Larger BUILT PROJECTS: 1972-2005

1) **Toronto Waterfront** -> "Harbourfront"
2) **Suncor** Site & Building Evaluation
3) Alberta Bible **College**: Retrofit & Additions
4) Canterra **Office Tower**: Upgrade
5) Commercial **Factory**: Retrofit & Addition
6) Food **Store**: Retrofit & Addition

WORK+unique Qualifications:

- **specialize in SUSTAINABLE DEVELOPMENT**
- **service**: we try to emulate **success** & avoid **pitfalls**

1) **work**: design, consulting, construction, R&D
2) **projects:** small & big, new & retrofit: residential, industrial, commercial & educational
3) **clients**: builders, developers, government, individuals, organizations & First Nations
4) **full-time professional practice** since **1976**
5) **28 year track record** & company goodwill
6) 12 years **live-in experience** in sustainable home & office (to know 1st hand strengths & limitations of ideas, concepts, materials, products & features)
7) **we** (try to) **practice what we preach**
8) **national** reputation
9) husband wife **team**

Process to gain Expertise

1) be well **read** to establish benefits & **priorities**
2) **select** promising features, materials, products
3) third party **verification** for short list
4) seek **client** interest & approval
5) **integrate** priorities into **design** project
6) spend time at **construction** site
7) **live-in** experience with same ideas, features, innovations, materials & products
8) establish **strengths & weaknesses**
9) retrofit, **upgrade** & improvement, for future
10) realize there is always **much to learn**
11) each project should be a **building block**

MISSION/VISION Statement:

1) **indoor air quality, health** & **safety**
2) **healthy materials**
3) **user-friendly design**: ergonomics, barrier-free
4) resource, energy, water & space **conservation**
5) **stewardship**: green products
6) the many "**R**s"
7) **appropriate technology**
8) small **Ecological Footprint**
9) low **embodied energy**
10) **multi-tasking** details

our DESIGN philosophy:

- **our approach is different from most others:**

1) based on **design+construction+live-in**
2) **integrated** approach: people+environment
3) **user participation** where appropriate
4) buildings designed from **inside** out
   (form follows **function**)
5) many features have **plurality** of functions
6) follow a **quadruple bottom** line:
   PROFIT for: planet, people, future & business

as Professionals:

- over the last 28 years we have **learned** that we:

1) have many **contacts** in the field (i.e. suppliers, government, reps, colleagues & NGOs)
2) try to learn from **past clients** & be self-critical
3) continue to do R&D to seek **improvements**

We also realize that we:

4) do not have all the **answers**
5) we have **much to learn**
6) are **not perfect**
7) like working as a **team**
8) **partnerships** with industry & government are worthwhile & efficient options

public RECOGNITION

+ media coverage of our work in about:

1) **5 demonstration projects** built, 1976-2002
2) **Stampede SunSeed** (1979)**:** 65,000 visitors
3) **EcoHome** (1993-2005)**:** 80,000 visitors
4) total visitors, 1979-2005: 150,000
5) +**300 partners**: industry, government, NGOs
6) 97 **articles** world-wide
7) 25 **Radio** & **TV** interviews
8) 66 (conference) **presentations**
9) 17 seminars/workshops
10) 6 **awards & citations**
11) covered in 13 books, reports & calendars

(details are available upon request)

Construction Systems

- we have experience with the following **wall** systems:

1) **EcoStuds**: 12”-15” thick wall trusses
2) **double wall:** staggered 2x4s
3) modified stick built: 2x6 with 3” EPS
4) **rammed earth:** gravel, sand & clay
5) **straw bales**: 18”w, 14”h, 36”l bales
6) SIPs (structural insulated panels)
7) **Blackie Block:** dry concrete half-blocks
8) **stackwall:** 24” wide logs wall thickness

Note: 1) @ system has its advantages & limitations. No system is perfect.
2) @ system has different R values (i.e. EcoStuds: ≈ R55, Strawbale: R24)

Tests & Indicators of success:

- the following are the **best tests** of good design of a building, its site and details:

1) **PEOPLE**: Is the building user-friendly?[1]
   a) **children**: does it accommodate childhood?
   b) **elderly**: does it accommodate older people?
2) **durability**: to withstand wear & tear, with no or low maintenance? This is key to sustainability.[2]
3) **time**[3]: continued success in function?
4) **climate**: can it tolerate climate change[4]?

Footnotes:

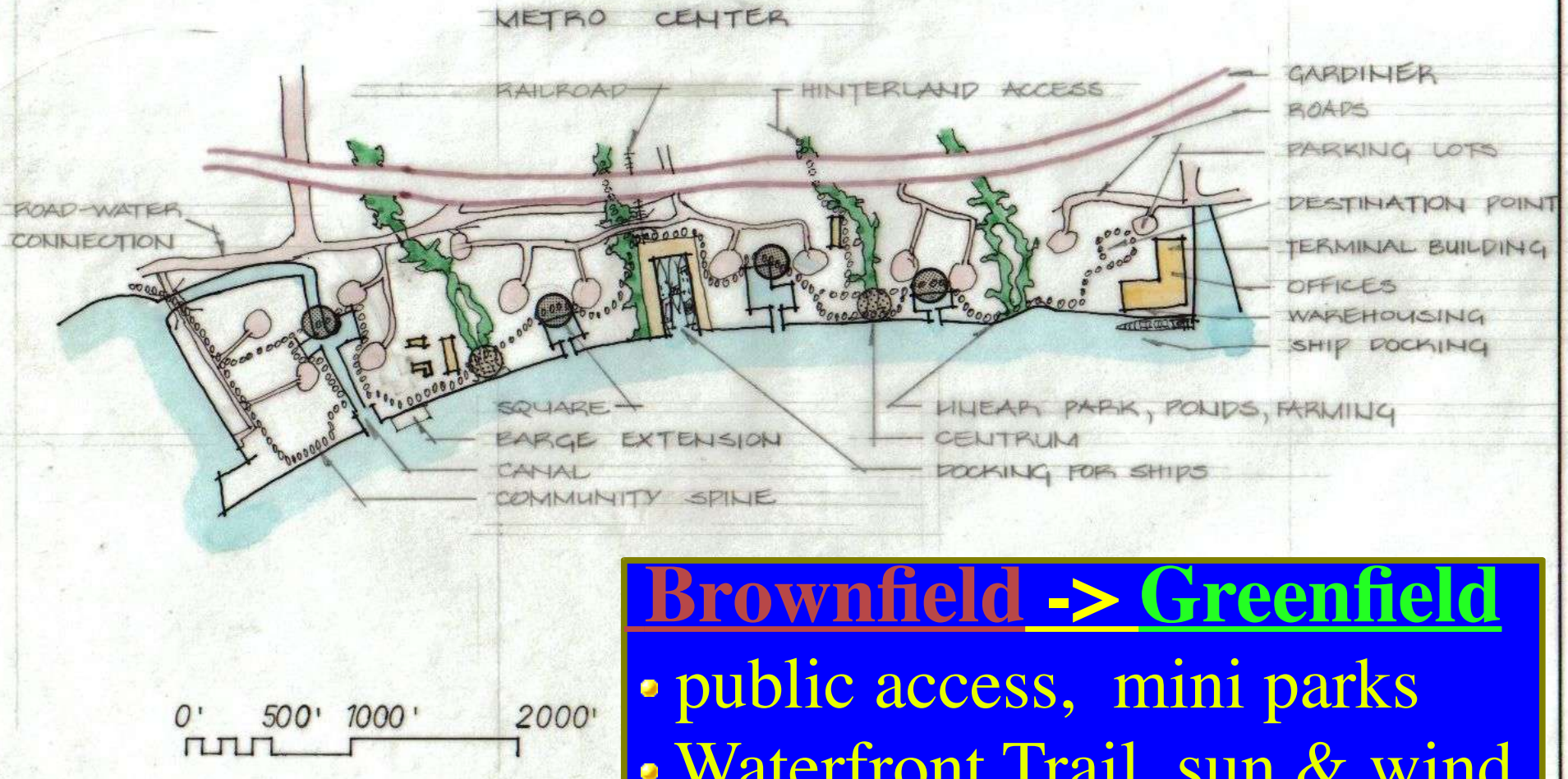
1) **ergonomic** & **anthropometric**?
2) we try to build for **210** v. 70 year cycle
3) **time** to: settle (foundation), dryout (studs), move (drywall), twist, fade, wear out, etc.
4) **weather** extremes, freeze thaw cycles, ultra violet radiation, hail, rain, cold

BENEFITS of Green Buildings:

1) better **indoor air quality, health & safety**
2) > **light** (i.e. reduce SAD, long winter days)
3) more **user-friendly**
4) no retrofit needed to make **barrier free**
5) > **durability** (less replacement costs)
6) < **maintenance** (lower costs)
7) longer **tenure**
8) preferential **mortgage rate** (0.25-0.5%)
9) **disaster relief** (i.e. Great Ice Storm)
10) < **liabilities**
11) < operating **costs** (> net disposable income)
12) **income generation** potential (environmental credits, tradable emissions)
13) greater **security**: cost control, incompetence

TORONTO WATERFRONT: 1972

- main elements of **urban design plan**
- 96 acres, multi billion project



Brownfield -> Greenfield

- public access, mini parks
- Waterfront Trail, sun & wind

OCTOBER 20/72

Toronto **Waterfront** > **Harbourfront**

- **people place**, destination, culture + history

- nothing -> **celebrations**
- empty -> **full of life**
- no-one -> people **park**
- forgotten -> **memorial**
- warehouses -> **shops**

Toronto Waterfront > Harbourfront

• trail & promenade, boardwalk & spine

- no tresspassing-> **access**
- private -> **public**
- industrial zone -> **park**
- hard industry -> soft **natur**
- **emptiness** -> full of **action**

Toronto Waterfront > Harbourfront

- recycled real estate, converted buildings

- industrial **EcoPark**
- maintain **history**
- retain **flavour/materials**
- **reuse/convert** buildings
- **public access**

Pattinson Project: Salmon Arm B.C.
- sustainable home in warm climate

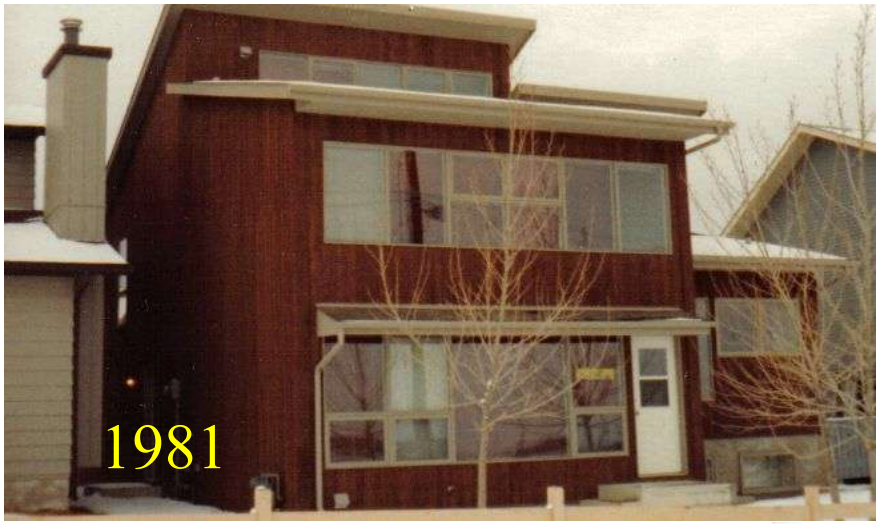
- rainwater collection
- livable attic
- organic v. box spaces
- thick walls/wide windowsills
- Tempcast fireplace

GreenHouses conservatories or atriums
- multi-purpose: inside garden+solar collector

- **breakfast nook**
- **growing plants or food**
- **cleaning air+water**
- **passive solar collector**
- **tropics in winter**

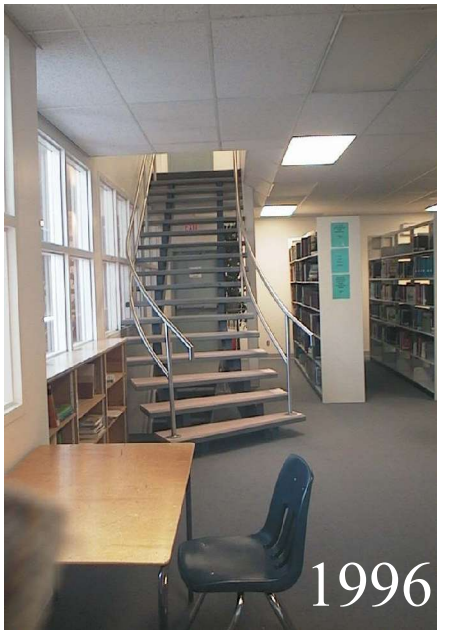
Passive Solar (no mechanical assist):

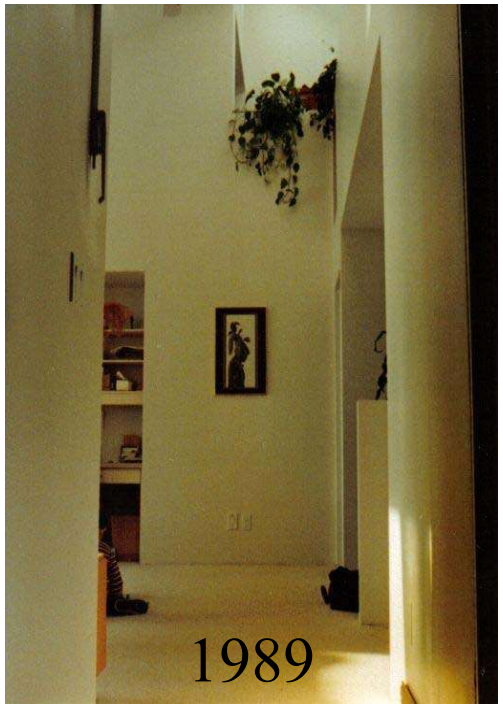
- south windows
- very cost effective
- high COP > 50
- light & plants during winter
- major solar collector
- connection to outside



Natural Daylight: roof+wall clerestories

when windows cannot be used for interior lighting





Natural Daylight: SunPipes & Skylights

when windows cannot be used for interior lighting

- **rooftop SunPipes**
  - nonventing
  - translucent
  - more light
  - reflector
- **skylights can vent**
- **full spectrum light**
- **for plants**

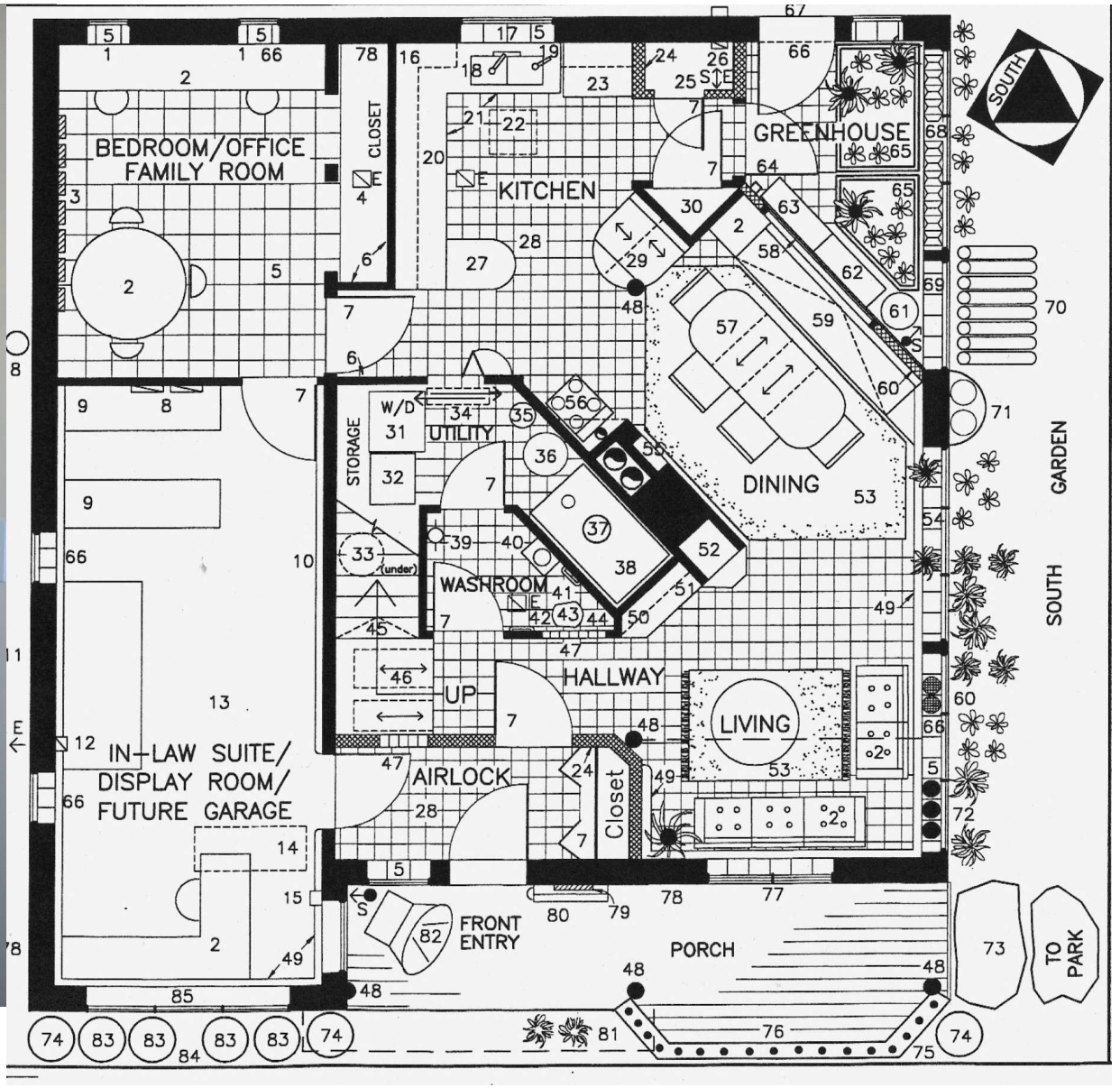
favourite **Architectural features 1** of 4:

- incorporating yesterday, today & tomorrow
  1) open plans, 2) inclined & open ceilings

favourite **Architectural features 2** of 4:

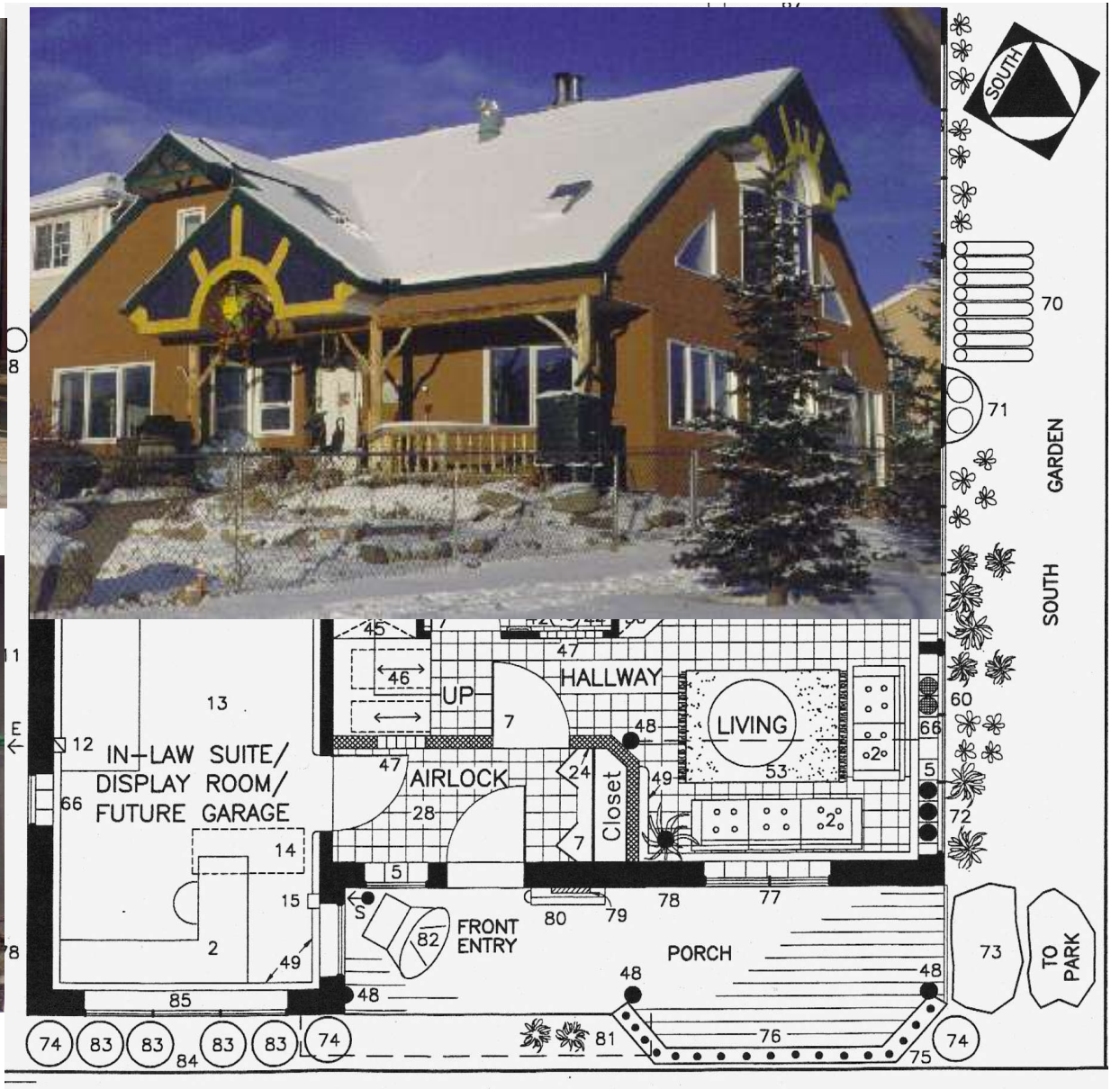
- borrowing from yesterday, building today, ready for tomorrow

3) multi-purpose Airlocks, 4) minimum hallways



favourite **Architectural features 3** of 4:

5) front porch, 6) minimum hallway as interior street



favourite **Architectural features 4** of 4:

7) high performance windows (R14-17), 8) wide window sills