

WELCOME!

GEOHERMAL BABYLON TOWER:

WHEN COMMUNICATION IS OF THE ESSENCE

CALGARY GeoExchange™
CONFERENCE
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RESUME:

Geothermal projects involve a growing number of stakeholders. Their diverse level of awareness and experience relative to this technology makes it an ongoing challenge to ensure the success of any geothermal project.

How can we face this reality, in a fast growing market?





HERE WE GO!



Canadian Geothermal Industry:

- Fast Growing (40% + PER YEAR)
- Emerging Market
- Many New Players (manufacturers, installers, drillers, designers, CLIENTS)
- Lack of Uniformity*
- Lack of Training*
- Lack of Awareness*
- Lack of Cohesion*
- Big business opportunity!



Geothermal Projects Description:

WHO IS INVOLVED: **Design Team**

- ✓ ARCHITECT
- ✓ CIVIL ENGINEER
- ✓ MECHANICAL ENGINEER
- ✓ INTERIOR DESIGNER
- ✓ LANDSCAPING DESIGNER
- ✓ **GEOHERMAL DESIGNER**
- ✓ Codes: Municipal, Provincial, Federal
- ✓ THE EARTH

AND:

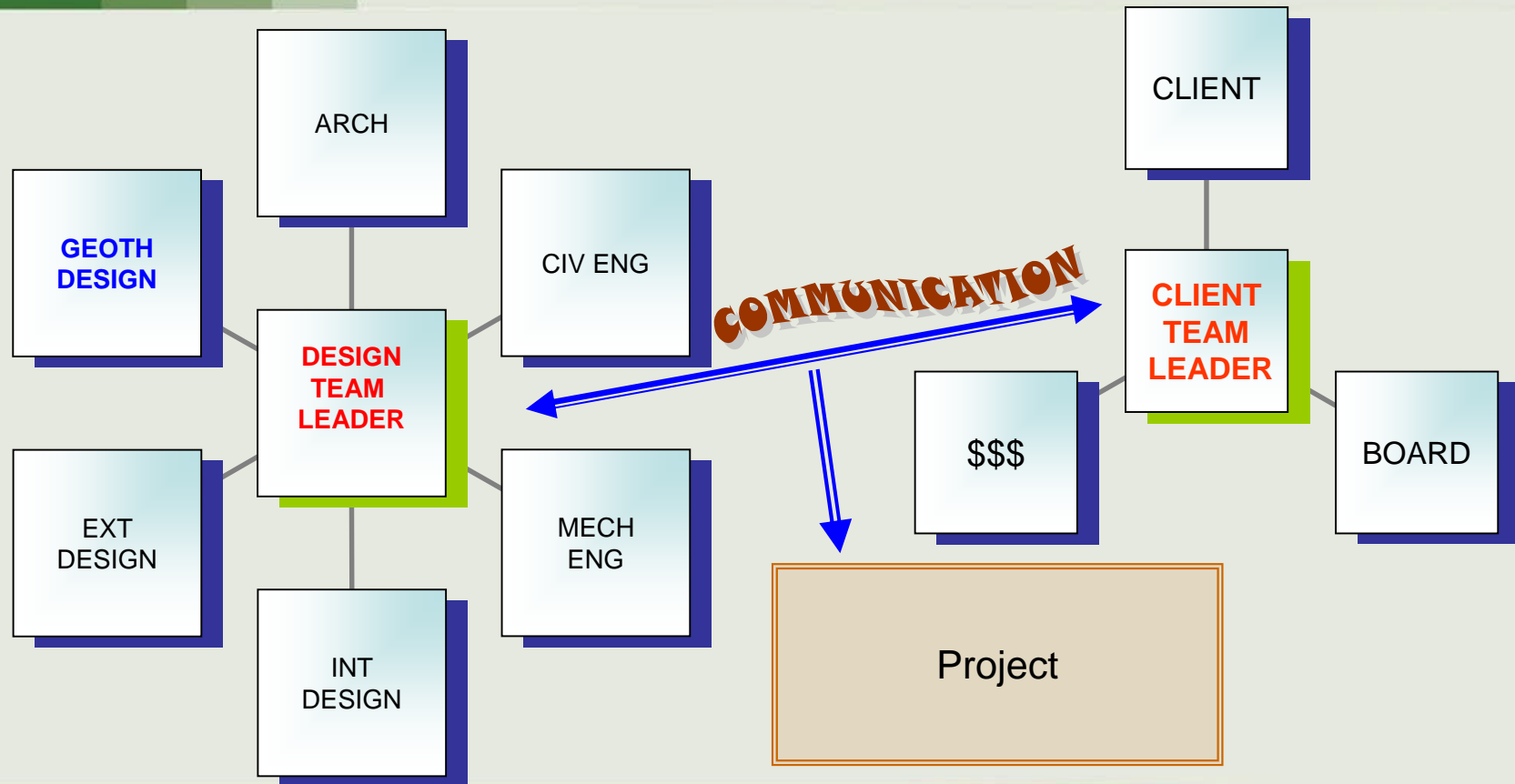
Client Team!

- CLIENT
- BOARD OF DECISION
- FINANCIAL BODY

- LOCAL UTILITIES



Geothermal Projects Description:



Geothermal Projects Description:

CLIENT CONSTRAINTS:

- IDEAS
- AWARENESS
- BELIEFS
- TIME FRAME
- OBJECTIVES
- REQUIREMENTS
- FINANCIAL CAPACITY

COMMUNICATION

DESIGN CONSTRAINTS:

- BUDGET (design & project)
- COMPETENCE
- TIME FRAME
- CODES & STANDARDS
- LAND CHARACTERISTICS
- TECHNOLOGY AVAIL.
- GEOLOGY



Geothermal Projects Description:

GEOHERMAL PROJECTS ARE:

- EXPENSIVE (FIRST COST)
- COMPLEX
- *COMPLICATED*
- INFLUENCING MORE D. ASPECTS THAN ANY OTHER
- DEPENDANT ON:
 - GEOLOGY
 - LANDSPACE
 - BUILDING ENERGY PROFILE



Geothermal Projects Description:

GEOHERMAL PROJECTS CAN INFLUENCE:

- Project Location (Geology)
- Architectural Aspect (Orientation, Windows, Insulation, etc.)
- Internal Loads (Lighting, Electrical app., Etc.)
- Fresh Air Treatment
- Waste Water Treatment
- Waste Energy Treatment
- HVAC Choices (Forced Air VS Hydronic Systems)
- Civil Engineering



Geothermal Projects Description:

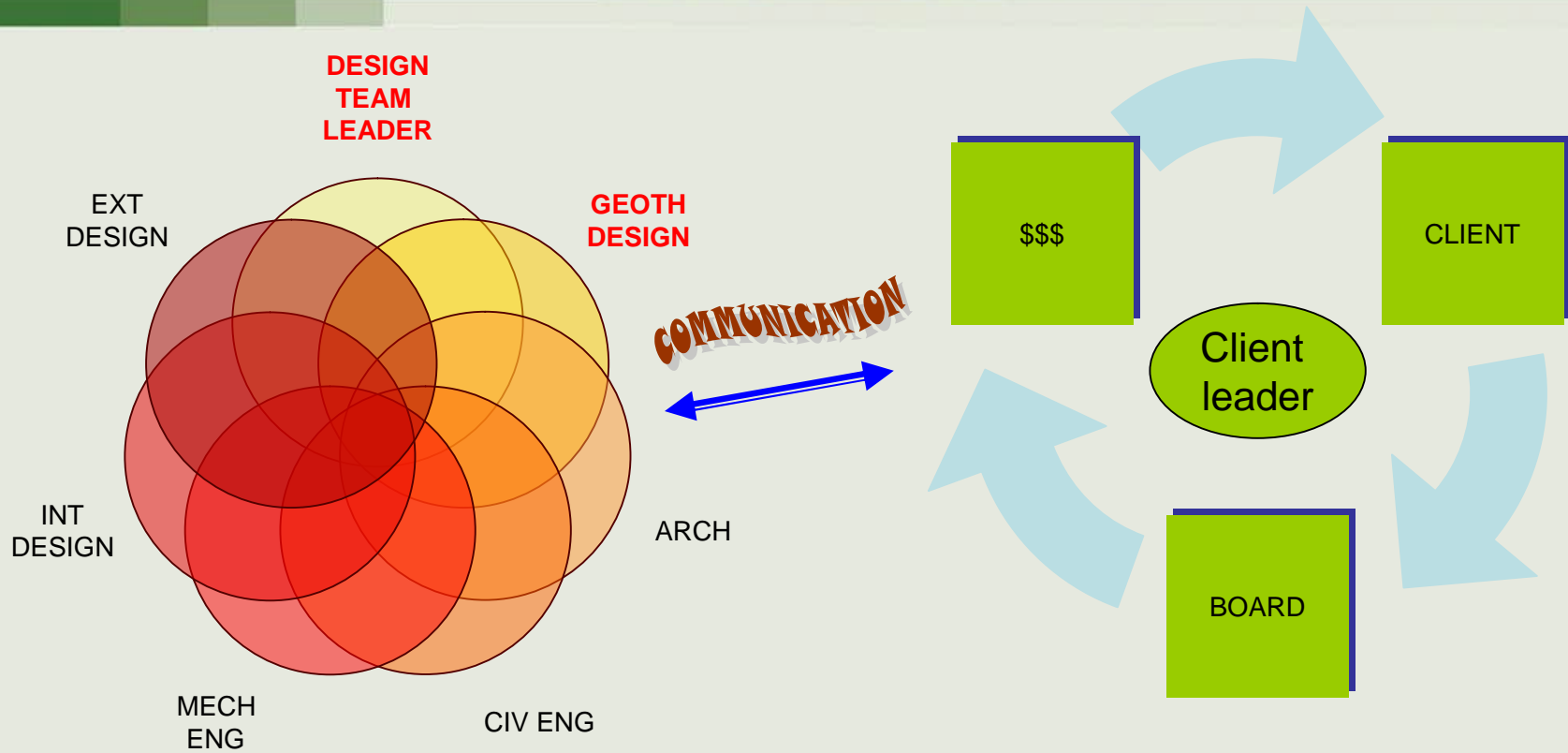
GEOHERMAL PROJECTS CAN REPRESENT:

- 10 to 25% of the total building construction cost
- More than 60% in weight of all the Energy Savings measures

Proper Geothermal Integration And Usage Optimisation Is Crucial



Geothermal Projects Description:



Working Toward Success:

HOW TO MAKE IT SUCCESSFULL:

- Geo Designer must get involved EARLY
- Communication With All Design Team
- Communication With Client Team Leader
- Iterative Approach
- **Sizing the Audience!**



Working Toward Success:

WHAT IS EVERYONE'S LEVEL OF COMPREHENSION:

- ✓ Client team + Design Team unfamiliar with such an approach
- ✓ Client Team + Design Team unfamiliar with Geothermics
- ✓ Degree of Competence varies a LOT



Working Toward Success:

4 Levels of Competency:

- LEVEL #1: Unconsciously INCOMPETENT
 - **! Worst Of All !**
 - *'So incompetent that you think you **ARE** competent'*
 - Lots of Them out there
 - *(We All are, Once in a while....)*
 - Requires a lot of attention: **tends to resist the truth.**
 - Makes project success risky
 - If Client or Design leader's are: **BACK OFF!**



Working Toward Success:

4 Levels of Competency:

- LEVEL #2: **Consciously INCOMPETENT**
 - Much Better!
 - *'Knowing enough to know that you know **VERY LITTLE**'*
 - Requires a lot of attention
 - Needs to be reassured: **can be educated!**
 - Can be Influenced
 - If Client of Design leader's are: **BE CAREFUL!**



Working Toward Success:

4 Levels of Competency:

- LEVEL #3: **Consciously COMPETENT**
 - Now You're Talking!
 - *'Knowing enough to know that you **DO** know something'*
 - Easy to work with
 - Proactive
 - If Client of Design leader's are: **GOOD!**



Working Toward Success:

4 Levels of Competency:

- LEVEL #4: Unconsciously COMPETENT
 - La Crème de la Crème!
 - *'Knowing So Much that you do not realise that you know'*
 - Often talked about, rarely seen
 - Make him/her your ally
 - If Client of Design leader's are: Why are YOU there?



Working Toward Success:

You have done it!:

- ✓ Project's Design finally completed
- ✓ Cost Effective, Energy Efficient, Integrated, Easy to use
- ✓ Etc.
- ✓ Now is the time to make it happen: **CONSTRUCTION**



Implementation Phase:

A New Team Adds Up To The Equation: **TRADES**

- ❖ Driller
- ❖ Excavator
- ❖ Civil Trades (Structure, Foundation, Sewers, ...)
- ❖ Pipe Fitters
- ❖ Refrigerant specialist
- ❖ Controls Specialists
- ❖ Electricians
- ❖ **GENERAL CONTRACTOR**



HOW TO MAKE IT SUCCESSFULL: ONCE AGAIN

- Geo Designer gets Involved EARLY
- Communication With All Design Team
- Communication With Client Team Leader
- Communication With General Contractor
- Iterative Approach
- **Sizing the Audience! (4 Levels of Knowledge)**
- **Supervision.... PLEASE**



Commissioning Process

HOW TO MAKE IT SUCCESSFULL:

- Orchestrate it
- **KEEP the client involved**
- **Client's staff Training**



CONCLUSION:

Proper Geothermal Project's Communication:

- ✓ Takes a lot of time & effort
- ✓ Is an Educational Process for all Team Members
- ✓ Can Sometimes be Considered as Preaching (in the desert?)
- ✓ MAXIMISES THE CHANCE OF A SUCCESSFUL PROJECT





THANK YOU!

QUESTIONS ?



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