

# Descon Building Systems Ltd.

Consulting Division

Volume One:  
PROJECT BRIEF

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Project Number (PWC) 008489 D 9000

Geological Survey of Canada

PRECAMBRIAN INSTITUTE

Thunder Bay, Ontario.

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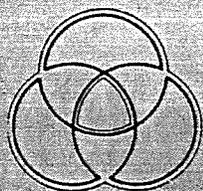
|| Revised Final Draft  
|| April 26, 1979

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Level 2

Group Spaces



Descon

**Sample Preparation**

UNIT SPACE: 05 SAMPLE PREPARATION

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		FUNCTIONAL DESCRIPTION
0.1	OBJECTIVE	
.1	The preparation of samples for laboratory analysis by sawing, crushing, and grinding rocks brought from the field.	
0.2	WORK FLOW	
.1	Rocks arrive from the field in 5 gallon cannisters (300mm diameter by 450mm high), cloth bags, or wooden trays (900mm x 900mm), and weighing up to 50 kg; and are taken to US05.01 Sample Reception for temporary storage prior to commencement of work.	
.2	When ready for work, the rock is taken to US05.02 General Crushing Room where it is sawn, split, crushed, ground and sieved to the final screen size.	
.3	Rough magnetic separation (a preliminary to Mineral Separation) is done in US05.02 General Crushing Room.	
.4	Samples destined for GS07 Geochronology Laboratories go to GS06 Mineral Separation for further work.	
.5	Samples destined for chemical analysis and spectrographic analysis are ground in US05.03 Low Contamination Crushing Room with ceramic abrasive surfaces.	
.6	The ground rock samples go directly to these laboratories, typically in vials weighing approximately 9 grams.	
	PERSONNEL	
	Technicians: two (2).	

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1.0	No applicable criteria at this level.	QUALITATIVE CRITERIA
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2.1	This Group Space should be located away from the laboratory and office areas, preferably in the basement where dirt, vibration, and noise will not be a detriment.	LOCATIONAL CRITERIA
2.2	Locate US05.02 General Crushing Room primary to US05.03 Low-Contamination Crushing.	
2.3	Must have convenient access to the service elevator.	

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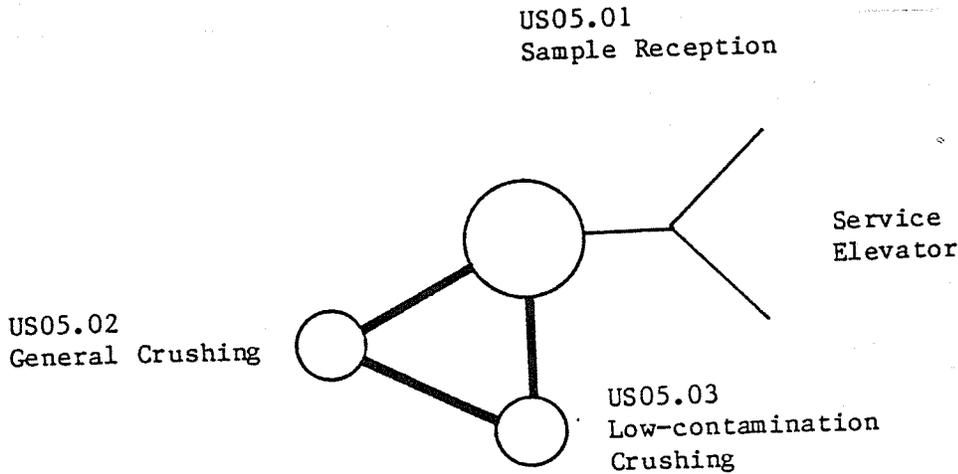
3.1	Total usable area 83.5 s.m.	QUANTITATIVE CRITERIA
3.2	Plan for the following Unit spaces:	
(T)#.01	Sample Reception/Storage: 18.5 s.m.	
.02	General Crushing Room: 42.0 s.m.	
.03	Low Contamination Crushing Room: 23.0 s.m.	

#Indicates no criteria sheet.  
 (T)Indicates telephone to this space.

4.0	No applicable criteria at this level.	TECHNICAL CRITERIA
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GS05 SAMPLE PREPARATION

PLANNING GUIDE



UNIT SPACE: 05.02 GENERAL CRUSHING.  
Sample Preparation

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0.1	OBJECTIVE	FUNCTIONAL DESCRIPTION
.1	The preparation of samples for laboratory analysis by crushing, grinding, and sieving of rock to reduce it to powdered samples of specific mesh sizes.	

0.2	WORK FLOW
.1	Rock is sawn when required to remove weathering.
.2	Rock is split to convenient sizes for crushing equipment.
.3	Rock is crushed to 1/4" chips.
.4	Rock is ground to appropriate mesh size.
.5	Rock powder is sieved and bagged.

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1.1	Noise generated by the equipment in this room must be attenuated by the enclosure of equipment or sound absorbing surfaces so that it does not exceed 85 dbA.	QUALITATIVE CRITERIA
1.2	Airborne dust generated by the crushing, grinding and sieving process will be smaller than 400 mesh. In the interest of occupational safety, and the prevention of contamination between samples this dust must be exhausted from all workstations. The velocity of the air must not be great enough to remove the finer grains from the sample; this would effect sample quality.	
1.3	This Unit Space must be designed for easy cleaning and periodic wash-down to reduce the possibility of contamination between samples.	

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2.1	Must be located with primary adjacency to the Service Elevator or US18.01 Loading Dock.	LOCATIONAL CRITERIA
2.2	Must be located well away from any laboratories in which vibration or dirt and dust may be a detriment.	
2.3	The alcove for the rock crusher must be located next to that of the grinder to minimize contamination in carrying material from one to the other.	
2.4	The ventilated benching for hand work should be located for easy access to grinding, and sieving alcoves; preferably as a centre-room island.	
2.5	Locate adjoining service core.	

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3.1 Total usable area <sup>2</sup>42.0 s.m. QUANTITATIVE  
CRITERIA

- 3.2 Plan the following workstations:
- .1 One (1) rock saw 1500mm (benchtap - type C).
  - .2 One (1) rock splitter 1500mm (benchtap- type C).
  - .3 One (1) rock crusher alcove (ventilated).
  - .4 One (1) rock grinder alcove (ventilated).
  - .5 One (1) sieve shaker alcove (ventilated).
  - .6 One (1) spare alcove (ventilated).
  - .7 One (1) magnetic separator alcove (ventilated).
  - .8 Ventilated backdraft benching for hand work;  
island unit 1200mm x 2500mm (benchtap - type C).
  - .9 General benching workstation 3500mm (serviceable  
laboratory benching; benchtap - type C) with sink  
900mm x 600mm.
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- 4.01           STRUCTURE  
It is anticipated that much of the vibration generated by this equipment will be absorbed by the equipment mounting pads.
- 4.02           WEATHER ENVELOPE  
.1 Operable windows if air conditioning not possible due to exhaust alcoves.
- 4.03           PARTITIONS  
.1 Must be resistant to the impact of small dollies and work associated with heavy materials handling.  
.2 Must be smooth and not likely to generate or retain dust particles.  
.3 Double doors (1800mm x 2130mm) for equipment access.
- 4.04           FLOORS  
.1 Hard surface, washable, with cove bases.  
.2 No door saddles to hinder movement of carts.
- 4.05           CEILINGS  
.1 Hard surface.
- 4.06           FITTINGS, FIXTURES, EQUIPMENT  
.1 All benching shall be of a sturdy construction.
- 4.08           PLUMBING AND DRAINAGE  
.1 In the general benching workstation provide one (1) large sink 900mm x 600mm for equipment washing. Include large sediment trap accessible from inside room.  
.2 Compressed air line (retractable) at 275 kPa; preferably from ceiling, for cleaning samples, sieves, etc.  
.3 Central vacuum cleaning outlets at convenient locations for cleaning of equipment and benching.  
.4 Floor drain for wash-down with easily accessible cover and sediment trap in floor.
- 4.10           HVAC  
.1 Standard building service.  
.2 Ventilate the equipment alcoves and the ventilated benching at a velocity such that fine airborne power is removed without drawing out fine grains from the powdered rock sample itself.  
.3 Ventilated benching should be back-draft type for effective removal of dust.
- 4.12           ELECTRICAL DISTRIBUTION  
.1 550v 3-phase service to the equipment alcoves.  
.2 Dust- and explosion-proof switches; and receptacles.
- TECHNICAL  
CRITERIA

UNIT SPACE: 05.03 LOW-CONTAMINATION CRUSHING  
Sample Preparation

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0.1	OBJECTIVE	FUNCTIONAL DESCRIPTION
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.1 The preparation of samples for laboratory analysis by crushing and grinding of rock using ceramic abrasive equipment to reduce metallic contamination from process equipment to a minimum.

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1.1	Noise generated by equipment in this room must be attenuated by the enclosure of equipment or sound absorbing surfaces so that it does not exceed 85 dbA in the room with the alcove door closed. Particular attention must be paid to the noise from the ceramic paint shaker workstation; this equipment generates excessive noise and remains in use for periods of one hour at a time.	QUALITATIVE CRITERIA
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1.2	Airborne dust generated by the crushing, grinding, and sieving process will be finer than 400 mesh. In the interest of occupational safety, and the prevention of contamination between samples, this dust must be exhausted from all workstations. The velocity of the air must not be great enough to remove the finer grains from the sample; this would effect sample quality.	
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1.3	Must be designed for easy cleaning and periodic wash-down to reduce the possibility of contamination between samples.	
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2.1	Locate adjoining Service Core.	LOCATIONAL CRITERIA
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3.1	Total usable area 23.0 s.m.	QUANTITATIVE CRITERIA
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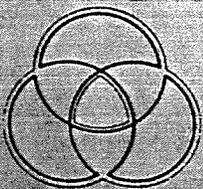
3.2	Plan the following workstations:	
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- .1 One (1) Crushing alcove.
- .2 One (1) Grinding alcove.
- .3 One (1) Sieving alcove.
- .4 Ventilated benching for hand work; 2000mm (serviceable laboratory benching; benchtop - Type C).
- .5 Sturdy benching at 625mm high for four commercial paint shakers used to agitate ceramic cylinders; 3000mm.
- .6 General workstation; 2000mm (serviceable laboratory benching; benchtop - type C) with sink, type AR.

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- |      |            |                       |
|------|------------|-----------------------|
| 4.01 | STRUCTURAL | TECHNICAL<br>CRITERIA |
|------|------------|-----------------------|
- .1 It is anticipated that vibration generated by this equipment will be absorbed by the equipment mounting pads.
- 
- |      |            |  |
|------|------------|--|
| 4.03 | PARTITIONS |  |
|------|------------|--|
- .1 Must be resistant to the impact of small dollies and work associated with materials handling.
  - .2 Must be smooth and not likely to generate or retain dust particles.
- 
- |      |        |  |
|------|--------|--|
| 4.04 | FLOORS |  |
|------|--------|--|
- .1 Hard surface, washable, with cove bases.
  - .2 No door saddles to hinder movement of carts.
- 
- |      |         |  |
|------|---------|--|
| 4.05 | CEILING |  |
|------|---------|--|
- .1 Hard surfaced.
- 
- |      |                               |  |
|------|-------------------------------|--|
| 4.06 | FITTINGS, FIXTURES, EQUIPMENT |  |
|------|-------------------------------|--|
- .1 All benching shall be of a sturdy construction.
  - .2 For the paint shaker workstation, design sturdy benching to absorb and resist destructive vibrations. A noise attenuating cover should be considered.
- 
- |      |                       |  |
|------|-----------------------|--|
| 4.08 | PLUMBING AND DRAINAGE |  |
|------|-----------------------|--|
- .1 In the general benching for hand work provide one (1) large acid-resistant sink for equipment washing (ceramic mills, etc.). Include large sediment trap.
  - .2 Compressed air line (retractable) preferably from ceiling, for cleaning samples, sieves, etc.
  - .3 Central vacuum cleaning outlets at convenient locations for the cleaning of equipment and benching.
  - .4 Floor drain for wash-down with easily accessible cover and sediment trap in floor.
- 
- |      |      |  |
|------|------|--|
| 4.10 | HVAC |  |
|------|------|--|
- .1 Standard building service.
  - .2 Ventilate the equipment alcoves and the ventilated benching at a velocity such that fine airborne power is removed without drawing out fine grains from the powdered rock sample itself.
  - .3 Ventilated benching should be down-draft type for effective removal of dust.
- 
- |      |                         |  |
|------|-------------------------|--|
| 4.12 | ELECTRICAL DISTRIBUTION |  |
|------|-------------------------|--|
- .1 550v 3-phase service for crushing/grinding equipment.
  - .2 Dust- and explosion-proof switches; receptacles.

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Level 2  
Group Spaces



Descon

**Mineral Separation**

GROUP SPACE: 06 MINERAL SEPARATION.

0.1	OBJECTIVE	FUNCTIONAL DESCRIPTION
.1	The separation of minerals from crushed rock samples for use in the Geochronology Laboratories and to a lesser extent, other laboratories.	

002 *Personnel - Two Technicians*

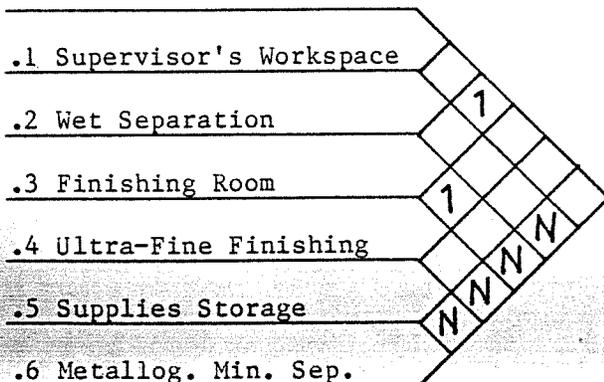
0.3	WORK FLOW
.1	Work from GS05 Sample Preparation, is taken to US06.02 Wet Separation where the required mineral samples are roughly separated from the bulk of the crushed rock by a wet elimination process.
.2	The separated samples are dried in an oven, may be given a rough magnetic separation, then taken in paper bags to US06.03 Finishing Room.
.3	Heavy Liquid separation and or final magnetic separation is carried out in US06.03 Finishing Room, where the sample is brought to a highly refined state of purity.
.4	Some samples are sent to US06.04 Ultra-Fine Finishing.

(Note: in the case of Zircon separation 50 kg. of rock is processed first in Sample Preparation then in Mineral Separation to produce as little as 1 gram of Zircon grains, or less.)

1.0	No applicable criteria at this level.	QUALITATIVE CRITERIA
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2.1	Primary adjacency to Sample Preparation but only to the extent that US05.03 Low Contamination Crushing (Sample Preparation) is adjacent to US06.02 Wet Separation.	LOCATIONAL CRITERIA
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2.2 Locate Unit Spaces according to the following Adjacency Matrix:



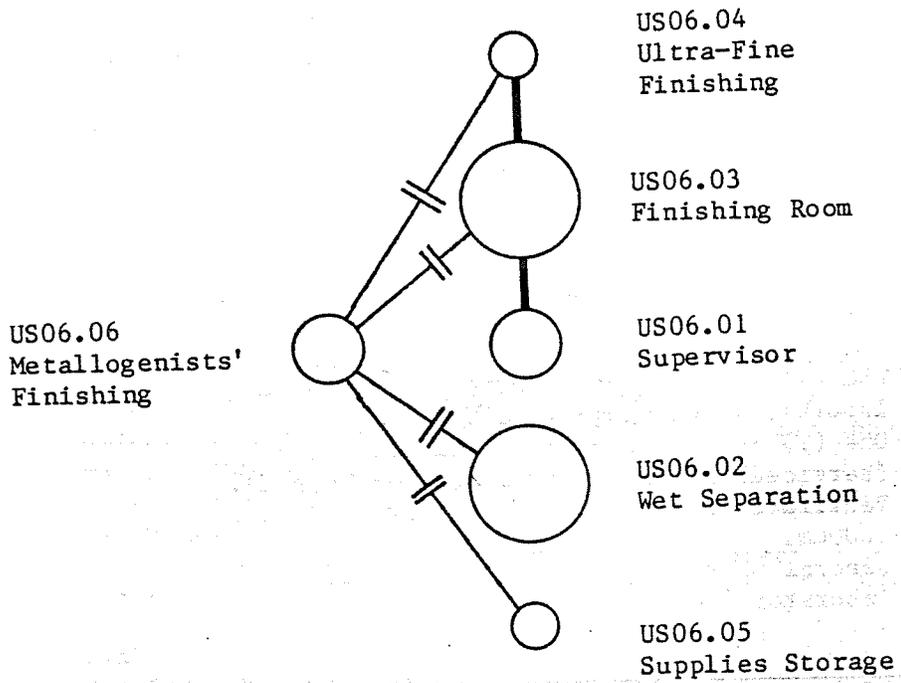
C=Contiguous  
 1=Primary  
 2=Secondary  
 N=Negative

3.1	Total usable area 125.5 s.m.	QUANTITATIVE CRITERIA
3.2	Plan the following Unit Spaces:	
(T)#.1	Supervisors Office:	14.0 s.m.
.2	Wet Separation:	37.0 s.m.
.3	Finishing Room:	37.0 s.m.
.4	Ultra-Fine Finishing:	9.5 s.m.
#.5	Supplies Storage:	9.5 s.m.
.6	Metallogenists' Mineral Sep.:	18.5 s.m.

#Indicates no criteria sheet.  
 (T)Indicates telephone to this space.

4.0 No applicable criteria at this level. TECHNICAL CRITERIA

GS06 MINERAL SEPARATION PLANNING CRITERIA



UNIT SPACE: 06.02 WET SEPARATION  
Mineral Separation

- 
- |       |   |                           |
|-------|---|---------------------------|
| 0.1   | OBJECTIVE   | FUNCTIONAL<br>DESCRIPTION |
|       | .1 The separation of minerals from crushed rock samples with water and agitation as the separating medium.                            |                           |
| <hr/> |   |                           |
| 0.2   | OCCUPANCY   |                           |
|       | .1 Maximum occupancy two (2) technicians.   |                           |
| <hr/> |   |                           |
| 1.1   | This Unit Space must be designed for easy cleaning and periodic wash-down to reduce the possibility of contamination between samples. | QUALITATIVE<br>CRITERIA   |
| <hr/> |   |                           |
| 2.1   | Locate adjoining service core.  | LOCATIONAL<br>CRITERIA    |
| <hr/> |   |                           |
| 3.1   | Total usable area 37.0 s.m.   | QUANTITATIVE<br>CRITERIA  |
| 3.2   | Plan the following workstations:  |                           |
|       | .1 Wilfly Table (floor mounted): dimensions 1200mm x 2400mm x 1500mm (h); access all sides for operation                              |                           |
|       | .2 Superpanner (floor mounted): dimensions <sup>1200</sup> 900mm x <sub>450</sub> 1350mm x 1200mm (h) access all sides for operation. |                           |
|       | .3 One (1) drying oven; 2000mm (serviceable laboratory benching- Type C).   |                           |
|       | .4 One (1) rough magnetic separator; 1500mm (serviceable laboratory benching- Type C).  |                           |
|       | .5 Ventilated benching (Type C) for hand work; 3000mm.  |                           |
|       | .6 General workstation: 5500mm (serviceable laboratory benching- Type C).   |                           |
-

TECHNICAL  
CRITERIA

- 4.03 PARTITIONS
- .1 Must be resistant to the impact of small dollies and work associated with heavy materials handling.
  - .2 Sealed and/or continuous surface to prevent the generation or accumulation of dust.
  - .3 Double doors (1800mm x 2130mm) for equipment access.
- 4.04 FLOORS
- .1 Hard surface, suitable for hose-down with cove bases.
  - .2 Provide floor basin (1200mm x 2400mm) as watertight base for Wilfley Table.
- 4.05 CEILINGS
- .1 Hard surfaced.
- 4.06 FITTINGS, FIXTURES, EQUIPMENT
- .1 All benching shall be of a sturdy construction.
- 4.08 PLUMBING AND DRAINAGE
- .1 Floor drain with sediment trap.
  - .2 Provide compressed air line (retractable), preferably from the ceiling, as an aid to general cleaning.
  - .3 Provide central vacuum cleaning outlets convenient to equipment and workstations.
- To the superpanner provide:
- .4 Cold water supply, drain with sediment trap.
  - .5 A minimum of one cup sink.
  - .6 Suction (from vacuum pump).
- To the Wilfley Table provide:
- .7 Cold water supply at 140 kPa constantly maintained pressure with visible pressure gauge and adjustment capability.
  - .8 Floor basin 1200mm x 2400mm with 100mm sill and floor drain with easily accessible sediment trap. Drain should be adequate size for the disposal of mud and sandy liquids.
- To the General workstation, provide:
- .9 One (1) large sink 900mm x 600mm for equipment washing, drain with sediment trap.
- 4.10 HVAC
- .1 Standard building service.
  - .2 Ventilate drying oven.
- 4.12 ELECTRICAL DISTRIBUTION
- .1 Standard convenience outlets.
  - .2 220v for oven.

UNIT SPACE: 06.03 FINISHING ROOM  
Mineral Separation

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0.1	OBJECTIVE	FUNCTIONAL DESCRIPTION
	.1 Final mineral separation from rock samples using magnetic, heavy liquid, or flotation separation techniques.	
0.2	WORK FLOW	
	.1 Work is processed in a reiterative way between all methods of mineral separation until the desirable level of quality is achieved.	
0.3	OCCUPANCY	
	.1 Typical occupy: one (1) technician.	

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1.1	All surfaces must be easily cleanable to minimize the potential for contamination between samples.	QUALITATIVE CRITERIA
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2.1	The Franz Magnetic Separator workstations must be structurally and physically separate from other workstations (particularly the microscope and balance workstations) to prevent the communication of disruptive vibrations and magnetic fields.	LOCATIONAL CRITERIA
2.2	Locate adjoining service core.	

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3.1	Total usable area 37.0 s.m.	QUANTITATIVE
RITERIA		
3.2	Plan the following workstations:	
	.1 Five (5) fume hood <sup>5</sup> for heavy liquid separation, 1 for drying ovens and, 1 for heavy liquid reclamation).	
	.2 Central materials handling; island unit 3000mm, access four (4) sides.	
	.3 Four (4) Franz Magnetic separators; <sup>5</sup> 4000mm (serviceable laboratory benching).	
	.4 Microscope workstation; 1500mm (microscope benching).	
	.5 General workstation; 3000mm (serviceable laboratory benching ) with sink- Type AR.	

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4.04	FLOORS	TECHNICAL CRITERIA
.1	Wet laboratory flooring.	
4.06	FITTINGS, FIXTURES, EQUIPMENT	
.1	Sturdy benching to resist destructive vibrations of Frantz Magnetic Separators (each weighs 135 kg.).	
4.08	PLUMBING AND DRAINAGE	
.1	Emergency shower at entrance door.	
.2	Emergency eye wash.	
.3	Floor drain.	
.4	One (1) laboratory sink type AR, one inside one of the fume hoods (heavy liquid reclamation) with acid drains. Include drain cock for removal of heavy liquids from P-trap.	
.5	To the General workstation, provide: One (1) laboratory sink (type AR) with acid drain.	
4.10	HVAC	
.1	Temperature: 20°C.(min) to 24°C.(max)	
.2	Humidity: 30% RH. (min) to 50% RH (max)	
.3	Provide five (5) down-draft fume hoods, selected for heavy liquids use; or preferably, the Design Team should provide continuous benching 6000mm with rear down-draft ventilation. Ventilation must be operable in bench lengths of 1200mm and designed specifically for the safe handling of heavy liquids.	
4.14	COMMUNICATIONS	
.1	Heat and smoke detection connected to central monitoring system.	

UNIT SPACE: 06.04 ULTRA-FINE FINISHING ROOM  
Mineral Separation

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- |     |  |                        |
|-----|--|------------------------|
| 0.1 | OBJECTIVE  | FUNCTIONAL DESCRIPTION |
| .1  | Ultra-fine finishing and micrography work for sample preparation for GS07 Geochronology. |                        |
| 0.2 | WORK FLOW  |                        |
| .1  | No relevant work flow.   |                        |
- 

- |     |  |                      |
|-----|--|----------------------|
| 1.1 | These activities should be in a quiet room to facilitate the concentrated effort required in sample selection and examination. | QUALITATIVE CRITERIA |
|-----|--|----------------------|
- 

- |     |                                       |                     |
|-----|---------------------------------------|---------------------|
| 2.0 | No applicable criteria at this level. | LOCATIONAL CRITERIA |
|-----|---------------------------------------|---------------------|
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- |     |   |                       |
|-----|---|-----------------------|
| 3.1 | Total usable area 9.5 s.m.  | QUANTITATIVE CRITERIA |
| 3.2 | Plan the following workstations:<br>.1 General workstation; 3000mm (serviceable laboratory benching) with sink 900mm x 600mm.<br>.2 Microscope workstation; 2000mm (microscope benching). |                       |
- 

- |      |  |                    |
|------|--|--------------------|
| 4.03 | PARTITIONS   | TECHNICAL CRITERIA |
| .1   | Provide glazed partitions between this Unit Space and US06.03 Fine Finishing Room. |                    |
| 4.08 | PLUMBING AND DRAINAGE  |                    |
| .1   | To the General workstation, provide:<br>Hot and cold water to sink.                |                    |

UNIT SPACE: 06.05 METALLOGENISTS' MINERAL SEPARATION  
Mineral Separation

0.1	OBJECTIVE	FUNCTIONAL DESCRIPTION
.1	The separation of minerals from crushed rock samples using water and agitation as the separating medium, and concentration of mineral separates using heavy liquids and electro-magnetic refining techniques, so that contamination to other mineral separation processes does not occur.	
1.1	This Unit Space must be designed for easy cleaning and periodic wash-down to reduce the possibility of contamination between samples.	QUALITATIVE CRITERIA
2.1	Locate adjoining service core.	LOCATIONAL CRITERIA
2.2	Locate away from US06.02 Wet Separation and US06.03 Fine Finishing, in order to reduce the possibility of contamination.	
3.1	Total usable area 18.5 sm.	QUANTITATIVE CRITERIA
3.2	Plan the following workstations: .1 Superpanner (floor mounted): dimensions <sup>1200</sup> 900mm x <sup>1200</sup> 1350mm x 1200mm (h) access all sides for operation. .2 One (1) drying oven; 1500mm (serviceable laboratory benching). .3 One (1) rough magnetic separator; 1000mm (serviceable laboratory benching). .4 Heavy liquids separation, and staining workstation; fume hood with ledge, 1500mm. .5 General workstation: 5500mm (serviceable laboratory benching).	

- 4.03 PARTITIONS
- .1 Sealed and/or continuous to prevent the generation or accumulation of dust.
  - .2 Double doors (1800mm x 2130mm) for equipment access.

- 4.04 FLOORS
- .1 Hard surface, suitable for hose-down with core base.

- 4.05 CEILINGS
- .1 Hard surfaced.

- 4.06 FITTINGS, FIXTURES, EQUIPMENT
- .1 All benching shall be provided with sturdy structure.

- 4.08 PLUMBING AND DRAINAGE
- .1 Floor drain with sediment trap.
  - .2 Provide compressed air line (retractable), preferably from the ceiling, as an aid to general cleaning.
  - .3 Provide central vacuum cleaning outlets convenient to equipment and workstations.

- To the superpanner provide:
- .4 Cold water supply.
  - .5 A minimum of one cup sink.

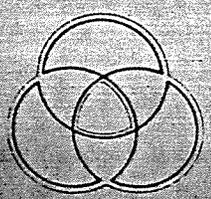
- To the General workstation, provide:
- .6 One (1) large sink 900mm x 600mm for equipment washing.

- 4.10 HVAC
- .1 Standard building service.
  - .2 Ventilate drying oven.
  - .3 Provide one down-draft acid-resistant fume hood (Type TS).

- 4.12 ELECTRICAL DISTRIBUTION
- .1 Standard convenience outlets.
  - .2 220v for oven.

Level 2

Group Spaces



Descon

**Rock Collection**

GROUP SPACE: 17 ROCK COLLECTION

- 
- |     |   | FUNCTIONAL<br>DESCRIPTION |
|-----|---|---------------------------|
| 0.1 | OBJECTIVE   |                           |
| .1  | The cataloguing, filing, storage, and retrieval of the Reference Rock Collection.   |                           |
| 0.2 | WORK FLOW   |                           |
|     | Storage:  |                           |
| .1  | Rocks shipped from field to loading dock (in large pails, bags, boxes, stored in 17.02 Temporary Storage and Sorting storage bins with geologist's name; rocks sorted onto trays for rock storage; geologist supervising. |                           |
| .2  | Trays taken to US17.05 Rock Storage.  |                           |
| .3  | Large rocks cut/polished for inspection in US17.03 Preliminary Examination.   |                           |
|     | Retrieval:  |                           |
| .4  | Geologist calls/orders up desired rock from Curator, or goes to collection and selects rock.  |                           |
| .5  | Geologist takes those samples required to Geologist's Workspace.  |                           |
| .6  | Geologist returns samples to Curator.   |                           |
| .7  | Curator files samples, catalogue card.<br>At end of project, geologist selects representative sample and discards remainder.  |                           |
| 0.3 | PERSONNEL   |                           |
| .1  | One (1) Curator.  |                           |
| .2  | One (1) Labourer.   |                           |
- 

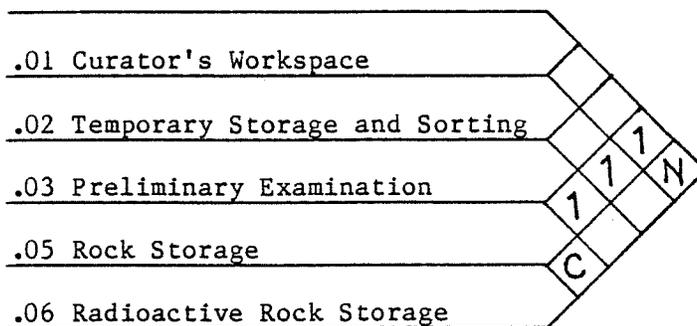
1.0	No applicable criteria at this level.	QUALITATIVE CRITERIA
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- |     |  |                        |
|-----|--|------------------------|
| 2.1 | Locate for easy access between US17.02 Temporary Storage and Sorting and US18.01 Loading Dock (Materials Handling).  | LOCATIONAL<br>CRITERIA |
| 2.2 | Locate with secondary adjacency, US17.03 Preliminary Examination to GS04 Lapidary, in order that Lapidary personnel will be able to operate Preliminary Examination equipment conveniently, if required. |                        |
| 2.3 | Locate Unit Spaces in accordance with the adjacencies shown on the Adjacency Matrix, following page.   |                        |
-

2.4 Adjacency Matrix

LOCATIONAL  
CRITERIA



C=Contiguous  
1=Primary  
2=Secondary  
N=Negative

3.1 Total usable area 1279.0 s.m.

QUANTITATIVE  
CRITERIA

3.2 Plan the following Unit Spaces:

(T)#.01 Curator's Workspace:	18.5 s.m.
.02 Temporary Storage and Sorting:	55.5 s.m.
.03 Preliminary Examination:	37.0 s.m.
.04 Deleted	
.05 Rock Storage:	1140.0 s.m.
.06 Radioactive Rock Storage:	28.0 s.m.

#Indicates no criteria sheet  
(T)Indicates telephone to this space.

4.0 No applicable criteria at this level.

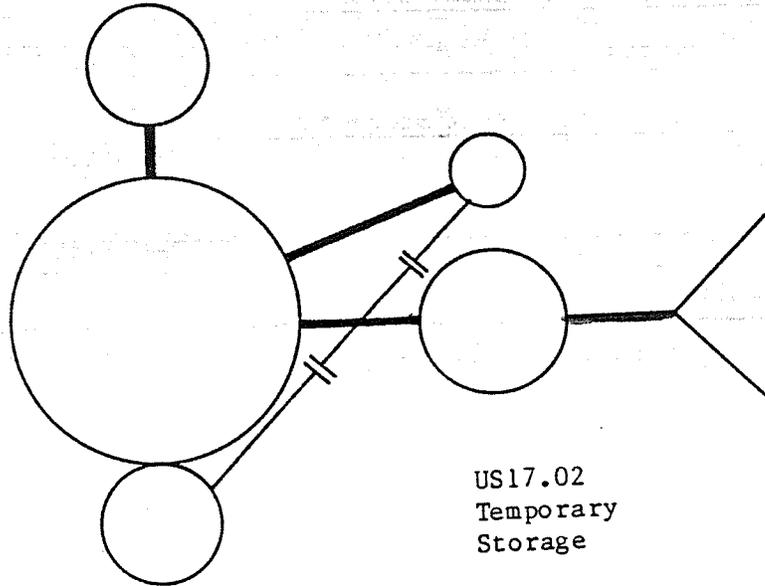
TECHNICAL  
CRITERIA

GS17 ROCK COLLECTION

US17.03  
Preliminary  
Inspection

US17.05  
Rock Storage

US17.06  
Radioactive  
Rock Storage



US17.01  
Curator's  
Workspace

Loading Dock

US17.02  
Temporary  
Storage

FILE: ROC17US02  
1979-04-19-pm  
LEVEL 3: UNIT SPACES

UNIT SPACE: 17.02 TEMPORARY STORAGE AND SORTING  
Rock Collection

- 
- |     |   | FUNCTIONAL DESCRIPTION |
|-----|---|------------------------|
| 0.1 | OBJECTIVE   |                        |
| .1  | To aid geologists in the organization of their samples before storage in the Rock Collection. |                        |
| 0.2 | WORK FLOW   |                        |
| .1  | Cans, bags, etc., placed into storage bins.   |                        |
| .2  | Bins labelled according to geologist's name, sample information.                              |                        |
| .3  | Rocks taken from bin, sorted at Unpacking station.  |                        |
| .4  | Sorted samples placed on trays.   |                        |
| .5  | Trays taken to US17.05 Rock Storage.  |                        |
| 0.4 | SCHEDULE OF USE   |                        |
| .1  | Peak influx at end of field season (September, early October).                                |                        |
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1.0	No applicable criteria at this level.	QUALITATIVE CRITERIA
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2.1	Primary adjacency to US18.01 Loading Dock, or service elevator.	LOCATIONAL CRITERIA
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3.1	Total usable area 55.5 s.m.	QUANTITATIVE CRITERIA
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- |     |   |  |
|-----|---|--|
| 3.2 | Plan the following workstations:  |  |
| .01 | Twenty (20) storage bins; each 1200mm x 900mm x 1200mm (h), <del>two (2) high</del> , along wall(s) |  |
| .02 | Three (3) Unpacking tables; each with 1200mm x 2400mm table; total area: 20.5 s.m.                  |  |
| .03 | Tray storage; racks 4.5 s.m. on floor.  |  |
- 

4.03	PARTITIONS	TECHNICAL CRITERIA
.1	Impact resistant.	
.2	Provide double doors (1800mm x 2130mm).	

4.04	FLOORS	
.1	Hardened concrete.	

4.08	PLUMBING AND DRAINAGE	
.1	Cold water supply to hose bibb.	
.2	Floor drain <i>See drawing + trap</i>	

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UNIT SPACE: 17.03 PRELIMINARY EXAMINATION  
Rock Collection

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0.1	OBJECTIVE	FUNCTIONAL DESCRIPTION
.1	To select, cut and polish samples from the Rock Collection before further study is made.	
0.2	WORK FLOW	
.1	Selected rocks for preliminary examination cut on rock saw, polished.	
.2	Rock examined on bench with optical tools.	
.3	Examined rock returned to rock storage, on tray.	
0.4	SCHEDULE OF USE	
.1	Peak demand at end of field season.	

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1.0	No applicable criteria at this level.	QUALITATIVE CRITERIA
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2.0	No applicable criteria at this level.	LOCATIONAL CRITERIA
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3.1	Total usable area 37.0 s.m.	QUANTITATIVE CRITERIA
3.2	Plan the following workstations: .01 Rock saw; 900mm x 900mm; access one (1) side. .02 Rock splitter; 2000mm (serviceable laboratory benching- Type C). .03 Rock polishing equipment; 1000mm (serviceable laboratory benching- Type C). .04 Examination workstations; three (3) required; each 3000mm (seated benching- Type C). .05 Sample cleaning workstation; sink 900mm x 900mm x 300mm (approx.) with inclined drain table beside.	

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- |      |            |                       |
|------|------------|-----------------------|
| 4.03 | PARTITIONS | TECHNICAL<br>CRITERIA |
|------|------------|-----------------------|
- .1 Impact resistant.
- 
- |      |        |  |
|------|--------|--|
| 4.04 | FLOORS |  |
|------|--------|--|
- .1 Hardened concrete.
  - .2 Watertight.
- 
- |      |                       |  |
|------|-----------------------|--|
| 4.08 | PLUMBING AND DRAINAGE |  |
|------|-----------------------|--|
- .1 Cold water supply to hose bibb.
  - .2 Floor drain with sediment trap.
- To the Sample Cleaning workstation, provide:
- .3 Hot and cold water supply to sink, sediment trap.
- To the Rock Splitting and Rock Polishing equipment benching, provide:
- .4 Cold water supply, and drain with sediment trap.
- 
- |      |                         |  |
|------|-------------------------|--|
| 4.12 | ELECTRICAL DISTRIBUTION |  |
|------|-------------------------|--|
- .1 Provide 110v supply to all equipment.
  - .2 Provide 220v for future use.
- 
- |      |          |  |
|------|----------|--|
| 4.13 | LIGHTING |  |
|------|----------|--|
- To the Examination workstations, provide:
- .1 Task lighting.

UNIT SPACE: 17.05 ROCK STORAGE  
Rock Collection

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0.1	OBJECTIVE	FUNCTIONAL DESCRIPTION
.1	To provide central storage and inventory of geologist's samples.	
0.2	WORK FLOW	
.1	After sorting in US17.02 Temporary Storage and Sorting, samples (on trays) loaded onto metal storage racks.	
.2	Rock information card filled out and filed in catalogue (or other documentation).	
0.4	SCHEDULE OF USE	
.1	Peak influx at end of field season (September, early October).	

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1.1	While this is likely to be in a basement location, every effort should be made to enhance the appearance of this space; the Rock Collection is in frequent use.	QUALITATIVE CRITERIA
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2.1	Primary adjacency to service elevator.	LOCATIONAL CRITERIA
2.2	Secondary adjacency to GSO4 Lapidary.	
2.3	Secondary adjacency to GSO5 Sample Preparation.	
2.4	Rock Collection racks should be laid out with a 1800mm wide central aisle and 1500mm wide secondary aisles.	

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3.1	Total usable area 1140.0 s.m.	QUANTITATIVE CRITERIA
3.2	Plan the following workstations:	
.01	Stacks; 1250 (nominally) open racks, each 600mm x 600mm x 1950mm (h), area: 1115.0 s.m. (min).	
.02	Tray/cabinet storage; 18.5 s.m.	
.03	Fork lift truck bay; 6.5 s.m.	

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|------|------------------|-----------------------|
| 4.02 | WEATHER ENVELOPE | TECHNICAL<br>CRITERIA |
|------|------------------|-----------------------|
- .1 Operable strip windows near ceiling desirable.
- 
- |      |            |  |
|------|------------|--|
| 4.03 | PARTITIONS |  |
|------|------------|--|
- .1 Impact resistant.
- 
- |      |        |  |
|------|--------|--|
| 4.04 | FLOORS |  |
|------|--------|--|
- .1 Hardened concrete.
  - .2 Watertight.
- 
- |      |          |  |
|------|----------|--|
| 4.05 | CEILINGS |  |
|------|----------|--|
- .1 Height: 3900mm clear (min).
- 
- |      |                               |  |
|------|-------------------------------|--|
| 4.06 | FITTINGS, FIXTURES, EQUIPMENT |  |
|------|-------------------------------|--|
- .1 Provide rock storage racks under construction budget, general details: steel frame 600mm x 600mm x 1950mm (h), with sliding wooden trays. Specific details available from GSC.
  - .2 The Design Team should consider the feasibility of adopting an automated storage and retrieval system to ease handling of rock trays.
- 
- |      |                       |  |
|------|-----------------------|--|
| 4.08 | PLUMBING AND DRAINAGE |  |
|------|-----------------------|--|
- .1 Cold water supply to hose bibbs.
  - .2 Floor drain with sediment trap.
- 
- |      |      |  |
|------|------|--|
| 4.10 | HVAC |  |
|------|------|--|
- .1 Mechanical cooling not required.
  - .2 Increase ventilation during warmer seasons.
- 
- |      |          |  |
|------|----------|--|
| 4.13 | LIGHTING |  |
|------|----------|--|
- .1 Lighting between stacks at 320 lux, switchable in banks associated with rock storage aisles.
- 
- |      |                |  |
|------|----------------|--|
| 4.14 | COMMUNICATIONS |  |
|------|----------------|--|
- .1 PA system, to stacks.

UNIT SPACE: 17.06 RADIOACTIVE ROCK STORAGE  
Rock Collection

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0.1	OBJECTIVE	FUNCTIONAL DESCRIPTION
.1	To provide safe storage for radioactive rock samples.	
0.2	WORK FLOW	
.1	This area is in addition to the main rock storage area and provides the same service, apart from the special hazards of radioactivity.	

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1.1	Radio-active rocks give off small quantities of radon gas which must be exhausted from the building.	QUALITATIVE CRITERIA
1.2	This Unit Space must be totally enclosed.	

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2.1	Contiguous to US17.05 Rock Storage.	LOCATIONAL CRITERIA
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3.1	Total usable area 28.0 s.m.	QUANTITATIVE CRITERIA
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4.00	GENERAL	TECHNICAL CRITERIA
.1	Refer to Safety Code: Laboratory Facilities for Handling Radioisotopes: Health and Welfare Canada (RPB-SC-12).	
4.03	PARTITIONS	
.1	Impact resistant.	
4.04	FLOORS	
.1	Watertight.	
4.08	PLUMBING AND DRAINAGE	
.1	Cold water supply to hose bibb.	
.2	Floor drain with sediment trap.	
4.10	HVAC	
.1	Ventilated at 7 air changes per hour.	
.2	Exhaust system must be separated from all other exhaust systems.	
.3	Standard building supply.	
4.12	ELECTRICAL DISTRIBUTION	
.1	Exhaust system requires connection to emergency electrical supply.	