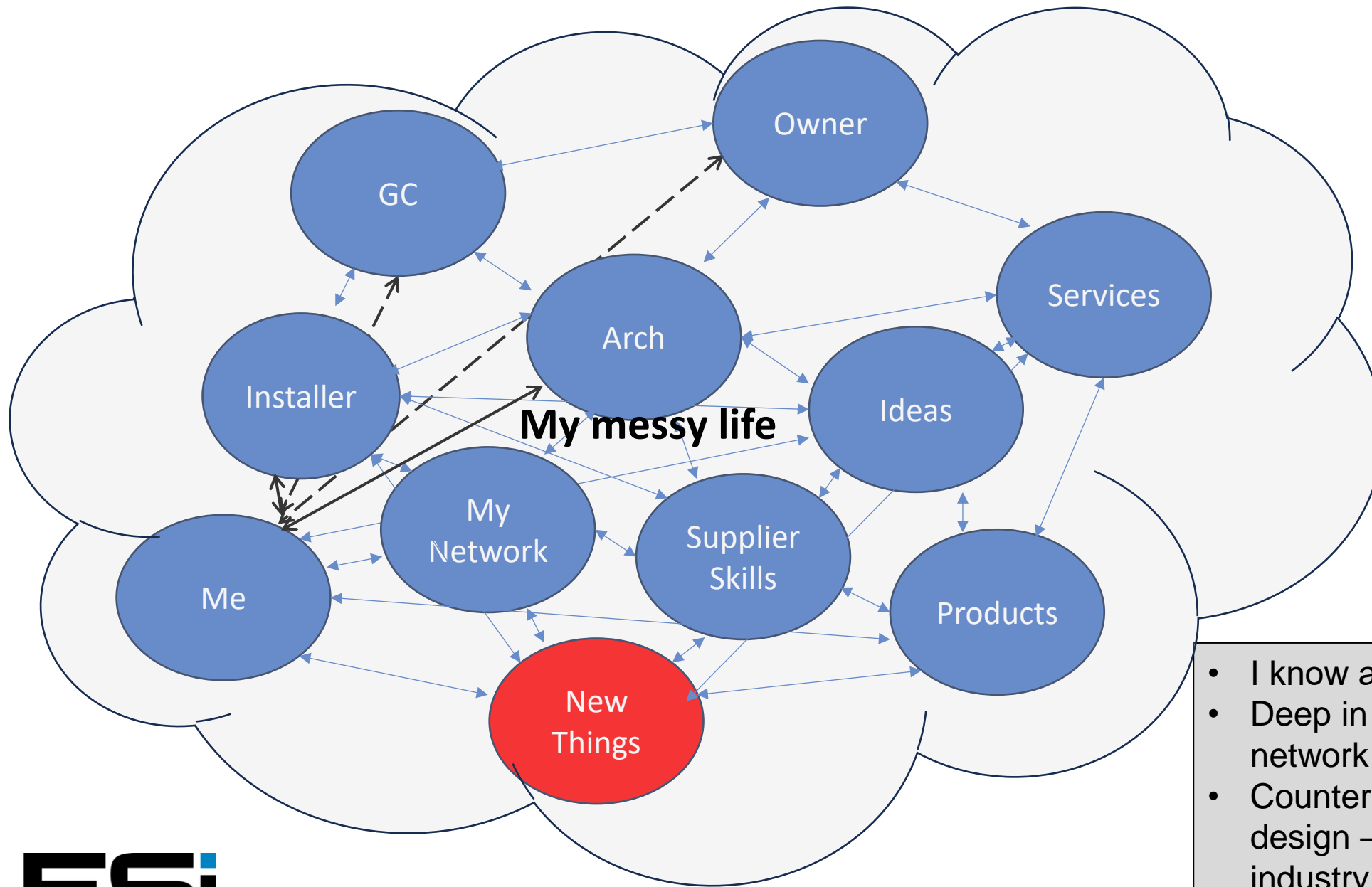




Thank You to Our Hosts

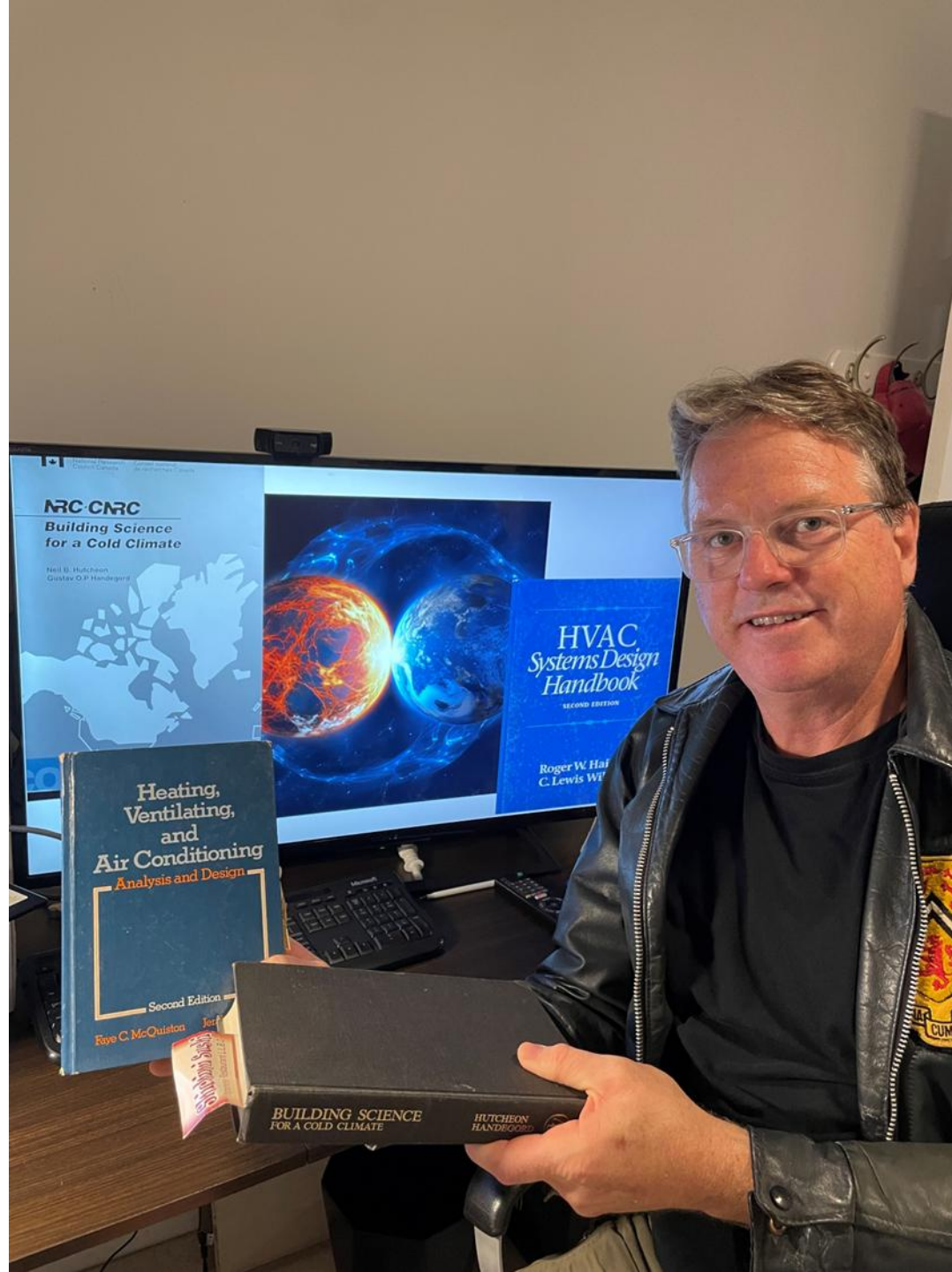


www.facadesystemsinc.com



- I know a “guy”.
- Deep in one area, with global network you can leverage.
- Counters the linear process of design – price – build of the industry and accelerates improvement collaboration.

worried





Reduce Complexity = Reduce Cost = Reduce Risk

- | | |
|---|--|
| • Own Design including Fabrication details. | Accountability |
| • Layout | Waste <15% |
| • Simple repeatable subsystem | Help Installer 'to the wall' |
| • Purchase at 2x offer | Reduced total costs, Took ownership of risk. |
| • Choose cladding context to building | Expertise in interpreting design intent. |
| • Soft art of staying out of trouble | I know how to do that. |

Shop drawings – more than meets the eye

Status Quo

'Shop drawings'

- One size fits all
- Supplier standard details, not job specific.
- No VE exercise

Review Drawings

Layout
Wall cross section
Transition details
What Arch and Owner care about

Fabrication Drawings

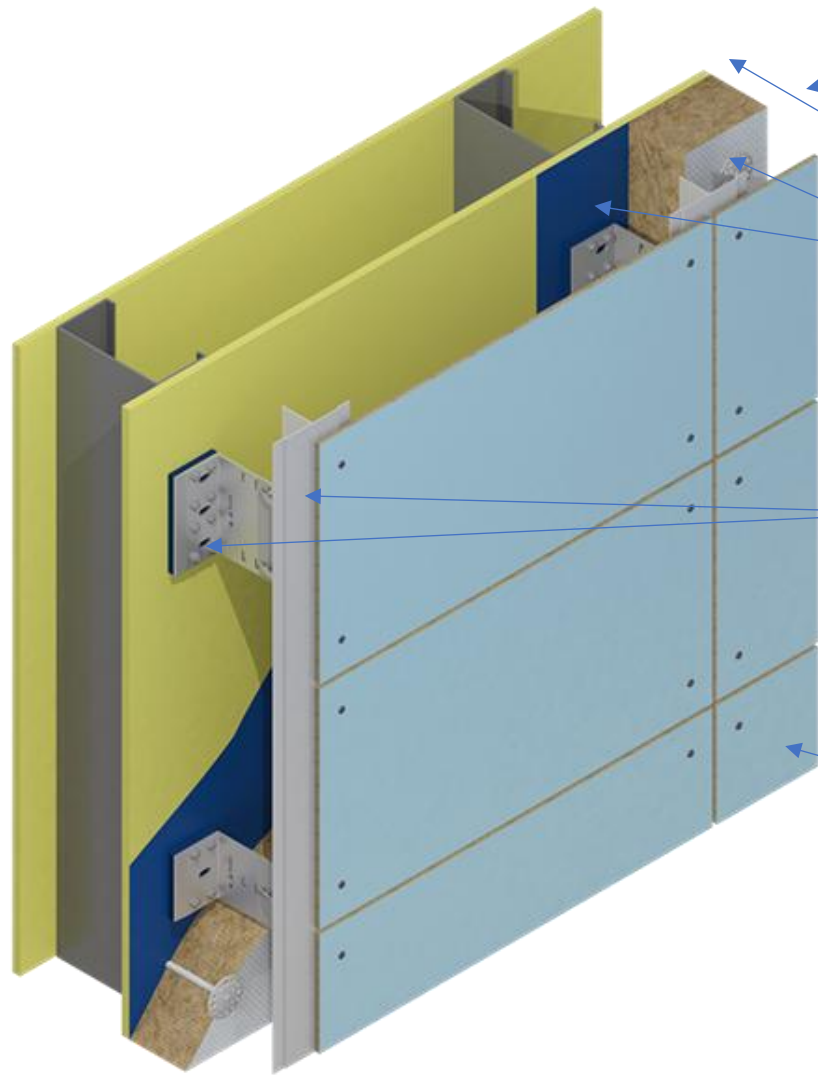
Traditional shop drawings
Fabrication at Installer, supplier or otherwise.
Precise, details clear, hand offs seamless.

Installation Drawings

Installer focus
'Get them to the wall'
Attachment instructions

Shop drawings are not really 'shop drawings'.

- Blue status quo. Not project specific, and not relevant many times.
- Green – what we do. Bring right content, job specific to right people.



Façade – everything outside of Sheathing

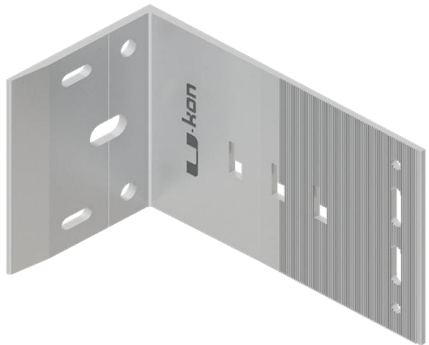
Insulation & AVB

Thermally Broken Substructure 'System'

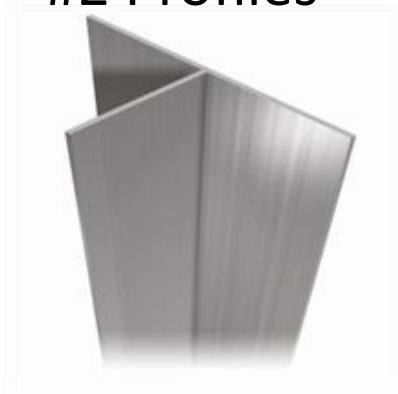
Cladding; Skin, Light to Heavy, All types of finishes; Resilient; All budgets; Sustainable; Replaceable.

Bespoke Systems “Building Blocks”

#1 Wall Brackets



#2 Profiles

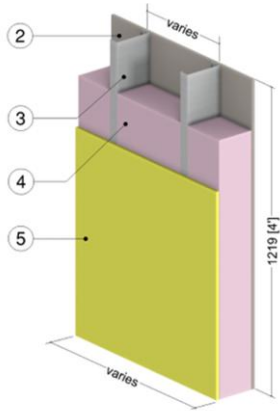


#3 Cladding Attachments



- Engineered systems with sole accountability
- Whole building design, covering all facades.
- Used globally, manufactured and designed in Canada
- VE at the beginning.

Why Bother



Insulate between studs

**Spend money
on R20, get
R13.**

**Maybe clips with no
accountability will
work**

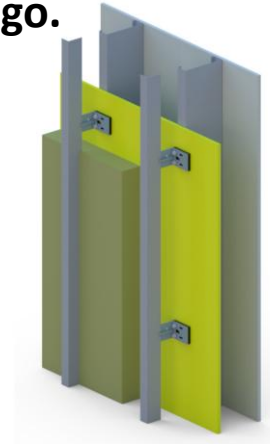


Move Insulation Outboard

More insulation,
higher efficiency.
Normal since 2012.
We have known
about this forever.

Chart stops at 6"
and all clips can do
this.

**Engineered system with
accountability is the only
way to go.**



More Insulation Outboard

Meet better
goals: passive,
carbon-based
design means >
6" of insulation

Clips limit is 6".
Engineered
systems >10"

- Excellent source to set expectations
- Low expectations of R value performance allow less sophisticated solutions.
- High expectations deserve engineering, to avoid risk and cost.

Ministry of Municipal Affairs
Building and Development Branch

MMA Supplementary Standard SB-10

MMA Supplementary Standard SB-10

Energy Efficiency Requirements

January 1, 2017 update

Actually Doing Something finally

<p>Toronto Green Standard Version 4</p> <p>Apply this standard to new planning applications received on or after May 1, 2022.</p>	<p>Toronto Green Standard Version 3</p> <p>Apply this standard to new planning applications received on or after May 1, 2018.</p>	<p>Overview</p> <p>A history and goals of the Toronto Green Standards.</p>
<p>Reports & Resources</p> <p>Access staff reports, studies and resources.</p>	<p>Development Charge Refund Program</p> <p>Financial incentives, program requirements, eligibility criteria & registered third party evaluators.</p>	<p>Toronto Green Standard Pushing the envelope</p>



Sea of Clips

- Spacing tight
- Structural only: over designed
- Thermal performance unknown
- Cannot know what is wrong



This matters if building quality matters

- Fragmented accountability
- Wall alignment difficult or impossible without shims.
- Labour dependent.

Build = Design Starts at Beginning

**Best accomplishments are at the beginning;
Greatest Failures Avoided are too.**

- Design review.
- Cladding layout review.
- Initial system recommendation.
- Initial structural engineering and resulting thermal performance.
- Comprehensive value engineering.
- Cladding fabrication recommendations.
- Document creation; details, specifications.
- Budgeting.



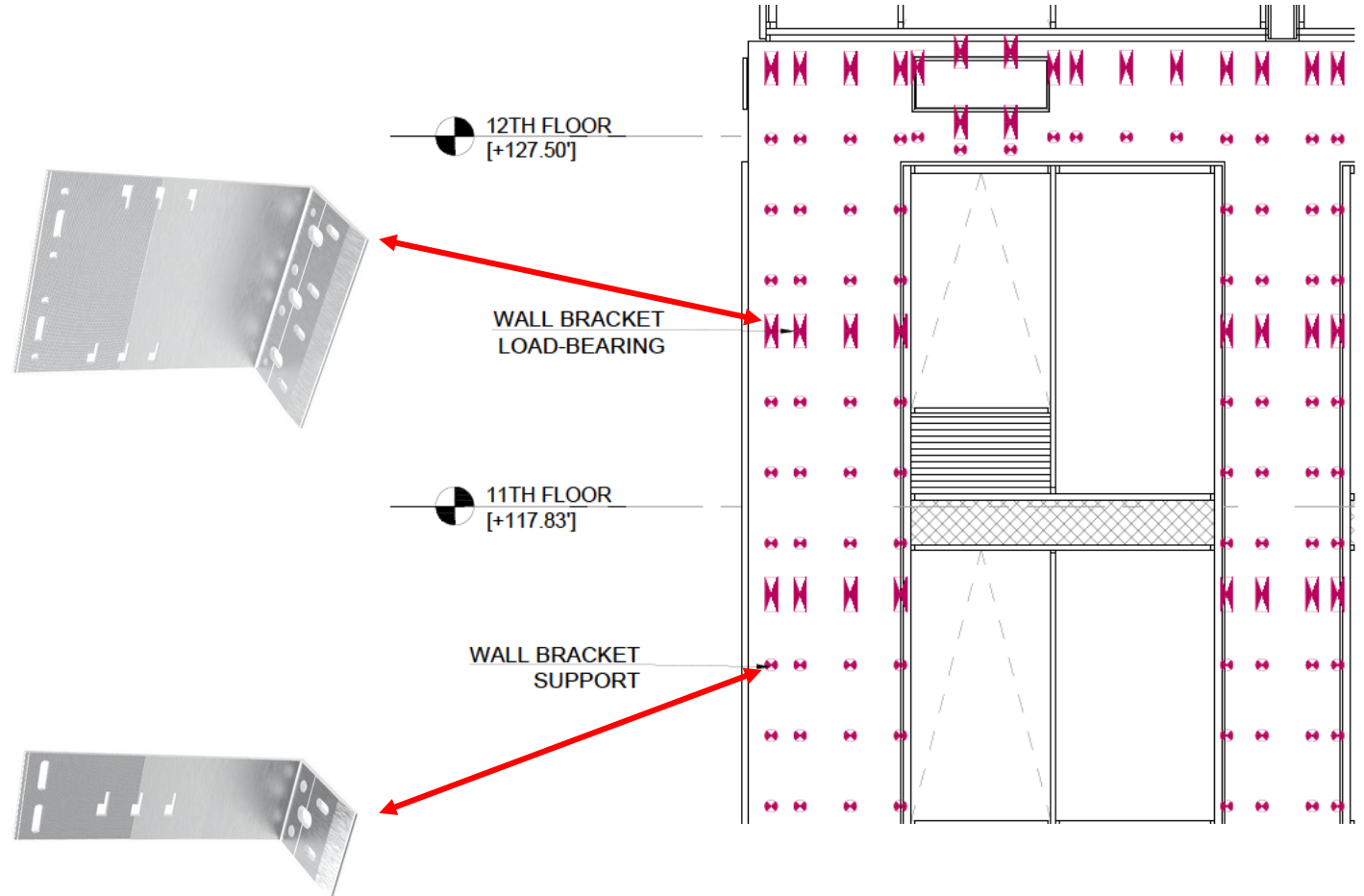
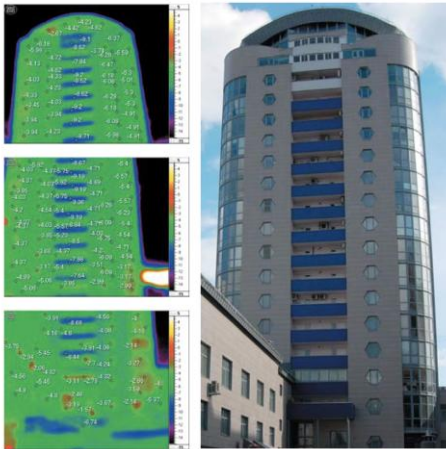
You Should Ask for This.

Structural and Thermal Engineering Together

A façade is modelled for structural requirements and thereby thermal results.

Initial **budgeting** and value engineering opportunities identified.

Problems revealed early.



Location of wall brackets; based on structural analysis

Deep Energy Retrofit – Toronto Community House – Dekton & U-Kon Slab-to-Slab

- Slab-to-slab solves business / tendering / cost ambiguity and risk.
- Design Ownership by us in deep energy retrofit
- Eliminate future maintenance backlog.
- Durability like nothing else.
- Aesthetics - Jane and Finch deserves architecture too.

Project underway

EXISTING RESIDENTIAL BUILDING



FACADE SYSTEMS INC.

www.facadesystemsinc.com

PROPOSED RESIDENTIAL BUILDING



- RPL Architects
- Partnership with Trinity Group

Specification

	Article	Product name	Units	Price	QTY per project	Total
				(CAD)	53153	(CAD)
1	ND-034.1/165	Load-bearing bracket	pc	35.40	7810	276474.00
2	PD-063	Plastic thermal isolator	pc	1.73	15620	27022.60
3	A-16.5	Aluminum profile for DEKTON panels	meter	13.40	9582	128398.80
4	A-30.1M4	Aluminum profile (length 6 lm)	meter	37.20	10563	392943.60
5	Anchor	DEWALT AC100+ GOLD ø3/8" WITH EMBEDMENT 3.5" - concrete	pc	6.80	15620	106216.00
6	JT4-5.5x19	Stainless steel screws A2	pc	0.27	29000	7830.00
7	JT4-3H/5-5.5x19	Stainless steel screws A2	pc	0.32	87000	27840.00
Total, CAD						966725.00
Per sq.ft., CAD						18.19

Ukon	\$18
Dekton	\$18
Eng	\$2
<i>Equip</i>	<i>\$10</i>
<i>Labour</i>	<i>\$25</i>
<i>Other</i>	<i>\$10</i>
Total	\$83

*Red = guesstimates
Guess this is high*

KSF #1: LEADING PORTFOLIO OF SYSTEMS

U-kon Systems offering several options to attach wall brackets to the wall depends on facade design, structural or thermal requirements.



Assembly block "ATS HIGH"
Allowing us to install wall brackets directly to the floor slabs avoiding the installation of wall brackets to the wall. This solution has a lot of advantages:

- Best thermal performance by reducing the number of connections (wall brackets) to the wall
- Fast installation
- Suitable for all U-kon Systems
- Best solution for complex facade design



Assembly block "ATS"
ATS assembly provides an effective installation substructure system Ukon to the concrete, CMU and brick backup walls.
The ATS assembly can be used for heavy cladding panels 250 kg/m² (51 psf)
Suitable for all U-kon Systems

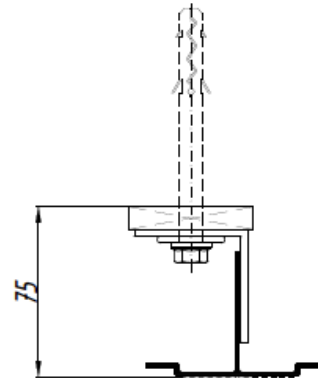
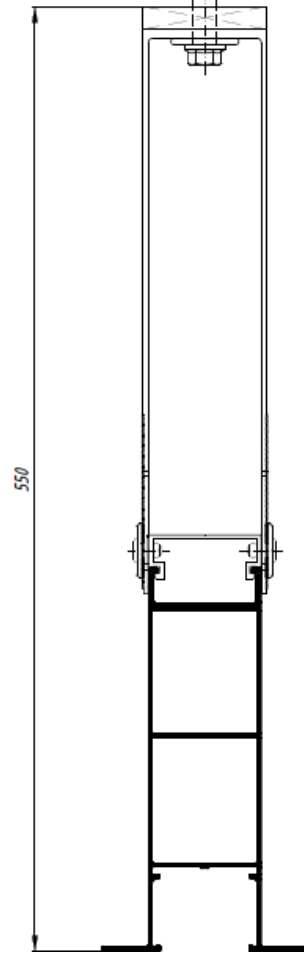


Assembly block "LT"
The most common system to attach wall brackets directly to steel or wood studs wall.
Suitable for all U-kon Systems

KSF #2: WALL BRACKET ADJUSTABILITY

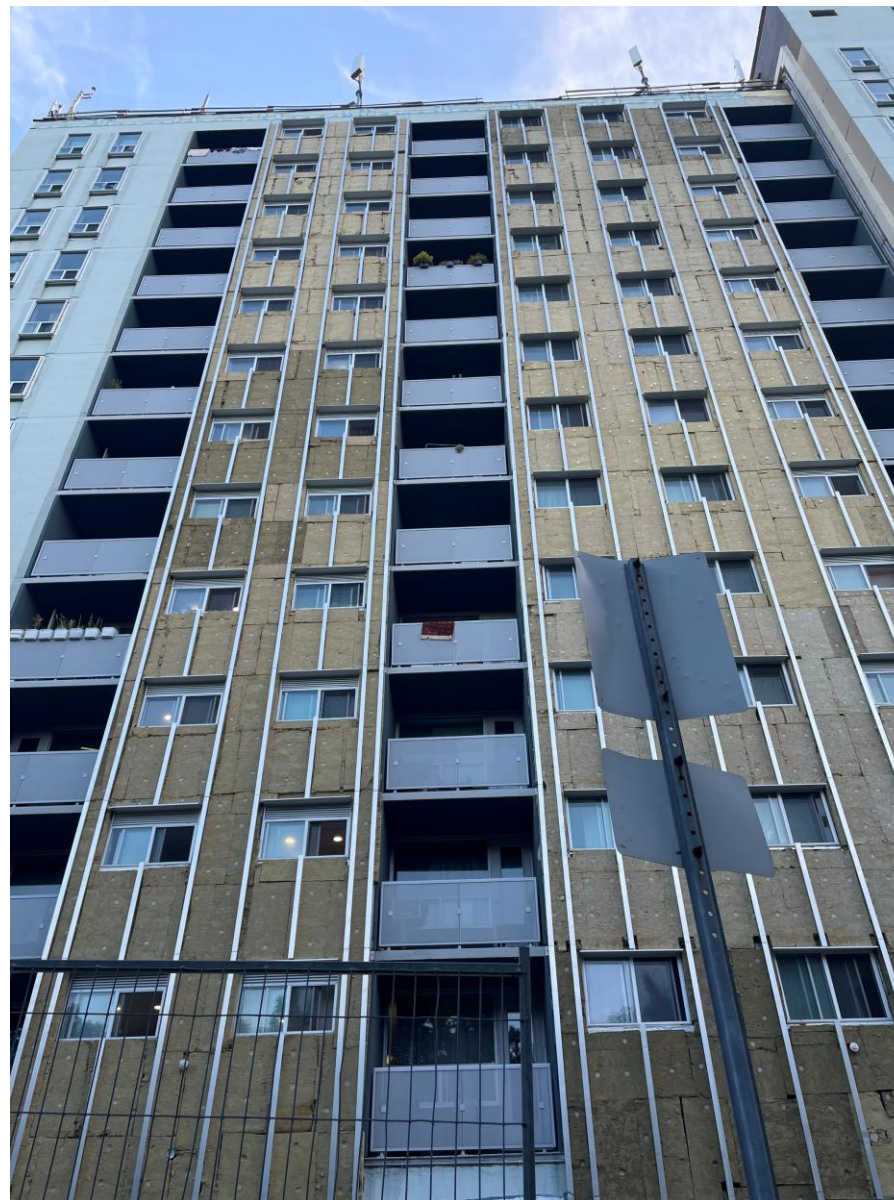
The U-kon Systems has a wide variety of wall brackets that can accommodate any thickness of exterior insulation.

The maximum standard extension is 550 mm (21.5")





- Deep Energy Retrofit
- Toronto Community Housing – affordable, constructable.
- If you can do the tough stuff, simple stuff a breeze



Slab-to-slab; excellent engineering solving business problem

Generic metal cladding, FSI not only in the high architectural systems



Capital Condo – Yonge and Eglinton

- Brilliant stone-like aesthetics but not at stone prices.
- Speed of construction.
- Design ownership with U-Kon kerf system.
- Cost, believe it or not - Madison needs to turn a profit after all.
- Extensive mockup construction.



FSi
FACADE SYSTEMS INC.



Madison Developments
Turner Fleischer Architects
Partnership with York Marble.



U-Kon Bespoke Systems

Ukon	\$14-17 (small area \$32)	
Dekton	\$	15
Eng	\$	3
<i>Equip</i>		<i>\$15</i>
<i>Labour</i>		<i>\$35</i>
<i>Other</i>		<i>\$10</i>
Total	<i>\$92-95</i>	

Specification - System 228 (Dekton 12 mm or 20 mm keil) - CORNICES (3 sides)						
#	Article	Product name	Units	Price (CAD)	QTY per est. area 145	Total (CAD)
1	ND-063/250	Load-bearing bracket	pc	15.40	60	924
2	ND-062/250	Load-bearing bracket	pc	797	6	4782
3	PD-062	Plastic thermal isolator	pc	0.85	60	51
4	PD-063	Plastic thermal isolator	pc	1.85	6	11.1
5	A-38.2	Aluminum profile (length 6 lm)	meter	13.53	38	514.14
6	A-28.2	Aluminum profile (length 6 lm)	meter	18.50	78	1443
7	AD-2801	Hanger adjustable	pc	3.75	170	6375
8	AD-2801	Hanger regular	pc	2.85	10	28.5
9	Hs8	Keil anchor + bolt A2	pc	5.20	180	936
10	JT4-5.5x25	Stainless steel screws A2	pc	0.32	200	64
Total, CAD						4657.06
Per sq.ft., CAD						3212

11	JT4-5.5x25	Stainless steel screws A2	pc	0.32	200	64
Total, CAD						2557.76
Per sq.ft., CAD						176.4

Total, CAD				417.29
Per sq.ft., CAD				16.69

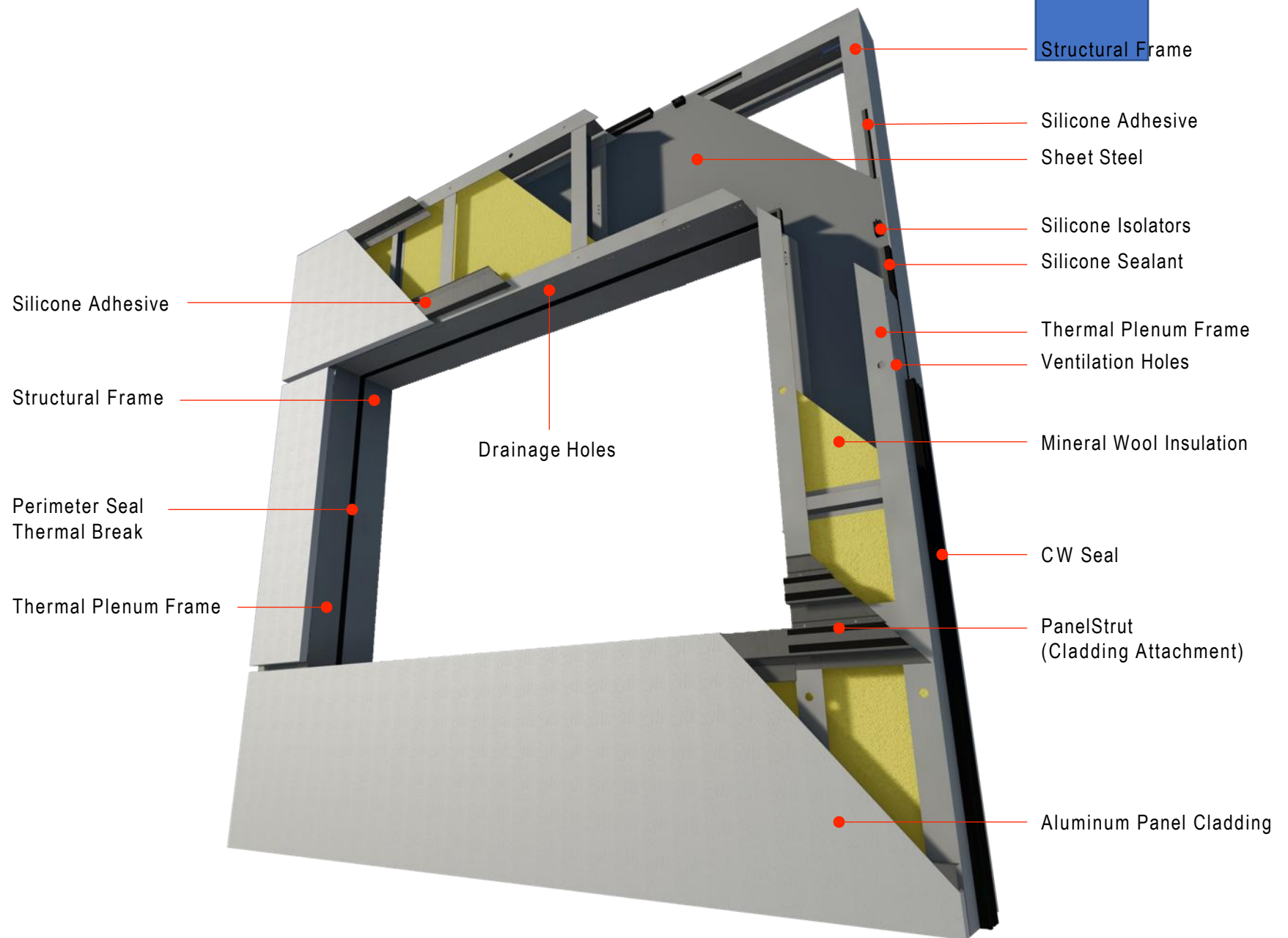
Total, CAD				364.11
Per sq.ft., CAD				13.00

Total, CAD				11355.13
Per sq.ft., CAD				14.00



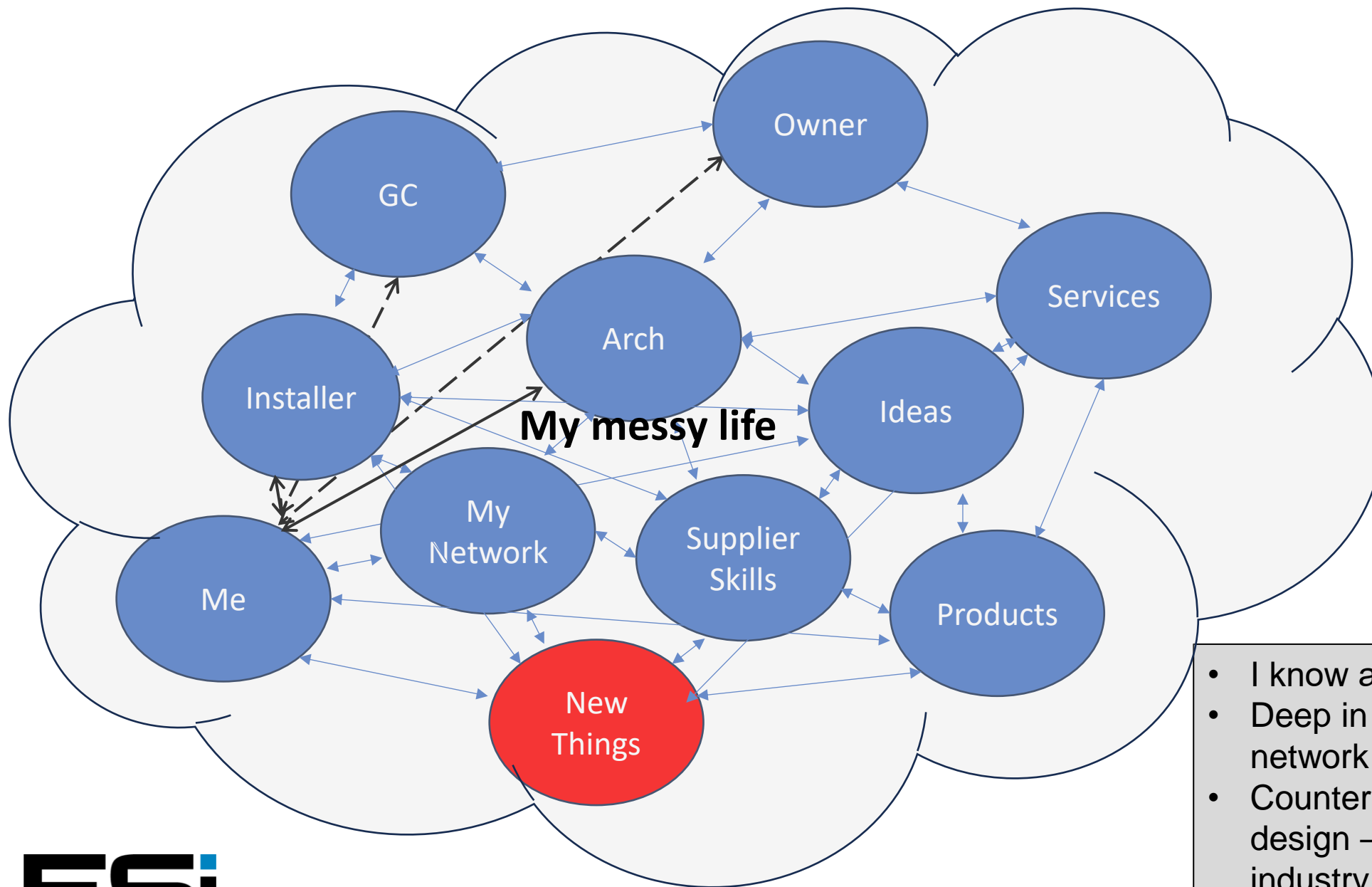
FULLY UNITIZED ULTRA HIGH PERFORMANCE WALL SYSTEMS

- Offsite Construction. Sole accountability
- Design build and collaboration.
- High Performance focus.
- Leverages known technologies in innovative way – excellent cost structure.



	brick	EFIS	metal - steel	metal - alum	FRC - low cost	GFRC - low cost	FRC - mid cost	FRC - high cost	FRP	terra cotta	concrete
Cladding Cost	\$12	n/a	\$4	\$18	\$6	\$8	\$12	\$18	\$12	\$25	n/a
Facade Cost [S&I, 4" insul, thermally broken, AVB]	\$45	\$25	\$35	\$40	\$35	\$40	\$45	\$60	\$45	\$75	20[?]
Maintenance Cost [0-5]	0*	0	1	1	0	2	4**	3**	4	3**	0*
Design Freedom [0-5]	2	1	3	3	2	1	4	3	4	5	0
Resilient to student damage [0-5]	5*	0	1	1	0	0	3	3**	4	3	5*
Can it be highly insulated [0-5]	2***	5	5	5	5	5	5	5	5	5	3
Sustainability [0-5]	1	2	2	2	3	3	3	3	4	5	1
*graffiti issues											
**right coating excellent graffiti management											
*** easy to install and brick ledges very difficult											

Cost collection information
1Q 20225



- I know a “guy”.
- Deep in one area, with global network you can leverage.
- Counters the linear process of design – price – build of the industry and accelerates improvement collaboration.