

RESOLUTION MSC.38(63)
(adopted on 19 May 1994)
ADOPTION OF AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT
OF MOBILE OFFSHORE DRILLING UNITS, 1989

ANNEX 20

RESOLUTION MSC.38(63)
(adopted on 19 May 1994)

ADOPTION OF AMENDMENTS TO THE CODE FOR THE CONSTRUCTION
AND EQUIPMENT OF MOBILE OFFSHORE DRILLING UNITS, 1989

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO that the Assembly, when adopting resolution A.649(16) on the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 1989 (1989 MODU Code), authorized the Committee to amend the Code, when appropriate, taking into consideration the design and safety features after due consultation with appropriate organizations,

RECOGNIZING the significant contribution which is made by the 1989 MODU Code to the promotion of the safety of MODUs and property at sea and the lives of persons on board,

RECOGNIZING ALSO the need for introduction into this Code of provisions for survey and certification which are harmonized with corresponding provisions in other international instruments,

RECOGNIZING FURTHER the need for introduction into this Code of reference to Guidelines for vessels with dynamic positioning systems,

RECOGNIZING FURTHER the need for amendments to provisions for helicopter facilities,

HAVING CONSIDERED the recommendations made by the Sub-Committee on Ship Design and Equipment, at its thirty-seventh session, on introduction of the harmonized system of survey and certification (HSSC) into the 1989 MODU Code, on guidelines for vessels with dynamic positioning systems and on helicopter facilities,

1. ADOPTS amendments to the 1989 MODU code, set out in Annexes 1, 2 and 3 to the present resolution;
2. DECIDES that:
 - .1 amendments introducing the HSSC should become effective on the same date as the 1988 SOLAS and Load Line Protocols relating to the HSSC; and
 - .2 amendments for guidelines for vessels with dynamic positioning systems and helicopter facilities should become effective on 1 July 1994;

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3. AGREES that Governments that have informed IMO that they are introducing the HSSC under the terms of resolution A.718(17) before the entry into force of the 1988 SOLAS and Load Line Protocols should be permitted to also implement the HSSC in respect of the 1989 MODU Code provided that the mobile offshore drilling unit safety certificate is suitably endorsed;

4. INVITES all Governments concerned to take appropriate steps to give effect to the annexed amendments to the 1989 MODU Code.

ANNEX 1

AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT
OF MOBILE OFFSHORE DRILLING UNITS, 1989, TO HARMONIZE
THE SURVEY AND CERTIFICATION WITH THE REQUIREMENTS
OF THE 1988 SOLAS AND LOAD LINE PROTOCOLS

Add a new definition to 1.3 to read as follows:

"1.3.51 Anniversary date means the day and month of each year which will correspond to the date of expiry of the certificate".

The text of "1.6 Surveys and certification" should be replaced by the following:

"1.6.1 Each unit should be subject to the surveys specified below:

- .1 an initial survey before the unit is put in service or before the certificate is issued for the first time;
- .2 a renewal survey at intervals specified by the Administration but not exceeding 5 years except where 1.6.11.2.1 or 1.6.11.5 or 1.6.11.6 is applicable;
- .3 an intermediate survey within three months before or after the second anniversary date or within three months before or after the third anniversary date of the certificate, which should take the place of one of the annual surveys specified in 1.6.1.4;
- .4 an annual survey within three months before or after each anniversary date of the certificate;
- .5 a minimum of two drydock surveys during any five year period, except where 1.6.11.5 is applicable. Where 1.6.11.5 is applicable this five year period may be extended to coincide with the extended period of the validity of the certificate. In all cases the intervals between any two such surveys should not exceed 36 months;
- .6 radio station surveys in accordance with 11.10;
- .7 an additional survey as the occasion arises.

1.6.2 The surveys referred to in 1.6.1 should be carried out as follows:

- .1 the initial survey should include a complete inspection of the structure, safety equipment and other equipment, fittings, arrangements and material to ensure that they comply with the requirements of the Code, are in satisfactory condition and are fit for the service for which the unit is intended;
- .2 the renewal survey should include an inspection of the structure, safety equipment and other equipment as referred to in 1.6.2.1 to ensure that they comply with the requirements of the Code, are in satisfactory condition and are fit for the service for which the unit is intended;

- .3 the intermediate survey should include an inspection of the structure, fittings, arrangements and safety equipment to ensure that they remain satisfactory for the service for which the unit is intended;
- .4 the annual survey should include a general inspection of the structure, safety equipment and other equipment as referred to in 1.6.2.1, to ensure that they have been maintained in accordance with 1.6.6.1 and that they remain satisfactory for the service for which the unit is intended;
- .5 the drydock survey and the inspection of items surveyed at the same time should be such as to ensure that they remain satisfactory for the service for which the unit is intended. An Administration may allow underwater inspections in lieu of a drydock survey provided that they are satisfied that such an inspection is equivalent to a drydock survey;
- .6 the radio survey should include a complete inspection of the radio installation to ensure that it complies with the requirements of the Code, is in satisfactory condition and is fit for the service for which the unit is intended;
- .7 an additional survey, either general or partial according to the circumstances, should be made after a repair resulting from investigations prescribed in 1.6.6.3, or wherever any important repairs or renewals are made. The survey should be such as to ensure that the necessary repairs or renewals have been effectively made, that the material and workmanship of such repairs or renewals are in all respects satisfactory, and that the unit complies in all respects with the requirements of the Code.

1.6.3 The intermediate, annual and drydock surveys referred to in 1.6.2.3, 1.6.2.4 and 1.6.2.5 should be endorsed on the certificate.

1.6.4 As an alternative to the renewal and intermediate surveys required by 1.6.2.2 and 1.6.2.3 respectively, the Administration may, at the owner's request, approve a continuous survey programme provided that the extent and frequency of the surveys are equivalent to renewal and intermediate surveys. A copy of the continuous survey programme, together with the record of the surveys, should be kept on board the unit and the certificate annotated accordingly.

1.6.5.1 The inspection and survey of the units, so far as regards the enforcement of the provisions of the present regulations and the granting of exemptions therefrom, should be carried out by officers of the Administration. The Administration may, however, entrust the inspections and surveys either to surveyors nominated for the purpose or to organizations recognized by it.

- .2 An Administration nominating surveyors or recognising organizations to conduct inspections and surveys as set forth in 1.6.5.1 should as a minimum empower and nominate surveyor or recognized organization to:

- (1) require repairs to a unit;
- (2) carry out inspections and surveys if requested by the appropriate authorities of a port State.

The Administration should notify the Organization of the specific responsibilities and conditions of the authority delegated to nominated surveyors or recognized organizations.

- .3 When a nominated surveyor or recognized organization determines that the condition of the unit or its equipment does not correspond substantially with the particulars of the certificate or is such that the unit is not fit to operate without danger to the unit, or persons on board, such surveyor or organization should immediately ensure that corrective action is taken and should in due course notify the Administration. If such corrective action is not taken the certificate should be withdrawn and the Administration should be notified immediately; and, if the unit is in an area under the jurisdiction of another Government, the appropriate authorities of the port State should be notified immediately. When an officer of the Administration, a nominated surveyor or recognized organization has notified the appropriate authorities of the port State, the Government of the port State concerned should give such officer, surveyor or organization any necessary assistance to carry out their obligations under this regulation. When applicable, the Government of the port State concerned should ensure that the unit should not continue to operate until it can do so without danger to the unit or the persons on board.
- .4 In every case, the Administration shall fully guarantee the completeness and efficiency of the inspection and survey, and should undertake to ensure the necessary arrangements to satisfy this obligation.

1.6.6.1 The condition of the unit and its equipment should be maintained to conform with the provisions of this Code to ensure that the unit in all respects will remain fit to operate without danger to the unit or the persons on board.

- .2 After any survey of the unit under this regulation has been completed, no change should be made to structure, equipment, fittings, arrangements and materials covered by the survey, without the sanction of the Administration.
- .3 Whenever an accident occurs to a unit or a defect is discovered, either of which affects the safety of the unit or the efficiency or completeness of structure, equipment, fittings, arrangements and materials, the person in charge or owner of the unit should report at the earliest opportunity to the Administration, the nominated surveyor or recognized organization responsible, who should cause investigations to be initiated to determine whether a survey, as required by this regulation, is necessary. If the unit is in an area under the jurisdiction of another Government, the person in charge or the owner should also report immediately to the appropriate authorities of the port State and the nominated surveyor or recognized organization should ascertain that such a report has been made.

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1.6.7 A certificate called a Mobile Offshore Drilling Unit Safety Certificate (1989) may be issued after an initial or renewal survey to a unit which complies with the requirements of the Code. The Certificate should be issued or endorsed either by the Administration or by any person or organization recognized by it. In every case, that Administration assumes full responsibility for the certificate.

1.6.8 Any exemptions granted under 1.4 should be clearly noted on the certificate.

1.6.9 A Contracting Government to both the 1974 SOLAS Convention and the 1966 Load Line Convention may, at the request of the Administration, cause a unit to be surveyed and, if satisfied that the requirements of the Code are complied with, should issue or authorize the issue of a certificate to the unit and, where appropriate, endorse or authorize the endorsement of a certificate on the unit in accordance with the Code. Any certificate so issued should contain a statement to the effect that it has been issued at the request of the Government of the State the flag of which the unit is entitled to fly, and it should have the same force and receive the same recognition as a certificate issued under 1.6.7.

1.6.10 The certificate should be drawn up in the form corresponding to the model given in the appendix to the Code. If the language used is neither English nor French, the text should include a translation into one of these languages.

1.6.11.1 The Mobile Offshore Drilling Unit Safety Certificate (1989) should be issued for a period specified by the Administration which should not exceed five years.

.2.1 notwithstanding the requirements of 1.6.11.1, when the renewal survey is completed within three months before the expiry date of the existing certificate, the new certificate should be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing certificate;

.2.2 when the renewal survey is completed after the expiry date of the existing certificate, the new certificate should be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing certificate;

.2.3 when the renewal survey is completed more than three months before the expiry date of the existing certificate, the new certificate should be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of completion of the renewal survey.

.3 If a certificate is issued for a period of less than five years, the Administration may extend the validity of the certificate beyond the expiry date to the maximum period specified in 1.6.11.1, provided that the surveys when a certificate is issued for a period of 5 years are carried out.

- .4 If a renewal survey has been completed and a new certificate cannot be issued or placed on board the unit before the expiry date of the existing certificate, the person or organization authorized by the Administration may endorse the existing certificate and such a certificate should be accepted as valid for a further period which should not exceed 5 months from the expiry date.
- .5 If a unit at the time when a certificate expires is not in the place in which it is to be surveyed, the Administration may extend the period of validity of the certificate but this extension shall be granted only for the purpose of allowing the unit to proceed to the place in which it is to be surveyed, and then only in cases where it appears proper and reasonable to do so. No certificate shall be extended for a period longer than three months, and a unit to which an extension is granted should not, on its arrival in the place in which it is to be surveyed, be entitled by virtue of such extension to leave that place without having a new certificate. When the renewal survey is completed, the new certificate shall be valid to a date not exceeding 5 years from the date of expiry of the existing certificate before the extension was granted.
- .6 In special circumstances, as determined by the Administration, a new certificate need not be dated from the date of expiry of the existing certificate as required by 1.6.11.2.2 or 1.6.11.5. In these circumstances, the new certificate shall be valid to a date not exceeding five years from the date of completion of the renewal survey.
- .7 If an annual or intermediate survey is completed before the period specified in the relevant regulations then:
 - .7.1 the anniversary date shown on the relevant certificate should be amended by endorsement to a date which should not be more than three months later than the date on which the survey was completed;
 - .7.2 the subsequent annual or intermediate survey required by the relevant regulations should be completed at the intervals prescribed by this regulation using the new anniversary date;
 - .7.3 the expiry date may remain unchanged provided one or more annual or intermediate surveys, as appropriate, are carried out so that the maximum intervals between the surveys prescribed by 1.6.1.3 and 1.6.1.4 are not exceeded.
- .8 A certificate issued under 1.6.7 or 1.6.9 shall cease to be valid in any of the following cases:
 - .8.1 if the relevant surveys are not completed within the periods specified in 1.6.1;
 - .8.2 if the certificate is not endorsed in accordance with 1.6.3.

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- 8.3 upon transfer of the unit to the flag of another State. A new certificate should only be issued when the Government issuing the new certificate is fully satisfied that the unit is in compliance with the requirements of 1.6.6.1 and 1.6.6.2. In the case of a transfer between Governments that are Contracting Governments to both 1974 SOLAS Convention and the 1966 Load Line Convention, if requested within three months after the transfer has taken place, the Government of the State whose flag the unit was formerly entitled to fly should, as soon as possible, transmit to the Administration a copy of the certificate carried by the unit before the transfer and, if available, copies of the relevant survey reports.

1.6.12 The privileges of the Code may not be claimed in favour of any unit unless it holds a valid certificate."

The text of "1.7 Control" should be replaced by the following:

"1.7.1 Every unit when in an area under the jurisdiction of another Government is subject to control by officers duly authorized by such Government in so far as this control is directed towards verifying that the certificate issued under 1.6 is valid.

1.7.2 Such certificate, if valid, should be accepted unless there are clear grounds for believing that the condition of the unit or its equipment does not correspond substantially with the particulars of the certificate or that the unit and its equipment are not in compliance with the provisions of 1.6.6.1 and 1.6.6.2.

1.7.3 In the circumstances given in 1.7.2 or where the certificate has expired or ceased to be valid, the officer carrying out the control should take steps to ensure that the unit should not continue to operate (except, when appropriate, on a temporary basis) or leave the area for the purpose of proceeding to an area for repair without danger to the unit or persons on board.

1.7.4 In the event of this control giving rise to an intervention of any kind, the officer carrying out the control should forthwith inform, in writing, the consul or, in his absence, the nearest diplomatic representative of the State whose flag the unit is entitled to fly of all the circumstances in which intervention was deemed necessary. In addition, nominated surveyors or recognized organizations responsible for the issue of the certificates should also be notified. The facts concerning the intervention should be reported to the organization.

1.7.5 When exercising control under this regulation all possible efforts should be made to avoid the operation of the unit being unduly interrupted or delayed. If a unit is unduly interrupted or delayed it should be entitled to compensation for any loss or damage suffered.

1.7.6 Notwithstanding the provisions of 1.7.1 and 1.7.2, the requirements of 1.6 are without prejudice to any rights of the coastal State under international law to impose its own requirements relating to the regulation, surveying and inspection of units engaged, or intending to engage, in the exploration or exploitation of the natural resources of those parts of the sea-bed and subsoil over which that State is entitled to exercise sovereign rights".

APPENDIX

Model form of Mobile Offshore Drilling Unit Safety Certificate (1989)

MOBILE OFFSHORE DRILLING UNIT SAFETY CERTIFICATE (1989)

(official seal)

(State)

Issued under the provision of the

IMO CODE FOR THE CONSTRUCTION AND EQUIPMENT OF MOBILE
OFFSHORE DRILLING UNITS, 1989,
as amended by resolution MSC ..(63)

under the authority of the Government of

.....
(full designation of the State)

by.....
(full official designation of the competent person or
organization authorized by the Administration)

Distinctive identification (name or number)	Type (1.3 of the Code)	Port of registry

Date on which keel was laid or unit was at
a similar stage of construction or on which
a major conversion was commenced

THIS IS TO CERTIFY:

1 That the above-mentioned unit has been duly surveyed in accordance with the applicable provisions of the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 1989.

2 That the survey showed that the structure, equipment, fittings, radio station arrangements and materials of the unit and the condition thereof are in all respects satisfactory and that the unit complies with the relevant provisions of the Code.

3 That the life-saving appliances are provided for a total number of ... persons and no more as follows:
.....

4 That, in accordance with 1.4 of the Code, the provisions of the Code are modified in respect of the unit in the following manner:
.....

5 That this unit has been issued with an approval for the continuous survey techniques under 1.6.4 of the Code in lieu of renewal and intermediate surveys in respect of:

Hull ☐

Machinery ☐

.....
signature and seal of approving
authority

.....
date of continuous survey
programme approval

Annual survey: Signed
 (Signature of authorized official)
 Place
 Date

W/1649n/EWP

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**Endorsement where the renewal survey has been completed and
1.6.11.4 of the Code applies**

This unit complies with the relevant requirements of the Code,
and this certificate should, in accordance with 1.6.11.4 of the
Code, be accepted as valid until

Signed

(Signature of authorized official)

Place

Date

(Seal or stamp of authority, as appropriate)

**Endorsement to extend the validity of the certificate until reaching
the port of survey where 1.6.11.5 of the Code applies**

This certificate should, in accordance with 1.6.11.5 of the Code,
be accepted until

Signed

(Signature of authorized official)

Place

Date

(Seal or stamp of authority, as appropriate)

**Endorsement for the advancement of the anniversary date where
1.6.11.7 of the Code applies**

In accordance with 1.6.11.7 of the Code, the new anniversary date
is

Signed

(Signature of authorized official)

Place

Date

(Seal or stamp of authority, as appropriate)

In accordance with 1.6.11.7 of the Code, the new anniversary date
is

Signed

(Signature of authorized official)

Place

Date

(Seal or stamp of authority, as appropriate)

ANNEX 2

AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT
OF MOBILE OFFSHORE DRILLING UNITS, 1989, TO INTRODUCE
REFERENCE TO GUIDELINES FOR VESSELS WITH
DYNAMIC POSITIONING SYSTEMS

Replace paragraph 4.12 Dynamic positioning systems as follows:

"Dynamic positioning systems used as a sole means of position keeping should provide a level of safety equivalent to that provided for anchoring arrangements*".

Add a new footnote as follows:

"*Reference is made to the Guidelines for Vessels with Dynamic Positioning Systems approved by the Maritime Safety Committee at its sixty-third session and disseminated by MSC/Circ.645"

The text of 5.1.2 should be replaced by the following:

"5.1.2 Administrations should take appropriate steps to ensure uniformity in the implementation and application of the provisions of these requirements in respect of electrical installations**".

The text of the related footnote should be replaced by the following:

"**Reference is made to the recommendations published by the International Electrotechnical Commission".

ANNEX 3

AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND EQUIPMENT
OF MOBILE OFFSHORE DRILLING UNITS, 1989, ON PROVISIONS
FOR HELICOPTER FACILITIES

The text of Chapter 13 - HELICOPTER FACILITIES should be replaced by the following:

"13.1 General

Each helicopter deck should be of sufficient size and located so as to provide a clear take-off and approach to enable the largest helicopter using the helideck to operate under the most severe conditions anticipated for helicopter operations.

13.2 Definitions

13.2.1 'Helideck' is a purpose-built helicopter landing platform located on a mobile offshore drilling unit (MODU).

13.2.2 'RD' means the main rotor diameter of the largest single rotor helicopter intended to use the facility.

13.2.3 'LD' means the largest dimension of the helicopter when the rotors are turning.

13.2.4 'Obstacle-free sector' is a sector formed by an arc originating at the reference point of the edge of a helideck and extending outward in the horizontal plane level with the elevation of the helideck.

13.2.5 'Limited obstacle sector' is a sector extending outward which is formed by that portion of the 360° arc, excluding the obstacle-free sector, the centre of which is the reference point from which the obstacle-free sector is determined. Obstacles within the limited obstacle sector are limited to specified heights.

13.3 Construction

13.3.1 The helideck should be of a design and construction, adequate for the intended service and for the appropriate prevailing climatic conditions, approved to the satisfaction of the Administration.

13.3.2 For adverse climates as determined by the coastal State, taking into account the type of helicopter used, the conditions of wind, turbulence, sea state, water temperature and icing conditions, the helideck should meet the following requirements with reference to ICAO Annex 14 Volume II (Heliports):

- .1 The helideck should be of sufficient size to contain an area within which can be drawn a circle of diameter not less than LD for single main rotor helicopters and not less than 0.9 LD for tandem main rotor helicopters.

- .2 Where the provisions of 13.3.2.1 cannot be met for helicopters having tandem main rotors, the helideck may be in the form of a rectangle with a small side not less than 0.75 LD and a long side not less than 0.9 LD, but within this rectangle, bidirectional landings only should be permitted in the direction of the 0.9 LD dimension. Where necessary for design purposes, any corners of the rectangle may be omitted, provided that neither of the two sides forming the right angle of the omitted triangle exceed 5 m in length.
- .3 The obstacle-free sector should be not less than 210°.
- .4 For single main rotor and side by side twin main rotor helicopters, within the 150° limited obstacle sector out to a distance of 0.62 LD, measured from the centre of the helideck, objects should not exceed a height of 0.05 LD above the helideck. Beyond that arc, out to an overall distance of 0.83 LD, the limited obstacle sector rises at a rate of one unit vertically for each two units horizontally (see figure 13-1).
- .5 For omnidirectional operations by tandem main rotor helicopters, within the 150° limited obstacle-free sector out to a distance of 0.62 LD, measured from the center of the helideck, no fixed obstacles should be allowed. Beyond that arc, out to an overall distance of 0.83 LD, the obstacle height is limited to 0.05 LD (see figure 13-2).
- .6 For bidirectional operations by tandem main rotor helicopters, within the 0.62 LD arc in the 150° limited obstacle-free sector, objects should not penetrate a level surface which has a height equivalent to 1.1 m above the helideck (see figure 13-3).
- .7 In the immediate vicinity of the helideck, over an area of at least 180° with the origin at the centre of the helideck, obstacles such as booms, derricks, sponsons, etc., should not protrude beyond a descending gradient having a ratio of one unit horizontal to five units vertically measured from the edge of the helideck downward.

13.3.3 For moderate climates as determined by the coastal State, taking into account the type of helicopter used, the conditions of wind, turbulence, sea state, water temperature and icing conditions, the helideck should meet the following requirements:

- .1 The helideck should be of sufficient size to contain a circle of diameter equal to RD. In the case of MODUs expected to be routinely serviced by tandem main rotor helicopters, the helideck should be of sufficient size to contain a circle of diameter equal to at least 0.75 LD.
- .2 The helicopter deck should have an obstacle-free sector of at least 180° free of obstructions. The reference point for this sector should be a point on the periphery of the circle referenced in paragraph 13.3.3.1, as shown in figure (13-4).

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- .3 The limited obstacle sector should extend out to a distance of 0.83 RD for general operating areas. This distance should be measured from the centre of the helicopter deck. Obstructions in the limited obstacle sector should not extend above a plane measured vertically from the edge of the deck with rise at a rate not exceeding one unit vertically for each two units horizontally from the edge of the helideck (see figure 13-4).

13.3.4 The helideck should have a skid resistant surface.

13.3.5 Where the helideck is constructed in the form of a grating, the underdeck should be such that the ground effect is maintained.

13.4 Arrangements

13.4.1 The helideck should be free of projections except that landing lights or other essential projections may be installed around the periphery of the deck provided they do not rise more than 0.15 m above the level of the deck.

13.4.2 The helideck should have recessed tie-down points for securing a helicopter.

13.4.3 The periphery of the helideck should be fitted with a safety net except where structural protection exists. The net should be inclined upward and outwards from below the edge of the helideck to a horizontal distance of 1.5 m and should not rise more than 0.15 m above the edge of the deck.

13.4.4 The helideck should have both a main and an emergency personnel access route located as far apart from each other as practicable.

13.4.5 Reference should be made to 9.11.1 concerning helideck drainage.

13.5 Visual Aids

13.5.1 A wind direction indicator should be located on the unit which, in so far as is practicable, indicates the actual wind conditions over the helideck. Units on which night helicopter operations take place should have provisions to illuminate the wind direction indicator.

13.5.2 The helideck should be marked as follows:

- .1 the perimeter with a continuous white line with a width of 0.3 m;
- .2 the unit's name should be provided on the helideck and be positioned on the obstacle side with characters not less than 1.2 m in height and in a colour contrasting with the background;
- .3 an aiming circle, concentric to the helideck, painted yellow with an inside diameter equal to 0.5 LD. The width of the line should be 1 m;
- .4 a white "H" centered on the landing area with the horizontal on the bisector of the obstacle-free sector. The "H" should be 3 m high, 1.8 m wide with 0.4 m wide lines; and

- .5 the helideck obstacle-free sector marking should indicate the origin of the obstacle-free sector, the direction of the limits of the sector and the design dimensions (the LD or RD value) of the helideck, as shown in figure 13-5.

13.5.3

- .1 The helideck should be fitted with omnidirectional yellow lights in order to enable the landing area to be easily identified at night. These lights should be uniformly positioned along the perimeter of the helideck and not more than 3 m apart. The administration may allow the substitution of red lights for yellow lights to indicate the position of cranes, and in the case of self-elevating units, legs.
- .2 Helideck floodlights, where fitted, should be located so as to avoid glare to pilots. The arrangements and aiming of floodlights should be such that helideck markings are illuminated and that shadows are kept to a minimum."

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**210° OBSTACLE-FREE SECTOR
for take-off and approach**

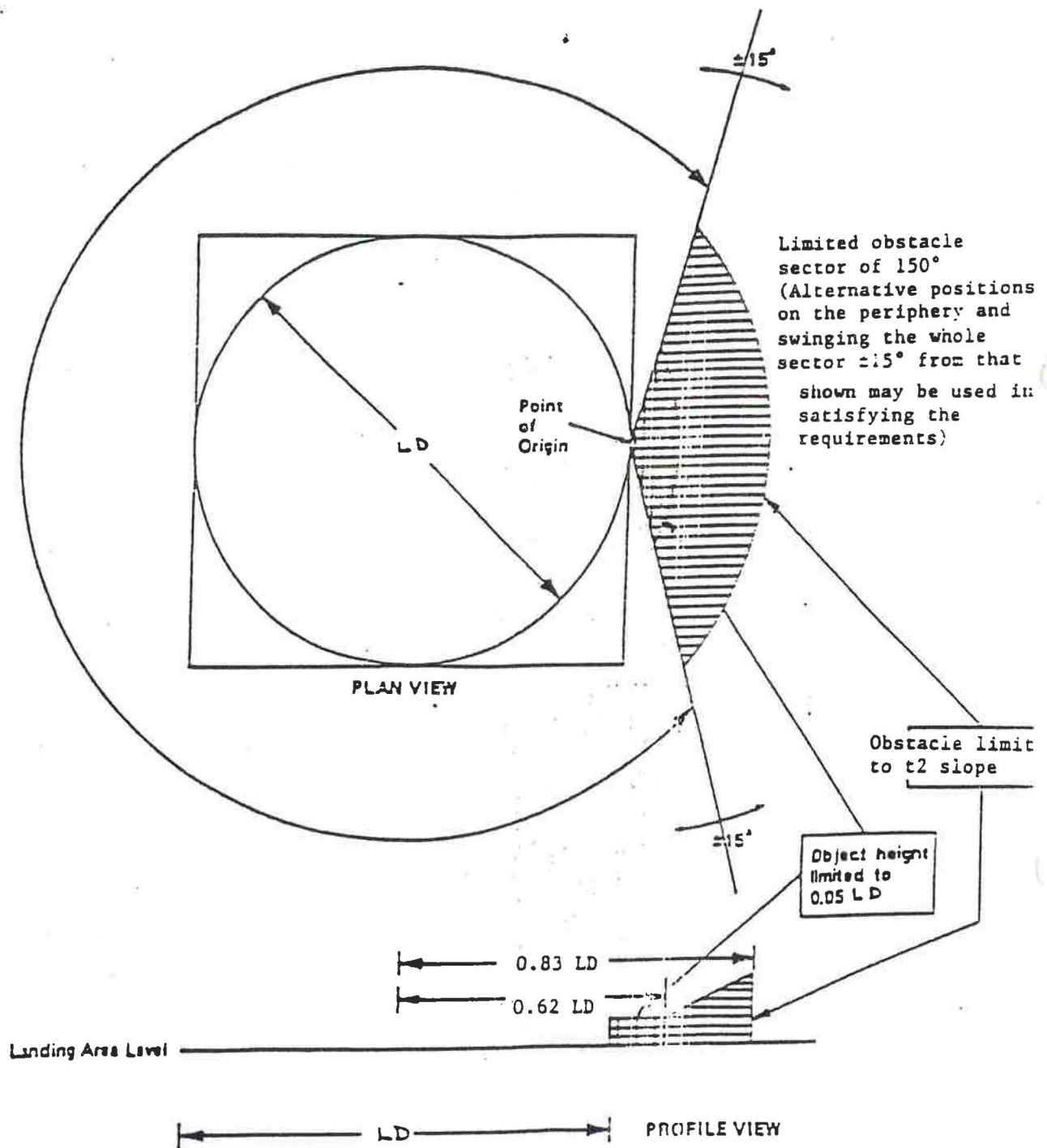


Figure 13-1 - Helideck obstacle limitation sector

Single main and side-by-side twin rotor helicopters in adverse climate

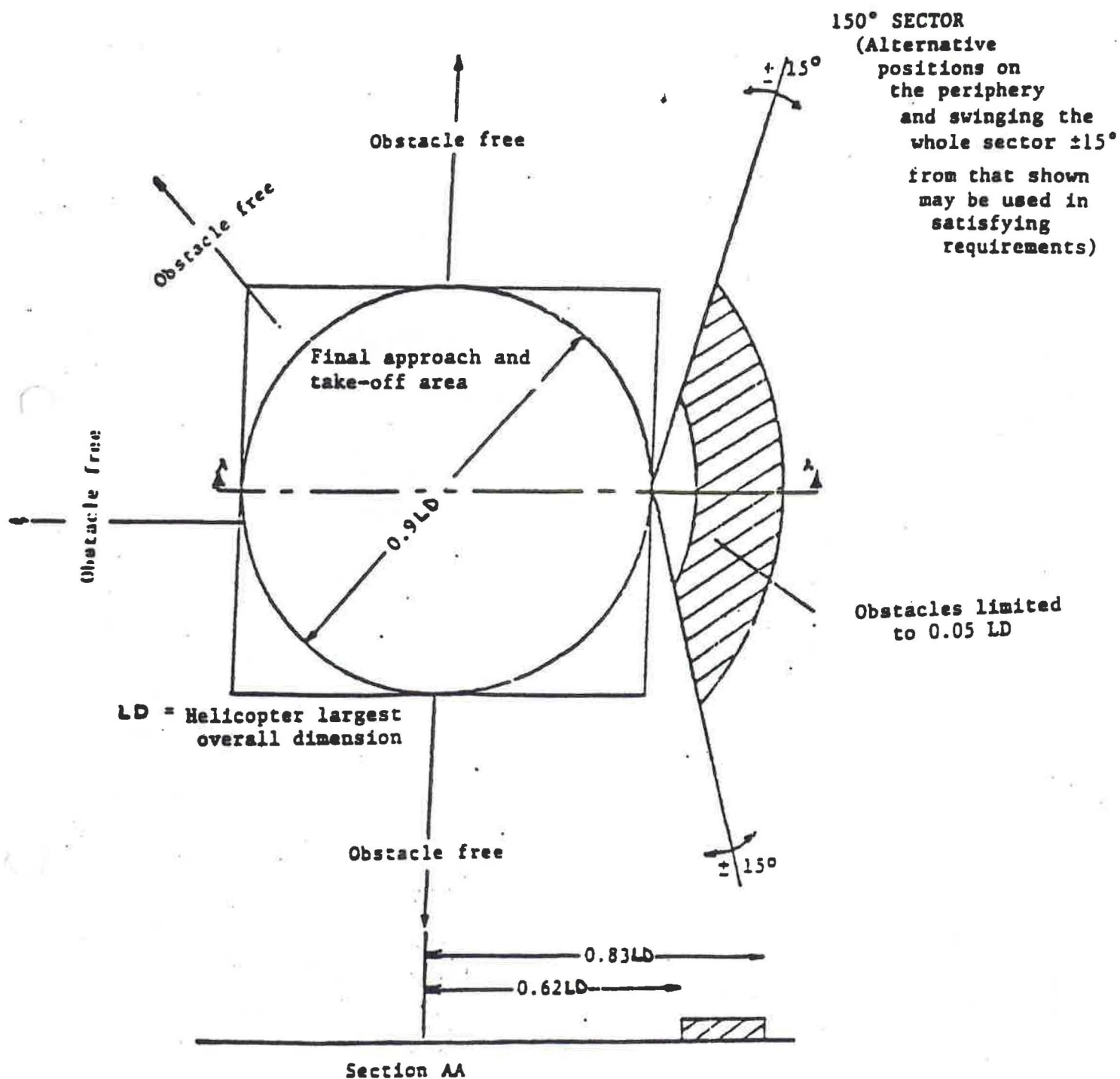


Figure 13-2 - Helideck obstacle limitation sector

Tandem main rotor helicopters - Omnidirectional
operations in adverse climate

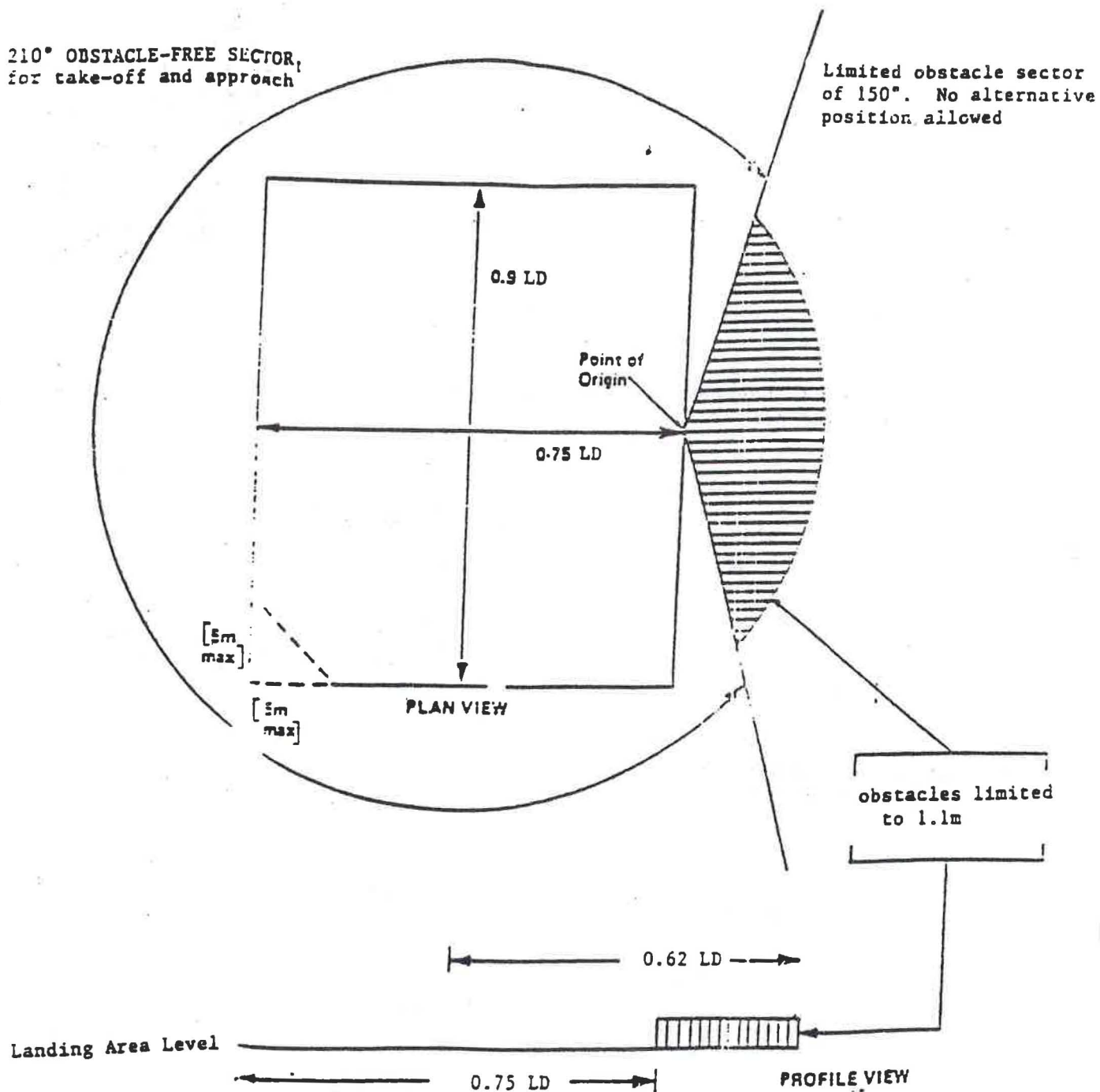


Figure 13-3 - Helideck obstacle limitation sector

Tandem main rotor helicopters, bidirectional
operations in adverse climate

180° OBSTACLE-FREE SECTOR
for take-off and approach

LIMITED OBSTACLE
SECTOR OF 180°

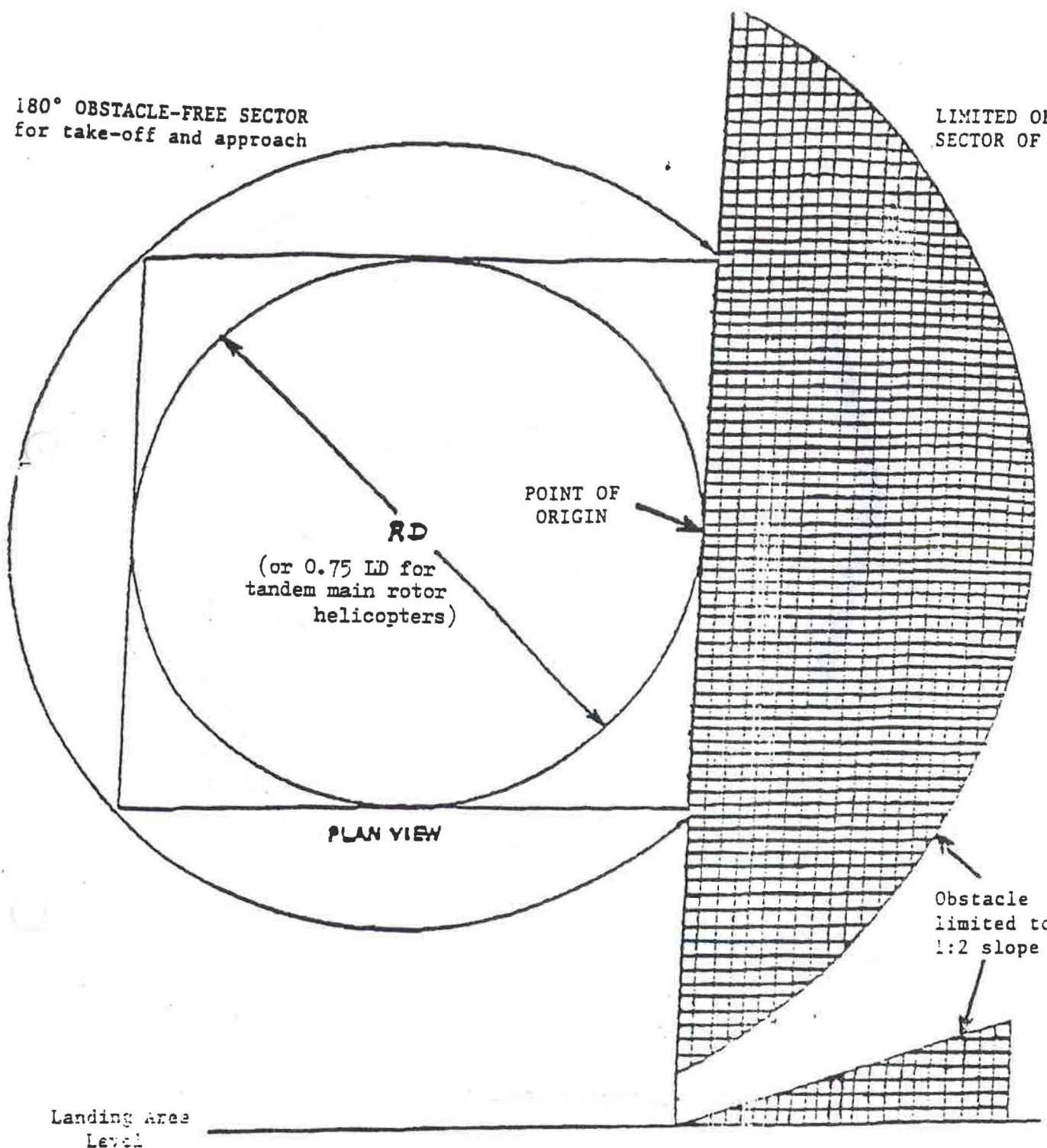


Figure 13-4 - Helideck obstacle limitation sector

180° for moderate climate

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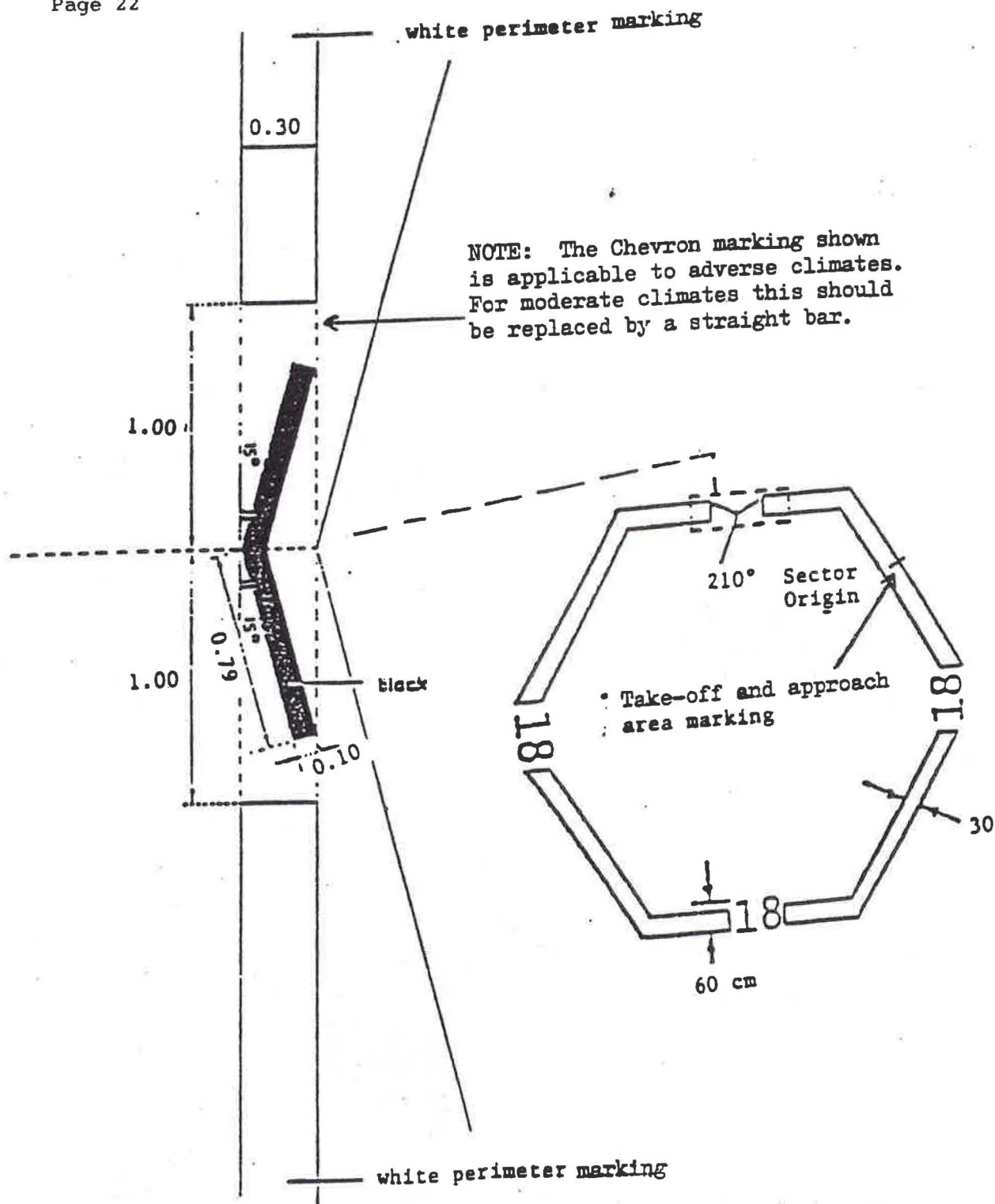


Figure 13-5 - Obstacle-free sector marking

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