

SUGGESTED UNDERWATER PROFILES

For

# DIVING BOARDS

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## **BASIC PREMISE:**

A conservative steering effort of 1 G was used in all calculations regarding my suggested underwater profiles to accommodate a normal dive from the tip of a certain size board placed a certain height above the water surface.

## **THE RANGE:**

Boards for which suggested underwater profiles are given are those typical of today's manufacture in lengths of 6', 8', 10', and 12' – which rely solely upon the fulcrum setting and their flexibility to return energy to the diver.

## **THE LOCATION:**

All boards were located at a given point with the stated overhang over the water's edge.

## **THE GEOMETRY:**

Calculations were based on the mathematics used in Dr. Stone's work on diving geometry. A 1 G response curve was then added thereto to indicate the possible reasonable limits of such dives.

## **THE PROFILES:**

The attached profiles show both the underwater curve generated by a 1 G recovery effort from each of the diving boards as well as the suggested minimum profiles we use for each.

## **THE TABLE:**

The following Table lists the dimensions we use in sizing underwater geometry to various diving boards. The "Minimum Depth" occurs at the "Distance Out" which is accompanied by the "Typ. Radius" between the vertical wall and the pool floor at that location. The "Overall Length" is the distance out from the vertical wall, at which point the "Shallow Depth" is the minimum desired for each profile. A straight line is designated between the "Minimum Depth" and the "Shallow Depth". Again, this represents the minimum geometry we use.

## DIVING BOARDS - SUGGESTED UNDERWATER PROFILES

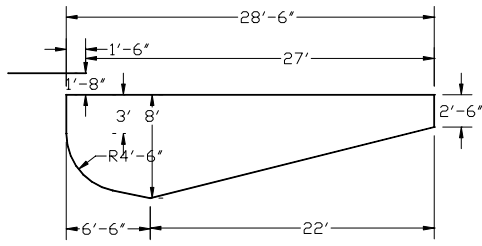
Board Size	Board Overhang	Max Height To Water	Minimum Fulcrum	Entry Max Velocity	Minimum Depth	Distance Out	Overall Length	Shallow Depth	Typical Radius
6'	18"	20"	30"	16.5 fps	8'	6'6"	28'6"	2'6"	4'6"
8'	24"	20"	40"	18.0 fps	8'6"	8'	29'	3'3"	4'6"
10'	30"	30"	52"	20.0 fps	9'	10'6"	32'6"	3'6"	5'
12'	36"	40"	62"	22.0 fps	10'	11'6"	33'6"	4'6"	5'6"

Boards are assumed to be typical of those used in today's market, and that they rely solely on their fulcrum setting and flexibility to return energy to the diver, and do not produce entry velocities in excess of those listed above.

The above dimensions are predicated on a conservative 1 G steering effort on the part of the Diver.

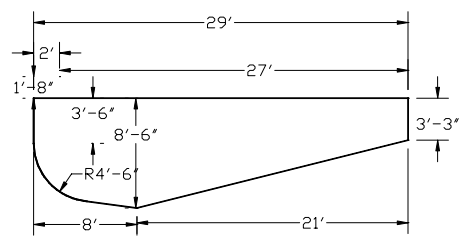
Desired horizontal dimensions from centerline are not addressed in this work. Similar dimensions as contained in NSPI 5 Standard for Residential Pools should prove appropriate as based on our experience.

### 6' Board



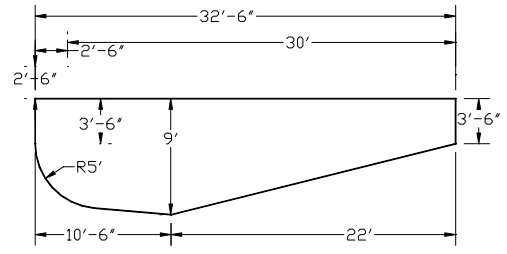
LZ 1-G 8/2/01

### 8' Board



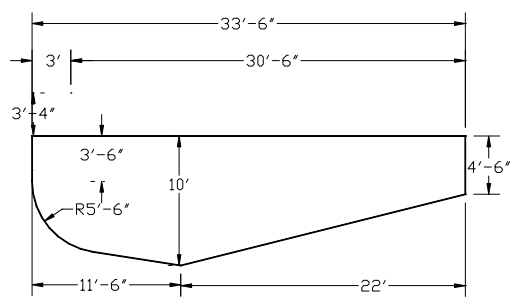
LZ 1-G 8/2/01

### 10' Board



LZ 1-G 8/2/01

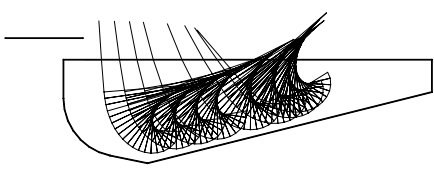
### 12' Board



LZ 1-G 8/2/01

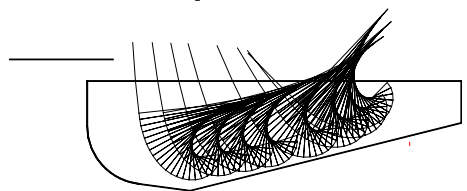
### 6' Board

Showing 1 G Curves



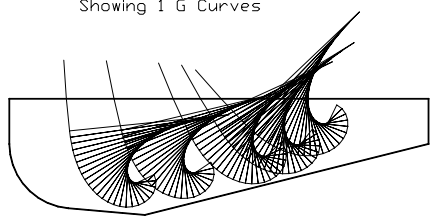
### 8' Board

Showing 1 G Curves



### 10' Board

Showing 1 G Curves



### 12' Board

Showing 1 G Curves

