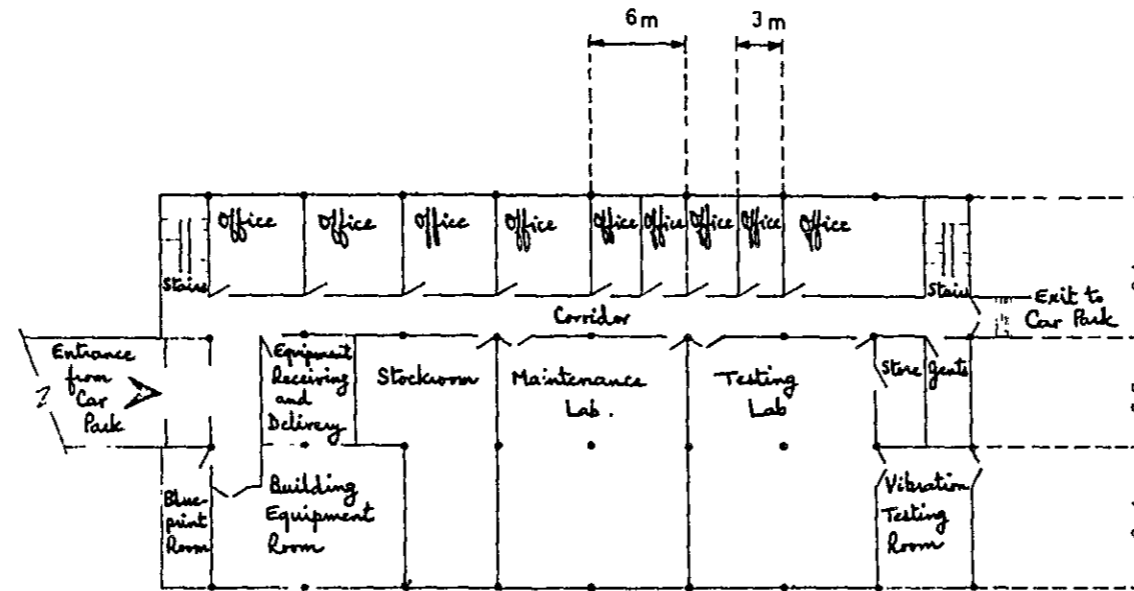
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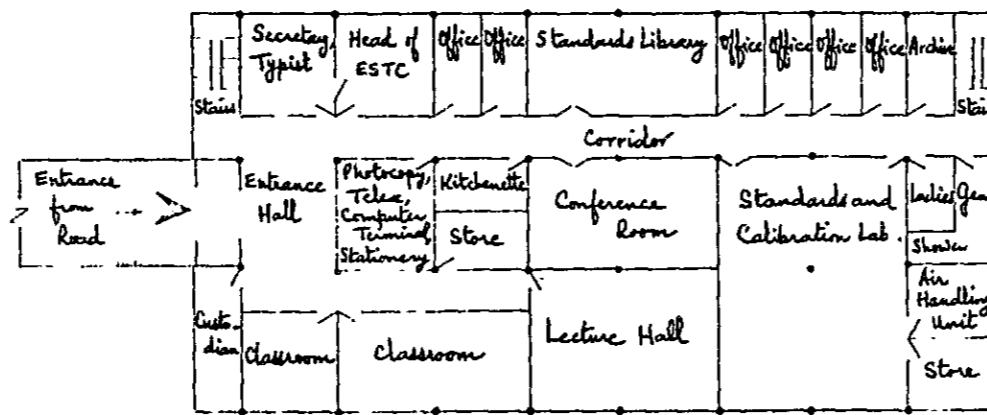
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APPENDIX (B)


REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED



GROUND FLOOR



FIRST FLOOR

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		CONTRACT NUMBER		 ELECTRONICS ENGINEERING POB 6945, AMMAN, JORDAN
TOLERANCES .X .3 ANGULAR .XX .1 0 30 .XXX .03		PROG MGT PROD ASSUR MFG ENGR CONFIG CHECK			BUILDING OF THE ELECTRONICS SERVICE & TRAINING CENTER.
MATERIAL		DESIGN APPROVAL * DATE		SIZE CODE IDENT NO. DRAWING NUMBER REV
NEXT ASSY	USED ON	FINISH		C
APPLICATION		SCALE 1 300		SHEET OF

D

D

C

C

B

B

A

A

ジョルダン（首都アンマン）の建築事情

1 背景

ジョルダン・ハシェミット王国は、面積98,000km²、人口(1977年推定)200万人(西岸、増加率3.3%、都市人口43%)、中東にあって非産油国であり、資源にも乏しい小国である。イスラエルと長い国境線で接し、パレスチナ問題を抱えながらも、現在はアラブ諸国の中でも保守・穏健勢力として、又中東に於ける紛争の現実的解決を志向する国として、欧米諸国やサウジアラビア、湾岸諸国とも緊密な関係を保っている。

住民の大部分はスンナ派のイスラム教徒であり、諸宗派に分れているキリスト教徒は総人口の5%である。又住民はベドウィン系のヨルダン人とパレスチナ人に分れており、ベドウィン系ヨルダン人は少数派であり、同国のヨルダン化が進められているとはいえ、政治、経済機構においてパレスチナ人の占める役割は非常に大きい。

農業生産が低く、資源にも乏しいこの国にとって、農業開発及び工業化に力を入れることは当然である。現在、外貨を獲得する代表的産業としては、磷鉱石生産と観光が上げられる。その他の産業はあるにしても、その規模はきわめて小さい。

ジョルダン人/パレスチナ人の民度はレバノンと共に東アラブにおいて比較的高いといわれる。国内の状況に満足できなかったり、職のない大学卒業生で、サウジアラビア・湾岸諸国などの産油国に出稼ぎし(ヨルダン旅券をもつパレスチナ人が多い)その国の要職につく者も多く、この点からの産油国との繋も大きい。こうした点とその自由主義的経済体制や比較的良好な気候という利点を生かして、ジョルダンはその首都アンマンをベイルートにかわる中東における一拠点にしようとしているが、経済活動の規模が小さいことがネックとなっている。

GNP(推定) US \$ 1,918,000,000 (1977年)

" 1,643,000,000 (1976年)

成長率 10%

鉱業、製造業、建設業：約25%

農業 : 10%

サービス業 : 65%

(1977年) (1976年)

輸入 US \$ 1,420,000,000 1,023,000,000

輸出 " 188,000,000 149,000,000

(1978年) (1979年)

国家予算 J.D. 361,100,000 513,429,000

(政府案'78.12)

外貨準備高 US \$ 735,000,000 (1977年)

参考：外貨交換レート／変動性

	J. D.	U S \$
1977・2	0.330	1
1977・12	0.320	1
1978・12	0.297	1

2 建築活動

首都アンマンにおける建設活動は、その背景となる経済活動に如実に影響されている。国家予算の多くを外国からの援助に頼り、実質的な外貨獲得を燐鉱石の輸出、観光客及びアラブ産油国を中心とする外国への出稼ぎからの送金に頼っているこの国では、外国からの援助によるプロジェクトに対応する公共の建物、レバノン紛争によって移って来たビジネスマンと観光客のためのホテル、外国で稼いだ金や、外国人目当てで建てる住宅などが新しい建物の主体をなしている。

中東に於ける石油景気は、非産油国であるこの国にも大きな影響を与えている。近年に於いては1976年をピークとして1973年頃からブームとなり、その間、住宅、ホテルなどを中心に建設活動が激しかった。'76年から'77年にかけて鎮静し、'77年から'78年にはブームに対する反動があり、建築活動も落込んだ。現在は一応安定的状態にある。'78年から'79年にかけては、諸外国からとりつけた援助の確約もあるので、プロジェクトが増えることも考えられ、安定成長を続けるであろうと思われる。

なお新築される建物で、規模の大きいものはごく稀れである、外国資本による特別のものを除いてホテルでも6～8階（150室程度）、フラット（共同住宅）でも4階建のものが、大きい方である。超高層を建てようという動きはないようである。又、空調設備はごく特別なところに限られており、急速に普及するとも思われぬ。

3 建設業界

資料（英文によるもの）が入手できなかったため、数値的な把握はできないが、建設業者の数はかなり多いと推察される。但しある程度の規模の工事をこなせる請負業者は限られているようである。

設備工事業者は、最大のもので技術者4～5人、職人20人位であって各種工事をやっている。又、欧米・日本などのメーカーの販売代理店もあり、ときには直接工事を請負っている。

これらの業者（とくに設備）は、建設ブームに伴って創設されたものが多く、創立5年未満といったものが大勢を占めている。

4 労働力事情

この国の建設業界にとって悩みの種は、近接する石油産国への人材の流出である。とくに熟練労働者において問題になっている。全人口の35%

以上が10才未満の子供であり経済活動人口が絶体的に少ないこともあって、熟練労働者の不足は建設活動のひとつのネックになっており、これを確保することが建物の出来映え、工期順守のポイントとなる。

労賃はおよそ次の通りである。

Unskilled Laborer		3 J.D./day
Semiskilled	"	5 J.D./day
Skilled	"	8 J.D./day
Technician	"	10 J.D./day

参考：

1) 推定労働人口	383,000人
うち サービス業	: 60%
農 業	: 20%
鉱 工 業	} : 20%
建 設 業	

2) 現地の設計事務所等で得た情報によれば技術者、その他の報酬は下記の通りである。

I) 設計監理を行う	(a) A class:	650	J.D./Month
Site-Engineer			
	(b) 経験 4~5年	450~500	"
II) Foreman	(a) 1st class:	300	"
	(b) 2nd class:	200	"
III) 運転手 (オフィスで昼間だけ使う)		80	"

ちなみに 1. J.D. (ジョルダンディナール) を約 660円 (78・12下旬相場) として換算すると (I)、(b) では約 30~33万円となり、日本に於けるより高くなる。

5 工法

現地の建物は、一般に鉄筋コンクリートのラーメン構造により建てられている。但し、コンクリート打設の方法などは、日本と大きな相違がある。床は、プレキャストした鉄筋コンクリートの幅の狭い小梁を狭い間隔で並べ、その間にコンクリート/セメントブロックをのせ、浅いコンクリートのスラブを打つ。さらにその上に土 (粘土、砂等) をのせ配管スペースを設け平坦とし、セメントモルタルもしくは砂で仕上材 (テラゾーブロック・石が主) を張るという工法が多い。コンクリートも打ち継ぎ場所など余り意に介していない。内壁はコンクリート/セメントブロック積みが多い。外装は簡易なものはコンクリート/セメントブロック積みにモルタル塗りし塗装や吹きつけ仕上げを施すが、少し高級になるとほとんどコンクリート壁に石を打込んでいる。これは外側に 2 段程度割石 (外側面の仕上げをしたもの) を積み、内側に木製の型枠をたて、堅練りのコンクリートを打ち、コンクリートの固るのを待って又同じこ

とを繰り返す方法によっている。このため非常に工期がかゝり一層をうつのに3～4ヶ月要するという。又、全体工期も小さな住宅ですら一年位は普通であるとのこと。中規模な建物で1年半位の工期をみるが現実には非常に遅れるようである。コンクリートの躯体工事はかなり程度が低く、仕上げでカバーしようとする傾向が強い。

建具は、内部の木製とびらを除いてアルミ製が中心であるが、アンカーはとらず、フラットにモルタル、石などで仕上げた開口部にビス止めしすきまにわずかのコーキングを行う程度である。一般部の構造についても、現場で非常に簡単な方法で行えるような単純なものがほとんどである。屋上防水でも、溶融アスファルトを断熱材の上に一層流す程度で立上りも全然なかったり、テラゾーブロックを防水モルタル目地で仕上げただけのものもある。技術レベルは非常に低いといえる。

コンクリート打放しはほとんどみられない、これはコンクリートの質、打込み技術、型枠のコストと関係している。

テラゾーブロックや石を用いた仕上げはなかなかきれいである。

レンガは全然といっていい位使われていない。

設備工事なども、見映えがすこぶる悪いことを平気でやっているが、温水暖房工事などは比較的手慣れている。一般ビルに於ける空調は殆んど行われておらず、工法的にも未知である。

6 建築用資材

資源が乏しいこと、工業が未熟であるため、多くの建築用資材を外国に頼っている。輸入品はヨーロッパのものが多く、その中でもイタリア、西ドイツ、英国の製品が多い。これらの資材は、現地市場にて手に入れることができるものが多い。

現地で製造・生産しているものは、一部のものを除き、概して現地の建築レベルを反映していて品質に疑問があったり、供給に問題があったりしている。

なお、石材、テラゾー、木製ドアなどは現地製品を使った方がコスト的に有利であり、品質的にも問題はない。

以下、主要資材について概要を記す。

(1) セメント

1975年に年間65万トン、その後設備が增強されたので、現在100～125万トンの年間生産量があると推測される。又シリアなどから輸入されることもある。生産・輸入ともモノポリーに行われており、輸入禁止品となっている。建設ブーム時には不足であったが、現在は一応需要を満しているといわれるが、末端の現場段階で不足となることもあるようである。袋入りは50kg/袋。普通ポルトランドセメントで10%のボゾランを加えて使用している。

(2) コンクリート用骨材

品質的にはそう良くない。岩質が軟らかく粘土が混っている。水が非常に貴重なので洗うようなことは考えられない。骨材の品質はコンクリートの品質にも影響を及ぼして、単位体積当りのセメントの量も多目となる。

骨材は、coarse aggregate → $\frac{3}{8}$ "~1 $\frac{1}{2}$ " (crushed stone)

medium aggregate → $\frac{3}{8}$ "以下 (crushed stone)

sand → (natural)

としている。砂以外は碎石製品である。

(3) 鉄筋

地鋼を輸入して、現地で熱間ロールで製造している。

普通丸鋼（降伏点2500kg/cm²）と高張力鋼（降伏点3500kg/cm²）とがあって径は偶数系列で4~32mmができるとしている。ただし、品質には疑問点があるようである。付着力が小さいので細物を使った方がベターだと現地の構造技術者はいつている。

国産品以外では、西ドイツ、ベルギー（高張力鋼）インド（普通丸鋼）などが使われている。

(4) 木材・木製品

雨が少なく概木が貴重品であるジョルダンでは、木材は全て輸入品である。レバノンからが多いようである。合板（厚さ4mm及び6mm）もレバノン製である。

(5) 石材

国産品（大理石及び石灰岩）が豊富にあり、少し程度のよい建物では比較的多用されている。大理石は、イタリア、ギリシャからも輸入され、高級な内部仕上げ材及び階段の踏板などに用いられている。

(6) テラゾー製品

イタリア大理石の碎片を使ったテラゾータイル／ブロックが製品化されており、床材や窓台などに多用されている。床材としては最も一般的である。床タイルの寸法は次のとおりである。

400×400×40 (mm) 300×300×30 (mm)

200×200×20 (mm)

(7) コンクリートブロック

品質的に決して良いとはいえないが、壁材として多用されている。

寸法 400×200×〔厚さ70、100、200〕(mm)

(8) 建具

アルミニウム製建具（ガラスとびら、窓）を現地で生産している。セクションは外国製品に倣っているが、アンカーをとらないなど問題点がある。外部とびら等にも用いられている。

鋼製フラッシュとびらはない。

木製とびらは内部一般室用として使える。

(9) ガラス

ベルギー、トルコ、シリアなどから輸入している。

(10) 磁器（半磁器）タイル

イタリアから輸入している。

(11) PVCタイル

英国から輸入しているが施工技術、維持などの点で現地になじんだものとなっていない。使用に当っては注意を要する。

(12) ボード類

石膏プラスターボード、アスベストセメントボードなど、現地で製造しておらず、ほとんど使われてもいない。

(13) 岩綿吸音板

英国から輸入している。なお2重天井をもつ建物の比率は非常に少ない。

(14) 塗料・佐官吹付材

ヨーロッパから輸入している

(15) 断熱材

(a) フォームポリスチレンボード：現地で製造している。

(b) ガラスウール：英国から輸入

(16) 家具

高級品はヨーロッパから輸入。又、低級品は台湾からも入っている。現地では木製のオフィス家具などを製作している。

(17) 設備機材

殆んど輸入品を用いている。鋳鉄製ボイラーは、現地製があるが品質が悪い。

エレベータは現地でライセンス生産している。

管類は日本からのものも多い。

衛生陶器はイタリア製が主である。

7 資材輸送

輸出入のための港は、ジョルダン唯一の港であるAqaba港であり、混雑もなく荷揚げはスムーズに行われている。但し次のようなチャージが一般にはかゝる。

(a) スエズ・サーチャージ、(b) ポートチャージ

(c) バンカーオイルチャージ、(d) カーレンシーサーチャージ

今回のようなプロジェクトに対してどう扱われるか今のところはっきりしないがNPC、RSSなどの協力を得て、契約前に検討する必要がある。

Aqabaから首都AmmanまではMa'an経由で約340km、砂漠を南北に走るハイウエーがあり交通事情は非常に良い。

トラック等の運搬車輛も充分と思われる。

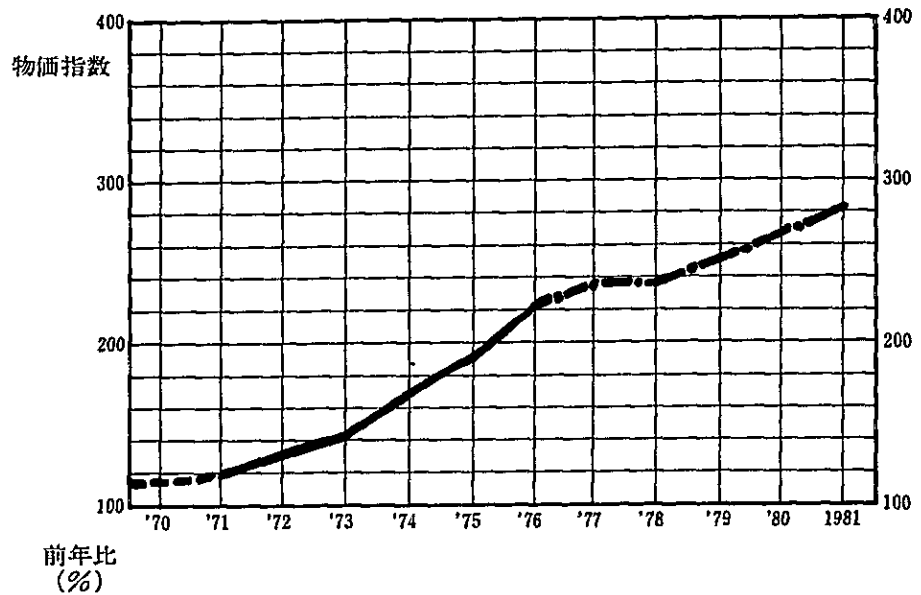
日本からAmmanまでに要する日数は、現在40～50日位である。

シリア、レバノンに通ずる道路は、東部アラブの幹線として整備されている。距離的にも半日から1日行程である。但しレバノンでは現在続いている紛争が障害となっている。

Amman 中心部における交通混雑はかなりあるが今回の計画は敷地が郊外にあり、幹線道路に近く（1km未満）それから敷地までの道もよいので問題はない。

Ammanには国際空港があるので緊急の場合には空輸も可能である。空港から敷地までは自動車でも30分位である。

ジョルダンにおける消費者物価の推移



注(1)：1971～1976年（—実線で示したもの）は“中東ハンドブック”による。1966年の物価を100としたもの。

(2)：1976～1980年は、アンマン在住の日本人によるデータ。

i.e. 1975～'76年：中近東オイルショック以降のブームで約30%アップ

1976～'77年：15%アップ、USA商務省データにも明記

1977～'78年：0～5%程度、前年までのブームの反動、建設等もや、下火となる

1978～'79年：アラブリーグ等の援助の確約をとりつけたのでまた建設活動が盛り上がるであろうと予想される

1979～'80年：前年の状態が引続くであろうと予想する

ROYAL SCIENTIFIC SOCIETY

The Royal Scientific Society (RSS) was founded in 1970 as an independent, non-profit organization. The primary mission of RSS is to conduct research and studies and to provide scientific, technological and administrative consultation. Its services are directed toward the process of industrialization and economic and social development.

During the years 1973 – 1975, the Royal Scientific Society established a pilot production facility in the electronics engineering department and supplied it with the basic instruments and equipment. It initiated several projects for developing prototypes that serve as pilot products for a modern electronics industry. In addition, it equipped and operated the electronics and mechanical engineering laboratories. RSS also completed the preparation of 51 technical manuals for vocational training, established the economic data bank, and completed some twenty research studies on economic subjects and problems, including the achievements of the Three Year Plan and general economic development in Jordan.

The RSS computer system has been utilized for several scientific and commercial applications and the number of ministries, departments, public authorities and private institutions served by the computer systems department has registered a remarkable increase.

The Society also conducted intensive programmes in cooperation with the government ministries concerned, aimed at upgrading the competence of science and mathematics teachers. It also established a science and technology library presently comprising some 30,000 volumes and 335 university thesis, dissertations and research reports.

2. Organizational Measures

- a) Establish an industrial research and consultancy unit for conducting economic, technical and financial feasibility studies for medium and small-scale industries and extending technical advice to the public and private sectors for the purpose of identifying economically feasible projects. This measure includes recruitment of technically qualified personnel and gradual expansion of the unit's operations to cover a wider scope of action.
- b) Establish a population data centre and develop the Economic Data Bank in order to compile, tabulate, classify and analyze information pertaining to economic development and population activities and to furnish the resultant information to planners and researchers.
- c) Coordinate the research activities of RSS with those of the National Planning Council, the Central Bank and other agencies concerned, in the identification and execution of applied research so as to make this activity consistent with planning and development requirements.

- d) Coordinate the functions and responsibilities of the RSS Building Material Research Centre with those of the Ministry of Public Works and the Housing Corporation.
- e) Translate from English into Arabic four selected educational manuals dealing with new mathematics, physics, chemistry and biology to serve as up-to-date reference works and as guides to teachers, educational supervisors and students.

3. Projects

1) Building Materials Research Centre

This project aims at completing the process of equipping the existing Building Materials laboratories and developing them into central laboratories for research on building materials, including research on pre-fabricated dwellings from local building materials. This is especially important because Jordan is rich in various kinds of building materials.

The proposed central laboratories would be utilized for draining up standard specifications and conducting experiments and tests on building materials whether for current or future use.

This project is an extension of the Building materials centre at the Ministry of Public Works stated for financing by the Industrial Development Centre of the Arab League. Discussions are under way for transferring the functions of this Centre to the Royal Scientific society and providing it with essential laboratory equipment.

An agreement has been signed with the Government of the Federal Republic of Germany to finance research work on pre-fabricated houses as one of the functions of the Centre, at a cost of JD220 thousand. The Society has provided JD130 thousand towards the construction of the Centre.

The Total cost of the project is estimated at JD500 thousand of which the sum of JD50 thousand was expended in 1975 on the initial construction phase. The rest will be spent during the Plan period as follows (JD000):

	1976	1977	1978	1979	1980	Total
RSS	80	—	—	—	—	80
German Grant	120	50	50	—	—	220
Oder Foreign Grants	40	70	40	—	—	150
Total	240	120	90	—	—	450

2) Energy Applications Research Centre

This project aims at establishing a centre for exploratory research on the development of appropriate appliances for the utilization of solar energy for heating, cooling and water distilling purposes.

An agreement has been reached with the West German firm Dornier System GmbH calling for joint research on a distillation process to de-salinize sea water. The total cost of the project is estimated at JD500 thousand, including JD30 thousand expended in 1975.

The Government of the Federal Republic of Germany has contributed JD290 thousand of the required amount. Of which JD120 thousand was extended to the participating German firm Dornier System GmbH; JD50 thousand was allocated for the purchase by Donier of equipment (to revert, eventually, to RSS); and JD120 thousand was earmarked for use by RSS, including the purchase of equipment.

The project calls for the establishment of an experimental station on the Aqaba Gulf and for acquisition of 20 thousand square metres of state lands, preferably adjacent to the site of the University of Jordan's oceanographic station.

The cost of the project will be distributed during the Plan period as follows (JD000):

	1976	1977	1978	1979	1980	Total
German Grant	130	130	—	—	—	260
Foreign Grant	—	—	70	70	70	210
Total	130	130	70	70	70	470

3) Test of Materials Engineering Laboratory

This project aims at conducting research in the field of applied mechanical engineering and running tests on goods and manufactured products destined for use of consumption in Jordan. It also aims at providing technical consultancy services to local industries and creating a scientific and technological base serving the development process in Jordan.

The achievement of these aims calls for the provision of suitable laboratory equipment and instruments for conducting tests on: strength of materials, minerals, standardization and verification of specifications, plastic, rubber, paper and textile materials, industrial chemicals, ceramics, glass, paints and coating materials.

The mechanical engineering laboratory building was constructed at a cost of JD180 thousand. It has been supplied with equipment and instruments at a cost of JD250 thousand financed from German technical assistance.

4) Electronics Laboratory and Office Building

This project aims at constructing a laboratory and office building for electronic research work and providing the necessary instruments, apparatus and other allied equipment, in addition to engineering offices and other facilities. The building would have adequate floor space for the equipment and facilities of the Electronic Services Centre.

The costs will be distributed during the Plan period as follows (JD000):

	1976	1977	1978	1979	1980	Total
RSS	50	150	50	—	—	250
Foreign Grants	40	30	40	15	—	125
Total	90	180	90	15	—	375

5) Electronic Services Centre

This project aims at establishing an Electronic Services Centre for repairing and verifying electronic appliances employed in Jordan, in addition to conducting appraisal tests on imported appliances to verify their conformity with designated specifications.

Although the use of electronic appliances in Jordan is on the increase, there are no appropriate maintenance of repair facilities. The establishment of this centre is therefore urgently called for.

The costs are estimated at JD400 thousand distributed as follows (JD000):

	1976	1977	1978	1979	1980	Total
RSS	100	—	—	—	—	100
Foreign Grants	150	150	—	—	—	300
Total	250	150	—	—	—	400

6) Light Electronic Industries Development

This project aims at encouraging the establishment of electronic manufacturing industries based on the finding, of the pilot project implemented by the Electronic Engineering Department and on the miniature complementary models developed therein for industrial production. The project includes the establishment of a specialized plant under competent management. Among the articles which could be produced are the following:

- Intercommunications Systems
- Laboratory Apparatus
- Household Electronic Articles

The costs of this project are estimated at JD200 thousand distributed as follows (JD000):

	1976	1977	1978	1979	1980	Total
RSS	—	—	100	100	—	200

7) Electrical Products for Buildings

This project aims at establishing a plant for the manufacture of electrical products to be marketed locally and in neighbouring countries. The active construction industry

in Jordan and the whole region requires large quantities of electrical products (switches, sockets, etc.), all of which are at present imported from abroad. Such a plant will not involve extensive research and development costs, only adequate financing and a technical and economic feasibility study. It is proposed that the plant be established as a joint venture between RSS and the private sector.

The cost is estimated at JD270 thousand distributed as follows (JD000):

	1976	1977	1978	1979	1980	Total
RSS	—	100	50	—	—	150
Private Sector						
Investment	—	50	30	20	20	120
Total	—	150	80	20	20	270

8) Science Books for Children

This project aims at publishing original or translated children's books dealing with the various aspects of science and technology. The purpose is to provide a variety of science books written in Arabic in order to encourage reading habits among the new generation, promote their scientific interests and disseminate simple scientific knowledge.

Until it becomes self-sufficient through income generated from book sales, the project will incur an estimated cost of JD65 thousand. The sum of JD29 thousand has already been provided by the Saudi Arabian Government. The balance amounting to JD36 thousand will be financed from foreign grants and distributed as follows: (JD000):

	1976	1977	1978	1979	1980	Total
Saudi Grant	5	15	9	—	—	29
Foreign Grant	—	5	11	10	10	36
Total	5	20	20	10	10	65

9) Educational Materials (Laboratory Equipment and Educational Films)

This project aims at producing laboratory equipment and apparatus for science teaching and enabling the schools to acquire such equipment, including glassware articles, from local manufacturers almost at cost. It also aims at producing educational films and providing training in the maintenance and use of laboratory equipment.

The cost of the project is estimated at JD174 thousand of which the sum of JD138 thousand has been financed through a grant from the Saudi Arabian Government. The balance amounting to JD36 thousand will be financed from foreign grants and distributed as follows (JD000):

	1976	1977	1978	1979	1980	Total
Saudi Grants	39	20	25	27	27	138
Foreign Grants	—	5	5	13	13	36
Total	39	25	30	40	40	174

10) Completing the Education Department Building

This projects aims at establishing three laboratories (physics, chemistry and biology), a workshop for practical training on producing educational materials, three classrooms, a hall seating 100 persons and a large recreation hall. The building will be utilized for educational training courses, seminars and conferences as well as for practical educational services school boys and girls and university students.

The cost of the project is estimated at JD120 thousand to be financed by the Royal Scientific Society and distributed as follows (JD000):

	1976	1977	1978	1979	1980	Total
RSS	50	70	—	—	—	120

11) National Library of Science and Technology

This project aims at acquiring, augmenting and classifying scientific and technological references in the various disciplines and research areas, though the following means:

- (a) Constructing a special RSS Library building with a floor area of about 1,600 square metres.
- (b) Acquiring the largest possible number of reference works and periodicals dealing with science and technology.
- (c) Acquiring microfilm equipment for the photocopying of reports, documents, and research papers either for purposes of preservation or because no other copies are available, also, acquiring an adequate number of microfilm readers and copiers.

The cost of this project is estimated at about JD680 thousand to be financed from RSS resources as well as foreign grants and distributed as follows (JD000):

	1976	1977	1978	1979	1980	Total
RSS	20	20	50	60	60	210
Foreign Grants	30	100	100	110	130	470
Total	50	120	150	170	190	680

12) Administration and Lecture Hall Building

This project aims at constructing an administration and lecture hall building with a floor area of 1000 square metres, at an estimated cost of JD110 thousand to be financed from the RSS budget and distributed as follows (JD000):

	1976	1977	1978	1979	1980	Total
RSS	10	80	20	—	—	110

13) National Electronic Computer Centre

This project aims at supplying the existing centre with appropriate equipment and instruments so as to enable it to meet the needs of public and private establishments with no access to such equipment. It also aims at collaborating with the authorities concerned on the lease and import of electronic computers for use in Jordan.

The project plans to provide a direct link with the projected Data Bank in order to serve the requirements of general planning and any other facet of life in Jordan. It also plans to develop the capabilities of the electronic computer staff at the Royal Scientific Society, or of any applicants from Jordan and the other Arab countries. It will provide advanced facilities for the training of high-level scientific and technical personnel in the multi-lateral applications of the computer. Its services will extend to the training of personnel from the Arab Gulf States in the techniques and rapidly expanding applications of electronic computers. Apart from enabling the growing number of computer staff to keep abreast of the most up-to-date developments in the field, the project will contribute to reducing foreign-exchange expenditures presently defrayed on training abroad.

The project also aims at protecting the local Jordanian market from exploitation by suppliers of electronic computers and programming equipment, through facilitating the procurement of this kind of equipment by Jordanian establishments under the most favourable conditions. The project includes the purchase of a computer ordered in 1975 and the construction of an appropriate building.

The cost of the project is estimated at JD905 thousand. The first stage, costing about JD500 thousand, will be financed from the RSS budget and an Iranian Loan. The sum of JD310 thousand has already been expended from the Iranian loan and the balance of the cost will be financed from the RSS budget and foreign grants as follows (JD000):

	1976	1977	1978	1979	1980	Total
RSS	195	—	—	—	—	195
Foreign Grants	—	150	100	100	50	400
Total	195	150	100	100	50	595

14) Population Data Bank

The project aims at providing up-to-date information and statistical data about population activities from the economic and social standpoint. It comprises the storage of population data (births, deaths, mobility, school attendance, employment, etc.) for immediate reference in connection with developments in the demographic and social structure. The project calls for the procurement of attachments to electronic computer.

The implementation of the project demands close collaboration between RSS and several ministries, departments and agencies concerned with the collection of primary information or possessing such information by virtue of their functions. These include the Department of Statistics, the Civil Status Department, the Ministry of Education, the Ministry of Health, the Department of Lands and Survey and the Passport Department.

The cost of this project is estimated at JD720 thousand distributed during the Plan period as follows (JD000):

	1976	1977	1978	1979	1980	Total
Foreign Grants	100	120	200	150	150	720

The cost of completing the process of equipping the laboratory is estimated at JD250 thousand distributed as follows (JD000):

	1976	1977	1978	1979	1980	Total
Foreign Grants	100	50	50	50	—	250

Summary
The Royal Scientific Society Projects
(JD000)

	1976	1977	1978	1979	1980	Total
1. Building Materials Research Centre	240	120	90	—	—	450
2. Energy Applications Research Centre	130	130	70	70	70	470
3. Test of Materials Engineering Laboratory	100	50	50	50	—	250
4. Electronics Laboratory and Office Building	90	180	90	15	—	375
5. Electronic Services Centre	250	150	—	—	—	400
6. Light Electronic Industries Development	—	—	—	—	—	200
7. Electrical Products for Buildings	—	150	80	20	20	270
8. Science Books 02r Children	5	20	20	10	10	65
9. Educational Materials	39	25	30	40	40	174
10. Completing the Education Department Building	50	70	—	—	—	120
11. National Science Library	50	120	150	170	190	680
12. Administration and Lecture Hall Building	10	80	20	—	—	110
13. Electronic Computer National Centre	185	150	100	100	50	595
14. Population Data Bank	100	120	200	150	150	720
Total	1259	1365	1000	725	530	4879

Source of Financing
The Royal Scientific Society Projects
(JD000)

	1976	1977	1978	1979	1980	Total
RSS	505	420	270	160	60	1415
Foreign Grants	754	895	700	545	450	3344
Private Sector Investment	50	50	30	20	20	120
Total	1259	1365	1000	725	530	4879

ESTC建物維持費

本計画によるESTC建物を維持していくために必要な費用のうち経営管理費を除く狭義の維持管理費としては次のようなものがある。

- (1) 管理用人件費
- (2) 清掃費
- (3) 設備機械整備費
- (4) 営繕補修費
- (5) 光熱水料
- (6) 雑費

こゝでは上記のうち(5)について検討してみる。即ち、電気、灯油、水について年間消費量を算出し、現行料金で料金を算出するものとする。

注1. 設備機械の保守要員として、電気関係1名、空調関係1名が考えられる。但しRSS構成には他の建物もあるので、ESTC単独で配置することはコストの点で不利となろう。

1) 電気

I) 使用仮定条件(部門別)及び年間使用量

部 門	① 容量 (KW)	② 1日当り 使用時間	③ 月使用 日数 (日)	④ 年間使用 月数 (月)	年 間 使用量 (KW)
					〔使用率〕
a)冷房(一般)	30	8.5	21	4.5	24,100
b)空調(標準 校正研究室)	32	24		365日	280,300
c)換気	4.15	8.5	21	12	8,900
d)暖房	3	8.5	21	4	2,140
e)湯沸器	33	8.5×〔3.3〕	21	12	21,200
f)照明その他	48	8.5×〔0.6〕	21	12	61,700
g)試験、実験	20	24 ×〔0.6〕		365日	105,120
				総計	503,460KW

年間使用量は①～④の仮定条件によって積算したもの

II) 料金

1KW当り15fil/s (0.015J. D) : 2500KVAクラスとすると

$$503,500(\text{KW}) \times 0.015\text{J. D} = 7,552.5\text{J. D} / \text{年}$$

$$\cong 4985,000\text{円} / \text{年}$$

(1J. D ≐ 660円で計算)

2) 灯油(暖房ボイラー用)

I) 使用仮定条件及び年間使用量

ボイラー油消費量定格：63ℓ/時、負荷率0.6、1日9時間、月間21日、年間4ヵ月使用とするとして、

年間使用量は

$$63 \ell/h \times 9h \times 0.6 \times 21 \text{日/月} \times 4 \text{月} \approx 28,000 \ell/\text{年}$$

II) 料金

リッター (ℓ) 当り 17 fils (0.017J.D) とすると

$$28,000 \ell \times 0.017 \text{J.D}/\ell = 476 \text{J.D}/\text{年}$$

$$\approx 314,000 \text{円}/\text{年}$$

3) 水道

I) 使用仮定条件と年間消費量

収容人員 50名、1人1日消費量 60ℓ

年間 250日 (≈ 21日/月 × 12月) 使用するとして

年間使用量は

$$50 \text{人} \times 60 \ell/\text{人} \cdot \text{日} \times 250 \text{日} = 750,000 \ell/\text{年}$$

$$= \underline{750 \text{m}^3/\text{年}}$$

II) 料金

1 立方米 (m³) 当り 90fils (0.09J.D.) とすると

$$750 \text{m}^3 \times 0.09 \text{J.D}/\text{m}^3 = 67.5 \text{J.D}/\text{年}$$

$$\approx \underline{44,500 \text{円}/\text{年}}$$

4) 1) ~ 4) のまとめ: 電気、灯油、水の年間料金 (推定)

項目	年間消費量	年間料金
電気	503,460KW	7,550J.D. (4,990,000円)
灯油	28,000 ℓ	480J.D. (315,000円)
水	750m ³	70J.D. (45,000円)
合計		8,100J.D. (5,350,000円)

但し、電気料金には基本料金は含まれていない。

JAPANESE GRANT AID FOR DEVELOPING COUNTRY

Japanese Grant Aid is economic cooperation with view to strengthening friendly and cooperative relations between the two countries.

Grant will be;

- (1) extended in accordance with the relevant laws and regulations of Japan.
- (2) made available during the period between the date of coming into force of E/N and 31, March, 1980, unless the period is extended by mutual agreement between the authorities concerned of the two Governments.
- (3) used by the Government of Jordan for the purchase of products of Japan or Jordan and services of Japanese or Jordanian physical or juridical persons required for the implementation of the project.

When the two government deem it necessary, the Grant may be used for the purchase of the products other than those of Japan or Jordan, and services other than those of Japanese or Jordanian nationals.

- (4) executed by making payment in Japanese yen to cover the obligations incurred by the Government of Jordan or its designated authority under the verified contracts to an account to be opened in the name of the Government of Jordan in an authorized foreign exchange bank of Japan designated by the Government of Jordan or its designated authority.

Contracts will be done in Japanese Yen with Japanese nationals by the Government of Jordan.

Obligations of the Government of Jordan will be to take necessary measures as;

- (1) to secure a lot of land necessary for construction of ESTC and to clear/to grade roughly the sites;
- (2) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities outside the site;
- (3) to ensure prompt unloading and customs clearance at ports of disembarkation in Jordan and internal transportation of the products purchased under the Grant;
- (4) to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Jordan with respect to the supply of the products and services under the Verified (by the Japanese Government) Contracts;
- (5) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts such facilities as may be necessary for their entry into Jordan and stay therein for the performance of their work;

- (6) to bear all the expenses, other than those to be borne by the Grant, necessary for the maintenance and completion of the construction project of ESTC;

資料 6-2

JAPANESE GRANT AID/Procedural details

1. Request for Japanese Grant Aid from the Government of Jordan.
2. Report and recommendation of the request from the Japanese Embassy.
3. Study of the report and recommendation of the request by the Ministry of Foreign Affairs (MOFA) of the Japanese Government

if deemed appropriate enough
for Japanese grant aid



dispatch of survey team for a
preliminary designing

4. Decision making of the Japanese Government
 - (1) Decision of the project to be included in a request list for the budgetary appropriation for next fiscal year;
 - (2) Explanation of the project with data to the Ministry of Finance (MOF) by MOFA;
 - (3) Finalization of the draft budget for next fiscal year by MOF and its approval by the Cabinet;
5. Approval by the Diet/Lower House – Upper House (coming into force)
6. Exchange of Notes (E/N) between the Government of Japan and the Government of Jordan
 - (1) Consultation between the MOFA and the ministries concerned in Japan towards a final agreement of the project to take up under the Japanese Government.
 - (2) Consultation on the notes to be exchanged between the Government of Japan and the Government of Jordan.
 - i) Draft Notes are presented by the Japanese Government to the Government of Jordan

ii) Major stipulations of the notes are as follows:

Object of a grant aid: Construction project of ESTC

Grant amount:

Period during which a grant should be extended: 1979/fiscal year

Eligibility: Japanese or Jordanian products and services (products of the third country may be used if E/N so stipulated)

Banking arrangement

Contract

Obligation of the Government of Jordan

- (3) Approval of the draft notes by the Japanese Cabinet after their approval by the Jordanian Cabinet.
- (4) Signature and exchange of the notes simultaneously by the both sides either in Amman or in Tokyo immediately after the Japanese Cabinet's approval.

7. Contracts

- (1) The Government of Jordan or its designated authority (may be RSS) signs contracts with Japanese nationals or Japanese juridical persons controlled by Japanese nationals for the implementation of the notes exchanged.
- (2) Japanese nationals or Japanese juridical persons controlled by Japanese nationals are able to sign subcontracts with nationals of Jordan.
- (3) In case physical facilities such as a school, research institute/ESTC, hospital are to be constructed under the grant aid, the following formality is, in principle, compiled with;

i) Selection of an engineering consultant for architectural (or detailed) designing and supervisory services.

Note: JICA will recommend proper consulting firm if required, however, the same consulting firm that participated in the survey team for a preliminary designing, in principle, carries out an architectural designing of the construction work.

- ii) Contracts on the architectural (or detailed) designing and supervisory services between the Government of Jordan or its designated authority and above mentioned consulting firm.
- iii) Selection of a construction firm through a tender.
- iv) Contract on the construction of a facility between the Government of Jordan or its designated authority and the Japanese construction firm.

8. Verification of the contracts by the Government of Japan

The Japanese Government ascertains whether the contracts are in compliance with the stipulations of the Notes;

- i) Consulting Services
- ii) Construction Works

9. Banking Arrangement (B/A)

The Government of Jordan or its designated authority signs a banking arrangement with a authorized foreign exchange bank of Japan on the procedural details of the payment basing on the contract mentioned in (8) above.

10. Issuance of Authorization to Pay (A/P) to the Japanese foreign exchange bank by the Government of Jordan immediately after the verification of the contracts.

11. Payment request to the Japanese foreign exchange bank by the contractor(s) of Japanese national.

12. Payment request to the Government of Japan by the Japanese foreign exchange bank and payment to the Japanese exchange bank by the Government of Japan.

13. Payment by the Japanese foreign exchange bank to the contractor(s).

資料 6-3

SCHEDULE OF THE PROJECT/Items

Preliminary design

Decision making of the Japanese Government/Approval by the Cabinet

Exchange of Notes (E/N) between Japanese Government and the Government of Jordan

Contract on Consulting Services

Verification of the Contract by the Japanese Government

Consulting Services

Detailed/Execution designing

site and circumstance surveys

preparation of design drawings, specifications and other documents required for
Tender of construction works

Approval of drawings and other documents mentioned above by the Government of
Jordan or its designated authority

Tender Notice for the construction works
(Invitation to Tender to the Japanese construction firms)

Tender

Evaluation of Tenders and selection of Contractor

Contract on construction work

Verification of the Contract by the Japanese Government

Construction Work: Civil and building work

Supervisory services by the Consulting firm are carried out during construction period

Completion of Construction Work

**CONSTRUCTION PROJECT OF THE ELECTRONICS
SERVICE & TRAINING CENTRE OF THE ROYAL
SCIENTIFIC SOCIETY (ESTC) IN
THE HASHEMITE KINGDOM OF JORDAN**

(THE PRELIMINARY DESIGN STUDY)

CONFIRMATIONS & QUESTIONNAIRE (I)

We, the Japanese Preliminary Design Study Team, would like to confirm the basic conditions and also to obtain informations/data necessary for the preliminary design of the building of ESTC.

It would be very grateful if you kindly take necessary steps and cooperate with us in studying.

1. Design of the Building of ESTC should be based on the conditions described in the "REQUEST FOR TECHNICAL ASSISTANCE TO ESTABLISH AN ELECTRONICS SERVICE CENTRE", dated Nov., 1975 prepared by RSS and submitted to the Government of Japan (hereinafter referred to as "the Request") and "THE RECORD OF DISCUSSIONS BETWEEN JAPANESE IMPLEMENTATION SURVEY TEAM AND THE AUTHORITIES CONCERNED OF THE HASHEMITE KINGDOM OF JORDAN ON THE JAPANESE TECHNICAL COOPERATION FOR THE ELECTRONICS SERVICE CENTRE OF THE ROYAL SCIENTIFIC SOCIETY PROJECT", dated Dec. 17, 1977 (hereinafter referred to as R/D). This is the policy of the Government of Japan.

Therefore, we would like to confirm the following matters.

- (1) Laboratories to be housed in ESTC building will be;
 - i) Electronics Maintenance Laboratory
 - ii) Electronics Testing Laboratory
 - iii) Calibration and Standard Laboratory
- (2) ESTC building will also have architectural facilities required for short-term training course for electronics engineers and technicians.
- (3) Rooms and/or spaces and their floor areas which correspond to the building functions mentioned above in (1) and (2) will be those indicated in Section 5, Building and Space Requirement in the "Request" and R/D. However, it will be necessary to add the rooms and/or spaces as follows:
 - i) Vibration Testing room.
 - ii) Rooms necessary to install building equipment as airconditioning machine, boiler and electric equipment.

- iii) Entrance, entrance hall, lavatories and others required to build ESTC as independent building.
- (4) Site for the ESTC has been secured by the Government of Jordan, and will be graded roughly as necessary. (Securing the site for the project and its grading is one of the major stipulations of the Grant Aid.)
2. Give us your plans relating to;
- i) Organization of ESTC
 - ii) Details of placement of personnel for each laboratory and other sections.
 - iii) Curriculums and methods of the training for electronics engineers and technicians.
3. Give us informations as to;
- i) Organization concerned of Jordan for the construction project of ESTC Building.
 - ii) Person (or organization) who (or which) will have the responsibility of the contracts with engineering consultant and construction firm, and organization that will manage the actual works relating to consulting services and construction.
4. Preliminary/basic design of ESTC Building will be carried out basing on the conditions mentioned in item 1. above. Details of the building required to finalize the basic design are to be decided by consulting with staff concerned of RSS and members of Japanese Implementation Survey Team headed by Mr. Hayami, The Ministry of Post and Telecommunications of Japan. So, we would like to obtain the requests by RSS in table or in other writing.

**SPACE ALLOCATION MASTER PLAN FOR THE
ELECTRONICS SERVICE AND TRAINING CENTRE
AT THE ROYAL SCIENTIFIC SOCIETY**

**Prepared by
THE ELECTRONICS SERVICE AND TRAINING CENTRE,
ROYAL SCIENTIFIC SOCIETY,
Amman-Jordan**

November 1978

CONTENTS

1. Introduction
2. Site of Construction
3. Floor Space Allocation
4. Furniture and Other Facilities

1. Introduction

Further to the request for assistance to finance the building for the Electronics Service and Training Centre (ESTC) in the Royal Scientific Society (RSS), and further to the meeting held in the RSS on 18th June 1978, and attended by Mr. Soemu Horie of the Economic Cooperation Division of the Ministry of Foreign Affairs in Japan, Mr. Dekiba of the Japanese Embassy in Amman, and Dr. Awn Rifai of the RSS.

The ESTC wishes to present this space allocation Master Plan for consideration by the Japanese design team visiting the RSS from 6th Dec, 1978 until 25th Dec., 1978, in the planning and design of the proposed building.

2. Site of Construction

The proposed building is to be constructed on the RSS grounds. It will house the various laboratories and facilities of the ESTC as well as those already existing in the Electronics Engineering Department (EED). It is envisaged that all the electronics equipment and facilities are housed in the same premises, thereby giving more convenience in performing the functions of the EED, incorporating the ESTC.

The Master Plan for the RSS buildings specifies the location of the ESTC building. This location lies west of the street joining the Mechanical Engineering Department (MED) building and that of the Building Materials Research Centre (BMRC). The location is suitable from a functional point of view by being close to the MED, the BMRC, and the proposed Industrial Chemistry building. Thus the RSS hard and soft technological infrastructure will be located at the southern wing of the RSS grounds.

3. Floor Space Allocation

The following space allocation for the building of the ESTC is proposed for consideration at the planning and design stages. The space allocation has taken into account the requirements for the proper and planned development of the EED for the coming ten years. Therefore, mention of new laboratories to be established in the future will appear in the text. The tables given are classified according to the functional requirements needed for proper design. The spaces marked with an asterisk are those where air conditioning is required (see section 4 below).

Space code No.	Space name	No. of persons/ room	No. of rooms	Area/ room m ²	Total area
Department's Administration					
* EE1	Director's office	1	1	24	24
* 2	Department secretary	1	1	24	24
* 3	Typist	1	1	16	16
* 4	Administrative assistant	1	1	20	20
* 5	Technical information/reading room	—	1	60	60
6	Stationery room	—	1	16	16
7	Filing room/archive	—	1	16	16
8	Photocopy room	—	1	16	16
* 9	Conference room	—	1	80	80
General Facilities					
10	Exhibit room	—	1	60	60
* 11	Lecture theatre	150	1	400	400
* 12	Classrooms	30	3	48	144
* 13	Computer terminal room	—	1	16	16
* 14	Drafting room	1	1	36	36
15	Mechanical Workshop	2	1	200	200
16	Stockroom	1	1	100	100
* 17	Printed circuit board room	1	1	60	60
* 18	Lounge/kitchenette	15	1	60	60
* 19	Custodian	1	1	16	16
20	General store	—	1	80	80
Laboratories and Offices					
* 21	ESTC head office	1	1	24	24
* 22	Typist/filing for ESTC	1	1	16	16
* 23	Maintenance lab	—	1	250	250
* 24	Maintenance offices	2	5	24	120
25	Maintenance storage room	—	1	16	16
* 26	Testing lab	—	1	250	250
* 27	Testing offices	2	5	24	120
28	Testing storage room	—	1	16	16
29	Anechoic chamber/screen room	—	1	80	80
30	Temperature and humidity test chamber	—	1	48	48
31	Acoustics measurements room	—	1	80	80
* 32	Standards and calibration lab	—	1	250	250
* 33	Standards and calibration offices	2	5	24	120

Space code No.	Space name	No. of persons/room	No. of rooms	Area/room m ²	Total area
34	Standards and calibration storage room	—	1	16	16
* 35	R & D head office	1	1	24	24
* 36	Typist/filing for R & D	1	1	16	16
* 37	R & D lab	—	1	250	250
* 38	R & D offices	2	8	24	192
39	R & D storage room	—	1	16	16
* 40	Solar electronics lab	—	1	120	120
* 41	Solar electronics lab offices	2	1	24	24
* 42	Analog & control lab (proposed)	—	1	120	120
* 43	Telephony lab (proposed)	—	1	120	120
* 44	Power lab	—	1	120	120
* 45	Space for other proposed labs	—	2	120	480
* 46	Assembly room	2	1	100	100
47	Offices	2	10	20	200
	Total				4632
48	Foyer, corridors, utilities, air conditioning room, boiler room, lift space, etc. . . (25% of total space above)				1158
*	Total space required in main building				5790 m ²
			approximately		5800 m ²
	Vibration chamber (separate annex)	—	1	56	56

4. Furniture and Other Facilities

The furniture required for the building will comprise of:

- a) General furniture, such as carpeting, lighting, curtains, . . .
- b) Laboratory furniture, such as benches, stools, cabinets, racks, shelves, . . .
- c) Lecture room furniture, such as tables, chairs, blackboards, screens, . . .
- d) Office furniture, such as tables, desks, cabinets, chairs, . . .

The following are some notes regarding the general facilities in the building:

- a) The height of the ceiling is 3.2 metres throughout the building except for the lecture theatre where it will be around 6 metres.
- b) False ceiling will be installed throughout the building.
- c) A special foundation construction is needed for the vibration test chamber.
- d) Central heating will be installed throughout the building.
- e) Air conditioning will be installed in the spaces marked with an asterisk in the table provided in section 4 above.
- f) The standards and calibration laboratory needs special temperature and humidity control.
- g) A lift will be installed in the building.

Other facilities and details will be discussed with the Japanese design team in due course.

FLOOR SPACE ALLOCATION TABLE

Dec. 11, '78

	A the Request	B 54 m ² unit	B/A
Maintenance Lab.	100 m ²	162 m ²	162%
Testing Lab.	160	162	101
Calibration & Testing	150	162	108
Stock Room	50	54	108
Equipment Storage	60	81	135
Standard Library	40	54	135
Offices	240	270	113
Utilities	60	54	90
Class Room	90	108	120
Conference Rooms	40	54	135
Lecture Hall	60	81	135
Japanese GA's Room			
Japanese Experts' Rooms			
Vibration Testing Room			
Entrance Hall		594	396
Lavatories			
Airhandling Unit Rooms			
Boiler Room			
Transformer Room			
Circulations	150		
Total	1,200	1,836	153

Notes: The Request – Nov. 1975
Minutes of Meetings – Dec. 1977
Basement floor is excluded.

COUNTER – PROPOSAL

SPACE ALLOCATION MASTER PLAN
FOR THE BUILDING OF THE
ELECTRONICS SERVICE AND TRAINING CENTRE (ESTC)
OF THE ROYAL SCIENTIFIC SOCIETY (RSS)

SUBMITTED TO THE JAPANESE
PRELIMINARY DESIGN STUDY TEAM
FOR THE ESTC OF THE RSS

PREPARED BY
HEAD OF THE ESTC

DECEMBER 1978

1. Space Allocation:

The following space allocation for the building of the ESTC is submitted for consideration by the Team.

	Space name	No. of persons/ room	No. of rooms	Area room m ²	Total area m ²	No. of units #
*	Maintenance lab.	—	1	216	216	4
*	Testing lab.	—	1	216	216	4
**	Standards and calibration lab. Stockroom	—	1	216	216	4
	Equipment storage	1	1	81	81	1.5
*	Standards library	—	1	81	81	1.5
	Offices, detailed as follows:	—	1	81	81	1.5
	Head of ESTC office	...	...	...	999	18.5
*	Secretary/typist	1	1	27	27	0.5
*	Assistant	2	1	54	54	1
	Stationery/filing	1	1	27	27	0.5
	Photocopy room	—	1	27	27	0.5
*	Computer terminal room	—	1	27	27	0.5
*	Drawing room	1	1	54	54	1
	Printed circuit board room	1	1	54	54	1
	Custodian	1	1	27	27	0.5
*	Maintenance offices	4	3	54	162	3
*	Testing offices	4	3	54	162	3
*	Standards and calibration offices	4	3	54	162	3
*	Training staff offices	4	1	54	54	1
*	General store	—	1	54	54	1
*	General offices	2	2	27	54	1

Space name	No. of persons/ room	No. of rooms	Area room m ²	Total area m ²	No. of units #
Utilities	—	1	54	54	1
* Classrooms	40	3	54	162	3
* Conference room	—	1	81	81	1.5
* Lecture hall	150	1	216	216	4
Air raid shelter (basement)	—	1	162	162	3
Others (*Japanese General Advisor, *Japanese experts, vibration room, entrance, lavatories, air conditioning room, electricity, kitchen ...)	...	...	...	594	11
Total				3159	58.5

1 unit = 9 m × 6 m = 54 m²
 * Spaces where air conditioning will be established (see section 3 below).

2. Furniture:

The furniture required for the building comprises of:

- General furniture, such as carpeting, lighting, telephones, curtains, . . .
- Lab. furniture, such as benches, stools, cabinets, racks, shelves, . . .
- Library, offices, Drawing room, lecture hall and classroom, and conference furniture, such as tables, chairs, blackboards, screens, desks, cabinets, chairs, . . .
- Other furniture, kitchen, drinking fountain, . . .

The details of the furniture to be supplied will be decided after the preliminary design of the building.

3. Other Facilities:

- False ceiling will be installed throughout the building.
- Central heating will be installed throughout the building.
- Air conditioning will be installed in the spaces marked with an asterisk in the table provided in section above.
- The standards and calibration laboratory needs special temperature and humidity control.
- A special foundation construction is needed for the vibration test chamber.
- A three-phase, five-line electrical power system will be installed in the building.
- A proper electrical earthing will be constructed under ground.
- Construction work surrounding the building, such as roads, paths, car park, . . .
- It is strongly recommended to design the building in such a way that one more storeys can be constructed in the future. This may be needed to account for any future expansion in the activities of the ESTC.
- Other facilities to be discussed at a later stage.

**THE CONSTRUCTION PROJECT OF THE BUILDING OF THE
ELECTRONIC SERVICE AND TRAINING CENTRE (ESTC)
OF THE ROYAL SCIENTIFIC SOCIETY (RSS)**

Preliminary Plan and Items to be Confirmed

**Submitted to
Head of the ESTC, RSS**

**Prepared by
The Japanese Preliminary Design Study Team for
The ESTC of the RSS**

17 December 1978

Notes:

- (1) This preliminary plan indicates an outline of the ESTC building. The space allocation for the building is a result of study and not final's.

The preliminary plan will finally be decided in Tokyo after the approval of the Japanese Government.

The basic plan will be the result of studies of the Team through the meetings held/to be held between the RSS and the Team and of survey in Amman, and also will be decided after the consultation with the experts of Japanese Implementation Survey Team in connection with electronic equipment supply by preceeding Japanese Grant aid.

- (2) Despite the description in note (1) above, the total floor area/space indicated in the preliminary plan will not be changed in principle.

Minor increase or decrease of total floor area/space and floor area of each room/space may occur due to designing requiring.

- (3) Enclosed herewith;

- i) Preliminary Plan of ESTC Building (basic plans and site plan) accompanied with space allocation.
- ii) Items to be confirmed.

Space Allocation:

Space name	Area: m ²
Maintenance lab.	180
Testing lab.	180
Standard and calibration lab.	180
Stock room	40
Equipment storage	90
Standard library	77
Offices;	504
Head of ESTC office	
Secretary/typist	
Assistant	
Stationary/filing	
Maintenance office	
Testing office	
Standard and calibration office	
Training staff office	
General office	
Japanese GA's office	
Japanese experts' office	
Custodian	18
Photocopy room	20
Computer terminal room	20
Classrooms	108
Lecture hall	101
Conference room	40
Storage	20
Vibration test room	25
Building equipment room	76
Others;	547
Entry	
Entrance hall	
Stair caces	
Corridors	
Lavatories	
Kitchen	
etc.	
Total	2,226

**Construction Project of the
Electronic Service and Training Centre (ESTC) of the
Royal Scientific Society (RSS)**

18 Dec., 1978
RSS, Amman

Items to be confirmed:

Site of ESTC building:

The land/site of ESTC building has already been secured within the site of RSS. The site locates as shown roughly in Appendix , and is to have space of some 3,700 square meters. Boundaries of the site to other parts of the RSS's land will be established temporarily for the convenience of deciding scope of works installed under the Grant aid.

The temporary boundaries will be marked in preliminary design drawing/site plan after the preliminary design of the building.

Furniture:

The details of furniture to be supplied will be decided after preliminary design in Tokyo of the building within an estimated cost of the project.

False ceiling:

Will be installed in every room but for rooms not required such as;

- Stores/Stock rooms
- Rooms for building equipment
- Vibration test room

Heating System:

Hot water radiator type heating system will be installed in every room but for Standards and Calibration Lab. Heat source will be centralized regionally for the ESTC building.

Air Conditioning System:

Air conditioning system will be installed in following rooms;

- Standards and Calibration Lab.
- Electronic Maintenance Lab.
- Electronic Testing Lab.

Standards and Calibration Laboratory will be designed to have temperature and humidity as required by Japanese experts in connection with the supply of electronic equipment.

Electric Power Distribution System:

A Power distribution system of three phases, four lines-plus-an earthing line and 400 volts will be installed in the building. RSS will lead the appropriate trunk line into the switch gear of sub main switch-board which will be installed in ESTC building under the Grant aid.

Water Supply:

RSS will install the necessary and adequate water supply line as far as the established boundary line and provide a hand hole and a stop-valve at the end.

Telephone Conduit System:

Telephone conduit system will be installed under the Grant aid.

Earthing:

A proper electric earthing system will be constructed as required by the equipment to be housed by the preceeding Japanese Grant aid and by building equipment included in this Grant aid. (The earthing may be of 10 ohms and 100 ohms in resistance value.)

Exterior Works:

Exterior works, such as roads, pavement, path and others within established boundaries of the land will be installed under the Grant aid.

ELECTRONICS SERVICE &
TRAINING CENTER (ESTC)

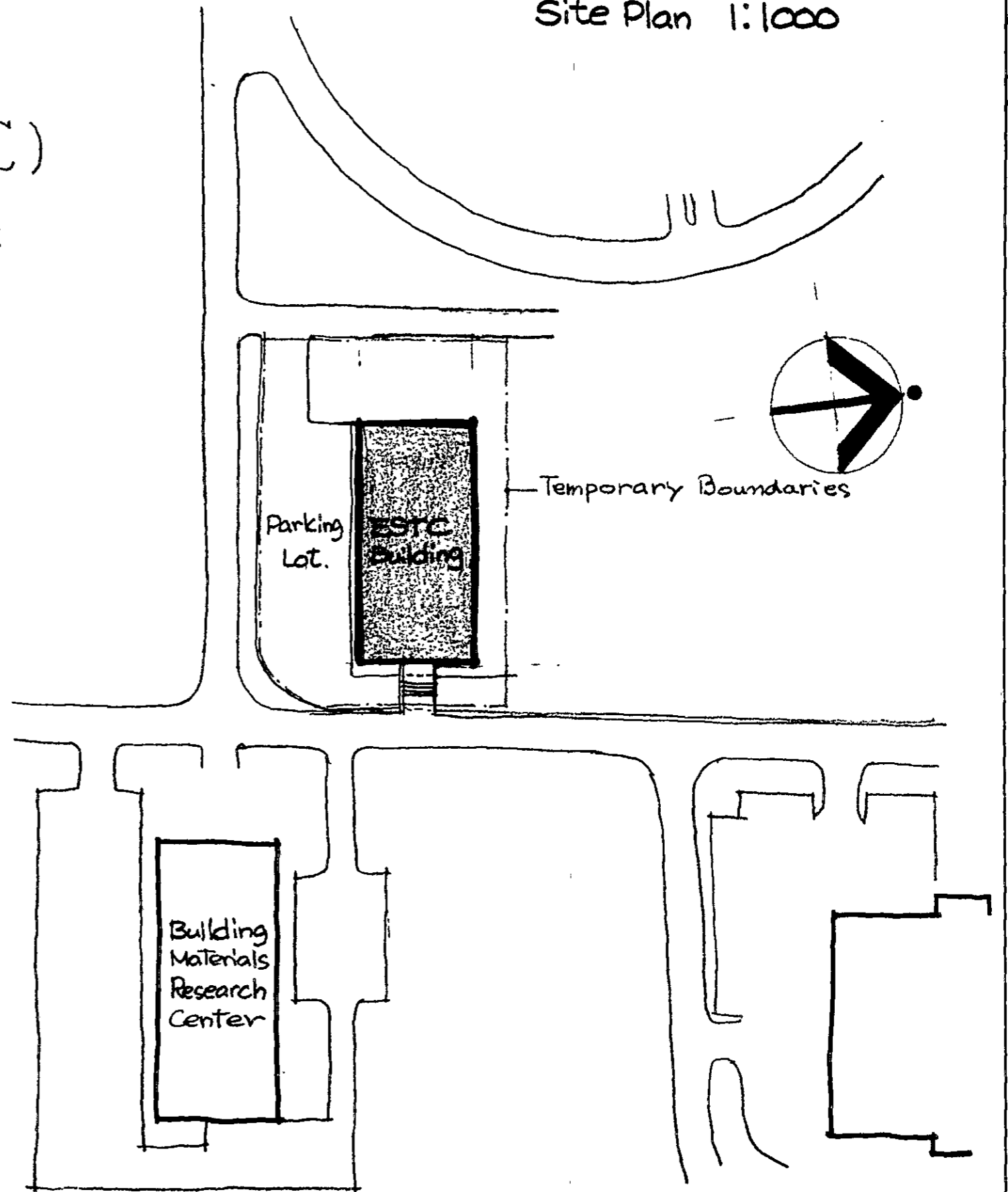
THE ROYAL SCIENTIFIC SOCIETY, AMMAN

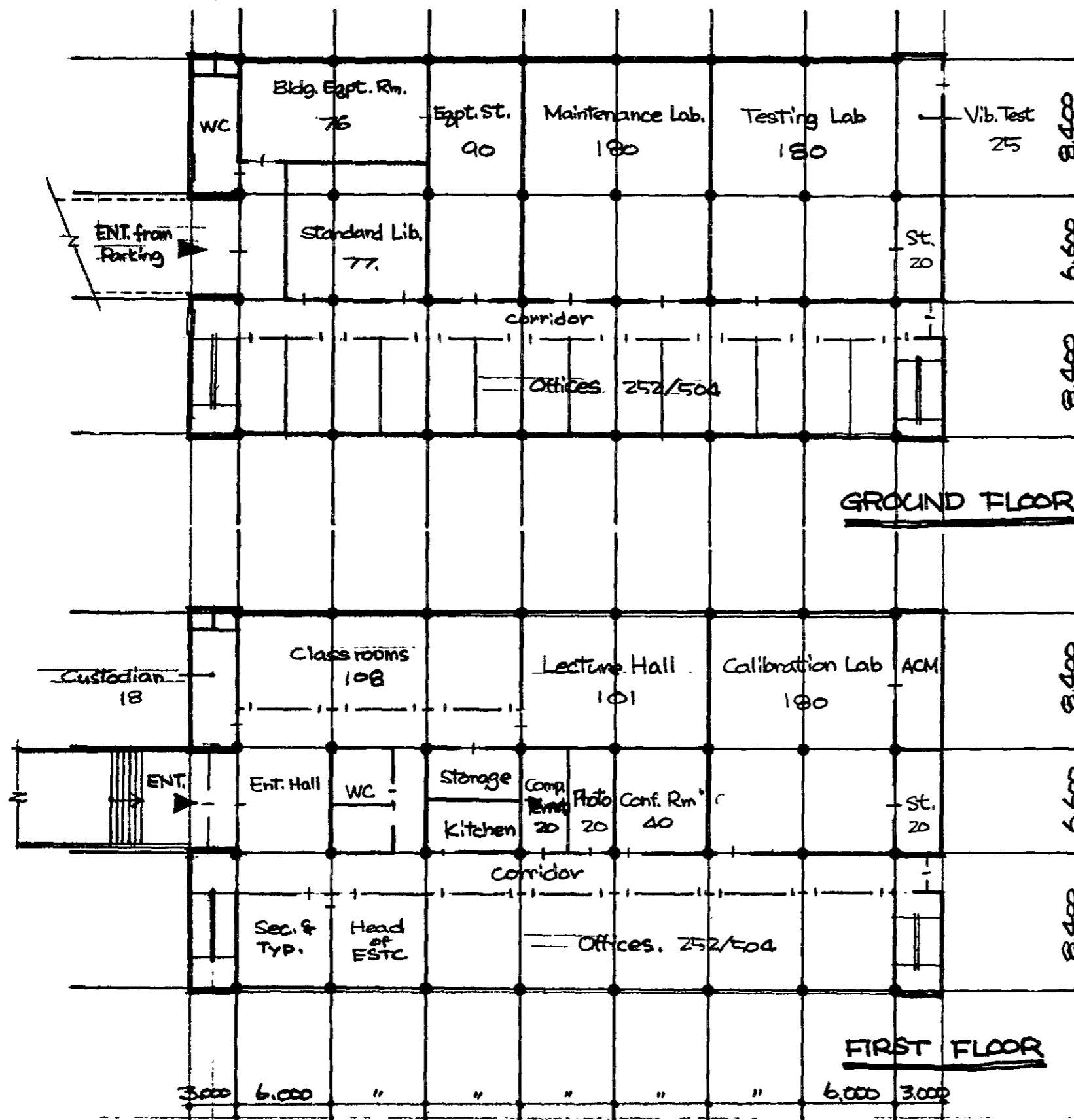
11

ELECTRONICS SERVICE & TRAINING CENTER (ESTC)

THE ROYAL SCIENTIFIC SOCIETY, AMMAN

Site Plan 1:1000





NOTES ;

• FLOOR AREA.

GROUND FLOOR : 1.103 M²

FIRST FLOOR : 1.123 M²

TOTAL : 2.226 M²

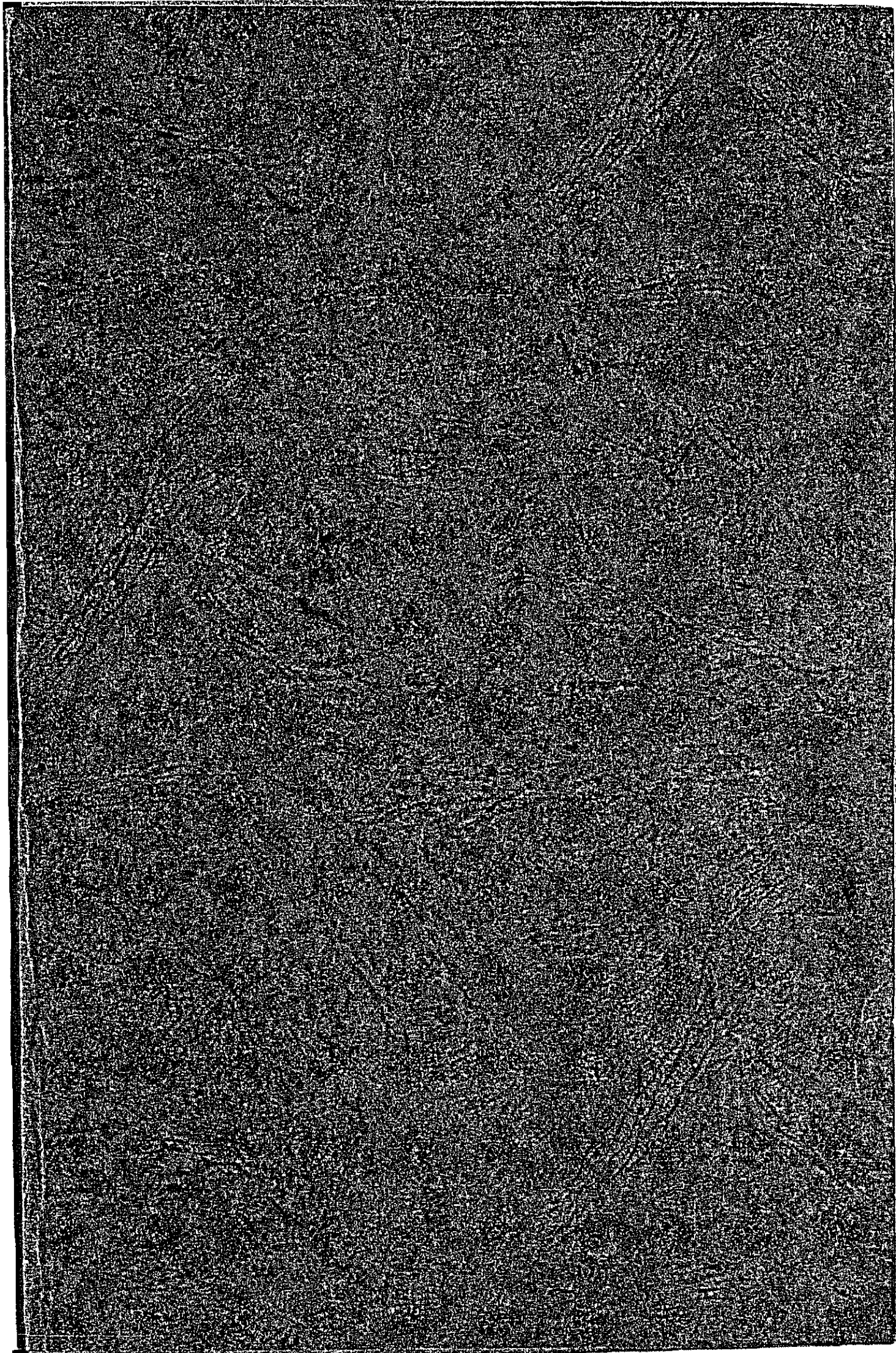
• Offices are composed of following rooms.

- Head of ESTC
- Secretary / typist
- Assistant.
- Stationary / filing
- Maintenance Offices
- Testing offices
- Standard & Calibration Office
- Training Staff Office
- General Office
- Japanese GA's room
- " Experts' room

• St. : Stock Room

ESTC Bldg. 1:300

17. Dec. 1978.



! コマンドを入力して下さい。
71/ DP M

項目 1

T I 1 書 名 : ジョルダン王立科学院電子工学サービスセンター事前調査
報告書
P U 出 版 者 : 国際協力事業団
Y P 出 版 年 : 1977.5
G C 請 求 記 号 地 域 : 307
J D 請 求 記 号 分 類 : 64.9
A D 請 求 記 号 著 者 : SDC
A C 登 録 番 号 : 13462

項目 2

T I 1 書 名 : ジョルダン王立科学院電子工学サービスセンター実施協議
報告書
P U 出 版 者 : 国際協力事業団
Y P 出 版 年 : 1978.3
G C 請 求 記 号 地 域 : 307
J D 請 求 記 号 分 類 : 64.9
A D 請 求 記 号 著 者 : SDC
A C 登 録 番 号 : 03546

項目 3

T I 1 書 名 : ジョルダン・ハシュミット王国王立科学院電子工学サービ
ス訓練センター建設計画基本設計調査報告書
P U 出 版 者 : 国際協力事業団
Y P 出 版 年 : 1979.3
G C 請 求 記 号 地 域 : 307
J D 請 求 記 号 分 類 : 64.9
A D 請 求 記 号 著 者 : SDS
A C 登 録 番 号 : 03545

項目 4

T I 1 書 名 : ジョルダン王立科学院電子工学サービス訓練センター計画
打合せチーム報告書
P U 出 版 者 : 国際協力事業団
Y P 出 版 年 : 1981.2
G C 請 求 記 号 地 域 : 307
J D 請 求 記 号 分 類 : 64.9
A D 請 求 記 号 著 者 : SDC
A C 登 録 番 号 : 18033

項目 5

T I 1 書 名 : ジョルダン王立科学院電子工学サービス訓練センターエバ
リュエーションチーム報告書
P U 出 版 者 : 国際協力事業団
Y P 出 版 年 : 1981.12
G C 請 求 記 号 地 域 : 307
J D 請 求 記 号 分 類 : 64.9
A D 請 求 記 号 著 者 : SDC
A C 登 録 番 号 : 03774

JICA