



UCI SUPPORTED BMX TRACK CONSTRUCTION



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1. INTRODUCTION

UCI TRACK BUILD PROCEDURE

Any interested National Federation/club/organization (from here on referred to as the Organizer) wanting to have UCI constructing a BMX track, shall first and foremost fill in the

1. Fill in and return BMX track build application form [Appendix 1](#) and return it to the UCI.
2. If deemed necessary, a site visit will be carried out by the UCI BMX track builder (on the expense of the organizer)
3. Once the date for the construction has been set and confirmed, the Organizer will communicate regularly with the BMX track builder, regarding track design and confirming material and machinery. The dates should be carefully chosen, to avoid wet and cold weather (which normally delays the construction)
4. The actual track build is normally conducted under a 10-14 days period. This can however vary depending on the weather.
5. The construction of a new track shall be supported and acknowledged by the National Federation.

The UCI will be able to offer various kinds of track construction (based on the needs of the Organizer). The 3 basic packages are the following;

- Ø **Rebuild of existing permanent track**
- Ø **Construction of a International level BMX track**
- Ø **BMX Supercross track (Olympic type track)**

The criteria's and technical requirements for each of these constructions are explained in Chapter 2.

FINANCIAL RESPONSIBILITES

The Organizer shall pay the following fee (depending on type of track construction) upon received invoice from the UCI;

Type of track	Days	Basic Fee*
Rebuild of existing track	7 days	8'500 Swiss Franc**
International level BMX track	12 days	12'500 Swiss Franc***
BMX Supercross track	14 days	15'000 Swiss Franc***

All builds includes labour, travel costs and UCI certification.

**Based on construction at one occasion. If several visits are necessary, additional travel fee will be charged.*

***A rebuilt is considered construction of 2 straightaways or less.*

****Also includes an exclusive 3D drawing and technical drawing.*

The National Federation/Club/Organization is responsible for the accommodation costs as well as the transport of track builder to/from hotel/airport.

Meals and other costs for the UCI track builder are paid by the UCI.



THE UCI BMX TRACK BUILDER

The UCI BMX track builder will in the first stage design a BMX track drawing, based on the wishes and input from the Organizer. Furthermore, the BMX track builder will construct the track with the heavy machinery (mentioned below).

In addition, the Organizer is asked to supply an additional heavy machinery operator to support the UCI track builder. From January 1, 2009, Mr. Tom Ritzenthaler has been hired as the full-time UCI track builder.



2. TRACK CONSTRUCTION

2.1 TYPE OF TRACK CONSTRUCTION

The UCI will be able to offer various kinds of track construction (based on the needs of the Organizer). The 3 basic packages are the following;

- Ø **Rebuild of existing permanent track**
- Ø **Construction of a International level BMX track**
- Ø **BMX Supercross track (Olympic type track)**

The criteria's and technical requirements for each of these constructions are explained further on.

2.2 REBUILD OF EXISTING PERMANENT TRACK

A rebuild is considered a construction of 2 straight-aways or less on an existing permanent BMX track.

The technical skill level of BMX athletes is constantly in progression. Tracks that only a few years ago were considered challenging are now becoming to easy not offering high-level BMX athletes the necessary challenge. The UCI track builder will be able to suggest solution of how to update an existing BMX track to today's standard of an international BMX track.

In many cases, a divided straightaway offering a "Elite section" will cater for the needs of both younger riders as well as elite level riders.

Supplies

The organiser is obliged to supply to following material;

Supplies	Type	
Track material	Dirt 80/20 clay/sand or regular dirt with topsoil (See point 3.1)	App; 2'500 m3
Maintenance Equipment	Flat showels (2-4 pcs) Rakes (2-4 pcs)	According to specification



Heavy Machinery Equipment

The organizer is obliged to supply the following heavy machinery without operator (or with operator for insurance reasons). The heavy machinery will be operated by UCI track builder.

Machinery type	Brand	App. Number of days*
Front End Loader*	Caterpillar or John Deere	4-5 days
Compact Track Loader	Caterpillar or Bobcat	4-5 days
Roller**	Bomag, Amman or Caterpillar	2-3 days

See [Appendix 2](#) for detailed specifications of machinery

* An excavator can replace the front end loader in the initial stage of construction

**An golf cart can replace the roller in case the track is constructed in clay.

CONSTRUCTION SCHEDULE

The Organizer is obliged to supply the heavy machinery (as indicated) according to the following schedule. Note that depending on the weather and number of days will vary.

Day	Example of event	Loader	Compact Loader	Roller	Workers	Water supply
Prior to construction	Delivery of soil					
Day 1	Rough rebuild	X				
Day 2	Rough rebuild	X	X		X	X
	Rake and shape jumps					
Day 3	Rough rebuild	X	X		X	X
	Rake and shape jumps					
Day 4	Roll, water and pack new sections		X	X	X	X
Day 5	Roll, waster and pack new sections		X	X	X	X
Day 6	Finalization, touch up of new sections		X	X	X	X
	Start with 4 th straight					
Day 7	Reserve day (in case of bad weather)		X	X	X	X

ADDITIONAL STAFF

The organizer is also obliged to supply a number (4 to 6 workers) during the track construction workers, helping with raking, shaping and watering.



2.3 CONSTRUCTION OF INTERNATIONAL LEVEL BMX TRACK

The UCI track builder will be able to suggest a track design that are suitable for the specific needs.

For development purposes, it is important to build a challenging, yet safe track that riders can develop their skills. In many cases, a divided straightaway offering a “Elite section” will cater for the needs of both younger riders as well as elite level riders.

- Total length of the track: minimum of 300 metres, maximum of 350 metres with an average lap time of 30-40 seconds.
- Area of track: minimum 90 x 60 meters
- Width of the track: minimum of 6 meters



Example of an International high-level BMX track

Supplies

The organiser is obliged to supply to following material;

Supplies	Type	Comment
Track material	Dirt 80/20 clay/sand or regular dirt with topsoil (See point 3.1)	App; 3'500 to 5'000 m3
Asphalt	150 ton, 0-10 mm	See point 3.3
Start gate system	To UCI Specifications	See point 3.2
Water	Minimum two water outlets	
Electricity	Start gate, finish line, lights (along fence, not crossing track)	
Maintenance Equipment	Flat showels (6-8 pcs) Rakes (6-8 pcs)	According to specification To be kept at track



Heavy Machinery Equipment

The organizer is obliged to supply the following heavy machinery without operator (or with operator for insurance reasons). The heavy machinery will be operated by UCI track builder.

Machinery type	Brand	App. Number of days*
Bulldozer	Caterpillar	3 days
Front End Loader	Caterpillar or John Deere	10 days
Compact Track Loader	Caterpillar or Bobcat	9 days
Roller	Bomag, Amman or Caterpillar	9 days

See [Appendix 2](#) for detailed specifications of machinery

CONSTRUCTION SCHEDULE

The Organizer is obliged to supply the heavy machinery (as indicated) according to the following example below. Note that depending of the type of construction (new track, rebuild or non-permanent track), the number of days will vary. The exact construction schedule will be decided by the UCI, in close cooperation with the Organizer.

Example;

Day	Example of event	Bulldozer/ operator	Loader	Compact Loader	Roller	Golfcart	Workers	Water supply
<i>Prior to construction</i>	Drainage							
	Delivery of soil							
<i>Day 1</i>	1 st turn	X	X				X	X
	Level out straightaways							
<i>Day 2</i>	2 nd turn	X	X				X	X
	3 rd turn							
	Level out straightaways							
<i>Day 3</i>	Level out straightaways	X	X				X	X
	1 st straight							
<i>Day 4</i>	2 nd straight		X	X	X	X	X	X
<i>Day 5</i>	Finalize 2 nd straight		X	X	X	X	X	X
	Start with 3 rd straight							
<i>Day 6</i>	Finalize 3 rd straight		X	X	X	X	X	X
	Start with 4 th straight							
<i>Day 7</i>	Finalize 4 th straight		X	X	X	X	X	X
	Roll, water and pack all track							
<i>Day 8</i>	Roll, water and pack all track		X	X	X	X	X	X
	Touch up							
<i>Day 9</i>	Asphalt 1 st and 2 nd turn*		X	X	X	X	X	X
	Roll and pack all track							
<i>Day 10</i>	Asphalt 3 rd and 4 th turn*		X	X	X	X	X	X
	Roll and pack all track							
<i>Day 11</i>	Reserve day (in case of bad weather)			X	X	X	X	X
<i>Day 12</i>	Reserve day (in case of bad weather)			X	X	X	X	X

Track workers

The organizer is also obliged to supply a number (4 to 10 workers) of track construction workers, helping with raking, shaping and watering.



2.4 CONSTRUCTION OF A BMX SUPERCROSS TRACK

The Supercross track is similar to traditional BMX track, however the track shall be much more challenging, with major double-jumps, step ups and a very technical “rhythm section”. The track will also feature a large (scaffolding) start ramp, to be able to gain the necessary speed.

- *Total length of the track: minimum of 300 metres, maximum of 350 metres with an average lap time of 30-40 seconds.*
- *Area of track: minimum 90 x 60 metres*
- *Width of the track: minimum of 6 metres..*
- *Height of the scaffolding starting ramp: 8 metres*

The main feature of the BMX Supercross track is the start ramp. The start ramp is 8 meters high, 10 meters wide with an 18/28° sloping angle. The construction of the start ramp is not included in the consultant fee.

For more detailed information regarding the start ramp, please see **Point 3.2**, as well as **APPENDIX 3**

Example of UCI BMX Supercross track



2008 UCI BMX Olympic track, Beijing China



View from start ramp, Copenhagen

BMX Supercross track construction

- The appointed UCI track builder will design and construct the track, with the support of the organiser.
- The organiser is responsible to supply material, personnel and heavy machinery at the following track construction occasions;
 1. 10-12 days prior to the event, in case of a non permanent track or reconstruction of existing permanent track. This can be reduced to 3 (18 hour per day) days, in case of a non permanent track in an indoor arena.
 2. 10 days (min 3 months prior to the event), in case of a complete construction of a new permanent track.
 3. During touch up of the track (if being constructed earlier) 5 days prior to the event.
 4. During the event (limited number of heavy machinery and personnel).
 5. 1-2 days after the event (clean up)

The organiser is obliged to supply to following material and heavy machinery equipment;

Supplies

Supplies	Type	According to specification
Maintenance Equipment	Flat shovels (6-8 pcs)	According to specification
Track material	Bikes (20 pcs) sand or regular dirt with topsoil (See point 3.1)	To be kept on track
Asphalt	150 ton, 0-10 mm	See point 3.3
Start gate system	To UCI Specifications	See point 3.2
Water	Minimum two water outlets	or water truck (non permanent track)
Electricity	Start gate, finish line, lights (along fence, not crossing track)	



Heavy Machinery Equipment

The organizer is obliged to supply the following heavy machinery without operator (or with operator for insurance reasons). The heavy machinery will be operated by UCI track builder.

Machinery type	Brand	App. Number of days*
Bulldozer	Caterpillar	3 days
Front End Loader	Caterpillar or John Deere	10 days
Compact Track Loader	Caterpillar or Bobcat	9 days
Roller	Bomag, Amman or Caterpillar	9 days

See [Appendix 2](#) for detailed specifications of machinery

CONSTRUCTION SCHEDULE

The Organizer is obliged to supply the heavy machinery (as indicated) according to the following example below. Note that depending of the type of construction (new track, rebuild or non-permanent track), the number of days will vary.

The exact construction schedule will be decided by the UCI, in close cooperation with the Organizer

Day	Example of event	Bulldozer/ operator	Loader	Compact Loader	Roller	Golfcart	Workers	Water supply
<i>Prior to construction</i>	Drainage							
	Delivery of soil							
<i>Day 1</i>	1 st turn	X	X				X	X
	Level out straightaways							
<i>Day 2</i>	2nd turn	X	X				X	X
	3 rd turn							
	Level out straightaways							
<i>Day 3</i>	Level out straightaways	X	X				X	X
	1 st straight							
<i>Day 4</i>	2nd straight		X	X	X	X	X	X
<i>Day 5</i>	Finalize 2nd straight		X	X	X	X	X	X
	Start with 3rd straight							
<i>Day 6</i>	Finalize 3rd straight		X	X	X	X	X	X
	Start with 4 th straight							
<i>Day 7</i>	Finalize 4th straight		X	X	X	X	X	X
	Roll, water and pack all track							
<i>Day 8</i>	Roll, water and pack all track		X	X	X	X	X	X
	Touch up							
<i>Day 9</i>	Asphalt 1 st and 2 nd turn		X	X	X	X	X	X
	Roll and pack all track							
<i>Day 10</i>	Asphalt 3 rd and 4 th turn		X	X	X	X	X	X
	Roll and pack all track							
<i>Day 11</i>	Reserve day (in case of bad weather)			X	X	X	X	X
<i>Day 12</i>	Reserve day (in case of bad weather)			X	X	X	X	X

Track workers

The organizer is also obliged to supply a number (4 to 10 workers) of track construction workers, helping with raking, shaping and watering.

3.1 MATERIAL

To build a track of international standard, 5'000- 6'000 cubic meters of soil/dirt is needed. In most cases soil/dirt is the most expensive part of building a BMX track, but many tracks are able to find soil at no cost. If there is quality soil/dirt on site, a slight grade or hill which can be graded down, you might not need to have dirt hauled in.



If you do, the soil needs to be free of rocks and the dirt should pack into a ball in your fist, but it should be fine enough to be raked with a hand rake. The ideal mixture is 80% clay and 20% sand. : A BMX track surface may be made up of many different soil compositions. As an example, clay will give the best compaction with the least amount of maintenance and soil erosion. Also, there are no stones in clay, and it provides good traction. Drainage is very critical whenever using clay. Any soil composition mixed with clay will provide a good surface.

In many cases it's hard (or expensive) to find high-quality soil, then the track needs to be build with two types of soil in different layers. Normal (clay mixture) soil used for the basic shapes (starthill, jumps and turns), and thereafter a 15-20 cm thick topsoil of high-quality soil that packs in good. The topsoil of the track should be able to become very hard after being watered and packed in.



The topsoil should be a gravel-like material, with a size 0/16 (rocks no bigger than 16 mm). Approximately. 400 cubic meters will be necessary to have a 15-20 cm top layer on a 350 meter long track. To create a fun and competitive track, the top soil must allow for very fast riding (hard-packed) and provide maximum grip.

The quality of the riding surface is of the utmost importance for the reputation of the track and the success of competitions, regardless of the time of year. It must be permeable and insensitive to water and frost. It must have mechanical properties such that after compacting, no marks are left by riders' tyres.



3.2 START RAMP

The main feature of the BMX Supercross track is the start ramp. The start ramp is 8 meters high, 10 meters wide with an 18/28° sloping angle. The footprint for the start ramp is 26 meter x10 meters wide. Normally the start ramp consists of two parts

1. Regular scaffolding components
2. Custom build top deck with non-slippery surface.

Note that a ramp of this specification, costs app 150'000 Swiss Franc.

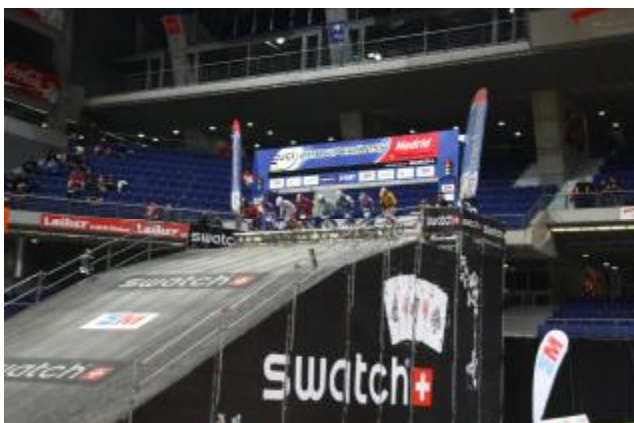
The UCI will supply the Organizer, the drawings of the ramp, including specifications. However, the organizer is fully responsible for all costs related to the start ramp construction. See **Appendix X**

The official UCI supplier, Murphy Productions (USA) will be able to quote the organizer for a complete or custom ramp package. Please ask UCI for contact details.

The UCI recommends the use of Layer scaffold components;
<http://www.layher.de/en/index.htm>



BMX Supercross start ramp



Start ramp – BMX Supercross in Madrid.



Start ramp assembly – Aigle, Switzerland



3.3 Start gate system

For a BMX track of the highest international standard, it is crucial to have a gate system that conforms to the UCI rules (See UCI rule book, Chapter 6, Appendix 5).

The UCI recommends the Pro-Gate system, manufactured by Pro-Stuff (USA). The Pro-Gate is the official UCI BMX start gate used at all UCI BMX World Championships, UCI BMX Supercross World Cup's and the Olympic Games.



A complete Pro-Gate system costs app. 20'000 US\$ (shipment not included), although various different options are available.

ProStuff LLC
29 Airport Drive
Rockford, IL 611 09
U.S.A.

Contact; Pierce Barker III
Phone; +1 815-226-1241
E-mail; pbarker@barkerrockford.com

<http://www.pro-gate.com/>

3.4 ASPHALT TURNS

The UCI fully recommends, when building a permanent track, to construct asphalt turns. In this way you keep the maintenance of the track to a minimum, as well as having maximum traction in turns (for safe racing). Note; you can still update and reconstruct the track (using the same asphalt turns).

Under normal circumstances, app. 150 tons of high-quality asphalt (with 0-10 mm rocks) is used for 3 turns + finish area.

The UCI track builder can assist in the pavement of turns, although it is recommended to use a professional asphalt company.



Asphalt is delivered



Hot asphalt being distributed with showels and by raking



Asphalting turns is hard work

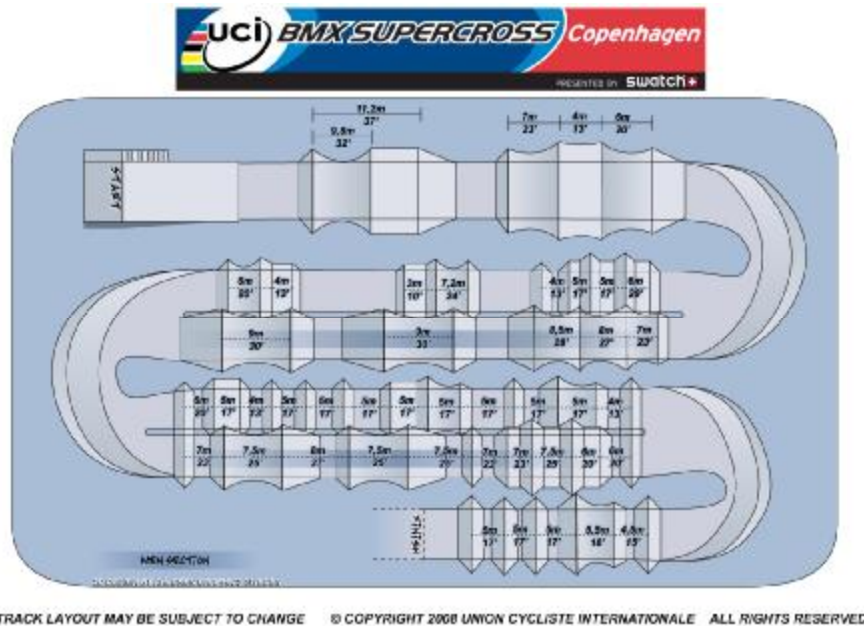


The final result, ready to race



3.5 CERTIFICATION

All constructions made by the UCI Track builder will receive an official certification. Once the track has been finalized, it will be considered an official UCI track. Each track will also receive a 3D graphic drawing as well as a technical drawing as seen below.



3.6 UCI INTERACTIVE TRACK BUILDING GUIDE

For further information about constructing a BMX track, please visit the UCI Interactive track building guide; <http://www.uci.ch/templates/UCI/UCI5/layout.asp?MenuId=MTI2MDA>

Upon request to the UCI, this could also be supplied on a CD.



APPENDIX 1 – BMX track building application form (see separate document)

APPENDIX 2 – Heavy Machinery Equipment

Machinery	Required Type & Brand	Remarks
Front End Loader	 <p>Caterpillar 930 or 938</p>  <p>John Deere 644, 744</p>	<p>Machinery no older than 2 years.</p> <p>Bucket with no teeth (preferably swivel bucket)</p> <p>Any deviation from the required type or brand must be approved by the UCI prior to the construction.</p>
Excavator	 <p>Caterpillar 520D or similar</p>	<p>Can replace the front end loader in the initial stage of construction.</p> <p>Any deviation from the required type or brand must be approved by the UCI prior to the construction.</p>

<p>Compact Track Loader</p>	 <p>Caterpillar 257 or 277B</p>  <p>Bobcat T190, T250</p>	<p>Machinery no older than 2 years.</p> <p>With rubber track, bucket with no teeth.</p> <p>Any deviation from the required type or brand must be approved by the UCI prior to the construction</p>
<p>Roller</p>	 <p>Amman AV 12</p>	<p>Machinery no older than 2 years.</p> <p>Double vibrating drum roller</p> <p>width; app. 1 meter.</p>
<p>Bulldozer (construction of permanent track)</p>	 <p>Caterpillar D5 or similar</p>	<p>Machinery no older than 2 years.</p> <p>With 6-way blade</p> <p>Any deviation from the required type or brand must be approved by the UCI prior to the construction.</p>

<p>Water truck (if no permanent water outlets exists)</p>		<p>Water truck with 2'000 gallon tank</p>
<p>Utility Golf Cart</p>		<p>Electrical or gasoline engine Smooth tires</p>
<p>Vibrating Plate compactor</p>		<p>Gas driven, 75 kg</p>



APPENDIX 3 – BMX Supercross start ramp drawings (see separate document)