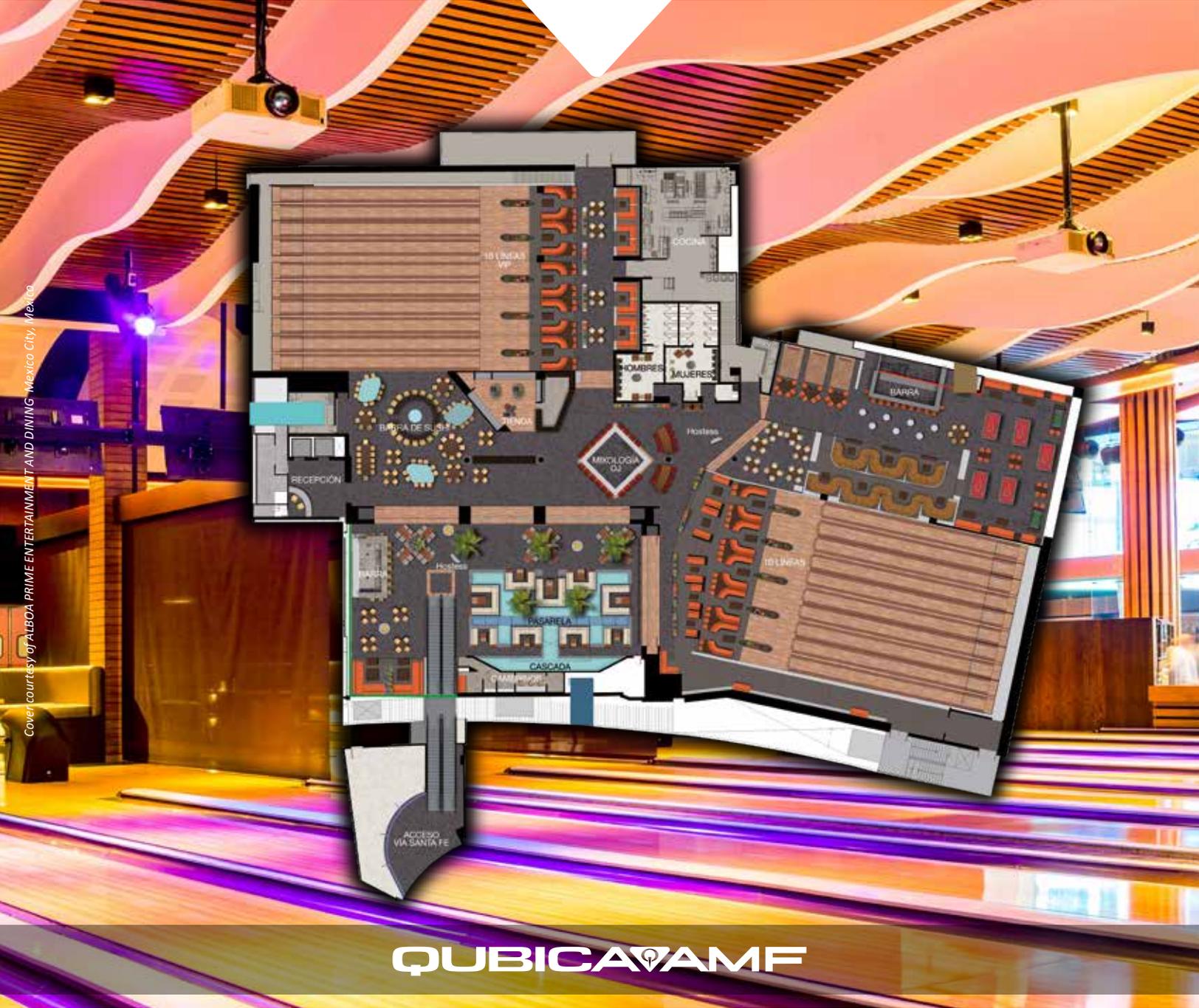




Cover courtesy of ALBOA PRIME ENTERTAINMENT AND DINING - Mexico City, Mexico



QUBICAAMF

FACILITY PLANNING GUIDE



Debbie Brykczynski, Owner
Yorkville Bowl, IL

David Small, Owner
Bowl 32, IN

Paul Barkley, Owner
Barkley Management, AZ

Andy Bartholomy, Owner,
Andy B's Bowling, TN

Joe Schumacker, Owner
Sparez, FL

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Spare Time Enter

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BAM! Ultimate



People Who Know Bowling Choose QubicaAMF

Since AMF revolutionized the modern sport of bowling with the first installations of the automatic pinspotters in the early 1950's, investors in over 90 countries have depended on AMF, and now QubicaAMF, for the highest quality bowling equipment. AMF was the first company in the industry to introduce pinspotters, automatic scoring, Surlyn coated bowling pins, urethane reactive bowling balls and bumpers.

In 2005, AMF merged with Qubica, the industry leader in scoring, entertainment and bowling management software to form QubicaAMF Worldwide, creating the industry's premier product line. QubicaAMF continues this long history of innovation by staffing the largest R&D team in the industry with the goal of raising the revenue generating ability of our customers. The fact is that no other company invests as much in product development as we do every year. Over 50-strong, our managers, designers, engineers, analysts and programmers are the industry's best, largest and most experienced R&D group, with unrivaled knowledge and experience.

Start your center with the most experienced partner in the business. Let us help you take your business beyond what you can imagine.

- Over 100,000 tenpin bowling installations
- More than 3,000 mini bowling installations
- The broadest and most innovative line of bowling equipment on the planet



Southern District Team Leader
Entertainment, NC

Mike Leong, Owner
Bel Mateo Bowl, CA

Kevin Priller, Owner
Pheasant Lanes, IL



Owner
Entertainment Center, MI

John Losito, Owner
Sun Valley Lanes, NE

Ashlee Carranza, Owner
Rancho Bowl, CA

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Getting Started

This guide is designed to help you in your bowling facility planning process. There are many things to consider before construction ever begins. This serves as a guide and checklist to help you navigate the process and highlights important elements for you to review and discuss with your architect or contractor.

As always, if you have any questions along the way, we are here to help.

Architect & Builder Support

QubicaAMF has the in-house resources to assist with the placement of your bowling equipment and installation. We work directly with your architect or builder to review and check the accuracy of your facility design.

Note: Be sure to check the references of your architect and builder and ensure they are licensed in your state or country. We recommend choosing an architect or builder who has completed projects of a similar scale.

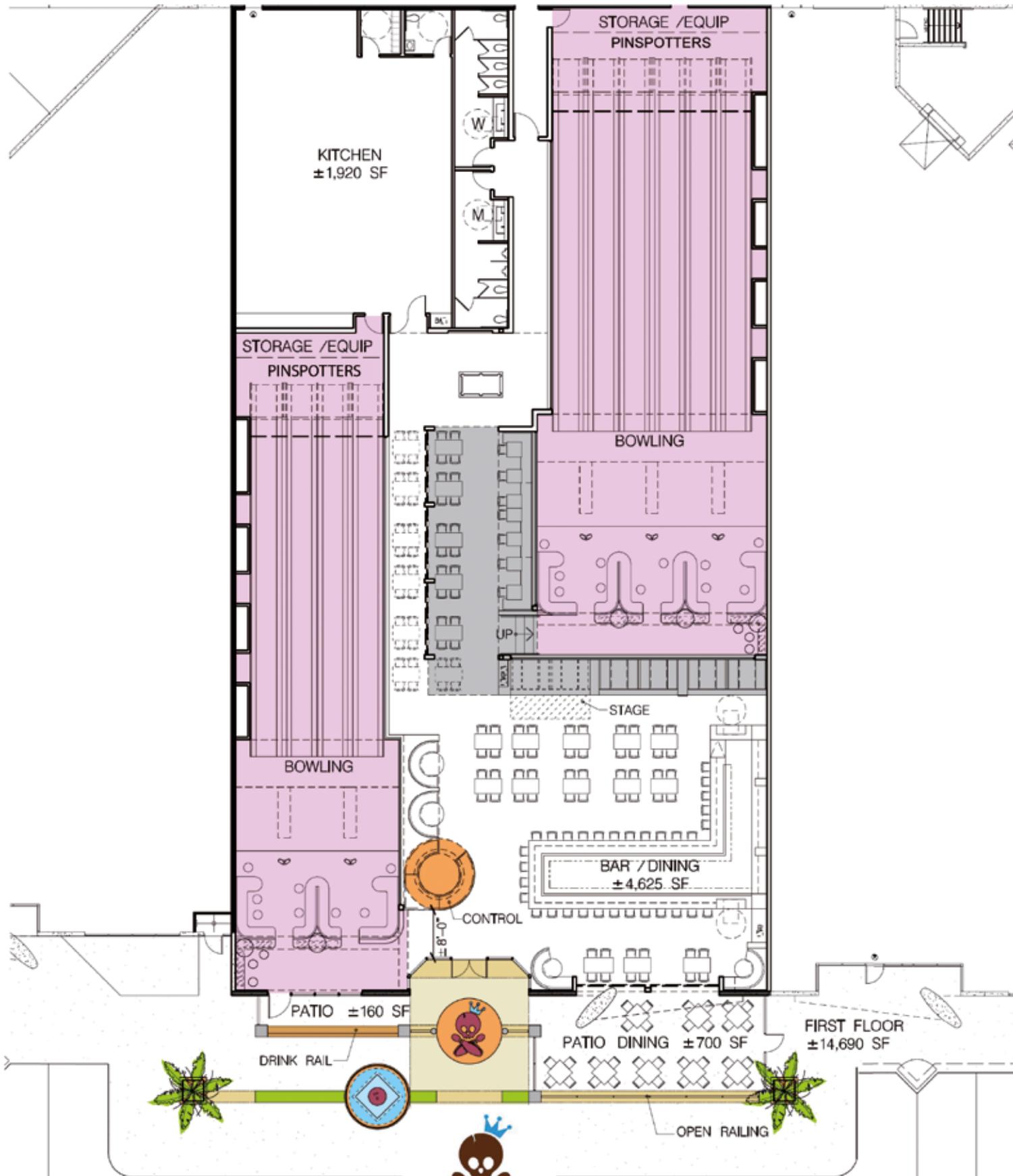
Opening a center can take anywhere from 12 to 24 months. This includes all stages, from the business plan to the grand opening. Eight months between the start of construction and the grand opening is typical. The bowling equipment installation typically takes 1.5 - 2 days per lane.

From installation to after-sale service and assistance, you won't find a more comprehensive, responsive global presence than QubicaAMF. Our team of experts will help you along the way by—

- Providing site visits
- Providing and reviewing CAD drawings
- Redlining and reviewing drawings for electrical requirements
- Overseeing the installation process
- Product installation and training

Our certified installers work with you and your staff every step of the way, offering programs tailored to your center. Afterward, we provide everything you need to maintain a thriving operation.

Start your center with the most experienced partner in the business—a partner who will stand by you and guide you all the way.



Tavern Bowl
 Eastlake, California, USA
 10 lanes

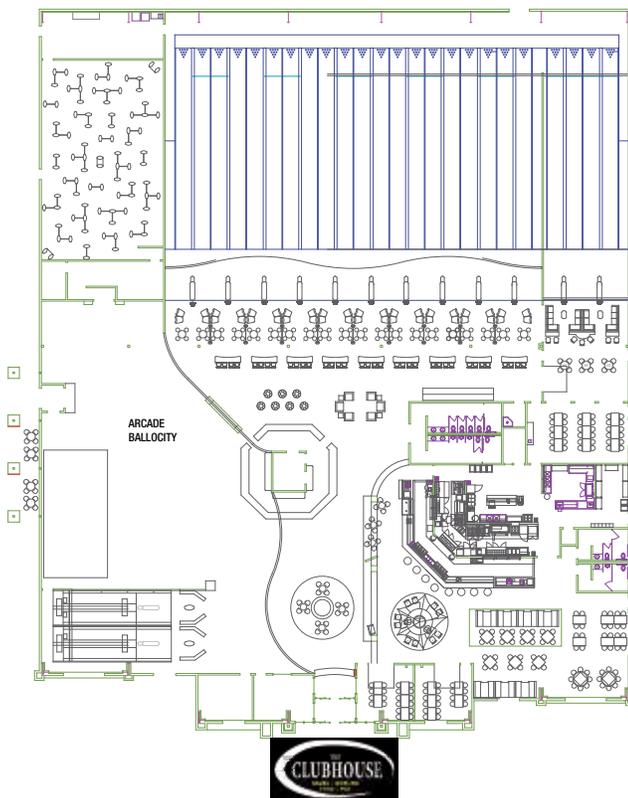
Business Models

If you haven't already, it's time to think about the type of center you want to develop. Depending on the market segments you want to pursue, there are multiple options—

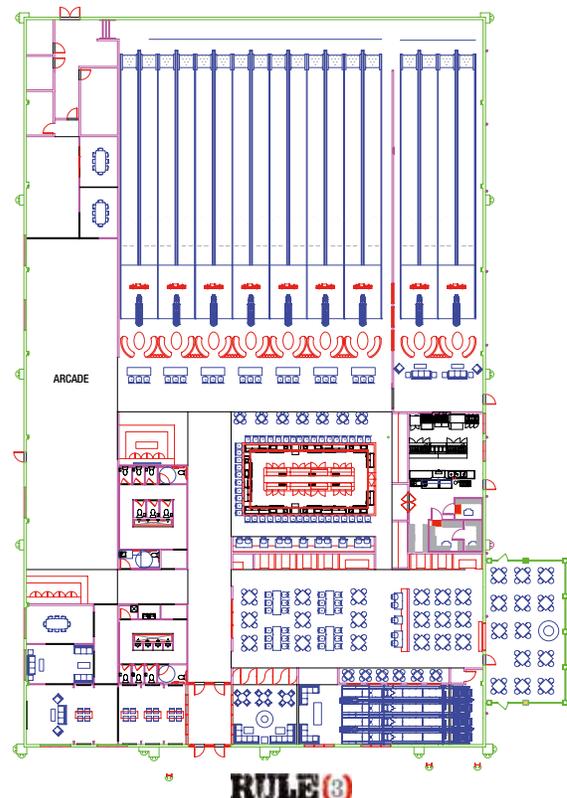
Boutique centers blend bowling, music and socializing, with food and beverage sales serving as the main profit center. Offering a hip and energetic environment, they frequently cater to young adults and adults. Tenpin, duckpin and/or mini bowling dominate the entertainment side, though other attractions are often part of the mix as well.

Family Entertainment Centers (FECs) tailor their services to all genders and age groups and feature a multitude of attractions, such as: mini bowling, arcade games, laser tag, go-carts and bumper cars. They often offer child-friendly play areas, and also have facilities for birthday parties, which make a substantial revenue contribution.

Hybrid facilities might offer league play part of the week and open play or family entertainment the rest. They might also blend the boutique and FEC business models, including a variety of activities in conjunction with bowling. Serving as a social scene for adults and young adults, upscale food and beverage sales provide a large part of the revenue.



The Clubhouse
Statesboro, Georgia, USA
24 lanes



Rule 3
Pickerington, Ohio, USA
18 lanes



Small Spaces

Many facilities today are looking to incorporate bowling into their business, but don't have the space that tenpin bowling requires. Duckpin and mini bowling combine the allure of tenpin play, but on a smaller scale—requiring a much smaller footprint—maximizing space, revenue and participation.

Whatever your business model, space requirements, or target markets, QubicaAMF has a solution. We are the industry leader in all areas and will guide you all the way.

Profit Opportunities

Consider complementary profit centers around bowling to maximize the return on investment. Multi-purpose rooms provide space for parties, meetings, banquets, luncheons and special events. QubicaAMF has the products and relationships to complement bowling with a broad range of activities—

- Duckpin Bowling
- Mini Bowling
- Billiards
- Laser Tag Arenas
- Arcade
- Redemption Store
- Go-Karts
- Mini-Golf
- Bumper Cars
- Rock Climbing/Climbing Wall
- Sports Bar/Lounge
- Softplay
- Interactive Ballplay (Ballocity)
- Bocce
- Outdoor Volley Ball
- Batting Cages





BOWL & BARREL

OPEN
↓

FIRELANE
NO PARKING
FOR ANNY ZONE
←

Site Selection

Existing Structures

Many centers are constructed in existing buildings which have structural supports. Common “big box” layouts are supported by columns spaced to accommodate between four to six lanes. Columns should be positioned well beyond the foul lines. Be sure to compare the cost of utilizing an existing structure with the cost of new construction.

Property Size

Your center size (number of lanes), business model, product mix (tenpin versus mini bowling) and local zoning requirements, will determine your space requirements. Traditional centers use 90m² (1,000ft²) per lane, plus parking. Multi-attraction entertainment facilities require additional space. Local zoning may require additional space as well. The building should be located on the property with thought for future expansion if possible.

Location

Co-locating with complementary entertainment options, such as restaurants and movie theaters, close to residential areas is recommended. Good visibility, high traffic areas and nearby office parks give added strength to a location. In addition, the building should be easily accessible from main traffic arteries.

Parking

Plan for five to seven marked spaces per lane. Allow for entrance, exit and driving lanes. Parking requirements are often set by local ordinance. Building entrances should be adjacent to the parking area.

Zoning

Check all ordinances and regulations for your location keeping in mind any future expansion plans.

Visibility

The growth of casual bowling increases the importance of visibility. Drive-by impressions increase awareness of bowling as an entertainment option. Identify high traffic locations with clear line-of-sight.



Site Selection

Signage

Strong signage reinforces your center image and can help compensate for large set-backs from main traffic flows. Well-lighted signage is recommended. Signage is the first and last impression of your center.



Exterior Lighting

Create a safe and inviting appearance with ample outside lighting. Colored lighting is a strong component of many architectural designs.

Existing Structure Review

If you are considering an existing structure, the following list offers a useful checklist of features to review on site—

- ✓ Location
- ✓ Parking
- ✓ Zoning
- ✓ Visibility
- ✓ Signage
- ✓ Exterior Lighting
- ✓ Exterior Surface
- ✓ Building Size
- ✓ Column Locations
- ✓ Slab Height Deviations
- ✓ Disabled Access
- ✓ Ceiling Height
- ✓ Ceiling Composition
- ✓ Ceiling Structural Support
- ✓ Existing Lighting
- ✓ HVAC Capacity
- ✓ Sprinkler Systems
- ✓ Fire Code Requirements
- ✓ Electrical requirements
- ✓ Structural obstruction to locating:
 - Reception Desk
 - Concourse
 - Settee
 - Food & Beverage Area
 - Vending
 - Restrooms
 - Additional Profit Centers
- ✓ Sound System
- ✓ Mechanics Shop
- ✓ Security Requirements
- ✓ Pinspotter Delivery Access



Building Construction

New Structures

A new structure should be designed with the spans (roof support structures) oriented from the front to the back of the lanes to allow for future expansion. Spans side to side across lanes are the most economical for centers with 16 or fewer lanes, but limit expansion.

Exterior Surfaces

Consider the image impact and maintenance requirements of the building façade. Place water connections on the exterior to allow for cleaning the entrance area.

Building Size

A typical bowling center will be 45m (150ft) in depth. Additional space must be allowed for column separations and side aisles. A minimum width of 1m (3ft) is recommended for access to the pinspotters and mechanic's area.

Building Layout

The strongest designs give a full view of the activities in the center from the entrance. Entertainment centers with multiple anchors may require creative signage to highlight all attractions.

Foundation Fire Blocking

QubicaAMF recommends, and local fire ordinances increasingly require, the use of fire blocking or fire proofing of the sub-floor. Multiple methods of fire blocking exist with varying degrees of cost. Be sure to discuss this with your architect or builder.

Floor

Use reinforced, poured concrete over a good moisture barrier. Before pouring, conduit (wire ways) must be securely placed and checked for accuracy. Seal concrete not covered with tile or floor covering.

Bowling equipment installation requires moisture-free conditions. Consult your contractor to ensure the concrete is dry prior to lane installation. In many cases, a 150mm (6") thick floor is poured under the rear aisle and machine area with a 100mm - 150mm (4" - 6") floor throughout the rest of the area under the bowling lanes.

The slab from the back wall to the edge of the settee and from the side wall to the opposite wall should be level to +/-13mm (1/2"). Excessive deviations may result in additional charges due to shimming of the foundation. In the U.S., the Americans with Disabilities Act requires access from the settee area to the approach. Check regulations in other countries for similar requirements.

A level transition from the settee to the approach is formed by pouring the approach foundation 413mm (16.25") lower than the settee foundation. A step up from the settee to the approach is formed by decreasing the 413mm (16.25") step between the approach and settee foundations.

Lane weight is approximately 5.900kg (13,000lbs) per pair spread over 86m² (920ft²).

Pinspotter weight is approximately 2.140kg (4,700lbs) per pair spread over 10m² (108ft²).

Lane Length

The distance from the back of the pinspotter to the edge of the approach is 25.35m (83' 2 1/16"). A service aisle of 1.5m (5') is recommended behind the pinspotter. The minimum depth of the settee area is generally 3.7m (12'). The total length from back of service aisle to concourse requires a minimum of 30.55m (100' 2 1/16").



Ceiling Height

Ceiling height typically ranges from 3.0m to 3.7m (10' to 12') above the approach and lane surface.

Ceiling Material

Check local ordinances and fire insurance requirements on flame resistance of materials. Consider the ceiling materials' —

- visual impact on the interior design
- resistance to deterioration from water, smoke, rust or mildew
- maintenance characteristics
- availability for future expansion

Provisions must be made for supporting QubicaAMF overhead scoring monitors. An Overhead Support Certificate must be signed by the engineer or architect.

Ceiling Lighting

The architect will make specific lighting recommendations depending on the theme and mood of the center. The area over the lanes is traditionally brighter than the approach and settee since it is a focus of the design. Typically four to five rows of lights are spaced between the foul line and the pins. Tamper-proof switches or circuit breaker switches are recommended for lighting.

Acoustics

Bowling centers should be designed with careful consideration given to the sound. For the bowler's comfort, and to lessen the fatigue of employees, these sounds should not be allowed to echo and reverberate throughout the building. 70dB to 80dB acoustical material should be used over the bowling lanes and concourse area. 85dB to 90dB should be used on the back wall, the back face of the curtain wall, and the area with the pinspotters and service aisle.

HVAC

Bowling equipment generates approximately 4,000 BTUs per lane per hour. Each watt hour of light adds 3.4 BTU of heat. Maintain temperatures from 20°C to 24°C (68°F to 75°F) for ideal bowling conditions.

Average relative humidity should be 45% +/- 5%. Humidity control is important due to its effect on pin life, scores, lane conditioning, lane life, center cleanliness and approach conditions. Low humidity increases static electrical charges and may affect electronic equipment.

Air filtering can remove the majority of dust and smoke resulting in lower maintenance costs.

Sprinkler Systems

Check local building codes and insurance requirements before finalizing the fire protection plan.

General Electrical Requirements

Installation of the appropriate conduit for power (and control cables where required by local code) is the owner's responsibility. Conduit may be required from —

- pinspotter pair to foul detector pair, ball return and scoring unit
- low voltage wall distribution box to pinspotter pairs and control counter
- curtain wall to pinspotter pair, monitor pair, scoring camera, scoring unit and scoring interface box
- scoring unit to adjacent scoring unit and control counter
- scoring control to back office system
- bumpers and pit lights to control counter

A professional electrical engineer should assist the architect.



Interior Design

Reception / Control Desk

Customer service is a focal point of the center and the reception desk should be located so that the customer sees it clearly from the entrance. The service personnel need to be able to see the lanes while welcoming and serving customers. Some elevation may help visibility. The counter should be designed for at least three people to work comfortably together.

Typically the POS (point-of-sale system), lane control, shoe rental, PA (public address) system and sound system are located at the customer service counter.

Concourse

Concourses offer access between the reception and the center attractions. A clear concourse aisle of at least 3.7m (12') is recommended at peak loading.

Be sure to consider common use areas such as ball racks, coin-operated games, charging stations, trash receptacles, water fountains and advertising displays.

Settee

As both a sport and social activity, bowling needs special attention to create an effective transition from the group activity to the individual activity. Alternative seating arrangements can have a significant influence on interaction, improving or detracting from conversation, viewing, pace of the activity, or food & beverage consumption. 3.7m (12') is generally the minimum depth of the settee area.

Laminate, tile or vinyl flooring is easier to maintain in the settee area and avoids the static build up that carpet causes.

Storage of customer belongings such as purses, coats, shoes, and personal bowling equipment must be accommodated.

VIP Areas

A VIP bowling area is typically available for groups and private parties and is an alternative source of revenue. These areas typically include —

- 4-12 bowling or mini bowling lanes
- Plush, reconfigurable seating options
- Billiards or darts
- Separate bar/service area
- Catering menu and setups
- Meeting rooms
- Restroom access

Video Masking

Projection Screens at the end of the lanes come in many forms. Some centers install individual, drop down screens that are attached to the masking units or hung from the ceiling. These drop down screens provide the flexibility of changing the ambiance of the center to appeal to different customer groups. Other centers install fixed screens that span several lane pairs and provide a dramatic, theater style image.

Consult your architecture to determine the application that best matches your design goals.



Food & Beverage

Depending on the entertainment concept of the center, the food & beverage area may serve as both a sit-down dining area and as a carry out counter for concourse dining.

Cooking odor exhaust requires careful planning and cooking areas should have automatic fire extinguishing systems.

Vending

Vending should be housed in alcoves to prevent intruding on the concourse. Trash receptacles should be near the vending machines.

Additional Areas

Restroom design should provide for heavy traffic and easy maintenance. Ceramic tile walls, tile floors, wall-mounted toilets and hand dryers are recommended. Plan for excellent ventilation with direct exhaust outside.

Management offices need visibility of the customer service counter.

The mechanics' work space needs to be in a quiet work area, preferably a closed room, protected from the noise of the pinspotters. A minimum depth of 4.26m (13') is recommended. Pins and repair items can be stored in this area.

The janitorial room should be a separate room and include a deep sink and general cleaning supplies. It is recommended to be a minimum space of 1.4m x 2.0m (4'6" x 6'8").

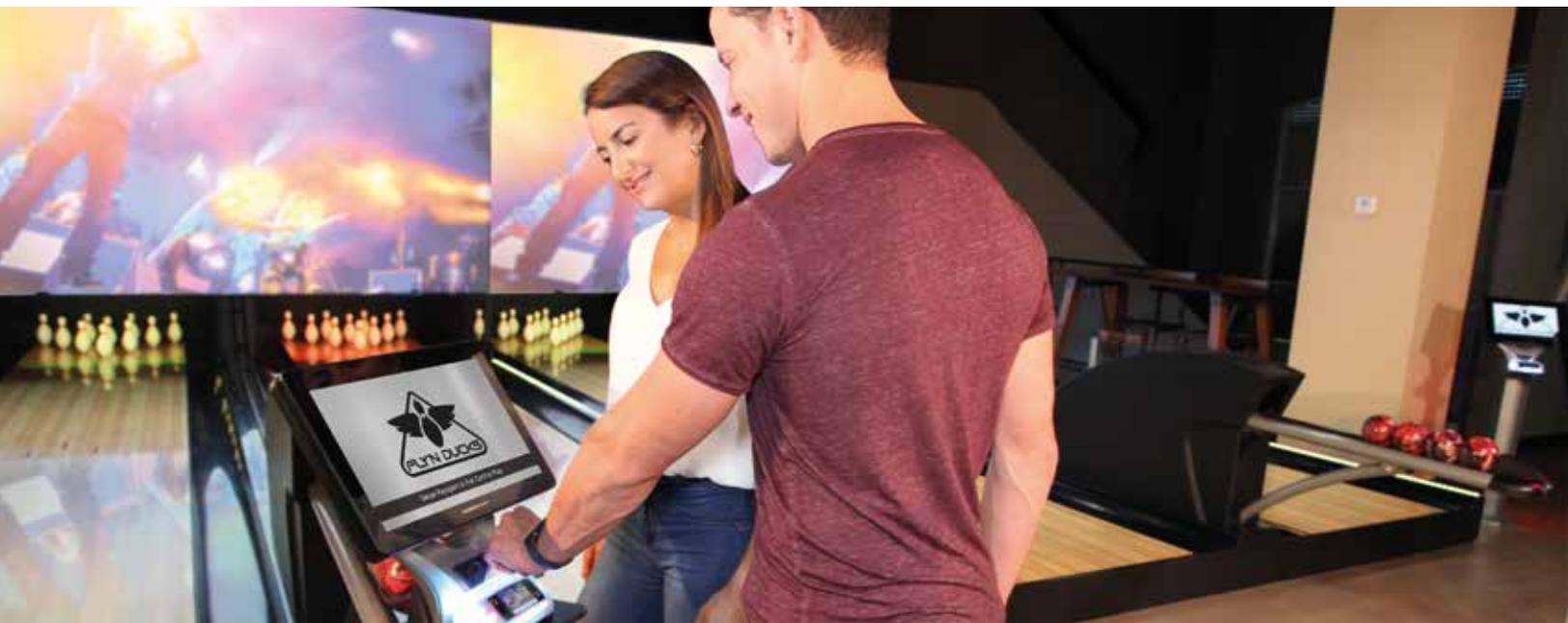
A food and beverage storage room is recommended near the kitchen.

ATMs should be in view of the service desk. Consider handicapped customers when choosing a location.

Security Considerations

At a minimum consider —

- cash security for the bowling center such as a secure safe
- visibility from the control desk of all cash handling areas
- security cameras inside and outside the center which may reduce slip and fall claims, theft, and workmen's compensation claims



Duckpin Bowling

Duckpin is an exciting and fun bowling game traditionally played on a standard tenpin bowling lane using a smaller ball and unique bowling pins, called duckpins.

Fly'n Ducks is duckpin bowling reimagined for today's consumer and investor. From the classic three-ball game to endless choices of fun and skill games available with the BES X Bowler Entertainment System, your guests will flock to this time-honored game. And you'll be amazed how everything just works, thanks to a robust design plus innovative EDGE String pinspotting technology.

You'll deliver better duckpin bowling at the lowest operational costs, maximizing profitability. Fly'n Ducks will keep guests coming back for more - and you'll keep raving about revenue.

Fly'n Ducks

A Better Duckpin Bowling Experience For Guests, More Revenue For You:

- **A Better Duckpin Experience**

Unmatched by any other duckpin system on the market, Fly'n Ducks makes duckpin bowling easier and more fun than ever for consumers to enjoy.

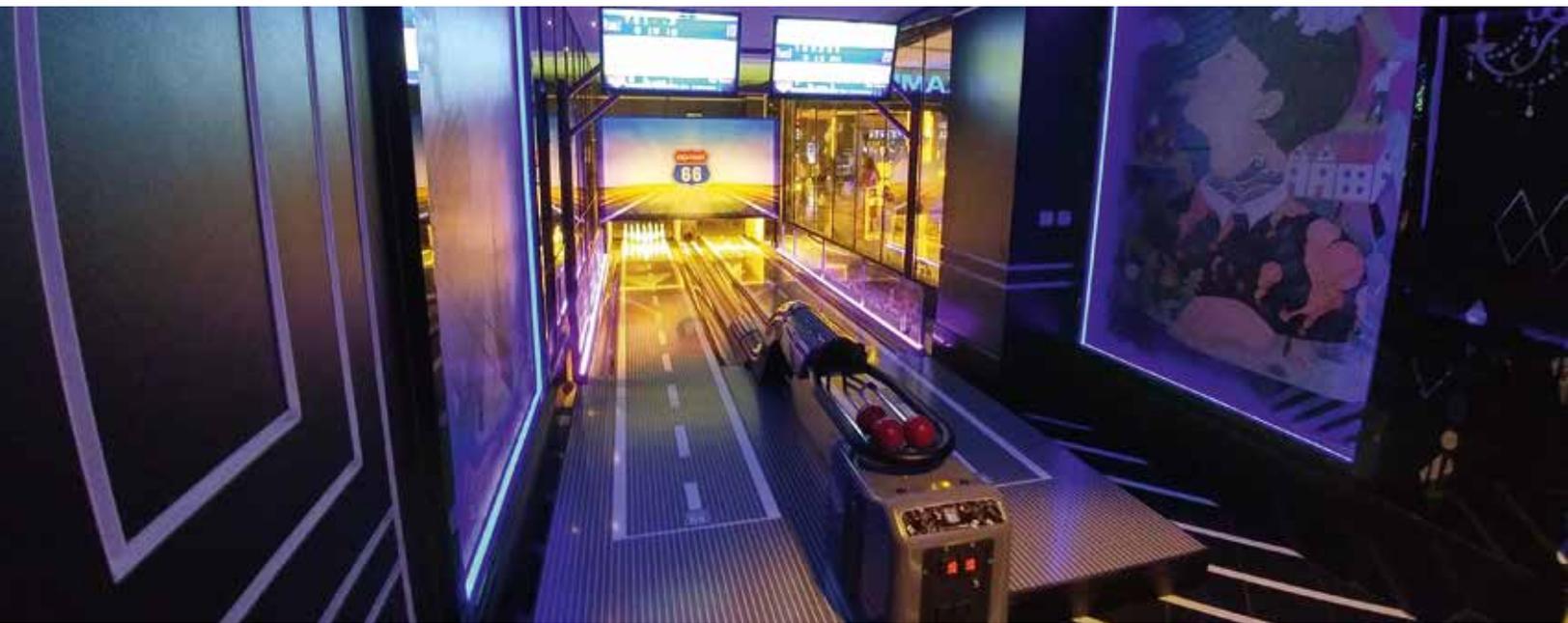
- **More Entertainment and Revenue**

Keep players entertained and engaged while driving more revenue. Fly'n Ducks uses BES X, the world's only Bowler Entertainment System. It also utilizes the Conqueror X management system to deliver powerful pricing and game management tools.

- **Amazingly Simple Operation**

Thanks to its robust design and innovative string pinspotting technology, Fly'n Ducks provides the best duckpin experience at the lowest possible operational costs, maximizing profitability.





Mini Bowling

Mini bowling offers all the excitement of traditional bowling in a scaled-down version that ***fits your existing space and business model***. It's the perfect solution for smaller spaces.

Mini bowling gives you the ability to put up to ten people together on the same lane; so kids, families, teens, young adults, adults, even seniors can join in and have a great time together.

Mini bowling features a small, easy-to-handle ball, and requires no special shoes or other equipment. QubicaAMF mini bowling solutions need no lane conditioning, special oils, or dedicated technicians.

Highway66

The new Highway66 takes the world's best-selling mini bowling attraction – and makes it better, delivering:

- the ultimate in attractive mini bowling themes for the visual appeal to “wow” your customers while matching your center's style
- the ultimate on-lane experience for every customer
- the ultimate in quality plus hassle-free maintenance and operation to help you to keep costs under control

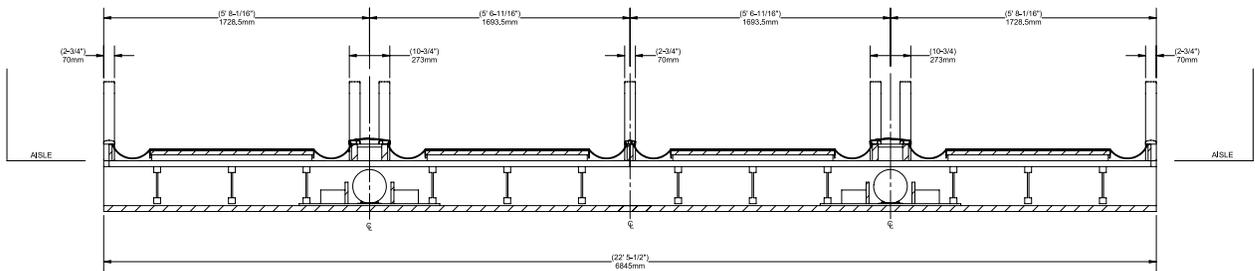


Tenpin Bowling Specifications

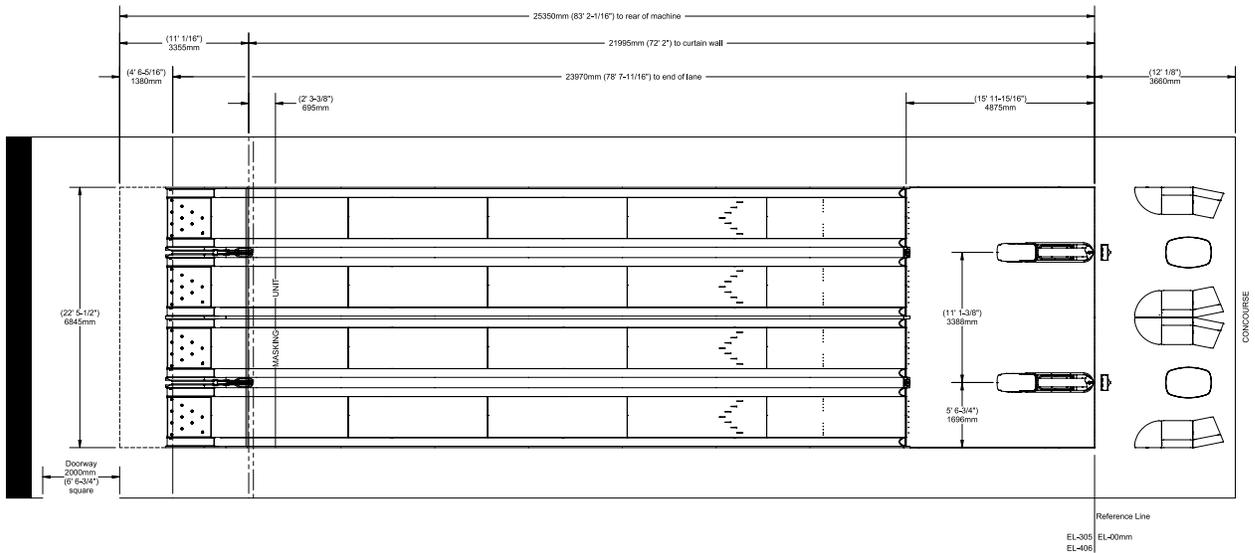
It doesn't take a lot of space to make a lot of money with QubicaAMF

Space requirements for a complete bowling center with space for snack and beverage bars, offices, nursery, pro shop, bathrooms and arcade averages 92.9m² (1,000 ft²) per lane with a depth of 45.7m (150ft).

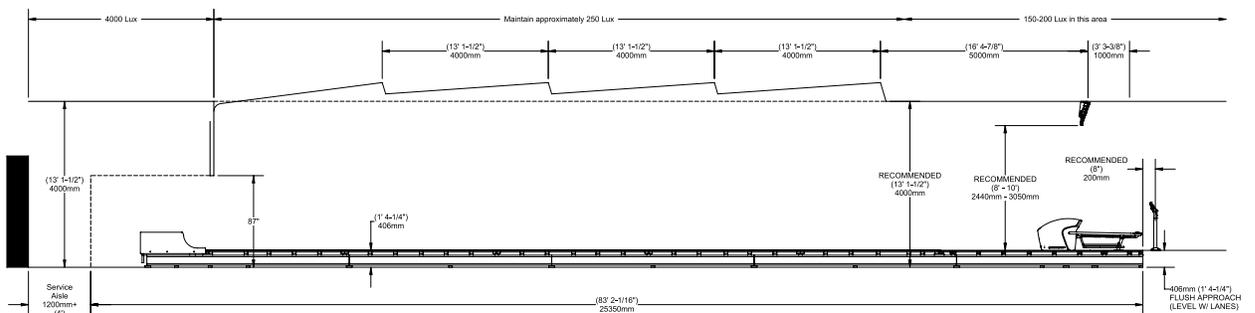
CROSS SECTION



PLAN



PROFILE





EDGE String (pinspotter pair)

Measurement	U.S.	Metric	Power	Watts	Hertz
Width	136.13 in	345.76 cm	200-240 vac	1200	single phase 50/60Hz
Length	109.11 in	277.15 cm			
Height	79.44 in	201.79 cm			
Weight	943 lbs	429 kg			



XLi EDGE

Measurement	U.S.	Metric	Power	Watts	Current Draw	Recommended Branch Circuit
Width	134.0 in	340.4 cm				
Length	110.0 in	279.4 cm				
Height	70.0 in	178.38 cm				
Weight	3900 lbs	1769 kg				
Odd Pinspotter	208/220 vac	1500			7.2/6.8 amps	220 vac, 20 amp single phase
Even Pinspotter	208/220 vac	1500			7.2/6.8 amps	220 vac, 20 amp single phase
Logic Chassis	208/220 vac	400			1.9/1.8 amps	220 vac, may be tied into either pinspotter circuit

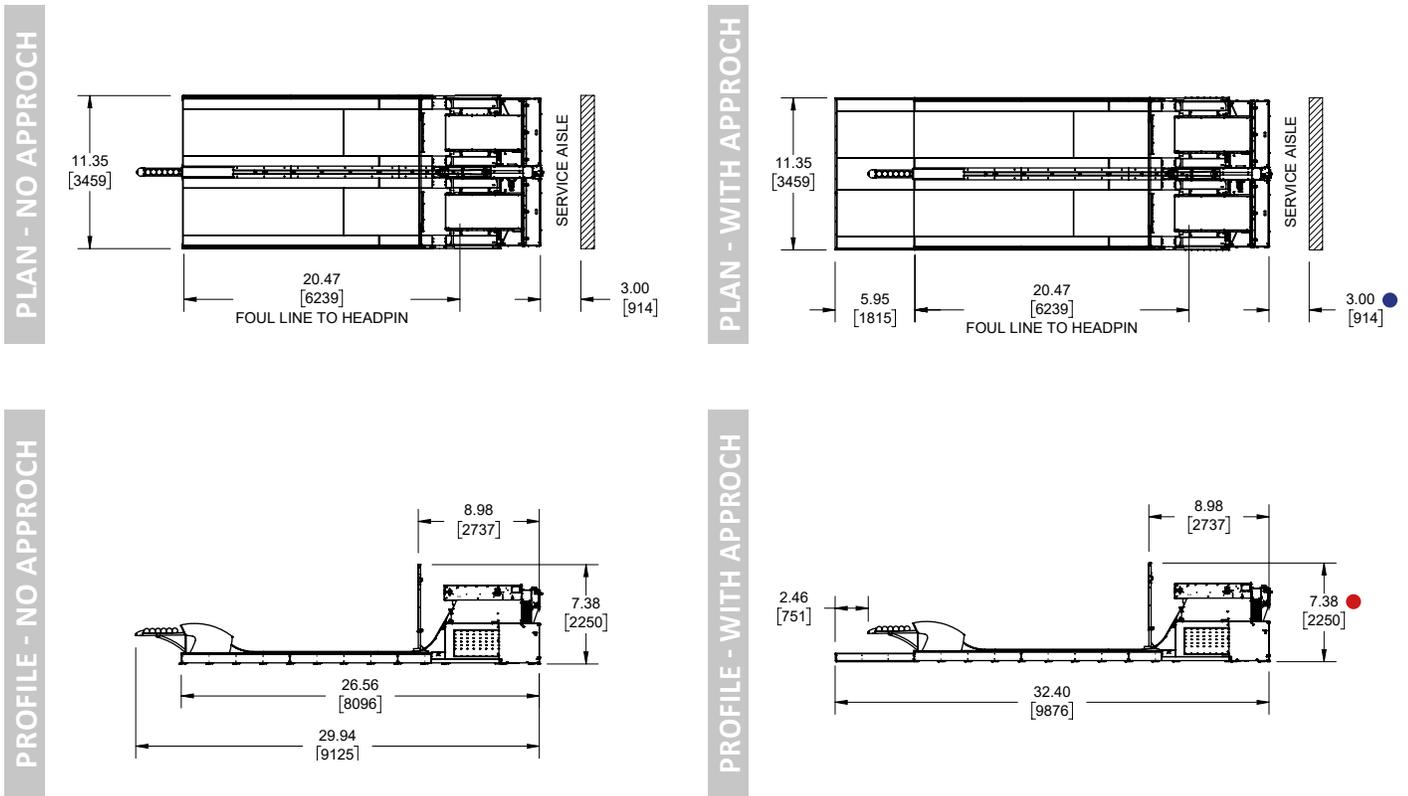
Number of lanes	Width Feet - Inches	Meters
2	11' 4-1/8"	3.458
4	22' 5-1/2"	6.845
6	33' 6-7/8"	10.233
8	44' 8-1/4"	13.621
10	55' 9-5/8"	17.009
12	66' 11"	20.396
14	78' 3/8"	23.784
16	89' 1-3/4"	27.172
18	100' 3-1/8"	30.559
20	111' 4-1/2"	33.947
22	122' 5-7/8"	37.335
24	133' 7-1/4"	40.723
26	144' 8-5/8"	44.110
28	155' 10"	47.498
30	166' 11-3/8"	50.886
32	178' 3/4"	54.274
34	189' 2-1/8"	57.661
36	200' 3-1/2"	61.049
38	211' 4-7/8"	64.437
40	222' 6-1/4"	67.824
42	233' 7-5/8"	71.212
44	244' 9"	74.600
46	255' 10-3/8"	77.988
48	266' 11-3/4"	81.375
50	278' 1-1/8"	84.763
52	289' 2-1/2"	88.151
54	300' 3-7/8"	91.538
56	311' 5-1/4"	94.926
58	322' 6-5/8"	98.314
60	333' 8"	101.702

Fly'n Ducks

Space Required - Standard Length Unit

Fit bowling in more places. A lane pair of Standard Fly'n Ducks requires only about one third the floor length space necessary with traditional tenpin bowling.

Available with or without the traditional bowler approach platform. Foregoing the bowler approach platform saves additional space and provides ADA accessibility without the need for ramps.



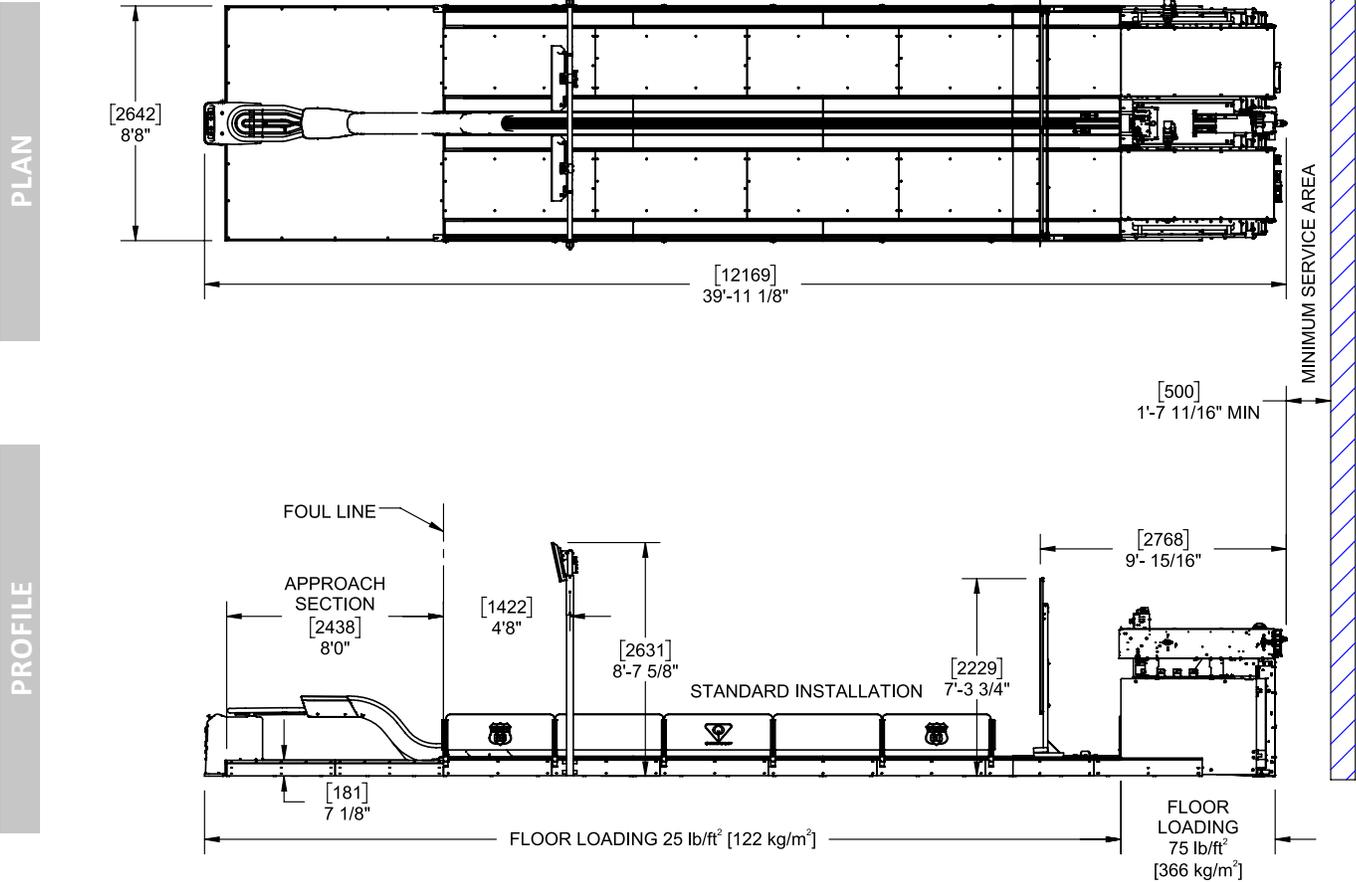
- A 3' (914 mm) service aisle behind the machines is recommended. The minimum service aisle width is 1.64' (500 mm)
- The 7.38' (2250 mm) mask height shown is for the graphic mask. The video mask option requires 8.63' (2631 mm)

Lane Length Options

Choose from 4 lane lengths starting with Standard and increasing in 12' increments up to Regulation – which is a full-size regulation duckpin bowling lane.

Length	Benefits	Bowler Approach (ft)	Lane & Pin Deck Surface (ft)	Overall Length (ft)
Standard	The smallest possible footprint and maximum revenue/square foot	No Approach	24	30
		6' Approach	24	32.5
Midway	A slightly more challenging playing experience than the Standard length	No Approach	36	42
		6' Approach	36	44.5
Three-Quarter	A more traditional duckpin experience in less space than the Regulation length	12' Approach	48	62.5
Regulation	The traditional, regulation-length duckpin bowling experience	12' Approach	63	78
		16' Approach	63	82

Mini Bowling Specifications



Multiple Unit Dimensions

	With monitor post	
	Inches	Millimeters
1 Unit (2 lanes)	110-1/2"	2810 mm
2 Unit (4 lanes)	218"	5540 mm
3 Unit (6 lanes)	325-1/2"	8270 mm
4 Unit (8 lanes)	433"	11000 mm
5 Unit (10 lanes)	540-1/2"	13730 mm
6 Unit (12 lanes)	648"	16460 mm

LANE PAIR WIDTH



Technical specifications subject to change without notice. Images shown are for illustration purpose only and may differ from actual product.

SPECIFICATIONS (LANE PAIR)

Dimensions

Standard length: 39' - 11 1/8" (12169mm) Customized lengths available

Width with monitor posts: 9' - 2 1/2" (2810mm)

Minimum Height Required: 8' - 7 5/8" (2631mm)

Weight of a standard length unit: 5600lb (2545 Kg)

Electrical Requirements

Power Supply Requirement: 220-240 V, 50/60 Hz, Single Phase, 1200 W

Recommended one 15AMP circuit breaker per 2 Highway66 units (4 lanes)

Dedicated ground required for the pinspotters

Let's get started...

This manual was designed to help you in your bowling facility planning process—serving as a guide, a checklist and to highlight important elements to review and discuss with your architect or contractor.

To take the next step in planning your new bowling facility or bowling project contact your QubicaAMF representative, who will be happy to work with you in the subsequent phase of your process.

For additional information on project planning, bowling equipment and services visit our website at **www.qubicaamf.com**.



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