

TST10C Echology *02012 Research Notes:

REF: <http://www.anat.org.au/echology/>

Working Title: "Terra Sensing Tower" (TST)

Concept URL: <http://tst.allshookup.org>

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Building Specs:

1 O'Connell St, Sydney Australia

<http://www.1oconnell.com.au/>

Google Maps >> <http://goo.gl/maps/5470>

155m (509ft) Actual, 166m (545f) Spire Height , 36floors Built 1991

http://en.wikipedia.org/wiki/List_of_tallest_buildings_in_Sydney

Designed by PTW Architects (formerly Peddle Thorp & Walker)

PTW are doing current Retrofit

Building is Open to the public 8am-6pm Mon-Fri

Google Image Search >> <http://is.gd/ZZxCvM>

18th Tallest Building in Sydney CBD

Using Schneider BMCS - <http://is.gd/EO7XdE>

http://en.wikipedia.org/wiki/Building_management_system

<http://en.wikipedia.org/wiki/HVAC>

TERRA SENSING TOWER MODULES

1. Lightning/Seismic Data Activated Rooftop Lights
2. Biosphere Monitoring Weather Sensing Station
3. Biophilia Wintergarden Atrium - Alleviate Sick Building Syndrome!
4. Exterior Carbon Dioxide Filter - Vertical Vegetated Climbing Facade
5. Kinetic Sound Chimes Triggered by Seismic and Wind Data
6. Ecological Music – Seismic Foyer Entry Muzak, and Magnetosphere Lift Muzak

<<Breakdown>>

1. Lightning/Seismic Data Activated Rooftop Lights

Regular Nightly Light Show based on 24hrs of Data.

Tourist Attraction - Remotely viewing via Webcast including Sound possible!

Controlled by Global Lightning Strikes (Blue) and Global Seismic Events (RGB)

Global Lightning Network (GLN) <http://www.uspln.com/unidatainfo.html>

StormForce XR - <http://code.google.com/p/stormforce/>

Boltek Lightning Detection Systems <http://www.boltek.com/>

Vaisala - environmental and industrial measurement <http://www.vaisala.com/>

The study of lightning is called Fulminology

<http://en.wikipedia.org/wiki/Lightning>

Global Seismic Activity (GSN) <http://earthquake.usgs.gov/earthquakes/map/>

Existing Lighting Specs:

950 Metres of Neon Tubes COBALT BLUE (15mm glass with Argon Gas)

59 Nos. 15KV Transformers

Consumption is 2.15 Amps per Transformer per hour

2.15A X 240V = 516 watts per hour per transformer

516 Watts x 59 Transformers = 30,444 watts/1000 = 30.444 (30.5 KW) per Hour

(Solid state dimmable neon ballasts required. DMX or MIDI controlled)

<http://en.wikipedia.org/wiki/DMX512>

<http://en.wikipedia.org/wiki/MIDI>

http://en.wikipedia.org/wiki/Electrical_ballast

http://en.wikipedia.org/wiki/Digital_Addressable_Lighting_Interface

Phillips Color Kinetics LEDs: <http://www.colorkinetics.com/>

2. Biosphere Monitoring Weather Sensing Station

<Sensors>

Temperature - Thermometer

<http://en.wikipedia.org/wiki/Thermometer>

Air Pressure - Barometer

<http://en.wikipedia.org/wiki/Barometer>

UV Index -

http://en.wikipedia.org/wiki/UV_Index

Air Quality -

http://en.wikipedia.org/wiki/Air_quality

Precipitation - Rain Gauge

http://en.wikipedia.org/wiki/Rain_Gauge

Visibility - Transmissometer

<http://en.wikipedia.org/wiki/Transmissometer>

Humidity - Hygrometer

<http://en.wikipedia.org/wiki/Hygrometer>

Wind Speed and Direction - Anemometer

<http://en.wikipedia.org/wiki/Anemometer>

Magnetometer (Magnetic Field Measurement)

<http://en.wikipedia.org/wiki/Magnetometer>

Schumann Resonances (Electromagnetic Resonances)

http://en.wikipedia.org/wiki/Schumann_resonances

VLF (Very Low Frequency) (Analogue broadcast inside building)

http://en.wikipedia.org/wiki/Very_low_frequency

ULF (Ultra Low Frequency)

http://en.wikipedia.org/wiki/Ultra_low_frequency

Vaisala - <http://www.vaisala.com/>

Campbell Scientific - <http://www.campbellsci.com/products>

The Internet of Things - <http://cosm.com>

TST weather station on the spire of 1 O'Connell St would be an alternative to www.bom.gov.au for downtown Sydney weather forecasting.

3. Biophilia Wintergarden Atrium - Alleviate Sick Building Syndrome!

Organic Natural Architecture - Indoor Architectural Canopy!

Green Walls

http://en.wikipedia.org/wiki/Green_wall

<Potential Species>

Spike Moss

<http://en.wikipedia.org/wiki/Selaginella>

Parthenocissus tricuspidata (japanese creeper)

http://en.wikipedia.org/wiki/Parthenocissus_tricuspidata

Nephrolepis (Fern)

<http://en.wikipedia.org/wiki/Nephrolepis>

Hydrangea petiolaris (Climbing hydrangea)

http://en.wikipedia.org/wiki/Hydrangea_petiolaris

Ivy (Hedera)
<http://en.wikipedia.org/wiki/Hedera>

Clematis (Travellers Joy)
<http://en.wikipedia.org/wiki/Clematis>

Aristolochia (birthworts, pipevines or Dutchman's pipes)
<http://en.wikipedia.org/wiki/Aristolochia>

Air-Plants
<http://en.wikipedia.org/wiki/Tillandsia>

Lichen
<http://en.wikipedia.org/wiki/Lichen>

Aeroponics
<http://en.wikipedia.org/wiki/Aeroponics>

Aeroponics
<http://en.wikipedia.org/wiki/Aeroponics>

Sound could also be piped into this space? Noisy Lunch Time - Acoustics are NOT good!
Quadcopter Drone maintenance?

Biomimicry
<http://en.wikipedia.org/wiki/Biomimicry>

Biophilia
http://en.wikipedia.org/wiki/Biophilia_hypothesis

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<http://www.woollypocket.com/>
<http://www.eltlivingwalls.com/>

Grow fresh air..
Volatile Organic Compounds (VOC)
Natural Solution to Cleaner Indoor Air
Indoor air purifier

The Biophilia Wintergarden Atrium would incorporate local community engagement encouraging collaboration with Sydney based Botanist(s).

4. Exterior Carbon Dioxide Filter - Vertical Vegetated Climbing Facade

Tensile win green facades at "1 Central Park", Sydney
<http://tensile.com.au/?p=848>

Green Wall - Vertical Gardnes by Patrick Blanc
http://en.wikipedia.org/wiki/Patrick_Blanc

Green Walls
http://en.wikipedia.org/wiki/Green_wall

Vertical Farming
http://en.wikipedia.org/wiki/Vertical_farming

1 Central Park Sydney - <http://www.centralparksydney.com/>
http://en.wikipedia.org/wiki/Central_Park,_Sydney

5. Kinetic Sound Chimes Triggered by Seismic and Wind Data

World Wind 3D Data Viewer

<http://www.ga.gov.au/products-services/maps/interactive-3d-models/world-wind-3d-data-viewer.html>

Anemometer

<http://en.wikipedia.org/wiki/Anemometer>

Nice space - 2nd Floor Perfect for Audio Spatialization Environment.

http://en.wikipedia.org/wiki/Wind_chime

Potential to incorporate a data controlled water feature with the Seismic Wind Chimes.

6. Ecological Music – Seismic Foyer Entry Muzak, and Magnetosphere Lift Muzak

Musak

http://en.wikipedia.org/wiki/Elevator_music

7 High Rise Lifts + 5 Low Rise Lifts

Seismic Auditory Display mixed with VLF audio signal coming from VLF Antenna on Roof.

Radio Atmospheric

<http://en.wikipedia.org/wiki/Sferics>

"The Music of the Magnetosphere"

Audio Samples - <http://www.spaceweathersounds.com/sndbites.htm>

Sferics

<http://en.wikipedia.org/wiki/Sferics>

Sounds of Seismic

<http://sos.allshookup.org>

What other kinds of Data Sets Could be Used?

Weather, Stock, Tidal, Virus, Transport, Food, Population, News, Seismic, Energy Consumption, Mining & Mineral Resources

http://en.wikipedia.org/wiki/Equal_temperament

<http://en.wikipedia.org/wiki/Audfication>

<http://en.wikipedia.org/wiki/Sonification>

<http://i-e-i.wikispaces.com/Auditory+Display>

Sounds of Seismic foyer audio would be architecturally spatialised using directional speakers. Sounds of the Magnetosphere elevator (lift) muzak - would be a worlds first!

7. Open Data Publication

Outgoing public aggregation via <http://COSM.com>

Open source software developed for TST could also be adapted for other architectural based installations.

INTELLIGENT BUILDINGS

http://en.wikipedia.org/wiki/Intelligent_buildings
http://en.wikipedia.org/wiki/Theory_of_multiple_intelligences

we should also use "intelligent buildings" as a metaphor to cure other structural failings in society.

TEDxManitoba - Scott Stirton - Intelligent Buildings
<http://www.youtube.com/watch?v=MWi12SO-Jac>

Intelligent Buildings
http://www.rbot.net/intelligent_buildings

Smart buildings - the future of building technology - Siemens
<http://www.youtube.com/watch?v=gCuPx9shWT0&feature=related>

Intelligent Building Concept
ftp://ftp.tech-env.com/pub/.../Intelligent_Bldg_Concept.pdf

Google Image Search - Intelligent Buildings - <http://is.gd/PAjt29>

>>

Skyscraper as Spaceship
Regulate Air Control per people in Lobby - more oxygen 1person 10sqm
Aquaponics / Hydroponics
Accentuate the Positive - Economic Behaviourism.
No Fear - Highlighting Good.
Terra Sensing Tower is a Laboratory
Immune Building Strategy
Build a building in harmony with nature.
Reactive agents
Techno-Economics
Flexibility – Designed to Change!
TST focuses on Sound, Kinetics, Light and Vertical Organic Growth.

TST Matches the City of Sydney 2030 Sustainability Vision
<http://www.sydney2030.com.au/>

- the environment matters
- art and culture are encouraged and supported
– people feel at home, connected to the local community and the wider world
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Quotes:

We are called to be architects of the future, not its victims.
R. Buckminster Fuller

The only way to make truly sustainable architectures is to connect our buildings to nature - not insulate them from it - Rachel Armstrong

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