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Pre-Fabricated Therapy Pools

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Pre-fabricated therapy pools have several advantages over in-ground, constructed-in-place pools, particularly for therapists just entering the field, or for those therapists who are expanding their rapidly growing aquatic therapy practices.

Most pre-fab pools are somewhat portable. They can be moved to a new location or larger facility. They require less of a commitment by a therapist who is unsure of the direction his or her practice will take. The initial capital expense is much lower. Investments of less than $100,000 may get a therapist into the business of providing aquatic therapy. The speed of installation is an important factor. The business can be up and running in a much shorter period of time – months compared to years, when you consider the time necessary to design and build an aquatic therapy pool complex. There is a tax advantage in installing a pre-fab pool. Pre-fabricated pools are usually considered a piece of equipment rather than a part of the building, and can be depreciated over a period of five to seven years.

Many pre-fab pools have recognition and approval by the Food and Drug Administration (FDA) as Class II medical devices. This may be an important consideration in determining whether an aquatic therapy practice can be successful and profitable. Unless an aquatic therapist is working primarily with private pay patients, the number of procedures and modalities per visit may be limited by PPO contracts, workman's compensation, or other third party reimbursement. Features included in the design of pre-fab pools often provide a therapist with a means of quantifying progress, tracking treatments provided, repeating treatment protocols, and documenting progress toward achieving functional goals and outcomes.

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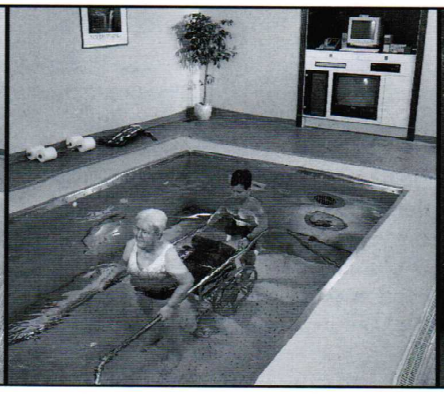
Although much simpler than constructing a therapy pool from scratch, there are still numerous, hopefully informed, decisions that need to be made, considerations that must be taken into account, and auxiliary facilities that must be provided before the pool is ready to use. (See *Considerations*, p. 10). If the therapist doesn't get involved early in the design process and elects not to make the decisions on these items, someone else, less familiar with the special requirements of warm water aquatic therapy pools and patient needs, will make the decisions for them.



Considerations:

~ How much floor space is needed in the natatorium?

~ How will you deal with acoustical problems?

~ What are your ambient air temperature, humidity control, ventilation, air distribution, and heat retention needs?

~ What support areas (reception, offices, storage space, first aid room patient screening) are needed?

~ How many and what size locker rooms will you need?

~ What water depth is required for specific therapies you plan to provide?

~ Should the pool be installed in-ground or above-ground?

~ What are your patient access requirements? How will patients get in and out of the pool? How will patients be escorted to and from the pool?

~ Can the pool be delivered through existing doorways?

~ Where will you store chemicals?

~ How large does the pump room need to be?

~ How high does the ceiling over the pool need to be?

~ Is access below the pool needed?

~ What weight load will the filled pool place on the floor? Depending on the depth of the pool, the floor will need to safely support 200 to 500 pounds per square foot. Floors other than ground floors, may not be able to support the weight (water weighs 8.33 pounds per gallon or 62 pound per cubic foot). Floors will probably have to be reinforced.

~ Which sanitation - oxidation and water treatment systems will be used?

~ What type of filters and filtration media will be used? What turnover time and flow rates are needed to accommodate the expected bather loads?

~ To what temperature will the water be heated?

~ How will the pool be lit? What illumination levels are needed?

~ How frequently will the pool need to be drained and refilled? How much time is required to reheat the water after draining, disinfection and refilling?

~ How will you address patient privacy issues?

~ What patient population will you be working with? What treatments or techniques are you planning to provide? How long will treatment sessions be? How many patients are you planning to see on an average day?

~ What space requirements are needed for particular therapies?

~ How will the pool be drained? Is deck drainage necessary? Does the water need to be treated or neutralized prior to disposal?

~ What therapy devices and equipment will be used in the pool? Where will they be stored?

~ Who will develop the training, documentation, operations and maintenance manuals?

~ Is parking needed for wheelchairs, walkers, crutches, canes, or golf carts adjacent to the pool area?

~ Will towels, swim suits, towel warmers, or laundry services be provided?

~ How will the pool and the facility be staffed? Will lifeguards supervise all pool activities? What level of water rescue, first aid and CPR training will therapists receive? Who will perform, daily, preventative and major pool maintenance? Will an outside house keeping staff be hired?

~ Who will design and run emergency action plans, and rescue drills?

~ How will assistance be obtained in an emergency? What type of emergency communications system needs to be installed?

~ Who will be responsible for water, air, and microbial testing?

The therapist must remember to compare not only the costs of purchase and installation, but also the costs of operation. How long will it take to achieve a return on the investment? Contact other owners of the pools and ask about the factory response time to repair an equipment breakdown. Are service contracts available? What is covered under the warranty?

A pre-fabricated therapy pool is still a major investment. In addition to base costs, there are many additional expenses associated with installing the pools. Items typically not included in the base price include: site preparation and excavation, electrical or plumbing hook-ups requiring licensed professionals, finish work, decking, floor drains, sump pumps for pools without plumbed suction outlets, and HVAC units. Permits and inspections, taxes, shipment and delivery costs, and travel and expenses for the installation crew are also additional.

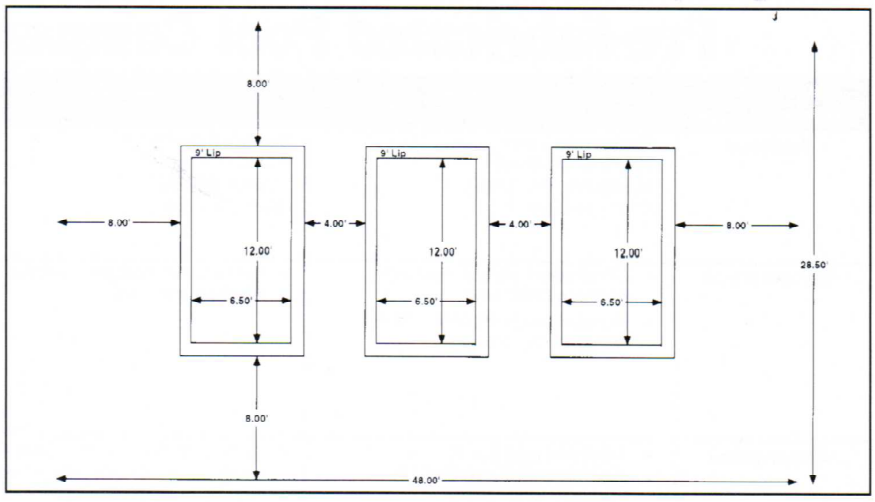
Once the pool is in place, the therapist needs to be realistic about the actual costs of operation. Operating expenses include not only the costs associated with purchasing chemicals, water, and utilities; but also staffing, facility rent or mortgage, office, maintenance, insurance, professional services, equipment and supplies, and marketing expenses.

The therapist should make an informed purchase when choosing a therapy pool. Compare features of several pools that are on the market today. (See chart comparing pools manufactured by: HydroWorx, SwimEx, Aqua Electric, Ferno, Endless Pools, and Med-Fit). Look at the special or unique features included with each pool. Do you want movable floors, treadmills, lifts, handrails, seating tiers, underwater windows, underwater cameras, hydrotherapy jets, countercurrent jets or laminar resistance, built-in work stations, or remote control functions? Make sure the pre-fabricated pool you decide to buy, is the one that best meets the needs of your practice today, and in the immediate future.

Swim Ex
1 Model 700
2 Model 600

Dimensions: 6.5' x 12' x (45" - 72" Model 700) and (50" - 60" Model 600), approximately 3,500 gallons (Model 700) and 3,200 gallons (Model 600)

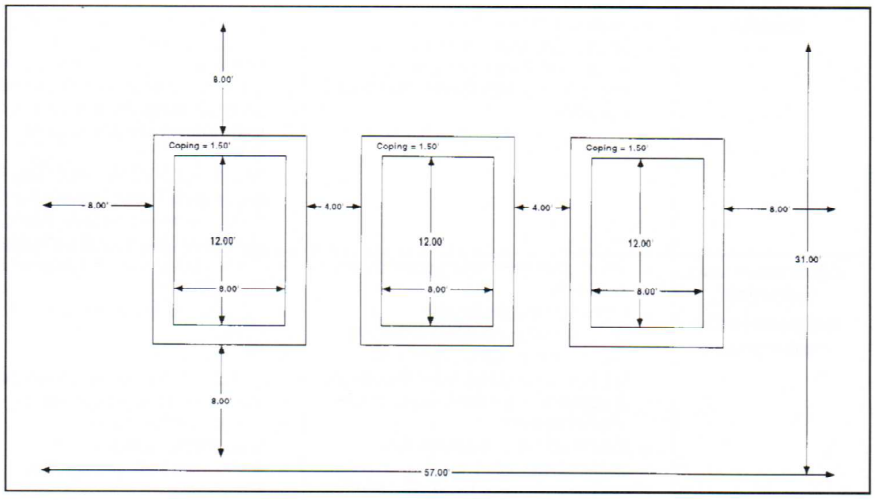
Cost Estimate: 1@ $59,000 + 2@ $40,000= $139,000, but 8% discount if 3 purchased, includes factory assembly



HydroWorx
1 Model 2000
2 Model 1500

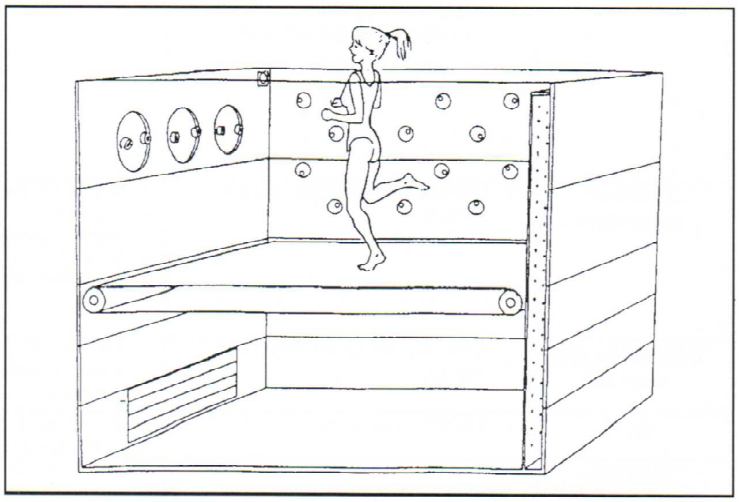
Dimensions: 8' x 12' x 8.58', 823 cubic feet, approximately 6,161 gallons each

Cost Estimate: 1@ $100,000 + 2@ $75,000 = $250,000, but < $200,000 if 3 purchased, includes delivery and on-site supervisor during installation by contractor



Basic Functions of a HydroWorx System

Many of the basic functions of the earliest generation of HydroWorx systems. Patient enters pool at ground level. An operator lowers the floor, and the patient, into the water to begin a prescribed conditioning program. The floor also operates as a treadmill which has forward and reverse functions. There are six jets of water to provide forward resistance and twenty lateral jets of water to provide therapeutic massage. Additional accessories are attached to assist in muscular strengthening and cardiovascular conditioning. At the completion of the conditioning program, the operator returns the floor to ground level for the patient to egress.



Pre-Fabricated Pool Comparison Chart

Pre-fab Pool Manufacturers	HydroWorx	SwimEx	Endless Pools
Address	The Hetrick Center 500 N. Union Street Middletown, PA 17057 (717) 944-2225	SwimEx Systems P.O. Box 328 Warren, RI 02885 (800) 877-7946	Endless Pools, Inc. Physical Therapy Deptartment 200 E. Dutton's Mill Road Ashton, PA 19014 (610) 497-5470 http://www.endlesspools.com
Construction	• Construction: carbon steel with reinforced PVC liner • Modular designed panels, can fit through a 36" doorway	• Construction: fiberglass surface, stainless steel rails	• Construction: galvanized steel panels, reinforced PVC membrane; 10" wide coping, return channel benches, and interior components 316L grade stainless steel • Modular construction so all components fit through a 24" doorway and are assembled on site
Dimensions	• Treatment area 8' x 12' • Adjustable floor zero depth to maximum depth of 6'2" • Approximately 5,000 gallons	• Multiple depths of water. Several models available with different water speeds, dimensions, depths, configurations, exercise stations	• 8' x 14' (9' x 15' outside dimensions) • Other sizes available • One or more depths of water up to 6 feet (in-ground) or 5' (above ground) • 3,000 - 5,000 gallons
Models	• Models 1500 and 2000 • Model 2000 also includes a variable speed (in 0.2 mph increments) treadmill floor with speeds from 0 to 8.5 mph	• All models have a paddlewheel propulsion system which can circulate up to 30,000 gpm of water and creates a smooth laminar flow which extends up to 30" below the water surface, with water current speeds adjustable from 0 to 6.5 mph • Models 400T, 500T, 600T, Max 700, MicroMax60T, and Danube Sub Acute Care Therapy Pools (see SwimEx chart on page 13 for specifications)	• Endless Pool - PT: Commercial version of the residential Endless Pools • In-ground, partially in-ground, or above-ground
Equipment and services included in the base price	• Waterproof hand held remote control operation • Computer monitoring and documentation of patient treatment, with printed progress reports for records and third party reimbursement • 2 underwater windows, video cameras, viewing monitor • Countercurrent resistance jets • Hydrotherapy jets (up to 60) • Attachment points for stabilization and support devices • Cartridge Filter • BCDMH brominator • 150,000 BTU natural gas heater	• 7.5 hp paddlewheel propulsion unit • Steps or ladder • Remote and swimmer operated controls • Monitoring systems • 2 underwater observation windows • Test kit and start-up chemicals • 1 hp circulation pump • 6 kw electric heater • 351 square foot cartridge filter • Vacuum • Pool cover	• 6 hydrotherapy jets installed above the rear bench • Perimeter grab bars • Non-slip flooring • Adjustable therapy counter current (up to 5,000 gpm) with remote 5 hp • 16" propeller driven hydraulic power unit (no electrical connection at the pool) • Rear grill and side return channels • Current resistance gauge • Pool blanket • pH/ORP controller • 11 kw electric heater • Chemical feed pumps for chlorine and pH adjustment chemicals • Copper-silver ionizer • 1 hp circulation pump • 1.5" PVC pipe • 100 square foot cartridge filter • Timer
Optional equipment	• Other filtration and water treatment systems	• Natural gas heater • Ozonator • Magnetic water conditioner • Chair lift • 2 foot lengthener sections	• Stairs and handrail • Lifts • Ladders, grab bars • 5,500 BTU natural gas heater • Underwater windows • Underwater video • Security cover
Installation and start-up	• Additional fees for installation and start-up	• Additional fees for system start-up and in-service training by factory authorized personnel	• Installation and start-up by factory trained crew, and in-service training included in base price
Cost	• $75,000 - $100,000+	• Base price range from $37,500 (60T) to $60,302 (Max 700)	• $39,775
Warranty	1 year parts and service 10 years structural	10 year structural	1 year on all systems 10 year structural

Pre-fab Pool Manufacturers	Med-Fit Systems	Aqua Electric	Ferno
Address	Med-Fit Systems 2759 Secret Lake Lane Falibrook, CA 92028 (800) 831-7665, (760) 723-9618 http://www.medfitsystems.com	Aqua Electric, Inc. 6501 Linglestown Road Harrisburg, PA 17112-1316 (717) 652-7377 aquaele@pa.net	Ferno 70 Weil Way Wilmington, OH 45177-9371 (927) 382-1191 http://www.ferno.com • Originally the Ille Electric Company • Sold through regional representatives
Construction	• Construction: proprietary fiberglass, cement, adhesives and ceramic tile construction • No rebar used • Modular Rehab Pool: new model which fits through existing doorways and is assembled on-site • Installed above-ground, partially submerged, or in-ground • R-16 insulation rating	• Stainless steel construction (304) grade	
Dimensions	• 5 standard sizes which are 8 feet wide and either 12, 14, 16, 18, or 20 feet long, and 50" deep • Volume ranges from 2,987 gallons to 4,978 gallons • Will customize any size or shape and choice of depths	• 6' x 10' x 8', with movable floor and variable speed treadmill	• Custom therapy pools and underwater treadmills and exercise devices, including: Aqua Ciser II, Hydro Track, Super Gym, Aqua Gaiter, and Aqua Motion Pools • All components fit through a 36" doorway
Models	• Med-Fit Aquafit Pools, Galaxy MD Series, all tile, custom rehab pools • Also manufacture spas, swim spas, bathtubs, fountains, lap pools with counter current swim jets • Duo-Pool Model: allows 2 simultaneous different water temperatures in two 12' x 9' x 50" units	• Aquahab hydrotherapy pool	• Models Aqua Ciser II, Hydro Track, Super Gym, Aqua Gaiter, and Aqua Motion Pools (see Ferno chart on page 14 for specifications)
Equipment and services included in the base price	• Viewing window • 5 hp laminar flow current generators (Swim Gym) adjustable and generating up to 8 mph currents • Hydrotherapy jets • Seating tiers • Angled plyometric boards • Stainless steel exercise bars and entry handrails • 11 kw electric heater • 1 hp circulation pump and 1.5 hp booster pump • Sand filter • Pool light • Skimmer • Chlorinator • Depth markers and signs • Flowmeter and pressure gauges • Thermal blanket • Test kit	• 1 year supply of chemicals • Operations and maintenance manual • Signage • Filter	• Test kits and start-up chemicals • Swim belts and tether • Flowmeter • Solar cover • Chlorinator • Cartridge filter • Circulation pump • Sump pump • Thermometer • Skimmer net and pool vacuum
Optional equipment			• Lifts • In-pool underwater treadmill • Heaters or chillers • Hand rails, exercise bars, parallel bars • Can reconfigure floor and pool depth as programming needs change
Installation and start-up		• Cost of assembly, installation, plumbing and electrical work, and laborers included in price • Training staff on usage, maintenance, and water quality is included • 4 quarterly service inspections and telephone support included	• Manufacturer installation is included in the cost of the pool itself • In-service training, maintenance and operations manuals, and instructional videotape included
Cost	• 8' x 12' x 50" $39,995 • 8' x 14' x 50" $41,995 • 8' x 16' x 50" $43,995 • 8' x 18' x 50" $45,995 • 8' x 20' x 50" $41,995 • Duo pool $56,000 • Duo with jets $65,000 • Add $1,400 - $5,000 for depth changes	• Base unit: $137,885.25 • Deluxe unit: $163,000.00 (includes all optional equipment: countercurrent jets, hydrotherapy jets, remote control, bench, rails, computer progress system, videotape and monitor, isokinetic attachment points)	• Aqua Ciser II: $6,400 • Hydro Track: $4,800 • Super Gym: $5,000 • Aqua Gaiter: $13,500 • Aqua Motion Pools: Varies from $20,000 - over $100,000
Warranty	10 years structural and tile adhesion	1 year materials and labor	10 year structural

SwimEx Pre-Fabricated Pool Models

Model 400T	Model 500T	Model 600T	Model 700T	MicroMax60T	Danube Sub Acute Care Therapy Pools
• 18" X 8', flat floor 42" deep • 2,600 gallons • 18" deep current with maximum 4.5 mph speed	• 18' x 8', 50" deep between the channels • 2,600 gallons • 25" deep current with maximum 5.5 mph speed • Water returns through side channel benches • Has 10" front steps and floor inserts	• 18' x 8' x multi-depth 48" to 60" deep • 3,200 gallons • 30" deep current with maximum 6.5 mph speed • 12" floor inserts and deep water running platform • 8 color coded work stations: 10" and 15" high closed kinetic exercise bench, 24" high platform, 45° plyometric station, 29" high bench, 36" high open kinetic exercise bench, 60" deep main workout and swim area, 40° angled running pad	• Same as the 600T model but with a 72" deep well • 18' x 8' x multi-depth 48" to 72" deep • 3,800 gallons • 30" deep current with maximum 6.5 mph speed • 12" floor inserts and deep water running platform • 8 color coded work stations: 10" and 15" high closed kinetic exercise bench, 24" high platform, 45° plyometric station, 29" high bench, 36" high open kinetic exercise bench, 60" deep main workout and swim area, 40° angled running pad	• 3,400 gallons • 13'7" x 7'4" x 60" deep • 4 workout stations	• 470T (recessed steps and grab rails) 12'6" x 6'6" • 472T (workstation/stairs and handrail) 14'6" x 6'6", • Both 48" deep, flat, non-skid bottom • Removable handrail running the length of the pool

Ferno Pre-Fabricated Pool Models

Aqua Ciser II	Hydro Track	Super Gym	Aqua Gaiter	Aqua Motion Pools
• Above ground • Transparent side viewing panels and entry door • Seat • Side handrails • Safety E-stop • Exercise chamber and water reservoir • Treadmill variable speed and reversible up to 8mph • Control console which controls: water depth, temperature, treadmill belt direction and speed • Water depth: 48" maximum • Patient enters exercise chamber then water enters chamber from the reservoir • 12 aerated hydrotherapy jets • 2 non-aerated front mounted turbojets for resistance • Sanitation-oxidation system included: hydrogen peroxide and copper ionization • Reservoir water is filtered, heated and chemically treated • 12' x 12'	• Smaller and more compact unit than the Aqua Ciser II • Above ground • Transparent side viewing panels • Side handrails • Safety E-stop • Instead of reservoir, patient enter through a dry foyer area through a lock system • Control panel: start and stop treadmill, control speed of treadmill, fill and empty tank switches • 2 non-aerated turbojets for resistance • 4' x 9'	• Underwater treadmill, underwater cross country ski machine, stepper, rowing machine • Plastic and stainless steel • Portable unit, 3' x 7' • Patient stands or sits depending on the exercise	• Underwater treadmill • Hydraulic power pack—no electricity • Direct drive operating system • Speed 0 – 5 mph • Transmitter and radio frequency receiver as well as manual speed control, portable unit • Materials: polypropylene, PVC and stainless steel, rubber suction cups • Portable unit, 3' x 7' • Weighs 105 pounds	• Custom built pre-fabricated therapy pools • Choice of any size, shape, depths • In-ground or above-ground • Any number, type and placement of jets • Construction: clear Plexiglas walls, red oak beams coated with marine grade epoxy and polyurethane • 60 mil PVX liner, flat floors • Interior and exterior stairs

Peer Reviewers

Charlotte Norton, DPT, ATC, CSCS, *is a physical therapist and athletic trainer. She is owner of Building Bridges, an aquatic consulting business, and is actively involved as assistant editor of the Journal of Aquatic PT and as a member of the AEA research committee.*

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