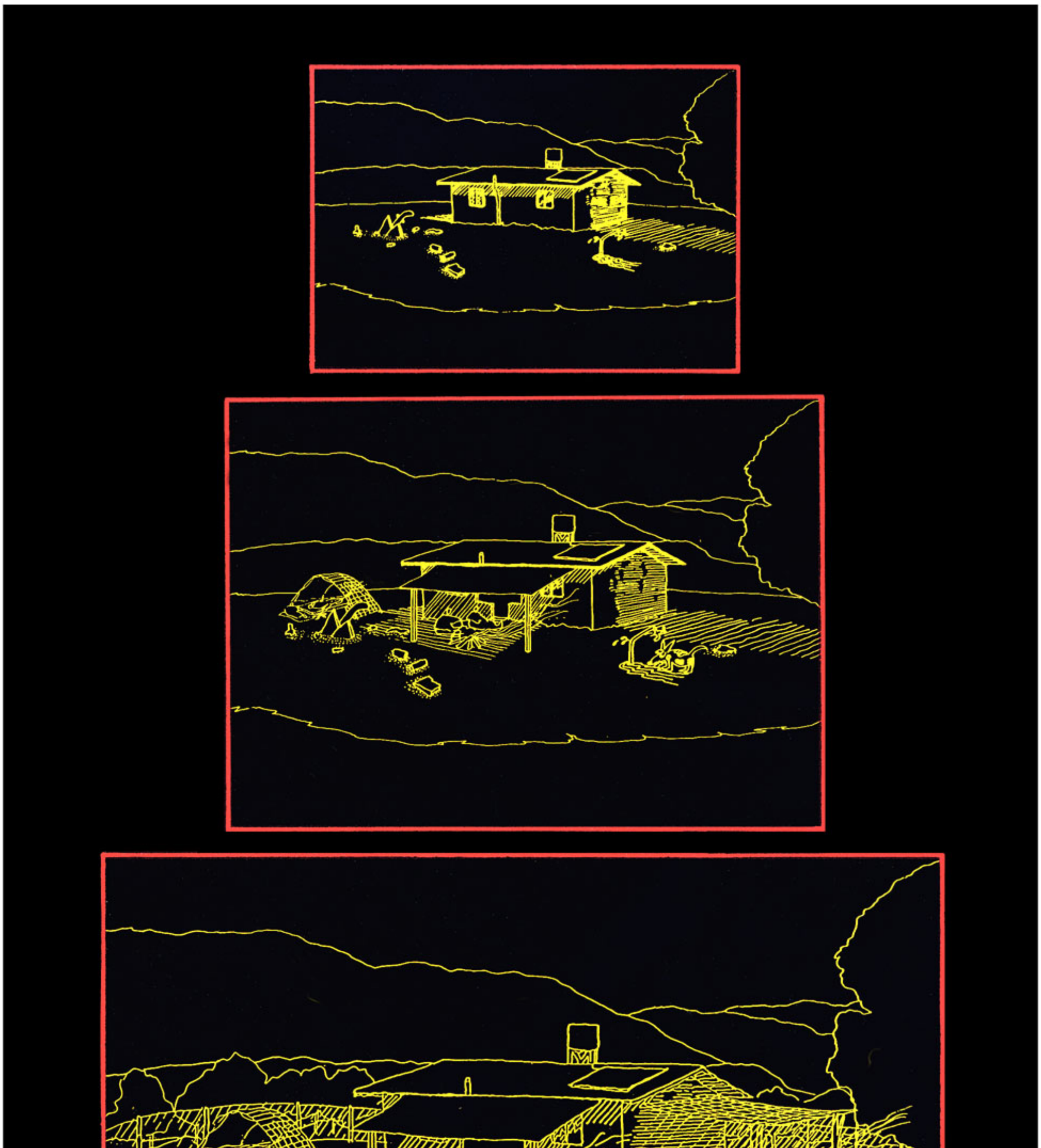

A P DESIGN GUIDE

Building for Health on the Anangu Pitjantjatjara Lands

A P
DESIGN GUIDE

Building for Health
on the
Anangu Pitjantjatjara Lands

ACKNOWLEDGEMENTS

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Paul Pholeros
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INDEX

1. INTRODUCTION

1.1 U.P.K. and building for well being

U.P.K. set out a strategy for well being which included many things that would have to be changed for Anangu to achieve better health.

Management
Housing
Essential services
Nutrition
Income
Homelands
Education and training
Community Health Education

One part of the U.P.K. story concerned housing or perhaps more importantly buildings of all types which were able to provide health hardware.

U.P.K. tried to emphasise that housing and all community buildings should be seen as primarily providing the health hardware essential for Anangu's healthy living.

The building of houses, stores, clinics or football ovals should be seen not just as "building projects" but as "well being" or "health projects".

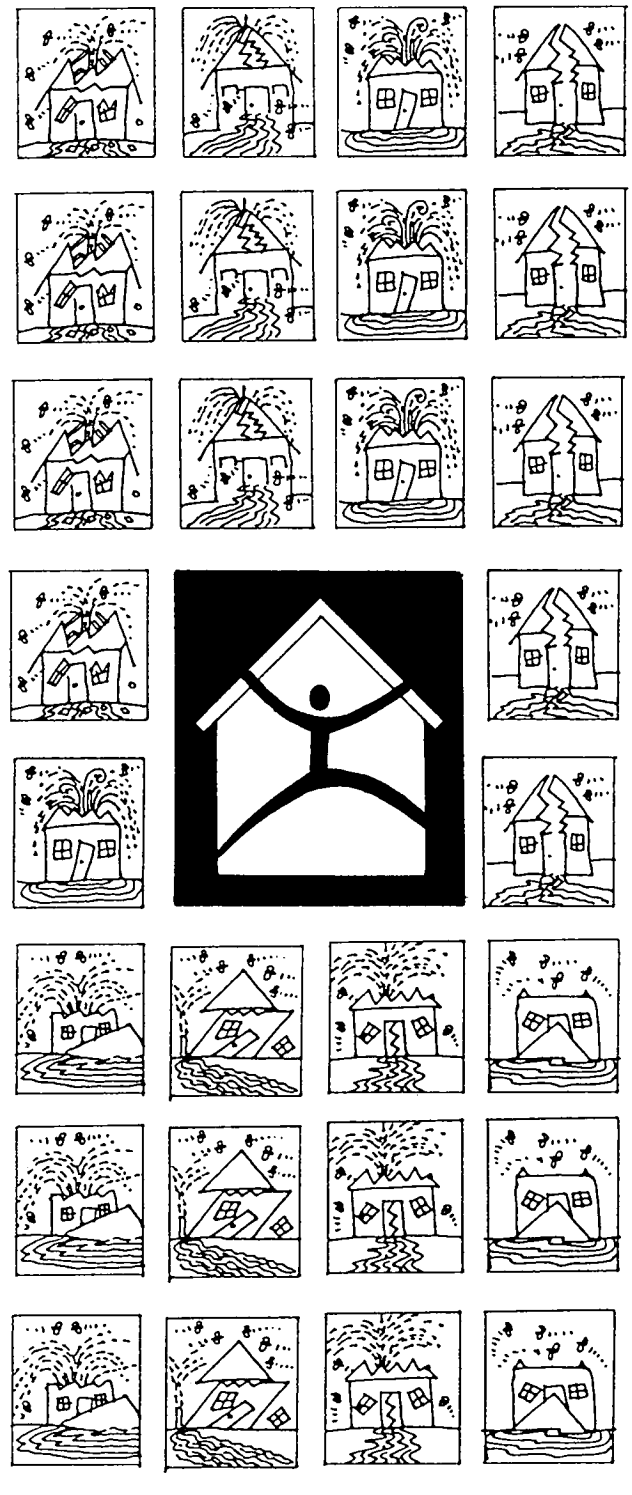
1.2 The Aim of this Guide

The aim of this guide is to enable community staff and councils to better:

Manage
Plan
Design
Construct
Supervise
Maintain

essential health hardware resources.

The guide is an attempt by A.P. to give communities information about building which will lead to "buildings for well being" rather than repeat the building mistakes and associated poor health recorded by the U.P.K. review.



1.3 How to get help!

A.P. intends this guide as a reference and checklist to help communities build better. There will be times when more help or information is required. The following list may help. Photocopy the list and pin it up in your office. Add names and numbers as required.

Who to contact and what they do.	Existing number (at time of printing)	Contact Name (you fill in)
1. Anangu Pitjantjatjara (A.P.) – supervision, selecting builders, contracts. etc.	Ph (089) 567 577 Fx (089) 567 570	
2. Nganampa Health Council Public health officer. General advice and help on all aspects of public and environmental health.	Ph (089) 525 300/567 853 Fx (089) 522 299	
3. Pitjantjatjara Council Projects section power, water, waste, community service maps etc.	Ph (089) 505 411 Fx (089) 526 371	
4. ATSIC Money, general advice	Ph (08) 233 6700 Fx (08) 212 3426	
5. Aboriginal Housing Board of South Australian Inc./South Australian Housing Trust Housing Program and general advice	Ph (08) 235 4301 Fx (08) 235 4399	
6. Department of State Aboriginal Affairs Essential services (power, water, waste) work, breakdown service	Adelaide Ph (08) 226 8900 Fx (08) 226 8999 Marla Ph (086) 70 7018	
7. South Australian Health Commission Health surveyors	Ph (086) 48 5366	
8. Tangentyere Design Architects Design advice	Ph (089) 52 5827 Fx (089) 52 5827	

2 BUILDING AND HEALTH

2.1 The contribution buildings can make to health.

More new buildings in your community will not guarantee better health.

The history of public health shows that there is a relationship between good living conditions and good health - but good living conditions do not automatically flow from new housing, stores, offices, water programmes etc.

The U.P.K. review did not attempt to prescribe a "model" Anangu house. Rather U.P.K. outlines the principles by which any community building (housing or public utility) should be constructed. In particular U.P.K. emphasises that the primary consideration in a "housing" development should be the delivery of effective health hardware.

Part of your job within your community is to try and ensure the construction and maintenance of the health hardware, not just houses, clinics, offices etc.

The following sections will discuss in detail what the health hardware is, how to ensure it is properly planned for and how it can be maintained.

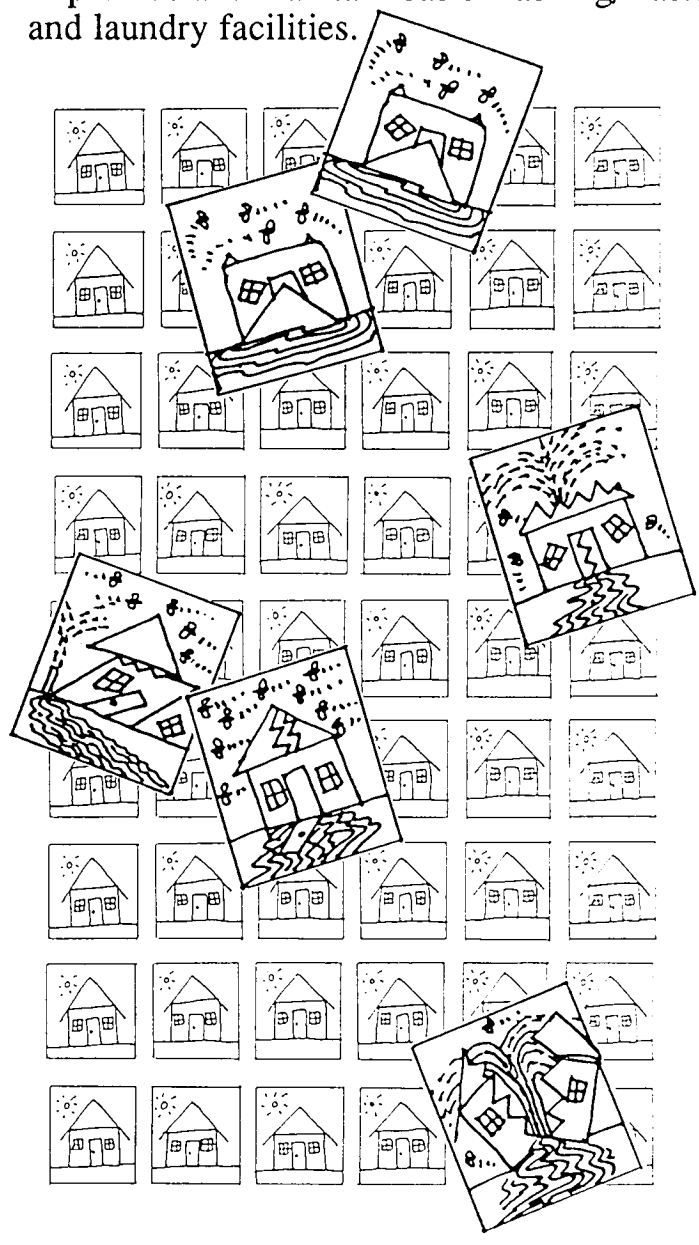
2.2 Will access to housing solve the problem?

2.2.1 The provision of housing to all Anangu on the A.P. lands is probably beyond the capacity of Governments and their agencies (U.P.K. p. 51).

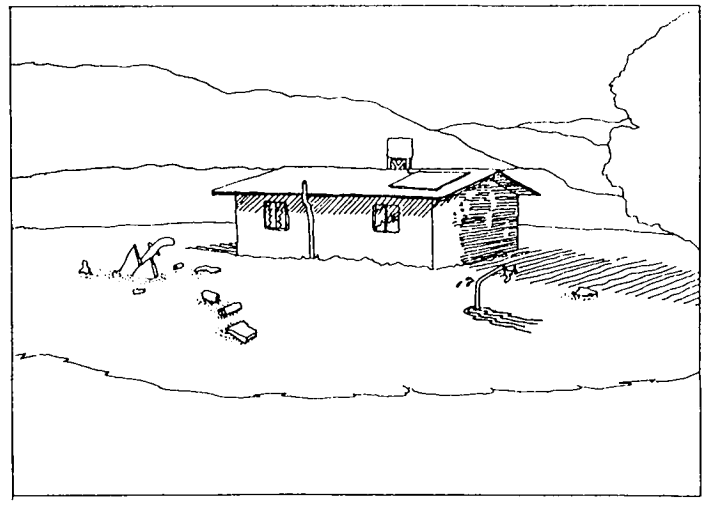
2.2.2 As about only half the current population of the A.P. lands is "housed" it is important to recognise that "houses" can only provide health resources to a limited number of Anangu.

This is important when considering where health hardware can be located to serve Anangu without access to the facilities of a house.(See U.P.K. p. 48 "Housing: An Improbable Dream").

"Public buildings" such as clinics, stores, schools, offices etc. all have a responsibility to provide and maintain basic washing/waste and laundry facilities.



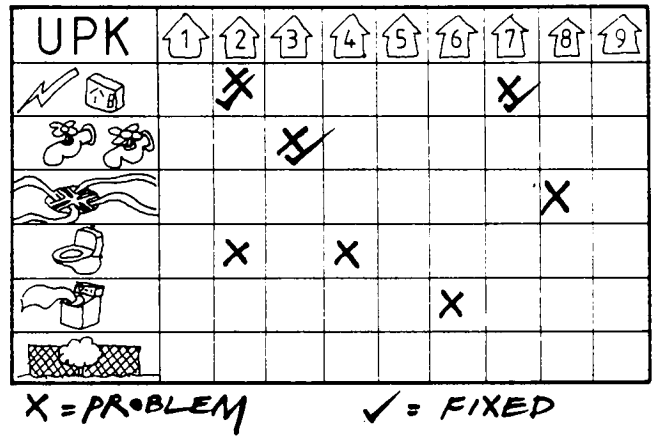
2.3 The importance of maintenance to health.



Without maintenance at all stages of the health hardware "chain" - things will fail. The end result will be a lack of health hardware facilities.

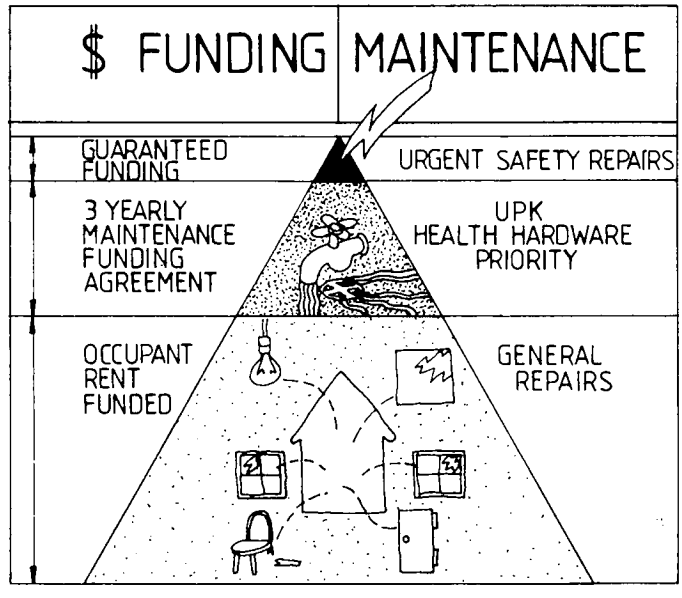
For maintenance to be carried out efficiently the following need to be in place.

A) A reporting system: to ensure faults are detected early so that the effects of failure can be reduced. On sewerage pumps, generators etc. mechanical alarms can signal failures. In houses, however, a faulty tap or toilet cistern may remain unseen unless a simple reporting system is in place within your community. An example of a simple board located outside offices or clinics is shown at right. Make up your own.



B) The necessary skills and materials to fix the maintenance problems. Electrical and plumbing skills are particularly important for maintaining health hardware. A.P. continues to lobby for funding for these skills on the A.P. lands.

C) A health maintenance priority list.
Given the constantly uncertain nature of maintenance funding, it is essential that the limited resources available are used to achieve the greatest health benefit. Set out at right is a maintenance priority pyramid showing the essential priority for work, how the work can be done and the method of funding.



A.P. and Nganampa Health will continue to argue strongly to Government and their agencies that essential maintenance funding has a direct affect on your community's health. (For more detailed information see U.P.K. pages: 48,49,50).

2.4 What is health hardware?

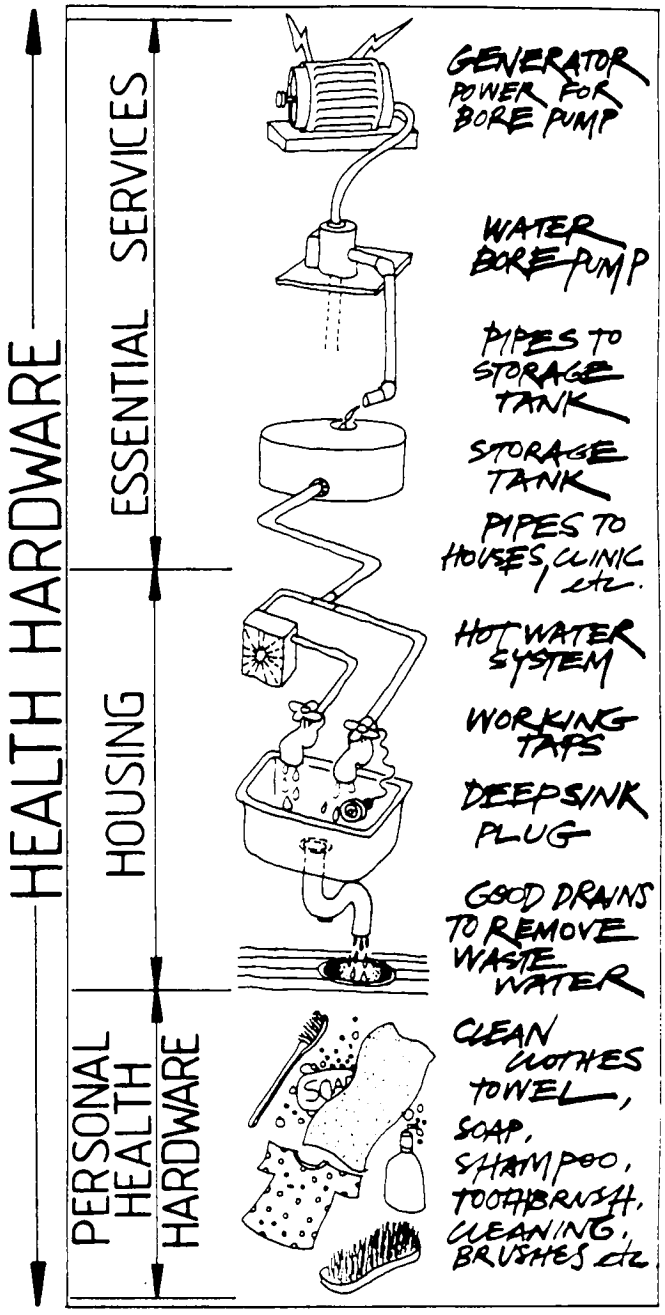
"Health hardware" was the name used to describe those essential "things" required if Anangu are to be able to participate in the nine healthy living practices outlined in the U.P.K. report.

As an example: To achieve the most important healthy living practice - <u>washing children under 5 years of age, **all**</u> the items shown in the diagram (right) would be necessary.

Whether these health hardware items are called "essential services", "housing" or "personal" is unimportant - what <u>is</u> important is that <u>all</u> are essential to enable any child under 5 to be washed.

The U.P.K. survey work revealed that the most hardware failures occurred in the housing and personal areas, and less in the essential services area.

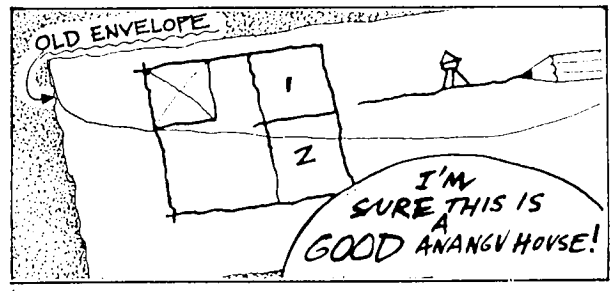
For each of the nine healthy living practices set out by U.P.K. there is an associated range of health hardware. (<u>See U.P.K. pages 7 - 27</u>).

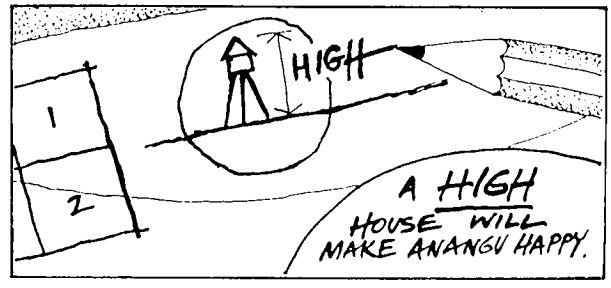


2.5 "Housing" Facts and Fiction

During the U.P.K. survey work many discussions were had with community staff and Government support agencies. These discussions revealed many "theories" about the "ideal housing solution for Anangu".

These are set out below for your interest. Whilst reading the "fictions" it is important to note that the U.P.K. survey work produced a unique, detailed body of information about Anangu housing, enabling effective design and planning work to proceed on the basis of fact, not well meaning fiction.



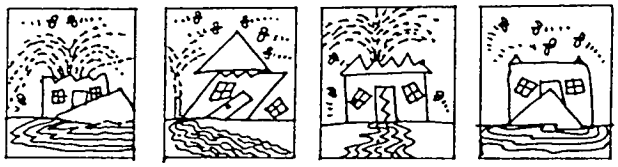


1. FICTION = "More houses will improve health ".

FACT = "Houses" per se will not improve health.

EXPLANATION = Most people (80%) do not use the main body of the "house" most (80%) of the time. Even the few houses in good repair are not used more by suburban standards. In fact there is evidence to show that the better the surrounding yard is developed (water taps, security, wind protection, shade trees) the better condition the house and health hardware is in. Outside yard areas should be seen as essential rooms of the house and as such require a substantial part of the building budget.

Some of the things houses can provide if well designed and maintained **may** enable people to improve their health.



2. FICTION; = "A good Anangu house would be ...

1) a mud brick house and use of local materials is better than a blockwork house.

2) Houses with bigger rooms will reduce crowding.

3) Round houses will make Anangu feel at home.

4) Anangu should build their own houses.

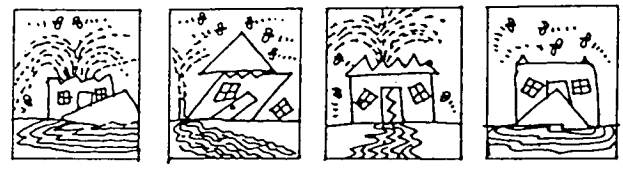
5) There must be some revolutionary way to make really cheap good houses.

FACT = These theories about the "ideal house" often miss the essential point of the house being a provider of health hardware.

EXPLANATION = Statement 2) was proven incorrect by the survey work carried out by U.P.K.

Statement 1) 3) & 5) are all possibly true but so unimportant in providing health hardware they should be considered last.

Statement 4) would bring Anangu in line with 95% of the world's population who construct their own dwellings but radically out of line with the Australian average of less than 6% of people who build their own dwellings.



3. FICTION = "Houses should be designed to Anangu needs."

FACT = Whilst everyone would agree with this idea, often the most basic and important needs are not stated.

EXPLANATION = Most Anangu would assume :

1) The house was safe.
2) The house had water.
3) The toilet would work.
4) It is possible to maintain the house

etc.

Government agencies and community staff have a responsibility to make Anangu aware of these most important needs and insist that future designs and upgrading consider a simple priority:

1) Safety (structural i.e. the building will stand up, and electrical).

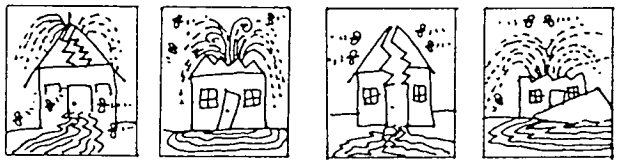
2) Health (See "House as health hardware provider".)

3) Other needs (number of rooms, materials, details).

4. FICTION = "The more houses the better."

FACT = Maintaining the asset (and those health hardware facilities) is as important if not more important than providing the original asset.

A poorly maintained building not only no longer provides health hardware but will be a real health hazard (e.g. a non-ventilated wet area with a blocked toilet and leaking shower with foul water infiltrating bedrooms on a hot summer's day!)



5. FICTION = "Lack of funding by Government is the main reason why people do not have housing."

FACT = U.P.K. found little evidence to support this idea. More housing projects may be started with more funding but it is unlikely that in five years time the total number of habitable houses will have increased.

The main reasons for this are:

A) Poor timing and administration of funding to communities.

B) Known design failures continue to be funded and built.

C) Poor documentation (if any) with which to assess features like design faults, materials appropriateness, tender prices, construction on site.

D) Letting of "difficult to perform" contracts to inappropriate builders, to achieve the lowest tender price.

E) No maintenance considerations in housing funding.

F) No mains services considerations in housing funding.

G) No landscape or yard component considered in housing funding.

Since the completion of U.P.K., **A.P. has worked hard to improve many of these problems.** Unless these problems continue to be attacked any amount of increased funding will not result in additional useful assets or health hardware facilities.

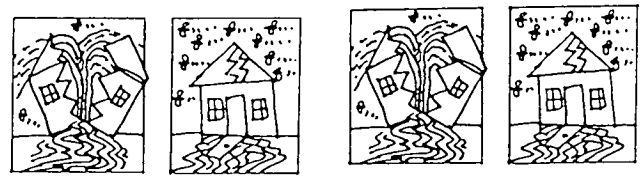
6. FICTION = "Housing is not the answer for Anangu".

FACT = 1) If "housing" refers to a model of house similar to that of most staff housing on the lands, the statement is probably true. The very model that Anangu aspire to i.e."proper house" = "teachers/staff house" performs poorly even for staff trained in the use and minor daily maintenance of houses. (See U.P.K. p. 52).

2) If the suggestion about "housing" infers a return to wiltjas or other alternatives two important points must be considered:

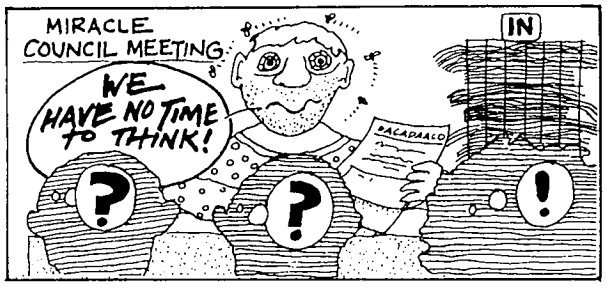
a) Anangu expectations of a "real house" will be changed slowly and only by providing better staff and Anangu housing models.

b) Whatever alternative is proposed should address the priority of providing health hardware facilities.



3. YOUR PROJECT - THINGS TO CHECK

The following information and checklists were prepared for you to improve the quality and chart the progress of your next building project.



3.1 Early Planning

* Have your submissions for funding included U.P.K. information to support your proposal? (i.e. health hardware and importance to health, U.P.K. statistics etc.).

* Will your project contribute more health hardware to your community?

You may need to re-define the project to ensure that washing and laundry facilities are included in offices and stores for example. (i.e. facilities to wash young children, failproof waste systems, resources to maintain the facilities).

* Have you discussed the project at this early stage with:-

A) Pit Council's essential services section (availability of mains services advice).

B) A.P's building supervisor (possible consultants, builders advice).

C) U.P.K. public health officer (specific U.P.K. details, advice).

3.2 Funding

The main questions when an offer of funding is made will be:

<u>* How do you get the money?</u>

* When will we have access to the money?

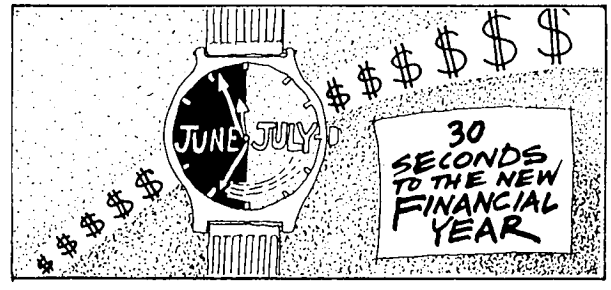
* By when does the money have to be "committed" and what is required?

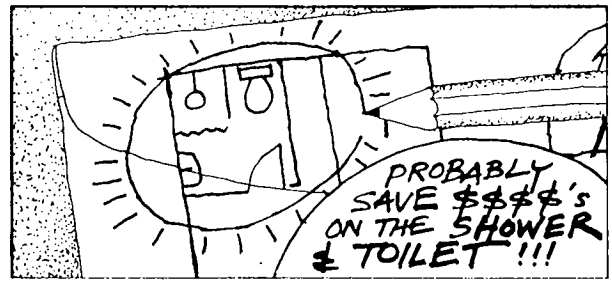
* How is the money released?

* By when does the money have to be fully spent?

<u>* Have you got enough money!</u>

* How much building can we get for the available money?





The first question can be discussed with the funding body; but to answer the second question you may need additional help. Here are some ways you may go about working out how much the money will buy.

1. Use the costs of recent similar projects in your community (i.e. last year's houses cost ..... therefore this years will cost .....).
Some things to consider with this method:

a) Are the houses/buildings similar in area and finish?

b) Is the total project similar in size? (The more houses built at a time, the more efficient the process - the cheaper each house - therefore to compare the costs of a 6 house building project with a one-off house would be a mistake.

c) Add on a yearly inflation factor of say 10%.

2. Preliminary costing with special buildings such as stores/offices/arts buildings etc. you may have no comparisons.

A rough guide to costing, set out below, may be used.

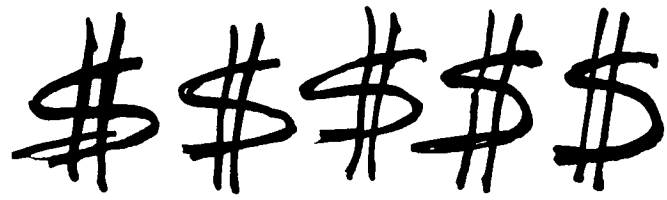
	Type of area	Cost per sq.m.
1.	Enclosed areas	$1,000.
2.	Verandahs and semi-covered areas (carports etc.)	$300.
3.	Wet areas (toilets/showers laundries etc.)	$1,500.
4.	Yard areas (to allow for fencing, drip lines, gates, taps, trees, B.B.Q's etc.)	$10-$15
5.	Fees for consultants (if required): Approximately 10% of total building costs.	

Things to note about this "rough" costing method.

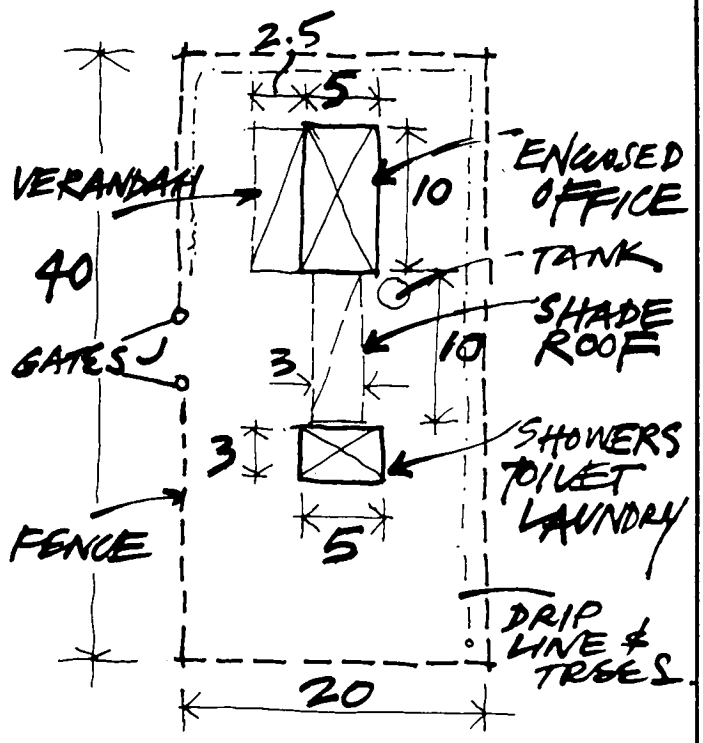
a) As projects get bigger costs should fall slightly.

b) If you use a Consultant/Designer, ask them to provide a cost estimate and compare their figure with yours. Ask questions.

c) Funding bodies rarely have information about building costs and your exact needs when granting funds. Therefore some projects may be impossible to build with the available funds. This quick check may help you discuss this early on in the process.



Example:
(Also note: One metre is about equal to a pace so pace out what you think will be your space requirements then proceed to cost as follows:)



1)	Enclosed 10 x 5 = 50 x $1,000	= $50,000
2)	Verandah 10 x 2.5 = 25 x $300	= $7,500
	Shade roof 10 x 3 = 30 x $300	= $9,000
3)	Showers & laundry 3 x 5 = 15 x $1500	= $22,500
4)	Yard area 40 x 20 = 800 x $10	= $8,000
	TOTAL	$97,000

For Consultants fees (if required) add approximately 10% of this total i.e. 10% of $97,000 = $9,700

TOTAL PROJECT COST = $106,700

3.3 Funding checklist

* Have you on file a written offer of funding?

* What is the funding timetable?

  Date funds offered -

  Funds to be committed by -

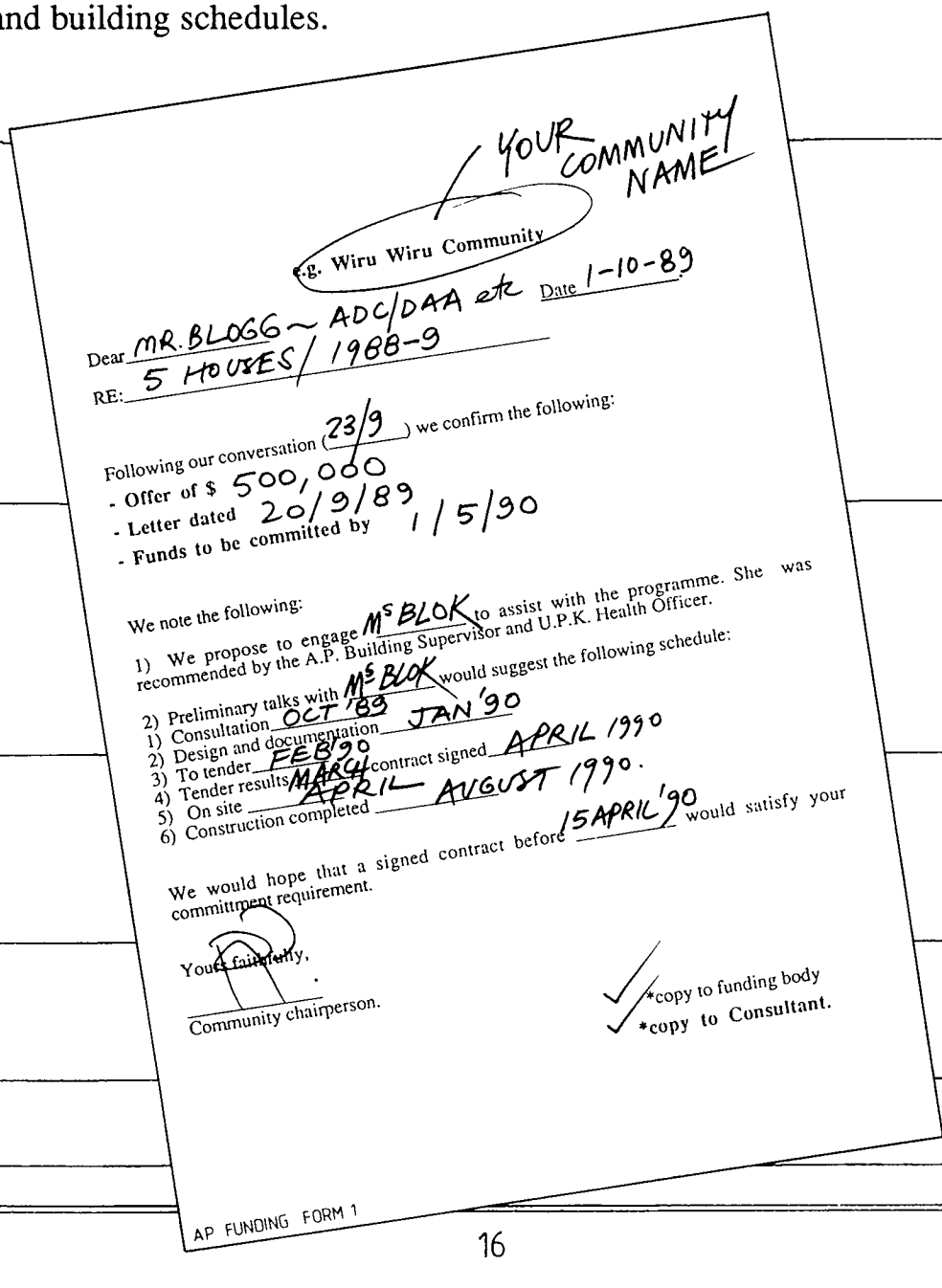
  Funds to be expended by -

* By comparing the above timetable to the schedules given in U.P.K.(p.53 U.P.K) you can determine if it is possible to achieve these funding deadlines. If a consultant is to be used it is important to discuss their design work and building schedules.

* Will the funding provide the facilities you need? (including health hardware facilities as required by U.P.K.)

* Write to the funding agency -
Confirm: the funding offered and requested deadlines.
Inform the agency of your proposed time schedule with allowance for :
- design consultation
- preparation of design documents
- calling tenders
- construction
- your consultant's name and their preferred schedule for the project

A sample letter is set out below.



YOUR COMMUNITY NAME

e.g. Wiru Wiru Community

Dear MR. BLOGG ~ ADC/DAA etc Date 1-10-89

RE: 5 HOUSES / 1988-9

Following our conversation (23/9) we confirm the following:

- Offer of $ 500,000
- Letter dated 20/9/89
- Funds to be committed by 1/5/90

We note the following:

1) We propose to engage Ms BLOK to assist with the programme. She was recommended by the A.P. Building Supervisor and U.P.K. Health Officer.

2) Preliminary talks with Ms BLOK would suggest the following schedule:

1) Consultation OCT '89
2) Design and documentation JAN '90
3) To tender FEB 90
4) Tender results MARCH contract signed APRIL 1990
5) On site APRIL AUGUST 1990.
6) Construction completed

We would hope that a signed contract before 15 APRIL '90 would satisfy your committment requirement.

Yours faithfully,

Community chairperson.

*copy to funding body
*copy to Consultant.

AP FUNDING FORM 1

Dear_____ Date_____.

RE:_____

Following our conversation (_____) we confirm the following:

- **Offer of $**
- **Letter dated**
- **Funds to be committed by**

We note the following:

1) We propose to engage _____ to assist with the programme. She was recommended by the A.P. Building Supervisor and U.P.K. Health Officer.

2) Preliminary talks with _____ would suggest the following schedule:
1) Consultation_____
2) Design and documentation_____
3) To tender_____
4) Tender results _____/ contract signed_____
5) On site _____
6) Construction completed _____

We would hope that a signed contract before _____ would satisfy your committment requirement.

Yours faithfully,

_____
Community chairperson.

*copy to funding body

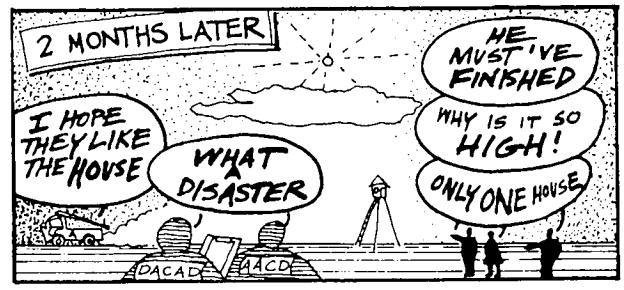
***copy to Consultant.**

3.4. Consultation

While ever buildings are being
- funded
- designed or
- built

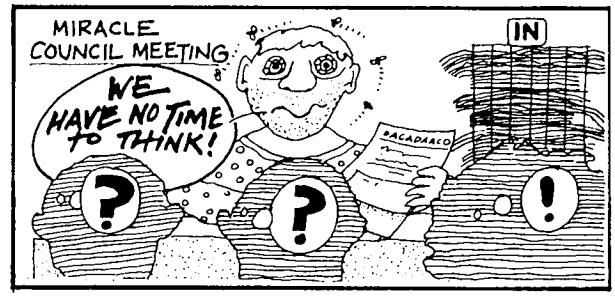
without substantial Anangu input, the process of consultation is essential to ensure that these resources are finally beneficial to Anangu.

To achieve this, both sides of the consulting process have responsibilities. These are listed below:



The "Consultant" Government, Agencies, Advisors, Designers.	"The Community Anangu, Committees
1. Provide enough information (drawings, models, site visits etc.) to ensure Anangu can understand a design or design options.	1. Give approval at each stage to proceed with the project. (This could be linked to payments to the Consultant).
2. Early in the process inform Anangu where existing essential services are available (power, water, waste).	2. Advise on the siting of buildings especially on specific family/community links which are important to the community.
3. Recognise the U.P.K. priorities for health hardware in the design of any building work.	3. Inform the Consultant of specific issues important to the development plans, dangerous roads etc.....).
4. Designs and details should acknowledge U.P.K. priorities and guidelines to ensure new buildings do not require excessive maintenance.	4. Provide the required schedule for the project.
5. Recognise financial constraints and inform Anangu of their implications.	5. Provide a list of builders who have performed well for the community in the past.
6. Provide efficient building construction and contract administration to maximise available funds. (Assess builders appropriateness for project).	

Set out below are some checklists which may help you get the most out of your Consultant. Use them with your Council at meetings with your Consultant.



The Consultant's Responsibility

1. Provide enough information to Anangu

*Are you clear where the construction will take place?

*Has the site been pegged?

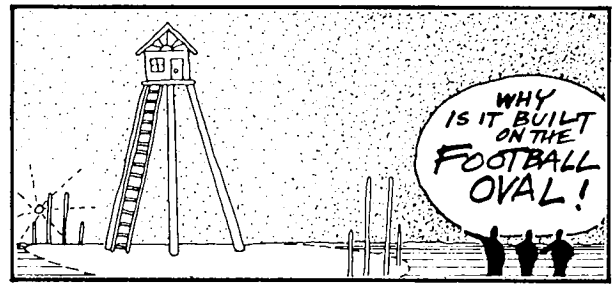
*Do you have copies of drawings and specifications?

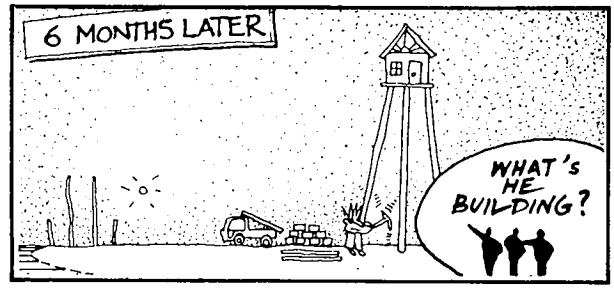
*Have you seen a model of the building?

*Can you answer all the questions in section 3 below from the drawings/ models/specification or schedule you have?

*Have you been taken to similar existing buildings?

*What items have you been asked to make decisions about? (colours for fittings, heights of benches, samples of tiles, etc.)





2. Early in the process inform Anangu where essential services are.

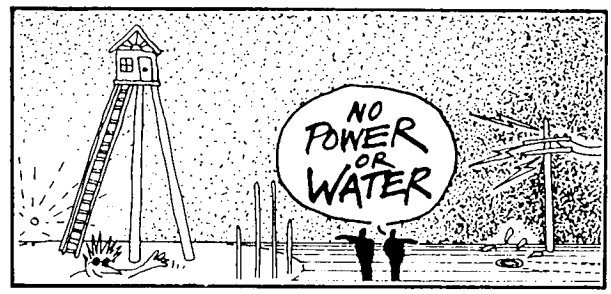
*Is the building near (less than 50 metres) to:

water
common effluent line
power supply?

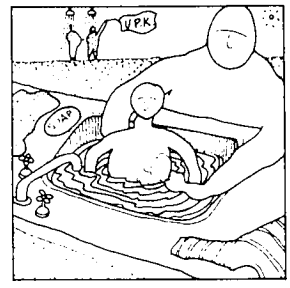
Has a drawing showing all these services been obtained?

If the services are a long way from the proposed building, has the cost penalty been explained to the community?

*Are there other options for siting the building?

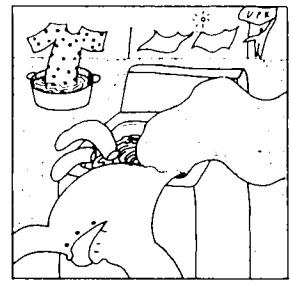


3. Recognise the U.P.K. priorities for health hardware.



Have you checked the following details:

*Tap quality: Will the tap handles fall off?

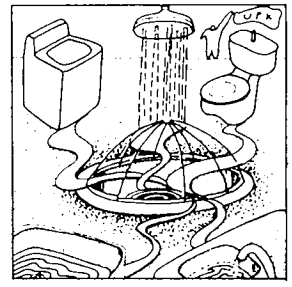


*Big tubs for washing children.

*Protected pipework.

*Adequate hot water system.

*Cold water supply only to washing machine point.

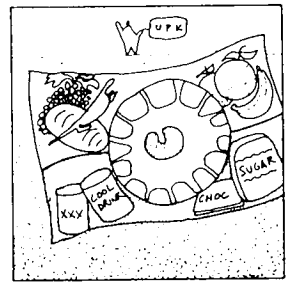


*Soap dispensers.

*Minimum in the slab drainage.Will the bathroom pass the "nappy test"?

*Are there 2 toilets for each house (more for community buildings) ?

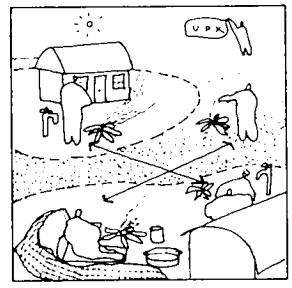
*Is there a pit toilet (dry toilet) to take disposable nappies and provide a back up if a flush toilet fails?



*What happens if all the bathroom wastes fail? Will the house/clinic etc. be affected?

*Are yard taps provided; are they double taps - one for drip irrigation, one for cooking/billies?

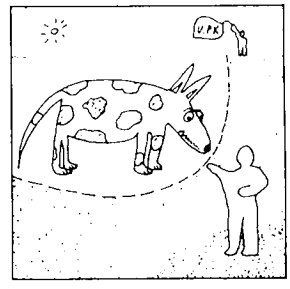
*Is there a water tank provided in the yard?



*Are there any yard cooking facilities?
Is there any planting provided for in the budget?

*Are there fences to provide security?

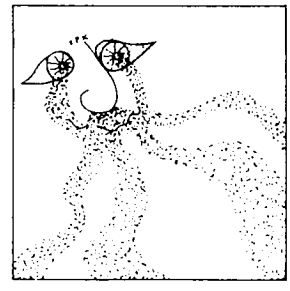
*Are the fences protected from motor cars and damage?



*Will planting be in the best place to reduce wind driven dust!

*How will the plants be protected from dogs, kids etc.?

*How will yard tap run off be handled? Will it form mud and encourage dogs and kids to play in it together?



*Will the siting/orientation of buildings and openings such as doors and windows in the buildings avoid the worst of wind driven dust?

*Will new vehicle access routes increase dust within the community and can existing roads be re-used?

*Can the planting from a number of houses be combined to form a larger windbreak for the community as a whole?

*Are there adequate verandahs and protected outdoor areas around the house/office/clinic?

*Has the building good orientation?

*Is it possible to ventilate the building?

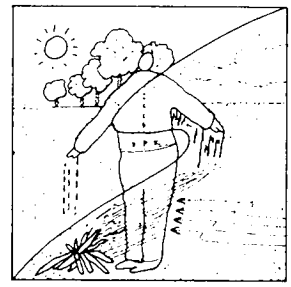
*What type of windows are being used?

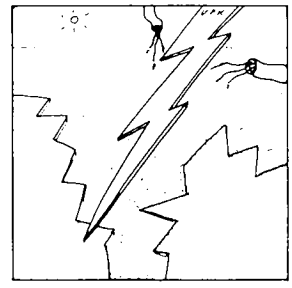
*Is any glass being used in construction?

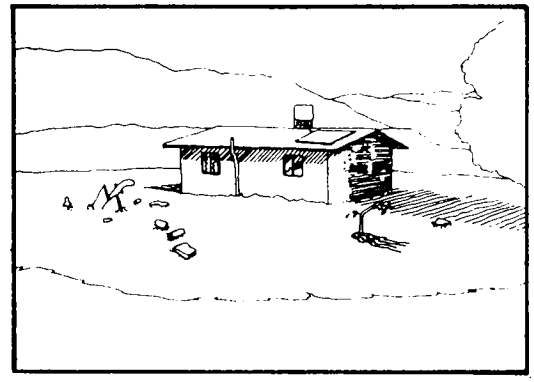
*Are any fragile materials being used?

hollow core doors
fibro cement sheet
plasterboard
glass
unprotected copper pipe

*Are all power points and switches water and dust proof? What height are they mounted?







4. Ensure the design and details allow for minimum maintenance.

* How big is the pipe connecting the toilet to the septic tank?

* Is an alternative dry toilet provided?

* Will the bathroom/toilet area of the house/office etc. affect the rest of the building if it fails?

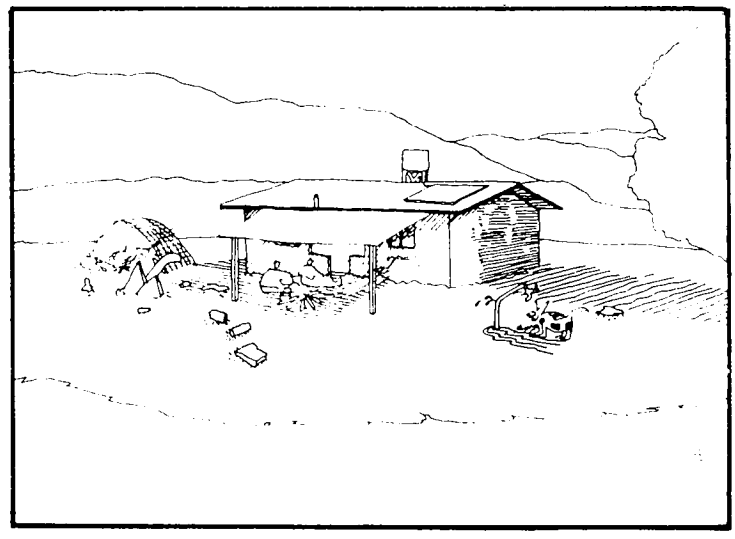
* Are all tap handles "anti-vandal" type or are they going to fall off?

* Are yard taps well protected?

* Is the septic tank protected from cars with mounding and/or a fence?

* Is there any glass in the building?

* Will the windows continue to provide ventilation? Will the tracks fill with dust and jam?



* Are there hollow core doors or any fibrous cement sheet or plank material in the building?

* Are power points and switches mounted 5 feet(1.5metres) above floor level?

* Has the store a supply of:
  - toilet brushes/brushes and soap
  - brooms
  - mops
  - plungers for unblocking drains
  - spare plugs
  - light globes
  - fuse wire?

* Are these store items on display and subsidised by other products?

5. Recognise budget constraints (money line) and inform Anangu

* Are the funds available enough to complete the required work?

* On what basis has the Consultant done a costing?

* Are there things that can be deleted from the building without totally changing the building's standard of health hardware and surrounding yard if the budget is exceeded? Have a list of these items been provided to your Council for discussion?

6. Provide efficient building construction and contract administration

* Do all the builders asked to tender on a project have experience working for Anangu communities?

* Has the Consultant checked their previous performance?

* Is there a contract for the work?

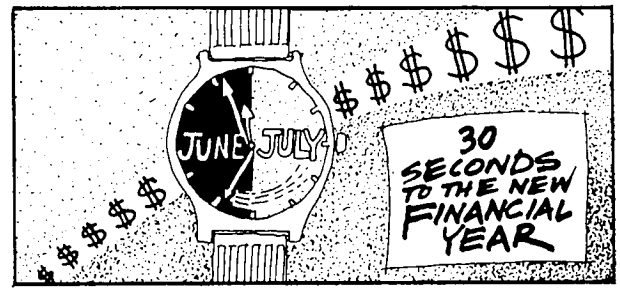
* How long will the work take?

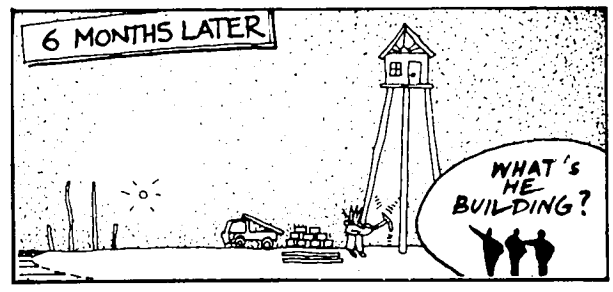
*Where will the builder and all sub-contractors
a) camp during the works
b) store materials
c) get access to power and water?

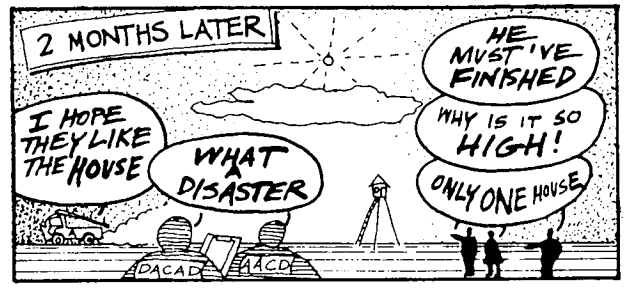
* Who will check the work before paying the builder? How often will the work be checked?

* Will the builder need to use any community machinery?

* Will the builder use any Anangu to help build the building?







The Community's Responsibilities

1. Give approval at each stage to proceed with the project. (This could be linked to payments to the Consultant).

* Has the community/family/committee spent time considering the work of the Consultant?

* Has the design/plan/idea been discussed and a decision made to proceed with work?

* Have any changes required been written down and given to the Consultant?

* Is there some part of the work you do not understand? Have you contacted the Consultant?

* If the work is satisfactory, has the Consultant been paid?
See sample letter.

2. Advise on the siting of buildings

* In the case of new housing, are the houses located near family members as required?

* For offices/clinics/stores etc. are these located in convenient places for the community to use?

* Has the Consultant advised that it is difficult to get power/water/waste to the chosen site?

* Has the siting of buildings been put to a full Council or community meeting for decision?

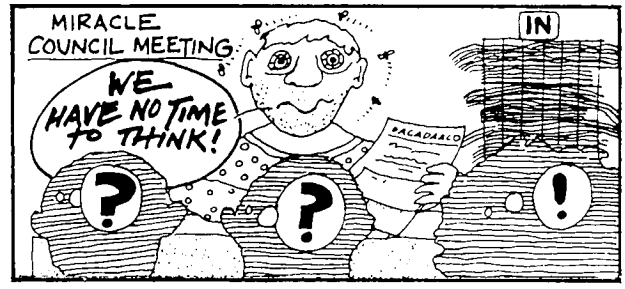
*Has the Council/Chairman/Advisor informed the Consultant of any problems with siting?

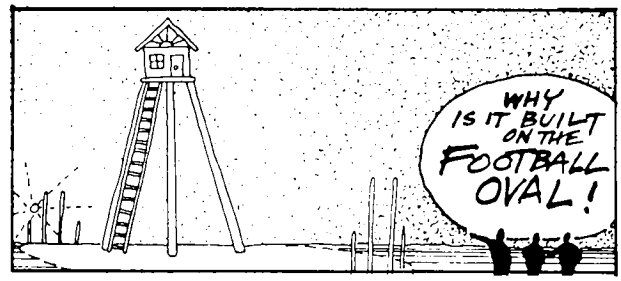
* Has the Council given to the Consultant any maps/drawings or earlier reports which may assist in planning future work?

* Is there any local information the Consultant should know?
- prevailing summer/winter winds.
- flood prone areas.
- dangerous roads.
- important camps.

3. Required schedule for the project

* Inform the Consultant of your schedule for the work. This should consider:
- when the community will not be available for consultation {holiday time, business time }
- money line and when the money has to be spent by.





4. A list of builders who have performed well for the community

* Was the scale of work the builder has worked on similar to the new project?

* Write down a list of builders and contact phone numbers and addresses for the Consultant. Include beside each name the work completed for the community.

Your community may want to have their own simple agreement between all the people involved in a building project. This may not be the main building contract but rather a simple way to ensure everyone remembers their responsibilities. See example.

Wiru Wiru Community YOUR COMMUNITY Date 1/6/89

Dear Ms BLOK.

Re: 4 HOUSES : 1989/90 PROGRAMME

Thank you for
- a) quotation/fees
- ✓ b) sketch design drawings.
- c) siting.
- d) detailed drawings.
- e) contracts/tender documents
- f) supervision visit, and contract administration
- (progress payments).
- g) final completion.

[We request more information about :
[DRAINAGE OF THE LAUNDRY
[TYPE OF TOILETS TO BE USED
[
[

(A) [We wish to discuss changes to:
[THE SITING OF MARY & JOE'S HOUSE
[(ON YOUR NEXT VISIT WILL BE O.K.)
[
[

(B) [We accept the work as received.
[

Please forward your invoice for this stage of work.

✓ Please include advice about the matters raised with your invoice.

Yours faithfully

PP

AP CONSULTANT FORM 2

Date _____

Dear ,

Re: _____.

Thank you for
a) quotation/fees
b) sketch design drawings.
c) siting.
d) detailed drawings.
e) contracts/tender documents
f) supervision visit, and contract administration (progress payments).
g) final completion.

(A)
[We request more information about :
[
[
[
[

(A)
[We wish to discuss changes to:
[
[
[
[

(B)
[We accept the work as received.
[

Please forward your invoice for this stage of work.

Please include advice about the matters raised with your invoice.

Yours faithfully

WIRU WIRU COMMUNITY HOUSING AGREEMENT

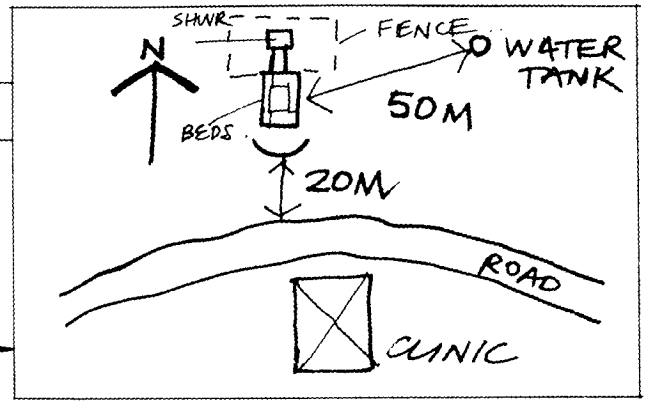
This is an agreement between:

1. Community Name: WIRU WIRU COMMUNITY,
2. The person to live in the house. Name: KUMANARA ANYBODY & FAMILY.
3. The building Consultant. Name: MS. K. BLOK
4. The building Contractor. Name: MIRACLE CONSTRUCTIONS.
5. The funding body. Name: ADC / SAHB.

A. The builder will start building 2ND MARCH '90.
and try to finish it by 2ND JUNE 1990

B. The consultant will organize all plans, the family and community requirements, approvals for payments, technical approvals of construction.

C. Rough plan of house: Location



D. Special notes on the house: i.e. fence - colour - fireplace etc. 2400 (8') FENCE AS SPECIFIED IN DRAWINGS, COMMUNITY TO PROVIDE STOVE AS DISCUSSED.

E. Cost of House $ 98,000
Cost of Consultant $ 9,000 INCLUDING ALL TRAVEL & ENGINEER COSTS etc....

F. Special things the community will do to help. PROVIDE BACKHOE & TIPPER TRUCK FOR A TOTAL OF 5 DAYS — PROVIDE POWER WATER & CAMPING SITE FOR BUILDER.

G. Special things the person that will live in the house will do. HELP THE CONSULTANT PEG THE HOUSE BEFORE THE BUILDER STARTS. AGREE TO PAY $10/WK RENT WHEN THEY MOVE IN.

Signed:
Contractor MC.. Consultant KD

Community WWC Occupant K.A.

Funding Body ..... FOR ADC. MLR. / SAAHB

AP HOUSING AGREEMENT FORM 3

COMMUNITY HOUSING AGREEMENT

This is an agreement between:

1. Community
   Name
2. The person to live in the house.
   Name
3. The building Consultant.
   Name
4. The building Contractor.
   Name
5. The funding body.
   Name

A. The builder will start building

and try to finish it by

B. The consultant will organize all plans, the family and community requirements, approvals for payments, technical approvals of construction.

C. Rough plan of house:
   Location →

D. Special notes on the house: i.e. fence - colour - fireplace etc.

E. Cost of House $
   Cost of Consultant $

F. Special things the community will do to help.

G. Special things the person that will live in the house will do.

Signed:

Contractor Consultant

Community Occupant

Funding Body

3.5 Essential Services

For the purposes of this design guide the essential services which will be discussed most will be:

* water
* waste
* power

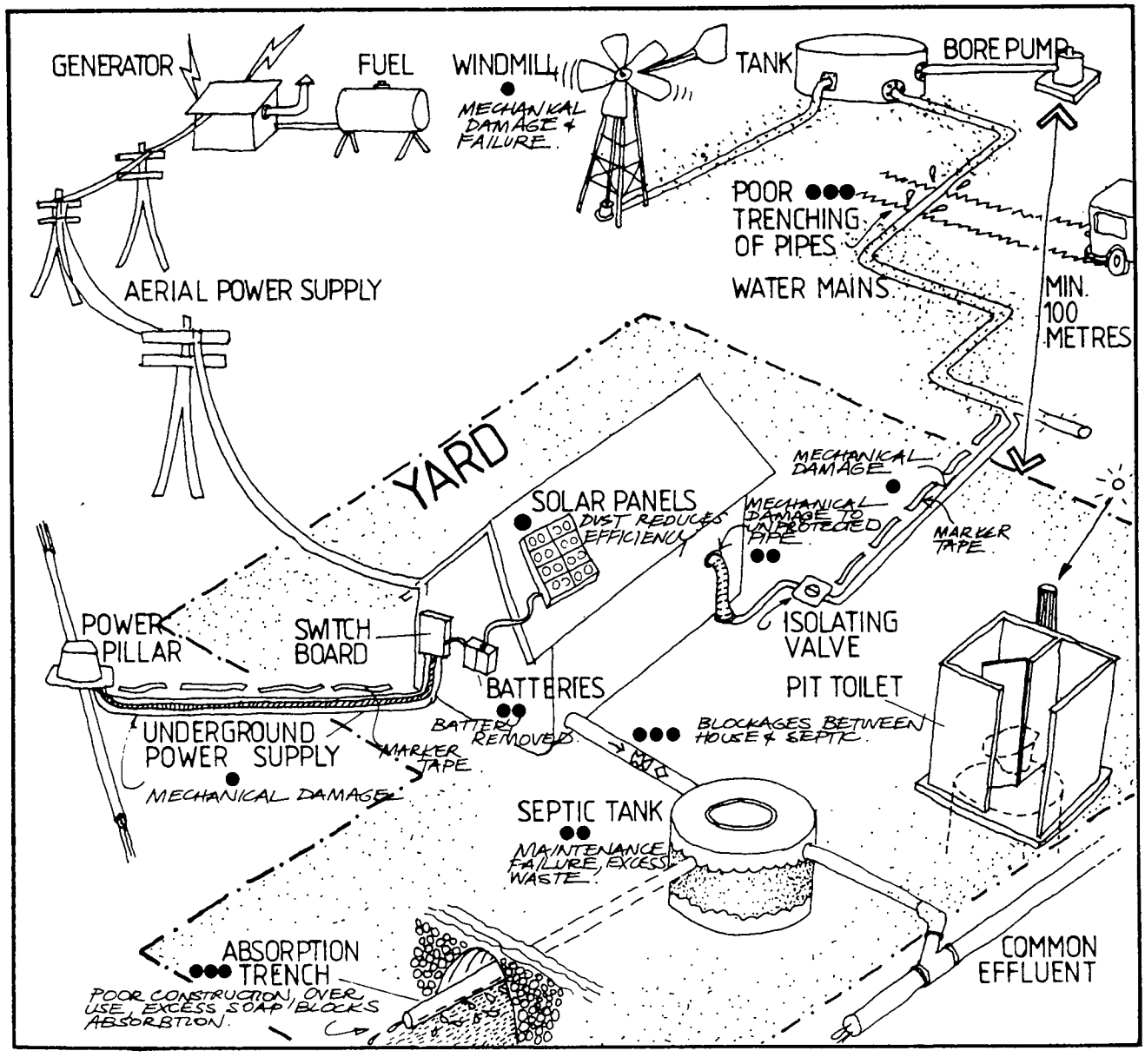
U.P.K. found that most problems in communities occurred:

a) Inside the house/building yards, that is, where water/power were finally distributed and waste was first collected.

b) With difficulties co-ordinating the location of services and buildings.

On homelands it was more common that the supply source of power and water had failed i.e. water : windmill not working, header tank in poor condition, main to living area leaking.
power: solar panels not operating, storage batteries gone, no fuel for power generator.

The diagram below shows different ways of providing water, power and waste services. It also shows the problem areas. The more dots - the bigger the problem.



3.6 Costs of services:

Often when deciding where to locate buildings compromises will have to be made regarding connection of essential services. The relative cost of these services will generally be in this order:

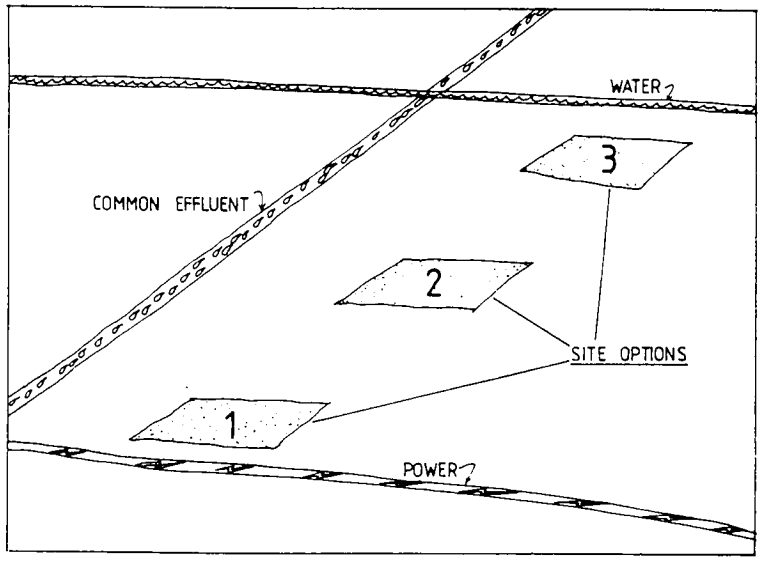
[power — most expensive
[waste drainage
[water — least expensive

(Some particular buildings or locations may change this order).

Whilst your building consultant should provide this information - you may know your community and services better, and should inform them of this information.

EXAMPLE

In the simple example shown below, the community has identified three possible sites for a specific building. You have obtained service plans from Pit. Council's Projects Section. Which site would be the cheapest to "service"? (and therefore keeping the most money in the budget for the rest of the building).



SITE 1 would have the shortest power and waste connections therefore almost certainly the cheapest alternative.

Essential Services Checklist

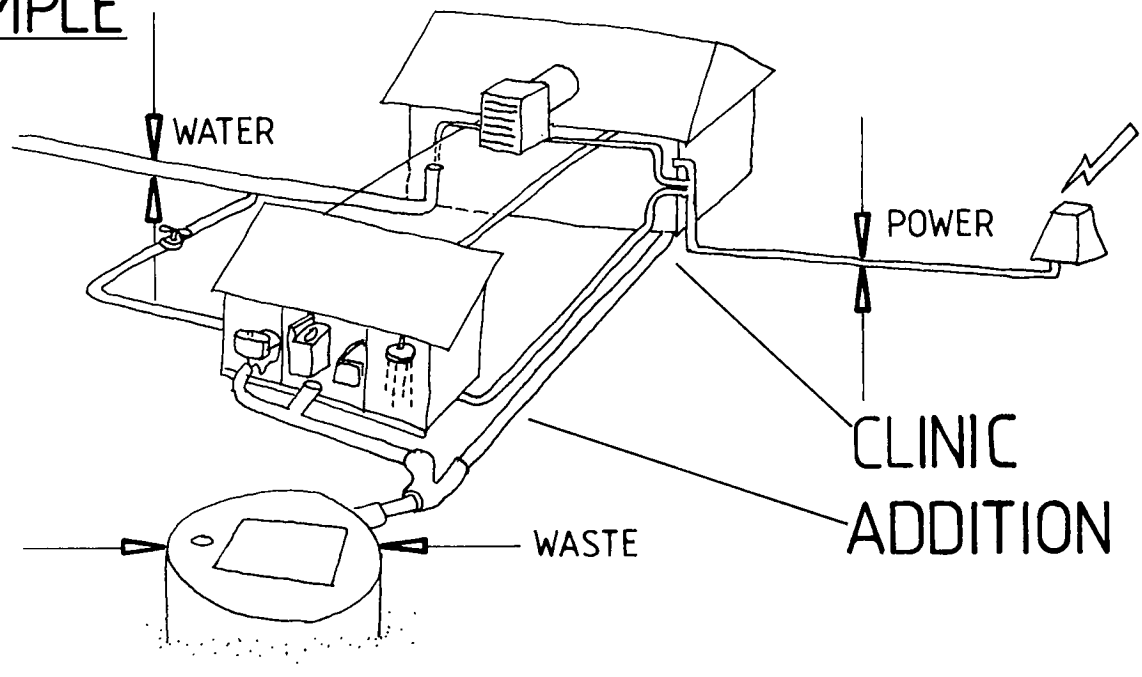
* Are there plans of power, water and waste services in the community and are they up to date?

* For any new building:
  - Is it built over any main service line?
  - Will any service connection require a long run (over 50 m)?

If so, can an alternative site be considered?

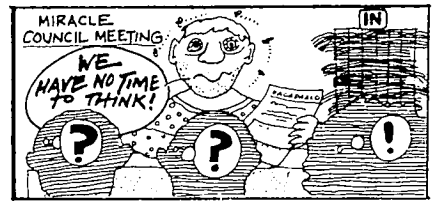
* For any renovation work:
  - Will any extensions be built over an existing service line?
  - Can the existing supply services be re-used or will there be increased demand from the new work for power, water or waste.

EXAMPLE



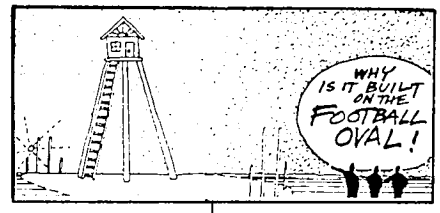
BUILDING	EXISTING	NEW	CHECK
Clinic			
A small clinic requires an additional shower, toilet, laundry block and air conditioning	1 x shower, toilet Ceiling: 2 x fans	Laundry, 2 showers, 2 toilets Air Conditioning	Septic tank size Water supply main diameter Power cable from mains to building Total power available

3.7 Finding the right site, design and builder



Below are some checklists which you could consider when deciding about a particular building site, whether a design is suitable or which builders to invite to price a building project.

A The SITE (also see Section 3.3 Consultation)



1. Community needs (this could be an individual, family or committee/council)

* Ease of getting to a building sited in this location
* Is car access possible without making new roads?
* Are there important links to other families or community services?

2. Essential services

* Easy access to (in order of importance in a community).....
  power
  waste
  water

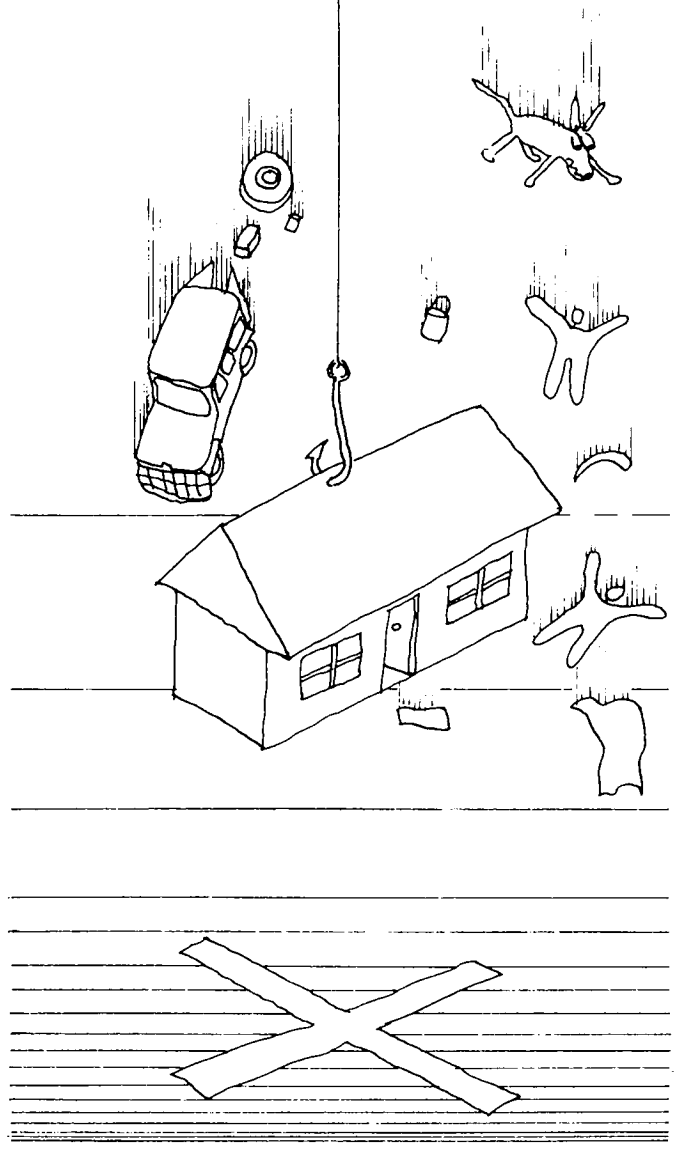
(in a Homeland).....
  water
  waste
  power

3. Local knowledge:

* flood prone areas
* dangerous roads
* areas used for other important activities such as Inma, sports, visitors camps etc.

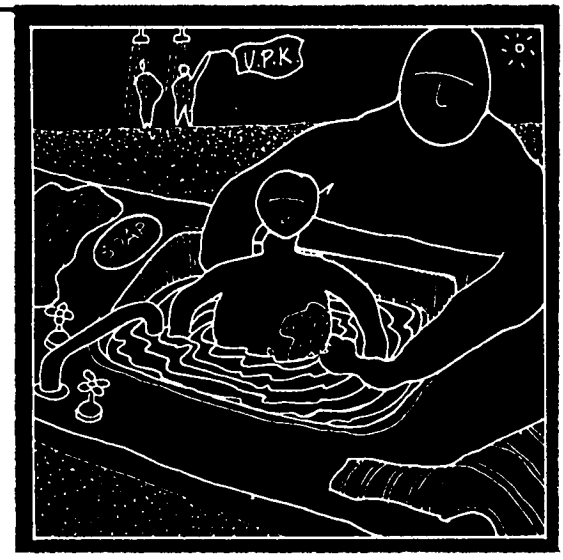
4. Future planning ideas

* Is there a community plan?
* Have services been placed in certain areas for future development?



B THE DESIGN

After extensive survey work of existing houses and failure points noted within these houses, U.P.K. noted nine simple design guides to improve the health facilities offered by any new building work. These are reproduced below. Note also the relative importance of these points 1,2,3 are essential, 4,5,6 important, 7,8,9 will help, but should be considered last.



1. WASHING FACILITIES PRIMARILY FOR CHILDREN UNDER 5 YEARS OF AGE.

What you're trying to stop

* Diarrhoeal disease
* Respiratory disease
* Pneumonia
* Skin infection
* Trachoma (See U.P.K. p.8 for more details)

Things to check on **any** design.

1. Is there a guaranteed water supply?

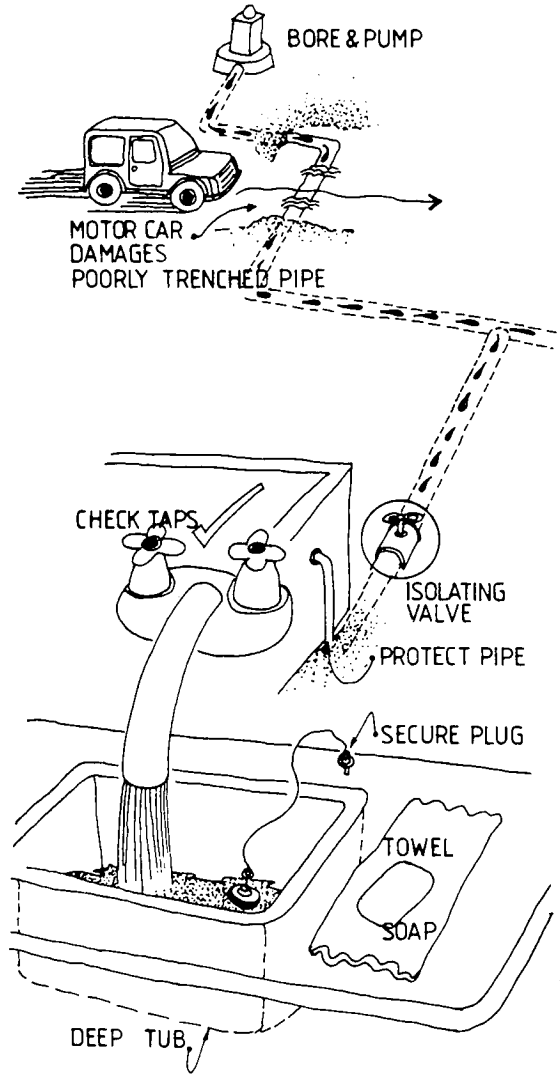
2. Can the building be isolated (by means of a stop valve) from the main water supply so that any plumbing repairs can be done simply and quickly?

3. Is there an independent house or camp water supply?

4. Will all water piping be safe from damage? (Are all exposed pipes well secured galvanised steel or protected copper?)

5. Will all the taps used have "anti-vandal" type handles? (Ones which do not fall off easily).
Will all the taps have either ceramic 1/4 turn cartridges or stainless steel seats to resist the effects of high salt water? (This could save a large volume of water usually wasted through taps leaking).

6. Will bathrooms be fitted with deep laundry type tubs, not small basins, to further encourage the washing of small children and babies.



7. If the building being planned is a community service building (office, store, clinic etc.) can an area be included for washing the children of Anangu who do not have easy access to house facilities?
(Note: Top-up funding may be available to provide essential health hardware associated with a new office/store etc. Contact D.A.A.. and refer to the U.P.K. report).

8. Will all hot water units be:

A) SOLAR, roof mounted on roof pitch if possible, with galvanised mesh screening to protect collector plates. If heat exchange type units are used, it is important the roof on which the unit sits is not drained into water storage tanks. (The chemical used in the heat exchange can pollute the water).

B) ELECTRIC: Low volume (50-100L) quick recovery units. This reduces the length of showers in particular allowing a greater chance for the same volume of hot water being available to more people.

C) CHIP HEATERS should be securely mounted and piping fully protected. (These are available from the Centre for Appropriate Technology, Alice Springs. See contact number in Section 1.3)

9. Whilst it is essential to see the main target group for washing as children under 5 years of age, shower and washing facilities for adults will also help set up behaviour patterns which children will tend to follow. These facilities should consider:

A) Privacy - No partition walls with feet showing.

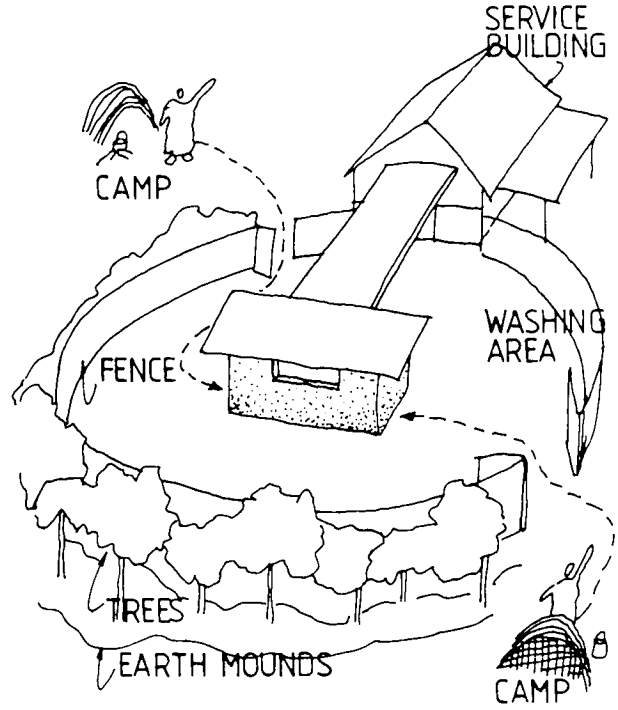
B) Shower seats for older people.

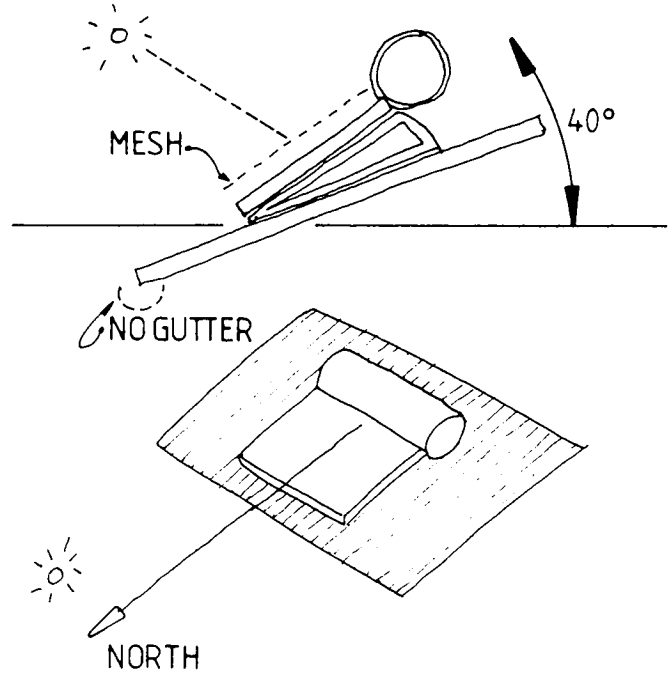
C) Clothes hanging within the shower area.

D) Separate entrances to men's and women's showers when attached to service buildings.

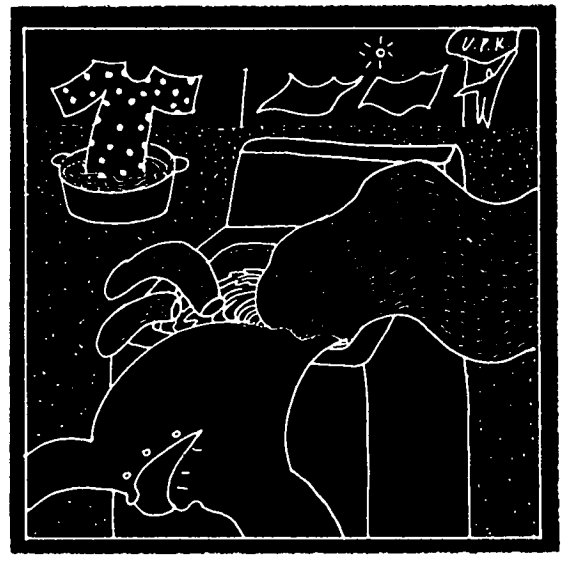
Other services which should be provided:

Stores should stock and subsidise if possible:
* soap (anti-lice)
* washers
* towels
* basin/tub plugs.





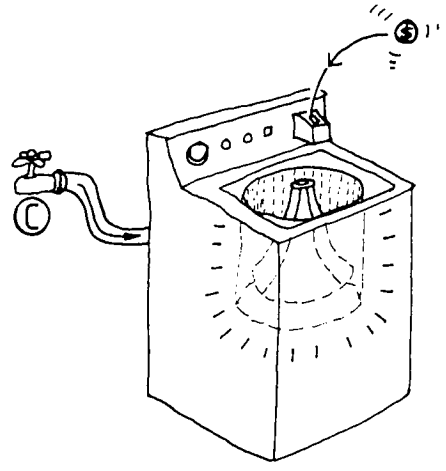
2. WASHING OF CLOTHES AND BEDDING.



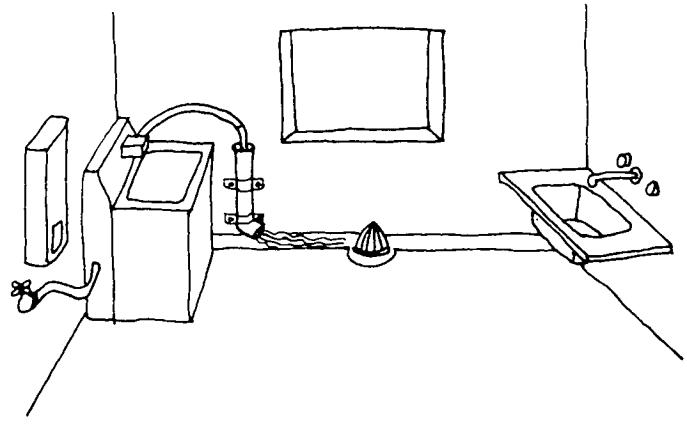
What you're trying to stop:
* Skin infection, particularly scabies
* Diarrhoeal disease

Things to check on **any** design:
In communities the following are important to check in any proposed laundry area:
1. Has your community a commercial (heavy duty) washing machine for every twenty people?

2. Can a coin operated commercial washing machine be provided in a new house/service building by the community? (with the coin fee being used to buy/maintain washing machines)

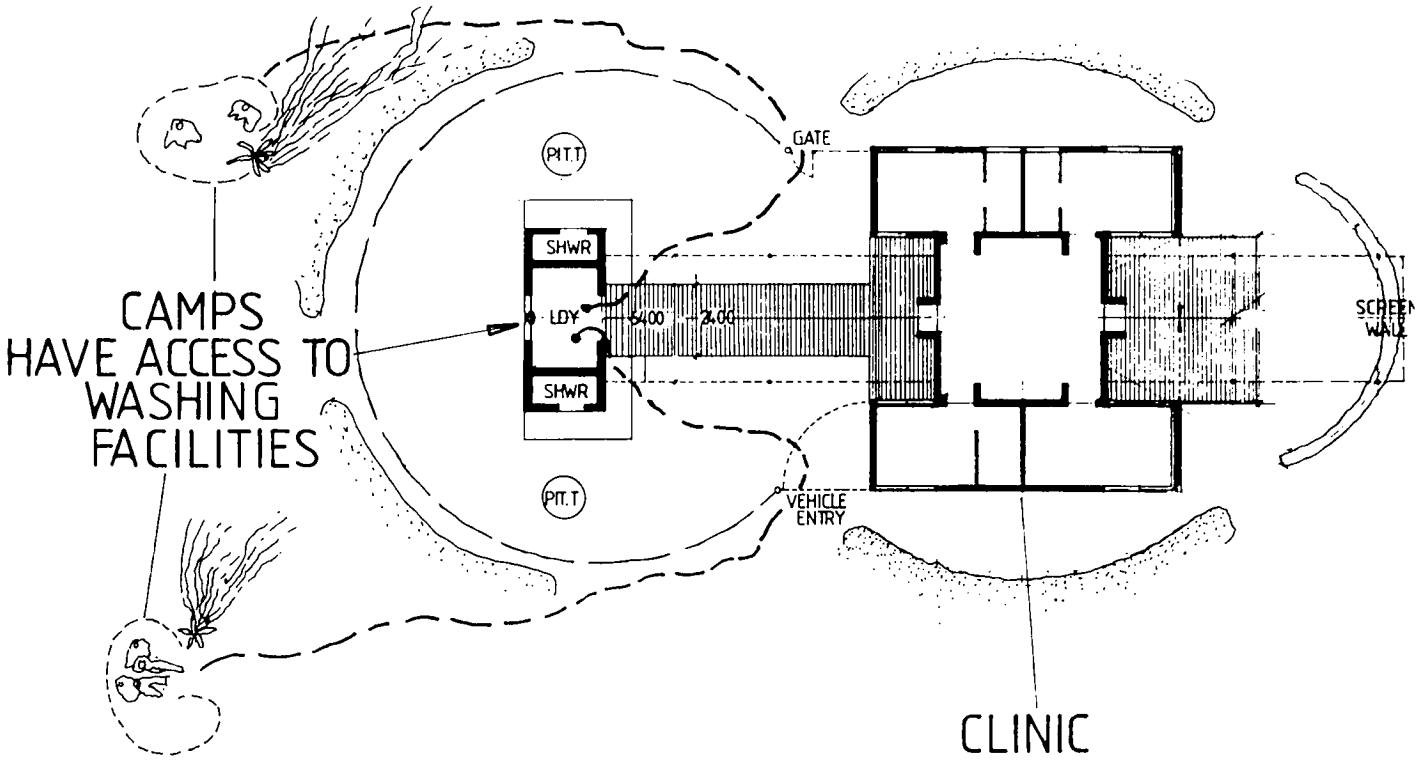


3. Are you certain that the washing machine has:
   a) low water use
   b) the ability to work on a cold water cycle only. Hot water is precious and should be used for washing children as a top priority.
   c) Its own waste point. That is the waste should not discharge into a tub that could be being used to wash children. (It is good if the washing machine and tub can be separated).
   d) Rust resistance to high salt water found in the area (i.e. stainless steel drum in particular).

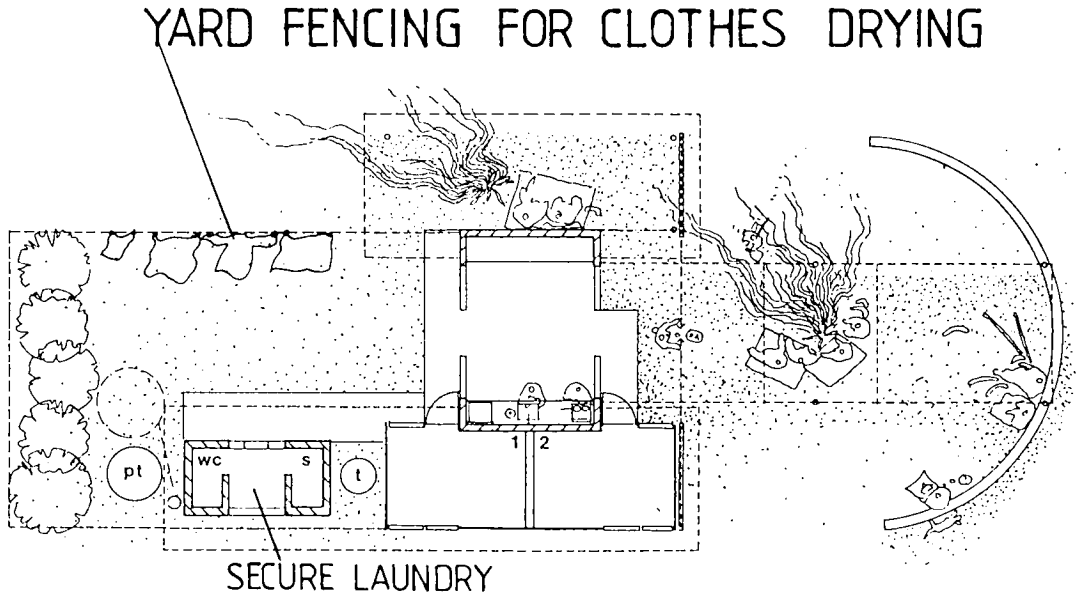


4. Coin operated soap powder dispensers should be installed. These should not be seen as luxuries but as essential in controlling the following:
   a) Drainage systems are commonly blocked by excessive soap powder being used.
   b) The discarded soap powder packets can block floor drains.
   c) Excessive soap in septic systems reduces the absorption capacity of the soil surrounding soakage trenches.
   d) The cost of wasted soap powder.

5. Fences can be useful to hang washing on to dry.
In homelands, the following could also be necessary:
   a) A hand-powered washing machine where there is no power.
   b) Large metal wash tubs with handles.



SERVICE BUILDING OFFICE, STORE, SCHOOL etc.



HOUSE

3. WASTE REMOVAL

What you are trying to stop:
* Acute and chronic diarrhoeal disease amongst children and adults.
* Skin infection
* Hepatitis
* Polio

Check the following points on your proposed project:

1. Most importantly: Minimising the effects of a waste system failure should be considered from the outset of any design. Due to the difficulty of providing maintenance on the A.P. lands it is essential that whilst waste failures may render the shower/toilet/laundry areas unusable they should not pollute the entire house or surrounding community.

2. Separate any laundry/toilet/shower area from the main building. This may be done in many different ways (as shown below).

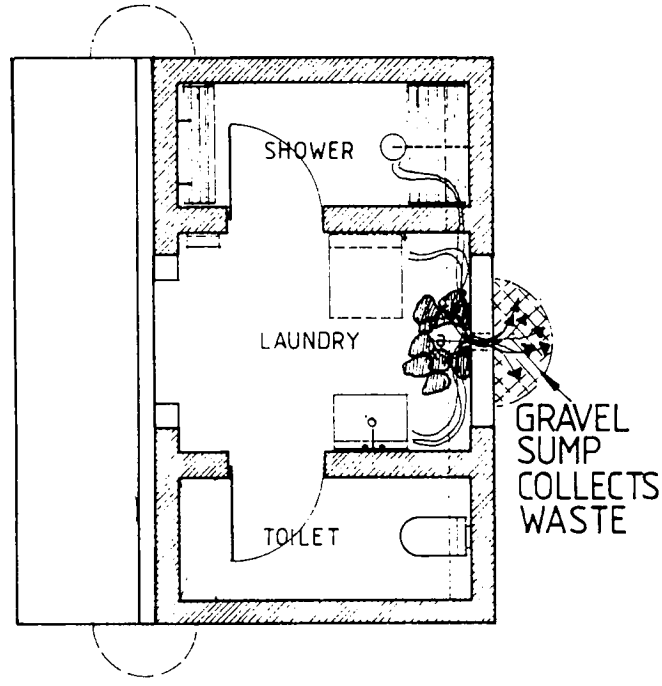
As a simple test of the idea - imagine you block all the drains/toilet/basins etc. Where will the waste water go? If it goes towards the house the design should be re-thought.

3. Reduce drainage "in the slab" to a minimum. The more pipes in the concrete slab, the more chance that:

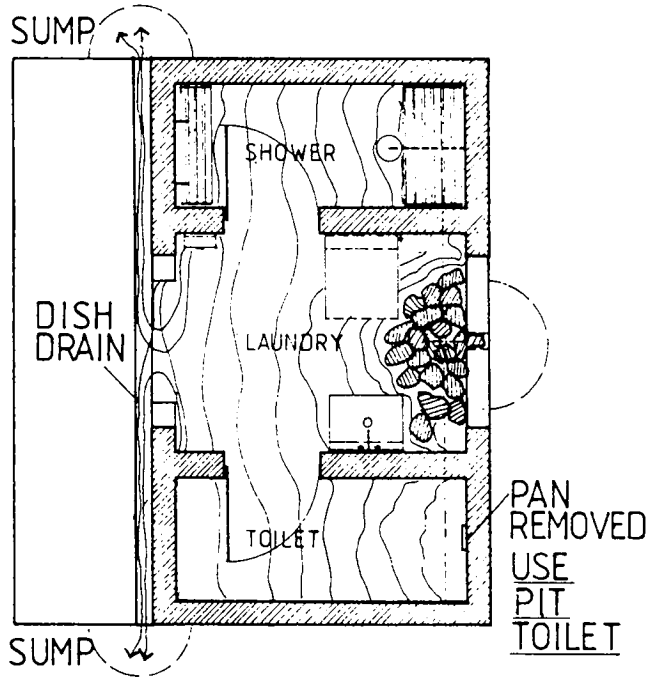
a) Faults will occur during construction.
(concrete down pipes, poor falls etc.)
b) The waste points will be blocked easily by nappies, towels, rag, clothes etc.
c) Small falls in the slab to different waste points will be poorly made and waste water will pond in washing areas.
d) Repair and cleaning will be difficult.

The alternative is to provide fewer, large, well protected drain points.

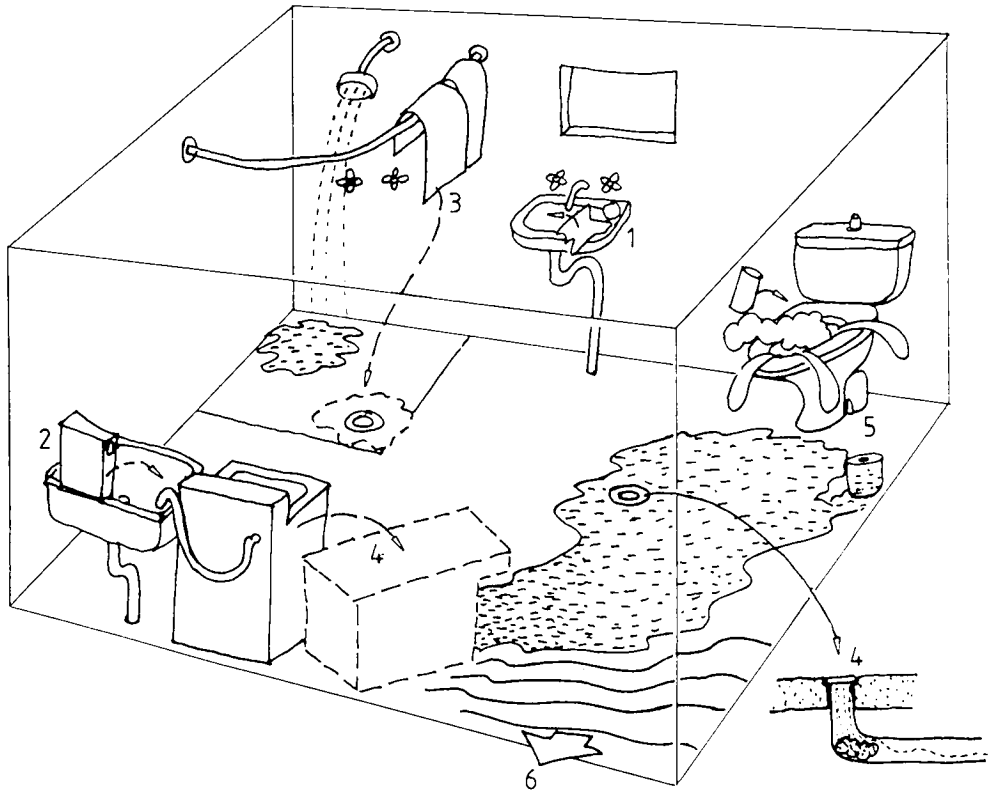
Imagine the following series of events:



10 NAPPIES BLOCK MAIN DRAIN



20 NAPPIES BLOCK MAIN DRAIN & SAFETY SUMP TOILET BLOCKED



BAD

1. A new cake of soap is opened over the basin, the wrapper falls into the basin, gets wet and blocks the waste pipe trap.

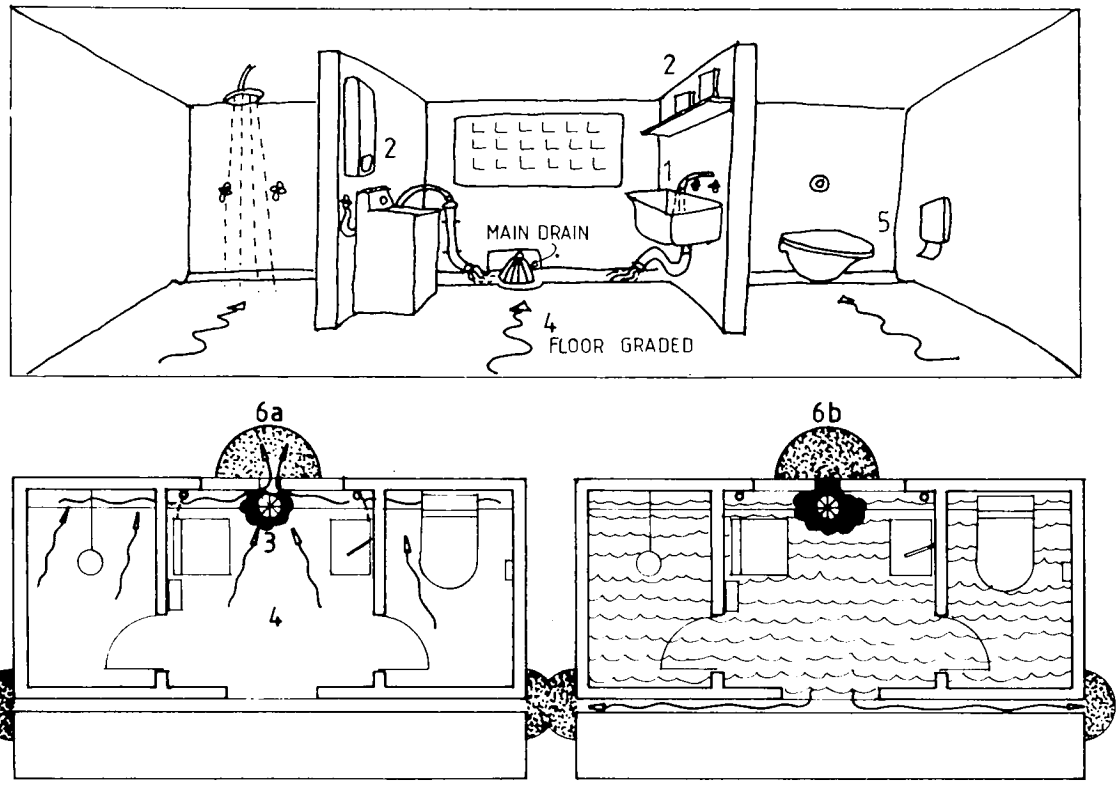
2. A box of laundry powder is used doing a load of washing. There is no high shelf so the box is rested on a small ledge between the laundry tub and wall. The vibration from the machine knocks the box into the laundry tub. During the spin cycle water softens the packet and soaks the soap powder. Pieces of wet cardboard and chunks of detergent sit in the tub and go into the tub waste pipe. (It is now difficult to wash a young child in the tub). Further loads of washing with soap suds and lint continue to block the waste pipe.

3. In the shower two nappies have been left to dry on a curtain rail near the small window. They fall to the ground and block the shower waste. The grading of the floor to the shower waste has never been quite right and there is always a pool of water near the corner of the shower.

4. The washing machine pump motor fails and to remove the dirty wash water requires tipping the machine on its side. Water floods the floor but the floor waste cannot cope with quantity of water. When the floor waste was installed a small plug of concrete accidentally went down the open pipe. Ever since it can take only a trickle of water, if any.

5. Someone coming to use the toilet finds that the roll of toilet paper has been soaked by the washing machine water. They use an old piece of rag as toilet paper and flush the toilet. Not long after a young child flushes a soft drink can down the toilet. It seems to disappear. The next toilet user finds the toilet backing up and flooding the bathroom. (Assuming the blockage can be fixed it will still be difficult to clean up the mess given the faulty floor waste.)

6. Where does the water go if the blockages are not fixed?



GOOD

1. There is no basin as such, rather a deep laundry tub, not for the washing machine but for general use and child washing. There is no connection between the tub trap and in-slab drain, so any rubbish will clear the tub and go to the main drain sieve.

2. Ideally there would be a soap dispenser to avoid overuse of powder and waste detergent boxes. In any case, the washing machine does not have a waste tub but rather a waste pipe which simply directs waste water to the main drain. Any lint etc. finds its way to the main drain sieve.

There is a shelf above the washing machine out of child reaching height, but if the detergent box still falls onto the floor it too will work itself towards the main drain sieve.

3. Assume the two nappies fall in the shower area. There is no shower waste as such to block. Two things may occur. First, the shower waste water flows around the nappies to the main drain and away or secondly, the nappies get washed down the main drain to the main drain sieve outside the shower area.

4. The floor, being graded steeply and in one direction can cope with this volume of water. The waste sieve can filter out any items likely to block the drain. The main floor waste has a 100 mm pipe attached which means that during construction you can physically check with your hand that no concrete has been dropped down the drain. It also makes unblocking the drain easier.

5. By providing positive floor grading to the main drain in the toilet area and separating the other wet areas from the toilet, there should be less water on the floor. Toilet tissue dispensers are suggested for reducing the volume of paper used in the toilet.

[Dry system toilets (pit toilets) provide an essential back up for failed flush toilets as well as an important "waste bin" method for disposable nappies and rags.]

The main problem area for blockages of toilets occurs between the toilet trap and entry to the septic tank. By using a 150mm pipe to connect these (not the standard 100mm) there is a slightly better chance that blockages will be reduced.

By providing the main drain to the rear of the toilet area it is possible to hose out the area for simple cleaning.

6. Here, several levels of failure have been considered:

a) If the beehive sieve is completely blocked, then the waste water flows through a hole beside the main drain, outside to a gravel sump ensuring waste water does not pond and attract flies, dogs and kids.

b) Assuming all of this becomes blocked, water would fill the entire area but be caught by a small dish drain and drained to two more gravel sumps, preventing waste water entering the house/store/clinic.

4. Ensure floors are well graded
(1 in 40 or 3" in 10' or 75mm in 3 metres). For ease of construction it would also be preferable for the grading to be in one direction.

5. Good ventilation of the general wet area.

6. Dry system toilets as an auxiliary facility to flush toilets. This is important for the following reasons:

a) The average population of each house is at least eight people but quite possibly sixteen people at many times of the year. One toilet is insufficient.
b) The maintenance of flush toilets is high. Consider the following comparison:
Average flush toilet system
1. Fragile vitreous china pan. Connection to wet area floor.
2. Plastic seat and lid easily detached or broken.
3. Cistern with several moving parts.
4. Water supply to toilet.
5. Waste pipe from toilet.
6. Septic tank requires regular de-sludging.
7. Will not accept drink cans, disposable nappies, excessive toilet paper, rags etc.

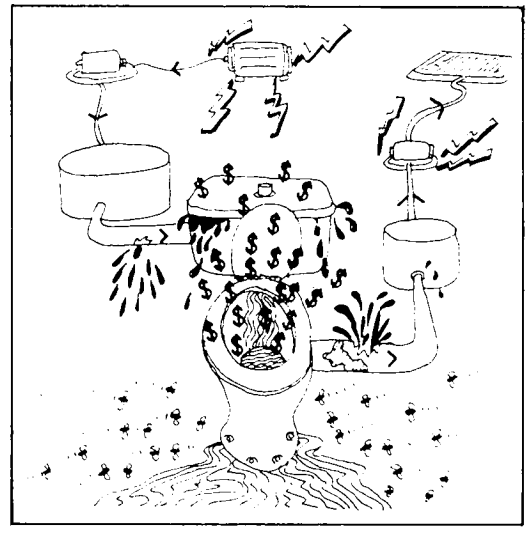
Pit toilet (V.I.P. or Nomad)
1. Concrete or steel pan.
2. Solid lid or no lid.
3. Hole.
4. No water supply to toilet.
5. No waste pipe from toilet.
6. Pit can be burnt at 6 month intervals to extend useful life to 10 years.
7. Will accept anything.

c) The dry toilets should be located no closer than 100 metres to any bore pumping point.

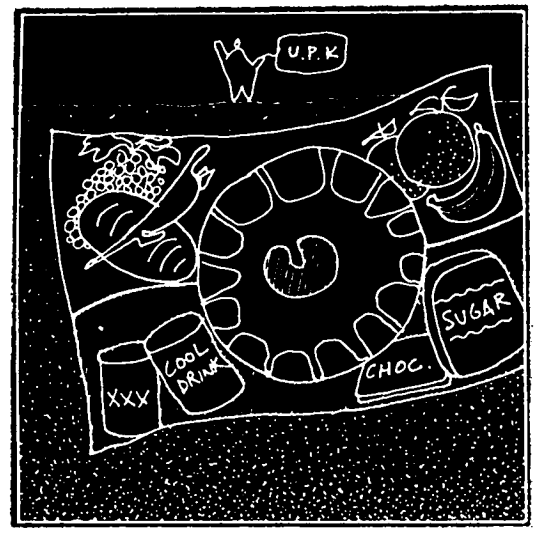
7. Gravel absorption pits near overflow drains will ensure, in the event of failure, that waste water will not stay on the ground surface attracting flies, kids and dogs.

What other personal health hardware/services are needed?

Cleaning agents (detergents, disinfectants etc.)
Brushes
Mops
Toilet paper (kept dry).



4. NUTRITION



What you are trying to achieve

The two areas of priority for nutrition action are:

a) Weaning foods and feeding practices in the first three years of life. Essentially this involves early introduction of solid food and increased caloric intake.

b) Strategies to reduce the prevalence of diabetes, hyperlipidaemia and cardiovascular disease! This will involve major changes in dietary practice by Anangu. The major aims are to:

i) Increase energy expenditure
ii) Reduce fat intake
iii) Reduce sugar intake
iv) Reduce total calorie intake
v) Increase fibre intake

What to check on your proposed project

Whilst recognising the importance of nutrition to health it is important to note that the "hardware" set out below is only part of any overall nutrition strategy.

1. House/Clinic/Office etc. yard areas to be a primary source of food.
(i.e fruit trees, beans, watermelons etc.)

With the provision of fencing, drip irrigation and plantstock it is possible to set up simple yard gardens. Side benefits of these gardens may also be:

* security for the house & yard
* shade
* dust protection for the house/yard

Important design ideas to encourage garden areas should be specified in any building contract (see diagram).

2. Provide food washing and cooking facilities.

Placing yard taps with good surrounding drainage, B.B.Q areas, drum ovens and a supply of firewood all help encourage preparing and cooking food.

3. Encourage yard cooking areas by providing wind protection, dust control and security.

4. Food storage.

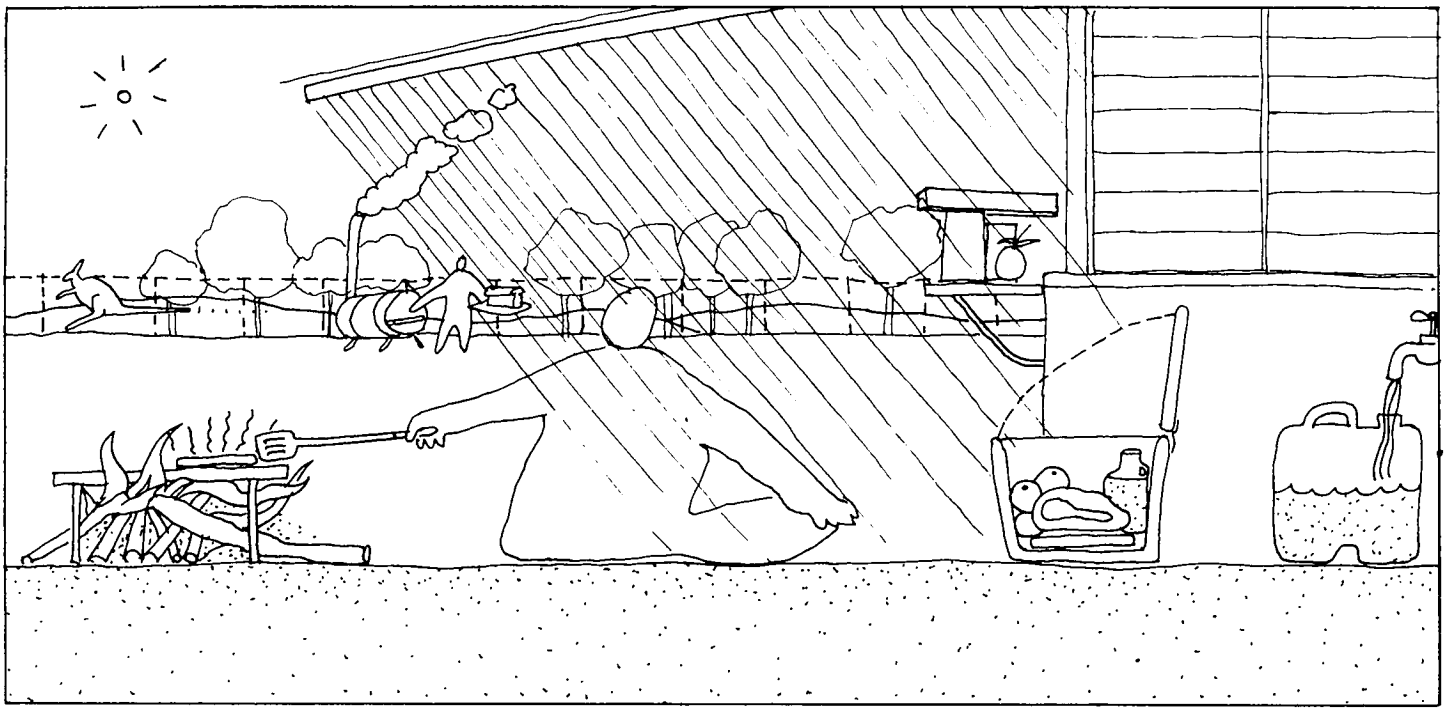
For Houses: U.P.K. found that when houses had working refrigerators they were usually empty. Anangu generally treat the store as the community refrigerator. This is not to deny the usefulness of refrigerators, but for them to be useful, some means to secure the fridge is probably important. It is also important to see the role of the store as food store, fridge and freezer.

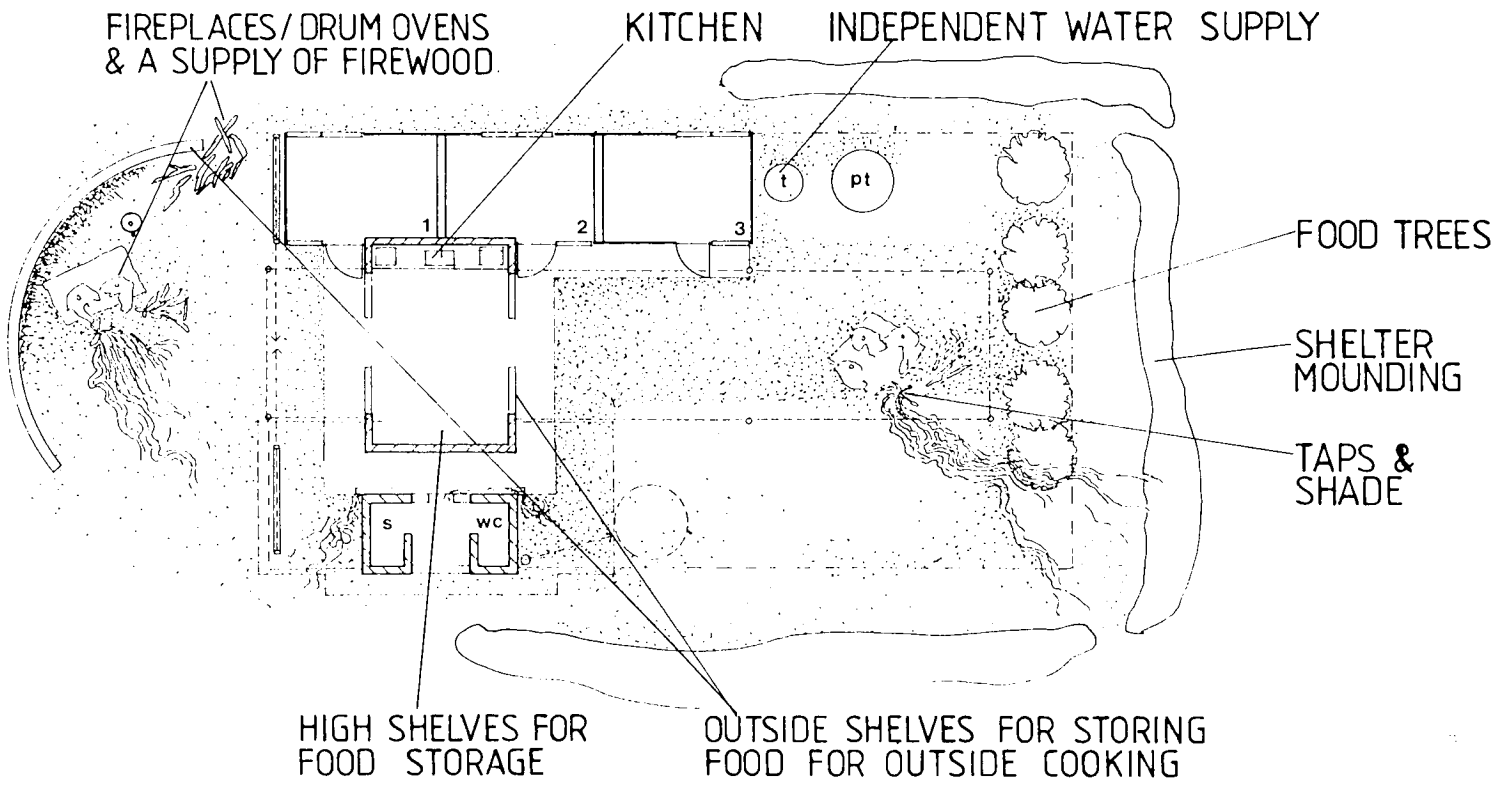
Small fridges, such as car fridges or "bar" fridges in lockable bedroom areas could also be suggested. It may also be useful to install dry floor wastes in bedroom areas to enable mopping out of these areas.

For camps and yard use: Eskies with hinged type lids are important for food storage as are high shelves or wall tops (preferably shaded) for placing food out of the reach of dogs.

What other hardware/services can be provided?

Eskies - hinged lid type.
Cooking utensils - particularly for fire cooking.
Alluminium foil for cooking.
Water containers
Access to firewood - establishing wood lots etc.
B.B.Q. plates and grids for cooking .
Drum ovens.





5. REDUCE CROWDING

What you are trying to prevent:

Reduction in crowding is likely to reduce any disease which is spread by infected body surface secretions. In particular, crowding has been shown elsewhere in the world to be a major cause of the prevalence of respiratory infection/pneumonia in children and adults.

Things to consider about "crowding" on the A.P. Lands.

1. Crowding for services

With a population of 2500 people and a land area of 10 million ha. the population/land density is hardly a problem. It is more a problem of population/services density. This can be seen at firstly the community scale with services offered being stores, health clinics, office, garage etc. all of which encourage people to live near the community for at least some of the time. Secondly at the house scale with the services offered by the house in order of importance being:

i) water (with associated washing facilities) and power supply
ii) waste removal
iii) cooking facilities
iv) shelter from heat, cold and rain
v) security
vi) storage

As lack of adequate maintenance reduces the available services (even though from the outside houses still look the same) crowding increases.

2. House area not the answer

From the U.P.K. survey there was no evidence to show that crowding was linked to house size. Big houses are neither more nor less populated per square metre. So increasing housing size alone will not guarantee reduced crowding.

Below are some things to check in your proposed project which may help reduce crowding:

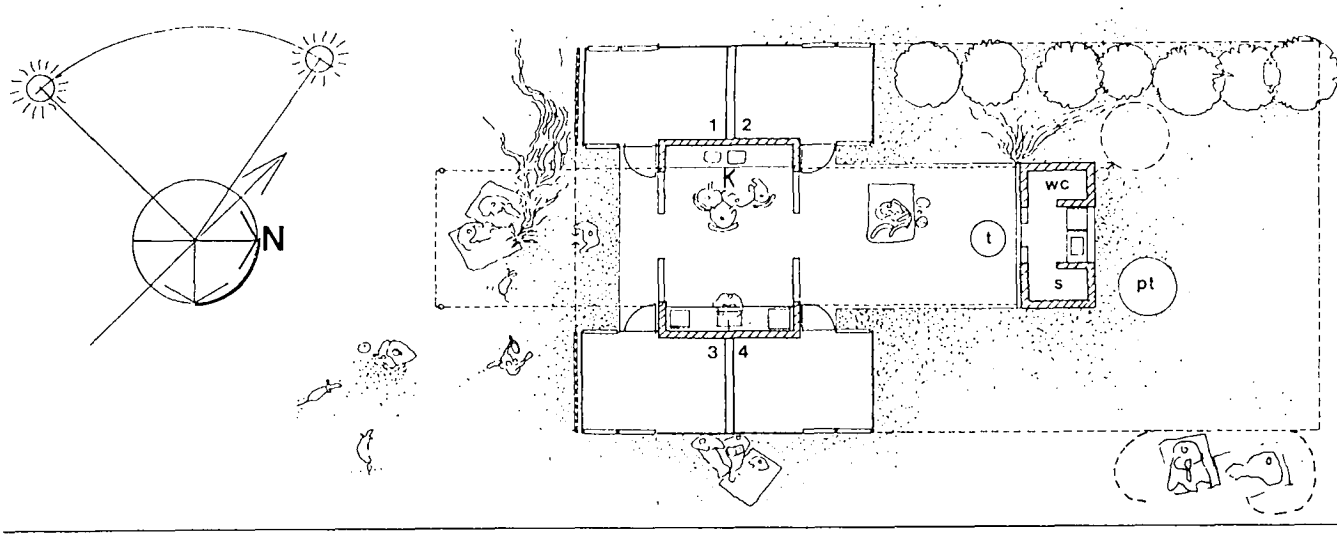
a) Separate toilet/shower/laundry/ child washing facilities.
b) Provide two toilets for every house (at least one dry system toilet and a flush toilet where there is an adequate water supply).
c) Spend a substantial part of any building budget on "furnishing" the yard areas of houses. These are the living rooms and should be furnished accordingly.

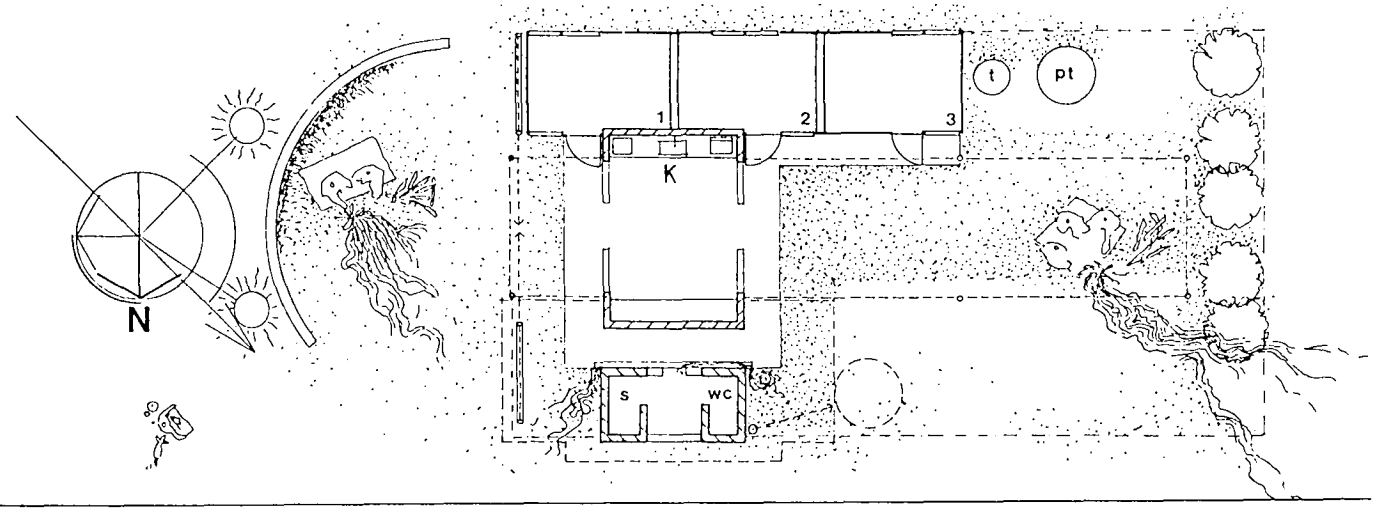
* Planting with drip systems
* Secure fencing of the yard
* Mounding to protect fencing from cars
* Shade roofs
* Taps
* Cooking areas
* Dust sheltering planting

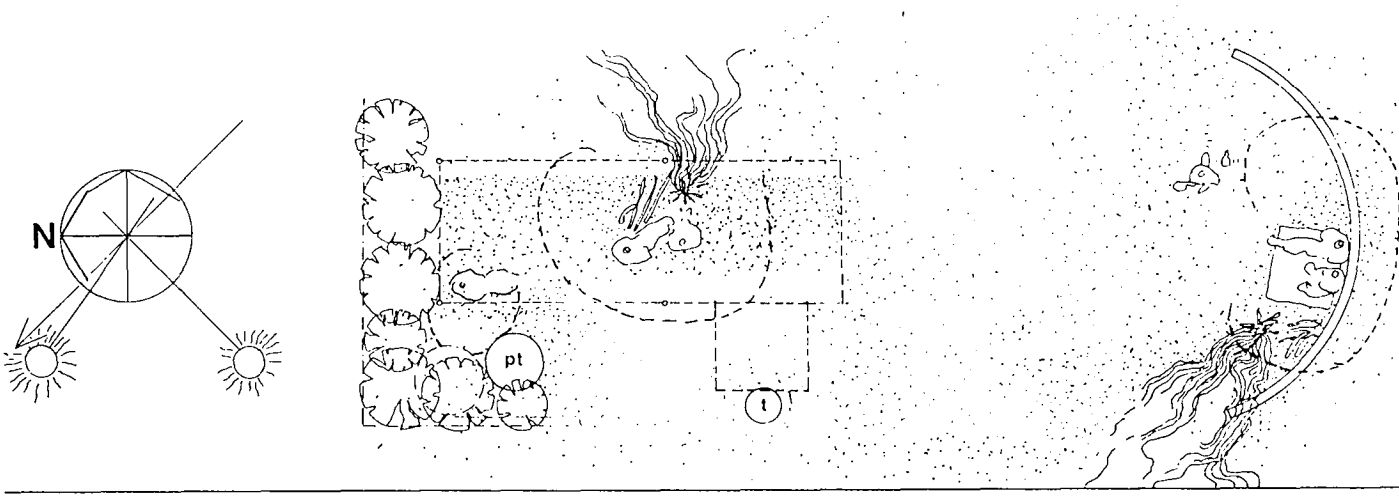
Other personal health hardware that may encourage families to use a larger living area.

Sheet iron }
Weldmesh } For temporary
Tarps } yard camps
Iron droppers }

Firewood: Collection service, wood lots.
Plants: particularly dense creepers for dust control and vines for shade structures.
Wire bed frames (sleep in the yard but off the dust).
Heaters for warming the inside of houses in winter.



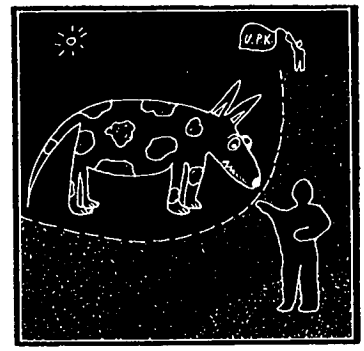




KEY

pt (pit) dry system toilet	t water tank
w.c. possible flush toilet	k kitchen
s shower (laundry)	1,2,3,4, enclosed area

6. SEPARATION OF DOGS AND CHILDREN



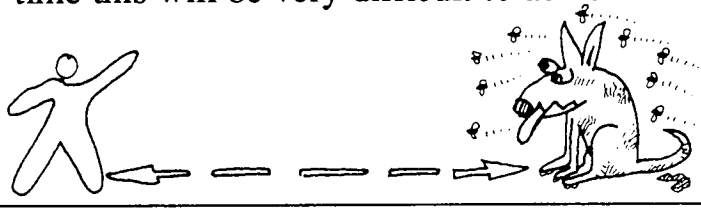
What you are trying to stop.

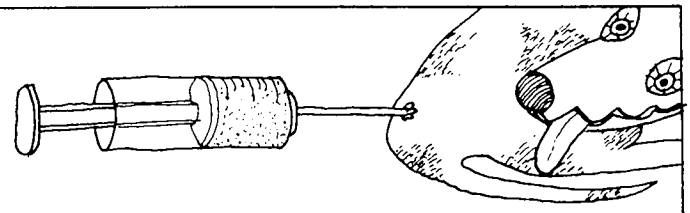
1. Skin infection and scabies.
2. Diarrhoeal disease (in particular Giardia, a common cause of chronic diarrhoea in young children which has been shown to be carried by dogs.)

Two approaches

There seem to be two approaches to this problem.

1. Separate dogs and children where possible, recognising that for much of the time this will be very difficult to achieve.





2. Improving the health of dogs. Whilst this may reduce the incidence of skin infection and scabies it will not control diarrhoeal disease. At best, this can be seen as only a partial solution for improving childrens' health.

Check the following points on your project.

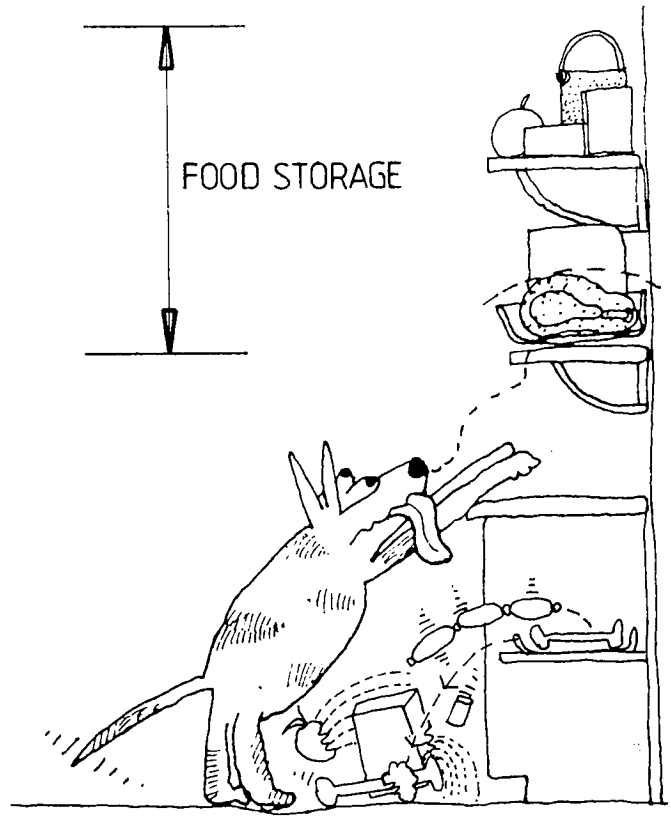
1. Water taps should not discharge on to the ground (or concrete pad). In summer particularly dogs will be attracted to the ponding water to drink and children will cool off in the spray of the tap. Dogs defaecate in the area most likely to be used by children and house users filling billies etc.

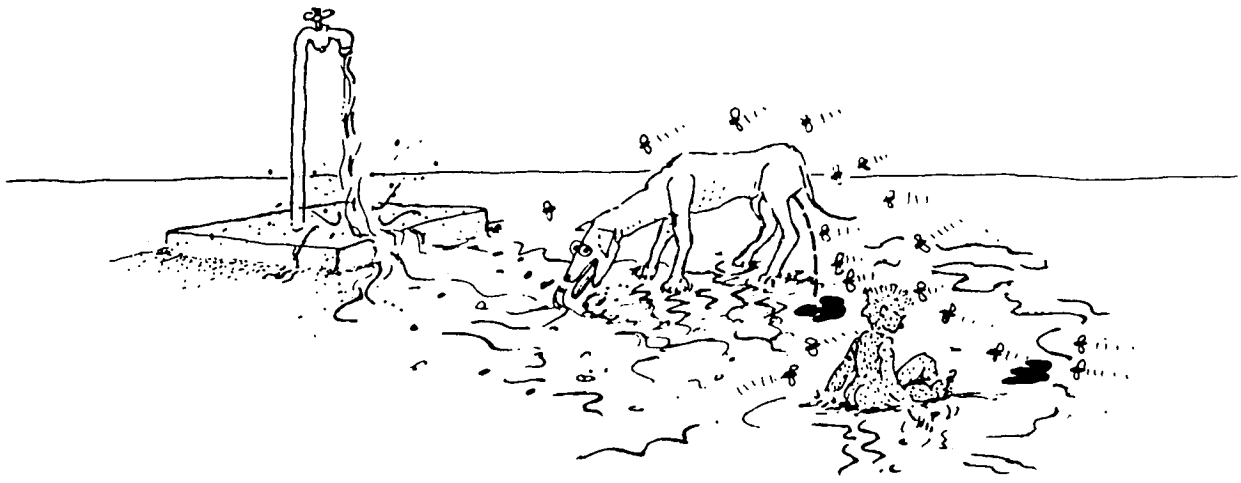
2. Provide 600 x 600 x 600 rubble soakage pit as a minimum under taps that are fixed to buildings. Where taps are freestanding a drum over the tap filled with rubble will not only reduce surface water but also protect the standpipe from damage and associated water leakage.

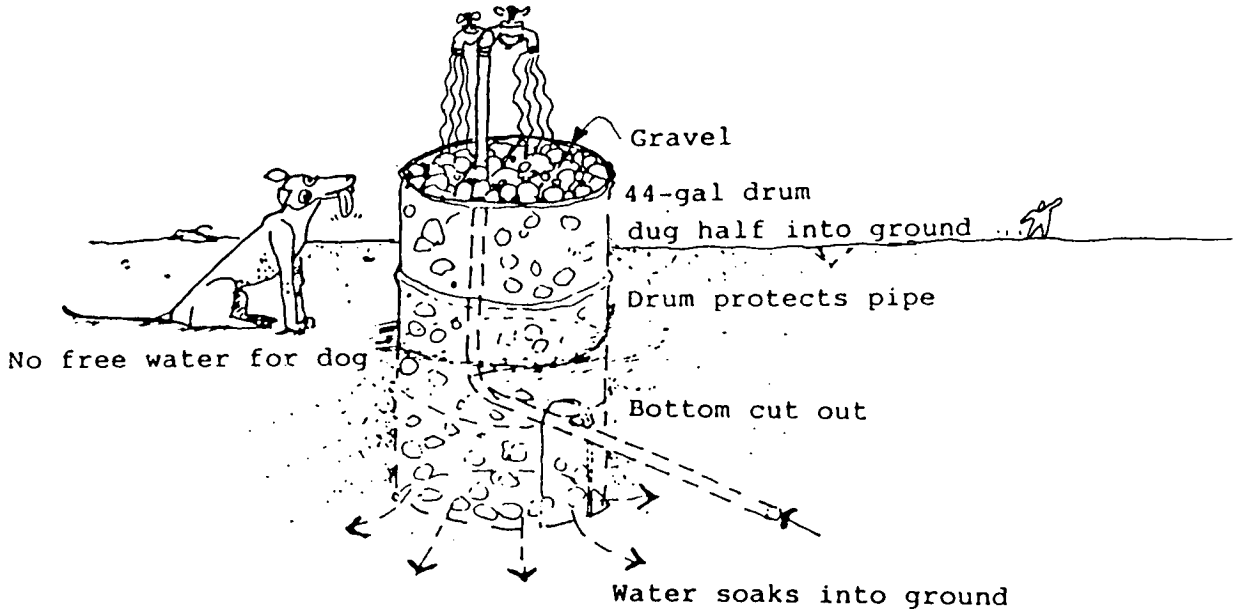
3. Provide as many external building shelves or ledges above dog height for the storage of food, blankets and bedding.

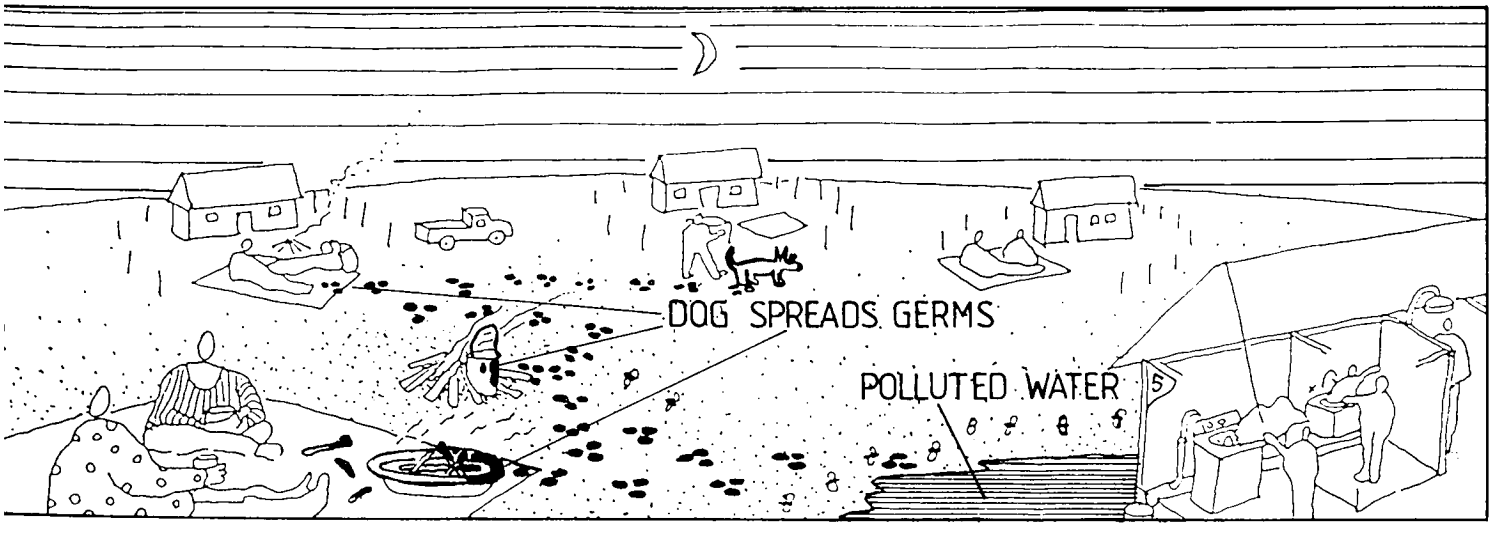
4. Inside houses, provide high storage shelving rather than low cupboards.

5. Where "V.I.P." pit toilets are used it is important to provide spring closing mesh gates to stop dogs entering the darkened toilet.

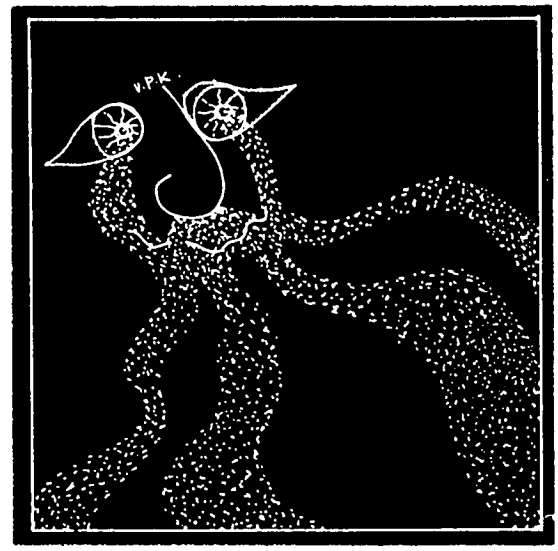





Gravel
44-gal drum
dug half into ground
Drum protects pipe
No free water for dog
Bottom cut out
Water soaks into ground


DOG SPREADS GERMS
POLLUTED WATER

7. DUST CONTROL

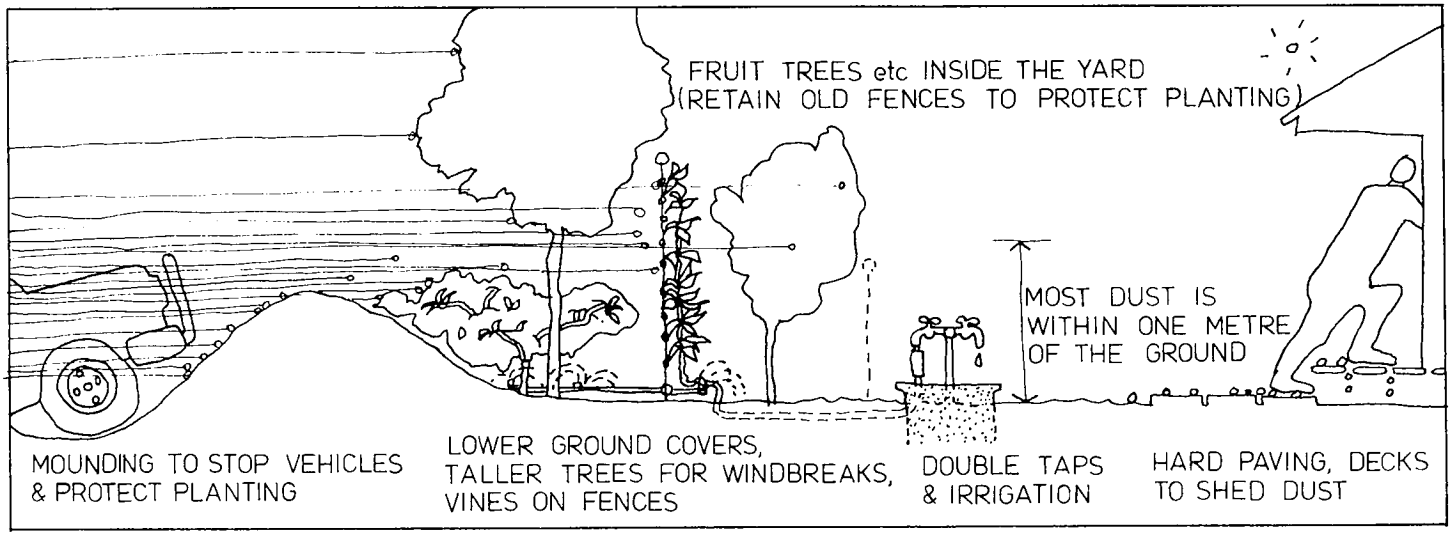


What you are trying to stop:

1) Respiratory disease caused by dust causing non-specific irritation and inflamation of the respiratory tract.

2) Eye disease. Dust causes abrasion and inflammation making eyes more prone to infection.

3) Skin infection.



Things to check on your project:

1. Has planting been allowed for in the project? This will probably help the community more in the long term than any other measure. The more plants that are destroyed from roads, buildings, etc., the more dust generated. The dust then not only provides a health hazard but continues to destroy more plants. Check that allowance has been made for:

* protective fences
* mounding
* drip irrigation system
* double taps for watering
* plant stock

If these are not in the budget the work will not be done.

For detailed help on what to plant, how to plant and where to plant contact Pit. Council.

2. Roads and tracks should be kept to a minimum.

a) Can existing roads be used to service new buildings?

b) Can old unused tracks be closed (using earth mounds or large rocks) and replanted.

c) Can any new dirt roads or tracks be sited down wind of buildings?

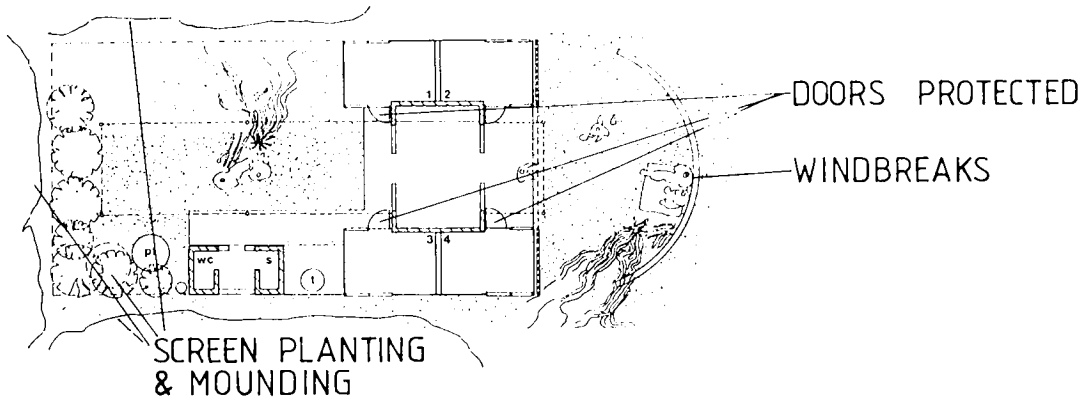
d) Is there any local supply of river gravel that can be placed around well used service buildings to reduce dust. (clinic, store, office)?

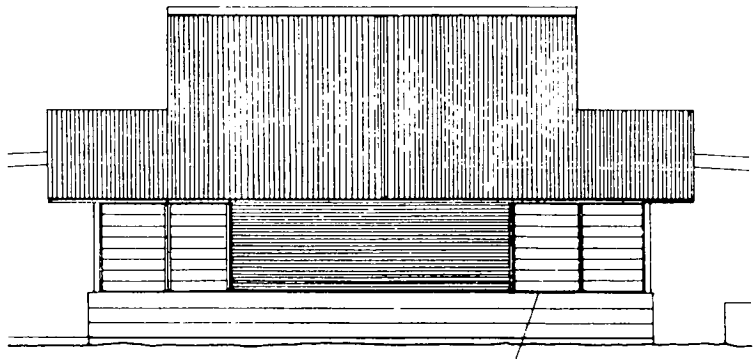
3. For more minor benefit the following could be checked.

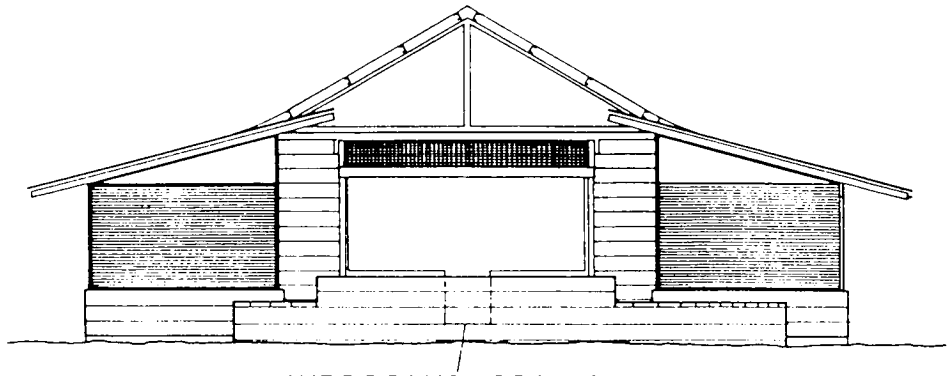
a) No doors on external walls without some protection from wind driven dust.

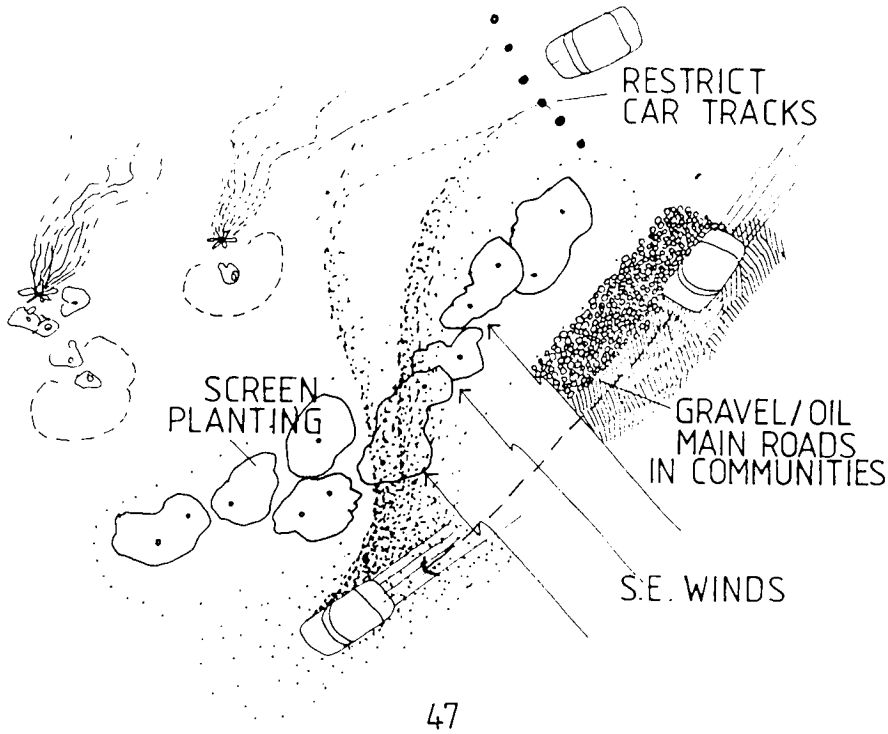
b) No low windows.

c) Verandahs/lean to areas with decking or hard paving to try and reduce the amount of dust brought into buildings.


DOORS PROTECTED
WINDBREAKS
SCREEN PLANTING
& MOUNDING


NO OPENING BELOW (3') 1 METRE


WINDBREAKS PROTECT ENTRY


RESTRICT
CAR TRACKS
SCREEN
PLANTING
GRAVEL/OIL
MAIN ROADS
IN COMMUNITIES
S.E. WINDS

8. TEMPERATURE CONTROL

What you can hope to achieve:

1. By providing some temperature control in winter crowding may be reduced and conditions may encourage the washing of young children.

2. Cool areas can reduce dehydration in sick children.

Things you can check on your project:

1. Good eaves (900mm[3']) overhang to the west in particular. Shade roofs or lean to structures are also useful.

2. More solid materials (blockwork) to the centre of the building to store cool and warmth. Lighter materials on the outside (iron, timber).

3. "Failsafe" ventilation. Not windows that can be screwed shut. Louvre windows and metal shutters both performed well in the U.P.K., survey.

4. Protection from prevailing south-east cold winter winds. (This may vary in direction slightly depending on local site conditions).

5. What allowance has been made for heating?
a) Minimum of two power circuits to allow for plug-in heaters. (Note: Fixed wall heaters are probably the safest for young children, fire risk and avoiding mechanical damage.)
b) Pot belly/built-in heaters.
c) Outdoor fire areas in the house yard.

6. What has been done to reduce heat in the building in summer?

a) Has "coolclad" roofing material been used. This greatly reduces heat load.

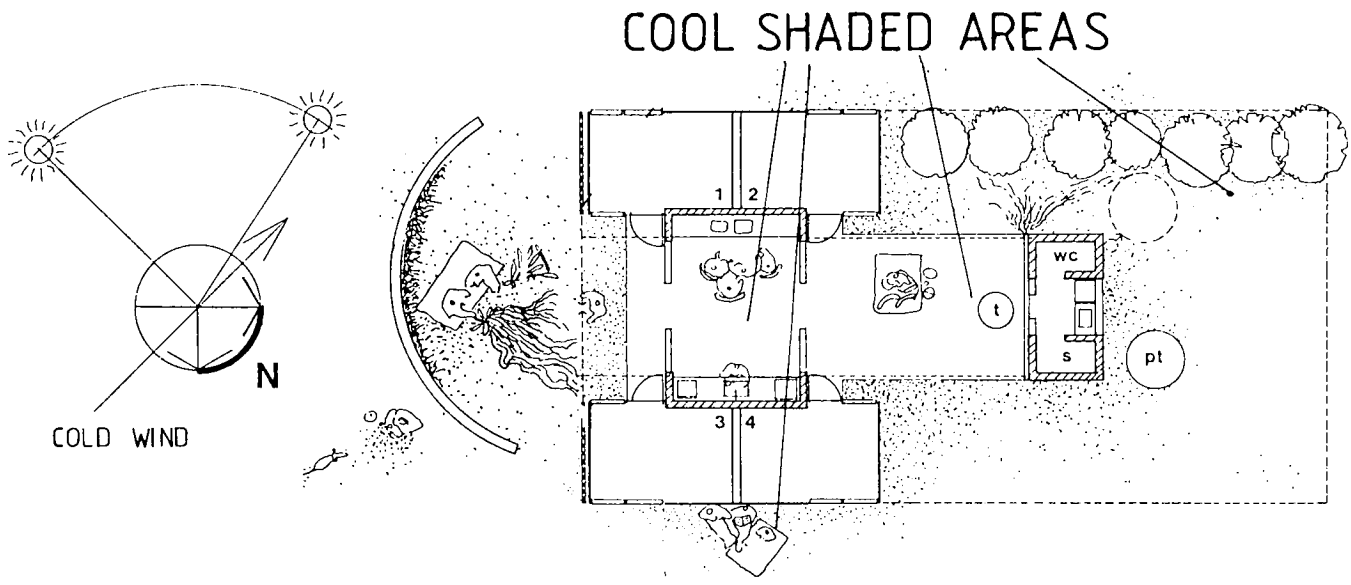
b) Is roof and wall insulation specified?
c) Have ceiling fans been provided?
d) Are there any roofs attached to the house to shade outside space and make it more useful?
e) Will the building or yard areas gain any shade advantage from existing planting?
f) Has any new planting been proposed? Is it in a good location to provide wind protection, shade, outdoor sitting/working areas?

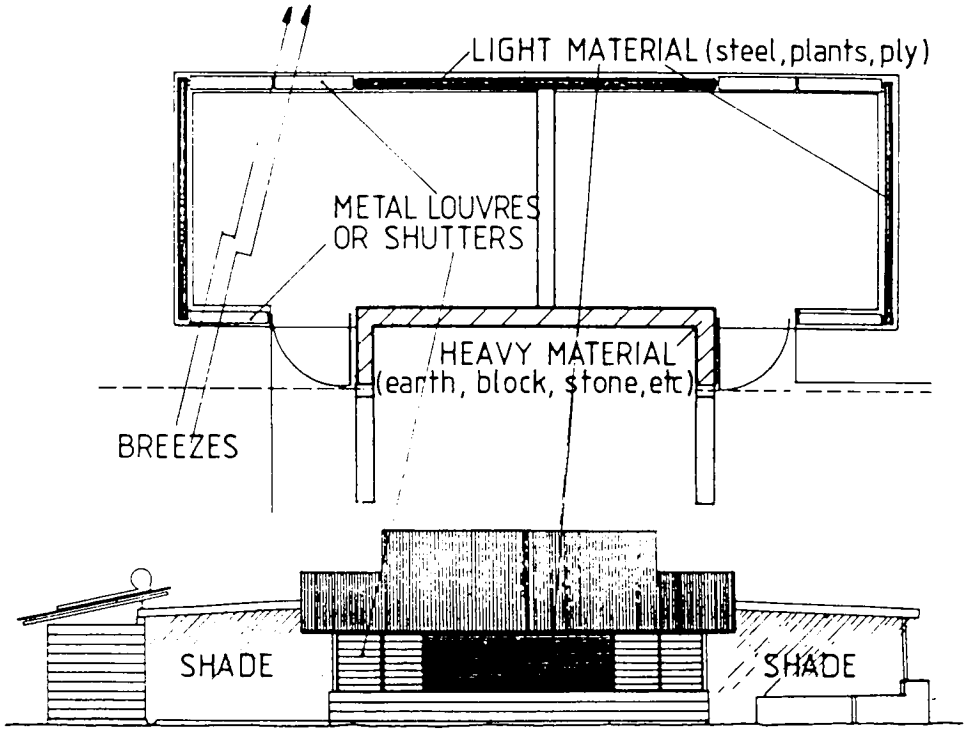
Other things that may be helpful in helping control temperature:
(Personal health hardware)
1) Weldmesh, sheet iron, iron droppers, tarps - all for making yard camps providing essential shade, warmth and water protection.

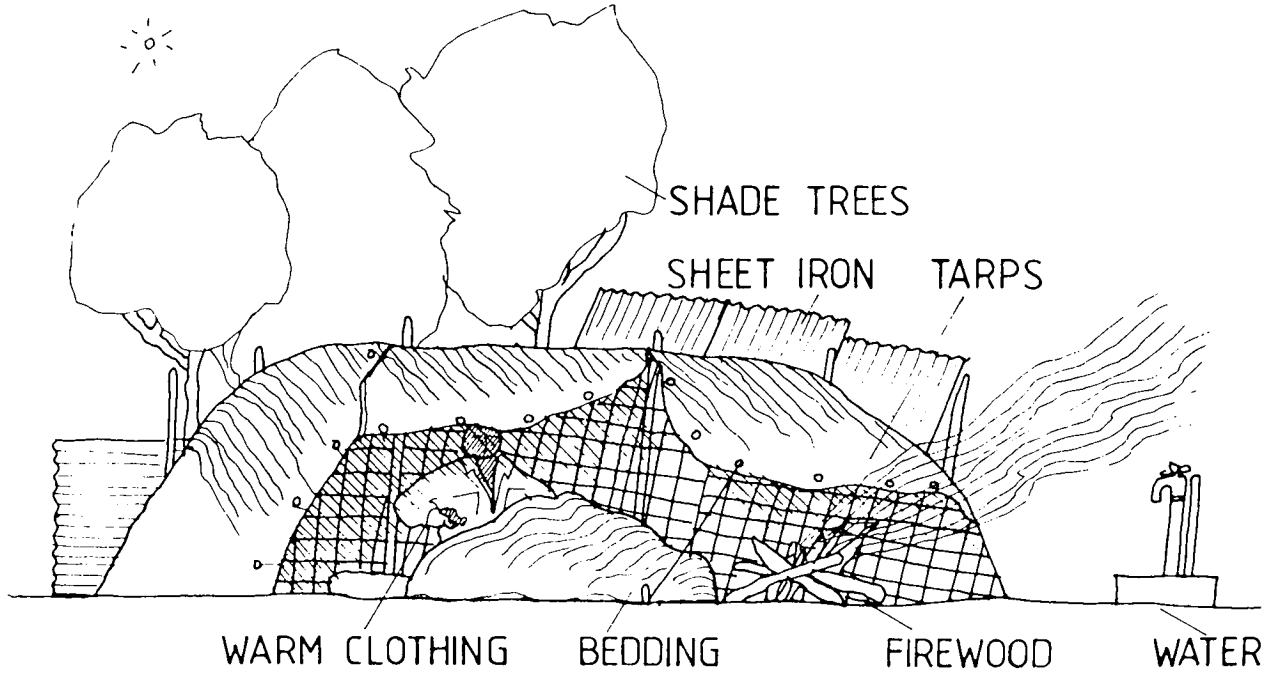
2) Firewood. Either a collection service or establishing a woodlot.

3) Warm clothes, blankets and bedding particularly before and during winter.

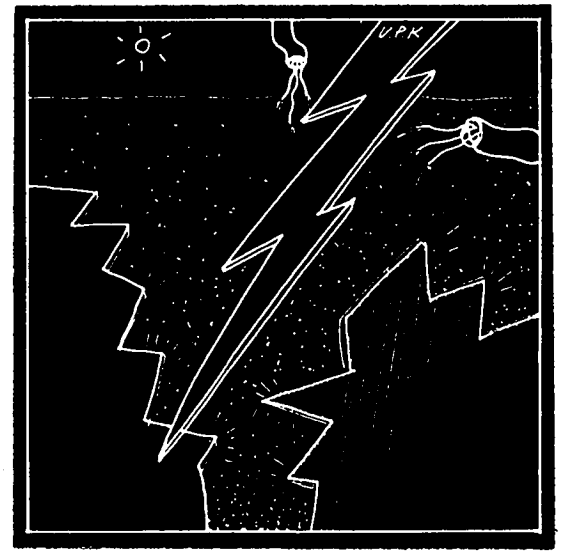
4) Cool water dispensers associated with clinics, stores and offices etc. help keep children supplied with water and provide an alternative to highly sugared cool drinks.


COOL SHADED AREAS
N
COLD WIND
1
2
3
4
wc
s
t
pt


LIGHT MATERIAL (steel, plants, ply)
METAL LOUVRES
OR SHUTTERS
HEAVY MATERIAL
(earth, block, stone, etc)
BREEZES
SHADE
SHADE


SHADE TREES
SHEET IRON
TARPS
WARM CLOTHING
BEDDING
FIREWOOD
WATER

9. REDUCE TRAUMA (PHYSICAL INJURY)



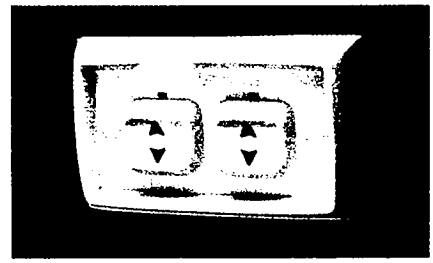
What you are trying to avoid:

1. Electric shocks
2. Cuts and general injury

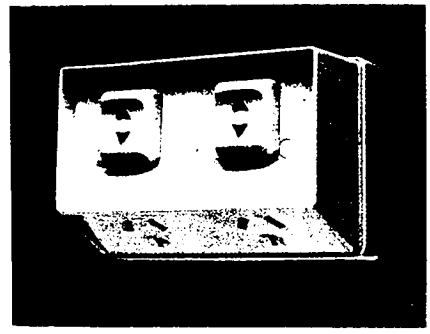
What to check on your proposed project:

1. Earth leakage protection and protection of earth stakes for electrical installations.

2. All electrical power points (G.P.O's) and switches should be water and dust proof. These should be mounted above 1500mm (5'). Power points should have bottom access for plugs to avoid shattering of power point if cords are pulled (see examples).



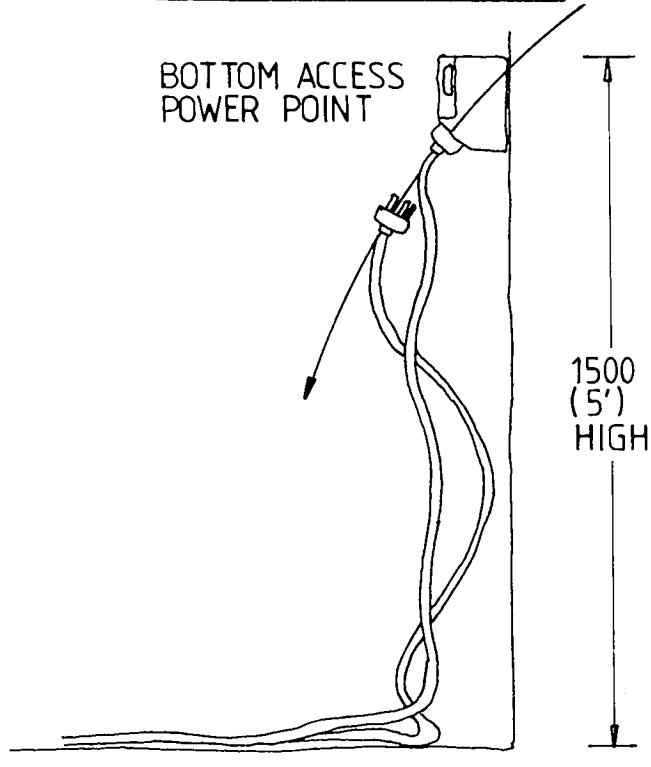
3. NO GLASS should be used.



4. Check that "fragile materials" are being avoided. The replacement of these materials wastes the already scarce maintenance funding.

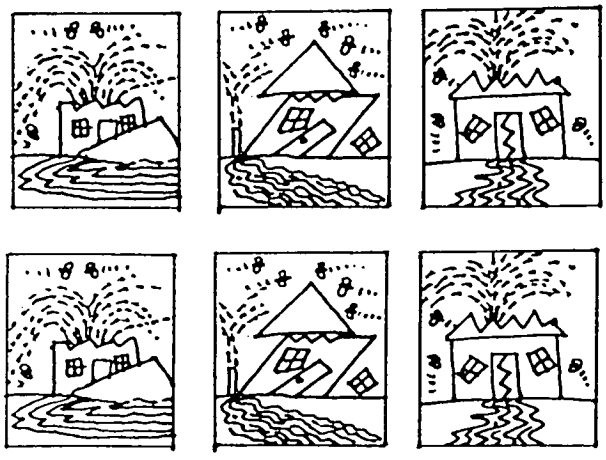
Avoid:

a) Fibrous cement sheet (less than 12mm thick (1/2"))
b) Plasterboard ("Gyprock")
c) Hollow core doors
d) Unprotected solar collector plates

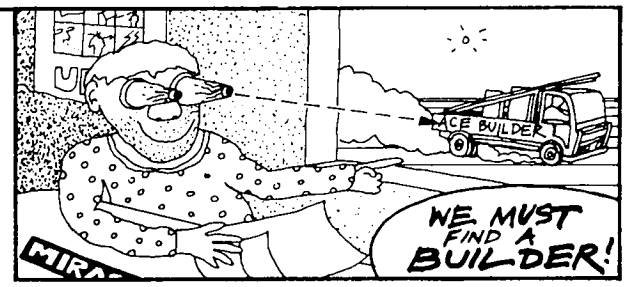


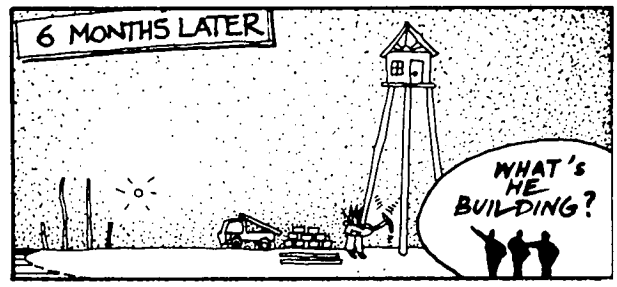
Personal health hardware

Rakes and shovels for removing rubbish from yard.



C THE BUILDER





Choosing the "right builder" will avoid countless problems later on in the project. Every hour spent by you and your consultants deciding who to select to build a project will save ten hours of problems later.

Below are the most important areas to keep in mind.

1. SELECTIVE TENDERS ARE PREFERABLE TO PUBLIC TENDERS.

A selective tender is one where you invite a group of builders to price a particular project. Only those whose previous work you have checked and you feel confident about building in your community can submit a price.

A public tender is one where a project is advertised widely and tenders are asked for from anyone interested in building the project. Whilst prices may be lower there is a good chance that the winning tenderer's price may have been low due to lack of experience working in remote areas.

In the worst case this may mean a builder cannot complete a project, or take much longer than the agreed time to finish a project. U.P.K. found many examples of this when looking back through community records of building projects.

2. HAVE THE BUILDERS HAD EXPERIENCE WORKING ON THE A.P. LANDS OR SIMILAR CONDITIONS?

Whilst similar to point No. 1. above it is worth considering the possible conditions that builders may not be familiar with.

1. Long distances to transport labour and materials.

2. Working under a permit system (particularly for all sub-contractors.)

3. No alcohol in camp.

4. Lack of building facilities usually available in Alice Springs/Adelaide.
e.g. hire equipment, purchase of small items such as fixings etc., power supply for tools etc.

5. The high cost of transporting some materials e.g. concrete.

6. Living within an Anangu community.

Any of the above could lead to budget extras and/or community disruption.

3. WHO WILL MANAGE THE SITE DURING CONSTRUCTION?

Builders will often be building more than one project at a time. As the "head contractor" (builder) will almost certainly be employing sub-contractors (block layers, plumbers etc.), supervision of these sub-contractors by the builder is essential. It is also important for your community to have a known contact on site during the project if problems arise (e.g. materials are being stored on a football field).

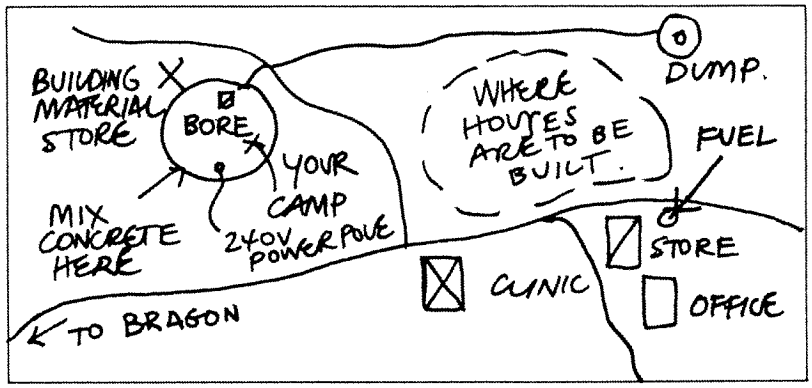
Try and determine with each possible builder who will be supervising on site and how regularly the builder will be looking at the project.

e.g. Wiru Wiru Community

Date 1/6/89

TO: JOHN BLACK RE: (Project) 4 HOUSES 1989/90.

Set out below is information about the availability of services in our community. This will form part of the contract for the above mentioned project.



Simple map. Show building works.

1. Accommodation 1 X FLUSH TOILET + SHOWER.
   Camp area with cold water ~~and two pit toilets available~~. (see map).

2. Storage of materials
   Bulk materials to be stored on site or in area marked near accommodation camp. ✓

3. Fuel - Open 9 a.m. - 5.p.m. Monday - Friday. ✓

4. Mixing of concrete to be batched only in area indicated on map. ✓

5. Power.
   Single phase 240V supply available at points marked. ~~3 Phase power available as indicated~~. N/A

6. Equipment
   The following equipment is available for hire. Please check with Community Advisor. ~~Backhoe, grader~~, ditchwitch. ✓

7. Labour
   5 men for labouring work are available. ✓

8. The dump for all building waste is shown on the map. ✓

You are advised that under Pit. Land Rights Legislation:
1) No alcohol is permitted on the A.P. Lands.
2) All workers should have valid permits.

If you have ANY questions contact the Community Advisor/Council.
(089) 5621111.

Yours faithfully,

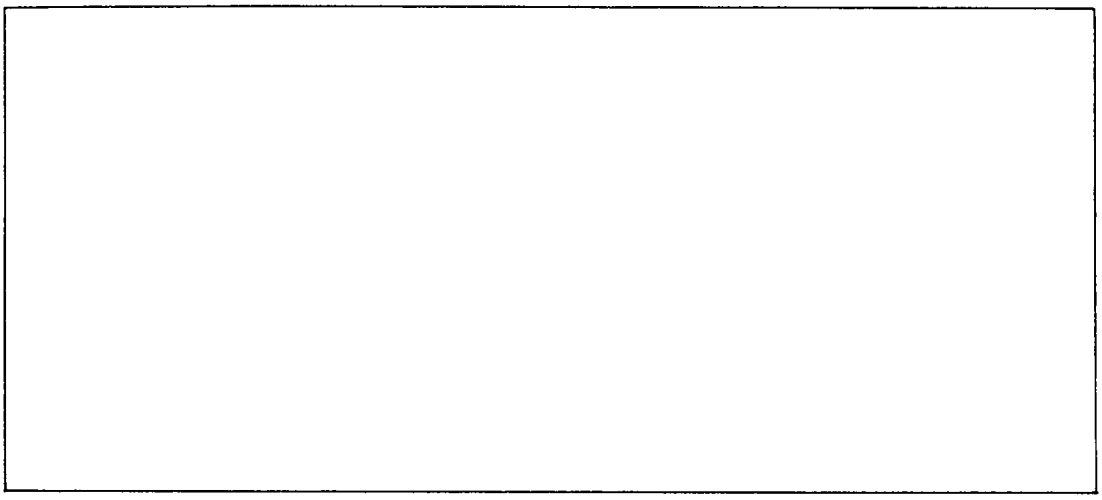
Wiru Wiru Community.

AP BUILDER INFO FORM 4

Date _____

TO: _____ RE: (Project) _____.

Set out below is information about the availability of services in our community. This will form part of the contract for the above mentioned project.



Simple map.
Show building works.

1. Accommodation
   Camp area with cold water and two pit toilets available. (see map).

2. Storage of materials
   Bulk materials to be stored on site or in area marked near accommodation camp.

3. Fuel - Open 9 a.m. - 5.p.m. Monday - Friday.

4. Mixing of concrete to be batched only in area indicated on map.

5. Power.
   Single phase 240V supply available at points marked. 3 Phase power available as indicated.

6. Equipment
   The following equipment is available for hire. Please check with Community Advisor. Backhoe, grader, ditchwitch.

7. Labour
   ____ men for labouring work are available.

8. The dump for all building waste is shown on the map.

You are advised that under Pit. Land Rights Legislation:
1) No alcohol is permitted on the A.P. Lands.
2) All workers should have valid permits.

If you have ANY questions contact the Community Advisor/Council.

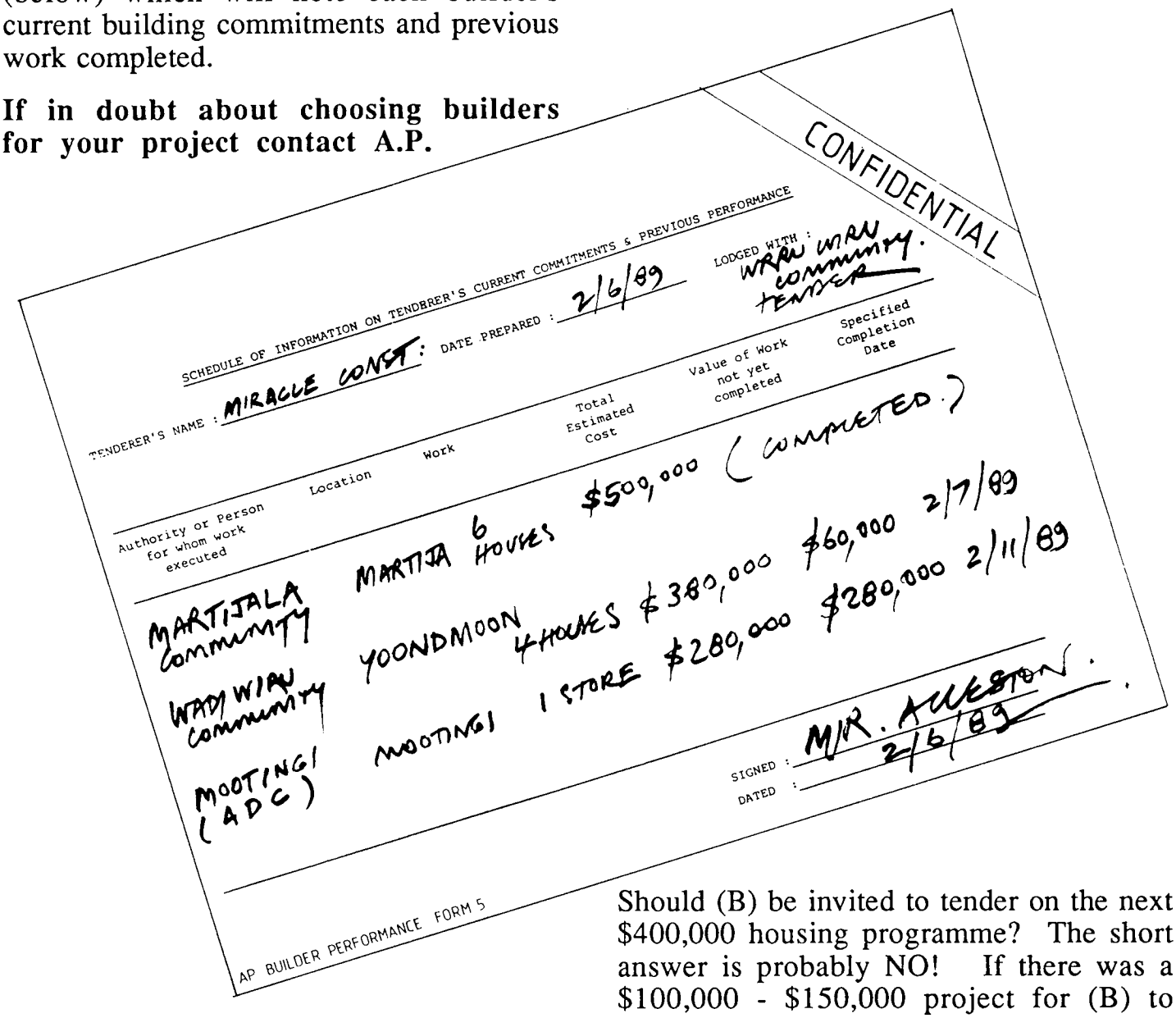
Yours faithfully,

_____
Wiru Wiru Community.

4. PREVIOUS WORK.

You can include in the tender a simple form (below) which will note each builder's current building commitments and previous work completed.

If in doubt about choosing builders for your project contact A.P.



CONFIDENTIAL

SCHEDULE OF INFORMATION ON TENDRER'S CURRENT COMMITMENTS & PREVIOUS PERFORMANCE

TENDERER'S NAME : MIRACLE CONST. DATE PREPARED : 2/6/89 LODGED WITH : WRW WAN COMMUNITY. TENDER

Authority or Person for whom work executed	Location	Work	Total Estimated Cost	Value of Work not yet completed	Specified Completion Date
MARTIJALA COMMUNITY	MARTIJA	6 HOUSES	$500,000	(COMPLETED)	
WADJ WIRN COMMUNITY	YOONDMOON	4 HOUSES	$380,000	$60,000	2/7/89
MOOTING! (ADC)	MOOTING!	1 STORE	$280,000	$280,000	2/11/89

SIGNED : M/R. ALLESTON.
DATED : 2/6/89

AP BUILDER PERFORMANCE FORM 5

5. SCALE OF WORK APPROPRIATE TO THE BUILDER

By way of example: Two builders A and B have both been doing work in the same community for two years. (A) has been working on community housing projects (each contract about $400,000). (B) has been working on homelands work (each contract about $50,000). Both are well respected and do "good work" to budget and on time.

Should (B) be invited to tender on the next $400,000 housing programme? The short answer is probably NO! If there was a $100,000 - $150,000 project for (B) to expand to this could be acceptable but a $400,000 project would probably be difficult for (B) to perform - not because (B) is incompetent, but (B)'s access to equipment, labour, finance and management for a project of this size would make it difficult for (B) to perform well.

Similarly, the price (A) would submit on a small job say $50,000 would probably be much higher than (B)'s because of the added overheads that (A) carries.

So - find the right scale of work for the right builders.

Contracts attempt to set out the responsibilities of the parties involved in a building project.

The "Contract" might be in the form of a letter to a builder for a very small job (ie. repairing a window) or a standard form of contract for larger projects.

It is important to remember that both parties have responsibilities under any contract. Just as the builder has a responsibility to produce a good quality building on time and budget, your community has responsibilities regarding payments to the builder and possible provision of accommodation, power etc., depending on what is agreed.

Remember: Contracts alone don't make projects go smoothly - time is far better spent clearly documenting a project and selecting a good builder at the start, not trying to revive a "project in trouble".

Any contract should include:

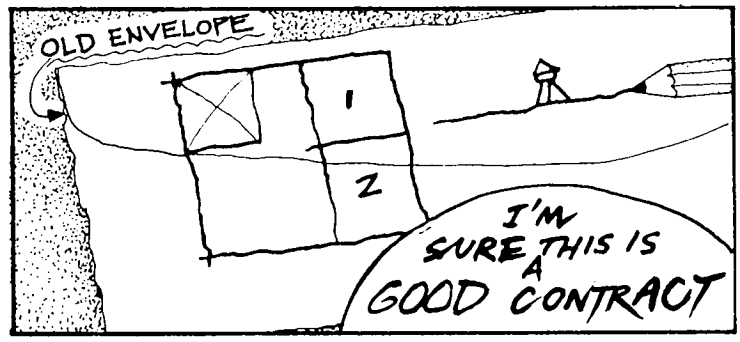
a) Contract amount and clear documentation and specification about the exact extent of all works.

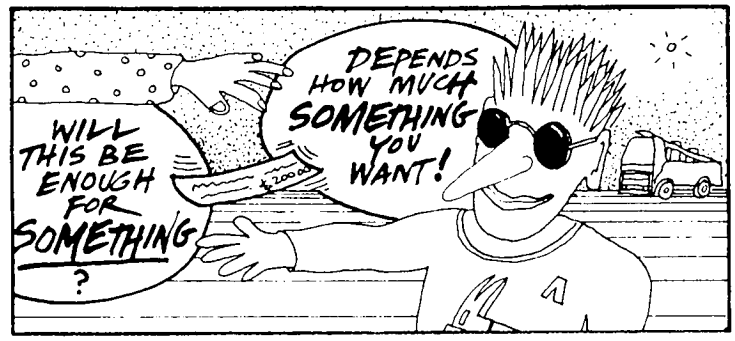
b) A schedule indicating payments to the builder.

c) A retention fund: That is at each progress payment some amount (say 5%) is deducted and held until the end of the job.

d) A defects period (of at least 3 but preferable 6 months) during which half of the retention fund will be held by the community to cover building defects. This fund will not cover damage or ongoing maintenance.

e) A time period for construction agreed with the contractor and a damages amount for non-completion on time.





f) Insurances

g) Commencement and proposed completion dates.

h) Who has authority to alter the contract drawings and make changes to the project?

i) Who is supervising the work and issuing payments to the builder?

There are many other important clauses and protections thay may be found in standard contracts such as:
SBW 1 MBF (Aust) & RAIA
Building Works Contract by A.P.

CONFIDENTIAL

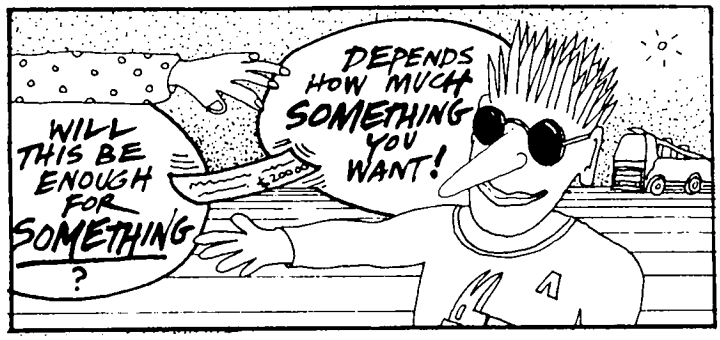
SCHEDULE OF INFORMATION ON TENDERER'S CURRENT COMMITMENTS & PREVIOUS PERFORMANCE

TENDERER'S NAME : _____ DATE PREPARED : _____ LODGED WITH :

Authority or Person for whom work executed	Location	Work	Total Estimated Cost	Value of Work not yet completed	Specified Completion Date

SIGNED : _____

DATED : _____



HERE IS AN EXAMPLE OF A FORM TO ENSURE THAT PAYMENT IS MADE ON THE BASIS OF COMPLETED WORK (ASK YOUR CONSULTANT TO DISCUSS THIS WITH YOU!)

NUMBER & DATE WHEN PAYMENT WAS MADE

SUMMARY of PROGRESS PAYMENTS

CONTRACT	PROGRESS PAYMENTS ① 4/5/89	② 20/6/89	③ 18/8/89	④ 2/10/89	⑤ 22/11/89 FINAL COMP
	–	–	3000	1000	
4000	1600				
1600	2400				
2400	1500	–	300	–	
1800	2250	750	1500		
4500	5000	1250	750	250	400
7000	2500	4000	–	500	500
6750	1200	2000	3000	–	500
7100		1500	1500	500	800
3500	–	–	3000	–	–
4300	–	–	–	200	500
200	–	–	3000		
3700	–			500	700
		–	1200	1500	900
2400	–	–	2000	800	100
4400	–	–	–	–	LOCK 100
900	–	–	–	500	400
100	–	–	1000	800	–
1900	–	–	–	1500	1000
1000	–	–	2000	1800	–
4950	–	–	–	300	300
2000	–	–	600	–	RETT V2/13 963
1200	–	–	–		
2000	–	–			
$67,700	$16,450	$9500	$23,650	$12,000	$6,663

TENDER PRICE BREAKDOWN

Please use this breakdown when submitting tender. If options or variations to the schedule are applicable indicate with a tick in the margin and attach information to this form.

1.	Scope of Works Pit toilets	$
2.	Preliminaries	$
3.	Demolition/Removal	$
4.	Fill, compaction & excavation	$
5.	Drainage, services allowance	$
6.	Concreting/rendering	$
7.	Concrete blockwork	$
8.	Steelwork	$
9.	Roofing & ceiling materials fixing and insulation	$
10.	Interior Linings windows $ doors $ Add P.C. amount $200	$ 200
11.	Plumbing, fixtures & fittings	$
12.	Electrical supply and fittings	$
13.	Floor finishes	$
14.	Door furniture & fittings Add P.C. amount $100	$100
15.	Fitting and fixtures Add P.C. amount $1,000	$
16.	Landscape/site works	$1,000
17.	Painting and staining	$
18.	Evaporative cooling	$
19.	Contingency Add P.C. amount $2,000	$
	TOTAL TENDER PRICE (including all P.C. items)	$ 2,000.00

TOTALS OF EACH PAYMENT

LIST OF PRIME COST (P.C) ITEMS INCLUDED IN THE CONTRACT PRICE.

CONTRACT PRICE & BREAKDOWN SHOWING TOTAL COSTS OF ALL TRADES. (THE BUILDERS SHOULD BE ASKED FOR THIS WITH THEIR TENDERS)

SUPERVISION

No building project, particularly one in a remote area, can be built well and to budget without adequate supervision. Too often the remote nature of a project is simply an excuse for poor supervision.

a) Progress payments must be linked to supervision of the work.

A costed schedule of work is useful in assessing the value of work completed at any stage of the project (see example).

b) The minimum supervision stages would be:

1. Setout of slabs/footings and commencement of concrete pour. Drainage work installed, particularly septic and soakage trenches.

2. Blockwork or wall framing/roof framing in place but not sheeted.

3. Practical completion. That is when the building is ready to be handed over.

4. One month before the end of the defects period, so that defect work can be carried out.

c) If on-site supervision is impossible due to unforeseen circumstances (supervisor falls ill etc.) the community should photograph the work, date the photos and send the photos to the supervisor for the issuing of advice to pay the builder.

d) No on-site instructions or changes should be made by any community member or advisor without first contacting the supervisor.