

Final Degree Project

Degree in Industrial Technology Engineering

**Design, construction, analysis and comparison of a downhill
longboard deck made of two different materials**

-ANNEXES-

UPC -ETSEIB

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Convocatory: July 2021

These annexes include all the information from the market analysis tables with commercialized longboard decks for the 5 brands studied.

INDEX

1.	ROCKET LONGBOARDS:	3
2.	DESCENT LONGBOARDS.....	5
3.	RAYNE LONGBOARDS	7
4.	MADRID SKATEBOARDS.....	9
5.	GOAT LONGBOARDS.....	11
6.	HYDROPONIC	13

1. ROCKET LONGBOARDS:














 ROCKET LONGBOARDS 											
Photo	Model	Length	Max width	Wheelbase	Thickness	Rocker	Concave	Micro-drop	Mounting style	Weight	Material/construction
	Werewolf	31,5" / 80 cm	8,9" / 22,7 cm	20,7" to 23,6" / 52,5 to 60 cm	0,43" / 11 mm	0,4" / 10 mm (back)	0,55" to 0,67" / 12 to 17 mm	0,27" / 7 mm	Top mount	3,75 lbs / 1,7 kg	SFI certified canadian maple, Natural flax fiber, Embossed ABS topsheet
	Rambler	38,4" / 97,5 cm	9,7" / 24,6 cm	29,3" / 74,5 cm	0,43" / 11 mm	No	0,55" / 12 mm	No	Drop through, with wedge: +9° front -13° back	1500 g / 3,3 lbs (flex) 1700 g / 3,7 lbs (stiff)	SFI certified bamboo (hollow core), SFI certified canadian maple, Carbon fiber, Glass fiber, Embossed ABS topsheet
	Do mini nation	31,5" / 80 cm	9,2" / 23,6 cm	20,8" to 23,8" / 53 to 60,5 cm	0,43" / 11 mm	No	0,47" / 12 mm	0,39" / 10 mm (spoon)	Top mount	?	SFI-certified Canadian maple, Carbon fiber, Embossed ABS topsheet
	Domination	35,82" / 91 cm	9,84" / 25 cm	22" to 25,2" / 56 to 64 cm	0,43" / 11 mm	Yes (?mm) (back)	0,59" / 15 mm	0,39" / 10 mm (spoon)	Top mount	?	SFI-certified Canadian maple, Carbon fiber, Embossed ABS topsheet
	Hades	34,65" / 88 cm	9,68" / 24,6 cm	25" to 26,77" / 63,5 to 68 cm	0,43" / 11 mm	0,51" / 13 mm	0,55" to 0,70" / 14 to 18 mm	No	Top mount	?	SFI-certified Canadian maple, Carbon fiber, Embossed ABS topsheet
	Mini hades	31,1" / 79 cm	9" / 23 cm	22" to 23,2" / 56 to 59 cm	0,43" / 11 mm	0,59" / 15 mm	0,43" to 0,67" / 11 to 17 mm	No	Top mount	?	SFI-certified Canadian maple, Carbon fiber, Embossed ABS topsheet
	Phoenix	32,9" / 83,7 cm	8,85" (front), 9" (back) / 22,5 cm, 23 cm	22" to 25,2" / 56 to 64 cm	0,43" / 11 mm	No	0,47" to 0,59" / 12 to 15 mm	0,23" (front), 0,12" (center), 0,35" (back) / 6 mm, 3 mm, 9 mm	Top mount	3,1 lbs / 1400 g	Certified bamboo, Natural flax fiber, Carbon fiber, Embossed ABS topsheet
	Ian Freire Pro	35,4" / 90 cm	Two widths: 9,8" or 9,2" / 24,8 or 23,4 cm	23" to 26" / 58,5 to 66 cm	0,51" / 13 mm	No	0,47" to 0,63" / 12 to 16 mm	No	Top mount	3,1 lbs / 1400 g	Ultralight wood core, Carbon fiber, Glass fiber, Urethane edges, Embossed ABS topsheets
	Essence	33,77" / 85,8 cm	9,44" / 24 cm	25,2" to 26,38" / 65 to 68 cm	0,43" / 11 mm	0,67" / 17 mm	0,47" to 0,59" / 12 to 15 mm	No	Top mount	?	SFI-certified Canadian maple, Carbon fiber, Embossed ABS topsheet
	Meteor	34,64" / 88 cm	9,84" / 25 cm	25,6" to 26,8" / 65 to 68 cm	0,43" / 11 mm	0,39" drop + 0,39" rocker + 0,12" rise / 10 mm drop + 10 mm rocker + 3 mm rise	0,59" / 15 mm	0,39" / 10 mm (spoon)	Top mount	?	SFI-certified Canadian maple, Carbon fiber, Embossed ABS topsheet
	Meteorite	33" / 84 cm	9,25" / 23,5 cm	24" to 25,2" / 61 to 64 cm	0,43" / 11 mm	0,39" drop + 0,39" rocker + 0,12" rise / 10 mm drop + 10 mm rocker + 3 mm rise	0,59" / 15 mm	0,39" / 10 mm (spoon)	Top mount	?	SFI-certified Canadian maple, Carbon fiber, Embossed ABS topsheet

Table 1: Rocket deck features and specifications

Design, construction, analysis and comparison of a downhill longboard deck made of two different materials

<div style="text-align: center;">  ROCKET LONGBOARDS  </div>								
Photo	Model	Category	Board description, shape & features	Colour	Price	Free shipping	Product link	
	Werewolf	Downhill / freeride	A high tub concave combined with big flairs and an elongated micro drop lock your front foot during all high speed maneuvers. With a smooth transition, the tub concave at the front merges into a winged w-concave at the back. This allows the back foot to move without restrictions. The wings create an almost flat part at the edges and increase the contact patch between the board and the foot.	black / red	249 CHF / 225€	Yes, worldwide	https://rocketlongboards.ch/product/werewolf/	
	Rambler	Downhill / cruising / long distance pumping-pushing	It has a low standing platform which makes it easy to push and thanks to a wedged front and a dewedged back it pumps amazingly. Little tail added to pop up the board at the end of the ride. New ultralight hollow core construction with a powerful flex. Two versions: flex version for riders up to 90 kg / stiff version for riders up to 110 kg or for the downhill guys.	black	249 CHF / 225€	Yes, worldwide	https://rocketlongboards.ch/product/rambler/	
	Do mini nation	Downhill / freeride	It has the same features as the Domination, packed in a smaller shape. It's built for fast downhill racing and freeriding with narrow trucks. There's enough concave to lock you in, but it won't cramp your feet. And of course we don't just chop a normal Domination. The Do mini nation has its own mold to guarantee the best result.	black	249 CHF / 225€	Yes, worldwide	https://rocketlongboards.ch/product/domination/	
	Domination	Downhill / freeride	The Domination was developed in 2014 with our team rider Dominic Schenk and got refined ever since. A 0.39" spoon micro drop together with a w-concave generates a pocket to lock your front foot. The board has a continuous concave in the area of the micro drop. The micro drop is compensated with a slight rocker at the back of the board. Your back foot is also locked while tucking, thanks to the combination of the w-concave, the rocker and the full concave of 0.59". The flat 3D kick tail and the mini gas pedals complete this board and make it the perfect all-purpose tool.	black	249 CHF / 225€	Yes, worldwide	https://rocketlongboards.ch/product/domination/	
	Hades	Downhill	The rocker is restricted to the foot platform so there is no influence on the angle of the trucks. Thanks to the wheel well flares and the flush cut at the front, the concave continues despite the flat nose. This allows the rider to stand above the front truck. A steady stance in the tuck is guaranteed by the slight rocker in the front half of the board. The steeper part of the asymmetrical rocker and the slight w-concave at the back of the board provide a pocket for the rider's foot. So you can even ride fast sweepers in a tuck without changing the position of your foot.	black	249 CHF / 225€	Yes, worldwide	https://rocketlongboards.ch/product/hades/	
	Mini hades	Downhill / freeride / slalom	It combines all the features of its big brother in a very compact form: An asymmetrical rocker, wheel flares and a w-concave in the back. The flattish part of the rocker in the front guarantees a good stand. The steeper part in the back feels like a race tail or torque block. Together with the mellow w-concave it creates the perfect pocket for the rider's foot during the tuck. A shorter platform and two flush cuts allow standing very close to the trucks. Designed to ride with narrow split angle trucks.	black	249 CHF / 225€	Yes, worldwide	https://rocketlongboards.ch/product/mini-hades/	
	Phoenix	Downhill / freeride	Despite being super light, it is one of the most vibration absorbent boards on the market. This makes it easier to grip the perfect line through corners. The board features a unique 2-step drop profile. Behind the front foot starts a second drop which creates two w-concave pockets to lock in your back foot. It's difficult to explain but feels great under your feet. Thanks to the combination of wheel flairs and cnc'd wheelwells, this board has a great wheel clearance to rock some big race wheels even on narrow trucks. Various wheelbase options give you maximum freedom to dial in your setup.	brown & black	259 CHF / 234€	Yes, worldwide	https://rocketlongboards.ch/product/phoenix/	
	Ian Freire Pro	Downhill / freeride	Despite its directional shape the board offers a symmetrical foot platform so you switch riders out there won't feel a difference. The wide wheel well flares, the steeper concave in the center of the board and the rocker lock you in without limiting your stance. The mellow tail helps you to flip up the board or have some fun during the race break. Thanks to our new LAF technology this board is stiff and has only a weight of 3.1 lbs. Despite its low weight it has a higher torsional stiffness and is a lot more durable than most of the other boards on the market.	black	299 CHF / 270€	Yes, worldwide	https://rocketlongboards.ch/product/ianfreirepro/	
	Essence	Downhill / freeride	Various features are concentrated in only 33.77" of length. Since it has pressed-in flush drops, the trucks can be mounted into the rocker without changing their angles. Therefore, you can stand almost directly above the trucks along with having another guide for your foot. Having a deep rocker with a w-concave between your feet, as well as flares in the area of your toes and heels, gives you more reference points that lock you in without restricting you. Owing to its shortness, the Essence feels just as comfortable on a steep city street as it does on a winding mountain pass.	black	249 CHF / 225€	Yes, worldwide	https://rocketlongboards.ch/product/essence/	
	Meteor	Downhill / freeride	The Meteor is a symmetrical downhill and freeride board with that certain something. The combination of drop, rocker, and a subtle rise in the center forms our signature "DRocker" double spoon concave, which surrounds both feet. Beginners immediately feel comfortable and locked in. The spoon concave prevents your feet from slipping while sliding. You know blindly at all times where you are on the board. But the meteor is not only suitable for beginners. It also offers great performance for advanced riders.	black	249 CHF / 225€	Yes, worldwide	https://rocketlongboards.ch/product/meteor/	
	Meteorite	Downhill / freeride	The Meteorite is the Meteor's little brother. It has been developed especially for smaller riders. This board also has a DRocker double spoon concave, but the dimensions are reduced. This allows riders with a 9.5 (US) shoe size or smaller to find their optimal stance on the board. It is also a great starting board for children and women, as its concave provides a lot of security when learning to slide. Thanks to the stiff construction, it remains stable even at higher speeds, allowing you to get used to it.	black	249 CHF / 225€	Yes, worldwide	https://rocketlongboards.ch/product/meteorite/	

Table 2: Rocket deck features and specifications

2. DESCENT LONGBOARDS







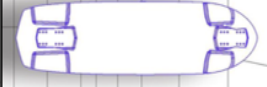

<div style="display: flex; justify-content: space-between; align-items: center;">  DESCENT LONGBOARDS  </div>											
Photo	Model	Length	Max width	Wheelbase	Thickness	Rocker	Concave	Micro-drop	Mounting style	Weight	Material/construction
	Big Red	30" / 76,2 cm	8,9" / 22,7 cm	21,85" to 23,85" / 55,5 to 60,6 cm	?	?	?	?	Top mount	?	Vertically laminated wood cores, urethane sidewalls, mounting holes, carbon fiber top and bottom sheets.
	Road monster	38,4" / 97,5 cm	9,7" / 24,6 cm	29,3" / 74,5 cm	?	?	?	?	Top mount	?	
	Bowie Knife	31,5" / 80 cm	9,2" / 23,6 cm	20,8" to 23,8" / 53 to 60,5 cm	?	?	?	?	Top mount	?	
	Santoku	35,82" / 91 cm	9,84" / 25 cm	22" to 25,2" / 56 to 64 cm	?	?	?	?	Top mount	?	
	Cutglass	34,65" / 88 cm	9,68" / 24,6 cm	25" to 26,77" / 63,5 to 68 cm	?	?	?	?	Top mount	?	
	Katana	31,1" / 79 cm	9" / 23 cm	22" to 23,2" / 56 to 59 cm	?	?	?	?	Top mount	?	

Table 3: Descent deck features and specifications

Design, construction, analysis and comparison of a downhill longboard deck made of two different materials









<div>  DESCENT LONGBOARDS  </div>							
Photo	Model	Category	Board description, shape & features	Colour	Price	Free shipping	Product link
	Big Red	Downhill	<p>Unibody-Bumpers: powered by Venom HPF these are the most durable bumpers on the market. Perfected through rigorous prototyping out on the hills, and late nights at the lab. The Unibody Bumper will Protect your longboard for a lifetime, we guarantee it.</p> <p>Super-Wells: the best wheel clearance on the market, along with complete composite coverage. The industry standard longboard either sacrifices wheel clearance for durability and stiffness, or cuts into the traditional layup causing warping and delimitation.</p>	customized	354 \$ to 452 \$ / 297 € to 379 €	No, the price reflected is an estimate of the price of the deck before shipping and taxes and any additional fees.	https://descentlongboards.com/pages/custom-deck-application
	Road monster	Downhill	<p>QuadAxial Inside: our standard layup is powered by a QuadAxial Carbon Fiber. This Provides Stiffness in all directions so you can steer more precisely. This also ensures your deck doesn't twist or change shape throughout its life.</p>	customized	354 \$ to 452 \$ / 297 € to 379 €	No, the price reflected is an estimate of the price of the deck before shipping and taxes and any additional fees.	https://descentlongboards.com/pages/custom-deck-application
	Bowie Knife	Downhill / freeride	<p>Vertically Laminated Core: our core is made from the perfect mix of wood species. Providing the stiffest, and lightest layup on the market. The mounting holes, and side rails are reinforced with a hardwood to prevent damage, and allow you to run countersunk hardware without the fear of pulling it through your deck.</p>	customized	354 \$ to 452 \$ / 297 € to 379 €	No, the price reflected is an estimate of the price of the deck before shipping and taxes and any additional fees.	https://descentlongboards.com/pages/custom-deck-application
	Santoku	Downhill / freeride		customized	354 \$ to 452 \$ / 297 € to 379 €	No, the price reflected is an estimate of the price of the deck before shipping and taxes and any additional fees.	https://descentlongboards.com/pages/custom-deck-application
	Cutglass	Downhill / freeride		customized	354 \$ to 452 \$ / 297 € to 379 €	No, the price reflected is an estimate of the price of the deck before shipping and taxes and any additional fees.	https://descentlongboards.com/pages/custom-deck-application
	Katana	Downhill / freeride		customized	354 \$ to 452 \$ / 297 € to 379 €	No, the price reflected is an estimate of the price of the deck before shipping and taxes and any additional fees.	https://descentlongboards.com/pages/custom-deck-application

Table 4: Descent deck features and specifications

3. RAYNE LONGBOARDS








<div>  RAYNE LONGBOARDS  </div>											
Photo	Model	Length	Max width	Wheelbase	Thickness	Rocker	Concave	Micro-drop	Mounting style	Weight	Material/construction
	Libido	30,93" / 78,6 cm	9" / 23 cm	20,5" to 22,5" / 52,1 to 57,15 cm	?	?	Yes	?	Top mount	?	Bamboo & fiberglass
	Darkside V3 hands	34, 36, or 38" / 86,4 91,4 or 96,52 cm	?	?	?	3 stage rocker	Yes	2, radial	Top mount	?	North American Maple
	Demonseed	39 or 42" / 99 or 106,7 cm	9,76 or 10" / 24,8 or 25,4 cm	30,08" or 33,08" / 76,4 or 84 cm	?	3 stage rocker	Deep tub concave	No	Drop through	?	North American Maple
	Future killer	35" / 88,9 cm	9,625" / 24,45 cm	25,75 to 26,75" / 65,4 to 68 cm	?	Yes	Yes	Radial	Top mount	?	8-Ply North American Maple
	Skyline	36,25" / 92 cm	9,5" / 21,1 cm	22" to 24" / 56 to 61 cm	?	No	Radial concave	2 slight micro drops	Top mount	?	Bamboo & fiberglass

Table 5: Rayne deck features and specifications

Design, construction, analysis and comparison of a downhill longboard deck made of two different materials






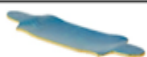

<div style="display: flex; justify-content: space-between; align-items: center;">  RAYNE LONGBOARDS  </div>							
Photo	Model	Category	Board description, shape & features	Colour	Price	Free shipping	Product link
	Libido	Freeride / downhill	<p>The new and improved Libido has been tested and retested by our team riders and is built to grip corners, weave through the pack and hold lines you never thought possible.</p> <p>Sometimes you just want a board that is going to grip like a Chinese finger trap, look no further. The Libido can handle the curves at Maryhill or your favorite garage without skipping a beat, and in a package small enough to comfortably rip around town or jam in a school locker.</p> <p>The deck features two spoon-shaped pockets to hold both of your feet in a rockered position making holding your tuck and weaving through packs as easy as possible, keeping your feet locked on your board without needing to reposition your feet.</p>	Brown	199,95 \$ / 167 €	<p>United States: Free UPS Ground Shipping on all orders over \$150!</p> <p>International: 6-10 Business Days, \$29.95 Flat Rate Shipping to Canada, \$49.95 Flat Rate Worldwide.</p>	https://rayne.com/shop/freeride-and-downhill-longboards/libido-31-deck
	Darkside V3 hands	Freeride / downhill	<p>The Darkside is a directional, Top Mount Freeride Longboard with Radial Drop, 3 stage Rocker and Kick-tails. The Darkside has a relatively short wheelbase compared to larger Longboards, narrower width and built-in wheelwells. This hybrid Longboard crosses over a love of radial drops for downhill leverage, control and lock-in with a kick tail to get up, over and around everything and anything. Now you kooks can ollie, manual, blunt and firecracker your way around the city on the way to your local freeride spot! Come over to the Darkside!</p>	Brown	169,95 \$ / 142 €		https://rayne.com/shop/freeride-and-downhill-longboards/darkside-v3-hands-36-deck
	Demonseed	Freeride / downhill	<p>It's double-drop through mounting (drop deck + drop through truck mounting) has a .75" linear drop that drastically lowers the standing platform of the board. This low platform makes pushing a breeze, makes the whole longboard ultra stable at any speed and really helps initiate slides.</p> <p>The Demonseed has a 3 stage rocker and DEEP TUB Concave. The 3 stage rocker makes rotations and slides easier through ergonomics while adding pockets for your feet to grip in slides. The concave has a wide flat center and aggressive cups for your toes and heels. This is the perfect concave for a double-drop deck and will keep your feet in place when sliding and cornering the board. The flat center is really comfortable for pushing the board. If you want a board for transportation - this board has been pushed across entire countries.</p>	Black & blue	134,95 or 139,95 \$ / 113 or 117 €		https://rayne.com/shop/drop-through-freeride-longboards/demonseed-42-wave-camo
	Future killer	Freeride / downhill	<p>35" Maple downhill freeride longboard. Ergonomic radial drop with rocker gives this board great pockets for foot placement.</p>	Blue	99,95 \$ / 83,6 €		https://rayne.com/shop/freeride-and-downhill-longboards/future-killer-35-deck
	Skyline	Freeride / downhill	<p>We have taken the well loved single kick vibe from the Bromance and created an all new hill crushing beast. The Skyline has been tested extensively by our team riders on some of the best hills in the world and has handled difficult roads with ease. The Skyline features a single kick directional shape with simple radial concave. We have also introduced slight micro drops right where your feet stand to keep your feet locked into place and your eyes on the road ahead.</p>	Brown	199,95 \$ / 167 €		https://rayne.com/shop/freeride-and-downhill-longboards/skyline-36-deck

Table 6: Rayne deck features and specification

4. MADRID SKATEBOARDS












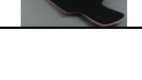
<div>  MADRID SKATEBOARDS  </div>											
Photo	Model	Length	Max width	Wheelbase	Thickness	Rocker	Concave	Micro-drop	Mounting style	Weight	Material/construction
	Madrid Pro Series Trapstar 33" Justin Rouleau	33" / 83,8 cm	9,7" / 24,7 cm	23,5 to 25" / 59,7 to 63,5 cm	?	?	w-concave	No	Top mount	?	9-Ply Maple w/ Formica
	Madrid Pro Series Leadfoot 32.375" Zak Maytum	32,375"	8,875"	22,75 to 23,75"	?	?	yes	No	Top mount	?	9-Ply Maple w/ Formica
	Madrid Pro Series Dominant 34.5" Max Dubler	34,5"	9,25"	25 to 27"	?	Yes (0,25")	w-concave	Yes (0,5")	Top mount	?	9-Ply Maple w/ Formica
	Madrid Pro Series Wraith 34.5" Team Edition	34,5"	9,25"	24 to 26"	?	Yes	w-concave	No	Top mount	?	9-Ply Maple w/ Formica
	Madrid Pro Series Snitch 32.5" Quill / Slant Harry Clarke	32"	9,5"	21,5 to 23,25"	?	?	Yes	Yes	Top mount	?	9-Ply Maple w/ Formica
	Madrid Nessie 35.75"	35,75"	9,25"	23 to 24,5"	?	?	?	?	Top mount	?	8-Ply Maple W/ Formica Top Sheet
	Madrid Bigfoot 36"	36"	9,75"	27,875"	?	?	?	?	Top mount	?	8-Ply Maple W/ Formica Top Sheet
	Madrid Wendigo 33.75"	33,75"	9,25"	21,5 to 23"	?	?	?	?	Top mount	?	8-Ply Maple W/ Formica Top Sheet
	Madrid Pro Series Trapstar 36" Justin Rouleau	36"	10"	27 to 28,5"	?	?	w-concave	yes	Top mount	?	9-Ply Maple w/ Formica
	Madrid Pro Series Wraith 35" Team Edition	35"	9,625"	25 to 27"	?	Yes	w-concave	No	Top mount	?	9-Ply Maple w/ Formica
	Madrid Yeti 38.875"	38,875"	9,875"	28,75", 29,125", 29,5"	?	?	Arc-drop	?	Top mount	?	Formica construction
	Madrid Goat Sucker 38.75"	38,75"	10"	26,25"	?	Yes	w-concave	?	Top mount	?	Formica construction

Table 7: Madrid deck features and specifications

Design, construction, analysis and comparison of a downhill longboard deck made of two different materials













<div style="text-align: center;">  MADRID SKATEBOARDS  </div>								
Photo	Model	Category	Board description, shape & features	Colour	Price	Free shipping	Product link	
	Madrid Pro Series Trapstar 33" Justin Rouleau	Downhill / freeride	Justin Rouleau's pro model, The Trapstar, is a directional top-mount speedboard designed for maximum control in high-speed situations. The infamous front-foot "Money Pocket" keeps you locked in, lowers your center of gravity, and drives steering from the front of the board by creating a unique drop-wedge pocket, giving you more control and stability than ever before. The Formica/Maple construction keeps the board ridged at high speeds. Deep wheel wells for maximum clearance, wheelbases from 23.5" to 25", and the perfect amount of W-concave all come together to complete this badass downhill deck.	Black & blue	169 €	Free ground shipping is offered with any purchase \$100 or more, sold at the retail level with no added discounts or promotions, within the domestic USA only.	https://www.fullcircledistribution.com/catalog/madrid-skateboards/products/madrid-2019-pro-series-trapstar-33-justin-rouleau	
	Madrid Pro Series Leadfoot 32.375" Zak Maytum	Downhill / freeride	The Zak Maytum Leadfoot is a short, narrow, slalom-style downhill race board. It's 8.875" inches wide, 32.375" inches long, and has wheelbases from 22.75" to 23.75". Underneath, we have wheel wells for clearance and under-flush for stability and wedge-ability. This board is designed for high-performance speedboarding and racing, and it works best when set up with a footstop, a torque block, and Rogue slalom trucks or something similar. The Formica/Maple construction keeps the board ridged and stable at high speeds. If you're looking to take the tightest, fastest lines down the hill, this is your board.	Black & red	169 €		https://www.fullcircledistribution.com/catalog/madrid-skateboards/products/madrid-2019-pro-series-leadfoot-32-375-zak-maytum	
	Madrid Pro Series Dominant 34.5" Max Dubler	Downhill / freeride	The Dominant by Max Dubler retains the same 1/2" directional drop, 1/4" rocker, W-concave, and under-flushed 24.5-26.5" wheelbases as the 2018. However, the 2019 version is considerably narrower at 9.125" under the front foot and about 8.5" under the back foot, down from 10" last year. This sounds crazy narrow, but when you pair this deck with narrower trucks we find that it's actually easier to ride because you don't have to move your foot to get good leverage on the toeside and heelside rail. The Formica/Maple construction keeps the board ridged and stable at high speeds.	Black & orange	169 €		https://www.fullcircledistribution.com/catalog/madrid-skateboards/products/madrid-2019-pro-series-dominant-34-5-max-dubler	
	Madrid Pro Series Wraith 34.5" Team Edition	Downhill / freeride	Designed by a collaborative effort from the entire team, the Wraith is a nimble top-mount built to handle everything from fast freeriding to racing. The rocker platform keeps your feet happy while the mellow W concave gives you more control when throwing out huge slides. This year we took the board width down to 9.25" to work better with narrow downhill and slalom truck setups. Deep cut wheel wells allow for large wheels and multiple wheelbase options let you dial-in your setup however you like. An added layer of Formica tops off this beast so you can trust it underfoot even when things get sketchy during pack runs with the homies.	Black & green	169 €		https://www.fullcircledistribution.com/catalog/madrid-skateboards/products/madrid-2019-pro-series-wraith-34-5-team-edition	
	Madrid Pro Series Snitch 32.5" Quill / Slant Harry Clarke	Downhill / freeride	Throughout the year, Harry Clarke has been stopping by the Madrid woodshop to tweak and refine his new signature board shape, the Snitch. We think Harry likes his new board because he just locked-up the 2019 IDF World Championship! Now you can ride what Harry rides with two flossy gold graphic options to choose from. The front-foot "Money Pocket" keeps you locked-in and drives steering from the front of the board by creating a unique drop-wedge pocket. The Formica/Maple construction keeps the board ridged at high speeds with deep wheel-wells providing plenty of clearance. Catch the Snitch today!	Black & Golden	169 €		https://www.fullcircledistribution.com/catalog/madrid-skateboards/products/madrid-2019-pro-series-snitch-32-5-quill-harry-clarke	
	Madrid Nessie 35.75"	Downhill / freeride	Pressed and cut in our Huntington Beach Factory, the 2019 Premium Freeride Series features reshaped versions of the classic Bigfoot, Nessie, & Wendigo decks. We trimmed the fat on each shape, resulting in lighter and narrower decks which are more compatible with narrow trucks and provide increased turning leverage without having to shuffle your feet from edge to edge.	Black & green	153,95 €		https://www.fullcircledistribution.com/catalog/madrid-skateboards/products/madrid-nessie	
	Madrid Bigfoot 36"	Downhill / freeride		Black & purple	153,95 €		https://www.fullcircledistribution.com/catalog/madrid-skateboards/products/madrid-bigfoot	
	Madrid Wendigo 33.75"	Downhill / freeride		Black & grey	153,95 €		https://www.fullcircledistribution.com/catalog/madrid-skateboards/products/madrid-wendigo	
	Madrid Pro Series Trapstar 36" Justin Rouleau	Downhill / freeride	The Trapstar is a directional top-mount speedboard designed for maximum control in high-speed situations. The infamous, and updated, front-foot "Money Pocket" keeps you locked in, lowers your center of gravity, and drives steering from the front of the board by creating a unique drop-wedge pocket, giving you more control and stability than ever before. Deep wheel wells for maximum clearance, wheelbases from 27" to 28.5", and the perfect amount of W-concave all come together to complete this badass downhill deck. - Justin Rouleau	Black	169 €		https://www.fullcircledistribution.com/catalog/madrid-skateboards/products/madrid-pro-series-trapstar-36-justin-rouleau	
	Madrid Pro Series Wraith 35" Team Edition	Downhill / freeride	Designed with input from team riders including Cam Brick and Matthew Deitch, the Wraith is a nimble top-mount built to handle everything from fast freeriding to racing. The spacious rocker platform keeps your feet happy while the mellow W concave gives you more control when throwing out huge slides. Deep cut wheel wells allow for large wheels and multiple wheelbase options let you dial-in your setup however you like. An added layer of Formica tops off this beast so you can trust it underfoot even when things get sketchy during pack runs with the homies.	Black	169 €		https://www.fullcircledistribution.com/catalog/madrid-skateboards/products/madrid-pro-series-wraith-35-team-edition	
	Madrid Yeti 38.875"	Downhill / freeride	-	Black & blue	169 €		https://www.fullcircledistribution.com/catalog/madrid-skateboards/products/madrid-yeti-38-875	
	Madrid Goat Sucker 38.75"	Downhill / freeride	-	Black & red	169 €		https://www.fullcircledistribution.com/catalog/madrid-skateboards/products/madrid-goat-sucker-38-75	

Table 8: Madrid deck features and specification

5. GOAT LONGBOARDS





<div>  GOAT LONGBOARDS  </div>											
Photo	Model	Length	Max width	Wheelbase	Thickness	Rocker	Concave	Micro-drop	Mounting style	Weight	Material/construction
	Thor Hammer	33" / 83,8 cm	9,5" / 24 cm	22,3 to 26" / 58 to 66 cm	12,5 mm	Yes	w-concave	No	Top mount	2 Kg	Pressing of two sheets of bamboo and two of fiberglass.
	Basati	34,6" / 88 cm	9" / 23,5 cm	26,3 to 27,5" / 67 to 70 cm	12 mm	Yes	w-concave	Yes	Top mount	1,8 Kg	Built with a 12 mm sandwich made up of three bamboo and two fiberglass sheets.

Table 9: Goat deck features and specifications

Design, construction, analysis and comparison of a downhill longboard deck made of two different materials





<div>  GOAT LONGBOARDS  </div>							
Photo	Model	Category	Board description, shape & features	Colour	Price	Free shipping	Product link
	Thor hammer	Downhill/freeride	<p>Thor Hammer is an evolution of the first Thor developed with some of our riders to try to make it versatile and easy-going for any kind of rider and riding style. We have maintained some basic aspects like the rocker and the concave, the main difference is the new wheelbase, which offers options from 58 to 66 cm.</p> <p>The Thor Hammer is a downhill and freeride longboard built by pressing two bamboo sheets and two glass fiber sheets. It is a very stiff and light board.</p>	Brown & green	187 €	Shipment 12 € (UE)	https://goatlongboards.com/tabl as/longboards/thor-hammer/
	Basati	Downhill/freeride	<p>The Basati longboard is a downhill and freeride board. Its aggressive geometry make it a reactive and fast response board. The shape has a subtle drop which makes the feet and gravity center more stable relative to the axis. The Basati is built with a 12 mm sandwich composed of three sheets of bamboo and two fiberglass.</p>	Brown & orange	199 €	Shipment 12 € (UE)	https://goatlongboards.com/tabl as/longboards/basati/

Table 10: Goat deck features and specifications

6. HYDROPONIC






<div>  HYDROPONIC  </div>											
Photo	Model	Length	Max width	Wheelbase	Thickness	Rocker	Concave	Micro-drop	Mounting style	Weight	Material/construction
	Seiki Berni	36,5" / 92,71 cm	9,85" / 25 cm	24,66 to 26" / 62,6 to 66 cm	?	Soft in 3 planes	w-concave	?	Top mount	?	Made of 8 sheets of Canadian Hard Rock Maple and high quality delamination-proof non-water based resins, and 1 additional sheet of Fiberglass between the 5th and 6th sheets, to reinforce the consistency of its structure.
	Sherpa 2.0	38,3" / 97,3 cm	9,53" / 24,2 cm	22,17 to 30,67" / 56,3x to 77,9 cm	?	?	2 different concaves in the same deck: "U" concave at the front, very pronounced at the edges, to fix the feet well on descents at medium and high speeds and to guarantee stability. "W" concave at the rear, soft and progressive, to settle the arch of the foot and improve performance in toeside predrifts but without disturbing in Freeride sessions.	?	Top mount	?	Made of 8 sheets of Canadian Hard Rock Maple and Epoxy Resin, plus 1 additional sheet of Fiberglass at the bottom to reinforce the strength and rigidity of its structure.
	Ariki Cuckoo	38,5" / 97,8 cm	9,7" / 24,6 cm	24,75 to 26" / 63 to 66 cm	?	Soft in 3 planes	w-concave	?	Top mount	?	

Table 11: Hydroponic deck features and specifications

Design, construction, analysis and comparison of a downhill longboard deck made of two different materials






<div style="display: flex; justify-content: space-between; align-items: center;">  HYDROPONIC  </div>							
Photo	Model	Category	Board description, shape & features	Colour	Price	Free shipping	Product link
	Seiki Berni	Downhill / Freeride	Flat tail, 4.72 inches long and 8.52 inches wide, to steer the board and kick tricks. Wheel Pockets marked on the concave and on the bottom, to avoid wheelbite when turning. The Wheel Pockets just fit the feet onto the board precisely and comfortably. In this way, the need to use a Foot Stop is avoided. Variable Wheel Base between 24.75 and 26 inches, designed to allow different truck configurations that make it a versatile board: a short WB will give less stability and more traction and response speed against a wide WB, which is more stable but less reactive. Each rider can configure their ideal set up.	Brown	127,80 €	In Spain from 15 €	https://www.hyclothing.es/es/downhill-freeride/430-tabla-longboard-downhill-seiki-berni.html
	Sherpa 2.0	Downhill / Freeride	Wheel Pockets marked on the concave and on the bottom, to avoid wheelbite when turning. The Wheel Pockets just fit the feet onto the board precisely and comfortably. In this way, the need to use a Foot Stop is avoided. Tail: The Hydroponic Sherpa 2.0 has a full 5-inch tail, in the style of skateboards, which gives the board the ability to perform tricks with Pop like Ollies for total versatility. Variable Wheel Base between 22.17 and 30.67 inches, designed to allow different truck configurations that make it a versatile board: a short WB will give less stability and more traction and response speed against a wide WB, which is more stable but less reactive. Each rider can configure their ideal set up.	Brown & Blue	127,8	In Spain from 15 €	https://www.hyclothing.es/es/downhill-freeride/428-tabla-longboard-downhill-freeride-sherpa-20.html
	Ariki Cuckoo	Downhill / Freeride	Its wide Kicks give the Hydroponic ARIKI CUCKOO a lot of play when it comes to performing tricks and technical slides. This deck is perfect for a medium and high level both in slides and in medium level descents. Wheel Pockets marked on the concave and on the bottom, to avoid wheelbite when turning. The Wheel Pockets just fit the feet onto the board precisely and comfortably. In this way the need to use a foot stop is avoided. Variable Wheel Base between 24.75 and 26 inches, designed to allow different truck configurations that make it a versatile board: a short WB will give less stability and more traction and response speed against a wide WB, which is more stable but less reactive. Each rider can configure their ideal set up.	Black	127,8	In Spain from 15 €	https://www.hyclothing.es/es/downhill-freeride/426-tabla-longboard-downhill-freeride-ariki-cuckoo.html

Table 12: Hydroponic deck features and specifications