“Ecosign Mountain Resort Planners Ltd. has prepared the Master Plans for Whistler Mountain since 1975 and Blackcomb Mountain since 1986. We are very satisfied with their ongoing commitment to making our mountains a world class resort.”

Dave Brownlie, Former Chief Operating Officer
Whistler Blackcomb Canada
Introduction

Ecosign (Ecological Design) Mountain Resort Planners Ltd. is the world’s most experienced mountain resort planning firm. Since 1975, Ecosign has established itself as a leader in the design of successful, award winning and profitable mountain resorts completing 500 resort development projects in 44 countries spanning 6 continents. Ecosign’s extensive expertise includes the design of competition venues for 6 Olympic Winter Games and several Alpine World Ski Championships.

Resort Master Planning

Mountain Resort Planning & Layout • Ski Lift and Trail Design • Skier Services
Facility Design & Programming • Resort Area Land Use Planning • Resort Village
Design & Programming • Residential Site Planning • Golf Course Routing & Design •
Landscape Design • Four Season Recreational Facility Planning • Financial
Feasibility Analysis

Land Capability Assessment

Resort Site Identification & Feasibility Studies • Regional Studies • Biophysical
Inventory & Analysis • Facility Carrying Capacity & Balance • Terrain Capacity
Analysis

Extended Services

Project Management & Construction Supervision • Ski Trail Survey Layout &
Inspections • Market Analysis & Forecasting • Resort Operations & Management
Consulting • Transportation Studies • Resort Connection Studies • Visual Impact
Studies • Three-Dimensional Computer Modeling • Environmental Impact
Assessment • Government Policies & Approvals • Real Estate Economics • Resort
Association Structure

Competitive Events Master Planning

Olympic Winter Games • World Alpine Skiing Championships • World Alpine Games.
Ecosign Worldwide Resort Projects

LIST OF SELECTED PROJECTS

NORTH AMERICA

CANADA

BC
- Fernie Alpine Resort
- Kicking Horse Resort
- Mount Washington
- Panorama Resort
- Sun Peaks Resort
- Vancouver Olympics 2010
- Whistler Blackcomb
- Whistler Nordic Centre

USA

California
- Big Bear - Snow Summit
- Boreal
- Heavenly Resort
- Mammoth Mountain
- Northstar at Tahoe
- Snow Summit
- Squaw Valley

Colorado
- Breckenridge
- Copper Mountain
- Keystone

Steamboat Resort
- Telluride
- Winter Park

Idaho
- Bogus Basin
- Schweitzer
- Sun Valley

Montana
- Big Mountain

Oregon
- Mt. Bachelor
- Mt. Hood Meadows

Utah
- Alta
- Canyons Resort
- Solitude
- Snowbasin Olympics 2002

Vermont
- Stratton Resort

Wyoming
- Grand Targhee

Washington
- Mission Ridge
WESTERN EUROPE
Austria
Schröcken
Serfaus
Silvretta Nova
Sölden
St. Anton
St. Anton 2001 Championships
Zell am See

Andorra
Grandvalira

Finland
Ruka
Pyha

France
Alpe d’Huez
Courchevel
Porte Puymorens
Val Thorens

Italy
Courmayeur
Foppolo
Livigno
Sexten

Norway
Geilo
Hemsedal
Nærøyfjord
Tryvann Skisenter
Trysil
Tyin
Voss Fjellandsby

Spain
Granada 2015 Universiade
Sierra Nevada
Sierra Nevada 1996 Championships
Cerler Castanesa
Astun
Aragon Ski Circus
La Quinta el Real Golf

Sweden
Kläppen I Sälen

Switzerland
Andermatt
Anzere
Arosa
Crans-Montana
Davos
Gstaad
Jungfrau - Grindelwald
Laax Crap Sogn Gion
Lenzerheide
MolesonurGruyeres
Savognin
Verbier
Zermatt

EASTERN EUROPE
Georgia
Bakuriani
Gudauri
Mestia

Kazakhstan
Chimbulak
Kok Zhailau

Kosovo
Brezovica

Montenegro
Mt. Komovi

Russia
Kamchatka Region
Krasnaya Polyana
Lake Baikal
Rosa Khutor
Sheregesh
Sochi Olympics 2014
Spasskaya Guba

Serbia
Staro Planina
Kopaonik

Ukraine
Bukovel
Odessa Golf Resort

ASIA
China
2022 Beijing Olympic Winter Games
Adventure Mountain
Bai Qing Zhai
Beida Lake Asian Winter Games
Beidahu Sky Mountain Resort
Changbaishan Crown Plaza Hot Springs Hotel
Deer Valley Jun Yue Tan
Duolemeidi Resort
Genting Secret Garden
Huo Shan International Resort
Nalati Resort
Nuibeishan
Tan Guo
Thaawo Four Season Resort
Wanda Changbaishan Resort
Yabuli Sun Mountain
Xiling Mountain (Chengdu)

Japan
Fukushima
Minowa
Alts Bandai

Hokkaido
Hanazono Resort
Niseko Higashiymama
Tomamu

Iwate
Appi Kogen

Nagano
Shiga Kogen
Yanaba
Karuizawa

Niigata
Gala Yuzawa
Yuzawa Kogen
Joetsu Kukusai

Yamagata
Mount Zao
Zao Kogen

South Korea
2018 Yeongpyong Winter Olympics
Bokwang Phoenix Park
Dahwa
Konjiam Resort
Hyundai Sungwoo Resort
Yeongpyong Resort

OCEANIA
Australia
Kosciusko National Park
Mt. Buller
Mt. Hotham
Fall's Creek
New Zealand
The Remarkables
Mount Cardrona

SOUTH AMERICA
Argentina
Las Lenas
Rio Villegas
Chapelco
Chile
Corralco
Valle Nevado

AFRICA
Morocco
Oukaimeden

MIDDLE EAST
Lebanon
Sanine Zenith
The Cedars
Turkey
Koroglu Mountain Resort
Erzurum
Palendoken
UAE
Jabel Hafeet Glacier
Ecosign is proud of our very long and positive relationship with both Whistler Mountain and Blackcomb Mountain in Whistler, British Columbia. Originally two independent operations, the mountains merged under common ownership in 1996. Together Whistler Blackcomb has grown to become North America’s number one rated ski resort with annual skier visits consistently exceeding well over two million and some 800,000 sightseers and Bike Park riders.

For more than 44 years, Ecosign’s master plans have guided the development of Whistler Blackcomb. The Big Wow’s have included Whistler’s Peak Chair opening the high alpine terrain, the $26 million upgrade of Blackcomb with three detachable quad chairs in 1987, the Peak2Peak Gondola in 2008 just in time for the 2010 Olympic Winter Games, and recently a $66 million renovation including the two section Blackcomb Gondola with capacity of 4000 p/h and new Emerald six pack with 3600 p/h capacity. The new Blackcomb gondola completes a 13.4 km continuous ropeway system for Whistler Blackcomb.
Resort Master Planning / 
Sun Peaks Resort, B.C. Canada

Sun Peaks Resort is located on what was formerly known as the Mount Tod Ski Area in the McGillivray Creek Valley, approximately 360 km north of Vancouver, British Columbia. In April 1992, Tod Mountain was purchased by Nippon Cable Co. Ltd., of Tokyo, Japan transforming the ski area (renamed Sun Peaks Resort) into a modern, four-season mountain community.

Further developments at Sun Peaks have involved the construction of new lifts and terrain on three local mountains, in addition to a new recreation centre, a daylodge, a golf course and over 1,600 new dwelling units distributed amongst eight hotels, fifteen townhouse developments and 250 single family homes. The Grand Sun Peaks Resort and Conference Centre also opened in October 2002, offering hotel and conference/banquet facilities.

To date, total investment in the Sun Peaks Resort has exceeded CDN $400 million in the past 25 years, a very significant figure for the total building activity in the Thompson-Nicola Valley Regional District. The mountain resort continues to expand and now boasts a seasonal population of 900 residents and over 8,000 tourist beds. Skier visits at Sun Peaks have increased from 69,000 in 1992/93 to 408,000 in 2017/18.
Resort Master Planning / Mammoth Mountain, California, USA

Mammoth Mountain Ski Area in Mammoth Lakes, California has grown to be one of the largest, most-frequented ski area in the United States. The Ecosign Master Plan, completed in 1997, was implemented in short order with the installation of seven new detachable-grip chairlifts, a new two-section, 8-passenger gondola from the Main Lodge to Mid Chalet and to the Summit and a new 15 passenger gondola from the new North Village to the Canyon Lodge.

In 2004, Mammoth Mountain requested that Ecosign prepare village concepts for the Main Base area and provide staging facilities for approximately 7,500 skiers. Additionally, they wished to have a total of 2,000 pillows of tourist accommodation units located in the Main Base Area, as well as a location for approximately 250 employee beds.

In 2007, Ecosign prepared a Master Development Plan update to guide the development of skiing and year-round recreational facilities at Mammoth to meet the steadily growing need for quality year-round recreational facilities at the resort year round.

Aerial View Canyon Lodge Base Area Facilities Village View Perspective Main Lodge Base Facilities
Ecosign has been retained by Steamboat Ski and Resort Corporation since 2005. In the early years, Ecosign was retained by Steamboat Ski & Resort Association (SSRC) to assist in the integration of the village improvement projects with the ski area and to explore development concepts for SSRC’s landholdings at the ski area base to create a Base Area Master Plan. As part of this work, Ecosign prepared the detailed grading plans for the installation of the Christie Peak Express and the revamped 20 acre beginner area in front of the gondola. By 2010, many of the projects around the Steamboat Ski Resort base area that had been under construction in 2007 were complete. One Steamboat Place and the Wild Horse Gondola were open and the Ski Time Square commercial area had been demolished. Ecosign was retained by SSRC to prepare an amendment to the Steamboat Ski Resort Master Plan taking into account the recent changes in the base area, as well as addressing the requirements for on-mountain improvements. The Steamboat Ski & Resort Corporation 2011 Master Development Plan Amendment was submitted to the United States Forest Service in November 2011 and is a conceptual blueprint for the next ten years. It includes plans for adding new lifts, expanding the trail network, adding and renovating skier service space (day lodges), increasing snowmaking coverage, increasing other recreational activities offered in both summer and winter, and additions or upgrades to infrastructure.
Resort Master Planning / Zermatt, Switzerland

Zermatt is one of the oldest and most well established mountain resorts in the European Alps. The five lift companies in Zermatt merged into one company in the fall of 2002 and hired Ecosign to prepare a master plan for the new company Zermatt Bergbahnen AG.

Since the merger completed in 2002, Zermatt Bergbahnen AG has invested more than CHF 500 million in implementing the Ecosign Master Plan. The most important projects include:

- Construction of the Matterhorn Express eight passenger gondola
- Zermatt- Furi-Schwarzsee-Furg-Trockenersteg
- Six-seater chairlift with protective bubble, Furggsattel Gletscherbahn
- Six-seater chairlift with protective bubble, Gifthittli
- Extension of the Gandegg ski lift
- The Sunnegga-Blauherd combibahn; eight seat gondola and six seat chairlift
- New eight passenger gondola Furi-Schweigmatten-Riffelberg
- Four-seater, two section chairlift Sunnegga-Findeln-Breitboden
- Hornli six-seater chairlift with protective bubble.
- New 3S ropeway from Trockenersteg to Klein Matterhorn.
In the spring of 2010 the Mairie de Saint-Bon Tarentaise issued a public tender for the preparation of a master plan for the Courchevel Ski Area. The objectives of the tender by the City Council of Saint-Bon was to determine the prospects for infrastructure (ski lifts and associated trails) on the horizon for the next ten to fifteen years with a greater objective of returning Courchevel to its stature of one of the leading ski resorts in the world.

Ecosign was awarded the Master Plan contract in cooperation with our partner CIME (Conseil & Ingénierie de Montagne et Environnement) who was able to provide invaluable local expertise.

Ecosign completed technical assessments of some 5,900 hectares including analysis of elevation, aspect/orientation, solar shading, and slope gradients. We thereafter completed a Terrain Capacity Analysis to determine the optimum capacity of Courchevel, which maintains high quality density and ideal conditions.

**Master Plan Recommendations**

After careful study, Ecosign and CIME proposed to retain 27 of the 57 existing lifts, remove 30 lifts and install 16 new lifts. The total number of lifts would drop by 25% thereby reducing operating and maintenance costs at the same time as providing greatly enhanced customer convenience and comfort. Ecosign also collaborated with Wilmotte Architects to study the redesign of the famous Croisette area by amelioration of the unneeded lifts from Courchevel. The Mairie du Saint-Bon has reviewed and accepted the new Master Plan and implementation of the project is underway.

Total cost for the entire Master Plan implementation is €96.7 million over a ten to fifteen year period.
Ecosign prepared the Preferred Master Plan Concept for the Andermatt-Sedrun Ski Circus in 2009 connecting the areas of Hospental, Gemsstock, Nätschen and Sedrun and the detailed Ski and Resort Master Plan completed in 2014. The Master Plan provided detailed planning of lifts, pistes, connecting ski routes and the required village staging facilities. The overall Resort Area Master Plan included the analysis of the tourist overnight accommodation capacity, parking, access to each skiing region and importantly, convenient lift and piste connections between each of the four primary winter sports regions. This plan also includes detailed programming for skier services both in the base staging portals and the on-mountain restaurants and proposals for day skier portals with parking and/or train access. Construction commenced in 2015 and was completed in December, 2018. Total project cost of 130 million CHF which includes 120 km of pistes and 8 Lifts.

“It is just magic. All kind of terrain you can imagine. Easy carving slopes, steep freeride, and just the right amount of lifts.”

Bernhard Russi
Resort Master Planning / Tyin Filefjell, Norway

The Tyin-Filefjell area is approximately equidistant between Oslo and Bergen, at 265 kilometers. The Tyin-Filefjell area has a long tradition as early as the 1900's as a summer holiday resort because of its proximity to the Tyin Lake and its function as the gateway to the Jotunheim countryside.

The Filefjell Skisenter currently operates four lifts, including two T-Bars and two platter lifts, as well as a short beginner lift. These lifts service 16 kilometers of pistes on approximately 500 hectares of terrain, located directly above the town of Tyinkryssel.

Ecosign was retained to work with the Tyin-Filefjell Skisenter, the Vang Kommune and a local stakeholders group to prepare a Resort Master Plan for Tyin-Filefjell. The Master Plan Study was carried out in a 3 phase process that involved ongoing consultation with the resort operator, the Kommune, and the public over a 4 year period.

At completion of Phase 4 of the master plan, the total skier carrying capacity of the resort will be 16,000 skiers per day. Together with the existing development and development by others in the resort, the capacity of all accommodation in Tyin will be approximately 23,260 beds.
Ecosign was originally commissioned in 2010 to create an “Immediate Action Plan” for the resort in order to improve the existing facilities and create a new, modern slope-side ski village. Following Ecosign’s design work, the “New Gudauri” resort base was constructed and included a new access road, beginner ski lift, tubing park, parking lots and two buildings were constructed along with a new high-speed ten-passenger gondola “Good Aura”. In 2015, Ecosign completed a comprehensive Master Plan for the Gudauri Resort which included further renovation of the existing ski area and an expansion to the northern side of the mountain to Kobi Gudauri via three interconnected gondola systems. These lifts span a distance of 7.5 km and were constructed and opened for the 2018/2019 winter season. During his speech at the opening ceremony of the Kobi lift system, Georgian Prime Minister Mamuka Bakhtadze explained “The number of tourists has increased by 500 percent in Gudari during the last six years. This is a great success...” In addition to the Kobi Gondola and piste system, four separate high-speed six passenger detachable chairlifts have been installed at Gudauri since 2016 and the New Gudauri village has also been expanded to include nine large buildings, all in accordance to Ecosign’s Master Plan.
Resort Master Planning / Changbaishan Resort, Jilin Province, China

In 2010, Ecosign completed a comprehensive Ski Area, Resort Village, Real Estate and Overall Land Use Master Plan for Wanda Commercial Properties Co. Ltd., for their project in the north-eastern portion of the Province of Jilin near Changbaishan Mountain. Phase One of the project included six flagship hotels made up of 4 and 5 star accommodations. The layout and design of the hotels form the footprint for a pedestrian village with commercial outlets located on the ground floor and accommodation on the floors above. The village also includes a traditional Chinese family spa, a 1,000-seat performing arts theater, an interpretive museum, a man-made lake with a feature lakeside restaurant, and the golf course clubhouse. The master plan includes 600 villas (many of which are ski-in/ski-out), a Jack Nicklaus Championship 18-hole golf course and two Robert Trent Jones Championship 18-hole golf courses. The ski area is capable of servicing 7,000 skiers at one time operating two 8-passenger gondola lifts, three 6-passenger high speed detachable chairlifts, two quadruple chairlifts as well as magic carpet lifts for beginners. The two gondolas also service a mountain top restaurant in addition to lift accessed summer sightseeing and hiking. Other recreational activities include a zip line, snow tubing slopes, alpine coaster, mountain biking, horseback riding, water recreation, and art and music festivals. The resort opened for operation in July 2012. It was a privilege to work with Wanda to develop such a high quality world class resort in just 32 months of construction at a cost of USD $3.2 billion.
Resort Master Planning /
Thaiwoo Resort, Hebei Province, China

In 2011, Ecosign prepared a comprehensive Master Plan for Raissun's Thaiwoo Resort located 16 kilometers east of the City of Chongli in Hebei Province. The 4 Phase Resort Master Plan build-out includes ski area development with a capacity of over 30,000 skiers per day utilizing 46 ski lifts and 152 kilometers of ski trails, two resort village centers with a combined total of 48,000 commercial beds and residential accommodation with 33,000 beds.

The Resort Village has been designed as a European Style pedestrian village with ground floor commercial space and overnight accommodation units on the upper floors and consists of a variety of public 3, 4 and 5 Star Destination Flag Hotels and a mix of public and private residential units. The Phase 1 village open in 2016 with a total of 2,800 pillows of ski-in ski-out overnight accommodation, après ski bars and outdoor plazas, ice skating rink and summer water play fountains and an abundance of four season resort recreational activities and amenities that will provide a unique resort experience for a variety of demographics and user groups.
Resort Master Planning / 
**Genting Secret Garden, Hebei Province, China**

The Genting Secret Garden Resort is located approximately 250 kilometers west of Beijing in the province of Hebei. The site is located adjacent to the Great Wall of China running in a north to south direction.

In May, 2009, Ecosign prepared a Resort Area Master Plan for Genting. The mountain design at build out includes 22 lifts with a capacity of 18,720 skiers at one time. The base lands design is extensive including 138 Land Use Parcels with the accommodation potential of 125,366 beds at build out.

The resort opened in December of 2011 with two detachable quadruple chairlifts with bubbles and the 4th Valley Day Skier Service Center. In December of 2012, the resort doubled the amount of ski terrain with the installation of a combination quadruple chairlift/8-passenger gondola lift which connects the 3rd Valley hotel complex with the top of the mountain and the Jin Hua mountain top restaurant. A detachable six passenger lift with bubbles was installed in 2017. The Genting Resort will host the 2022 Olympic Winter Games Snowboard and Freestyle competitions which have also been designed by Ecosign.
Competitive Events Experience

Ecosign has completed venue master plans for resorts hosting major competitive events such as the Olympic Winter Games and the World Alpine Championships and Winter Universiades. Olympic Venues include master plans for Mount Allan (Nakiska), and Canada Olympic Park, Alberta, site of the 1988 Olympic Winter Games., Snowbasin, Utah, site of the 2002 Salt Lake Winter Olympic Alpine speed events, Whistler/Blackcomb, British Columbia, site of the 2010 Vancouver Olympic Winter Games alpine skiing and the Callaghan Valley Nordic Venue (Cross Country, Biathlon and Ski Jumping) and the Sochi 2014 Winter Olympic games in Russia. We have also designed the Venue Master Plan and detailed design for construction for the 2018 PyeongChang, Korea Freestyle Skiing and Snowboarding venues at Bokwang Phoenix Park. We also won an international design competition to design all Snow Cluster venues for the Beijing OWG bid to the IOC to host the Games in 2022. Ecosign has prepared the Venue Master Plans for the Yanqing National Alpine Ski Center and the Freestyle Skiing and Snowboarding venues at Genting Secret Garden Resort. We also prepared two master plan concepts for the Zhangjiakou Nordic Center. All venues are currently well into construction with test events scheduled for early 2020.

World Alpine Championships venues include Sierra Nevada, Spain, the site of the 1996 World Alpine Championships and the redesign of the famous Kandahar downhill course at St. Anton, Austria for the 2001 World Championships. We have also prepared a master plan for Beida Lake Resort, China for the 2007 Asian Winter Games, Shymbulak, Kazakhstan for the 2011 Asian Winter Games as well as the 2015 Universiade games in Puerto de la Ragu, Granada, Spain.
Competitive Events Experience

Whistler B.C. Canada 2010 Olympic & Paralympic Winter Games / Alpine & Nordic Venues

Ecosign prepared the general Olympic Master Plan for the mountain cluster area as part of the Vancouver/Whistler Olympic bid to the Canadian Olympic Committee. Once the Vancouver 2010 bid was secured, Ecosign cooperated with the Organizing Committee VANOC and our long term client Whistler Blackcomb Resort to move the technical events from Blackcomb Mountain onto Whistler Mountain to facilitate a common finish area for all ten alpine skiing events. Ecosign has largely been responsible for all master planning work of both Whistler and Blackcomb Mountains since 1975 contributing to many years of success.

Ecosign was responsible for designing a brand new site for the Whistler Olympic Nordic Centre including but not limited to parking and transportation, the cross-country competition trails and stadium, two ski jumps (90 and 120 K) and the biathlon pistes and stadium. The project was constructed in 2006 and 2007 at a cost of $115 million creating a legacy for Whistler’s Callaghan Valley.
Competitive Events Experience

Pyeong Chang, Korea 2018 Olympic & Paralympic Winter Games Snowboard & Freestyle Skiing Venues

The Pyeong Chang 2018 Organizing Committee along with Gangwon Province plan to utilize the Bokwang Phoenix Park Resort for hosting the Olympic and Paralympic Winter Games in 2018. The long term goal is to create a commercially and economically prosperous destination for alpine skiing and snowboarding post Olympics. It is also expected that the new venues will be used for training and competitions for freestyle skiing and snowboarding in future years ultimately leaving a positive legacy for the area after the Pyeong Chang 2018 Olympic and Paralympic Winter Games.

Ecosign won the public tender to prepare a Master Plan Concept for the Bokwang Phoenix Park as the venue for the Snowboard and Freestyle Olympic competitions and subsequently a tender to provide the detailed design and engineering for construction of these competition venues. We completed detailed design of six venues and monitored the construction. The Games were held successfully in 2018.
Competitive Events Experience

**Beijing, China 2022 Olympic & Paralympic Winter Games**

**Snowboard & Freestyle Skiing Venues**

Ecosign completed the preliminary master plan design for the Beijing Organizing Committee’s official bid submission to the International Olympic Committee in January 2015. Ecosign provided the design rationale and methodology for the planning and layout for snow sports venues in Beijing (Yanqing County) and Zhangjiakou (Chongli County) for the venues and associated facilities for the “Snow Cluster” component of the Beijing bid.

The planning for the Beijing (Yanqing County) competition area covers competition venues for Alpine Skiing (Downhill, Super G, Super Combined, Giant Slalom and Slalom) and the Sliding Center for Bobsleigh, Luge and Skelton. An Athletes’ Village is also proposed in the Yanqing Competition Area to accommodate 1,300 athletes and officials. The Yanqing Competition Area is approximately 16 km² in area and lies about 70 kilometers northwest of the Beijing City Center.

The Zhangjiakou Competition Area covers an area of 66 km² and is situated 220 km northwest of Beijing City Center. The Zhangjiakou Competition Area includes the design of venues for Cross Country Skiing, Ski Jumping, Nordic Combined, Biathlon, Freestyle Skiing and Snowboard. The Freestyle Skiing and Snowboard venues will be located at Genting Secret Garden. The Zhangjiakou Competition Area includes an Athletes’ Village which can accommodate in excess of 3,000 Athletes and Officials, Media Centers and other functional facilities as required.
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