

An aerial photograph of a large swimming pool facility. The main pool is covered by a large, rectangular, retractable glass roof. To the right of the main pool, there are several smaller pools and a large area with many lounge chairs and umbrellas. The facility is surrounded by a parking lot filled with cars and some palm trees. A blue semi-transparent banner is overlaid on the top right of the image, containing the title text.

8 Reasons why your Club will benefit from a Retractable Roof



AIA
Continuing
Education
Provider

Health & Sport Facilities



**34 YEARS & 1200 PROJECTS
LATER...**

**OPENAIRE BUILDS
RETRACTABLE ROOFS
AROUND THE GLOBE**

IS YOURS NEXT?

What we do



How to Work with Us

- We work with architects, developers, investors, contractors, construction managers, general contractors, independent builders, property owners and more...
- OpenAire can participate in your project from design to manufacturing, to construction / installation and hand-over plus can provide architectural and engineering services, operations support, financial/investment planning, business planning etc.
- We are typically included in projects at the Concept Design or Schematic Design Phase. We work with your team to implement your vision.
- The best warranty in the industry: minimum 5 year full parts and labour warranty, training, worldwide support and maintenance

Collaborative Design

- In-house design and engineering
- Certified fabrication & welding facility
- Dedicated customer support and project management
- Revit, Solid Edge, CAD

Engineer Standards

- Minimum L/200 deflection criteria in every design
- Free span enclosures of over 180' (55 m)
- Free-span dome configurations more than 300' (91 m)
- Custom Engineering for all climates & geographies including:
 - High snow/rain loads
 - Seismic zones
 - Hurricane/tornados

Aluminum Construction

- Thermally broken aluminum frames/extrusions
- Baked on paint finish prevents corrosion making them Maintenance Free
- Proven Lower Lifecycle Costs for aluminum buildings
- Key component in energy efficient LEED certification



Salinas Municipal Aquatic Center, CA
LEED GOLD RATING



Roger Carter Community Center, MD
LEED SILVER RATING

8 BENEFITS OF ADDING A RETRACTABLE ROOF

TO YOUR DESIGN OR FACILITY



1 PROMOTES HEALTH AND HYGIENE

Opt for fresh air circulation and daylight for a healthier environment, a new standard in future design.



2 MAXIMIZING SPACE AND REVENUE

Convert unused space or extend "usable" space to turn it into a year-round revenue generator.



3 LOWER LIFECYCLE COSTS

Reduced operating costs add up to drastic savings.



4 NATURAL LIGHT AND ILLUMINATION

Welcome the outdoors inside with a retractable solution that allows for flexibility.



5 PERFECT CONDITIONS YEAR-ROUND

Rain or shine, your space converts to an indoor or outdoor space in minutes.



6 CREATE A PLACE PEOPLE WANT TO VISIT

Attract people to your bright, airy, stunning venue any time, any day.



7 MAINTENANCE-FREE

Never repaint again, means no more extended closures for downtime.



8 ENERGY EFFICIENT

Natural ventilation allows heat to escape and for reduced use of mechanical air-handling equipment.

1. Promotes Health and Hygiene

Ventilation is required to achieve and maintain good air quality, as well as thermal comfort levels for the occupants of any space.

There is little evidence that ventilation directly reduces the risk of disease transmission, but many studies suggest that **insufficient ventilation increases disease transmission.**¹

In this time of a global pandemic, the health of guests in your business is critical. New studies demonstrate the correlation between the transmission of COVID19 in closed environments vs. open air circulation.

In a recent Japan study, the odds a primary case transmitted COVID-19 in a closed environment was 18.7x greater compared to an open-air environment.²

2. Maximizes Space and Revenue

If you have a patio, rooftop or any space that is seasonal, you can enclose it (lot coverage permitting) giving you additional footprint for year round programming. You can also add a retractable skylight and retractable walls (to some building types) to areas that may be under-utilized or purpose specific, turning these into more flexible/programmable environments

Adding an amenity with lower maintenance costs and operating costs allows business owners to focus capital on other areas, and reduce overhead.

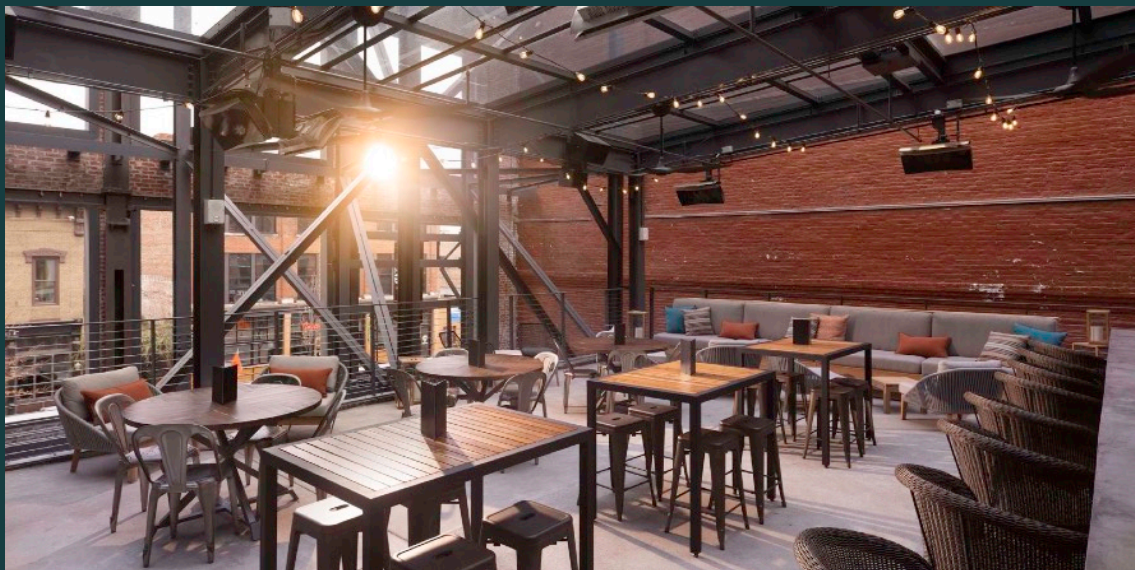


3. Lower Life-Cycle Costs

Savings when operating a retractable roof (translucent or transparent) enclosure include both the cost of hydro, gas and reduce your reliance on electrical lighting during the day.

In a nutshell when the roof is open, you turn off the mechanical systems and lights in the space. This is the intent of all global energy codes. To use less energy.

Using outdoor air as a dehumidifying source when it is cost effective, rather than using a mechanical dehumidification system, can greatly reduce total operating costs, provide better indoor air quality, and improve system reliability.³



4. Natural Light and Illumination

There is undeniable evidence first, that daylit spaces hold the potential to yield substantial benefits, including increased energy savings, increased revenue in retail applications, and improvements to human health and productivity.⁴

There are a variety of studies showing that daylight is the third most important factor in improving retail sales, behind hours of operation and years since last renovation.⁵

In other words, a day lit space with good hours and a clean, new environment will make more money.

Lighting loads can be reduced by incorporating natural lighting into the envelope design and by using efficient lighting options.⁶

5. Perfect Year Round Conditions

Open and Close the roof at the push of a button. Turn your space into one that can be used for events, parties, an indoor/outdoor rentable venue. Mother Nature will no longer have an impact on any use of your space. The roofs of our largest facilities close in minutes. So with the addition of optional rain sensors the enclosure will do the work for you.



6. Create a place people want to Visit

To compete in towns and cities across the country, all hotels, restaurants, bars, etc, must stay ahead of the trends to attract new guests. This is called improving your marketability.

Offering upgraded facilities that are safer and healthier, to compete with other venues, is critical. Ensuring that these can be open year round enhances their value and ROI via programming opportunities.

A retractable roof ensures you are free from weather related concerns. In addition, the 'peace of mind' associated with being in a bright, open and naturally ventilated space is appealing and "marketable" to attract guests.

7. Maintenance Free Facility

Aluminum is lightweight, high-strength, corrosion-resistant and widely recycled. It maximizes building efficiency by balancing the functions of heating, cooling, lighting, shading and ventilation. In addition, aluminum in buildings has been proven to last for multiple decades with minimal maintenance, lowering the lifecycle footprint of a building.⁷



8. Energy Efficient

All energy codes, globally, require new or renovated structures and buildings to use less energy. Aluminum is superior to steel and iron in its ability to reflect the infrared (heat) rays of the sun. ***Properly coated aluminum roofs can reflect up to 95 percent of the solar energy that strikes them, dramatically improving energy efficiency. This makes aluminum is a key component in LEED-certified green buildings should you be looking for that designation.***⁹

In addition when the roof is open and the walls are open, your space becomes a naturally “chimney”. This is a low cost alternative to expensive energy consuming mechanical ventilation systems.

TOP QUESTIONS ABOUT RETRACTABLE ROOFS ANSWERED...

Here are some snapshots of
solutions for other clients:

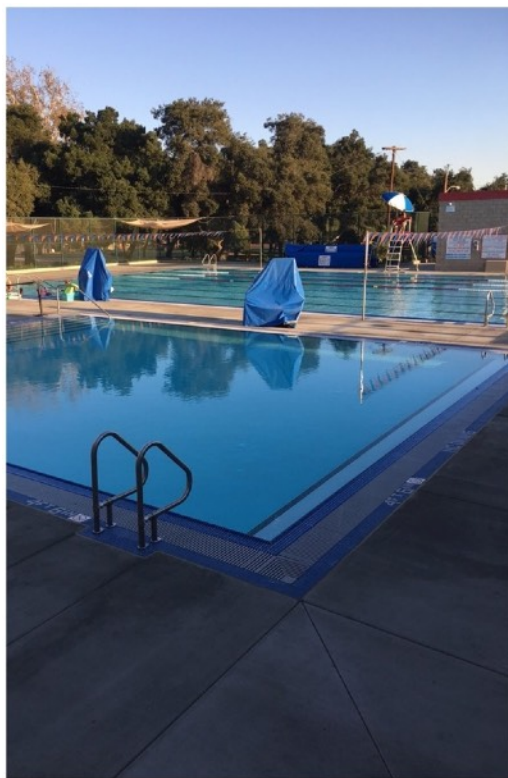
Our Most Asked Question... Can I cover my pool?



YMCA Upland California

YES you can cover an existing pool!

NOTE: this also requires upgrading of mechanical equipment (from your pool guy) and possibly refinishing of decks and pools by that same team.



Before



During



After

Is a retractable skylight double the cost of a fixed skylight?



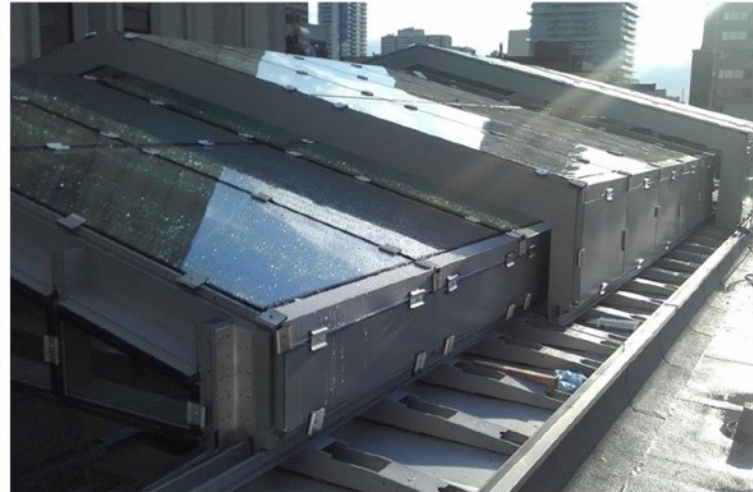
Kellys Landing Restaurant

The skylight is the same size fixed or retractable. If it opens we add tracks and Motors.

Incremental cost added to open (aka add tracks Motors): 10% +/-

Savings on Energy Bills:
(Hydro (lighting) and gas)
15-20% non aquatic
20-30% Aquatic

How long does it take? Small project



Boston Pizza

27' x 50'

Telescope, glass skylight

Install: 1 month*



** timeline for reference all projects vary*



How long does it take? Large project



Epic Waters Waterpark

162' x 382'

Ground Breaking:

October 2015

OpenAire Start:

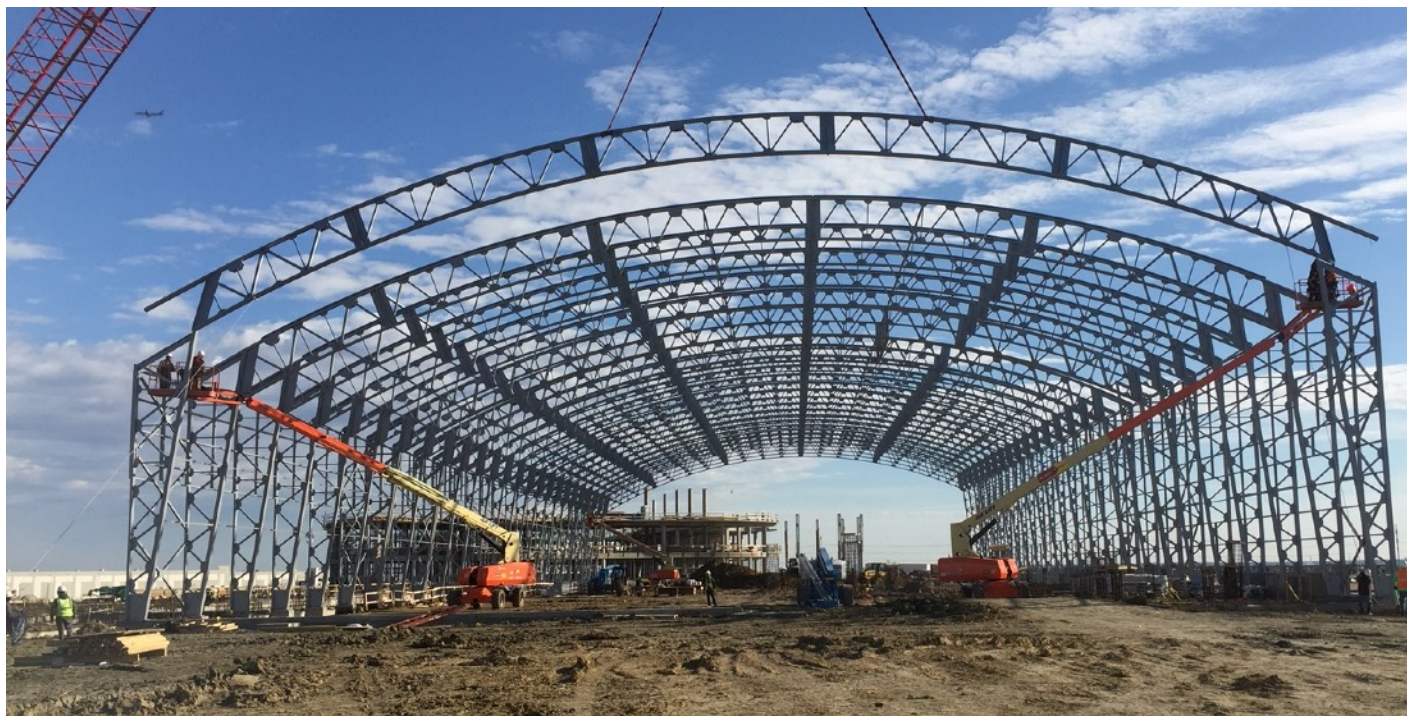
Dec 2016

Last Truss:

Jan 24 2017

Open to the Public:

January 12, 2018



** timeline for reference all projects vary*

I want to keep my patio but use it year round!



Before

After

Gusto 101

Rooftop patio was subject to weather related closures. Now, same patio, open year round

I don't want to lose my best views!



Hyatt Jersey City

Facing Manhattan, this rooftop has one primary view. This solution not only enhances it, but allows it to be seen year round.

My venue is aquatic, what about Corrosion & Mold?



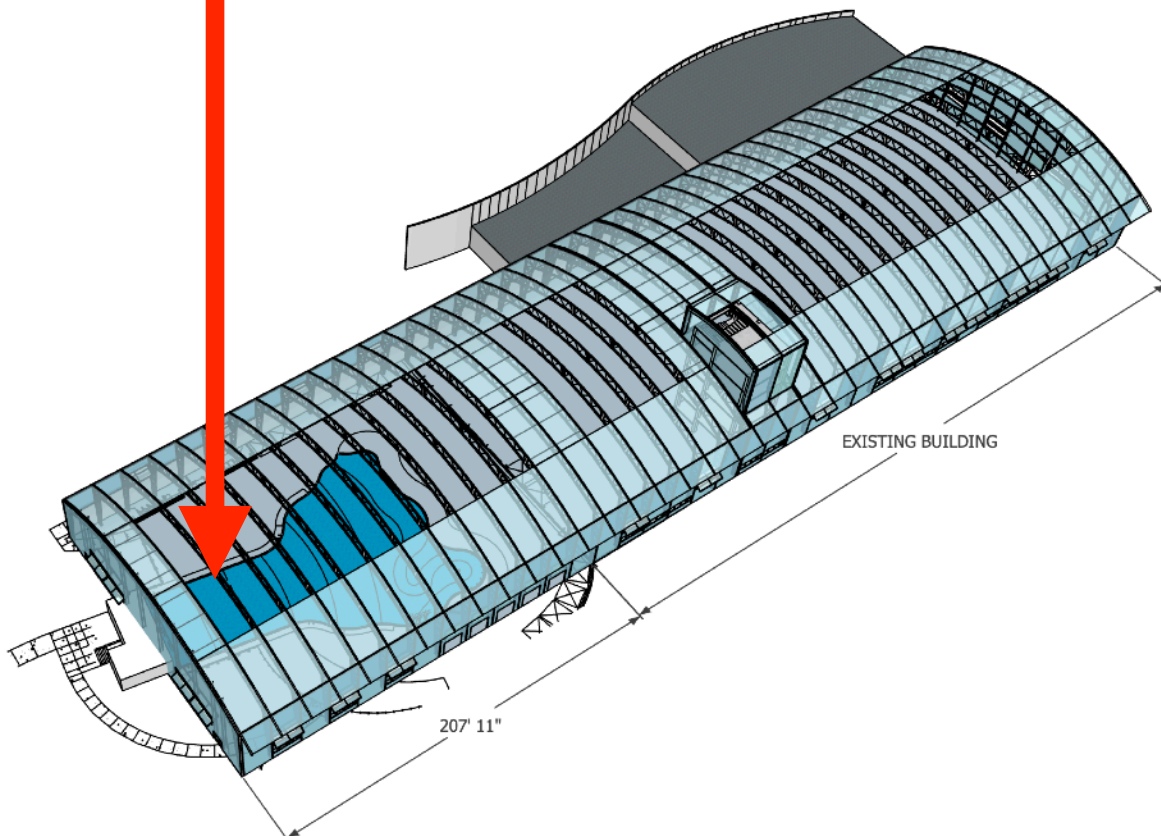
Zehnders Splash Village

During minor gas line maintenance, a hole in a wall led to the discovery roof and wall black mold. The existing glulam structure was in salvageable condition but all other surfaces needed replacement.

Roof was replaced with retractable. Walls replaced with glass.



Can I make it bigger down the road?



Epic Waters Waterpark

This municipal waterpark was designed to grow.

Starting in 2024, the outdoor wave pool will become an indoor wave pool.

The gable end will be removed, the building will get longer and the gable end will be reinstalled in the new location.

Learn & Earn

OpenAire now offers a
Continuing Education Credit
for Architects = 1 AIA LU-HSW

LEARN:

- How they can be added to new & existing buildings
- The health, safety, benefits for occupants
- How retractable roofs can save energy costs \$\$
- The benefits of a Naturally Ventilated Space
- How large volumes of air will potentially reduce the load of airborne disease pathogens
- How retractable roofs are a sustainable and can reduce the carbon footprint of a building
- How they can your reduce building yearly operating costs

<https://openaire.com/continuingeducation/>

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Credits:

 0.1 IACET CEU*	 1 AIA LU/HSW	 1 AIBD P-CE	 AAA 1 Structured Learning Hour	 AANB 1 Hour of Core Learning	 AAPEI 1 Structured Learning Hour
 MAA 1 Structured Learning Hour	 NLAA 1 Hour of Core Learning	 NSAA 1 Hour of Core Learning	 NWTAA 1 Structured Learning Hour	 OAA 1 Learning Hour	 SAA 1 Hour of Core Learning

Health & Sport

(Private)





Lincoln Crossing Clubhouse
Lincoln Crossing, CA



Lincoln Crossing Clubhouse
Lincoln Crossing, CA



Lincoln Crossing Clubhouse
Lincoln Crossing, CA



Saarland Therme Resort, Fitness, Spa
Rilchingen, Germany



Saarland Therme Resort, Fitness, Spa
Rilchingen, Germany



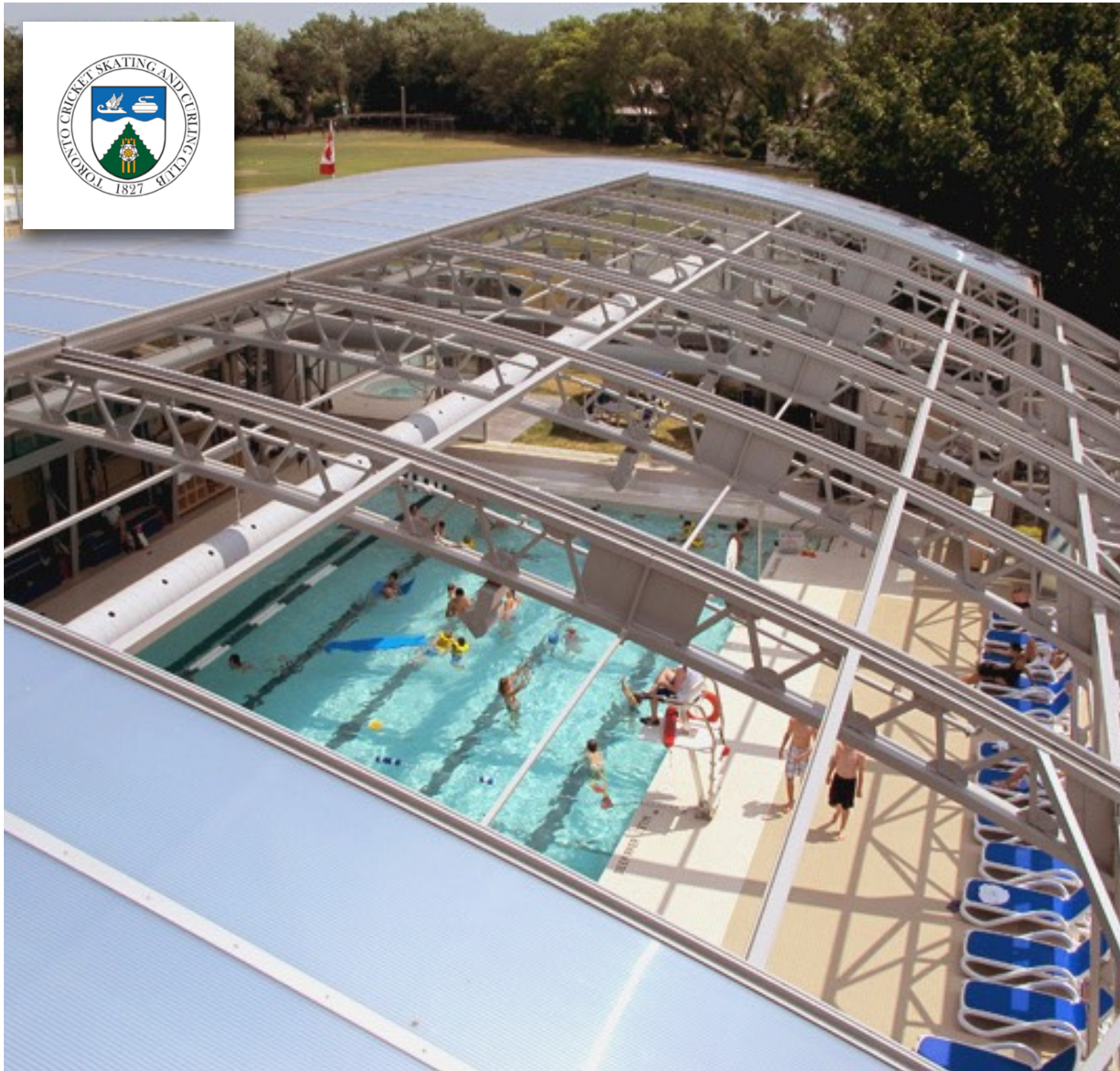
Ontario Racquet Club : Private Members Club
Oakville, Ontario, Canada



Ontario Racquet Club : Private Members Club
Oakville, Ontario, Canada



Stock Brook Manor: Private Members Club
Essex, UK



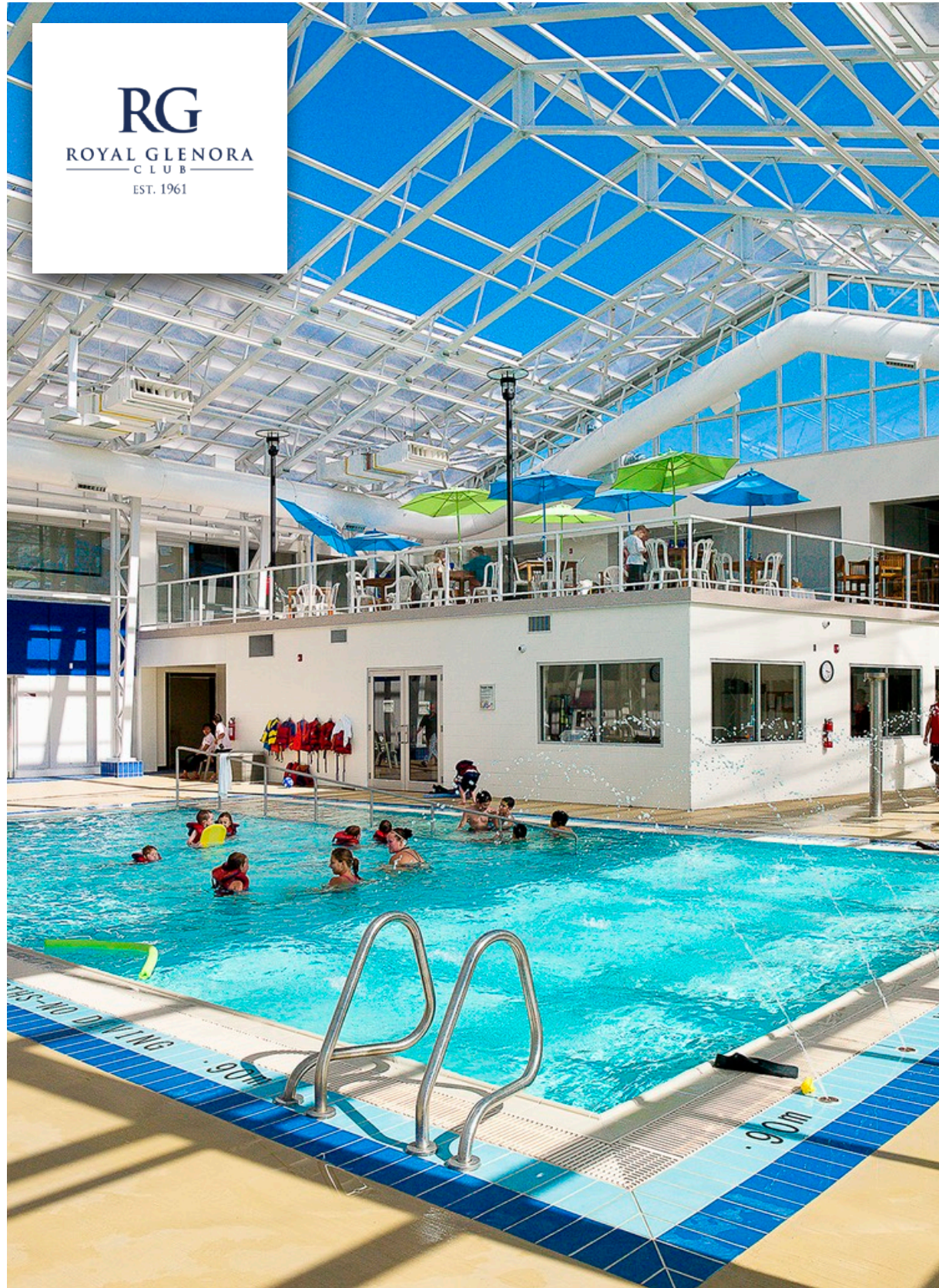
The Cricket Club: Private Members Club
Toronto, Ontario, Canada



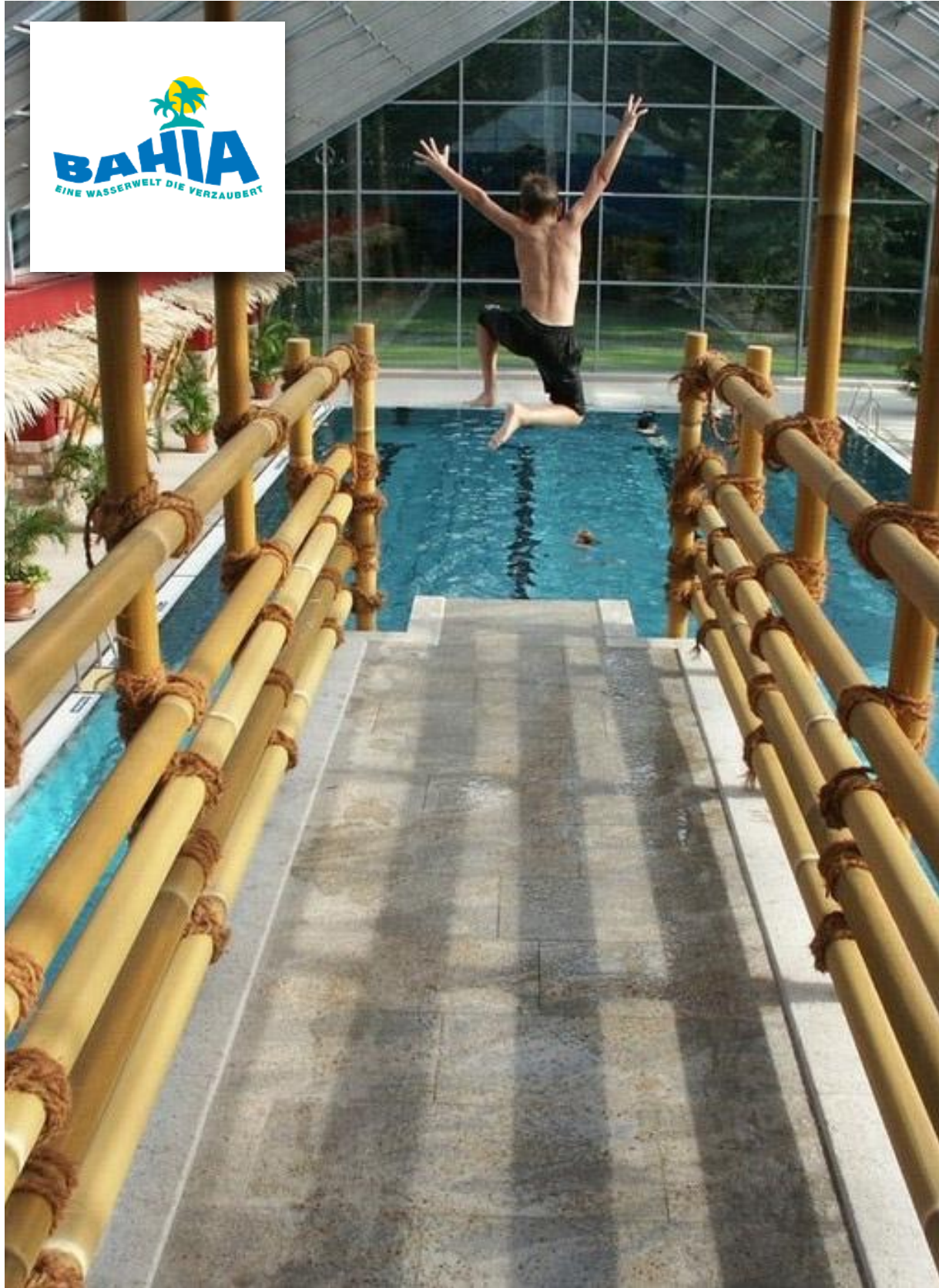
The Granite Club: Private Members Club
Toronto, Ontario, Canada



Golds Gym
Carrolton, GA



Royal Glenora Health Club
Edmonton, Alberta



Inselbad Bahia
Bolchod, Germany



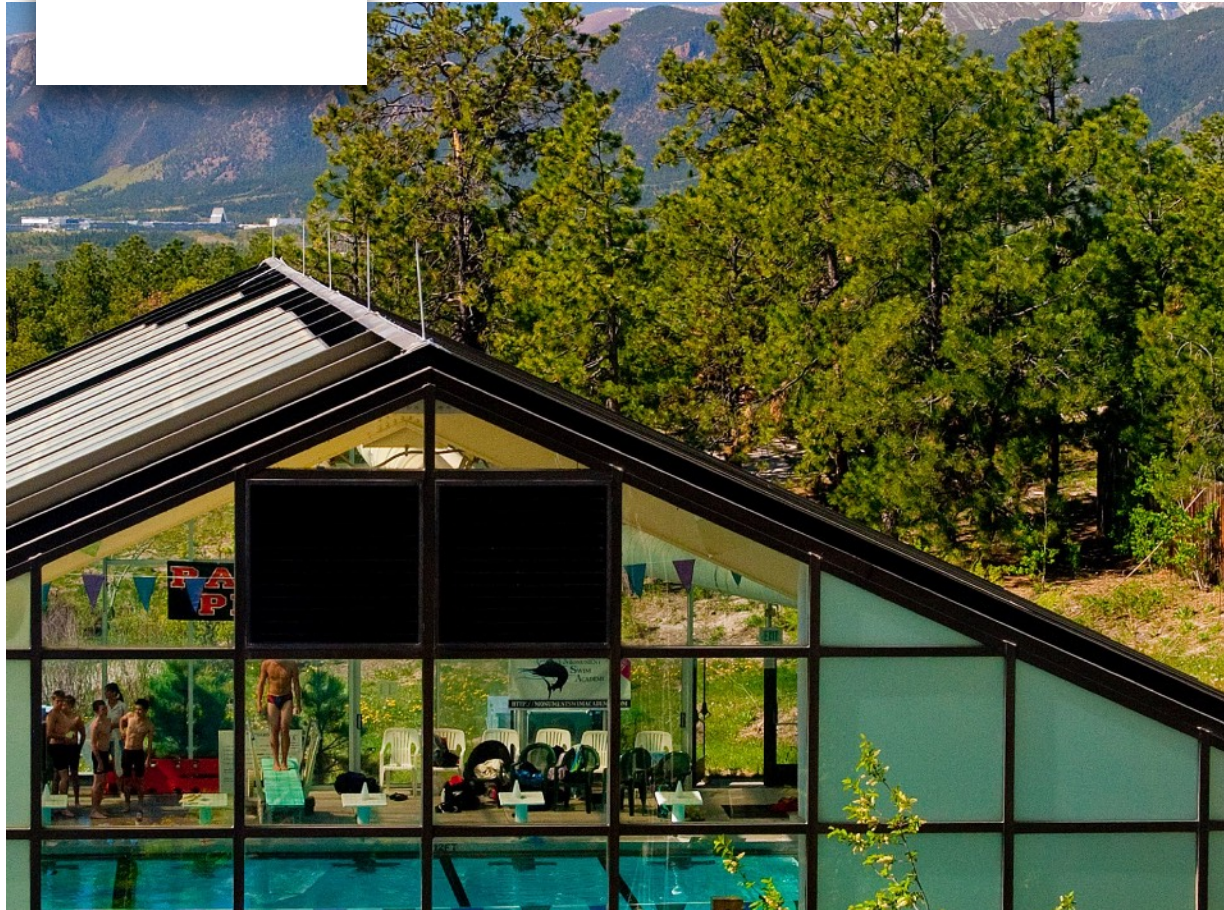
Hockessin Athletic Club & Wellness Center
Hockessin, Delaware



ALMADEN VALLEY
ATHLETIC CLUB



Almaden Valley Athletic Club
San Jose, California



The Country Club at Woodmoor
Monument, Colorado

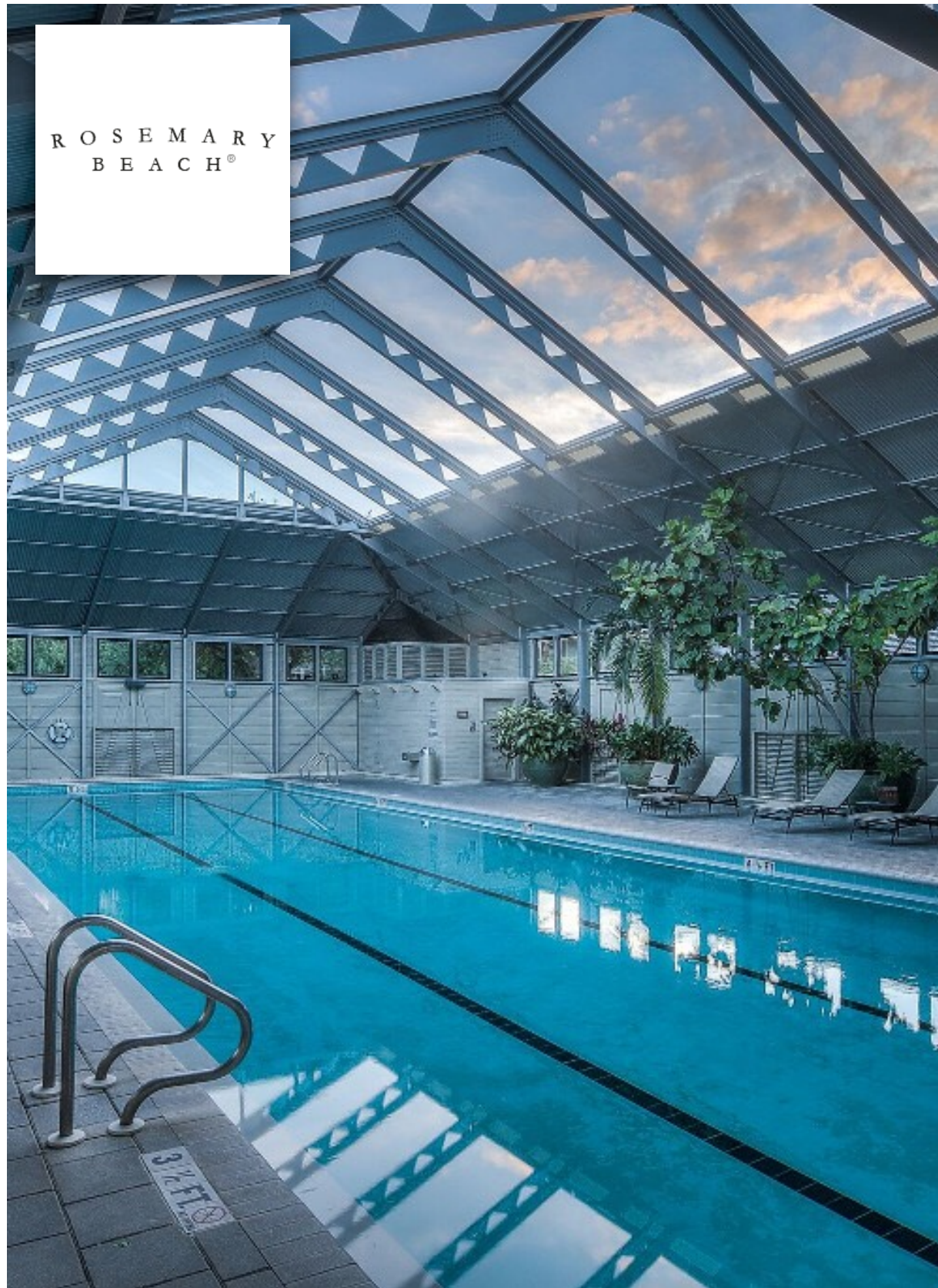


The Country Club at Woodmoor
Monument, Colorado



Wilson's Fitness Centre
Columbia Missouri





Rosemary Beach Clubhouse
Panama City, Florida

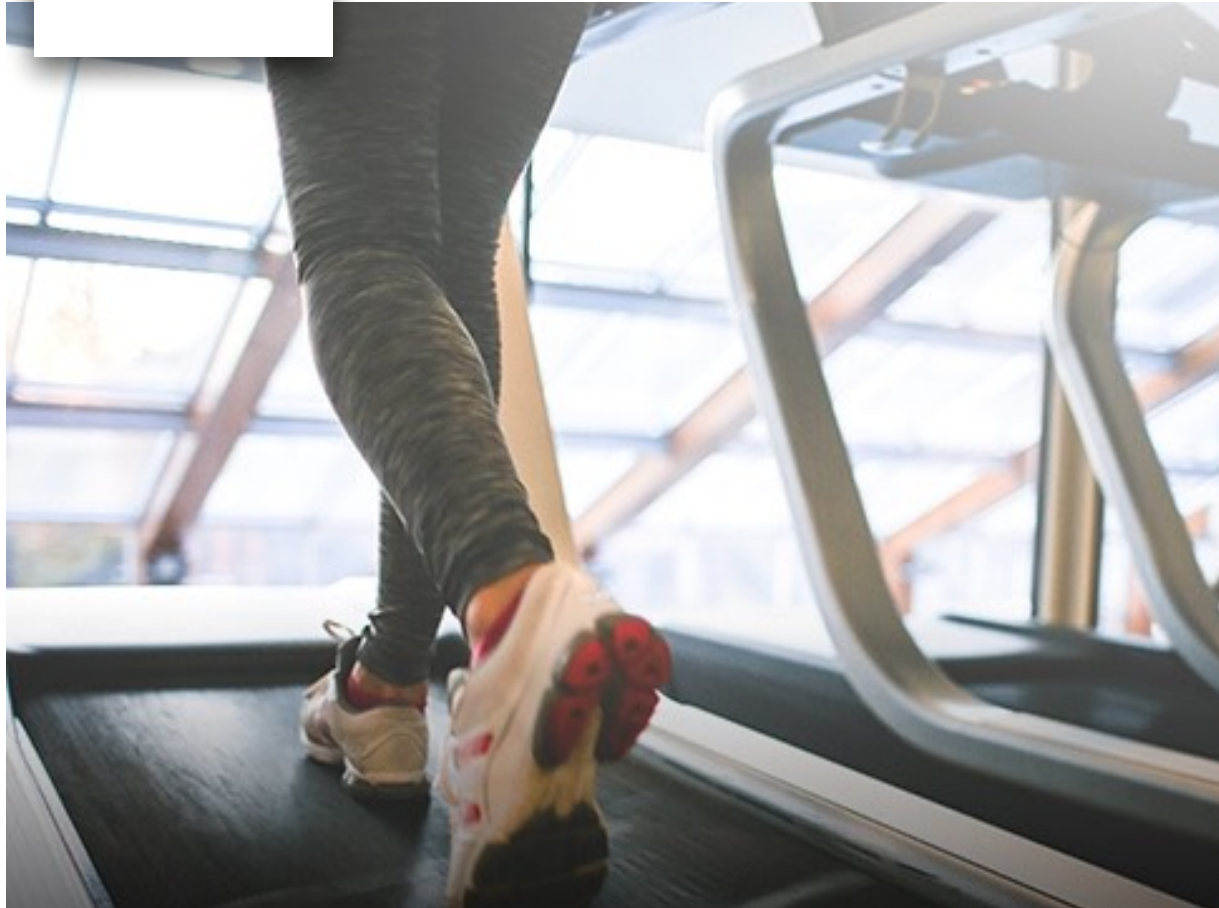
Athletic
Non Aquatic





Anatomy Fitness: 3080 Yonge St
Toronto, Ontario

ANATOMY
FITNESS



Anatomy Fitness: 3080 Yonge St
Toronto, Ontario



This Complex includes a operable Windows for the fitness studios plus the retractable roof over the pool

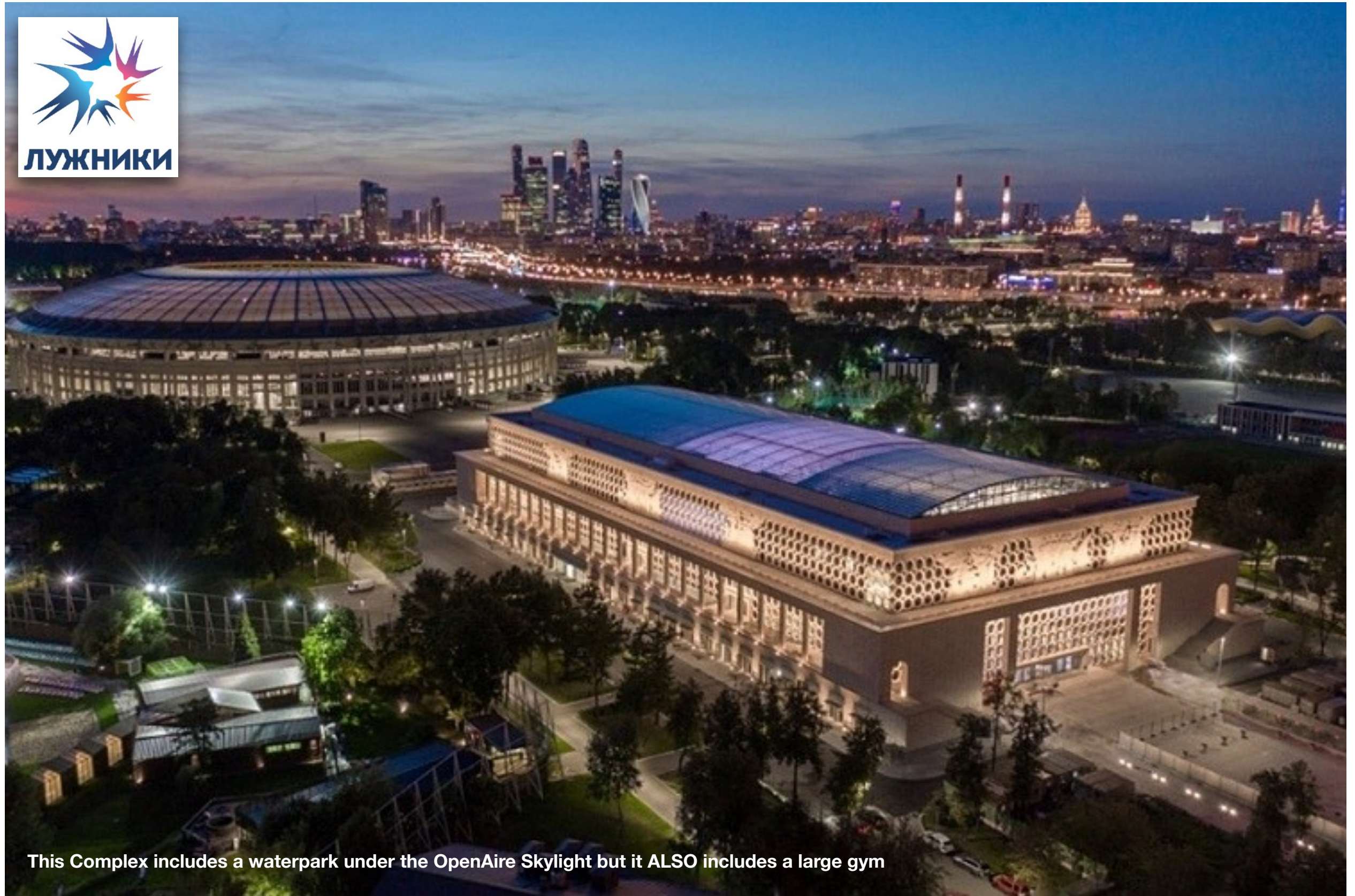
Fit Mission Beach at Plunge San Diego
Belmont Park, San Diego, California



Fit Mission Beach at Plunge San Diego
Belmont Park, San Diego, California



Fit Mission Beach at Plunge San Diego
Belmont Park, San Diego, California



This Complex includes a waterpark under the OpenAire Skylight but it ALSO includes a large gym

Luhzniki Mixed Use Sports Complex
Moscow, Russia



Luhzniki Mixed Use Sports Complex
Moscow, Russia



Luhzniki Mixed Use Sports Complex
Moscow, Russia



Sports Viewing Complex
United Arab Emirates (UAE)



Underground Dance Academy
Toronto, Ontario



Moxy Hotel by Marriott - Rooftop Yoga Space
Washington DC

Retirement





Waterford Retirement Residence
Ottawa Ontario



Heritage El Dorado Hills Fitness Center
El Dorado Hills, California



Eskaton Village Seniors Swim & Fitness
Roseville California



Eskaton Village Seniors Swim & Fitness
Placerville California



Reata Glen and The Glen at Scripps Ranch Retirement Communities
Rancho Mission Viejo, CA & San Diego, CA



Reata Glen and The Glen at Scripps Ranch Retirement Communities
Rancho Mission Viejo, CA & San Diego, CA



Reata Glen and The Glen at Scripps Ranch Retirement Communities
Rancho Mission Viejo, CA & San Diego, CA



Rossmoor - Del Valle Pool Enclosure,
Walnut Creek, California

FOUR SEASONS RETIREMENT COMMUNITY

PROPERTY OF COUNTRYSIDE HEALTHCARE CENTER

Four Seasons at Lakewood
Ocean City, NJ

Four Seasons at Mapleton
Mansfield, NJ

Four Seasons at Metedeconk Lakes
Jackson, NJ

Four Seasons at Cranberry
Princeton, NJ

Four Seasons Health Club
Sioux City, Iowa

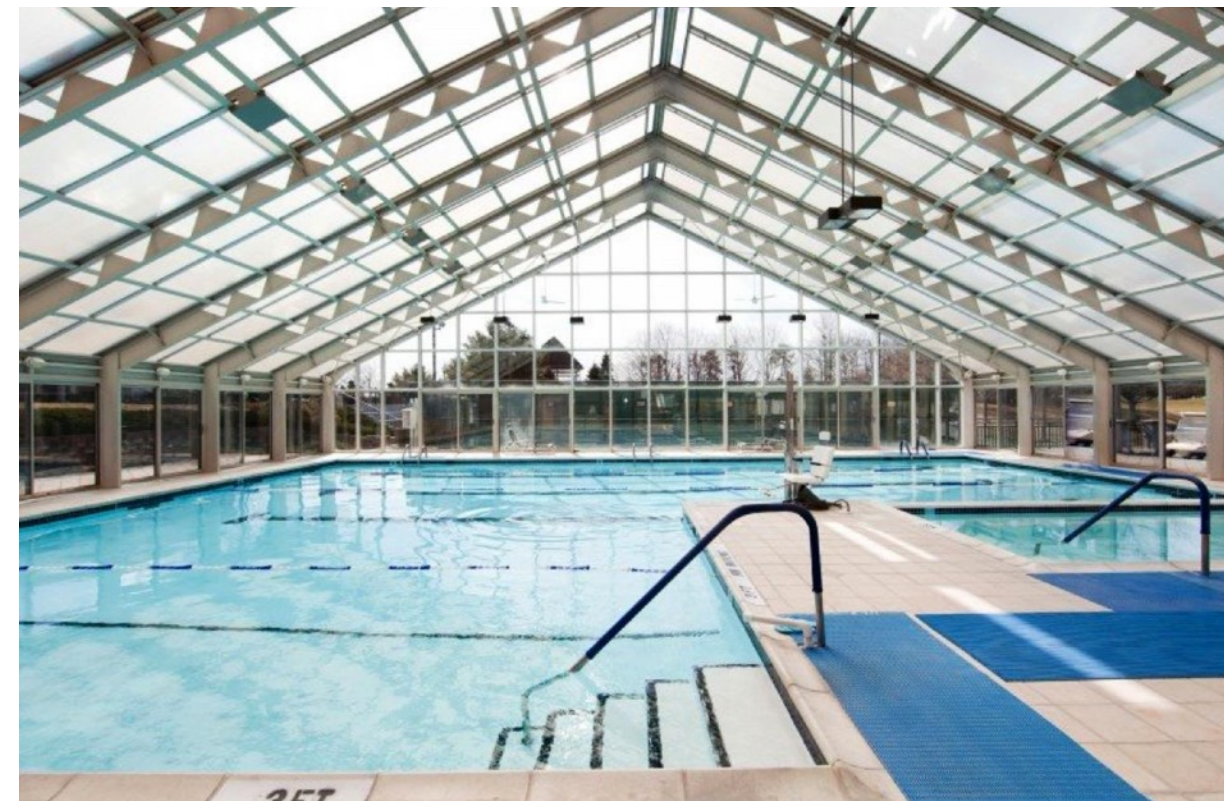
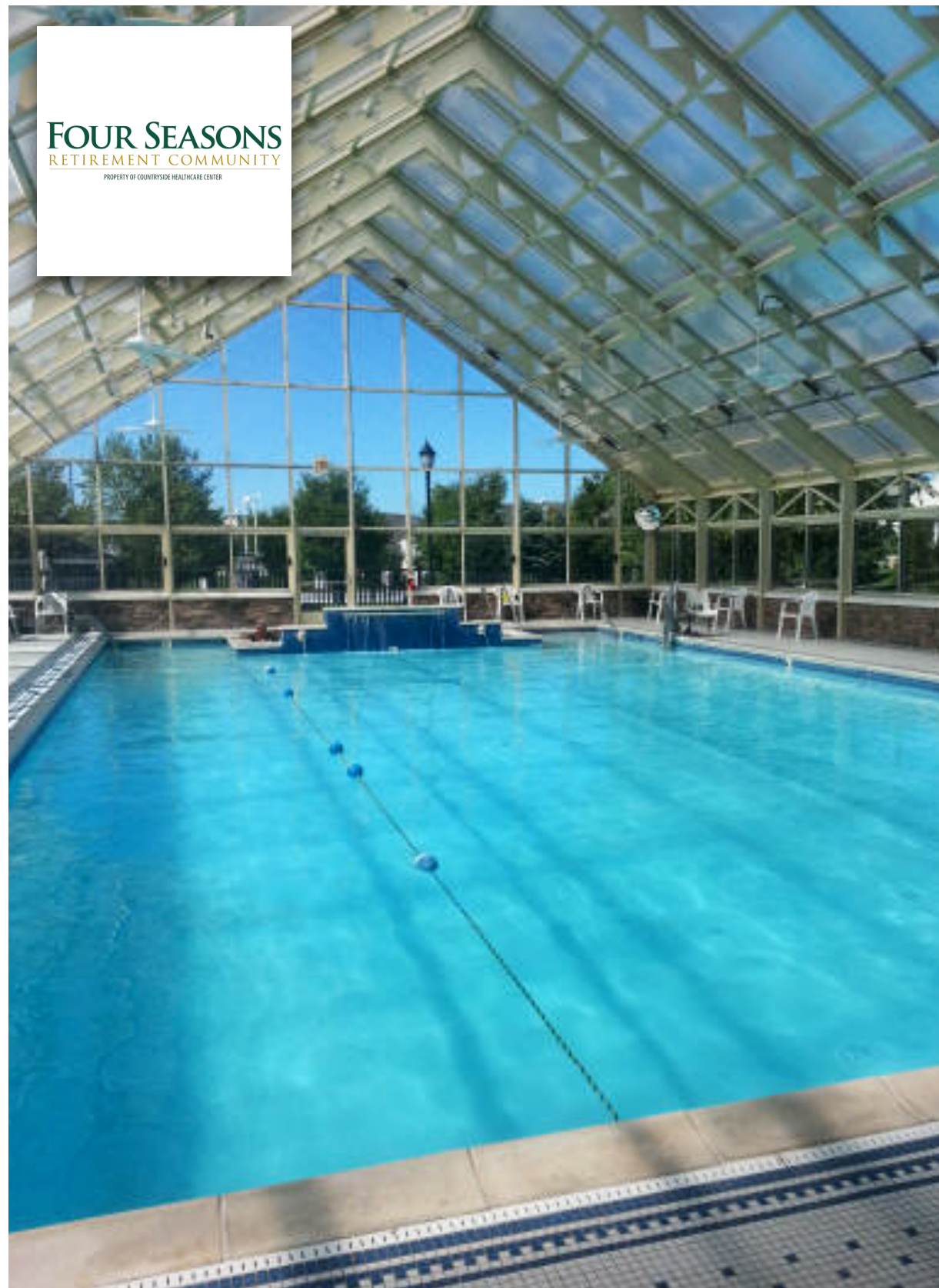
Four Seasons at Smithville
Smithville, NJ

Four Seasons at Upper Freehold
Allentown, NJ

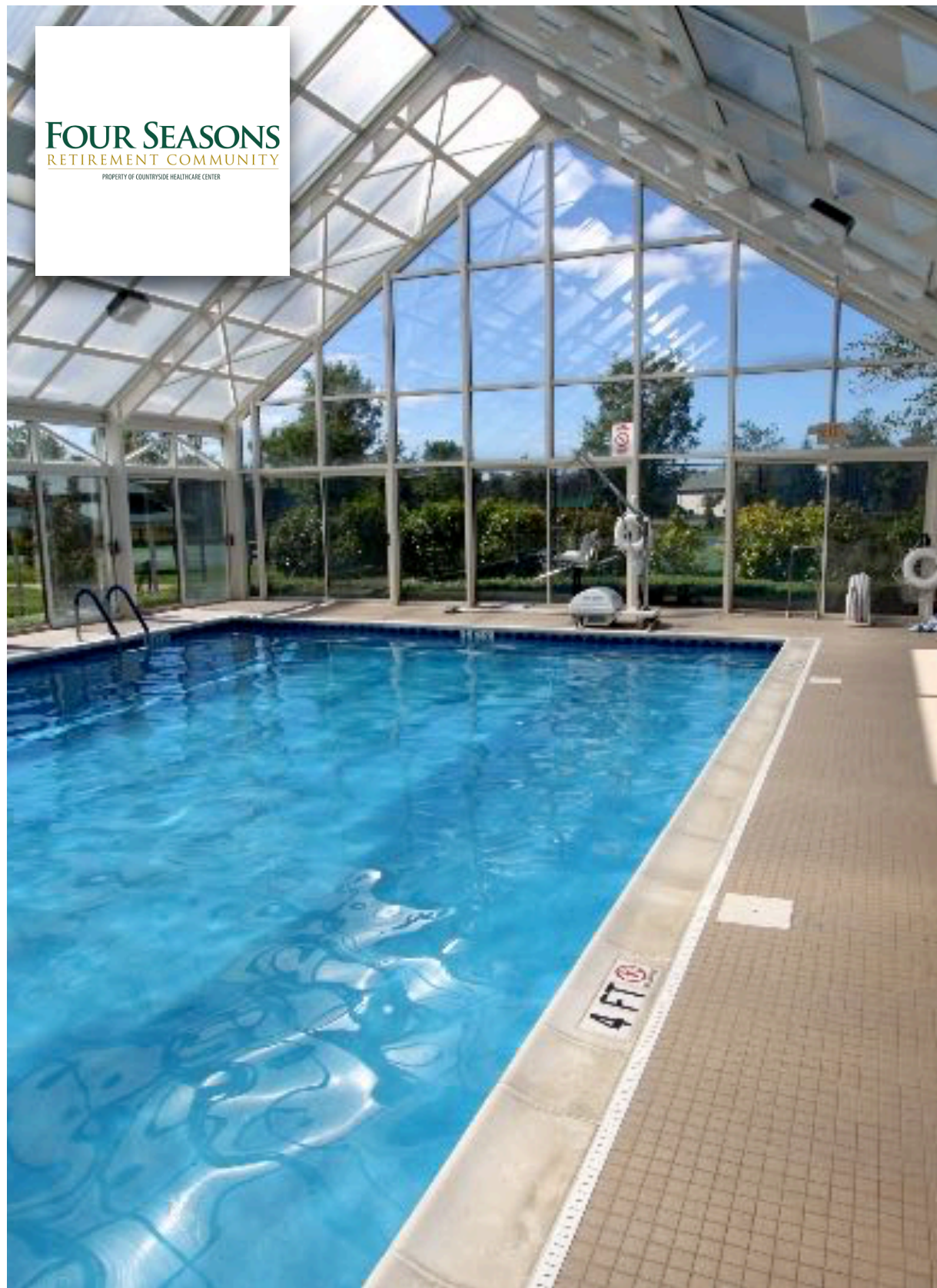
Four Seasons at Wall
Wall, NJ

Four Seasons at Weatherby
Weatherby, NJ

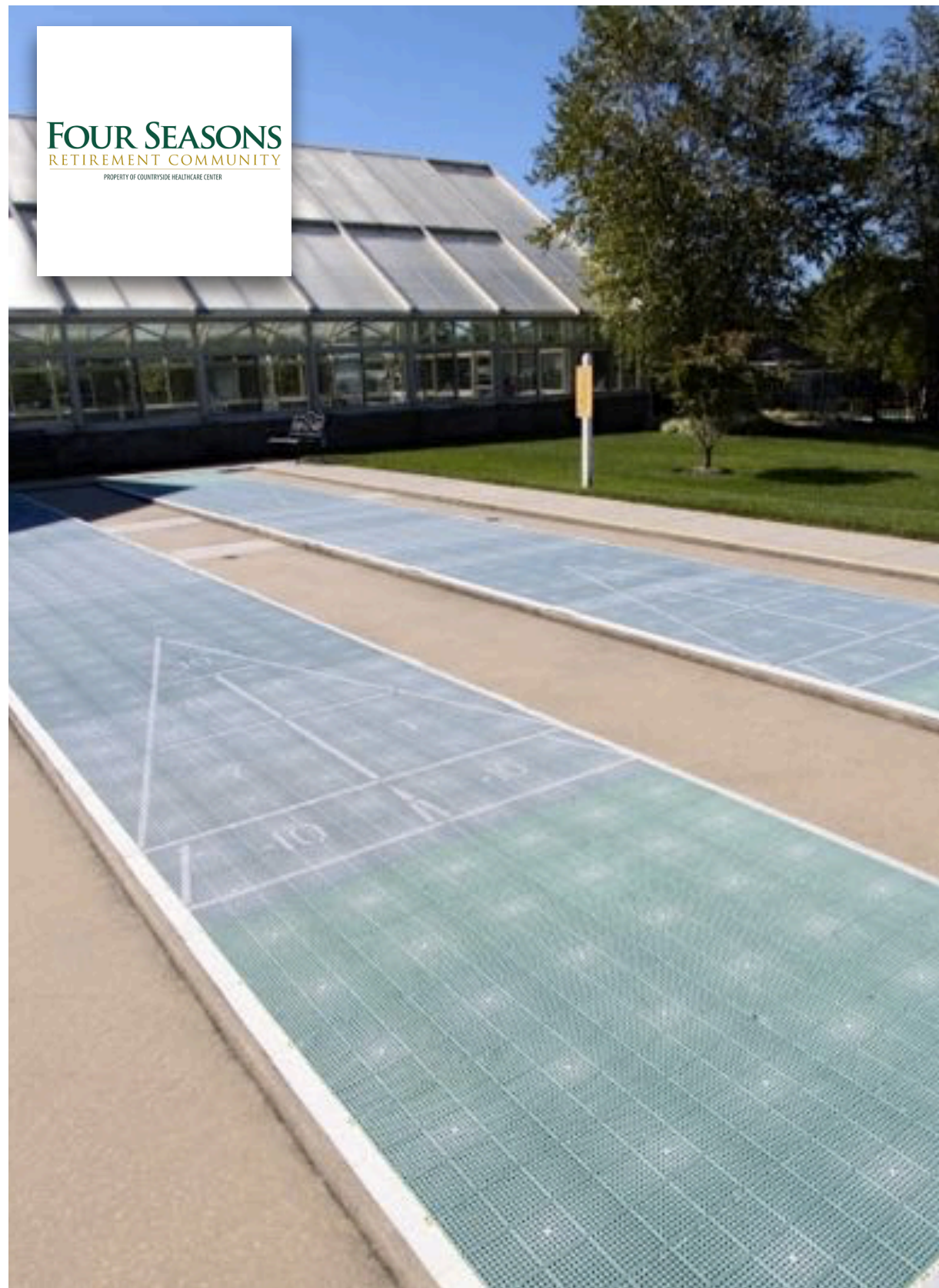




Four Seasons Spa & Country Club Community
Various Locations



Four Seasons Spa & Country Club Community
Various Locations



Four Seasons Spa & Country Club Community
Various Locations



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End Notes:

1. CDC Workplace Safety and Health; Investigation of Employee Symptoms at an Indoor Waterpark, Lilia Chen MS, Health Hazard Evaluation Report HETA 2007-0163-3062, Great Wolf Lodge, Mason, Ohio, June 2008
2. WHO; Natural Ventilation for Infection Control in Health-Care Settings, Edited by: James Atkinson, Yves Chartier, Carmen Lúcia Pessoa-Silva, Paul Jensen, Yuguo Li and Wing-Hong Seto, ISBN 978 92 4 154785 7 (NLM classification:WX 167), © World Health Organization 2009
3. Closed environments facilitate secondary transmission of coronavirus disease 2019 (COVID-19) Hiroshi Nishiura, Hitoshi Oshitani, Tetsuro Kobayashi, Tomoya Saito, Tomimasa Sunagawa, Tamano Matsui, Takaji Wakita, MHLW COVID-19 Response Team, Motoi Suzuki, medRxiv 2020.02.28.20029272; doi: <https://doi.org/10.1101/2020.02.28.20029272>
4. Energy efficiency in indoor aquatic facilities. Thoughtful choices yield significant energy savings, by Gary Lochner, Unison Comfort Technologies, innoventair.com
5. The Benefits of Natural Light: Research supports daylighting's positive effect on building performance and human health. Kevin Van Den Wymelenberg. architecturallighting.com; March 19, 2014
6. *ibid.*
7. Energy efficiency in indoor aquatic facilities. Thoughtful choices yield significant energy savings, by Gary Lochner, Unison Comfort Technologies, innoventair.com
8. Avoiding Problems in Aquatics Facilities: Atypical design for atypical buildings, Construction Specifier, December 25, 2013, Jason S. Der Ananian, PE, and Sean M. O'Brien, PE, LEED AP, <https://www.constructionspecifier.com/avoiding-problems-in-aquatics-facilities-atypical-design-for-atypical-buildings/>
9. <https://www.aluminum.org/aluminum-advantage/aluminum-101>
10. <https://www.aluminum.org/product-markets/building-construction>
11. *ibid.*