Hyde Park School

A TermoBuild Smart Floor Case Study

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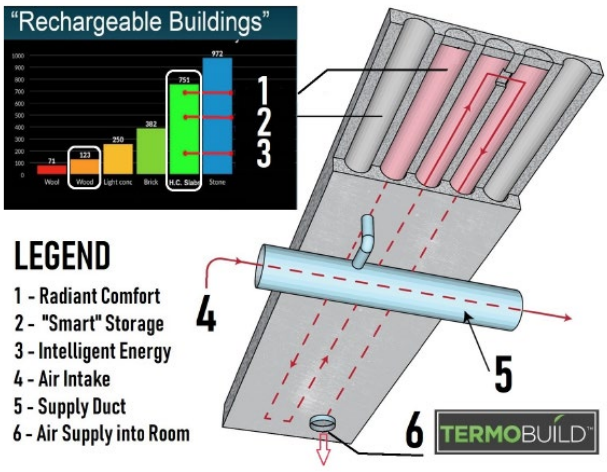
Get a Complimentary Benefit Analysis & Cost Comparison of Your Project

Hyde Park School: Why It Ranks as the #1 Energy Efficient School in Canada with EUI=8.35 ekW/sf

IT ALL STARTS WITH A COST-EFFECTIVE INNOVATIVE DESIGN

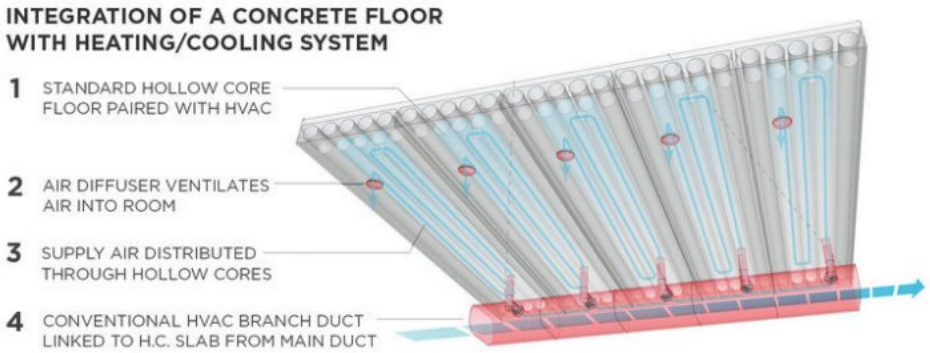
Hyde Park School uses TermoBuild "smart" floors technology to deliver greater results of operational efficiencies, long-term savings and the best energy efficient school in Canada. TermoBuild's Building as a Battery™ (BaaB™) technology and integrated ventilated smart floor design is about heating and cooling buildings using conventional building HVAC equipment and ducting integrated with standard hollow core concrete slabs. TermoBuild's "smart floors" are a simple, cost-effective, and instantly rewarding sustainable initiative that can be implemented into any design with ease. It ends conventional building environmentally risky routines.

Using precast concrete hollow core planks, along with hollow-core channels as branching ductwork, like a rechargeable battery, this extremely efficient design provides non-hydronic radiant heat in the winter and cool air in the summer. In winter, surplus heat generated from body heat, lighting, computers, sun radiation, and more, are captured, stored and released on demand. In summer, this excess heat is dissipated by cooling the slabs with the cooler night air. This results in reducing cooling needs by up to 50%.



IT'S ALL ABOUT SIMPLICITY

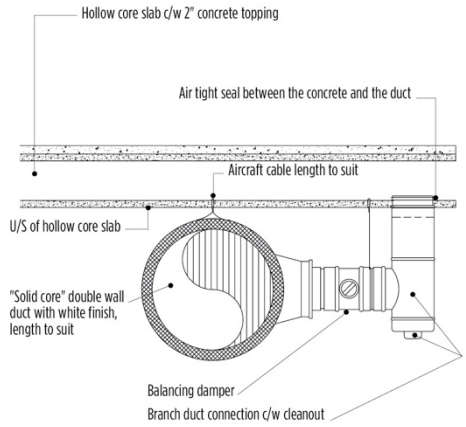
In simple terms, smart floors control heat and cool buildings, 24/7, as naturally as possible. Further, TermoBuild's design, in general and within Hyde Park School, combines three mechanical systems into one, so that non-hydronic radiant heating and cooling, ventilation, and energy storage become one system. Holistic Design Assist promotes sense and relevance in cutting cost and carbon with simple todays technology.



In Hyde Park School's design phase, assistance was provided by TermoBuild's proprietary software and offered a guaranteed room by room heating & cooling checklist of requirements, as well as design details for building permits and tendering.

As a result, TermoBuild's system required half of the mechanical equipment-chillers, boilers, ground- source heat pumps and simple rooftop units compared with a traditional or conventional building.

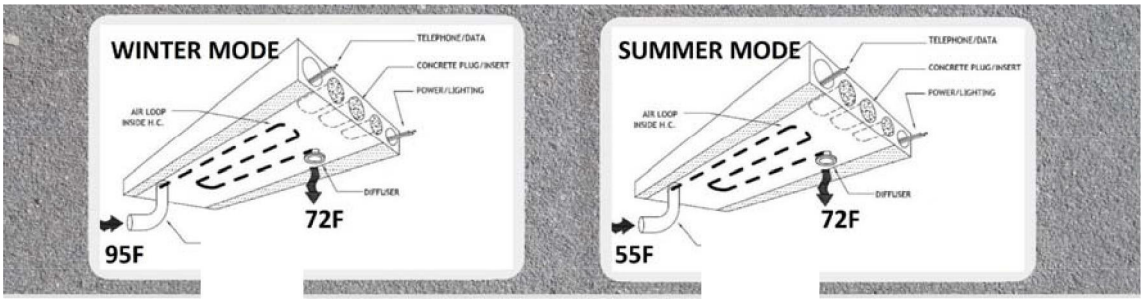
This is important because mechanical systems represent a significant expense in building construction.



Detail A: Typical branch duct connection to hollow core slab

HEATING & COOLING MODES

TermoBuild provides an in-depth design-assist solution that is achieved thorough integration supported by artificial intelligence. HVAC paired with hollow-core or concrete slabs turns dormant floors into “smart” assets. Ventilation air, heating and cooling collected and moved through concrete structure. Simple and rewarding sustainable Net Zero initiatives implemented using a lean budget.



95º F of heating entering into ventilation at the structure is absorbed (charged) It exits at room temperature of 72 deg.F.

95º F of heat entering into the ventilated structure is absorbed (charged), leaving a room at a temperature of 72º.F.

BUILDING AS A THERMAL BATTERY™ (BaaB™)

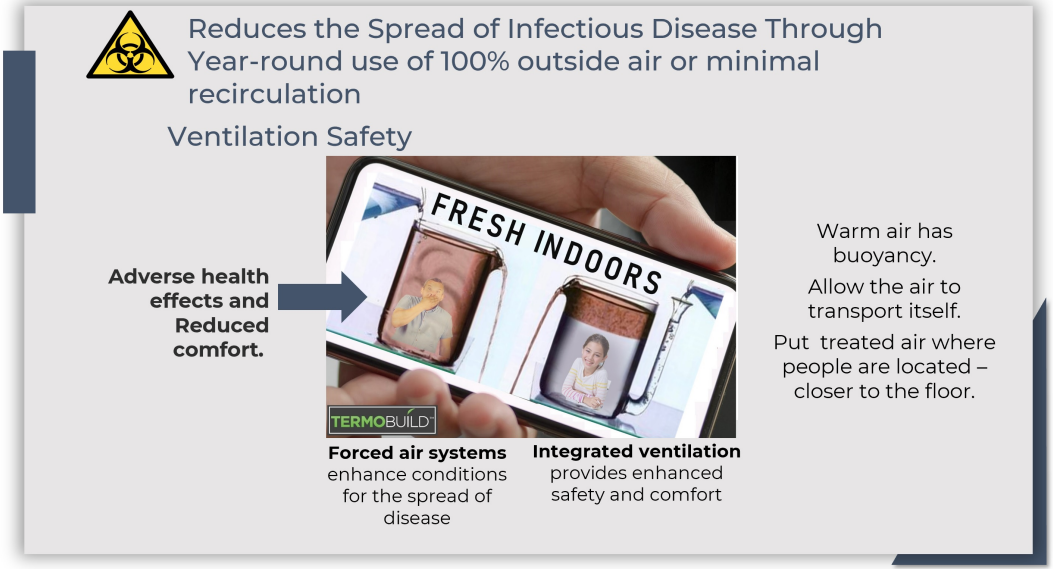
Not all schools are created equal, and some are built better than others. HVAC, paired with hollow core or concrete slabs, turns dormant concrete into a “smart” asset. In-floor ventilation — supporting heating and cooling, where air is collected and moved — maintains indoor comfort. The outcome is simple, and results are shown in a Net Zero environment where initiatives are set to convert the need to demand.

Five Key Benefits of TermoBuild™ High-Performance Smart Floors

1. Better ROI due to More Effective Capital Costs & Operating Expenses
2. Safe, Resilient, and Easy Operational Management
3. Improved Indoor Air Quality & Circulation
4. An Increase of 7%–13% of Usable Space
5. Heating and Cooling Works naturally for Better Efficiency

Building as a Thermal Battery (BaaB™) has been cited in Navigant reports in 2017 and 2018 among the key industry players like Johnson Controls, Siemens AG, and Schneider Electric. NREL 2019 Guide to Net Zero features a 678.000 s.f. portfolio on Net Positive K-12 schools in S.C. USA.

Value add engineering on how to do more with less, addresses both financial, environmental, and strategic interests. TermoBuild is paving the way with a strategic fusion of concrete, and a proven algorithm, that works to heat and cool buildings as naturally as possible. Best of all, it is well aligned with lean business model in core areas. BaaB™ technology is applicable to new construction and elevates the schools operating performance to optimum levels. Effectively, new buildings are cost effective, and the results are predictable and guaranteed. Built in ventilation safety is present in every TermoBuild school. Image below.



VALIDATION

According to RETscreen, the top performer among Canadian Schools, utilizes the TermoBuild's solution. **Their annual energy consumption is almost 50% lower than the average school nationwide.** It helps to re-imagine ways to healthier and fresh buildings amid the ongoing pandemic.

EUI Ranged from 14 to 21

NET ZERO & SMART CITY ENERGY GRID-INTERACTIVE

Whether you're building a conventional school and or constructing a Net Zero/Net Positive school, TermoBuild provides the go-to "Smart" City ready low carbon solution.

Ask us about how a Net Zero/Net Positive school can be achieved through Private/Public Partnership at no cost to the owner.

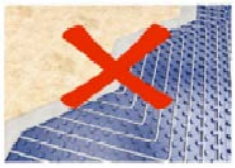
CUTTING CAPITAL & OPERATING EXPENSE

In addition to the capital cost savings of reduced mechanical equipment requirements — as well as energy consumption and maintenance cost reduction — the TermoBuild BaaB™ Solution often comes *at the same cost compared to conventional buildings*. Additionally, Artificial Intelligence (AI) is a logical extension of our design as it brings new a trend in alignment with market economics.

In fact, with Smart Floor kit TermoBuild's combines 4 systems: radiant heating, radiant cooling, winter and summer thermal energy storage.

Avoided capital cos $680 thousand. Operating cost savings over 25 years - $5.8 million dollars

radiant heating,



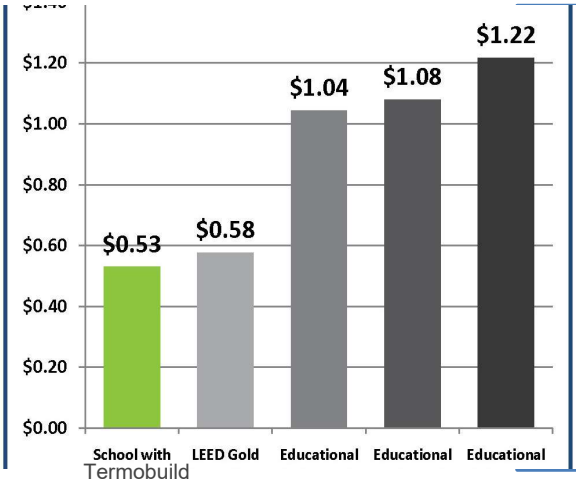
radiant cooling,

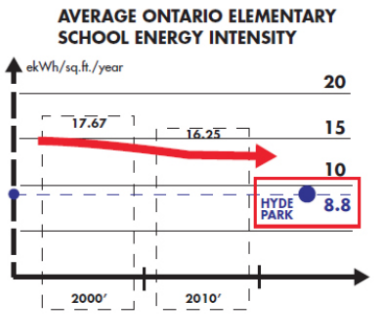
winter and summer thermal energy storage

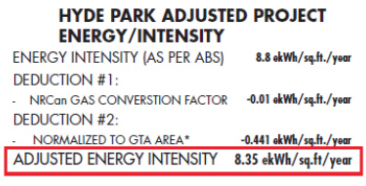
THE RESULTS

Hyde Park School, Barrie, Ontario

- ***Rated #1 in an independent survey of more than 6000 best schools.***
- ***Total energy cost equal to $0.53 cents per square foot, per year.***
- *HVAC - with Energy Recovery Ventilation.*







Energy Use Intensity (EUI) = 8.3 in ASHRAE Zone 7

ASHRAE HEATING COOLING ZONE 7 IN USA.

ALL HVAC equipment made in USA.

Consumption - 28.5 kbtu/sf or 8.3 ekw/sf

HOW TO GET STARTED WITH OUR "BENEFITS ANALYSIS & COST COMPARISON"

The process is simple: Send us your project details...

1. *Location*
2. *Building Size*
3. *Number of Floors*
4. *HVAC Design Brief or preferred mechanical*

Within 24 hours we'll send you a Benefits Analysis & Cost Comparison of your building vs. a High-Performance TermoBuild building edge.

From the first day of occupancy, TermoBuild buildings are at work to safely deliver non hydronic radiant heating and cooling while reducing energy costs and consumption. The result is building system that provides fresh, clean air and reduces the load on heating and cooling systems to produce radiant comfort year-round in any climate. This is a healthy & holistic approach to low carbon building and is something that can change the way we live and work.

TermoBuild™ Specializes in:
» Universities, Colleges, and Schools
» Hotels & Resorts
» Supermarkets
» Megastores
» Shopping Centers
» Government Buildings
» Medical Buildings
» Nursing Homes, Assisted Living, and Retirement Communities

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